REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
WORK PLAN

FOR

RONHILL CLEANERS SITE

WORK ASSIGNMENT NO. D003600-11
(SITE REGISTRY NO. 1-30-071)

PREPARED FOR

NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION

BY

DVIRKA AND BARTILUCCI CONSULTING ENGINEERS
WOODBURY, NEW YORK

APRIL 1999

REMEDIAL INVESTIGATION/FEASIBILITY STUDY
WORK PLAN
RONHILL CLEANERS SITE

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

List of Appendices

List of Figures

List of Tables

Section 1

1.0 INTRODUCTION

As part of New York State's program to investigate and remediate hazardous waste sites, the New York State Department of Environmental Conservation (NYSDEC) has entered into a contract with Dvirka and Bartilucci, Consulting Engineers (D&B) of Woodbury, New York to conduct a remedial investigation and feasibility study (RI/FS) for the RonHill Cleaners Site in the City of Glen Cove, Nassau County, New York. The RI/FS for this site is being performed with funds allocated under the New York State Superfund Program.

This document, entitled "Remedial Investigation/Feasibility Study Work Plan for the RonHill Cleaners Site," has been prepared in accordance with NYSDEC Technical and Administrative Guidance Memoranda and contains site-specific information for conducting an RI/FS for this site. Detailed field investigation, quality assurance and quality control (QA/QC), and health and safety procedures are provided in the Generic Work Plan for the Investigation and Remediation of Dry Cleaner Sites, prepared by D&B in February 1996.

This site-specific work plan provides information pertaining to the following:

- Summary of existing information;
- Scope of remedial investigation and feasibility study;
- Project management;
- Site-specific quality assurance and quality control plan;
- Site-specific health and safety plan;
- Project cost estimate (Schedule 2.11s).

Section 2

2.0 SUMMARY OF EXISTING INFORMATION

2.1 Site Location, Ownership and Access

The RonHill Cleaners Site is a former dry cleaner facility located at 71 Forest Avenue in the City of Glen Cove, Nassau County, New York (see Figure 2-1). The Site is currently owned by Bedford Affiliates and is currently operated as a retail shoe store. Dry cleaning activities began at the site in 1963 and continued under various tenant-operators until 1993. Bedford Affiliates has owned the property since August 27, 1952.

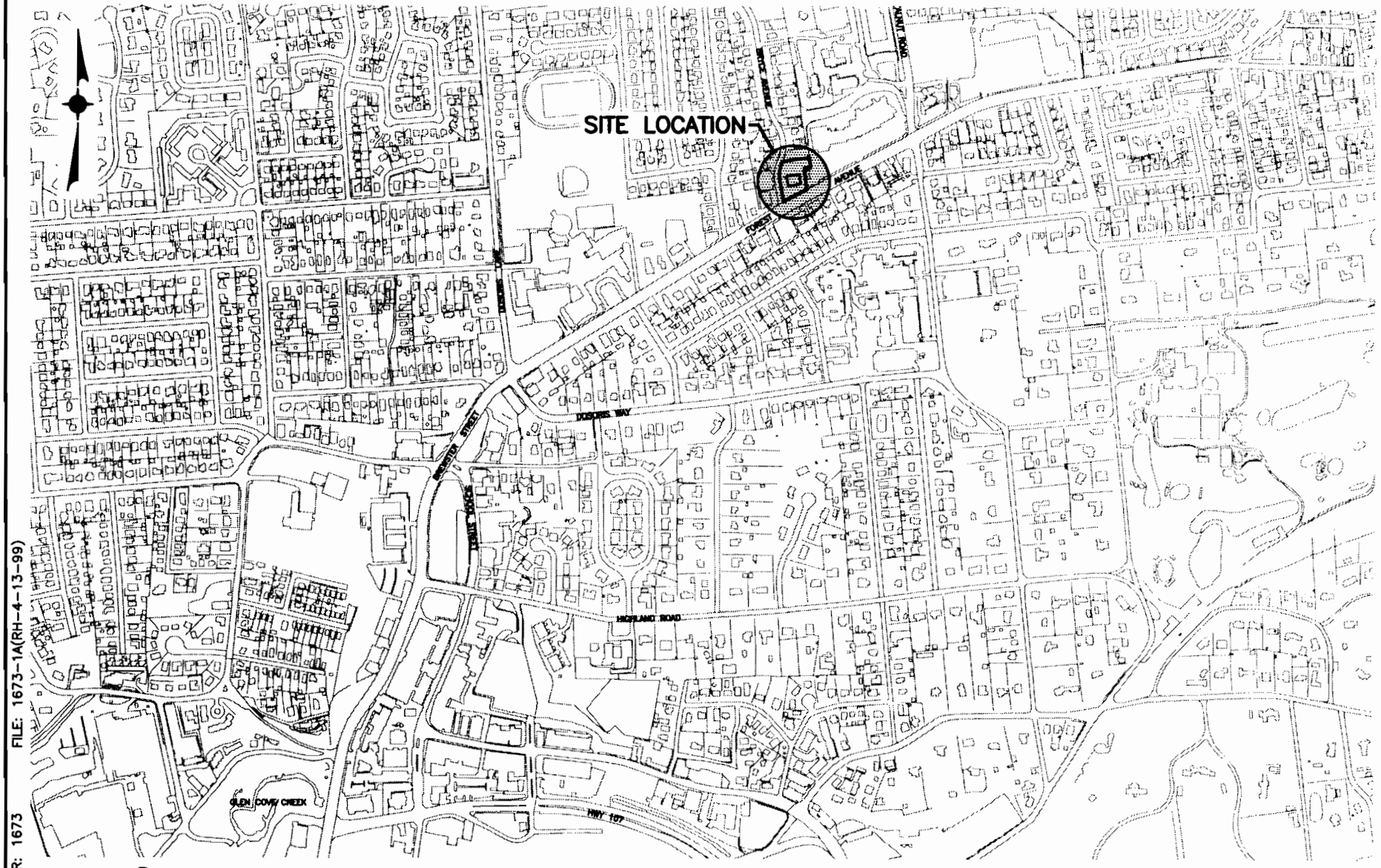
The site occupies the northeast corner of the intersection of Forest and Bryce Avenues. Primary access to the site is off of Forest Avenue. Secondary access is off of Bryce Avenue.

2.2 Site Description

The RonHill Cleaners Site is depicted on Figure 2-2 (which also illustrates locations of existing on-site monitoring wells and the on-site soil vapor extraction system). Land use in the vicinity of the site consists of residential, commercial and institutional land use. A photographic shop sits on the east-adjacent property. A grassy area extends northward from the site. A residential neighborhood begins just beyond (north of) the grassy area. The east-adjacent property is commercially developed. To the west are commercial and residential properties. Forest Avenue, a major surface route, borders the site to the south.

A single-story, concrete-block building occupies the central portion of the approximately 0.75-acre, roughly rectangular parcel that comprises the site. The approximately 70 feet long by 50 feet wide building sits on a concrete slab on grade. The building was constructed in 1963 as a drive-in cleaners. Prior to 1963, the site consisted of undeveloped land.

The site is relatively flat. It sits at an elevation of approximately 125 feet above mean sea level (msl) in a shallow topographic swale. The swale trends southwestward, toward Glen Cove Creek and is the local expression of a pronounced northeast/southwest trending lineament. In the



RONHILL CLEANERS SITE
CITY OF GLEN COVE

SITE LOCATION MAP

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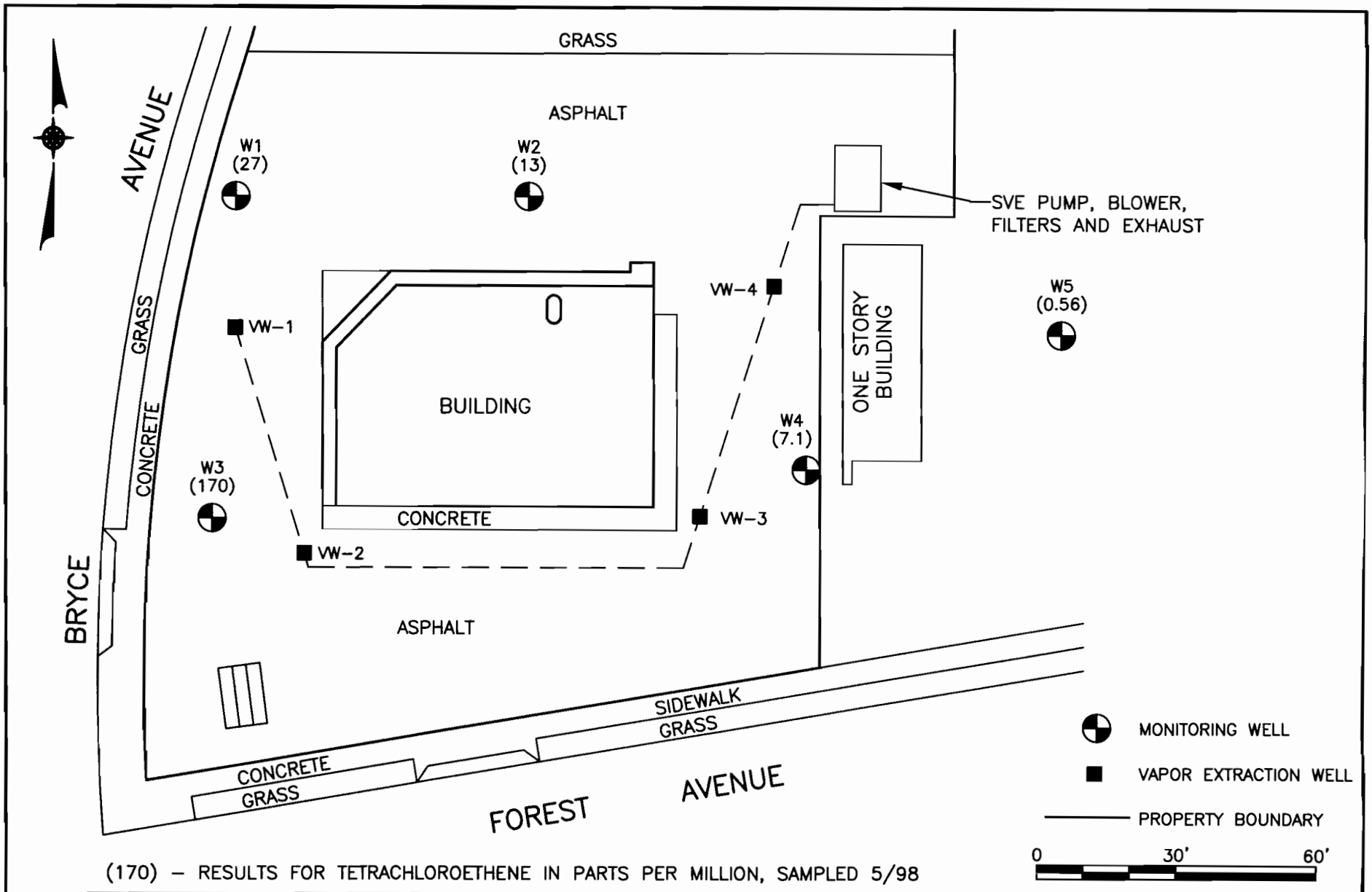
FIGURE 2-1



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RONHILL CLEANERS SITE
CITY OF GLEN COVE

SITE PLAN WITH EXISTING GROUNDWATER MONITORING WELLS AND PCE RESULTS, AND EXISTING VAPOR EXTRACTION WELLS

FIGURE 2-2

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vicinity of the site, Forest Avenue follows this swale. Slopes above the swale mark a drainage divide in the upper reaches of the Glen Cove Creek watershed. The RonHill Cleaners Site is approximately 5,000 feet northeast of Glen Cove Creek's headwaters. Before emptying into Hempstead Harbor, Glen Cove Creek flows for roughly 4,500 feet through a modified, southwest-trending channel. The swale at and near the site appears to be a natural feature associated with drainage into Glen Cove Creek.

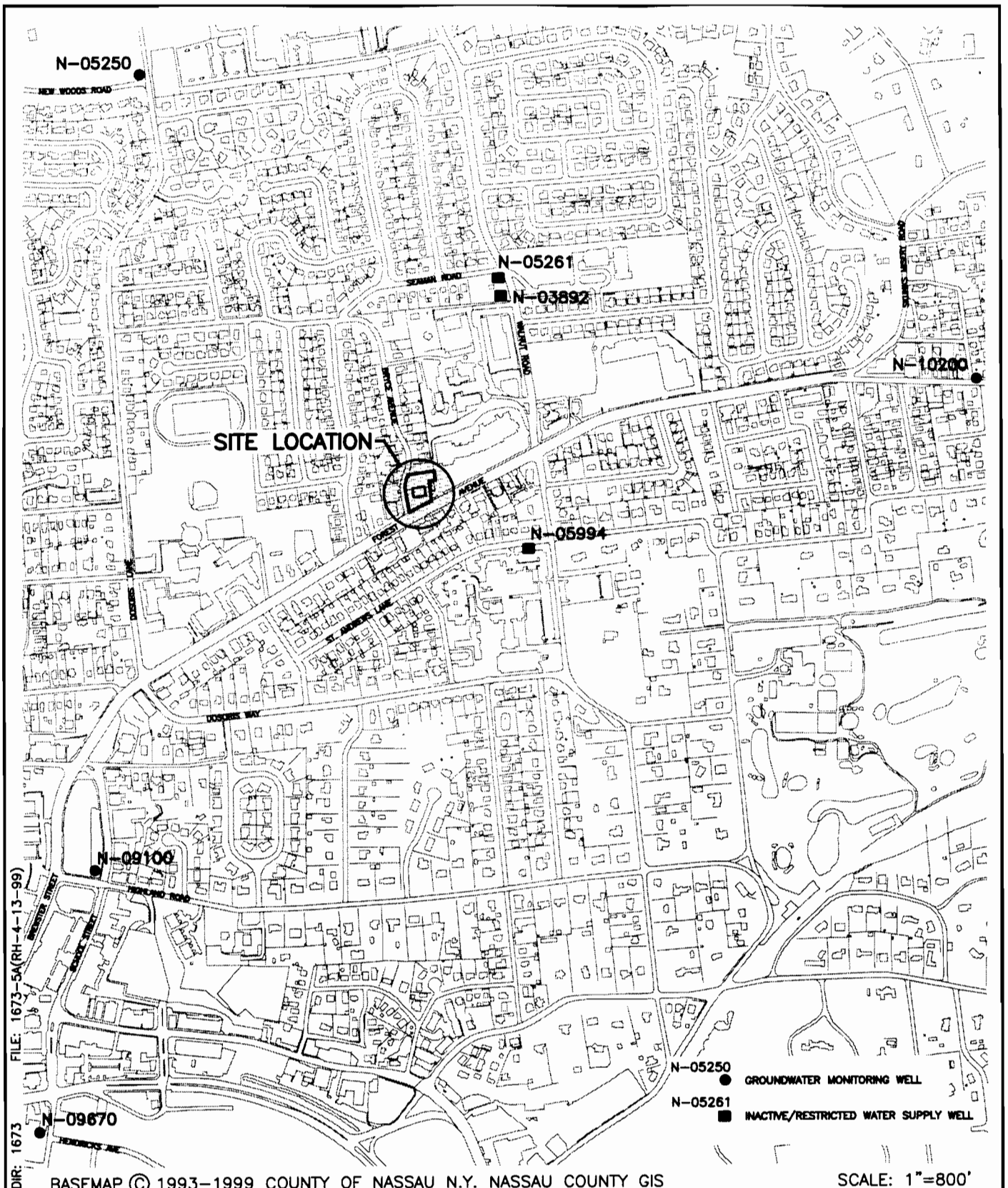
The site receives public water supply from the City of Glen Cove. Wastewater is discharged into the City of Glen Cove's sanitary sewer system.

2.3 Site History

The RonHill Cleaners Site was developed as a drive in cleaners in 1963. Various tenants operated dry cleaners at the site for 30 years. Tetrachloroethene (PCE), which is used as a dry cleaning solvent, was first detected in nearby municipal water supply wells in 1977. PCE has also been detected in nearby monitoring wells maintained by Nassau County Department of Public Works. Figure 2-3 illustrates off-site well locations. During the past decade, numerous investigations have examined soil and groundwater contamination at the RonHill Cleaners Site. Figure 2-2 shows recent PCE levels in on-site monitoring wells. Figure 2-4 shows historic, on-site soil sample locations and PCE results.

2.3.1 PCE Detected in Seaman Road Wells - 1977

During the 1970s, PCE was detected in two public water supply wells at the nearby Seaman Road well field (N-05261 and N-03892). Elevated levels of PCE caused these wells to be shut down in 1978. Both of these wells drew water from the Upper Glacial aquifer. Well N-05261 is 230 feet deep and N-03892 is 246 feet deep. The ensuing Nassau County Health Department investigation determined that RonHill Cleaners was the only significant user of PCE in the area and named the cleaners as the probable source of PCE contamination in the wells.



RONHILL CLEANERS SITE
CITY OF GLEN COVE

EXISTING OFF-SITE WELL LOCATIONS

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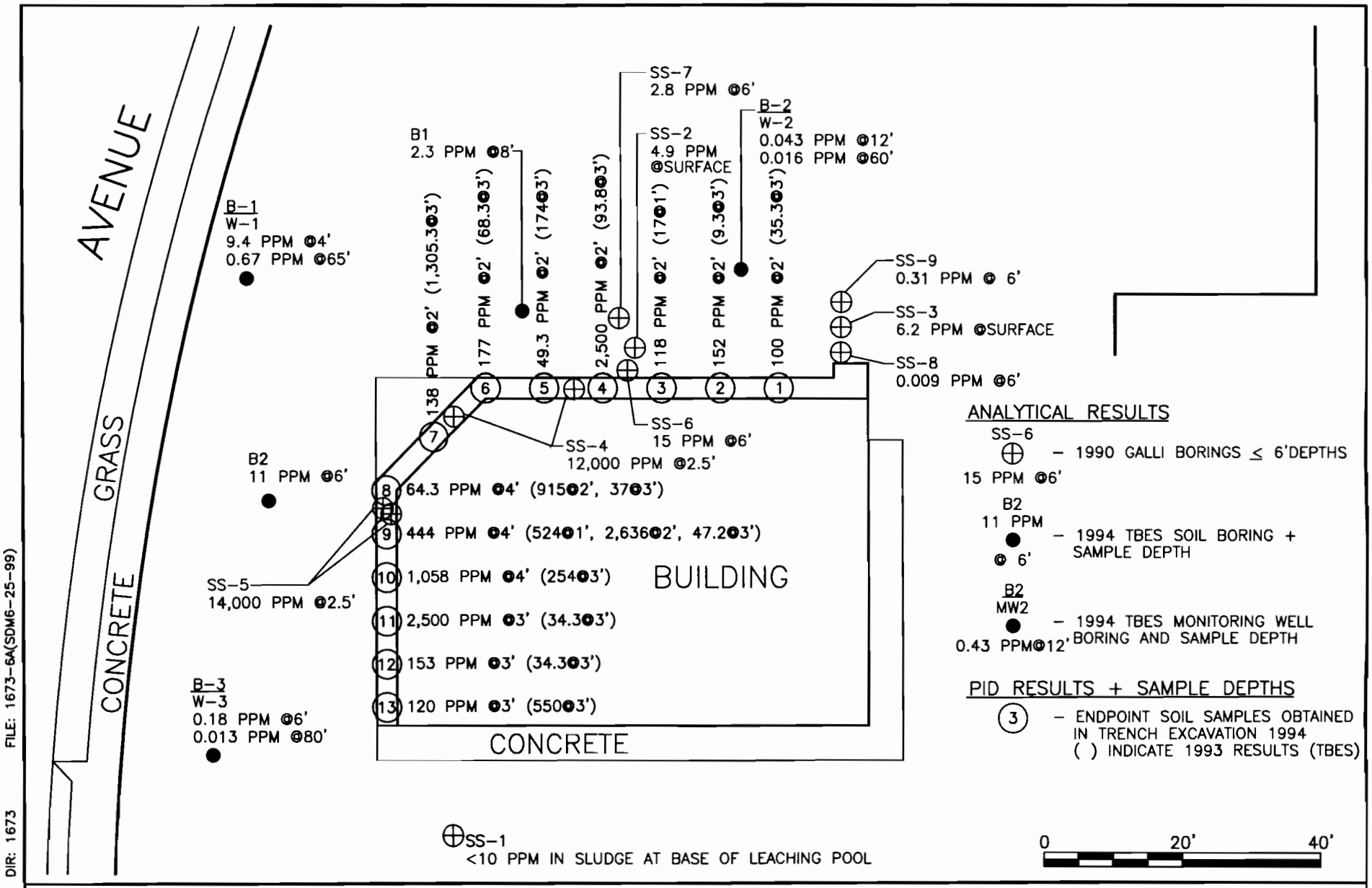
FIGURE 2-3



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RONHILL CLEANERS SITE
CITY OF GLEN COVE

HISTORIC SOIL SAMPLE LOCATIONS AND PCE RESULTS

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FIGURE 2-4

2.3.2 Environmental Assessment - 1990

In 1990, Bedford Affiliates, the site owner, contracted with Richard D. Galli to perform an environmental site assessment in order to "determine if soil quality within the subject site has been affected by ... contaminant discharge" (Galli 1990). Galli collected shallow soil samples at five locations, including outside the building's north and west walls, and inside an indoor trench along the north and west sides of the building. Laboratory analyses indicated high levels of PCE (up to 14,000 ppm), particularly from soil sampled within the trench near the building's northwest corner. Toluene, used in spot-removal, was also detected.

