ON-SITE REMEDIAL WORK PLAN 100 COMMERCIAL STREET PLAINVIEW, NEW YORK

PREPARED IN CONJUNCTION WITH
NYSDEC VOLUNTARY CLEANUP PROGRAM
AGREEMENT NO. D1-0001-97-04
BETWEEN DAVID DOYAGA, ESQ., AS TRUSTEE IN BANKRUPTCY FOR
COMM 100 ASSOCIATES AND NYSDEC

PROJECT NO. COMM 97-01

SEPTEMBER 1997

H2M GROUP
Engineers • Architects • Scientists • Planners

HOLZMACHER, McLENDON & MURRELL, P.C.
575 Broad Hollow Road
Melville, New York 11747-5076

H2MGROUP

Holzmacher, McLendon & Murrell, P.C. • H2M Associates, Inc.
H2M Construction Management, Inc. • H2M Labs, Inc.

ACEC Member
Supporting Excellence
In Engineering

575 Broad Hollow Road, Melville, NY 11747-5076
(516) 756-8000 • Fax: (516) 694-4122

September 9, 1997

Mr. Jamie Ascher
New York State Department of Environmental Conservation
Division of Hazardous Waste Remediation
SUNY, Building 40
Stony Brook, NY 11790-2356

Re: On-Site Remedial Work Plan
100 Commercial Street
Plainview, New York
NYSDEC Voluntary Cleanup Program Agreement No. D1-0001-97-04
H2M Project No. COMM 97-01

Dear Mr. Ascher:

Enclosed, please find two copies of the Holzmacher, McLendon & Murrell, P.C. (H2M) On-Site Remedial Work Plan for your review and comment.

We appreciate your timely review of this work plan. If you should have any questions, please contact me at Extension 611.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

Richard J. Baldwin, C.P.G.
Senior Hydrogeologist

Enclosures

cc: Mark Chertok, Esq.
David Doyaga, Esq.

ON-SITE REMEDIAL WORK PLAN 100 COMMERCIAL STREET PLAINVIEW, NEW YORK

PREPARED IN CONJUNCTION WITH
NYSDEC VOLUNTARY CLEANUP PROGRAM
AGREEMENT NO. D1-0001-97-04
BETWEEN DAVID DOYAGA, ESQ., AS TRUSTEE IN BANKRUPTCY FOR
COMM 100 ASSOCIATES AND NYSDEC

PROJECT NO. COMM 97-01

SEPTEMBER 1997

H2MGROUP

ON-SITE REMEDIAL WORK PLAN 100 COMMERCIAL STREET PLAINVIEW, NEW YORK

SEPTEMBER 1997

TABLE OF CONTENTS

ON-SITE REMEDIAL
WORK PLAN
100 COMMERCIAL STREET
PLAINVIEW, NEW YORK

SEPTEMBER 1997

TABLE OF CONTENTS (CONT.)

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

ON-SITE REMEDIAL
WORK PLAN
100 COMMERCIAL STREET
PLAINVIEW, NEW YORK

SEPTEMBER 1997

1.0 INTRODUCTION

Holzmacher, McLendon & Murrell, P.C. (H2M) submits this Work Plan for the 100 Commercial Street site located in Plainview, New York (the "Site", see Figure 1.1) under the New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Program Agreement (No. D1-0001-97-04). This Work Plan identifies the past soil and groundwater investigation and cleanup activities that have been conducted at the Site and describes the design of the Air Sparge/Soil Vapor Extraction System ("AS/SVE System") proposed to address residual contamination, the monitoring, operation and maintenance (O&M) schedule, and closure criteria. Based upon the extensive soil and groundwater investigation and cleanup activities that have been performed to date, H2M has determined that the proposed AS/SVE System is the most effective method for addressing Site conditions.

2.0 SUMMARY OF CONTAMINATION AND HYDROGEOLOGY

This section of the Work Plan summarizes the nature and extent of soil and groundwater contamination and site-specific hydrogeology, based upon investigation and cleanup activities performed to date.

2.1 Soil Contamination

Several rounds of soil investigation across the Site were conducted in the early 1990's by Eikon Planning and Development Corporation (Eikon) for the following areas of the property, as an earlier Phase I study had identified these locations as potential areas of concern. These investigations focused on:

- Two sub-surface wastewater disposal systems.
- Five storm water dry wells.
- An electrical transformer.
- An area located adjacent to a 10,000-gallon fuel oil underground storage tank.

In addition, a site-wide stratigraphic evaluation was conducted.

Sub-Surface Wastewater Disposal Systems

Eikon evaluated the bottom sediments and soil adjacent to two leaching pools (LPs) in the rear yard and three LPs in the southerly front yard (see Figure 2.1). As shown in Figures 2.2 and 2.3, bottom sediments were collected from the five leaching pools. Additionally, Eikon collected soil samples from adjacent to the leaching pools.

The bottom sediments collected from LP-2 and LP-5 did not contain any volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) or priority pollutant metals (PPM) above concentrations of concern (see Table 2.1). The bottom sediments from LP-3 and LP-4 contained PPM metals above the NYSDEC recommended soil cleanup objectives (RSCO) presented in the NYSDEC Division Technical and Administrative Guidance Memo (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels, HWR-94-4046, January 24, 1994

Determination of Soil Cleanup Objectives and Cleanup Levels, HWR-94-4046, January 24, 1994 (revised 4/95). The bottom sediments from LP-1 contained PPM, SVOCs, and VOCs above NYSDEC RSCOs. Tetrachloroethene (PCE) and trichloroethene (TCE) were detected in the bottom sediment sample collected from LP-1 at 48,170 and 932.4 milligrams per kilogram (mg/kg), respectively. None of the soil samples drilled in the vicinity of the five LPs contained contaminants above levels of concern (see Table 2.1).

Based upon these analytical results, Eikon conducted a remedial action which consisted of removing the bottom sediments from LP-1, LP-3, and LP-4. Post-remediation confirmatory soil samples were collected and analyzed for PPM from all three leaching pools. The sample from LP-1 was also analyzed for VOCs and SVOCs (see Table 2.1). PCE was present in the confirmatory soil sample from LP-1 at 550 mg/kg. Additionally, 1,2,4-trichlorobenzene was detected above its respective RSCO in the LP-1 confirmatory soil sample. Copper, at 34.2 mg/kg in the LP-4 confirmatory sample, was the only priority pollutant metal detected above RSCOs in the three samples. While the copper detected in the soil sample from LP-4 exceeded its NYSDEC RSCO, it was present within typical Eastern United States background concentrations (e.g., 1 to 50 mg/kg); therefore, additional remediation of the bottom sediments of LP-4 were not conducted.

Soil boring SP1 was drilled and sampled through LP-1 to a depth of 45-feet bgs. The 40- to 42- and 45- to 47-foot bgs soil samples were submitted for VOCs, SVOCs, and PPM analyses. Concentrations below respective RSCOs of select VOCs and SVOCs were detected in both soil samples. No priority pollutant metal exceeded RSCOs in either soil sample.

Five Storm Drain Dry Wells

Five storm drain dry wells are present at the site (see Figure 2.1). Eikon collected bottom sediments from each dry well and analyzed the samples for VOCs, SVOCs, target analyte list (TAL) metals plus cyanide, pesticides/PCB, and total petroleum hydrocarbons.

No analytes exceeded NYSDEC RSCOs in the bottom sediments collected from storm drains (SD) SD-1 and SD-2 (see Table 2.1). Minor exceedances of RSCOs were noted for select SVOCs in the bottom sediments collected from SD-3, SD-4, and SD-5. Selected metals were detected above RSCOs in the bottoms sediments from SD-3. Due to the depth of groundwater (greater than 90 feet below ground surface) and the relatively minor exceedances of RSCOs, remediation was not recommended.

Electrical Transformer

Eikon collected and analyzed a sample of the surface soils adjacent to the pad-mounted electrical transformer for PCBs. The PCB Aroclor 1254 was detected at 2.2 mg/kg (see Figure 2.1 and Table 2.1). Due to the depth of groundwater (greater than 90 feet below ground surface) and the relatively minor exceedances of RSCOs, no remediation was recommended.

Area Located Adjacent to a 10,000-Gallon Fuel Oil Underground Storage Tank

Eikon conducted a Phase II Site Investigation during which four soil borings were drilled and sampled adjacent to the 10,000-gallon fuel oil underground storage tank (UST) (see Figures 2.1 and 2.2 and Table 2.1). This northwest area was also referred to as the "rear yard" and the "contaminated soil area" by Eikon in several reports.

While drilling soil boring SB2 adjacent to the fuel oil UST, Eikon noted "elevated volatile odors". A soil sample was grabbed from the side-wall of the boring at a depth of 2- to 3-feet bgs and submitted for VOC. Based upon the cuttings generated while drilling SB-2, VOC-impacted sediments were not thought to extend below 3 feet in depth. PCE, toluene, ethylbenzene, methylene chloride, and trichlorofluoromethane were detected in the SB2 soil sample (see Table 2.1).

Based upon the analytical results of SB2 and the SVS, Eikon conducted a removal action of the "solvent contaminated soil". An approximately 38-foot long, 27-foot wide, and 25-foot deep pit was eventually excavated. Excavation activities were halted due to structural concerns

for the nearby building. A confirmatory soil sample (SS2) was collected from 15-feet bgs and analyzed for VOCs. Relatively low concentrations of toluene, ethylbenzene, and xylenes were detected. After excavating as much sediment as possible, Eikon lined the excavated area with plastic sheeting and backfilled it with clean soil. The soil was stockpiled near the northwest corner of the building (see Figure 2.2).