2.3.3 Environmental Investigation - 1990

An environmental investigation performed by Galli (also in 1990) detected moderate to high levels of PCE at a depth of 6 feet in borings hand-augured outside and just north of the building. Laboratory analysis reported 15 ppm PCE in soil sampled at a depth of 6 feet below grade, just below a window in the north wall of the dry cleaning building. During this investigation, Galli sampled soil at four locations north of the building.

2.3.4 Remedial Action - 1993: Excavation

In 1993, Bedford Affiliates retained Tyree Brothers Environmental Services, Inc. (TBES) to perform a remedial action focused on excavating soil from within the trench/suspected source area. This action was conducted independently of NYSDEC requirements. During the excavation, the concrete floor of the building was cut roughly 5 feet from the edge of the building and contaminated soil was excavated to a depth of approximately 4 feet below floor grade (TBES, PSA of RonHill Cleaners, 1995, page 12). A photoionization detector (PID) was used to screen soil samples for volatile organic chemical (VOC) vapors during and after the excavation. PID readings for soil on the floor and sidewalls of the excavation ranged from 49.3 ppm to 2,500 ppm (Ibid.). Due to safety reasons, additional excavation could not be performed without shoring, and clean, endpoint samples were not obtained. The excavation was lined with 4-mil polyethylene sheeting and backfilled. A new concrete floor was poured over the

clean fill. Approximately 36 tons of excavated soil were stockpiled on site and later transported off-site as a hazardous waste.

2.3.5 Preliminary Site Assessment (PSA) - 1993 to 1995

Also in 1993, Bedford Affiliates entered into an Order on Consent with the NYSDEC to perform a preliminary site assessment (PSA). Bedford Affiliates then initiated legal action against previous tenants in order to determine their liability for contamination at the site. Bedford Affiliates retained TBES to perform the PSA.

As part of the PSA, TBES drilled five soil borings and collected continuous split spoon soil samples to a depth of 20 feet. Soil samples were field screened for VOCs with a PID. Two soil samples were selected for laboratory analysis from each boring; these included the deepest sample and the sample with the highest PID reading.

Laboratory analysis of selected samples in the 20-foot deep borings indicated highest PCE contamination in the shallow subsurface soil at depths of between 4 and 8 feet. Boring 2, located somewhat south and west of the building's northwest corner, exhibited the highest PCE concentration: 11 ppm from a sample obtained between 4 and 6 feet below grade.

Three of the borings were extended to depths of approximately 90 feet and were later utilized for monitoring wells. Split spoon soil samples were collected at 5-foot intervals between depths of 20 and 80 feet (the water table was encountered at a depth of approximately 79 feet). Soil samples were field screened for VOCs with a PID. The sample with the highest PID reading in each boring was selected for laboratory analysis.

Analytical results for PCE in the three deep borings were 0.67 ppm for soil collected at a depth of 64 to 66 feet in B-1/W-1, 0.016 ppm for soil collected from B-2/W-2 from a depth of 59 to 61 feet and 0.013 ppm for soil sampled in B-3/W-3 from a depth of 79 to 81 feet.

Field measurements of VOC concentrations in the upper 20 feet indicated the highest VOC concentrations within the upper 2 to 8 feet of the surface, except in B-2/W-2 where field screening results were greatest at a depth of 10 to 12 feet. Concentrations detected in the field ranged between 0 ppm and 59.1 ppm for soil sampled within 20 feet of the ground surface. Field measurements of VOC concentrations in the deep borings were also significantly higher than analytical samples and measured 212 ppm in W-1 (65 feet), 30.3 ppm in W-2 (60 feet) and 70.8 ppm in W-3 (80 feet) (TBES, 1995: *Preliminary Site Assessment for Ron Hill Cleaners*, pp. 15, 16, and boring logs). Field screening results for all the borings revealed 2 zones of high VOC contamination. Highest VOC contamination occurred within 12 feet of the surface and within 20 feet of the water table.

In addition to the three monitoring wells installed in the soil borings, a fourth monitoring well, W-4, was installed east of the dry cleaning building at a location believed to be upgradient of local groundwater flow. Soil samples were not collected from the boring for well W-4. Groundwater samples from the four monitoring wells were laboratory analyzed for VOCs and found to have PCE concentrations ranging from 81 ppm (well W-3) to 6.8 ppm (well W-1). The upgradient well (W-4) exhibited a PCE concentration of 8.8 ppm. In addition to PCE, the TBES investigation reported that site soil and groundwater contaminants included trichloroethene (TCE), 1,2-dichloroethene (DCE), chlorobenzene, acetone and xylenes (*Ibid.* page 20)

2.3.6 Remedial Action - 1996-1995: Soil Vapor Extraction System

Bedford Affiliates entered into a second Order on Consent to perform an interim remedial action (IRM) consisting of installing an on-site soil vapor extraction (SVE) system. The SVE system consists of four vapor extraction wells, an electrical generator, a vacuum blower, moisture separator, in-line filter, two vapor phase granulated activated carbon adsorbers operating in series, a blower shed and a fence around a 10' X 14' X 6" concrete pad on which the equipment sits. Each of the adsorbers contains 2,000 pounds of carbon. The 4-inch diameter vapor extraction wells were installed at depths of 80 feet, 67 feet, 20 feet and 15 feet. The system has been operating intermittently at the site since August 1996. It was not operating during a site

visit by D&B, NYSDEC, New York State Department of Health (NYSDOH), and New York State Attorney General Office personnel in March 1999.

2.3.7 Supplemental Investigation - 1998

At the request of one of the site tenant's counsel, Roux Associates performed a Supplemental Investigation, which was completed July, 1998. As part of this investigation, an additional water-table well (W-5) was installed, upgradient of the site, east of the neighboring photo shop. All on-site monitoring wells were sampled for PCE. Groundwater sampled from monitoring well W-3 was found to contain 170 ppm (greater than the solubility limit) of PCE. The upgradient well W-5 exhibited 0.56 ppm PCE.

2.3.8 Current RI/FS Investigation - 1999

At the request of NYSDEC, D&B will be conducting a remedial investigation/feasibility study at the site. The RI/FS is being performed in order to determine the nature and extent of PCE contamination, assess the exposure potential for human and environmental receptors and develop a remedial action plan for the site. The remainder of this work plan describes the investigative methods, sampling methods, quality assurance and safety controls, project management, risk assessment methods and costs associated with conducting the RI/FS.

Section 3

3.0 SCOPE OF REMEDIAL INVESTIGATION/FEASIBILITY STUDY

The approach to conducting a RI/FS at dry cleaner sites is to perform a focused field investigation and feasibility study, with emphasis on source investigation and remediation. The remedial investigation will also focus on the determination of the extent of contamination, in particular as it relates to groundwater, and the selection of a remediation plan/interim remediation measure (IRM), if necessary. Presumptive Remedies appropriate for dry cleaner sites will be addressed as part of the Remedial Investigation Report IRM selection. The objective of this investigation is to collect sufficient data with which to evaluate potential IRMs or other remedial actions. While the emphasis is on an accelerated investigation and selection of a remedial action, the work plan is structured to be in conformance with the Comprehensive Emergency Response, Compensation and Liability Act (CERCLA), Federal Superfund Amendments and Reauthorization Act (SARA), the National Contingency Plan (NCP) and the New York State Superfund Program.

3.1 Objectives and Approach

The objective of the RonHill Cleaners remedial investigation is to identify the source(s) and extent of air, soil and groundwater contamination, define the pathways of contaminant migration, determine potential receptors and evaluate the need for corrective measures.

The field investigation described below has been developed to allow for a comprehensive investigation of the RonHill Cleaners Site. However, the field investigation will be conducted in a sequenced approach, and therefore, may be modified based on information obtained during the initial investigation activities.

Initially, the investigation will focus on location and definition of the source and migration pathways for PCE, which is the primary solvent used in dry cleaning, and its derivative compounds. Field activities associated with the initial phase of the remedial investigation will include: background information search and existing facilities inspection; inventory of existing water supply and monitoring wells; review of pre- and post site

development aerial photographs to identify historic site structures, land use practices and possible waste disposal locations, as well as geomorphic features, drainage, moisture, soil and vegetation patterns before and since site development; fracture trace analysis focused on identifying linear structural features possibly associated with potential contaminant migration pathways; a geophysical survey to identify buried tanks, drywells, pipes and utilities; and a soil vapor survey combined with surface and shallow sub-surface soil sampling to identify PCE contaminant source areas.

Once the source area and potential routes of contaminant migration, including geology, geomorphology and hydrogeology have been delineated, the second phase of the investigation will be implemented. This will include screening of groundwater using direct push and Hydropunch sampling techniques, and profiling the deeper sub-surface stratigraphy through soil sampling and geological logging of soil borings. Soil borings will be drilled on- and off-site. Borings will be converted to groundwater monitoring wells. Gamma logging will be performed in boreholes and/or monitoring wells in order to identify possible clay layers or lenses at and near the site. Activities performed during the second phase of the remedial investigation will provide information regarding the direction and extent of contaminant migration, and will provide the basis for characterizing the site with respect to future remedial activities.

The following section provides a detailed description of the field investigation for the RonHill Cleaners Site. Modifications to this work plan based on the initial phase of the investigation will be provided to NYSDEC for approval prior to implementation.

3.2 Field Investigation

The field investigation for the RonHill Cleaners Site will include the following tasks:

- Background information search and facilities inspection;
- Inventory of existing public and private water supply wells and monitoring wells at and in the vicinity of the site;
- Aerial photograph review;

- Fracture trace analysis;
- On-site geophysical survey (magnetometer and ground penetrating radar);
- Soil vapor survey;
- Air sampling;
- Surface soil sampling;
- Geoprobe shallow soil sampling;
- Geoprobe on-site deep soil sampling;
- Geoprobe groundwater sampling;
- Sub-surface soils screening and logging;
- Hydropunch groundwater screening;
- Monitoring well installation;
- Monitoring well sampling;
- Gamma logging; and
- Surveying and mapping.

A summary of the remedial investigation program is provided in Table 3-1. The sampling locations are provided on Figures 3-1 and 3-2. A summary of the sampling program is provided in Table 3-2. Table 3-3 summarizes investigative research and mapping activities. As discussed in the Generic Work Plan, because PCE, a volatile organic compound, is the primary contaminant of concern, all samples provided to the laboratory will be analyzed for Target Compound List (TCL) volatile organic compounds (VOCs). This analysis will also identify any breakdown products of PCE, including trichloroethene (TCE), dichloroethene (DCE) and vinyl chloride. Select groundwater samples will also be analyzed for iron and manganese to evaluate potential groundwater treatment processes. Further descriptions of sampling procedures, decontamination procedures and monitoring well installation procedures are provided in the draft Generic Work Plan dated February 1996.

Table 3-1

RONHILL CLEANERS SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
REMEDIAL INVESTIGATION SUMMARY

	Program Element	Description
1.	Background Information Search	Building plans and "as built" plans for existing and historic on-site facilities will be obtained, where available, from the City of Glen Cove. Locations of on-site utility trenches and excavations will be determined through querying appropriate agencies and utilities (City of Glen Cove, KeySpan, LIPA). Other spills/ investigations in the area will be researched at the Nassau County Department of Health (NCDH) and at the NYSDEC Regional Office. Relevant geological maps and literature will be researched.
2.	Facility Inspection	The building and surrounding area will be inspected to identify, if any, floor drains, waste pipes, storm water drains, etc., which may have received wastewater discharges from the dry cleaning operations. The results of this inspection will be used to select the locations of soil vapor and soil-sampling surveys as discussed below.
3.	Existing Well Survey	Based on information provided by the City of Glen Cove, NCHD and NYSDEC, public and private water supply wells within a one-mile radius of the site will be identified and inventoried to evaluate their possible influences on groundwater flow patterns near the site. Available and pertinent boring/geologic logs, groundwater quality data and pumpage records will be compiled and evaluated for use in the RI. Existing monitoring wells installed as part of NYSDEC's spill program at neighboring sites will also be inventoried and evaluated. Well locations, geologic logs, well construction details, water-level elevations and groundwater quality data will be used in the evaluation.
4.	Existing Well Sampling	Existing wells will be sampled during two rounds of sampling. This will coincide with sampling from new monitoring wells, as described below. Analytical results obtained during this investigation will be compared with previous sampling results for existing wells.

Table 3-1 (continued)

RONHILL CLEANERS SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
REMEDIAL INVESTIGATION SUMMARY

	Program Element	Description
5.	Review of Aerial Photographs	Historical aerial photographs for the site will be obtained and/or reviewed with the objective of identifying relevant geomorphic features, drainage, vegetation and soil patterns, as well as previous land use practices. This will aid in identifying locations where waste may have been disposed and will provide a geomorphological overview for identifying on- and off-site drainage conditions and potential contaminant migration pathways.
6.	Fracture Trace Analysis	Fracture trace analysis will be performed to identify linear structural features possibly associated with buried channels and potential contaminant migration pathways.
7.	Geophysical Survey: Ground Penetrating Radar/Magnetometer Site Reconnaissance	A preliminary magnetic locator traverse has suggested the presence of buried metallic objects at the RonHill Cleaners Site. Magnetometer and ground penetrating radar (GPR) surveys will be combined in order to locate and map shallow buried objects, such as dry wells, tanks and pipes. Using both technologies will provide complimentary data that will help offset signal interference associated with urban sites. The geophysical survey area will include the asphalt-covered parking/ driveway areas surrounding the on-site building. The site will be cleared of vehicles and roped off during the day of the survey.
8.	Gamma Logging Existing Vapor Extraction Wells and/or Existing Monitoring Wells	A portable, MGX digital logging unit with a gamma probe capable of fitting inside a 2-inch casing will be lowered into each existing well on-site. The data recorder interfaces with a notebook computer and portable printer to provide a continuous display of log traces and a simultaneous, real-time plot print. Two logs will be run for each well/boring; one run will occur as the gamma probe is lowered and the other as it is raised. Gamma logging data will be utilized to help establish subsurface stratigraphy, particularly with respect to clay layers.

Table 3-1 (continued)

RONHILL CLEANERS SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
REMEDIAL INVESTIGATION SUMMARY

	Program Element	Description
9.	Create Site Base Map	Data obtained through the investigative elements outlined above, along with identified site features, will be incorporated onto a site base map developed from the Nassau County GIS map.
10.	Air Sampling	A total of five Summa canisters with 2-hour flow valves will be deployed in four locations in order to sample air for VOCs, as per New York State Department of Health (NYSDOH). Two canisters will sample air quality in the indoor breathing zones in the front and rear portions of the on-site building. Two canisters will be positioned out of doors near the existing SVE system exhaust. One canister will be deployed out of doors in a neutral location in order to measure background air quality.
11.	Air Monitoring	Air monitoring will be conducted during all field activities using a Miniram Aerosol Monitor and a photoionization detector (PID). Air monitoring will be performed in accordance with appropriate NYSDEC and NYSDOH guidance documents.
12.	Soil Vapor Survey	A soil vapor survey will be conducted along the western perimeter of the site in order to determine whether VOC vapors are migrating off site in the direction of downgradient residences. Two soil vapor samples will be collected from the grassy median between the sidewalk and Bryce Avenue and will sample soil gas to a depth of 4 feet. The sampling points are depicted on Figure 3-1. Soil vapor samples will be collected utilizing a stainless steel Geoprobe-driven tube with removable inner rod using vacuum to purge and extract soil vapor. Soil vapors will be field screened with a PID.

Table 3-1 (continued)

RONHILL CLEANERS SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
REMEDIAL INVESTIGATION SUMMARY

	Program Element	Description
13.	Surface Soil Sampling	Two grab soil samples will be collected from within the upper 2 inches of the ground surface and analyzed for VOCs. One sample will be obtained from the grassy area north of the site building and the other will be collected from the grassy median west of the building, unless other areas are determined to be more appropriate based on a greater likelihood of human exposure.
14.	Geoprobe Shallow Soil Screening	Twenty-four shallow Geoprobe screening points will collect soil to a depth of 8 feet. Screening points will be arranged on 20-foot centers to form a grid extending northward from the site building's north wall and eastward from the building's east wall. One row of Geoprobe soil screening points will be placed adjacent to the site building's western wall. Two 4-foot soil cores will be collected in each shallow boring and field screened in the sleeve with a PID. Soil will be collected in two or three jars (depending on contamination detected through sleeve screening) and will be field screened for VOCs by headspace analysis using a PID.
15.	Geoprobe Shallow Soil Sampling	Ten Geoprobe sampling points will sample soil to a depth of 8 feet beneath and/or immediately adjacent to the building at the site. Samples will be field screened for VOCs with a PID and laboratory analyzed (Method 95-1) for VOCs. The sample locations will be determined from the results of the shallow Geoprobe soil screening (element 14). If high levels of VOCs are detected immediately adjacent to the site building, some borings may be angled in order to sample soil beneath the building.

Table 3-1 (continued)

RONHILL CLEANERS SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
REMEDIAL INVESTIGATION SUMMARY

	Program Element	**Description**
16.	Geoprobe Deep Soil Sampling	Four deep, on-site Geoprobe borings will sample the soil continuously to the water table. One of these borings will be located south of monitoring well W-3. The others will be positioned adjacent to shallow Geoprobe soil borings that exhibit high VOC levels. Four samples will be collected for VOC analysis (Method 95-1) in the vadose zone in each boring, based on the results of continuous PID screening. A saturated soil sample will be collected at each Geoprobe deep soil sampling location from just below the water table. The sample will be field screened for VOCs with a PID and sent for laboratory analysis (Method 95-1).
17.	Geoprobe Groundwater Sampling	Up to 24 groundwater samples will be collected at 12 locations using a Geoprobe grab sampler. Up to two samples will be obtained at each location, one from the water table (approximately 80 feet below grade) and, if technically possible, one from a depth of approximately 110 feet below grade. Samples will be laboratory analyzed for VOCs with a 24-hour turnaround time for preliminary results. The Geoprobe groundwater sampling grid will consist of three rows of four sampling points, spaced to transect the somewhat meandering course of the Forest Avenue swale. Additionally, a Geoprobe grab sampler will collect groundwater at the water table in each Geoprobe deep soil sampling location. Water-table water samples will be laboratory analyzed for VOCs by Method 95-1. Hydropunch sampling (in conjunction with hollow stem auger drilling) may be used, access permitting, if subsurface conditions do not allow the use of Geoprobe technology at depth.

Table 3-1 (continued)

RONHILL CLEANERS SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
REMEDIAL INVESTIGATION SUMMARY

Program Element	Description
18. Soil Borings (7, six of which will become monitoring wells, as discussed below)	A total of 7 soil borings will be drilled on- and off-site. Six soil borings will reach depths of approximately 150 feet where they ideally will terminate in a low permeability unit. One soil boring will extend to approximately 225 to 250 feet. Split spoon samples will be collected from each boring at 10-foot intervals. In one downgradient off-site boring (for monitoring well MW-9D) continuous split spoon samples will be collected from the water table to the base of the boring, in order to provide off-site correlation between formation sampling and gamma logging. Samples will be field screened for VOCs with a PID. Ten soil samples will be laboratory analyzed for VOCs (Method 95-1). These will be selected based on high VOC field screening results. At least two samples selected for laboratory analyses will be collected from samples exhibiting "clean" and/or low to moderate VOC contaminant levels (as determined through PID screening) in order to better correlate field screening results with laboratory analytical results. The 150-foot deep soil borings will become monitoring wells, as discussed below, in program element 20. One approximately 150-foot deep soil boring will be drilled on-site adjacent to existing monitoring well W-3. Three approximately 150-foot deep soil borings will be drilled along the axis of the contaminant plume (as identified through Geoprobe groundwater screening) downgradient from the site. One approximately 150-foot deep soil boring will be located up-gradient (east) of the site.

Table 3-1 (continued)

RONHILL CLEANERS SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
REMEDIAL INVESTIGATION SUMMARY

Program Element	Description
18. Soil Borings (7, six of which will become monitoring wells, as discussed below) (continued)	One approximately 150-foot deep soil boring will be located north of the site, roughly mid-way between the site and the Seaman Road public supply wells. One 225 to 250-foot deep soil boring will be drilled south of the site in order to characterize deposits within the Magothy aquifer. This boring will be sealed with grout after sampling. Subsurface materials will be geologically logged and field screened for VOCs (using a PID). Ten soil samples will be collected for laboratory VOC analysis, based on field screening results. Borings will be drilled with hollow stem augers. However, if difficult drilling conditions warrant, mud rotary drilling will be used in the deeper lengths of the borings. If mud is used, the consistency of the mud should be as thin as practical in the anticipated screen zones of monitoring well borings.
19. Hydropunch Groundwater Screening in Soil Borings	Groundwater samples will be collected for laboratory analysis with 24-hour turnaround for VOCs in the seven soil borings, beginning just below the water table and at 20-foot increments to a depth of approximately 150 feet.
20. Monitoring Well Installation and Development	Thirteen groundwater monitoring wells will be installed at seven locations at and near the site. Wells will be constructed of 2-inch diameter, schedule 40 PVC riser. Deep monitoring wells will terminate in a 10-foot length of 10-slot, 2-inch diameter, schedule 40 PVC screen. Water table monitoring wells will terminate in a 15-foot length of 10-slot, 2-inch diameter schedule 40 PVC screen to allow for sampling despite fluctuations in the water table elevation.

Table 3-1 (continued)

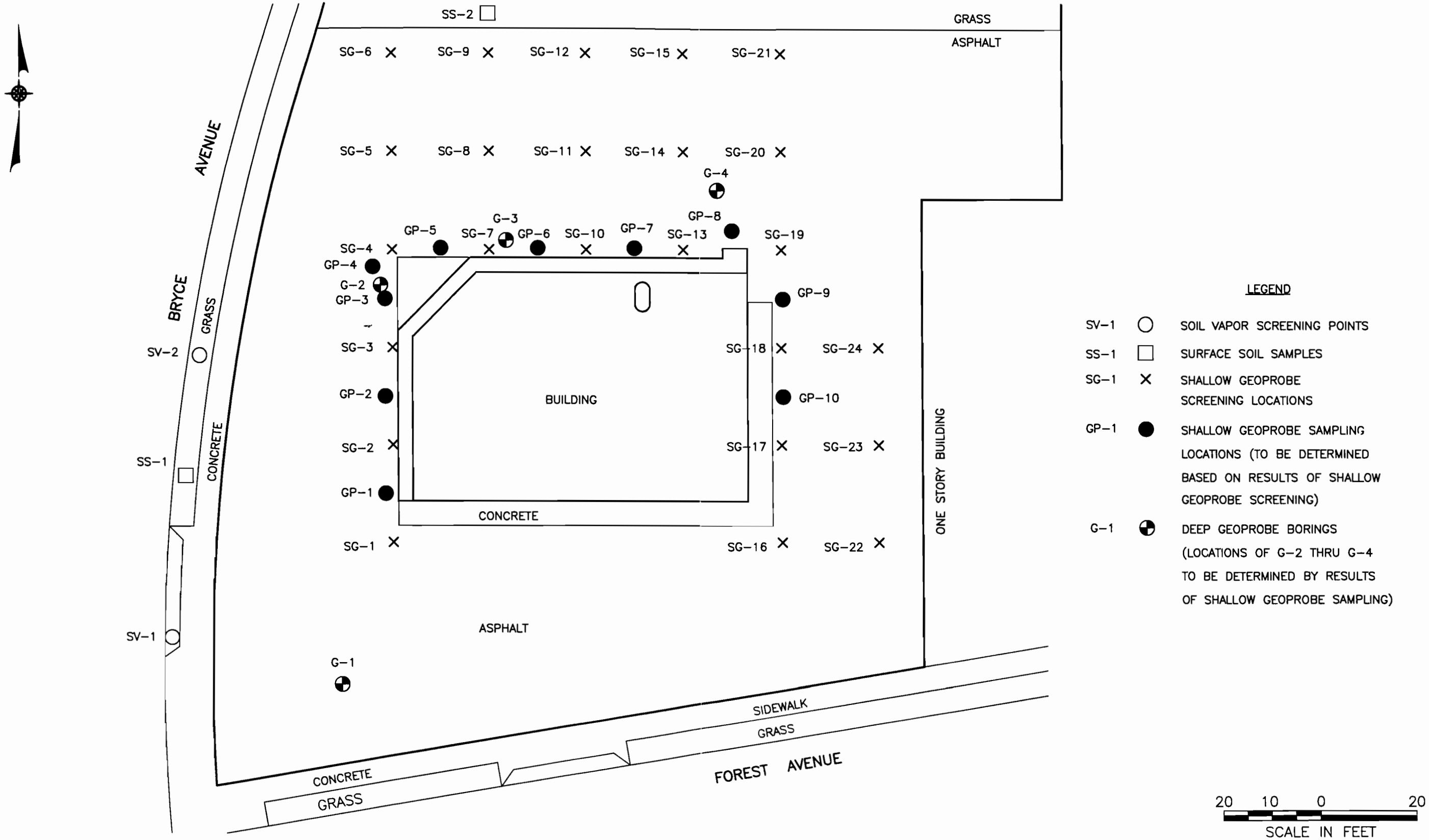
RONHILL CLEANERS SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
REMEDIAL INVESTIGATION SUMMARY

	Program Element	**Description**
20.	Monitoring Well Installation and Development (continued)	Six, approximately 150 foot deep monitoring wells will be situated in each of the six 150-foot deep soil borings described above (in element 18). A 150-foot deep monitoring well will be constructed adjacent to the 250 foot deep soil boring. Six off-site water-table monitoring wells will be installed at an approximate depth of 90 feet. Water table and deeper wells will be constructed as pairs. The on-site deep well will be paired with the existing water table well, W-3. Wells will be developed for up to 4 hours or until turbidity measurements are less than 50 NTUs and parameters (pH, electrical conductivity, turbidity, dissolved oxygen, temperature) measured on a hand-held Horiba water quality meter have stabilized. If mud rotary drilling methods are used in/near the screened interval of the well borings, wells will be developed for up to 8 hours each or until development water field parameters have stabilized. For monitoring wells drilled with mud rotary drilling, development will take place as soon as practical after drilling and will include surging and/or jetting. Following development and before sampling, monitoring wells will be allowed to equilibrate for a minimum of 5 days.

Table 3-1 (continued)

RONHILL CLEANERS SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
REMEDIAL INVESTIGATION SUMMARY

	Program Element	**Description**
21.	Monitoring Well Sampling	Groundwater samples will be obtained from each of the 13 newly installed monitoring wells, from the 5 existing on-site monitoring wells, and from up to 4 existing monitoring wells in the vicinity of the site. Prior to sampling, three to five well volumes will be purged from each well through dedicated tubing using a decontaminated, submersible Grundfos Redi-Flo pump. Wells will be purged until field parameters (as measured on a Horiba water quality meter) have stabilized. Groundwater samples will be collected from the submersible pump at low flow rate (1 to 3 gallons per minute). Samples will be analyzed for VOCs (TCL +10). Four samples will be selected for analysis for iron and manganese. Two rounds of sampling, conducted 3 months apart, will be performed. Synoptic groundwater elevations will be measured during each sampling round.
22.	Gamma Logging in New Soil Borings/Monitoring Wells	Gamma logging will be used as an investigative tool in each new boring/deep monitoring well in order to identify thin clay layers and/or lenses not sampled during split spoon and Hydropunch sampling. Gamma logging equipment and procedures are described above, in element 8.



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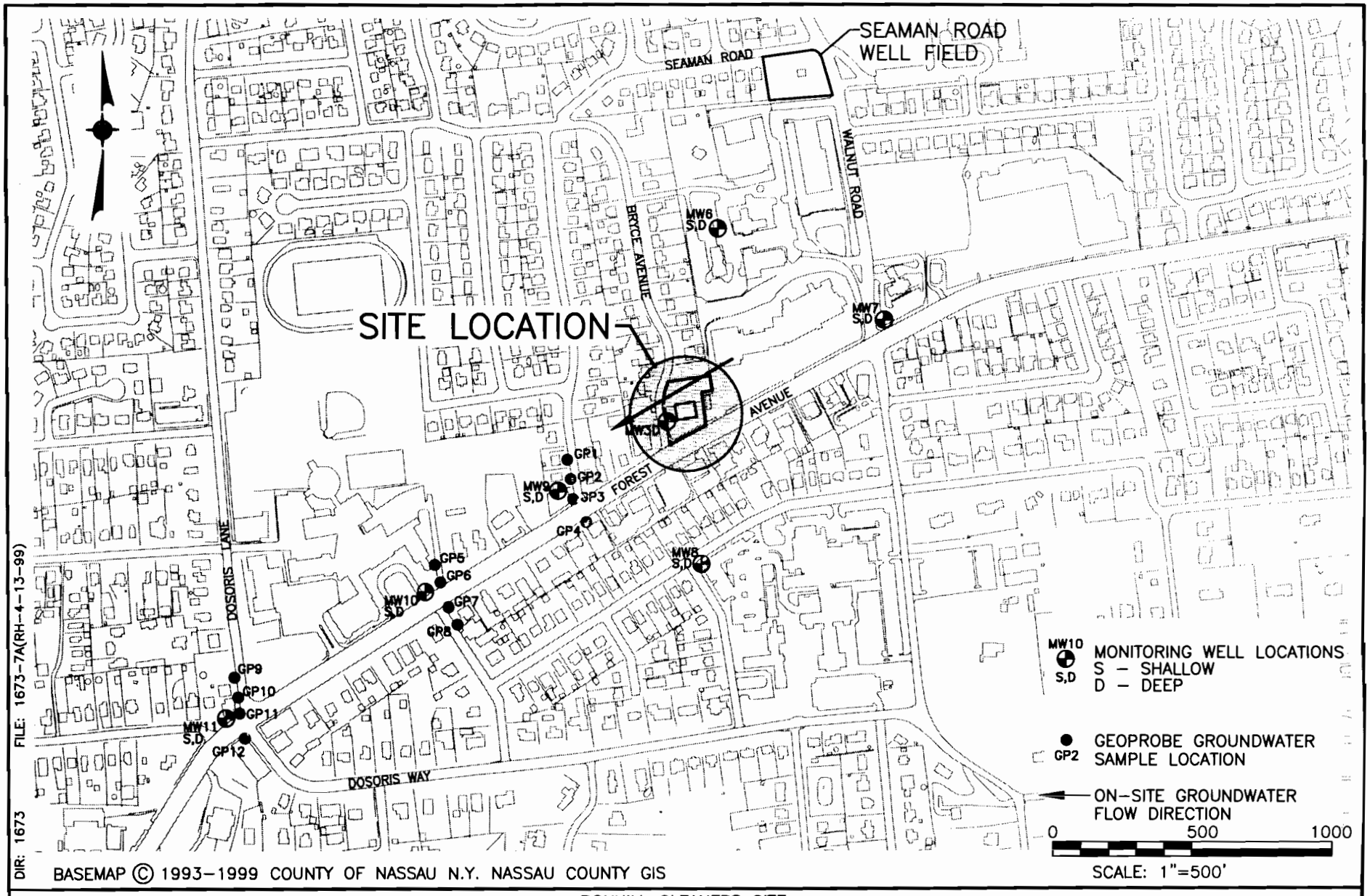
RONHILL CLEANERS SITE
CITY OF GLEN COVE

SOIL VAPOR, SURFACE SOIL AND GEOPROBE
SOIL SCREENING AND SAMPLING LOCATIONS

FIGURE 3-1

Dvirka and Bartilucci
Consulting Engineers
A Division of William F. Cosulich Associates, P.C.



RONHILL CLEANERS SITE
CITY OF GLEN COVE

GEOPROBE GROUNDWATER SAMPLING LOCATIONS AND MONITORING WELL LOCATIONS

Dvirka and Bartilucci
Consulting Engineers
A Division of William F. Cosulich Associates, P.C.

FIGURE 3-2

Table 3-2

RONHILL CLEANERS SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
SAMPLING MATRIX

Program Element	Environmental Media	Sample Type/Depth	No. of Samples	Equipment	Analysis
1. Air Sampling	Air	Two Summa canisters in interior of building formerly housing dry cleaners, placed in breathing zone in front and rear parts of building. One outdoor canister near SVE system exhaust, and one outdoor canister positioned to reflect ambient background air, as directed by NYSDOH.	4	4 Summa canisters with 2-hour flow valves.	VOCs Method TO14
2. Surface Soil	Soil	Sample within upper 2 to 6 inches	2	Decontaminated or disposable scoop and/or wooden tongue depressor	VOCs Method 95-1 (24-hour turnaround)
3. Geoprobe Shallow Soil Sampling	Soil	Sample soil to depth of 8 feet beneath and/or immediately adjacent to building and field screen for VOCs at 10 locations as determined by soil vapor screening results. Sample continuously using 4-foot macro core.	20	Decontaminated Geoprobe Sampler	VOCs Method 95-1 (24-hour turnaround)

Table 3-2 (continued)

RONHILL CLEANERS SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
SAMPLING MATRIX

Program Element	Environmental Media	Sample Type/Depth	No. of Samples	Equipment	Analysis
4. Geoprobe Deep Soil Sampling	Soil	Sample soil on site from surface to water table in four locations, as per program element 16, described in Table 3-1.	20	Decontaminated Geoprobe Sampler Field screen PID	VOCs Method 95-1 (24-hour turnaround)
5. Geoprobe Groundwater Sampling	Groundwater	Grab with Geoprobe sampler at water table (approximately 80 feet below grade) and at a depth of 110 feet in each of 12 sampling locations to identify areal extent of shallow plume.	28	Decontaminated Geoprobe Sampler	VOCs Method 95-1 (24-hour turnaround)
		Grab water sample at water table in 4 on-site Geoprobe deep soil borings.	4	Decontaminated Geoprobe Sample	VOCs Method 95-1
6. Soil Borings	Subsurface Soil	Split spoon sample at 10-foot depth intervals, continuous sampling between water table and 150' in 1 boring.		Decontaminated split spoon sampler	Geological logging using Unified Soil Classification
		a) 150 foot borings (6)	110	Field screen PID	Total VOCs
		b) 225-250 foot boring (1) (upgradient, to top of clay)	25	Field screen PID	Total VOCs
		c) selected contaminated samples	10		VOCs Method 95-1

Table 3-2 (continued)

RONHILL CLEANERS SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
SAMPLING MATRIX

Program Element	Environmental Media	Sample Type/Depth	No. of Samples	Equipment	Analysis
7. Hydropunch Sampling in Soil Borings	Groundwater	In six soil borings, at 20-foot intervals between 80 and 150 feet	28	Decontaminated Hydropunch Sampler	VOCs Method 95-1 (24-hour turn-around)
	NAPL	If identified in borings or Geoprobe	3		
8. New Monitoring Wells	Groundwater	90 feet	6	2-inch Schedule 40 PVC with 10-foot length of 10-slot PVC screen in 150-foot wells and 15-foot length of 10-slot PVC screen in 90-foot wells	Sample as described below
		150 feet (6 of these will be installed in 150 foot deep soil borings)	7		
		Six well pairs off-site (three downgradient, one upgradient, two sidegradient) one deep well on-site (to pair with existing monitoring well W-3)			
9. Monitoring Well Sampling	Groundwater	<u>First Round</u>:			
		New monitoring wells	13	Decontaminated submersible Grundfos Redi-Flo pump with dedicated tubing	VOCs Method 95-1
		Existing on-site monitoring wells	5		VOCs Method 95-1
		Existing off-site monitoring wells	4		VOCs Method 95-1

Table 3-2 (continued)

RONHILL CLEANERS SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
SAMPLING MATRIX

Program Element	Environmental Media	Sample Type/Depth	No. of Samples	Equipment	Analysis
9. Monitoring Well Sampling (continued)	Groundwater	Second Round (3-month interval): New monitoring wells Existing monitoring wells Existing off-site monitoring wells Metals Sampling: Fe and Mn (Sample locations to be determined based on results of Hydropunch screening)	 13 5 4 4	Sample off pump at low flow rate (1-3 gpm)	 VOCs Method 95-1 VOCs Method 95-1 VOCs Method 95-1 Metals Method 6010
10. Matrix Spike and Matrix Spike Duplicate	Soil	Collect three sets of MS/MSD from select Geoprobe soil sample and soil boring sample locations.	3	Decontaminated Geoprobe sampler and/or split spoon	VOCs Method 95-1
11. Matrix Spike and Matrix Spike Duplicate	Groundwater	Collect six sets of MS/MSD from the following select groundwater sampling locations: two from Geoprobe points, two from Hydropunch locations and one from monitoring wells during each round of sampling.	6	Decontaminated Geoprobe sampler, Hydropunch sampler and/or decontaminated submersible Grundfos Redi-Flo pump with dedicated tubing.	VOCs Method 95-1 one MS/MSD to be run for Fe and Mn Method 6010

Table 3-2 (continued)

RONHILL CLEANERS SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
SAMPLING MATRIX

Program Element	Environmental Media	Sample Type/Depth	No. of Samples	Equipment	Analysis
12. Trip Blank	Water	One per shipment of groundwater samples.	*	Supplied by laboratory.	VOCs Method 95-1
13. Duplicate	Air	Collected duplicate air sample of SVE exhaust.	1	Summa Canister with 2-hour flow valve.	VOCs Method TO14

Table 3-3

RONHILL CLEANERS SITE REMEDIAL INVESTIGATION/FEASIBILITY STUDY
INVESTIGATION RESEARCH/MAPPING MATRIX

Investigative Element	Technique/Objective	Performed By
1. General Records Searches	1a) Obtain building plans and "as built" plans for on-site facilities (existing and historic) from City of Glen Cove. 1b) Locate utility trenches, excavations (City of Glen Cove, KeySpan, LIPA). 1c) Identify other spills/investigations in area (Nassau County Department of Public Works, Nassau County health Department, NYSDEC). 1d) Investigate relevant geological maps/literature (USGS).	D&B
2. Water Well Identification	Identify all nearby private and public water supply wells and monitoring wells. Obtain well data where available through Nassau County Departments of Health and Public Works, City of Glen Cove, NYSDEC.	D&B
3. Geophysical Survey	Employ ground penetrating radar and magnetometer to locate buried tanks, pipes, drywells and utilities.	Subcontract to Hager-Richter Geoscience, Inc.
4. Historical Aerial Photograph Analysis	Delineate geomorphology, drainage, and soil and vegetation patterns before and since site development. Identify historic structures, land use practices and possible waste disposal locations.	D&B

Table 3-3 (continued)

RONHILL CLEANERS SITE REMEDIAL INVESTIGATION/FEASIBILITY STUDY
INVESTIGATION RESEARCH/MAPPING MATRIX

Investigative Element	Technique/Objective	Performed By
5. Fracture Trace Analysis	Locate linear structural features possibly associated with clay layers, buried channels and potential contaminant migration pathways.	Subcontract to Resolution Resources, Inc.
6. Monitoring Well Survey	Obtain elevations and planar coordinates for 13 new and 5 existing groundwater monitoring wells.	Sub-contract to YEC, Inc.
7. Gamma Logging	Identify clay layers in borings and in existing, on-and near site monitoring wells.	Subcontract to Hager Richer Geoscience, Inc.
8. Create Base Map	Incorporate data obtained through investigative Elements 1-7 with mapping ground features onto a site/area base map.	D&B
9. Fish and Wildlife Impact Assessment	Assess impact of contamination originating on-site on fish and wildlife.	D&B
10. Human Exposure and Environmental Risk Assessment	Qualitative assessment of human health and environmental exposure based on results of the remedial investigation.	D&B
11. Citizen Participation Plan	Obtain mailing list of businesses/residences in area identified by NYSDEC as potentially impacted by project. Create mailing database and provide NYSDEC with electronic labels.	D&B
	Prepare and mail meeting notices.	NYSDEC
	Meeting Organization/Presentations.	NYSDEC and D&B

During the field program, drill cuttings and fluids, decontamination water, development water and purge water will be generated. Drill cuttings collected on site will be containerized and staged in a fenced area at the City of Glen Cove Department of Public Works garage (as specified by NYSDEC Project Manager). On-site drill cuttings will be sampled for VOCs and presumed contaminated pending receipt of analytical results. Drillers will containerize on-site drill cuttings in drums and transport drums to the garage each day that they are generated. At appropriate intervals, contaminated drums will be removed from the staging area by a licensed waste hauler. Drill cuttings from off-site soil borings will be presumed clean unless field screening with a PID indicates the presence of VOCs. If contaminated, they will be disposed in the same manner as the on-site drill cuttings. Drillers will containerize clean drill cuttings in drums and transport them on a regular basis to an appropriate staging location (as arranged by NYSDEC) or to a nearby location designated to receive the clean cuttings for immediate use as clean fill (as arranged by NYSDEC).