A total of 17 soil borings were drilled and sampled by Eikon as part of the Phase IV Investigation (see Figure 2.2). Elevated soil vapor PID readings were present to the west, north, and northeast of the excavation area. Eikon assumed that elevated PID readings indicated the presence of VOC contamination and did not submit any soil samples exhibiting high PID readings for confirmatory laboratory analyses. Eikon submitted five soil samples for VOC analyses. These samples were collected from soil borings in which the shallower soil samples indicated the presence of VOCs. The SB8-2 soil sample collected from 20- to 22-feet bgs contained PCE and TCE were at 490 and 11J ug/kg, respectively. Some of the SVOCs exceeded the RSCOs in soil samples collected from SB-1, SB-2, SB-3, and SB-4.

Four additional soil borings were drilled and sampled in areas where elevated PID responses had been noted in the rear yard solvent area. Soil samples were collected from the depths with elevated PID readings and submitted for chemical analyses. Additionally, soil boring SB1-3 was drilled and sampled to evaluate the presence of VOCs between 35- and 37-feet bgs directly beneath the excavation area. The soil samples were analyzed for VOCs by EPA Method 8240 plus a ten-peak library search and total xylenes. The 4- to 6-foot bgs soil sample from SB3-3 contained toluene, ethylbenzene, and total xylenes at 2.2, 11.3, and 127.9 mg/kg, respectively. Concentrations below respective RSCO of toluene and/or xylenes were detected in the other two soil samples which had exhibited elevated PID readings in the past.

Site-wide stratigraphic evaluation

Eikon drilled an additional 27 soil borings to approximately 20-feet bgs as part of a site-wide stratigraphic assessment (see Figure 2.1). The cuttings were screened with a PID and

lithologic logs of the borings were prepared. Eikon noted varying amounts of fill across the site based on the 27 soil borings. Based upon elevated PID readings from the cuttings, a soil sample was collected from the northwest corner of the facility's rear yard. The 2- to 4-foot bgs soil sample was analyzed for VOCs+10. No VOCs were detected above NYSDEC RSCOs (see Table 2.1).

Summary of Soil Investigations

Based upon Eikon's results, two areas of soil contamination remain at the site:

1. The sediments underlying Leaching Pool No. 1 located near the northwest corner of the facility (see Figures 2.1 and 2.2) contain halogenated VOCs.

2. Hydrocarbon VOCs, including toluene and ethylbenzene and SVOCs, were detected in a soil boring (SS2) located near the 10,000-gallon No. 2 fuel oil underground storage tank (UST) also located in the northwest corner of the facility.

Both areas of soil contamination are located in the northwest corner of the property (see Figure 2.2). The remedial alternative discussed in Section 3.0 was selected and will be designed to address both documented areas of soil contamination.

2.2 Groundwater Contamination

As part of a NYSDEC-approved 1995 Investigation, H2M installed and sampled two shallow groundwater monitoring wells (MW-3 and MW-4) (See Figure 2.4) on the site (see H2M letter report dated August 30, 1995). Well MW-7, installed by others for an upgradient source area investigation, was also sampled. A potentiometric surface map was prepared for the shallow aquifer. The groundwater flow direction beneath the site was to the south southeast with a gradient of 0.0074 feet per foot on August 23, 1995.

The groundwater sample collected from MW-3 (located on an upgradient portion of the site) contained 12 micrograms per liter (ug/l) PCE. The groundwater sample collected from MW-4 contained total 1,2-dichloroethene (1,2-DCE), 1,1,1-trichloroethane (TCA), TCE, and PCE at 27, 22, 31, 310 ug/l, respectively. TCL VOCs were not detected in the groundwater sample collected from MW-7.

In May of 1996, H2M conducted a NYSDEC-approved off-site groundwater investigation (OSGI) to evaluate the vertical and horizontal extent contamination. The results of the OSGI are detailed in a H2M letter dated July 15, 1996. The data indicated that a groundwater contamination plume existed south southeast of the property.

Based upon the results of work conducted by H2M , the following conclusions can be made:

1. Groundwater in the Upper Glacial aquifer beneath the 100 Commercial Street site is impacted by halogenated solvents and associated degradation products.
2. The concentrations of halogenated solvents attenuate in the downgradient direction. This attenuation is observed both horizontally and vertically.
3. Groundwater downgradient of the 100 Commercial Street site in the vicinity of Express Street is impacted by halogenated solvents at concentrations which exceeded NYSDEC Class GA groundwater-quality standards.
4. The analytical data indicate that a likely source of TCA and TCE is present south southeast of the site, located between Commercial Street and Ridge Road.

2.3 Hydrogeology

Based upon the boring logs prepared during the drilling of Wells MW-3 and MW-4, the site is underlain to a depth of approximately 114 feet below ground surface (bgs) predominantly by sand and gravelly sand. These lithologies are consistent with a glacial outwash origin

typically found in the Upper Glacial aquifer (Smolensky, et. al., 1989). According to published data, the top of the Magothy aquifer occurs between 320 to 420 feet bgs in the vicinity of the site.

A potentiometric surface map was prepared for the Upper Glacial aquifer using data collected from Wells MW-3, MW-4, and MW-7 (see Figure 2.2). The resulting groundwater flow direction was east southeast with a gradient of 0.0074 feet per foot. A potentiometric surface map prepared for April 25, 1994 using data from nearby monitoring wells resulted in a groundwater flow direction to the east with a gradient of 0.0044 feet per foot. The variation in groundwater flow direction is likely due to the site's location near the groundwater flow divide of Long Island.

3.0 PROPOSED REMEDIAL ACTION PLAN

An Air AS/SVE will address the known source areas of soil and groundwater contamination at the site.

This remedial technology has been selected for the following reasons:

1. The AS/SVE technology has proven very effective in remediating the COCs (halogenated solvents and associated degradation products) in the highly porous and homogeneous sand and gravel lithologies of Long Island.
2. The AS/SVE system will address both the on-site groundwater contamination and unsaturated zone contamination. The SVE system will also remediate both VOCs and SVOCs present in the northwest corner of the facility and in the stockpiled soil which was generated during the removal action.
3. Within 18 to 24 months of start up, the AS/SVE system is expected to remediate the impacted soils underlying the site as well as the on-site groundwater contamination in the shallow Upper Glacial aquifer.
4. The technology is performed in-situ, generates minimal waste products requiring off-site disposal, and involves minimal facility disruption during installation and operation.

Other remedial technologies were evaluated prior to selecting the AS/SVE remedial alternative, including excavation of the soils beneath LP-1 to a depth of 45 feet and the installation of a groundwater pump and treat system to address the groundwater contamination. Excavation of impacted soils is infeasible due to the depth and the extent of VOC contamination (VOCs were documented in subsurface in the vicinity of the UST). Without source remediation in the unsaturated zone, the groundwater pump and treat alternative would require at least 5 years and likely substantially longer to successfully remediate the contaminated groundwater. To reiterate, the AS/SVE system was selected due to its ability to concurrently remediate the unsaturated soils in the two documented source areas and the on-site groundwater within a 18 to 24 month time

period. Additionally, similar systems have proved successful in remediating similar sites on Long Island due to the highly porous and homogeneous nature of the underlying sand and gravel units.

3.1 AS/SVE System Conceptual Design

As envisioned, the AS system would consist of five air-sparge points installed in the area of LP-1 and the UST excavation (see Figures 3.1 and 3.2). Each sparge point will be set at a depth of approximately 10 to 12 feet below groundwater (approximately 112 feet below ground surface (bgs)) and air will be injected through each point to volatilize the COCs. Based upon our experience with Long Island lithologies, we have assumed a conservative 15-foot radius of influence (ROI) for the AS system for this conceptual design. This ROI would be confirmed through system start-up testing.

Nine SVE points will be installed within the selected boreholes of the AS injection points. As shown in Figure 3.2, three SVE points, set at different depths, will be placed within three separate bore holes. The purpose of the SVE system is to capture and remove the volatile organic compounds (VOCs) stripped from the groundwater by the AS system and any remnant VOC contamination which may still be present in the unsaturated zone. Additionally, a single SVE point will be installed within the on-site soil stockpile which resulted from the Eikon removal action. If present at concentrations above NYSDEC Air Guide 1 values, the extracted vapors will be directed through a granulated activated carbon (GAC) system to remove the VOCs prior to discharge to the atmosphere. H2M will provide detailed design and specification deliverables once the NYSDEC approves the conceptual design.

H2M expects that the AS/SVE system will be operated for approximately 18 to 24 months. During this time, H2M will conduct weekly inspections to ensure that the AS/SVE system is operating properly. Additionally, the VOC concentration in the SVE out gas will be measured with a PID to assess system performance.

3.2 Closure Criteria

Once the AS/SVE system is on line and operating properly, H2M will monitor the system's operational performance to evaluate when the remedial action will be complete. This performance monitoring will include evaluating both the quality of on-site groundwater and the concentrations of VOCs in the SVE system off-gas.

3.2.1 Groundwater Closure Criteria

On-site wells MW-3, MW-4, and MW-5 will be sampled on a quarterly basis during the operational phase of the remediation. All groundwater samples will be analyzed for TCL VOCs. The remediation of the groundwater will be considered complete when:

1. VOCs are not detected above NYSDEC Class GA groundwater quality standards; or
2. Based upon review of the quarterly groundwater data, once the groundwater quality in the on-site downgradient monitoring wells is equal to or better than the groundwater quality in the upgradient monitoring well (MW-3). For comparison purposes, analytical results within 5 micrograms per liter of one another will be considered equal.