A portable decontamination pad will be set up on site by the drilling contractor to decontaminate all drilling and sampling equipment. All drill cuttings will be handled in a manner consistent with NYSDEC TAGM 4032, Disposal of Drill Cuttings. Development and purge water will be discharged to the City of Glen Cove or Nassau County sanitary sewer system (subject to City or County approval and as arranged by NYSDEC) if "clean" or treated on site using NYSDEC's portable liquid-phase granular activated carbon (GAC) system. Temporary storage of these liquids may have to be arranged.

NYSDEC will be informed of any information collected during the course of this investigation which may indicate potential impacts to drinking water supplies.

Historical, existing groundwater and soil data from the site will be evaluated before the scope of work for the RonHill Cleaners Site investigation is finalized.

3.3 Qualitative Human Exposure and Environmental Risk Assessment

A qualitative human health and environmental exposure assessment based on the results of the remedial investigation will be prepared for the site. The exposure assessment will address the potential exposure routes for contaminants and identify potentially affected on-site and off-site receptors. The goals of the exposure assessment are to:

- Provide qualitative analysis of human health risks under current site conditions, including identification of contaminant migration pathways and potential receptors;
- Qualitatively identify the potential impacts to flora and fauna posed by existing contamination at the site; and
- Provide a basis for determining whether contaminant levels that can remain on-site threaten adequate protection of human health and the environment.

The general approach for preparation of the exposure assessment will be consistent with that described in the draft Generic Dry Cleaner Work Plan, dated February 1996. However, the specific methodology to be used for the RonHill Site will be qualitative instead of quantitative and will focus primarily on potential exposure. Contaminants and concentrations of concern will be identified through the comparison of analytical results to air and soil screening criteria selected for the site (e.g., Tetrachloroethene Ambient Air Criteria Document [NYSDOH] and New York State Class GA groundwater standards and guidelines). Exceedances of these standards, criteria and guidelines (SCGs), migration pathways, routes of exposure and potential receptors of concern will be determined. Potential exposure pathways will be examined for functionality and completeness.

Using appropriate data from the remedial investigation, site reconnaissance and previous site investigations, the contaminant source, migration pathways and human exposure points will be identified and evaluated. Potential human exposures include ingestion, inhalation and dermal contact with waste, contaminated groundwater, soil, vapors and fugitive dust from the RonHill Cleaners Site by individuals having access to, or that could be affected by the site. The results of the exposure assessment will be incorporated into the Remedial Investigation Report.

The environmental risk assessment will consist of a qualitative assessment of potential impacts to flora and fauna at the site caused by the level and extent of contamination identified as a result of the remedial investigation. Based upon this evaluation, a determination will be made regarding the need to perform an expanded quantitative health risk assessment.

A complete Step I Fish and Wildlife Impact Assessment (FWIA) as described in the NYSDEC document entitled, "Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites," (October 1994) will not be performed as part of this investigation. The RonHill Cleaners Site is located in an urban setting. Groundwater is approximately 80 feet below grade and does not discharge to the surface in the vicinity of the site. The nearest surface water bodies are located more than 1/2 mile from the site and include Island Swamp Brook which is situated approximately 3,000 feet to the northeast, a pond adjacent to the Long Island Rail Road at the Nassau Country Club approximately 4,000 feet to the southeast, and the headwaters to Glen Cove Creek in Pratt Park nearly 5,000 feet to the southwest.

3.4 Interim Remedial Measure/Presumptive Remedy Selection

The need for preparation of a feasibility study, implementation of an Interim Remedial Measure (IRM) or selection of a Presumptive Remedy will be made based on the results of the remedial investigation. IRMs and Presumptive Remedies for dry cleaner sites are described in detail in the Generic Work Plan.

Based on available information with regard to the RonHill Cleaners Site, an IRM or Presumptive Remedy may be appropriate for this site. If appropriate, an IRM/Presumptive Remedy Report will be prepared (either as a separate document or as part of the Remedial Investigation Report), which will include a discussion of the technical and financial rationale for selection of the IRM and/or Presumptive Remedy, and conceptual design. As part of the selection of any final remedies recommended for the site, data from the remedial investigation will be used to examine the effectiveness of the existing soil vapor extraction system (SVE) and recommend any modifications if necessary.

Section 4

4.0 PROJECT MANAGEMENT

4.1 Project Schedule and Key Milestones/Reports

The Remedial Investigation/Feasibility Study (RI/FS) schedule for the RonHill Cleaners Site is provided in Table 4-1. Key milestones are identified to monitor work progress. The following is the list of milestones proposed for this project:

Milestone 1: Submittal of the Draft Scoping Summary and Budget for Task 1.

Milestone 2: Submittal of the draft Remedial Investigation/Feasibility Study Work Plan

Milestone 3: Submittal of the Draft Remedial Investigation Report.

Milestone 4: Submittal of the Draft Feasibility Study Report.

4.2 Project Management, Organization and Key Technical Personnel

Dvirka and Bartilucci Consulting Engineers will be the prime consultant responsible for performance of the remedial investigation/feasibility study. Subcontractors planned to be used for this RI/FS include:

- YEC, Inc. (MBE) (surveying)
- Hager-Richter Geoscience, Inc. (WBE) (ground penetrating radar/magnetometer survey, gamma logging)
- Resolution Resources, Inc. (fracture trace analysis)
- Zebra Environmental Corp. (Geoprobe soil and groundwater sampling, soil vapor survey)
- Uni-Tech Drilling Co., Inc. (drilling and monitoring well installation)
- Field Safety Corporation, (MBE) (health and safety plan)
- Chemical Waste Disposal

Table 4-1

PROJECT SCHEDULE

Scope of RI/FS	
• Scoping Meeting	Early March 1999
• Scoping Plan and Budget for Work Plan	Late March 1999
• RI/FS Work Plan – Draft	April 1999
• RI/FS Work Plan – Final	June 1999
• Public Meeting	July/August 1999
Remedial Investigation	
• Field Investigation	July - November 1999
• Laboratory Analysis	December 1999
• Data Validation	January 2000
• Remedial Investigation Report - Draft	March 2000
• Remedial Investigation Report – Final	May 2000
Feasibility Study	
• Feasibility Study Report – Draft	May 2000
• Feasibility Study Report – Final	July 2000
• Second Round of Groundwater Sampling*	February 2000
• Laboratory Analysis	March 2000
• Data Validation	April 2000
• Public Meeting	August 2000

*Results will be incorporated in the Final RI report.

Section 5

5.0 SITE SPECIFIC QUALITY ASSURANCE AND QUALITY CONTROL PLAN

All sample analysis and data validation for the RonHill Cleaners Site will be conducted in accordance with the NYSDEC 1995 Analytical Services Protocol (ASP). Sample analysis will be performed by Mitkem Corporation. Mitkem is certified by the New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP) and NYSDOH Contract Laboratory Program (CLP). All other information which is not provided below regarding detailed sampling procedures and protocols, as well as other quality assurance and quality control (QA/QC) requirements, is provided in the draft Generic Dry Cleaner Work Plan.

5.1 Sampling Program Design and Rationale

- Two surface soil samples will be collected on-site to determine the extent of surface contamination.
- Up to ten soil samples will be collected from one or more soil borings advanced on and/or off site to determine the extent/presence of subsurface contamination.
- Twenty shallow subsurface soil samples will be collected on site utilizing a Geoprobe and analyzed in order to determine the extent of on-site soil contamination.
- Twenty deep soil samples will be collected on site utilizing a Geoprobe and analyzed in order to determine the extent of on-site soil contamination.
- Twenty-eight groundwater samples will be collected utilizing a Geoprobe and analyzed in order to determine the horizontal and vertical extent of groundwater contamination.
- Twenty-eight groundwater samples will be collected by the Hydropunch method and analyzed in order to determine the horizontal and vertical extent of groundwater contamination.
- Up to 22 groundwater samples will be collected, during each of two rounds, from existing and newly installed groundwater monitoring wells on and off-site to determine the extent to which site operations may have impacted groundwater.
- Up to three NAPL samples will be collected by the Hydropunch method.
- Four air samples will be collected in Summa canisters equipped with 2-hour flow valves. Two of these will be collected within the building in order to determine

potential exposure of workers to contaminants. One air sample will be collected near the soil vapor extraction system exhaust in order to assess potential release of contaminants into the atmosphere. One air sample will be collected from a background location in order to determine background VOC concentrations in air.

- Seven soil samples will be collected (one from each boring location) in order to characterize drill cuttings for disposal purposes.

In addition to the above, the following QA/QC samples will be collected.

- One trip blank will be sent with each shipment of the groundwater samples.
- Three soil and six groundwater matrix spike/matrix spike duplicate sample sets will be collected based upon one set per 20 samples collected of each matrix (i.e., soil and water).
- One duplicate air sample will be collected from near the soil vapor system exhaust.

Section 6

6.0 SITE-SPECIFIC HEALTH AND SAFETY PLAN

The following site-specific information comprises information not included in the draft Generic Dry Cleaner Work Plan. The following information will be utilized in conjunction with the Generic Health and Safety Plan contained in the Generic Work Plan. Information with regard to contaminants of concern, personal protective equipment, exposure limits and monitoring requirements are provided in the Generic Health and Safety Plan.

Site Name:	RonHill Cleaners
Address:	71 Forest Avenue
	Glen Cove, New York
Telephone:	--
Date of HASP Preparation:	April 1999
Dates of Field Investigation:	June 1, 1999 – August 31, 1999
Entry Objectives:	To investigate and locate the source(s) and extent of soil and groundwater contamination

Site Organization Structure:	Name	Phone
Project Director:	Thomas Maher	516-364-9890
Project Manager:	Vasiliki Vassil	516-364-9890
Health and Safety Officer (HSO):	Dawn Hon	203-457-2100
Field Operations Manager/ Alternate HSO:	Keith Robins	516-364-9890
Field Team Staff:	Keith Klaus	516-364-9890
Field Subcontractors:	Resolution Resources, Inc.	612-824-3234
	YEC Surveying, Inc.	914-268-3203
	Hager-Richter Geoscience, Inc.	603-893-9944
	Zebra Environmental Corp.	516-371-4422
	Uni-Tech Drilling Company, Inc.	609-694-4200

Medical Assistance:

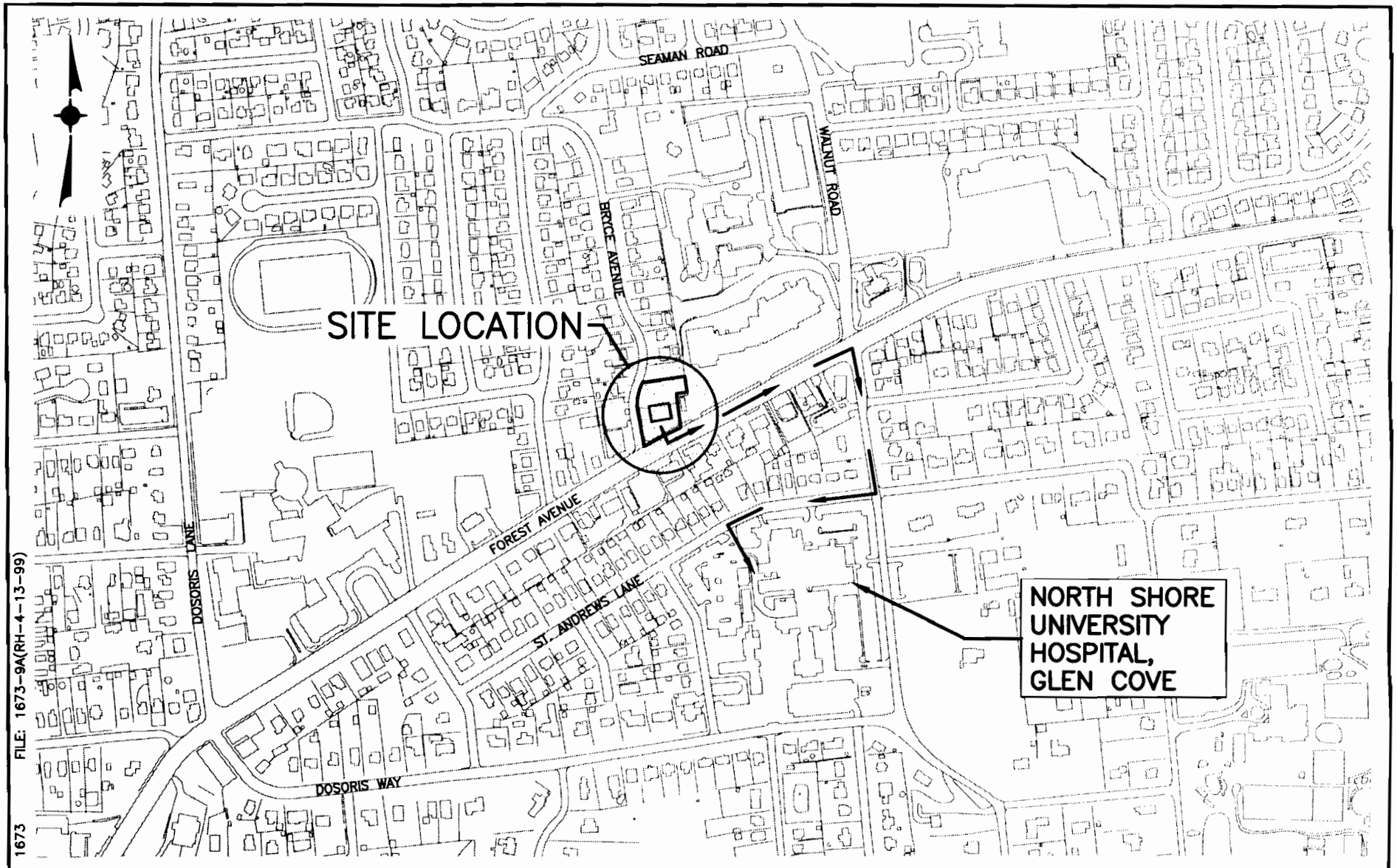
Physician:	Dr. Ronald Rosen
Address:	296-11 76th Avenue – CCC Building
	Third Floor – Room 313
	New Hyde Park, NY 11042
Telephone:	718-470-4435

Name of Hospital:	North Shore University Hospital - Glen Cove
Emergency Telephone:	516-674-7306
Directions:	From site: Forest Avenue NE one block. Turn right on Walnut Road, first right turn onto St. Andrews Lane Hospital located at SE corner of Walnut Road and St. Andrews Lane (see Figure 6-1)

Emergency Telephones:

Agent/Facility	**Telephone**	**Emergency Number**
Ambulance (dispatched by Police Department)	516-676-1000	911
Police Department	516-676-1000	911
Fire Department	516-671-3730	911
Hospital	516-674-7306	
Poison Control Center	516-542-2323	

Additional site related information (including special hazards, site control, waste storage and disposal, personal protective equipment, decontamination area location, special engineering controls, etc.)



RONHILL CLEANERS SITE
CITY OF GLEN COVE

MEDICAL CENTER EMERGENCY ROUTE

Dvirka and Bartilucci
Consulting Engineers
A Division of William F. Cosulich Associates, P.C.

FIGURE 6-1

Section 7

7.0 SITE-SPECIFIC CITIZEN PARTICIPATION PLAN

This section presents the Citizens Participation Plan prepared by NYSDEC for the RonHill Cleaners Site.

Department of Environmental Conservation

Division of Environmental Remediation

RonHill Cleaners

Site Number 1-30-071

City of Glen Cove, Nassau County

Remedial Investigation/ Feasibility Study

Citizen Participation Plan

June 1999

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* JOHN P. CAHILL, *Commissioner*

1.0 INTRODUCTION

This Citizen Participation Plan (CPP) has been developed as a requirement of, and to ensure compliance with 6NYCRR Part 375-1.5, public participation requirements of New York State's Regulations for Inactive Hazardous Waste Disposal Sites. 6NYCRR Part 375 requires the New York State Department of Environmental Conservation (NYSDEC) to keep interested and/or affected public informed of progress on inactive hazardous waste site remedial projects. These regulations also require NYSDEC to solicit public comment before selecting a final remedy for a site.

This CPP consists of brief sections containing information about RonHill Cleaners (Site Information) and a brief summary of the remedial project (Project Description). These are followed by descriptions of activities planned for this project to inform the interested and/or affected public of remedial work, answer questions and obtain comments. The focus of this plan is the first phase of the project, the Remedial Investigation/ Feasibility Study. The CPP will be amended as necessary for future phases of the project.

This CPP was prepared for the RonHill Cleaners RI/FS by Kathleen McCue, P.E., Project Manager for NYSDEC.

2.0 SITE INFORMATION

RonHill Cleaners, Site No. 1-30-071 on the NYS Registry of Inactive Hazardous Waste Sites, is former commercial dry cleaner facility located in the city of Glen Cove, New York, on Forest Avenue at Bryce Avenue. The site area is less than one acre and is located on a strip of commercial businesses, surrounded by residential streets. The former dry cleaning building is now occupied by a Payless ShoeSource store.

RonHill Cleaners operated as a dry-cleaner since 1963, under various operators who leased the site from Bedford Affiliates, the land owner. The hazardous waste disposed of at the RonHill Cleaners site consists of perchloroethylene or "perc", a non-flammable, chlorinated solvent used in commercial dry-cleaning establishments to remove dirt and stains from clothing. Most dry cleaners attempt to recycle and reuse the solvent. At RonHill, until 1988 when environmentally-friendly equipment was installed, much perc appears to have been lost through leaks or spills. In 1978 the Nassau County Health Department sampled and reported perc contamination in the rear of the RonHill building, which was unpaved at that time. The NCHD was investigating possible local sources of perc after the discovery of perc in public supply wells at the Seaman Road Well Field. These supply wells were taken out of service.

Another source of perc contamination appears to be from a pipe trough inside the building in which perc was recirculated for reuse. High levels of perc were discovered in this trough, and in 1994 approximately 72 tons of contaminated soil were removed. Some of the contaminated soil remains in difficult-to-access areas, such as under the building foundation. Since 1996, the site owner has operated a soil vapor extraction (SVE) system to draw perc out of the soil with a vacuum blower, with the goal of reducing or eliminating perc in the soil.

Despite efforts to clean up source areas of perc at the RonHill site, there is still groundwater contamination. Levels of perc up to 170,000 micrograms per liter were found at the water table in a 1998 study, approximately 80 feet below the site, and deeper groundwater contamination may exist. The plume of perc in groundwater may extend a considerable distance from the site, especially toward Glen Cove Creek, but possibly north and east of the site also. To date, all local supplies of commercial and domestic water are monitored and have shown no impacts. The potential of perc to migrate, however, means that the extent of the plume must be investigated and appropriate measures taken to protect area water supply aquifers.

The documented disposal of hazardous waste at RonHill Cleaners, and the evidence of it impacting water quality, led NYSDEC in 1995 to classify the site as posing a "significant threat to human health and/or the environment" (Class 2), requiring a remedial program consisting of a Remedial Investigation/ Feasibility Study (RI/FS), followed by the selection of a remedy, if appropriate, and its design, construction and operation.

3.0 PROJECT DESCRIPTION

The Remedial Program required for RonHill Cleaners consists of four phases: (1) Remedial Investigation/ Feasibility Study, (2) Remedial Design, (3) Remedial Construction, and (4) Operation, Maintenance and Monitoring. The scope of each phase depends on the results of the previous phase. The Glossary (Appendix 5) describes these phases. The Remedial Investigation / Feasibility Study, and an optional phase, an Interim Remedial Measure, are described in more detail below. The New York State Department of Health (NYSDOH) reviews reports, data, and decisions during these phases to ensure that public health concerns are adequately addressed (see Appendix 5).

Remedial Investigation/ Feasibility Study (RI/FS):

The **Remedial Investigation** is a thorough investigation of the nature and extent of contamination from the site. Groundwater, air, soil, waste, and other site media as appropriate, are sampled.. Geological and climatological data are obtained. An analysis of potential health impacts is conducted. During the **Feasibility Study**, which is performed alongside the Remedial Investigation, a wide range of alternatives for cleanup of the site is assembled varying in effectiveness, practicability, and cost. As more and more data become available, some of these alternatives are rejected. If the Remedial Investigation has confirmed the need for site remediation, the remaining alternatives are subjected to a thorough analysis based on seven criteria in the regulations. One alternative is determined to best meet the remedial goals for the site and balance other concerns such as cost. The State will then present the recommended cleanup alternative to the public in a document called the Proposed Remedial Action Plan (PRAP). After a mandated comment period and a Public Meeting, the State will issue a Record of Decision (ROD) outlining the selected remedy, the basis for selection, and any changes made in response to public concerns. A typical RI/FS up to the Record of Decision takes from two to three years.

Some of the specific activities planned for the RI/FS for RonHill Cleaners include:

- Records searches (deeds, utilities, land use, etc.)
- Analysis of aerial photographs
- Radar and magnetic sensing of underground tanks or leach pools
- Taking soil cores for laboratory analysis on the former RonHill property
- Exploratory borings to confirm geology around the site
- Installation of monitoring wells
- Laboratory analysis of groundwater samples
- Development of maps of the site and impacted soil and groundwater in horizontal and vertical dimensions
- Air samples for perc and other site contaminants
- Assessing the effectiveness of the soil vapor extraction system to date
- Human health exposure assessment
- Developing remedial alternatives (as necessary and appropriate)

Interim Remedial Action:

Sometimes a cleanup action need not wait until a site-wide remedial plan is approved. During investigations, it may become obvious that certain activities can take place immediately to reduce the threat of the site. The SVE system is an example of an Interim Remedial Measure (IRM) for RonHill Cleaners. Sometimes an IRM will reduce site hazards to the point where no further remedial action is needed, except for perhaps monitoring. NYSDEC would issue a "No Further Action" ROD in that case. An IRM includes activities such as remedial design and construction (described further in Appendix 5), but usually in a compressed time frame during the RI/FS, such as six months to a year.

In all phases of the remedial project, final plans and reports such as the RI/FS Work Plan, this CPP, the RI Report and FS Report will be made available to the public through the Document Repositories (Appendix 3). In addition, announcements and fact sheets will be mailed during every phase to keep people on the contact list and the media apprised of progress. State representatives in Appendix 1 may be contacted any time with questions or comments. These and other citizen participation activities are further described in the next section.

4.0 CITIZEN PARTICIPATION ACTIVITIES - Remedial Investigation/ Feasibility Study

The means of keeping the public informed, and giving opportunity for comment, are described below. These activities will primarily be conducted by NYSDEC staff with review and assistance by NYSDOH.

4.1 Project Mailing List

A preliminary list of potentially interested or affected public has been created as required by 6NYCRR Part 375 prior to starting the RI/FS. The list contains government representatives, civic organizations, environmental groups, adjacent property and easement owners, potentially

responsible parties and other individuals and groups (see Appendix 2). This list will be updated as needed during the RI/FS. Anyone may request to be added to the Project Mailing List by contacting the NYSDEC Project Manager (see Appendix 1, Project Contacts).

4.2 Document Repositories

Three *document repositories* will be set up to house administrative record documents and other final site documents such as the Preliminary Site Assessment reports. One repository will be located in the Stony Brook offices of NYSDEC Region 1. The other will be located at City Hall in Glen Cove in the offices of the City Clerk. The third repository will be located at the Glen Cove Public Library. Locations, contact people and hours are listed in Appendix 3.

The *Administrative Record* is the collection of documents (reports, correspondence, data) from the RI/FS that supports NYSDEC's decision concerning how to remediate the site. It is important to organize this backup information and make it readily available for perusal by anyone concerned about the basis for NYSDEC's action. Not all publicly-available documents concerning the site will become part of the Administrative Record; only those that directly support the Record of Decision. Other documents can be requested from the Project Manager through the Freedom of Information Act. Comments from the public on the proposed remedy become part of the Administrative Record, along with NYSDEC responses.

4.3 Fact Sheets

Fact sheets are informational papers describing the site and progress, giving the names of primary contact people for more information and announcing a public meeting or availability of a final document. They are concise (one to four pages), readable and suitable for mass mailing to the Project Mailing List and faxing to media. Fact sheets will be the primary means of communicating with the public on this project. The Citizen Participation Schedule (Appendix 4) shows mandatory and optional occasions for issuing fact sheets. Fact sheets will be generated and mailed by the NYSDEC Project Manager with assistance from Citizen Participation staff, and must be reviewed by NYSDOH prior to mailing.

4.4 Public Meetings

Public informational meetings are used to present large amounts of information and to obtain comments. A public meeting will be held at the start of the RI/FS, after a work plan is developed for the study. A second public meeting will be held when the RI/FS is complete and a Proposed Remedial Action Plan (PRAP) has been issued. If interest is high and issues warrant, or if a long time period will elapse until the final RI/FS report, a third, optional public meeting would occur when preliminary RI results become available (see schedule in Appendix 4). A public meeting or availability session (see Section 4.6) would be conducted if an Interim Remedial Measure (IRM) is authorized.

Public meetings are informal, opened with short presentations on the site and progress to date by NYSDEC and NYSDOH staff followed by the question and answer period. The consulting engineer may be requested to give the detailed technical presentation and/or to assist with

answering questions. The consultant may also be requested to prepare visual aids. Detailed notes should be obtained of all speakers' questions and comments, along with a sign-in sheet of attendees. A responsiveness summary will be prepared after all meetings and distributed to attendees (see below under Responsiveness Summaries).

4.5 Responsiveness Summaries

A *responsiveness summary* is a paper responding to questions and comments received during a designated public comment period. Specific responses are given to individual questions or comments (although similar questions and comments may be combined for one response). Responses may be organized by topic of the inquiry or comment, such as "Health" questions or "Cost of Remedy" comments. Both oral comments from public meetings, and written comments are addressed in the responsiveness summary. Comment letters, statements and other written comment documents are referenced or attached and become part of the Administrative Record along with the responsiveness summary.

The Record of Decision (ROD) must contain a responsiveness summary for the preceding 30-day comment period. The notice or fact sheet should be issued to the project contact list when the ROD and responsiveness summary become available in the Document Repositories after the close of the comment period. Depending on interest, copies of the responsiveness summary should also be mailed to meeting attendees and other commentors.

The NYSDEC Project Manager will obtain the input of NYSDOH in responding to questions or comments pertaining to public health.

4.5 Remedy Selection Comment Period

The most crucial period for interaction between NYSDEC and the public during a hazardous waste site cleanup is during selection of the final remedy. 6NYCRR Part 375 mandates a minimum thirty-day comment period before issuance of the Record of Decision. During this period a public meeting must be held, as described previously, to present the remedial alternatives and the proposed remedy.

To facilitate public comment, the NYSDEC will issue a paper called the "Proposed Remedial Action Plan" (PRAP) at the beginning of the comment period. The PRAP follows a standard format, incorporating a concise history of the site, summary of the remedial investigation, brief descriptions of the alternatives, and the recommended alternative. Maps and data tables are attached. The NYSDEC Project Manager will prepare the PRAP and place it in the Document Repositories. A Fact Sheet announcing availability of the PRAP and the date and place of the public meeting will then be issued.

Following the close of the comment period, the Project Manager will prepare the draft Record of Decision and responsiveness summary. After formal concurrence by NYSDOH, the Division Director signs the ROD on behalf of the Commissioner. A notice must be sent to the contact list to inform them of the availability of the signed ROD.

4.6 Other Activities

Informal Contacts: This CPP emphasizes that although there are designated comment periods and meetings for milestone events, concerned members of the public are welcome to contact NYSDEC or DOH at any time during the RI/FS. Contacts are listed in Appendix 1. Sample results and other site data are public information and available at any time through the Freedom of Information Act. If data are preliminary (i.e., not yet audited) the project manager will indicate so to the requestor.

Availability Sessions: Availability sessions provide a forum for the public to meet with NYSDEC and NYSDOH staff, but unlike a public meeting, do not include a formal presentation. Instead, site information is displayed at a public location, with staff present, for a longer period of time such as an afternoon, evening, or over several days. Concerned citizens can view site information and discuss it one-on-one or in small groups with staff. Attendees are encouraged to sign in, and notes are taken of questions and comments. As with a public meeting, a responsiveness summary should be issued after the availability session. Availability sessions especially lend themselves to public review and interaction on design and construction documents. No availability sessions are planned for the RI/FS for RonHill Cleaners, but if an IRM is conducted, an availability session or public meeting would be appropriate for this activity.

Appendix 1
Project Contacts

Kathleen McCue, P.E.
NYSDEC Project Manager
NYS Department of Environmental Conservation
50 Wolf Road, Room 228
Albany, NY 12233-7010
(518) 457-5637 or toll-free (800) 342-9296

Robert Stewart
NYS Department of Environmental Conservation
Region 1
SUNY Campus
Loop Road, Building 40
Stony Brook, NY 11790-2356
(516) 444-0240

Wendy Kuehner
NYS Department of Health
Center for Environmental Health
Flanigan Square, Room 300
547 River Street
Troy, NY 12180
(518) 402-7880 or toll-free (800) 458-1158

Mark VanDeusen
NYS Department of Health
Health Liaison Program
Flanigan Square, Room 300
547 River Street
Troy, NY 12180
toll-free (800) 458-1158

Appendix 2
Affected and/or Interested Public
RonHill Cleaners

2.A Government Officials, Community Organizations and Concerned Groups

Charles Schumer
U.S. Senator
26 Federal Plaza
31-100
New York, NY 10278

Steven Worth
Councilman
The City of Glen Cove
City Hall
Glen Cove, NY 11542

Daniel Patrick Moynihan
U.S. Senator
405 Lexington Avenue
New York, NY 10174

Michael Norman
Councilman
The City of Glen Cove
City Hall
Glen Cove, NY 11542

Peter King
U. S. Congressman
1003 Park Blvd.
Massapequa Park, NY 11762

Maryanne Holzkamp
Councilwoman
The City of Glen Cove
City Hall
Glen Cove, NY 11542

Gary L. Ackerman
U.S. Congressman
218-14 Northern Boulevard
Bayside, NY

Mario Capobianco
Councilman
The City of Glen Cove
City Hall
Glen Cove, NY 11542

Carl L. Marcellino
State Senator
Townsend Square
Oyster Bay, NY 11771

John Maccarone
Councilman
The City of Glen Cove
City Hall
Glen Cove, NY 11542

David Sidikman
State Assemblyman
146A Manetto Hill Road
Plainview, NY 11803

Albert Granger
Councilman
The City of Glen Cove
City Hall
Glen Cove, NY 11542

Thomas R. Suozzi
Mayor
The City of Glen Cove
City Hall
Glen Cove, NY 11542

Anita L. Rasch
City Clerk
The City of Glen Cove
City Hall
Glen Cove, NY 11542

Ms. Patricia A. Bourne
Executive Director
Glen Cove Community
Development Agency
126 Glen Street
Glen Cove, NY 11542

Nassau County Department of Health
240 Old Country Road
Mineola, NY 11501

Mr. Jack Guy
Empire State Redevelopment
45 Executive Drive
Plainview, NY 11803

Mrs. Joan Meehan
Community Development Agency
5 Raynham Road
Glen Cove, NY 11542

Mr. David Williams
Department of Transportation-
Region 10
State Office Building
Veterans Memorial Highway
Hauppauge, NY 11788

Mr. Joe Schmidt
Chairman
Glen Cove Zoning Board of Appeals
23 Inwood Road
Glen Cove, NY 11542

Mr. Norman Dorf
Glen Cove Planning Commission
September Lane
Glen Cove, NY 11542

Mr. Joseph DeFranco
Division of Environmental Health
Nassau County Department of Health
240 Old Country Road
Mineola, NY 11501

Mr. Tim Mulvihill
Nassau County Department of Health
240 Old Country Road
Mineola, NY 11501
(516) 571-3571 / Fax: (516) 571-1475

Mr. Donald Campbell
Nassau County Department of
Housing and Intergovernment
Affairs
250 Fulton Avenue
Hempstead, NY 11550

Mr. Brian Schneider
Nassau County Department of
Public Works
170 Cantiague Road
Hicksville, NY 11801

Ms. Patricia Sasso
County Executive's Office
One West Street
Mineola, NY 11501

Ms. Amy Emerick
Assistant to the Director
of Legislative Affairs
Long Island Association
80 Hauppauge Road
Commack, NY 11725

Mr. Anzelmo Graziosi
City Attorney's Office
City Hall
Glen Cove, NY 11542

The Honorable Mary Ann Holzcamp
City Hall
Glen Street
Glen Cove, NY 11542

The Honorable John Maccarone
City Hall
Glen Street
Glen Cove, NY 1542

The Honorable David Sidikman
146A Manetto Hill Road
Plainview, NY 11803

The Honorable John Canning
Nassau County Legislator
One West Street
Mineola, NY 11501

Mr. Rosemary Olsen
Deputy Mayor
City Hall
Glen Cove, NY 11542

Mr. Gerald Gardrvits, P.E.
Public Works Director
City of Glen Cove
City Hall
Glen Cove, NY 11542

Mr. Jeff Fullmer
Citizen's Campaign for the
Environment
550 Smithtown Bypass
Suite 205
Smithtown, NY 11787

Richard Leland
Rosenman & Collin
575 Madison Avenue
New York, NY 10022-2585

Robert G. DelGadio
DelGadio & Tomao
EAB Plaza
Uniondale, NY 11556

Bedford Affiliates
185 Great Neck Road
Great Neck, NY 11021

Charlotte Biblow
Rivkin, Radler & Kremer
EAB Plaza
Uniondale, NY 11556-0111

Thomas Maher
Dvirka & Bartilucci
330 Crossways Park Drive
Woodbury, NY 11797-2015

Appendix 3
Document Repository Locations

Glen Cove Public Library
4 Glen Cove Avenue
Glen Cove, NY 11542
(516) 676-2130
Hours: Monday through Thursday, 9am-9pm; Friday 9am to 5pm; Saturday 9am-1pm (summers); contact Michael Freedman, Librarian

City of Glen Cove Clerk's Office
City Hall
Glen Cove, NY 11542
Hours: Monday through Friday, 9am to 4pm
(516) 676-2000
Appointment needed; contact Anita L. Rasch, City Clerk

NYS Department of Environmental Conservation
Region 1
SUNY Campus
Loop Road, Building 40
Stony Brook, NY 11790-2356
(516) 444-0240
Hours: Monday through Friday, 8:30 am to 4:45 pm
Appointment needed; contact Robert Stewart

NYS Department of Environmental Conservation
50 Wolf Road, Room 242
Albany, NY 12233-7010
Hours: Monday through Friday, 8:30 am to 4:45 pm
Appointment needed; contact Kathleen McCue, P.E.
(518) 457-7924 or toll-free (800) 342-9296

Section 8

Schedule 2.11 (a)

Summary of Work Assignment Price
RONHILL CLEANERS SITE (NYSDEC WA #D003600-11)
Summary

Work Assignment Number D003600-2

1.	Direct Salary Costs (Schedules 2.10 (a) and 2.11(b))	$91,176
2.	Indirect Costs (Schedule 2.10 (g))	$144,332
3.	Direct Non-Salary Costs (Schedules 2.11 (c)and (d))	$21,178

Subcontract Costs

Cost-Plus-Fixed-Fee Subcontracts (Schedules 2.11(e))

Name of Subcontractor	Services To Be Performed	Subcontract Price
A. Hager-Richter Geoscience, Inc.	Ground Penetrating Radar/Magnetics	$8,315
	Gamma Logging Wells/Borings	$8,299
B. YEC , Inc.	Surveying	$2,939
C. Resolution Resources, Inc.	Fracture Trace Analysis	$10,050

4.	Total Cost-Plus-Fixed-Fee Subcontracts	$29,603

Unit Price Subcontracts (Schedules 2.11(f))

Name of Subcontractor	Services To Be Performed	Subcontract Price
A. Uni-Tech Drilling Co., Inc.	Monitoring Well Installation	$109,281
B. Mitkem Corporation	Chemical Sample Analysis	$43,180
C. Zebra Environmental Corp.	Geoprobe Sampling	$17,182
D. Nancy Potak	Data Validation	$3,732
E. Chemical Waste Disposal	Drum Removal	$12,950 *

5.	Total Unit Price Subcontracts	$186,325
6.	Subcontract Management Fee	$6,390.76
7.	Total Subcontract Costs (lines 4 + 5 + 6)	$222,318
8.	Fixed Fee (Schedule 2.10 (h))	$19,783
9.	Total Work Assignment Price (lines 1 + 2 + 3 + 7 +8)	$498,788

* Estimate based on disposal of 110 drums as non-hazardous waste and 10 drums as hazardous waste with removal occurring in 4 loads.