Groundwater samples will be collected on a quarterly basis from the above wells for one year after system shutdown to confirm the effectiveness of the remediation.

3.2.2 Soil Closure Criteria

The SVE off-gas will be measured weekly with a PID during the operational phase of the remediation. At a minimum, the SVE system will be operated while the AS system is on line to ensure that VOCs stripped from the groundwater are captured in the vadose zone.

The PID data will be plotted against time to determine the effectiveness in remediating the contaminated vadose zone. With time, we expect the concentrations of

VOCs to reduce dramatically until an asymptotic condition occurs. Once an asymptotic condition is observed and the AS system is shut off, the SVE system will be shut down for a two week period and then restarted. The off gas PID readings will be plotted against time to determine if rebounding effects occur. The vadose zone remediation will be considered complete when minimal (e.g., 20 percent) or no VOC rebound occurs.

4.0 GROUNDWATER AND AS/SVE SYSTEM MONITORING

The groundwater quality beneath the site will be monitored on a quarterly basis to evaluate the effectiveness of the AS/SVE system as described in this section. Additionally, the off gas of the SVE system will be monitored on a weekly basis.

4.1 Groundwater Monitoring Well Installation

In accordance with the request of the NYSDEC, a third on-site groundwater monitoring well (herein designated MW-5) will be installed approximately 200 feet west of MW-4 along Commercial Street (see Figure 2.4). The contractor for drilling and related well installation activities will be a New York State licensed monitoring well driller. The driller will be made aware of the nature of the drilling activities and will be experienced in soil/groundwater investigations of this nature. All field activities will be conducted under the direction of a qualified H2M hydrogeologist. The well boring will be drilled and sampled utilizing a HSA drill rig. All drilling equipment will be decontaminated prior to use at each drilling location.

Prior to commencement of drilling, site-specific underground structures, overhead structures, and other surface features which may impede drilling will be identified. Appropriate utilities will be contacted for mark outs. All drill cuttings will be transported to the site and placed on and covered by plastic sheeting near the MW-3 location.

The groundwater monitoring well will be constructed with 4-inch polyvinyl chloride (PVC) flush-joint risers with a 15-foot section of 0.010 inch slot-size PVC well screen. The well will be installed in accordance with NYSDEC specifications for wells in unconsolidated formations. Groundwater is expected to be encountered at approximately 100-ft bgs. However, the depth at which groundwater is first encountered may vary due to the topographic variations in the vicinity of the site.

The annular space around the well screen will be filled with a sand filter pack extending from 6-inches below the bottom of the screen to a height of 2 feet above the

top of the screen. A 2-foot seal of bentonite pellets will be placed above the filter pack. The bentonite pellets will be hydrated for 30-60 minutes prior to installation of the cement/bentonite grout. The depth to the bottom and top of each seal will be measured in the borehole to the nearest 0.1 foot using a weighted tape. The remaining annular space will be grouted with a bentonite/cement slurry using the tremie method. A cement/bentonite surface seal will be constructed by filling the annular space of the borehole and will extend from approximately three feet below-grade to grade where a flush-mounted well manhole will be installed. A water-tight locking cap will be attached to the top of the PVC casing. A flush-to-grade steel cover assembly will be set in grout around the well casing.

The groundwater monitoring well will be developed by bailing and pumping. During purging, the pump will be moved up and down through the saturated section of the screened interval to surge the well. Specific conductivity, pH, and temperature measurements will be taken of the discharge until the test parameters stabilize to confirm adequate development. Stabilization will be established when two consecutive well-volume readings are within 10 percent of one another. Turbidity of the discharge will also be monitored and well development will continue until a measurement of less than 50 nephelometric turbidity units (NTU) is achieved or until turbidity stabilizes. Depth to groundwater measurements will be made before and after well development. All observations made during development will be recorded on well sampling development forms. The development water will be disposed of on site.

Once the groundwater monitoring well has been installed and developed, the top of casing elevation of the well will be surveyed to the nearest 0.01 foot to the site-specific datum. The horizontal location of the well will be surveyed to the corners of existing building and property boundaries. A synoptic round of depths to groundwater, measured from the top of casing, will be collected from the three on-site wells.

Based on the survey and depths to groundwater, a potentiometric surface map of the shallow Upper Glacial aquifer will be prepared. The direction of groundwater flow, as well as the gradient of the potentiometric surface, will be determined from this map.

4.2 Groundwater Sampling

Following well construction and development, groundwater samples will be collected from wells MW-3, MW-4 and MW-5 on a quarterly basis. Upon opening the monitoring wells, a PID will be used to screen for total VOCs in the ambient atmosphere and in the headspace of the well. PID values will be recorded and compared to ambient background readings. The following procedure will be followed for groundwater sampling:

1. Prior to the purging of the wells for sample collection, a static water level measurement to the nearest hundredth foot will be recorded in each monitoring well.
2. To ensure a representative sample from the monitoring well, purging of the well is required. In general, the groundwater standing in the well casing prior to the sample collection will be similar in quality to that in the surrounding aquifer or local groundwater, but it may not be representative.
3. A volume of water equal to at least three times that standing in the screened casing will be purged from the well before sample collection. If the monitoring well has a low yield, standing water will be fully evacuated and a sample collected upon recovery to 80 percent of static water level. A decontaminated PVC bailer shall be used to remove the required volume of groundwater. Prior to the sampling event, all sampling equipment shall be decontaminated. All water removed during the evacuation process shall be disposed of on site.
4. A dedicated, pre-cleaned, polyethylene, disposable bailer will be attached to dedicated polypropylene rope or nylon line. The appropriate sample bottles will be filled directly from the bailer as soon as it is removed from the well.

The sample containers will be immediately placed on ice in a cooler under strict chain of custody procedures.

5. The well cap shall be secured and the above process shall be repeated at the next monitoring well.

All groundwater samples will be analyzed for TCL VOCs. The groundwater results will be compared to the Class GA Groundwater Standards presented in the NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1): Ambient Water Quality and Guidance Values, October, 1993.

Decontamination

All drilling equipment will be steam cleaned prior to work and in between drilling locations. An on-site potable water supply will be used for steam cleaning and other purposes as necessary. The well screen and casing will be decontaminated by steam cleaning unless the well materials have been cleaned and sealed in plastic at the factory. The decontamination rinsate will be disposed of on site.

All non-drilling equipment (including pumps, bailers, etc.) shall be decontaminated for field use either by steam cleaning or according to the following procedures:

- Non-phosphate detergent and tap water wash and scrubbing.
- Tap water rinse.
- Distilled/deionized water rinse.

4.3 SVE Monitoring

The Total VOC concentration in the SVE system off gas will be measured with a PID on a weekly basis. A tedlar bag will be used to collect a sample of the SVE effluent which will then be measured with a PID. GAC filters will be used if the data indicates that the mass of VOCs being discharge by the system are in excess of NYSDEC Air

Guide 1 values. A tedlar bag sample will be collected from after the GAC filter, if required, to ensure the effectiveness of the GAC.

5.0 QA/QC PLAN

All groundwater and quality assurance/quality control (QA/QC) samples will be analyzed at H2M Labs, Inc. in Melville, New York. H2M Labs, Inc. is a NYSDOH-ELAP-CLP certified laboratory, proficient in all aspects of the 1991 Analytical Services Protocol including the ability to perform continuous liquid-liquid extraction. All groundwater and QA/QC groundwater samples will be analyzed for TCL VOCs. The list of analytes and contract-required quantitation limits (CRQLs) are included in Table 5.1. The data shall be reported in a "report only" format.

All appropriate laboratory procedures including the analytical methods, laboratory data processing and reporting, and laboratory QA/QC procedures are available from H2M upon request.

The overall QA/QC Plan objective is to produce data at the highest quality level. In order to ensure that data collected in the field is consistent and accurate, forms will be utilized for repetitive data collection, such as depth to water in wells, well locations, etc. These field forms include Well Logging, Field Sampling and Water Level Data Records.

The purpose of the QA/QC samples is to ensure that the analytical data are precise, accurate, representative, complete, and comparable.

Blind Duplicate Samples

One blind duplicate groundwater sample will be collected per quarterly sampling event of the groundwater monitoring wells. Each sample will be assigned a fictitious identification to ensure the applicability of the method. The analytical results between the sample/blind duplicate will be compared to evaluate whether the data reported by the laboratory are precise, accurate, representative, and comparable.

Trip Blanks

One trip blank per each day of TCL VOC sample collection will be utilized during groundwater sampling activities. The analytical results from the trip blanks will be used to evaluate the impact to the groundwater analytical results by sample transport, shipping, and field conditions.

Field Blanks

One field blank (equipment rinsate blank) per sampling event will be collected and analyzed to determine if the field decontamination procedures were effective. One field blank will be collected by pouring analyte-free water through a unused disposable bailer into the appropriate glassware.

6.0 HEALTH AND SAFETY PLAN

The primary health and safety concerns while conducting the remedial construction, system O&M, and groundwater monitoring are inhalation or dermal-contact exposure to hazardous materials and physical hazards. H2M has prepared a site-specific Health and Safety Plan (HASP) (see Appendix A). All field personnel (including subcontractors) shall abide by the H2M HASP during all phases of the work.