File: 1673-VV

SCHEDULE 2.11 (b)
SUMMARY
RONHILL CLEANERS SITE
WORK ASSIGNMENT NUMBER D003600-11

Average NSPE Wage Rates	IX	VIII	VII	VI	V	IV	III	II	I	TOTAL HOURS
as of July 1,1998	$56.59	$51.48	$44.75	$36.04	$31.20	$26.35	$23.91	$20.16	$16.07	
as of July 1,1999	$58.29	$53.02	$46.09	$37.12	$32.14	$27.14	$24.63	$20.76	$16.55	
Task 1	20	0	0	0	204	12	16	68	0	320
Task 2	28	0	0	0	690	1266	88	262	0	2334
Task 3	8	0	0	0	80	0	0	30	0	118
Task 4	14	0	0	0	156	0	24	60	0	254
Task 5	2	0	0	0	114	10	0	22	0	148
Subtotal 1998 Hours	20	0	0	0	204	12	16	68	0	320
Subtotal 1999 Hours	52	0	0	0	1040	1276	112	374	0	2854
Total Hours	72	0	0	0	1244	1288	128	442	0	3174
Total Direct Labor Cost	$4,163	$0	$0	$0	$39,790	$34,947	$3,141	$9,135	$0	$91,176

File: 1673-VV

SCHEDULE 2.11 (b)-1
SUMMARY
RONHILL CLEANERS SITE
WORK ASSIGNMENT NUMBER D003600-11

Average NSPE Wage Rates	IX	VIII	VII	VI	V	IV	III	II	I	TOTAL HOURS
as of July 1,1998	$56.59	$53.02	$46.09	$37.12	$31.20	$26.35	$23.91	$20.16	$16.55	
as of July 1,1999	$58.29	$53.02	$46.09	$37.12	$32.14	$27.14	$24.63	$20.76	$16.55	
Task 1	3.0	0.0	0.0	0.0	10.0	0.0	0.0	12.0	0.0	25.0
Task 2	3.0	0.0	0.0	0.0	9.0	0.0	0.0	46.0	0.0	58.0
Task 3	1.5	0.0	0.0	0.0	9.0	0.0	0.0	6.0	0.0	16.5
Task 4	2.0	0.0	0.0	0.0	3.0	0.0	0.0	16.0	0.0	21.0
Task 5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	4.0
Subtotal 1998 Hours	3.0	0.0	0.0	0.0	10.0	0.0	0.0	12.0	0.0	25.0
Subtotal 1999 Hours	8.5	0.0	0.0	0.0	21.0	0.0	0.0	70.0	0.0	99.5
Total Hours	11.5	0.0	0.0	0.0	31.0	0.0	0.0	82.0	0.0	124.5
Total Direct Labor Cost	$665	$0	$0	$0	$987	$0	$0	$1,695	$0	$3,347

File: 1673-VV

Dvirka & Bartilucci Consulting Engineers
RONHILL CLEANERS SITE
Work Assignment Number: D003600-11

BREAKDOWN OF ADMINISTRATIVE LOE HOURS ON SCHEDULE 2.11(b-1)

ADMIN ACTIVITY	WORK PLAN DEVELOPMENT													
	Conflict of Interest Checks						Prepare 2.11 Schedules							
NSPE	IX	VIII	VII	VI	V	IV	VIII	VII	VI	V	IV	III	II	I
TASK 1	1.0									8.0				
TASK 2														
TASK 3														
TASK 4														
TASK 5	1.0													
TOTAL	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0

ADMIN ACTIVITY	REVIEW WORK ASSIGNMENT (WA) PROGRESS																											
	Conduct Progress Reviews						Prepare Monthly Report & Update Schedules								MBE/WBE Activities								Program Management					
NSPE	VIII	VII	VI	V	IV	III	VIII	VII	VI	V	IV	III	II	I	VIII	VII	VI	V	IV	III	II	I	IX	VIII	VII	VI	V	IV
TASK 1				1.0						1.0													1.0					
TASK 2				1.0						8.0													1.0					
TASK 3				8.0						1.0													1.0					
TASK 4				1.0						2.0													1.0					
TASK 5				0.0						0.0													0.5					
TOTAL	0.0	0.0	0.0	11.0	0.0	0.0	0.0	0.0	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.50	0.0	0.0	0.0	0.0	0.0

ADMIN ACTIVITY	CAP PREPARATION												MISCELLANEOUS															
	Prepare Monthly Cost Control Report & CAP								Oversee CAP				Update NSPE List								Equipment Use and Inventory				Word Processing and Report Preparation			
NSPE	VIII	VII	VI	V	IV	III	II	I	IX	VIII	VII	VI	VIII	VII	VI	V	IV	III	II	I	IV	III	II	I	IV	III	II	I
TASK 1							12.0		1.0																			
TASK 2							46.0		2.0																			
TASK 3							6.0		0.5																			
TASK 4							16.0		1.0																			
TASK 5							2.0		0.5																			
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	82.0	0.0	5.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

ADMIN ACTIVITY	Total Adm. LOE (hrs)								
NSPE	IX	VIII	VII	VI	V	IV	III	II	I
TASK 1	3	0	0	0	10.0	0	0	12.0	0
TASK 2	3	0	0	0	9.0	0	0	46.0	0
TASK 3	1.5	0	0	0	9.0	0	0	6.0	0
TASK 4	2.0	0	0	0	3.0	0	0	16.0	0
TASK 5	2.0	0	0	0	0.0	0	0	2.0	0
TOTAL	11.5	0	0	0	31.0	0	0	82.0	0

SCHEDULE 2.11 (C)
DIRECT NON-SALARY COSTS
SUMMARY
RONHILL CLEANERS SITE
WORK ASSIGNMENT NUMBER D003600-11

ITEM	MAXIMUM REIMBURSEMENT RATE	UNIT	ESTIMATED NUMBER OF UNITS	TOTAL ESTIMATED COSTS
IN-HOUSE				
Outside Services*	$200.00	set	7	$1,400
Express Mail **	$100.00	package	44	$4,400
State Owned Equipment Repairs	$500.00		2	$1,000
Level D Safety Equipment	$14.00	($/person/day)	60	$840
Level C Safety Equipment	$40.00	($/person/day)	0	$0
Level B Safety Equipment	$50.00	($/person/day)	0	$0
TRAVEL				
Transportation (Personal Car)	$0.31	mile	2800	$868
Tolls	$15.00	trip	4	$60
Van Rental	$400.00	week	20	$8,000
Car Rental	$150.00	week	0	$0
Gas	$50.00	week	20	$1,000
TOTAL DIRECT NON-SALARY COSTS				$17,568

Footnote:

In-house costs for computer services, postage, reproduction, printing, and telephone are not allowable as direct non-salary costs. These costs should be included in the indirect cost pool used to determine the indirect cost percentage for the engineer.

* Includes photo finishing, slides, aerial photograph purchase and reproduction, and any other costs not associated with in-house capabilities

** Includes sample shipments to laboratory

Schedule 2.11 (c)
Direct Non-Salary Costs
RONHILL CLEANERS SITE
Work Assignment Number D003600-11
Summary

Item	Reimbursement* Rate	Est. No. of Units (Task 1)	Total Cost (Task 1)	Est. No. of Units (Task 2)	Total Cost (Task 2)	Est. No. of Units (Task 3)	Total Cost (Task 3)	Est. No. of Units (Task 4)	Total Cost (Task 4)	Est. No. of Units (Task 5)	Est. No. of Units (Task 5)	Total Estimated No. of Units	Total Estimated Cost
A. Miscellaneous (Travel)													
1. Transportation (Personal Car)	$0.31 /mile	900	$279.00	960	$297.60	440	$136.40	500	$155.00	0	$0.00	2800	$868.00
2. Tolls	$15.00 / trip	1	$15.00	1	$15.00	1	$15.00	1	$15.00	0	$0.00	4	$60.00
3. Van Rental	$400.00 /week	0	$0.00	20	$8,000.00	0	$0.00		$0.00	0	$0.00	20	$8,000.00
4. Gas	$50.00 /week	0	$0.00	20	$1,000.00	0	$0.00		$0.00	0	$0.00	20	$1,000.00
Subtotal (Travel)			$294.00		$9,312.60		$151.40		$170.00		$0.00		$9,928.00
B. Miscellaneous (Expenses)													
1. Outside Services*	$200.00 /set	0	$0.00	6	$1,200.00	0	$0.00	1	$200.00	0	$0.00	7	$1,400.00
2. Express Mail	$100.00 /package	2	$200.00	40	$4,000.00	0	$0.00	2	$200.00	0	$0.00	44	$4,400.00
4. State owned equipment repairs	$500.00 each	0	$0.00	2	$1,000.00	0	$0.00	0	$0.00	0	$0.00	2	$1,000.00
Subtotal (Misc. Expenses)			$200.00		$6,200.00		$0.00		$400.00		$0.00		$6,800.00
C. Personal Protective Equipment													
1. Level D Safety Equipment	$14.00 ($/person/day)	0	$0.00	60	$840.00	0	$0.00	0	$0.00	0	$0.00	60	$840.00
2. Level C Safety Equipment	$40.00 ($/person/day)	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00
3. Level B Safety Equipment	$50.00 ($/person/day)	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00	0	$0.00
Subtotal (Protective Equipment)			$0.00		$840.00		$0.00		$0.00		$0.00		$840.00
TOTAL			$494.00		$16,352.60		$151.40		$570.00		$0.00		$17,568.00

Footnote:

In-house costs for computer services, postage, reproduction, printing, and telephone are not allowable as direct non-salary costs.
These costs should be included in the indirect cost pool used to determine the indirect cost percentage for the engineer.

* Includes photo finishing, slides, aerial photograph purchase and reproduction, and any other costs not associated with in-house capabilities.

File: 1673-VV

SCHEDULE 2.11 (d) 1

EQUIPMENT PURCHASED UNDER THE CONTRACT
SUMMARY
RONHILL CLEANERS SITE
WORK ASSIGNMENT NUMBER D003600-11

ITEM	ESTIMATED PURCHASE PRICE	O&M RATE ($/per month)	TERM OF USAGE (MONTHS)	ESTIMATED USAGE COST (COL. 2 + [3X4])
				$0.00
			TOTAL	$0.00

File: 1673-VV

SCHEDULE 2.11 (d) 2

EQUIPMENT CONSULTANT OWNED

RONHILL CLEANERS SITE
WORK ASSIGNMENT NUMBER D003600-11

ITEM	PURCHASE PRICE X 85%	USAGE RATE ($/day)	CAPITAL RECOVERY RATE ($/Unit of Time)	O & M RATE ($/Unit of Time)	ESTIMATED USAGE (days)	ESTIMATED USAGE COST (Col. 3x6)
						$0
					TOTAL	$0

Notes:
Usage Rate = Capital Recovery Rate + O&M rate

The maximum usage rate for an item of equipment reverts to the O&M rate when the total usage reimbursement exceed 85% of the purchase price.

SCHEDULE 2.11 (d) 3
EQUIPMENT
VENDOR RENTED
SUMMARY
RONHILL CLEANERS SITE
WORK ASSIGNMENT NUMBER D003600-11

ITEM	MAXIMUM REIMBURSEMENT RATE	TIME PERIOD	ESTIMATED USAGE (period of time)	ESTIMATED USAGE COST (Col. 2 X 3)
Generator	$55.00	day	20	$1,100
100 ft Water level meter*	$234.00	month	0	
OVA*	$850.00	month	0	
2020 PID*	$846.00	month	0	
Miniram dust meter*	$465.00	month	0	
Horiba*	$245.00	week	0	
Metal detector*	$55.00	week	0	
2-in. Rediflow pump*	$375.00	week	0	
			Total	$1,100

* State owned equipment and will be used depending on availability.

File: 1673-VV

SCHEDULE 2.11 (d) 4
SUMMARY
EXPENDABLE SUPPLIES
RONHILL CLEANERS SITE
WORK ASSIGNMENT NUMBER D003600-11

ITEM	ESTIMATED QUANTITY	UNITS	UNIT COST	TOTAL BUDGETED COST (COL. 2 X 3)
Voss disposable polyethylene weighted bailers	2	Case of 24	$170.00	$340
Poly tubing for groundwater sampling	4000	feet	$0.25	$1,000
3M 3500 Organic Vapor Monitor	1	Case of 10	$170.00	$170
			TOTAL	$1,510

File: 1673-VV

SCHEDULE 2.11 (d) 5
CONSUMABLE SUPPLIES
RONHILL CLEANERS SITE
WORK ASSIGNMENT NUMBER D003600-11
SUMMARY

ITEM	ESTIMATED QUANTITY	UNIT COST	TOTAL BUDGETED COST (COL. 2 X 3)
Miscellaneous Supplies	2	$500.00	$1,000
		TOTAL	$1,000

File: 1673-VV

COST ESTIMATE
NYSDEC -RONHILL DRY CLEANERS SITE
Long Island, Nassau Co., New York

Schedule 2.11(e)

Compensation and Payment
Don Hill Dry Cleaners Site Fracture Trace Analysis

DIRECT SALARY COSTS

Professional Responsibility Level	Labor Classification	Average Reimb. Rate	Maximum Reimb. Rate	Estimated No. of Hours	Total Est. Direct Salary Costs
IX	Geologist/V-Pres	$ 48.08	$ 51.93	53	$ 2,692.48
III	Geophysicist	$ 20.00	$ 22.20	16	$ 960.00
TOTAL DIRECT SALARY COSTS					$ 3,652.48

Rates will be held firm until 9/30/99.

INDIRECT COSTS
Shall not exceed a maximum of 118% . $ 4,309.93

MAXIMUM REIMBURSEMENT RATES FOR DIRECT NON-SALARY COSTS

Item	Max Reimb. Rate (Specify Unit)	Unit	Est. No. of Units	Total Estimated Cost
Per Diem	$ 108.00	day	3	$ 324.00
Miscellaneous Other Direct Costs				
Mileage	$ 0.31	mile	800	$ 248.00
Obtain Additional Literature/Photos		lump sum		$ 300.00
Photograph Enlargements		lump sum		$ 20.00
TOTAL DIRECT NON-SALARY COSTS				$ 892.00

Fixed Fee is 15% of total of Total Direct Salary Costs and Indirect Costs $ 1,194.36 $ 10,048.77

Schedule 2.11 (e)
Cost Plus Fixed-Fee Subcontracts

Ron Hill Cleaners Site

March 25, 1999

NAME OF SUBCONTRACTOR	SERVICES TO BE PERFORMED	SUBCONTRACT PRICE
YEC, INC.	Sampling	$2,938.25

A. Direct Salary Costs

Professional Responsibilty Level	Labor Classi-fication	Average Reimbursement Rate ($/Hr.)		Maximum Reimbursement Rate ($/Hr.)		Estimated Number of Hours	Total Estimated Direct Salary Cost ($)
Principal	VIII	1999	47.69	1999	51.51	4	190.76
Senior Geologist/Scientist/ Engineer/ Licensed Surveyor	V	1999	31.53	1999	34.68	20	630.60
Staff Geologist/ Scientist/Engineer	IV	1999	27.40	1999	30.14	0	0.00
Staff Geologist/ Scientist/Engineer/CAD Operator	III	1999	23.78	1999	26.40	0	0.00
Senior Technician/Staff Engineer/Scientist/Geologist	II	1999	17.60	1999	19.71	12	211.20
Technician/Draftsperson	I	1999	15.94	1999	17.85	0	0.00
						Total Direct Salary Costs:	1,032.56

B. Indirect Costs - 117% of direct salary cost

Indirect Costs:	1,208.10

C. Maximum Reimbursement Rates for Direct Non-Salary Costs:

Item	Maxium Reimbursement Rate	Estimated No. of Units	
Per Diem	0.00 /day	0 days	0.00
Mileage	0.31 /mile	150 miles	46.50
Tolls	10.00 /trip	15	30.00
Survey Equipment Rental	65.00 day	1 day	65.00
CAD Equipment	15.00 hour	0 hours	120.00
Level D Protection	15.00 /manday	0 mndays	0.00
Tele./Postage/Repro./Field supplies	100.00 lump sum		100.00
		Total Direct Non Salary Costs:	361.50

D. Fixed Fee (15% of Total Direct and Indirect Salary Costs)

Fixed Fee:	336.10

HAGER-RICHTER GEOSCIENCE, INC.

Schedule 2.11 (e)
Phase I
Cost-Plus-Fixed-Fee Subcontracts

NAME OF SUBCONTRACTOR	SERVICES TO BE PERFORMED	SUBCONTRACT PRICE
Hager-Richter Geoscience, Inc.	Geophysical Surveys	$8,315.25

1. Direct Salary Costs

Professional Responsibility Level	Labor Classification	Average Reimbursement Rate ($/hr)	Max. Reimbursement Rate ($/hr)	Estimated No. of Hours	Total Estimated Direct Salary Cost (Ave. Reimb. Rate x Est. # of Hours)
Principal	VIII	40.42	40.70	8	323.36
Sen. Geoph.	IV	25.80	27.66	16	412.80
Geoph.	III	20.07	21.00	72	1445.04
Geoph	II	16.76	17.92	20	335.20
Total Direct Salary Costs					$ 2,516.40

Footnotes:

1) These rates will be held firm until December 31, 1999.

2) Reimbursement will be limited to the lesser of either the individual's actual hourly rate or the maximum rate for each labor category.

3) Reimbursement will be limited to the maximum reimbursement rate for the professional responsibility level of the actual work performed.

4) Only those labor classifications indicated with an asterisk (*) will be entitled to overtime.

5) Reimbursement for technical time of principals, owners and officers will be limited to the maximum reimbursement rate of that labor category, the actual hourly rate paid, or the State of New York M-5 rate, whichever is lower.

6) The maximum rates in each labor category can be modified only by mutual written agreement and approved by both the Department and the Comptroller.

7) This Footnote applies to Schedules for years 4 thru 7 only. If the U.S. cost-of living index increases at a rate greater than 6% compounded annually, the maximum salary rates will be subject to renegotiation for future years of the contract. There shall be no retroactive adjustments of payment as a result of renegotiated salary schedules.

B. Indirect Costs

Indirect Costs shall be paid based on a percentage of direct salary costs incurred which shall not exceed a maximum of 127.3 % or the actual rate calculated in accordance with 48 CFR Federal Acquisition Regulation, whichever is lower.

Amount budgeted for indirect costs is $3,203.38

C. Maximum Reimbursement Rates for Direct Non-Salary Costs

Item	Max. Reimbursement Rate (Specify Unit)	Est. No. of Units	Total Estimated Cost
1. Travel			
Mileage	0.25	510	127.50
Per diem	174	4	696.00
2. Equipment Use			
Pul	36	1	36.00
GPR	243	2	486.00
GPR antennas	30	1	30.00
MGX II	324	2	648.00
Total Direct Non-Salary Costs			$2,023.50

D. Fixed Fee

The fixed fee is $571.98

See Schedule 2.10(h) for how the fixed fee should be claimed.

HAGER-RICHTER
GEOSCIENCE, INC.

Schedule 2.11 (e)
Phase II
Cost-Plus-Fixed-Fee Subcontracts

NAME OF SUBCONTRACTOR	SERVICES TO BE PERFORMED	SUBCONTRACT PRICE
Hager-Richter Geoscience, Inc.	Geophysical Surveys	$8,299.54

C. Direct Salary Costs

Professional Responsibility Level	Labor Classification	Average Reimbursement Rate ($/hr)	Max. Reimbursement Rate ($/hr)	Estimated No. of Hours	Total Estimated Direct Salary Cost (Ave. Reimb. Rate x Est. # of Hours)
Principal	VIII	40.42	40.70	6	242.52
Sen. Geoph.	IV	25.80	27.66	20	516.00
Geoph.	III	20.07	21.00	72	1445.04
Geoph	II	16.76	17.92	16	268.16
Total Direct Salary Costs					$ 2,471.72

Footnotes:

7) These rates will be held firm until December 31, 1999.

2) Reimbursement will be limited to the lesser of either the individual's actual hourly rate or the maximum rate for each labor category.

3) Reimbursement will be limited to the maximum reimbursement rate for the professional responsibility level of the actual work performed.

4) Only those labor classifications indicated with an asterisk (*) will be entitled to overtime.

5) Reimbursement for technical time of principals, owners and officers will be limited to the maximum reimbursement rate of that labor category, the actual hourly rate paid, or the State of New York M-5 rate, whichever is lower.

6) The maximum rates in each labor category can be modified only by mutual written agreement and approved by both the Department and the Comptroller.

7) This Footnote applies to Schedules for years 4 thru 7 only. If the U.S. cost-of living index increases at a rate greater than 6% compounded annually, the maximum salary rates will be subject to renegotiation for future years of the contract. There shall be no retroactive adjustments of payment as a result of renegotiated salary schedules.

C. Indirect Costs

Indirect Costs shall be paid based on a percentage of direct salary costs incurred which shall not exceed a maximum of 127.3 % or the actual rate calculated in accordance with 48 CFR Federal Acquisition Regulation, whichever is lower.

Amount budgeted for indirect costs is $3,146.50

D. Maximum Reimbursement Rates for Direct Non-Salary Costs

Item	Max. Reimbursement Rate (Specify Unit)	Est. No. of Units	Total Estimated Cost
1. Travel			
Mileage	0.25	510	127.50
Per diem	174	4	696.00
2. Equipment Use			
Pul	36	0	0.00
GPR	243	0	0.00
GPR antennas	30	0	0.00
MGX II	324	4	1296.00
Total Direct Non-Salary Costs			$2,119.50

E. Fixed Fee

The fixed fee is $561.82

See Schedule 2.10(h) for how the fixed fee should be claimed.

SCHEDULE 2.11 (f) 1
UNIT PRICE SUBCONTRACTS
SUMMARY
RONHILL CLEANERS SITE
Work Assignment No: D003600-11

NAME OF SUBCONTRACTOR	SERVICES TO BE PERFORMED	SUBCONTRACT PRICE	MANAGEMENT FEE
Uni-Tech Drilling Company, Inc.	Borehole and Monitoring Well Installation	$109,281	$3,825

Item	Maximum Reimbursement Rate	Estimated No. of Units	Total Estimated Costs
1. Mobilization/demobilization			
a. Site Mobilization and Demobilization X 2	$0.95 /mile	600 mile	$1,140.00
b. Construction & Removal of Decon Pad	$425.00 ls	1 ls	$425.00
c. Site Setup and Removal	$150.00 ls	1 ls	$150.00
d. Well/Boring Setup	$75.00 /well/boring	13 well/boring	$975.00
2. Drilling Techniques			
2a. Hollow Stem Augers			
(1) 0-50 Feet in Depth			
c. 4.25 Inch ID HSA	$14.00 /foot	700 feet	$9,800.00
(2) 50-100 Feet in Depth			
c. 4.25 Inch ID HSA	$14.00 /foot	640 feet	$8,960.00
2b. Mud Rotary			
(1) 100-200 Feet in Depth			
a. 4 Inch Diameter Bit	$14.00 /foot	450 feet	$6,300.00
(3) 200-250 Feet in Depth			
a. 4 Inch Diameter Bit	$14.00 /foot	50 feet	$700.00
5. Split Spoon Sampling			
(1) 0-50 Feet in Depth			
a. 2.0 Inch OD	$15.00 /sample	35 samples	$525.00
(2) 50-100 Feet in Depth			
a. 2.0 Inch OD	$15.00 /sample	40 samples	$600.00
(3) 100-200 Feet in Depth			
a. 2.0 Inch OD	$20.00 /sample	55 samples	$1,100.00
(4) Greater than 200 Feet in Depth			
a. 2.0 Inch OD	$25.00 /sample	5 samples	$125.00
7. Well Screen 7a. PVC			
(2) PVC Well Screen, 2.0 ID, #10 Slot, Sch. 40			
a. 10 Foot	$12.00 /foot	130 feet	$1,560.00
8. Well Riser 8a. PVC			
(1) PVC Well Riser, Schedule 40			
b. 2.0 Inch ID	$5.00 /foot	1460 feet	$7,300.00
9. Well Screen Sandpack Material	$10.00 /bag	104 bag	$1,040.00
10. Bentonite a. Pellets	$65.00 /pail	12 pail	$780.00
b. Powder	$10.00 /bag	76 bag	$760.00
11. Grout a. Portland Cement - Type I	$12.00 /bag	40 bag	$480.00
b. Portland Cement - Type II	$12.00 /bag	260 bag	$3,120.00
12. Protective Casings			
a. Protective Surface Casing			
(1) Surf Csng w/Lckng Cvr., Drain Hole			
a. 4.0 Inch ID	$250.00 /Casing	13 Casing	$3,250.00
b. locks	$12.00 /lock	13 locks	$156.00
13. Containerization			
a. Provide containers - 55 gallon drums	$45.00 /drum	120 drums	$5,400.00
b. C&S of drill cuttings on-site on pallets	$45.00 /drum	120 drums	$5,400.00
c. C&S of disp. prsnl protect clothing	$35.00 /drum	2 drums	$70.00
d. Labor for drum staging	$150.00 / hour	92	$13,800.00
14. Well Development	$150.00 /hour	78 hour	$11,700.00
18. Specialty Items			
c. Water hauling	$150.00 / hour	15 hour	$2,250.00
19. Standby Time	$130.00 /hour	30 hr	$3,900.00
22. Per Diem Charge (per person)	$85.00 /person day	120 person days	$10,200.00
23. Hydropunch			
2) 50-100 feet	$220.00 ea	7 ea	$1,540.00
3) 100-200 feet	$275.00 ea	21 ea	$5,775.00

Subtotal	$109,281
Management Fee	$3,825
Total	$113,106

File: 1673-VV

SCHEDULE 2.11 (f) 2
UNIT PRICE SUBCONTRACTS
SUMMARY
RONHILL CLEANERS SITE
Work Assignment No. D003600-11

NAME OF SUBCONTRACTOR		SERVICES TO BE PERFORMED	SUBCONTRACT PRICE	MANAGEMENT FEE
Mitkem Corporation		Chemical Sample Analysis	$43,180	$1,511
Item	Method	Maximum Reimbursement Rate	Estimated No. of Units	Total Estimated Costs
Surface Soil				
VOCs	95-1	$260.00 /sample*	2	$520
Shallow Soil (Geoprobe)				
VOCs	95-1	$260.00 /sample*	20	$5,200
Deep Soil (Geoprobe)				
VOCs	95-1	$260.00 /sample*	20	$5,200
Soil Boring				
VOCs	95-1	$130.00 /sample	10	$1,300
Hydropunch Samples				
VOCs (Groundwater)	95-1	$250.00 /sample*	28	$7,000
VOCs (NAPL)	95-1	$250.00 /sample*	3	$750
Groundwater (Monitoring Wells)				
VOCs	95-1	$125.00 /sample	44	$5,500
TAL Metals - iron	6010 or 236.2	$30.00 /sample	4	$120
TAL Metals - mang	6010 or 243.2	$30.00 /sample	4	$120
Groundwater (Geoprobe)				
VOCs	95-1	$250.00 /sample*	28	$7,000
Air Samples				
VOCs	TO14	$375.00 /sample	4	$1,500
Characterization Composite Samples				
VOCs	95-1	$130.00 /sample	7	$910
SVOCs	95-2	$275.00 /sample	7	$1,925
RCRA Metals	6010	$130.00 /sample	7	$910
QA/QC Samples				
Trip Blanks (VOCs)	95-1	$125.00 /sample	10	$1,250
Groundwater				
Matrix Spike				
VOCs	95-1	$125.00 /sample	6	$750
TAL Metals - iron	6010 or 236.2	$30.00 /sample	1	$30
TAL Metals - mang	6010 or 243.2	$30.00 /sample	1	$30
Matrix Spike Duplicate				
VOCs	95-1	$125.00 /sample	6	$750
TAL Metals - iron	6010 or 236.2	$30.00 /sample	1	$30
TAL Metals - mang	6010 or 243.2	$30.00 /sample	1	$30
Matrix Spike Blank				
VOCs	95-1	$125.00 /sample	6	$750
TAL Metals - iron	6010 or 236.2	$30.00 /sample	1	$30
TAL Metals - mang	6010 or 243.2	$30.00 /sample	1	$30
Matrix Spike				
VOCs	95-1	$130.00 /sample	3	$390
Matrix Spike Duplicate				
VOCs	95-1	$130.00 /sample	3	$390
Matrix Spike Blank				
VOCs	95-1	$130.00 /sample	3	$390
Air				
Duplicate				
VOCs	TO14	$375.00 /sample	1	$375
		SUBTOTAL		**$43,180**
*: 24-hour turnaround time		**SUBCONTRACT MANAGEMENT FEE**		**$1,511**
		TOTAL		**$44,691**

File: 1673-VV

SCHEDULE 2.11 (f) 3
UNIT PRICE SUBCONTRACTS
SUMMARY
RONHILL CLEANERS SITE
Work Assignment No: D003600-11

NAME OF SUBCONTRACTOR	SERVICES TO BE PERFORMED	SUBCONTRACT PRICE	MANAGEMENT FEE
Nancy Potak	Data Validation	$3,732	$0

Item	Method	Maximum Reimbursement Rate	Estimated No. of Units	Total Estimated Costs
Surface Soil				
VOCs	95-1	$20.50 /sample	2	$41
Shallow Soil (Geoprobe)				
VOCs	95-1	$20.50 /sample	20	$410
Deep Soil (Geoprobe)				
VOCs	95-1	$20.50 /sample	20	$410
Soil Boring				
VOCs	95-1	$20.50 /sample	10	$205
Hydropunch Samples				
VOCs (Groundwater)	95-1	$18.50 /sample	28	$518
VOCs (NAPL)	95-1	$18.50 /sample	3	$56
Groundwater (Monitoring Wells)				
VOCs	95-1	$18.50 /sample	44	$814
TAL Metals - iron	6010 or 236.2	$1.00 /sample	4	$4
TAL Metals - mang	6010 or 243.2	$1.00 /sample	4	$4
Groundwater (Geoprobe)				
VOCs	95-1	$18.50 /sample	28	$518
Ambient Air Samples				
VOCs	T014	$21.00 /sample	4	$84
QA/QC Samples				
Trip Blanks (VOCs)	95-1	$18.50 /sample	10	$185
Groundwater				
Matrix Spike				
VOCs	95-1	$18.50 /sample	6	$111
TAL Metals - iron	6010 or 236.2	$1.00 /sample	1	$1
TAL Metals - mang	6010 or 243.2	$1.00 /sample	1	$1
Matrix Spike Duplicate				
VOCs	95-1	$18.50 /sample	6	$111
TAL Metals - iron	6010 or 236.2	$1.00 /sample	1	$1
TAL Metals - mang	6010 or 243.2	$1.00 /sample	1	$1
Matrix Spike Blank				
VOCs	95-1	$18.50 /sample	6	$111
TAL Metals - iron	6010 or 236.2	$1.00 /sample	1	$1
TAL Metals - mang	6010 or 243.2	$1.00 /sample	1	$1
VOCs	95-1	$20.50 /sample	2	$41
Matrix Spike Duplicate				
VOCs	95-1	$20.50 /sample	2	$41
Matrix Spike Blank				
VOCs	95-1	$20.50 /sample	2	$41
Air				
Duplicate				
VOCs	311-9	$21.00 /sample	1	$21
		SUBTOTAL		**$3,732**
		SUBCONTRACT MANAGEMENT FEE		**$0**
		TOTAL		**$3,732**

File: 1673-VV

SCHEDULE 2.11 (f) 4
UNIT PRICE SUBCONTRACTS
SUMMARY
RONHILL CLEANERS SITE
Work Assignment No. D003600-11

NAME OF SUBCONTRACTOR	SERVICES TO BE PERFORMED	SUBCONTRACT PRICE	MANAGEMENT FEE
Zebra Environmental Corp.	Geoprobe Services	$17,182	$601

Item	Method	Maximum Reimbursement Rate	Estimated No. of Units	Total Estimated Costs
1	Mobilization and Demobilization Including, site setup, breakdown, cleanup, repair and site restoration	$65.00	12	$780.00
2	Decontamination Pad.	$100.00	1 Lump Sum	$100.00
3	Geoprobe System or Equivalent Truck/van mounted. With associated tools necessary to complete assigned work. With a 2 man crew for an eight hour day on-site.	$990.00	12 Days (8 Hour Days)	$11,880.00
4	Overtime Charge For on-site work in excess of 8 hours	$100.00	24 Hours	$2,400.00
5	Probe Sampling			
	a. Groundwater Samples	$12.00	28 Samples	$336.00
	b. Soil samples (Large sampler)	$12.00	20 Samples	$240.00
	b. Soil samples (Macro sampler)	$12.00	64 Samples	$768.00
	c. Soil Vapor Samples	$9.00	2 Samples	$18.00
7	Bentonite Powder	$35.00	15 Bags	$525.00
8	Asphalt Patch	$7.50	6 Bags	$45.00
9	Containerization	$45.00	2 Drums	$90.00

Subtotal	$17,182.00
Subcontract Management Fee	$601.37
Total	$17,783.37

File: 1673-VV

SCHEDULE 2.11 (f) 5
UNIT PRICE SUBCONTRACTS
SUMMARY
RONHILL CLEANERS SITE
Work Assignment No: D003600-11

NAME OF SUBCONTRACTOR	SERVICES TO BE PERFORMED	SUBCONTRACT PRICE	MANAGEMENT FEE
Chemical Waste Disposal	Drum Removal	$12,950	$453

Item	Maximum Reimbursement Rate		Estimated No. of Units	Total Estimated Costs
Non hazardous	$85.00	/drum	110	$9,350.00
Hazardous	$320.00	/drum	10	$3,200.00
Transport	$100.00	/load	4	$400.00

SUBTOTAL	**$12,950.00**
SUBCONTRACT MANAGEMENT FEE	**$453.25**
TOTAL	**$13,403.25**

File: 1673-VV

Project Name: RONHILL CLEANERS SITE
Work Assignment No.: D003600-11
Task No./Name: All Tasks
Complete: 0.00%

SCHEDULE 2.11 (g)
SUMMARY

Date Prepared:
Billing Period:
Invoice No.:

MONTHLY COST CONTROL REPORT
SUMMARY OF FISCAL INFORMATION

Expenditure Category	A Costs Claimed This Period	B Paid To Date	C Total Disallowed To Date	D Total Costs Incurred To Date (A+B+B1)	E Estimated Costs To Completion	F Total Work Assignment Price (A+B+E)	G Approved Budget	H Estimated Under/(Over) (G-F)
1. Direct Salary Costs	0.00	0.00	0.00	0.00	0.00	0.00	$91,176	0.00
2. Indirect	0.00	0.00	0.00	0.00	0.00	0.00	$137,195	0.00
3. Subtotal Direct Salary Costs and Indirect Costs	0.00	0.00	0.00	0.00	0.00	0.00	$223,863	0.00
4. Travel	0.00	0.00	0.00	0.00	0.00	0.00	$9,928	0.00
5. Other Non-Salary Costs	0.00	0.00	0.00	0.00	0.00	0.00	$7,640	0.00
6. Subtotal Direct Non-Salary Costs	0.00	0.00	0.00	0.00	0.00	0.00	$17,568	0.00
7. Subcontractors	0.00	0.00	0.00	0.00	0.00	0.00	$222,318	0.00
8. Total Work Assignment Cost	0.00	0.00	0.00	0.00	0.00	0.00	$463,749	0.00
9. Fixed Fee	0.00	0.00	0.00	0.00	0.00	0.00	$18,804	0.00
10. Total Work Assignment Price	0.00	0.00	0.00	0.00	0.00	0.00	$482,553	0.00

Project Manager (Engineer) _____ Date _____

File: 1673-VV

SCHEDULE 2.11(g) SUPPLEMENTAL
MONTHLY COST CONTROL REPORT
SUBCONTRACTS

Subcontract Name	Subcontract Costs claimed this Application Incl. Resubmittals	Subcontract Costs Approved for Payment on Previous Application	Total Subcontract Costs to Date (A plus B)	Subcontract Approved Budget	Managemnt Fee Budget	Managemnt Fee Paid	Total Costs To Date
Hager Richter Geoscience, Inc.	0.00	0.00	0.00	16,614.00	0.00		
YEC , Inc.	0.00	0.00	0.00	2,939.00	0.00		
Resolution Resources	0.00	0.00	0.00	10,050.00	0.00		
Uni-Tech Drilling Co., Inc.	0.00	0.00	0.00	109,281.00	3,824.84		
Mitkem Corporation	0.00	0.00	0.00	43,180.00	1,511.30		
Zebra Environmental Corp.	0.00	0.00	0.00	17,182.00	601.37		
Nancy Potak	0.00	0.00	0.00	3,731.50	0.00		
Disposal (estimate)	0.00	0.00	0.00	12,950.00	453.25		
Total				215,927.50	$6,390.76		

Project Name:RONHILL CLEANERS SITE
Work Assignment No.: D003600-11
Task No./Name: 1/Scoping and Work Plan Development
Complete: 0.00%

SCHEDULE 2.11(g)

Date Prepared:
Billing Period:
Invoice No.:

MONTHLY COST CONTROL REPORT
SUMMARY OF FISCAL INFORMATION

	A Costs Claimed This Period	B Paid To Date	C Total Disallowed To Date	D Total Costs Incurred To Date (A+B+B1)	E Estimated Costs To Completion	F Total Work Assignment Price (A+B+E)	G Approved Budget	H Estimated Under/(Over) (G-F)
1. Direct Salary Costs	0.00	0.00	0.00	0.00	0.00	0.00	$9,566	0.00
2. Indirect	0.00	0.00	0.00	0.00	0.00	0.00	$15,143	0.00
3. Subtotal Direct Salary Costs and Indirect Costs	0.00	0.00	0.00	0.00	0.00	0.00	$24,710	0.00
4. Travel	0.00	0.00	0.00	0.00	0.00	0.00	$294	0.00
5. Other Non-Salary Costs	0.00	0.00	0.00	0.00	0.00	0.00	$200	0.00
6. Subtotal Direct Non-Salary Costs	0.00	0.00	0.00	0.00	0.00	0.00	$494	0.00
7. Subcontractors	0.00	0.00	0.00	0.00	0.00	0.00	$0	0.00
8. Total Work Assignment Cost	0.00	0.00	0.00	0.00	0.00	0.00	$25,204	0.00
9. Fixed Fee	0.00	0.00	0.00	0.00	0.00	0.00	$2,076	0.00
10. Total Work Assignment Price	0.00	0.00	0.00	0.00	0.00	0.00	$27,279	0.00

Project Manager (Engineer) _____ Date _____

Project Name: RONHILL CLEANERS SITE
Work Assignment No.: D003600-11
Task No./Name: 2/Site Characterization
Complete: 0.00%

SCHEDULE 2.11(g)

Date Prepared:
Billing Period:
Invoice No.:

MONTHLY COST CONTROL REPORT
SUMMARY OF FISCAL INFORMATION

	A Costs Claimed This Period	B Paid To Date	C Total Disallowed To Date	D Total Costs Incurred To Date (A+B+B1)	E Estimated Costs To Completion	F Total Work Assignment Price (A+B+E)	G Approved Budget	H Estimated Under/(Over) (G-F)
1. Direct Salary Costs	0.00	0.00	0.00	0.00	0.00	0.00	$65,775	0.00
2. Indirect	0.00	0.00	0.00	0.00	0.00	0.00	$104,121	0.00
3. Subtotal Direct Salary Costs and Indirect Costs	0.00	0.00	0.00	0.00	0.00	0.00	$169,896	0.00
4. Travel	0.00	0.00	0.00	0.00	0.00	0.00	$9,313	0.00
5. Other Non-Salary Costs	0.00	0.00	0.00	0.00	0.00	0.00	$7,040	0.00
6. Subtotal Direct Non-Salary Costs	0.00	0.00	0.00	0.00	0.00	0.00	$16,353	0.00
7. Subcontractors	0.00	0.00	0.00	0.00	0.00	0.00	$222,318	0.00
8. Total Work Assignment Cost	0.00	0.00	0.00	0.00	0.00	0.00	$408,566	0.00
9. Fixed Fee	0.00	0.00	0.00	0.00	0.00	0.00	$14,271	0.00
10. Total Work Assignment Price	0.00	0.00	0.00	0.00	0.00	0.00	$422,838	0.00