FIGURES

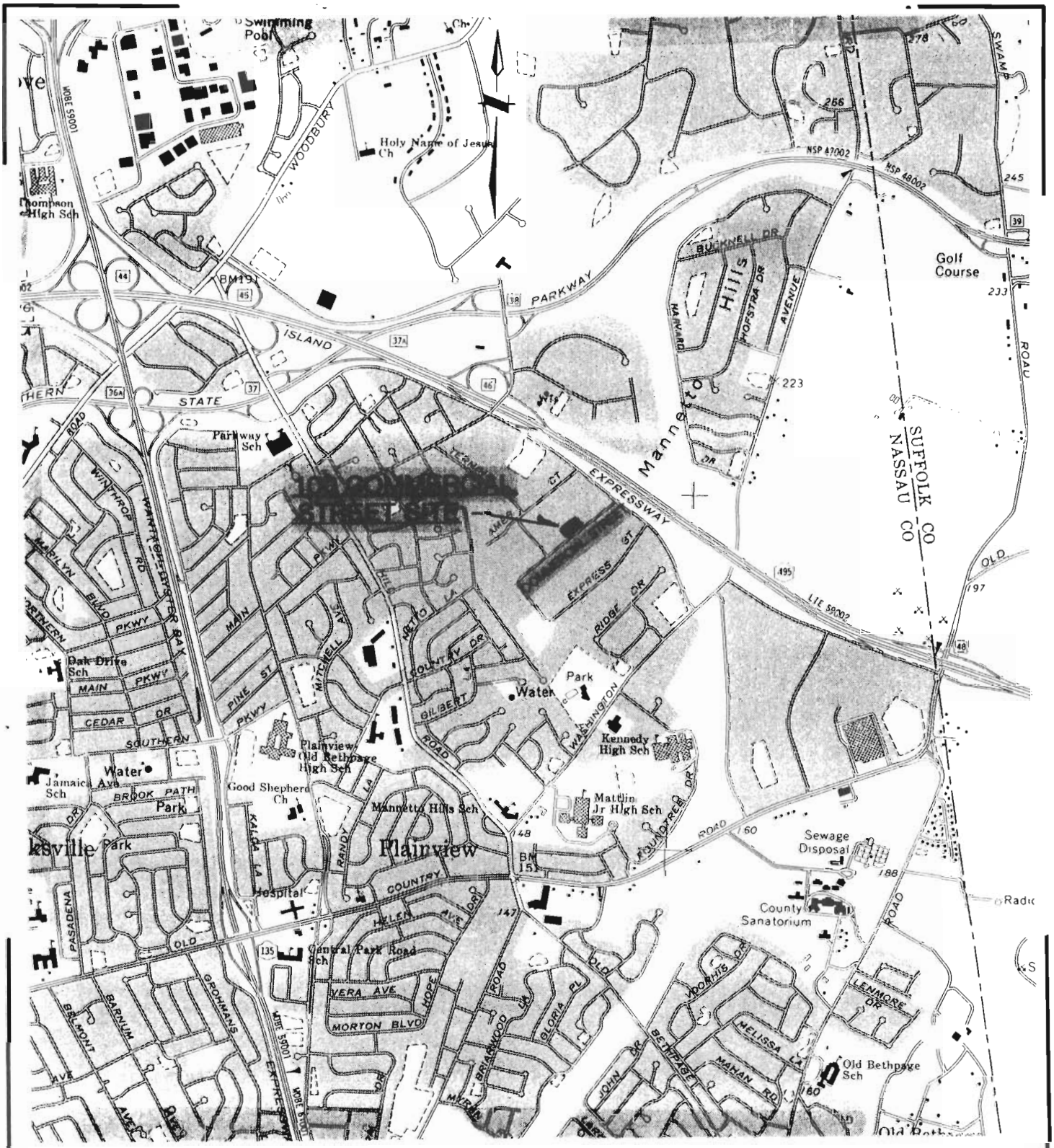


FIGURE 1.1

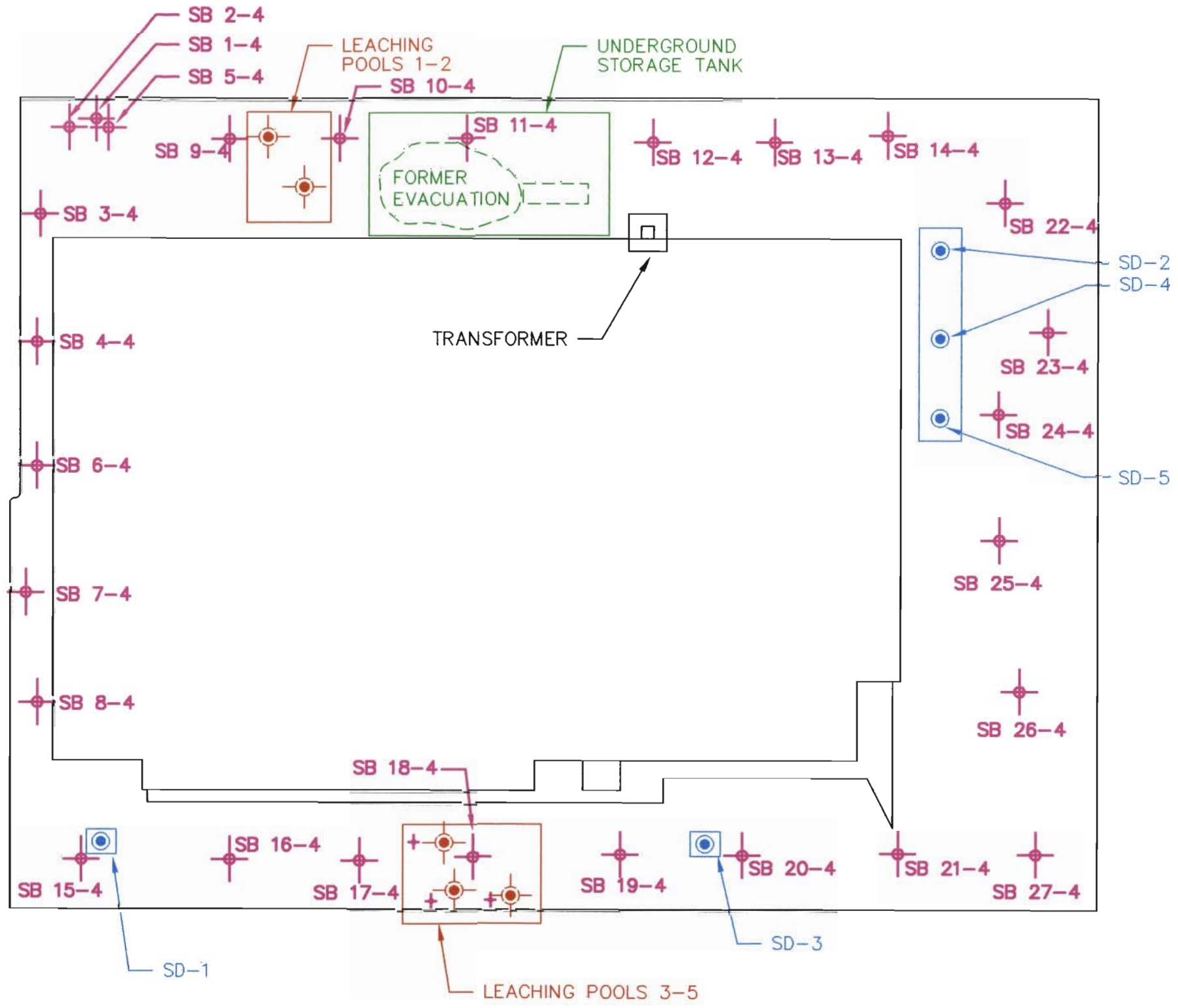
100 COMMERCIAL ST.

SITE LOCATION MAP

SCALE: 1" = 2000'

H2MGROUP
ENGINEERS · ARCHITECTS · PLANNERS · SCIENTISTS · SURVEYORS
MELVILLE, N.Y.
TOTOWA, N.J.

M:\CADD\COMM\9701\F002_1 8-8-97 1:47:30 pm EST



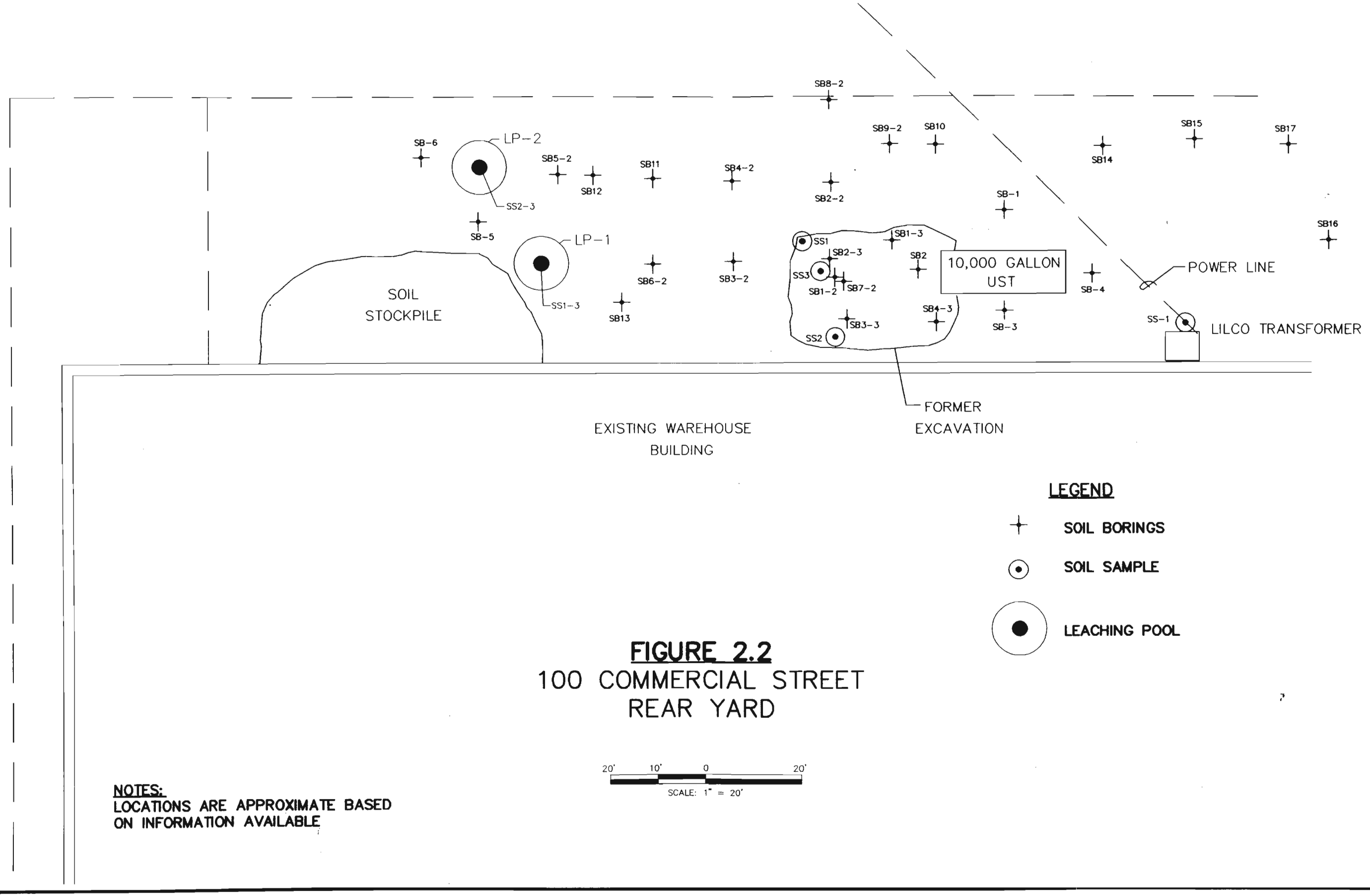
LEGEND:

- SB: STRATIGRAPHIC ASSESSMENT
- SANITARY SYSTEM LEACHING POOLS
- STORM DRAIN DRY WELLS

FIGURE 2.1
100 COMMERCIAL STREET
SITE OVERVIEW

SCALE
1" = 50'

M:\CADD\COMM\9701\FIGURE2 8-8-97 1:05:21 pm EST



LEGEND

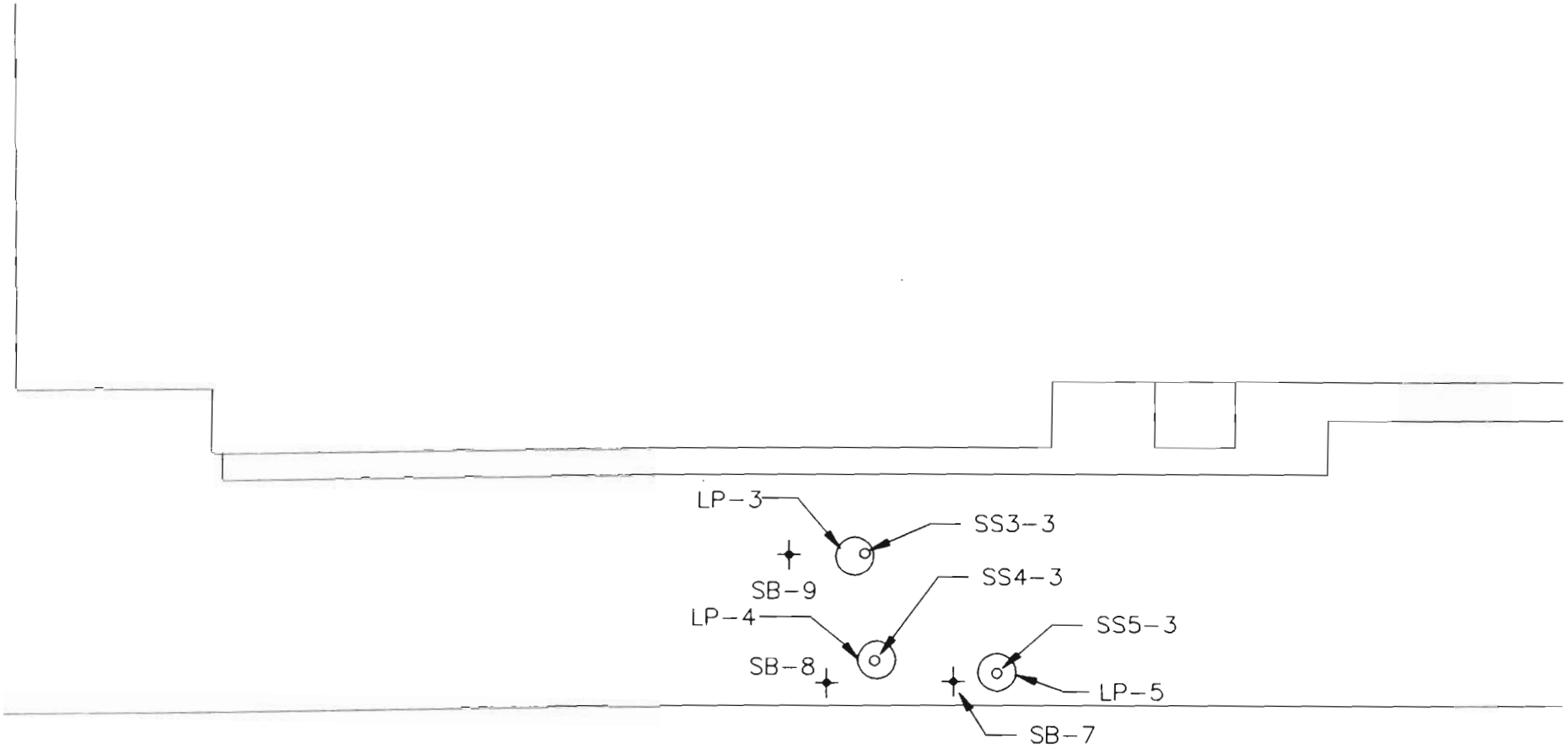
- SOIL BORINGS
- SOIL SAMPLE
- LEACHING POOL

FIGURE 2.2
100 COMMERCIAL STREET
REAR YARD

20' 10' 0 20'
SCALE: 1" = 20'

NOTES:
LOCATIONS ARE APPROXIMATE BASED ON INFORMATION AVAILABLE

M:\CADD\COMM\9701\FIG2_1 8-8-97 1:43:52 pm EST



LEGEND

+ SOIL BORING

⊙ LEACHING POOL

FIGURE 2.3
100 COMMERCIAL STREET
FRONT YARD

SCALE: 1" = 30'