Project Manager (Engineer) _____ Date _____

Project Name: RONHILL CLEANERS SITE
Work Assignment No.: D003600-11
Task No./Name: 3/Develop and Screen Alternatives(1st & 2nd phase FS)
Complete: 0.00%

SCHEDULE 2.11(g)

Date Prepared:
Billing Period:
Invoice No.:

MONTHLY COST CONTROL REPORT
SUMMARY OF FISCAL INFORMATION

	A Costs Claimed This Period	B Paid To Date	C Total Disallowed To Date	D Total Costs Incurred To Date (A+B+B1)	E Estimated Costs To Completion	F Total Work Assignment Price (A+B+E)	G Approved Budget	H Estimated Under/(Over) (G-F)
1. Direct Salary Costs	0.00	0.00	0.00	0.00	0.00	0.00	$3,660	0.00
2. Indirect	0.00	0.00	0.00	0.00	0.00	0.00	$5,794	0.00
3. Subtotal Direct Salary Costs and Indirect Costs	0.00	0.00	0.00	0.00	0.00	0.00	$9,455	0.00
4. Travel	0.00	0.00	0.00	0.00	0.00	0.00	$151	0.00
5. Other Non-Salary Costs	0.00	0.00	0.00	0.00	0.00	0.00	$0	0.00
6. Subtotal Direct Non-Salary Costs	0.00	0.00	0.00	0.00	0.00	0.00	$151	0.00
7. Subcontractors	0.00	0.00	0.00	0.00	0.00	0.00	$0	0.00
8. Total Work Assignment Cost	0.00	0.00	0.00	0.00	0.00	0.00	$9,606	0.00
9. Fixed Fee	0.00	0.00	0.00	0.00	0.00	0.00	$794	0.00
10. Total Work Assignment Price	0.00	0.00	0.00	0.00	0.00	0.00	$10,400	0.00

Project Manager (Engineer) _____ Date _____

Project Name: RONHILL CLEANERS SITE

SCHEDULE 2.11(g)

Work Assignment No.: D003600-11

Date Prepared:

Task No./Name: 4/Detailed Analysis of Alternatives (3rd phase FS)

Billing Period:

Complete: 0.00%

Invoice No.:

MONTHLY COST CONTROL REPORT
SUMMARY OF FISCAL INFORMATION

	A Costs Claimed This Period	B Paid To Date	C Total Disallowed To Date	D Total Costs Incurred To Date (A+B+B1)	E Estimated Costs To Completion	F Total Work Assignment Price (A+B+E)	G Approved Budget	H Estimated Under/(Over) (G-F)
1. Direct Salary Costs	0.00	0.00	0.00	0.00	0.00	0.00	$7,667	0.00
2. Indirect	0.00	0.00	0.00	0.00	0.00	0.00	$12,136	0.00
3. Subtotal Direct Salary Costs and Indirect Costs	0.00	0.00	0.00	0.00	0.00	0.00	$19,803	0.00
4. Travel	0.00	0.00	0.00	0.00	0.00	0.00	$170	0.00
5. Other Non-Salary Costs	0.00	0.00	0.00	0.00	0.00	0.00	$400	0.00
6. Subtotal Direct Non-Salary Costs	0.00	0.00	0.00	0.00	0.00	0.00	$570	0.00
7. Subcontractors	0.00	0.00	0.00	0.00	0.00	0.00	$0	0.00
8. Total Work Assignment Cost	0.00	0.00	0.00	0.00	0.00	0.00	$20,373	0.00
9. Fixed Fee	0.00	0.00	0.00	0.00	0.00	0.00	$1,663	0.00
10. Total Work Assignment Price	0.00	0.00	0.00	0.00	0.00	0.00	$22,036	0.00

File: 1673-VV

Project Manager (Engineer) _____ Date _____

SCHEDULE 2.11(g)

MONTHLY COST CONTROL REPORT
SUMMARY OF FISCAL INFORMATION

	A Costs Claimed This Period	B Paid To Date	C Total Disallowed To Date	D Total Costs Incurred To Date (A+B+B1)	E Estimated Costs To Completion	F Total Work Assignment Price (A+B+E)	G Approved Budget	H Estimated Under/(Over) (G-F)
1. Direct Salary Costs	0.00	0.00	0.00	0.00	0.00	0.00	$4,509	0.00
2. Indirect	0.00	0.00	0.00	0.00	0.00	0.00	$7,137	0.00
3. Subtotal Direct Salary Costs and Indirect Costs	0.00	0.00	0.00	0.00	0.00	0.00	$11,646	0.00
4. Travel	0.00	0.00	0.00	0.00	0.00	0.00	$0	0.00
5. Other Non-Salary Costs	0.00	0.00	0.00	0.00	0.00	0.00	$0	0.00
6. Subtotal Direct Non-Salary Costs	0.00	0.00	0.00	0.00	0.00	0.00	$0	0.00
7. Subcontractors	0.00	0.00	0.00	0.00	0.00	0.00	$0	0.00
8. Total Work Assignment Cost	0.00	0.00	0.00	0.00	0.00	0.00	$11,646	0.00
9. Fixed Fee	0.00	0.00	0.00	0.00	0.00	0.00	$978	0.00
10. Total Work Assignment Price	0.00	0.00	0.00	0.00	0.00	0.00	$12,624	0.00

File: 1673-VV

Project Manager (Engineer) _____ Date _____

Schedule 2.11 (h)

Project Name: RONHILL CLEANERS SITE
Work Assignment No.: D003600-11

Date Prepared:
Billing Period
Invoice No.

Monthly Cost Control Report
Summary of Labor Hours
Expended to Date/Estimated To Completion

NSPE Labor Classification	IX EXP/EST	VIII EXP/EST	VII EXP/EST	VI EXP/EST	V EXP/EST	IV EXP/EST	III EXP/EST	I & II EXP/EST	ADMIN/ SUPPORT	TOTAL NUMBER OF DIRECT LABOR HOURS EXP/EST
Task 1	0/ 20	0/ 0	0/ 0	0/ 0	0/ 204	0/ 12	0/ 16	0/ 68	0/ 25	0/ 320
Task 2	0/ 28	0/ 0	0/ 0	0/ 0	0/ 690	0/ 1266	0/ 88	0/ 262	0/ 58	0/ 2334
Task 3	0/ 8	0/ 0	0/ 0	0/ 0	0/ 80	0/ 0	0/ 0	0/ 30	0/ 16.5	0/ 118
Task 4	0/ 14	0/ 0	0/ 0	0/ 0	0/ 156	0/ 0	0/ 24	0/ 60	0/ 21	0/ 254
Task 5	0/ 2	0/ 0	0/ 0	0/ 0	0/ 114	0/ 10	0/ 0	0/ 22	0/ 4	0/ 148
Total Hours	0/ 72	0/ 0	0/ 0	0/ 0	0/ 1244	0/ 1288	0/ 128	0/ 442	0/ 124.5	0/ 3174

DRILLING COMPARISON
RONHILL CLEANERS SITE
Work Assignment No. D003600-11

ITEM	UNITS	UNI-TECH DRILLING RATE	UNI-TECH DRILLING TOTAL PRICE	PARRAT WOLFF RATE	PARRAT WOLFF TOTAL PRICE	LAND, AIR AND WATER RATE	LAND, AIR AND WATER TOTAL PRICE
1. Mobilization/demobilization							
a. Site Mobilization and Demobilization	(2 mobilizations) mile	$0.95 /mile	$1,140.00	$3.00 /mile	$1,800.00	$200.00 ls	$200.00
b. Construction & Removal of Decon Pad	1 ls	$425.00 ls	$425.00	$900.00 ls	$900.00	$900.00 ls	$900.00
c. Site Setup and Removal	1 ls	$150.00 ls	$150.00	$500.00 ls	$500.00	$300.00 ls	$300.00
d. Well/Boring Setup	13 well	$75.00 /well	$975.00	$175.00 /well	$2,275.00	$150.00 /well	$1,950.00
2. Drilling Techniques							
2a. Hollow Stem Augers							
(1) 0-50 Feet in Depth							
c. 4.25 Inch ID HSA	700 feet	$14.00 /foot	$9,800.00	$20.00 /foot	$14,000.00	$17.00 /foot	$11,900.00
(2) 50-100 Feet in Depth							
c. 4.25 Inch ID HSA	640 feet	$14.00 /foot	$8,960.00	$29.00 /foot	$18,560.00	$17.00 /foot	$10,880.00
2d. Mud Rotary							
(3) 100-200 Feet in Depth							
a. 4.0 Inch Diameter Bit	450 feet	$14.00 /foot	$6,300.00	$30.00 /foot	$13,500.00	$17.00 /foot	$7,650.00
(4) Greater than 200 Feet in Depth							
a. 4.0 Inch Diameter Bit	50 feet	$14.00 /foot	$700.00	$60.00 /foot	$3,000.00	$17.00 /foot	$850.00
5. Split Spoon Sampling							
(1) 0-50 Feet in Depth							
a. 2.0 Inch OD	35 samples	$15.00 /sample	$525.00	$20.00 /sample	$700.00	$25.00 /sample	$875.00
(2) 50-100 Feet in Depth							
a. 2.0 Inch OD	40 samples	$15.00 /sample	$600.00	$20.00 /sample	$800.00	$25.00 /sample	$1,000.00
(3) 100-200 Feet in Depth							
a. 2.0 Inch OD	55 samples	$20.00 /sample	$1,100.00	$50.00 /sample	$2,750.00	$25.00 /sample	$1,375.00
(4) greater than 200 Feet in Depth							
a. 2.0 Inch OD	5 sample	$25.00 /sample	$125.00	$75.00 /sample	$375.00		
7. \17a. PVC							
(2) PVC Well Screen, 2.0 ID, #10 Slot, Sch. 40							
a. 10 Foot	130 feet	$12.00 /foot	$1,560.00	$10.00 /foot	$1,300.00	$7.00 /foot	$910.00
8. \18a. PVC							
(1) PVC Well Riser, Schedule 40							
b. 2.0 Inch ID	1460 feet	$5.00 /foot	$7,300.00	$5.00 /foot	$7,300.00	$6.00 /foot	$8,760.00
9. Well Screen Sandpack Material	104 bag	$10.00 /bag	$1,040.00	$10.00 /bag	$1,040.00	$10.00 /bag	$1,040.00
10. a. Pellets	12 pail	$65.00 /pail	$780.00	$35.00 /pail	$420.00	$40.00 /pail	$480.00
b. Powder	76 bag	$10.00 /bag	$760.00	$15.00 /bag	$1,140.00	$40.00 /bag	$3,040.00
11. a. Portland Cement - Type I	40 bag	$12.00 /bag	$480.00	$25.00 /bag	$1,000.00	$15.00 /bag	$600.00
b. Portland Cement - Type II	260 bag	$12.00 /bag	$3,120.00	$25.00 /bag	$6,500.00	$15.00 /bag	$3,900.00
12. 12a. Protective Surface Casing							
(1) Flush Mount Surf Csng w/Lckng Cvr., Drain Hole							
a. 4.0 Inch ID	13 Casing	$250.00 /Casing	$3,250.00	$250.00 /Casing	$3,250.00	$250.00 /Casing	$3,250.00
c. Keyed Alike Locks	13 locks	$12.00 /lock	$156.00	$10.00 /lock	$130.00	$20.00 /lock	$260.00
13. Containerization							
a. Provide containers - 55 gallon drums	120	$45.00 /drum	$5,400.00	$50.00 /drum	$6,000.00	$50.00 /drum	$6,000.00
b. C&S of drill cuttings and purge water	120 drums	$45.00 /drum	$5,400.00	$65.00 /drum	$7,800.00	$45.00 /drum	$5,400.00
c. C&S of used disp. prsnl protect. clothing on-site on pallets	2 drums	$35.00 /drum	$70.00	$65.00 /drum	$130.00	$35.00 /drum	$70.00
d. Labor for drum staging	92 hours	$150.00 /hour	$13,800.00	$150.00 / hour	$13,800.00	$150.00 /hour	$13,800.00
14. Well Development	78 hour	$150.00 /hour	$11,700.00	$65.00 /hour	$5,070.00	$150.00 /hour	$11,700.00
16. Backhoe w/operator							
a. Mob/demob	0 ls	$800.00 ls	$0.00	$400.00 ls	$0.00	$800.00 ls	$0.00
b. Rubber tire (10 ft excavation)	0 hour	$180.00 /hour	$0.00	$80.00 /hour	$0.00	$180.00 /hour	$0.00
18. Specialty Items							
c. Water hauling	15 hour	$150.00 /hour	$2,250.00	$75.00 /hour	$1,125.00	$65.00 /hour	$975.00
19. Standby Time	30 hr	$130.00 /hour	$3,900.00	$75.00 /hour	$2,250.00	$150.00 /hour	$4,500.00
22. Per Diem Charge (per person)	120 person days	$85.00 /person day	$10,200.00	$50.00 /person day	$6,000.00	$0.00 /person day	$0.00
23. Hydropunch							
2) 50-100 feet	7 ea	$220.00 ea	$1,540.00	$450.00 ea	$3,150.00	$350.00 ea	$2,450.00
3) 100-200 feet	21 ea	$275.00 ea	$5,775.00	$550.00 ea	$11,550.00	$400.00 ea	$8,400.00
	TOTAL		**$109,281.00**		**$138,115.00**		**$113,415.00**

File: 1673-VV

GEOPROBE COMPARISON
RONHILL CLEANERS SITE
Work Assignment No. D003600-11

Item	Estimated No. of Units	Zebra Environmental Maximum Reimbursement Rate	Zebra Environmental Total Estimated Costs	Vironex Maximum Reimbursement Rate	Vironex Total Estimated Costs
1 Mobilization and Demobilization Including, site setup, breakdown, cleanup, repair and site restoration	20/100/100 Miles*			0.35	35.00
2 Decontamination Pad.	1 Lump Sum	100.00	100.00	900.00	900.00
3 Geoprobe System or Equivalent Truck/van mounted. With associated tools necessary to complete assigned work. With a 2 man crew for an eight hour day on-site.	12 Days (8 Hour Days)	990.00	11,880.00	1,100.00	13,200.00
4 Overtime Charge For on-site work in excess of 8 hours	24 Hours	100.00	2,400.00	125.00	3,000.00
5 Probe Sampling					
a. Groundwater Samples	28 Samples	12.00	336.00	13.00	364.00
b. Soil samples (Large sampler)	20 Samples	12.00	240.00	2.00	40.00
c. Soil samples (Macro sampler)	64 Samples	12.00	768.00	3.50	224.00
d. Soil vapor samples	2 Samples	9.00	18.00	7.00	14.00
11 Portland Cement (Type I or II)	0 Bags	16.00	0.00	9.20	0.00
12 Bentonite Powder	15 Bags	35.00	525.00	11.00	165.00
13 Asphalt Patch	6 Bags	7.50	45.00	9.20	55.20
14 Containerization	2 Drums	45.00	90.00	35.00	70.00
15. Daily travel (Zebra only, in lieu of mobili	12 Trips	65.00	780.00		
TOTAL			17,182.00		17,997.20

*Assumes 100 miles for Target Environmental and Vironex. Not applicable to Zebra due to separate item added to Zebra proposal for this contract (see item 15).

File: 1673-VV

DRILL CUTTING DISPOSAL COMPARISON
SUMMARY
RONHILL CLEANERS SITE
Work Assignment No: D003600-2

Item	Units	Allied Waste Services Rate	Allied Waste Services Total Price	Innovative Recycling Rate	Innovative Recycling Total Price	Chemical Waste Disposal (7/1) Rate	Chemical Waste Disposal (7/1) Total Price
Non hazardous	110	$115.00 /drum	$12,650.00	$110.00 /drum	$12,100.00	$85.00 /drum	$9,350.00
Hazardous	10			$275.00 /drum	$2,750.00		$0.00
Low Level (treatable):	10	$160.00 /drum	$1,600.00			$180.00 /drum	$1,800.00
High Level (burnable):	10	$275.00 /drum	$2,750.00			$320.00 /drum	$3,200.00
Transport	12	$400.00 /load x 1	$400.00	$60.00 /load X 12	$720.00	$100.00 /load x 4	$400.00
TOTAL	(low haz)		**$14,650.00**		**$15,570.00**		**$11,550.00**
	(high haz)		**$15,800.00**				**$12,950.00**

File: 1673-VV

Appendix A

APPENDIX A

RESOLUTION RESOURCES, INC. -
SCOPE OF WORK FOR FRACTURE TRACE ANALYSIS

PROPOSAL

PERFORM FRACTURE TRACE ANALYSIS

at the

RONHILL DRY CLEANERS SITE
NASSAU COUNTY, NEW YORK

Submitted to:

Ms. Vasiliki Vassil, Geologist
DVIRKA and BARTILUCCI
330 Crossways Park Drive
Woodbury, New York 11797-2016
Tele: 516-364-9890 Fax: 516-364-9045

Submitted by:

Resolution Resources, Inc.

Brian B. Herridge
President
310 West 52nd Street
Minneapolis, MN 55419
Tele: 612-824-3234

Mary-Linda Adams
Vice-President
8167 Old Waterloo Road
Warrenton, VA 20186
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Administration:
3636 Goodwin Road
Ionia, Michigan 48846
Tele: 517-647-1832 Fax: 517-647-2862

March 16, 1999

INTRODUCTION

Resolution Resources, Inc. is pleased to submit a proposal to perform a fracture trace analysis on aerial photographs at the Ronhill Dry Cleaners Site in Nassau County, New York.

The photographic interpretation will be used to provide targets for wells that will further define the extent of contamination. This method will aid in locating more optimal wells in unconsolidated sediments.

A detailed cost estimate has been attached.

WORK TASKS

Task 1 .. Background Review

This task will include reviewing available background information on the site history, contaminant distribution, geology, and hydrogeology. It will also include performing a search for historical photographs.

Task 2 .. Site Visit

This task would consist of traveling to the site in Nassau County, reviewing existing historical photographs, selecting and enlarging the photographs to perform a detailed fracture trace analysis.

Task 3 .. Perform Photographic Interpretation

This task would consist of performing a stereographic interpretation, using a Topcon viewer and enlargement of photographs, if required; followed by evaluation of the photographs.

Task 4 .. Written Report

This report would summarize all activities, provide hard copy of the photographic interpretation, and recommendations.

COST ESTIMATE
NYSDEC -RONHILL DRY CLEANERS SITE
Long Island, Nassau Co., New York

Task 1 .. Background Review

Activity	Geologist V-President						Total
Photographic Library Research	4						
Review Background Data	8						
Obtain Add'l Literature/Photos	2						$ 300.00
Subtotal Hours	14						
Rate / Hour	$ 48.08						
Direct Labor Cost	$ 673.12						$ 673.12
Task 1 Estimate							$ 973.12

Task 2 .. Site Visit

Activity	Geologist V-President			Charge per Day / Mile	No. of Days / Miles	Other	Total
Travel	10						
Mileage				$ 0.31	800		$ 248.00
On Site	8						
Per Diem				$ 108.00	3		$ 324.00
Subtotal Hours	18						
Rate / Hour	$ 48.08						
Direct Labor Cost	$ 865.44						$ 865.44
Task 2 Estimate							$ 1,437.44

COST ESTIMATE
NYSDEC -RONHILL DRY CLEANERS SITE
Long Island, Nassau Co., New York

Task 3 .. Perform Photographic Interpretation

Activity	Geologist V-President				Other (Enlargements)		Total
Photographic Interpretation	12						
Photograph Enlargements	2				$ 20.00		$ 20.00
Review Historical Info. From Photos	2						
Subtotal Hours	16						
Rate / Hour	$ 48.08						
Direct Labor Cost	$ 769.28						$ 769.28
Task 3 Estimate							$ 789.28

Task 4 .. Written Report

Activity	Geologist V-President	Geo-physicist					Total
Report Generation	8						
Graphics		48					
Subtotal Hours	8	48					
Rate / Hour	$ 48.08	$ 20.00					
Labor Cost	$ 384.64	$ 960.00					$ 1,344.64
Task 4 Estimate							$ 1,344.64