NOTE:
LOCATIONS ARE APPROXIMATE BASED ON INFORMATION AVAILABLE

M:\CADD\COMM\9701\FIGURE2 8-8-97 12:58:33 pm EST

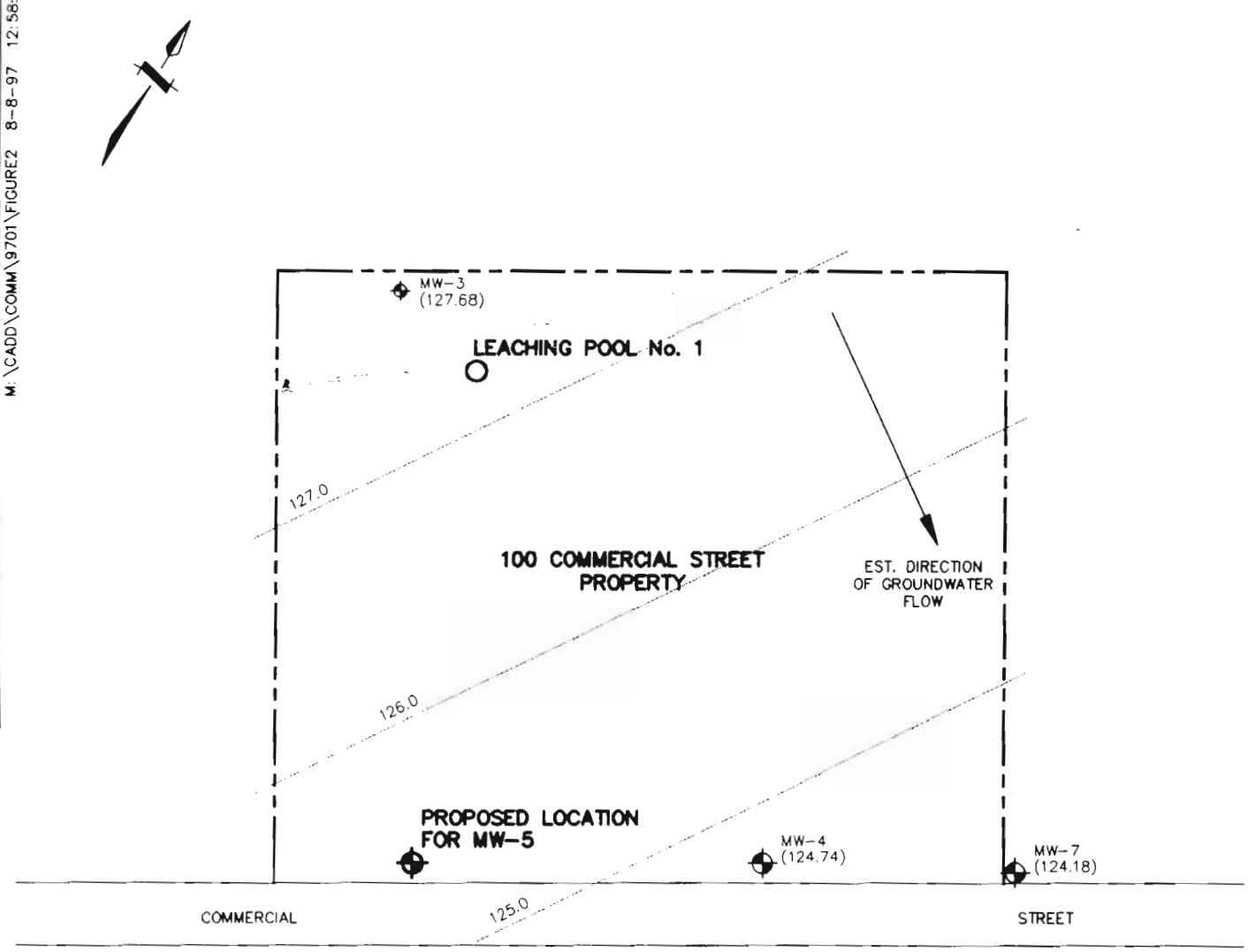


FIGURE 2.4

SITE VICINITY MAP WITH POTENTIOMETRIC SURFACE ON AUGUST 23, 1995

100' 50' 0 100'

SCALE: 1" = 100'

EXPLANATION

MW-3 (127.68) LOCATION MONITORING WELL WITH GROUNDWATER ELEVATION

127.0 POTENTIOMETRIC SURFACE LINE

M:\CADD\COMM\9701\FIGURE2 8-8-97 1:40:00 pm EST

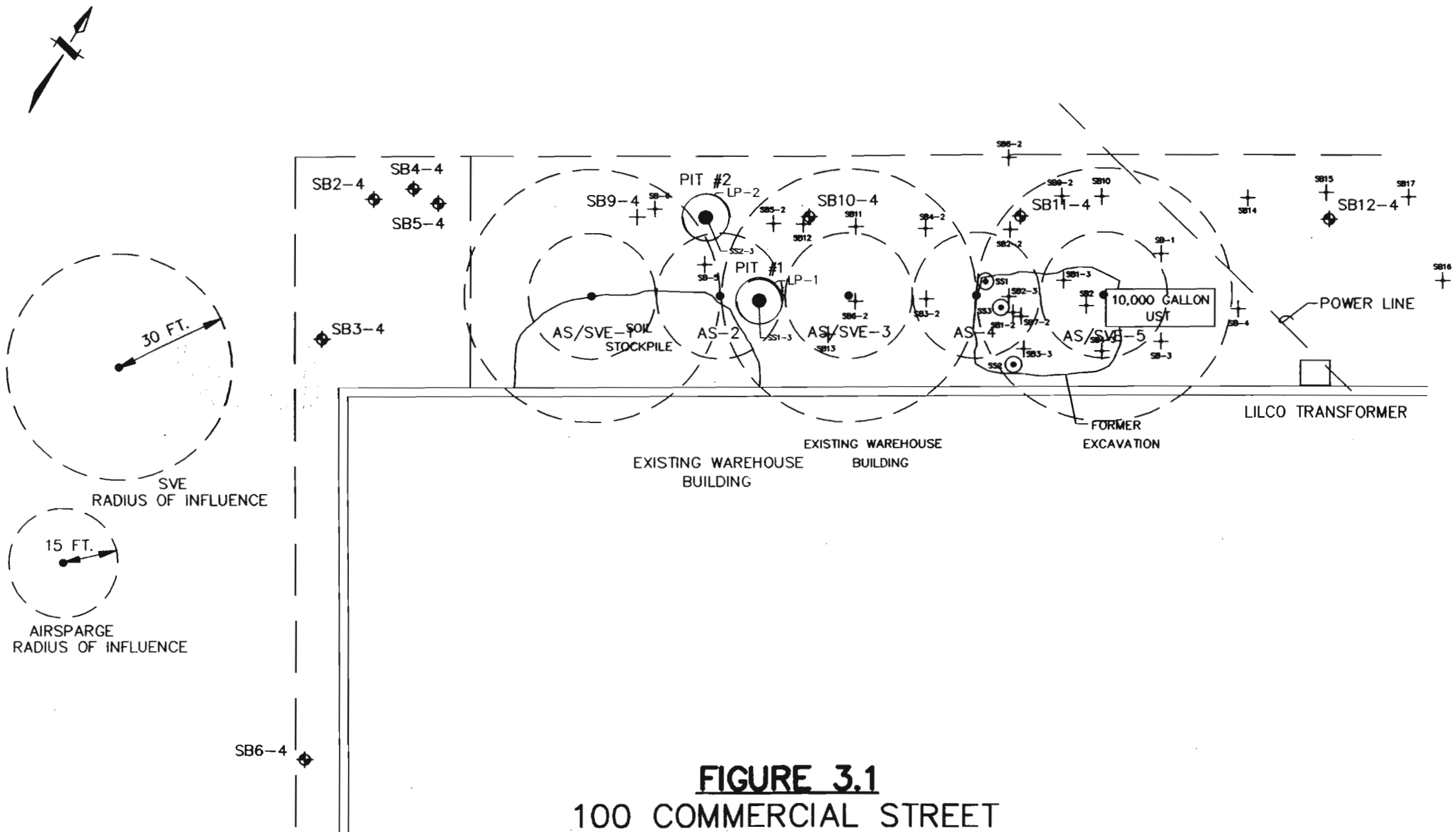


FIGURE 3.1
100 COMMERCIAL STREET
AS/SVE SYSTEM CONCEPTUAL DESIGN

30' 15' 0 30'

SCALE: 1" = 30'

M:\CADD\COMM\9701\FIGURE2 7-1-97 3:29:43 pm

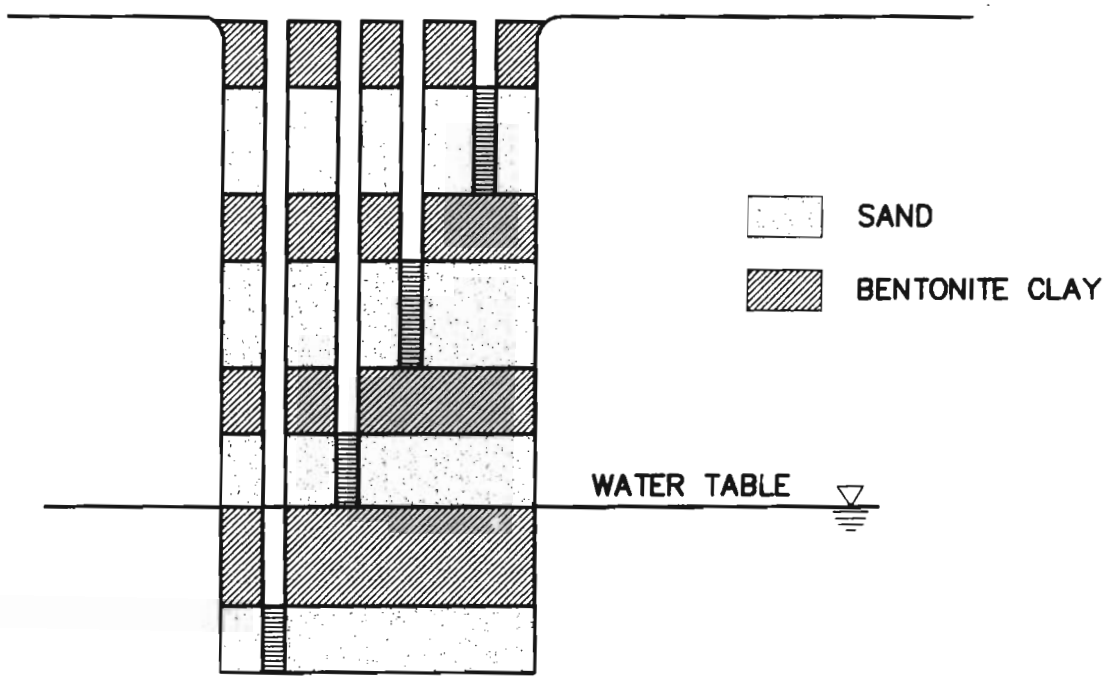


FIGURE 3.2

100 COMMERCIAL STREET
DETAILS OF SVE CLUSTER WELLS
AS/SVE CONCEPTUAL DESIGN

NO SCALE

TABLES

TABLE 2.1
100 COMMERCIAL STREET
ON-SITE REMEDIAL WORK PLAN
SUMMARY OF PAST SAMPLING ACTIVITY

SUB-SURFACE WASTEWATER DISPOSAL SYSTEMS					
Eikon Activity #V1-2: Soil Borings Adjacent to 2 Leaching Pools In Rear Yard and 3 Leaching Pools In Front Yard					
Date Performed: August 7, 1989 - August 8, 1989					
ID Number	**SB-5**	**SB-6**	**SB-7**	**SB-8**	**SB-9**
Depth	15.5'-17.5'	23'-25'	17'-19'	16.5'-18.5'	15.5'-17.5'
VOCs (mg/kg)	0.038	0.011	0.022	0.016	0.021
PCE (mg/kg)	0.011	ND	ND	ND	ND
SVOCs (mg/kg)					
Base Neutrals (mg/kg)	2.1	3.4	2.6	6.2	8.3
PCBs (mg/kg)	1.1	ND	ND	ND	ND
Cyanide (mg/kg)	ND	ND	ND	ND	ND
Phenol (mg/kg)	24*	23.8*	0.5*	7.1*	62.8*
Priority Pollutant Metals (mg/kg)					
Chromium (mg/kg)	20.4*	3.1	3.3	4.1	3.3
Lead (mg/kg)	6.3	1.2	ND	1.9	ND
Zinc (mg/kg)	19.8	12.6	6.5	10.3	11.8
Eikon Activity #V3-3: Leaching Pool Sediment Samples					
I. PRIOR TO REMOVAL OF BOTTOM SEDIMENTS					
Date Performed: March 3, 1993 - March 9, 1993					
	Rear Yard		**Front Yard**		
ID Number	**LP-1**	**LP-2**	**LP-3**	**LP-4**	**LP-5**
VOCs					
Acetone (mg/kg)	ND	ND	ND	0.026	0.033
TCE (mg/kg)	932.41*	ND	ND	ND	ND
Toluene (mg/kg)	ND	ND	0.003	ND	0.003
PCE (mg/kg)	48177*	0.002	0.014	0.074	ND
SVOCs (mg/kg)					
Benzo(a)anthracene (mg/kg)	2.386*	ND	ND	0.045	ND
Chrysene (mg/kg)	3.708*	ND	0.052	0.076	ND
Benzo(b)flouranthene (mg/kg)	1.651*	ND	0.046	0.070	ND
Benzo(k)flouranthene (mg/kg)	1.711*	ND	ND	0.042	ND
Benzo(a)pyrene (mg/kg)	1.325*	ND	ND	0.052	ND
Priority Pollutant Metals (mg/kg)					
Cadium (mg/kg)	4.1*	<0.27	<0.28	1.5	<0.27
Chromium (mg/kg)	160*	2.3	4.5	34*	2.6
Copper (mg/kg)	140*	1.2	180*	47*	2.6
Lead (mg/kg)	130.0	<1.6	7.5	72.0	2.3
Mercury (mg/kg)	5.1*	<0.27	<0.28	<0.27	<0.27
Nickel (mg/kg)	66*	1.5	4.3	15*	1.2
Zinc (mg/kg)	230*	8.6	36*	67*	5.9

NT: Not Tested
ND: Not Detected
* : Above New York DEC Recommended Soil Cleanup Objectives
**: Above Groundwater Standards

TABLE 2.1
100 COMMERCIAL STREET
ON-SITE REMEDIAL WORK PLAN
SUMMARY OF PAST SAMPLING ACTIVITY

II. AFTER REMOVAL OF BOTTOM SEDIMENTS FROM PIT 1, PIT 3 AND PIT 3

Date Performed: March 11, 1994

	Rear Yard		Front Yard		
ID Number	**LP-1**	**LP-2**	**LP-3**	**LP-4**	**LP-5**
Depth (ft)	17'-17.5'	Remediation	18.5'-19'	16'-16.5'	Remediation
VOCs		Not			Not
PCE (mg/kg)	550*	Required	NT	NT	Required
SVOCs					
1,2,4 Trichlorobenzene	5.5*		NT	NT	
Metals					
Chromium (mg/kg)	8.7		2.5	3.7	
Copper (mg/kg)	4.6		3.0	34.2*	
Lead (mg/kg)	5.2		1.8	16.7	

III. SOIL BORING CONDUCTED THROUGH LP-1

Date Performed: March 14, 1994

ID Number	**20' - 29' bgs**	**30'-34' bgs**	**35'-39' bgs**	**40'-42' bgs**	**45'-47' bgs**
PID	1700 ppm - 2000 ppm		4 ppm - 7 ppm		45 ppm
VOCs					
Acetone (mg/kg)				0.010	ND
Methyl Chloride (mg/kg)				ND	0.001
PCE (mg/kg)				0.001	0.001
SVOCs					
Phenol (mg/kg)				0.30*	0.23*
Priority Pollutant Metals					
Chromium (mg/kg)				6.9	3.6
Copper (mg/kg)				2.7	1.9
Lead (mg/kg)				1.9	0.95

STORM DRAIN DRY WELL SEDIMENT SAMPLING

Eikon Activity #V3-4

Date Performed: July 21, 1994

ID Number	**SD-1**	**SD-2**	**SD-3**	**SD-4**	**SD-5**
VOCs					
Methyl Chloride	ND	0.001	0.001	ND	0.001
1,2-Dichloroethane	0.004	ND	ND	ND	ND
SVOCs					
Benzo(a)anthracene	ND	0.049	1.6*	0.100	0.066
Chrysene	0.026	0.084	2.4*	0.190	0.120
Benzo(b)fluoranthene	0.027	0.072	2.4*	0.190	0.130
Benzo(k)fluoranthene	0.020	0.055	1.5*	0.160	0.084
Benzo(a)pyrene	0.019	0.059	1.7*	0.130	0.054
Dibenz(a,h)anthracene	ND	ND	0.73*	ND	0.031*
Metals					
Cadmium	ND	ND	2*	ND	ND
Chromium	3.1	10.1*	18.1*	4.5	12.6*
Copper	ND	ND	16.5	ND	17.1
Iron	2,490*	9,720*	4,740*	4,330*	16,100*
Lead	1.5	12.0	126.0	3.3	16.2

NT: Not Tested
ND: Not Detected
* : Above New York DEC Recommended Soil Cleanup Objectives
**: Above Groundwater Standards

TABLE 2.1
100 COMMERCIAL STREET
ON-SITE REMEDIAL WORK PLAN
SUMMARY OF PAST SAMPLING ACTIVITY

ELECTICAL TRANFORMER					
Eikon Activity #V1-3: Surface Soil Adjacent to Electrical Transformer					
Date Performed: August 7, 1989 - August 8, 1989					
ID Number	**SS-1**				
PCB					
PCB Aroclor 1254	2.2 mg/kg				
REAR YARD/SOLVENT-CONTAMINATED SOIL/UST AREA					
Eikon Activity #V1-1: Soil Borings Adjacent To 10,000 Gallon Underground Storage Tank					
Date Performed: August 7, 1989 - August 8, 1989					
ID Number	**SB-1**	**SB-2**		**SB-3**	**SB-4**
Depth	12'-14'	2'-3'	12'-14'	12'-14'	12'-14'
Base Neutrals (mg/kg)	6.5	ND	ND	ND	1.7
Petroleum Hydrocarbons (mg/kg)	27.1	NT	42.7 Odor Detected	33.4	ND
VOCs+15	NT		NT	NT	NT
Tetrachloroethene (PCE) (mg/kg)	NT	2.7*	NT	NT	NT
Toluene (mg/kg)	NT	110*	NT	NT	NT
Ethylbenzene (mg/kg)	NT	47.0*	NT	NT	NT
Methyl Chloride (mg/kg)	NT	2.9*	NT	NT	NT
Trichlorofluoromethane (mg/kg)	NT	8.7	NT	NT	NT
Eikon Activity #V1-4: Solvent Contaminated Soils Removed Adjacent To 10,000 Gallon UST					
Date Performed: May 7, 1990					
ID Number	**Soil Sample 1**		**Soil Sample 2**		**Soil Sample 3**
Depth (ft)	15'	24'	15'	24'	24'
PID Reading (ppm)	1	48	24	125	45
VOCs (mg/kg)		NT		NT	
Methylene Chloride (mg/kg)	0.003	NT	0.005	NT	0.003
Carbon Disulfide (mg/kg)	0.010	NT	ND	NT	ND
Ethylbenzene (mg/kg)	ND	NT	0.011	NT	ND
Toluene (mg/kg)	ND	NT	0.008	NT	ND
Acetone (mg/kg)	ND	NT	0.070	NT	ND
m,p-Xylene	ND	NT	0.068	NT	ND
o-Xylene	ND	NT	0.009	NT	ND
Eikon Activity #V2-1: 17 Soil Borings for Soil Vapor Plume Delineation					
Date Performed: September 7, 1990					
ID Number	**SB 7-2**	**SB 8-2**	**SB 12**	**SB 13**	**SB 16**
Depth (ft)	24'-26'	20'-22'	23'-25'	40'-42'	20'-22'
PID (ppm)	0.021 ppm	0 ppm	0.018 ppm	0 ppm	0 ppm
VOCs (mg/kg)					
Acetone (mg/kg)	ND	ND	ND	0.132	ND
Methyl Chloride (mg/kg)	0.002	0.014	0.002	0.002	0.004
TCE (mg/kg)	ND	0.011	ND	ND	ND
PCE (mg/kg)	ND	0.490	0.002	ND	0.002

NT: Not Tested
ND: Not Detected
* : Above New York DEC Recommended Soil Cleanup Objectives
**: Above Groundwater Standards

TABLE 2.1
100 COMMERCIAL STREET
ON-SITE REMEDIAL WORK PLAN
SUMMARY OF PAST SAMPLING ACTIVITY

Eikon Activity #V3-1: Soil Borings Rear Yard Study				
Date Performed: March 1, 1993 - March 2, 1993				
ID Number	**SB1-3**	**SB2-3**	**SB3-3**	**SB4-3**
Depth (ft)	35'-37'	3'-5'	4'-6'	33'-35'
VOCs (mg/kg)				
Acetone (mg/kg)	0.012	0.105	ND	ND
Methyl Chloride (mg/kg)	0.002	ND	ND	ND
Toluene (mg/kg)	ND	0.491	2.193*	0.007
Ethylbenzene (mg/kg)	ND	ND	11.296*	ND
m,p-Xylene (mg/kg)	ND	0.009	107.0	ND
o-Xylene (mg/kg)	ND	ND	20.94	ND
GROUNDWATER INVESTIGATION				
Eikon Activity #V3-2: Groundwater Investigation West of Area of Excavation				
Date Performed: April 7, 1993				
ID Number	**MW-1**	**MW-2**	**MW-3**	**MW-4**
Depth to Water	*DRY*	*DRY*	*Not Installed*	110 feet bgs
VOCs				
STEX (ug/L)				740**
PCE (ug/L)				4
Trichloroethane (TCA) (ug/L)				2
1,1,1 TCA (ug/L)				3

NT: Not Tested
ND: Not Detected
* : Above New York DEC Recommended Soil Cleanup Objectives
**: Above Groundwater Standards

TABLE 5.1
TCL VOC ANALYTE LIST WITH CRQLS
100 COMMERCIAL STREET
PLAINVIEW, NEW YORK

Compound	Contract-Required Quantiation Limits (ug/l)
Chloromethane	10
Bromomethane	10
Vinyl Chloride	10
Chloroethane	10
Methylene Chloride	10
Acetone	10
Carbon Disulfide	10
1,1-Dichloroethene	10
1,1-Dichloroethane	10
1,2-Dichloroethene (total)	10
Chloroform	10
1,2-Dichloroethane	10
2-Butanone	10
1,1,1-Trichloroethane	10
Carbon Tetrachloride	10
Bromodichloromethane	10
1,2-Dichloropropane	10
cis-1,3-Dichloropropene	10
Trichloroethene	10
Dibromochloromethane	10
1,1,2-Trichloroethane	10
Benzene	10
trans-1,3-Dichloropropene	10
Bromoform	10
4-Methyl-2-Pentanone	10
2-Hexanone	10
Tetrachloroethene	10
Toluene	10
1,1,2,2-Tetrachloroethane	10
Chlorobenzene	10
Ethylbenzene	10
Styrene	10
Xylene (total)	10

TABLE 5.2
QA/QC SAMPLES
100 COMMERCIAL STREET
PLAINVIEW, NEW YORK

Task Identification	Field Samples	Trip Blanks	Field Blanks	Blind Duplicates
Collection of groundwater samples from Wells MW-3 MW-4, and MW-5.	3	1	1	1

APPENDIX A

HEALTH AND SAFETY PLAN

ON-SITE REMEDIAL HEALTH AND SAFETY PLAN 100 COMMERCIAL STREET PLAINVIEW, NEW YORK

PREPARED IN CONJUNCTION WITH
NYSDEC VOLUNTARY CLEANUP PROGRAM
AGREEMENT NO. D1-0001-97-04
BETWEEN DAVID DOYAGA, ESQ., AS TRUSTEE IN BANKRUPTCY FOR
COMM 100 ASSOCIATES AND NYSDEC

PROJECT NO. COMM 97-01

SEPTEMBER 1997

H2MGROUP

ON-SITE REMEDIAL WORK PLAN
HEALTH AND SAFETY PLAN
100 COMMERCIAL STREET

SEPTEMBER 1997

TABLE OF CONTENTS

ON-SITE REMEDIAL WORK PLAN
HEALTH AND SAFETY PLAN
100 COMMERCIAL STREET

SEPTEMBER 1997

TABLE OF CONTENTS (CONT.)

ON-SITE REMEDIAL WORK PLAN
HEALTH AND SAFETY PLAN
100 COMMERCIAL STREET

SEPTEMBER 1997

TABLE OF CONTENTS (CONT.)

ON-SITE REMEDIAL WORK PLAN
HEALTH AND SAFETY PLAN
100 COMMERCIAL STREET

SEPTEMBER 1997

TABLE OF CONTENTS (CONT.)

APPENDICES

ON-SITE REMEDIAL WORK PLAN
HEALTH AND SAFETY PLAN
100 COMMERCIAL STREET

SEPTEMBER 1997

1.0 PURPOSE

The purpose of this Health and Safety Plan (HASP) is to establish a protocol for protecting H2M, its agents, and other personnel involved in remedial construction, O&M, and groundwater sampling activities from situations which may arise while performing field activities associated with the 100 Commercial Street site located in Plainview, New York. This plan has been prepared in accordance with the United States Environmental Protection Agency (US EPA) document, "Emergency and Remedial Response Division's Standard Operating Safety Guides", November 1984. This plan establishes personnel protection standards, mandatory operations procedures, and provides contingencies for situations that may arise while field work is being conducted at the site. All H2M field personnel will be required to abide by these procedures. H2M's subcontractor personnel will be provided with a copy of this plan for their consideration.

Personnel performing the environmental field work involving chemical substances may encounter conditions that are unsafe or potentially unsafe. In addition to the potential risks associated with the physical, chemical, biological and toxicological properties of the material(s) which may be encountered, other types of hazards (i.e., electricity, water, temperature, heavy equipment, falling objects, loss of balance, tripping, etc.) can have an adverse effect on the health and safety of personnel. It is important that personnel protective equipment (PPE) and safety requirements be appropriate to protect against potential and/or known hazards. PPE will be selected based on the type(s), concentration(s), and routes of personnel exposure from hazardous substances at a site. In situations where the type of materials and possibilities of contact are unknown or the potential hazards are not clearly identifiable, a more subjective (but conservative) determination will be made of the PPE required for initial safety.

2.0 SITE CONDITIONS

The 100 Commercial Street property is located in Plainview, New York. Studies by Eikon Planning and Development Corporation (Eikon) indicated the presence of a leaching pool located in the northwest corner of the property whose bottom sediments have been impacted by tetrachloroethene (PCE). The bottom sediments from the leaching pool contained 500 milligrams per kilogram (mg/kg) PCE after a remedial action had been conducted by Eikon.

Based upon H2M investigations, the on-site groundwater has been impacted with halogenated volatile organic compounds (VOCs) on the order of 300 to 400 micrograms per liter (ug/l) total VOCs. The data also indicate that the concentrations of VOCs attenuate rapidly in groundwater downgradient to the site.

The property owner has selected to install and operate an air sparge/soil vapor extraction (AS/SVE) system to address the on-site contamination issues.

2.1 Proposed Field Activities

The field activities which will be conducted under this HASP include:

- Drilling and installing the AS/SVE well network.
- Trenching and installing subsurface piping from the well heads to the treatment plant.
- Installing treatment plant.
- Weekly O&M activities.
- Quarterly sampling of three groundwater monitoring wells.

3.0 PERSONNEL SAFETY

Personnel involved in field operations must often make complex decisions regarding safety. To make these decisions correctly requires more than elementary knowledge. For example, selecting the most effective PPE requires not only expertise in the technical areas of respirators, protective clothing, air monitoring, physical stress, etc., but also experience and professional judgment. Only competent, qualified personnel having the technical judgment to evaluate a particular situation and determine the appropriate safety requirements will perform field investigations at the site. These individuals, through a combination of professional education, on-the-job experience, specialized training, and continual study, have the expertise to make sound decisions.

3.1 Education and Training

All personnel involved in field work will be trained to carry out their designated field operations. Training will be provided in the use of all equipment, including respiratory protection apparatus and protective clothing; safety practices and procedures; general safety requirements; first aid; and hazard recognition and evaluation. Each individual involved with the field work must provide documentation of training and medical surveillance, as per 29 CFR 1910.120. In addition, each individual must sign an appendix to the Health and Safety Plan, indicating they have read and understood its contents (as included in Appendix A-1).

3.2 Health and Safety Manager

The Health and Safety Manager shall be responsible for overall implementation and coordination of the Health and Safety Program for field personnel at the site. Responsibilities include providing adequate manpower, materials, equipment, and time needed to safely accomplish the tasks under the site investigation. The Health and Safety Manager is also responsible for taking appropriate corrective actions when unsafe acts or practices arise. The Health and Safety Manager for the project is Richard J. Baldwin, C.P.G. of H2M.

3.3 Site Health and Safety Officer

A designated individual(s) will perform the function of the project Site Health and Safety Officer. Michael P. Engelmann will serve as the Site Health and Safety Officer during the site work. At all times the Site Health and Safety Officer will report directly to the Health

and Safety Manager. As a minimum, the Site Health and Safety Officer will be responsible for the following:

1. Conducting an initial site safety meeting for field personnel.

2. Assuring that all personnel protective equipment is available and properly utilized by all field personnel at the site.

3. Assuring that all personnel are familiar with standard operating safety procedures and additional instructions contained in the Health and Safety Plan.

4. Assuring that all personnel are aware of the hazards associated with the field operations.

5. Inspecting the work site for hazards before field operations.

6. Determining personal protection levels including clothing and equipment for personnel and periodic inspection of protective clothing and equipment.

7. Monitoring of site conditions prior to initiation of field activities, and at various intervals during on-going operations as deemed necessary for any changes in site hazard conditions. (Monitoring parameters include, but are not limited to, volatile organic contaminant (VOC) levels in the atmosphere and weather conditions).

8. Executing decontamination procedures.

9. Monitoring the work parties for signs of stress such as cold exposure, heat stress, or fatigue.

10. Prepare reports pertaining to incidents resulting in physical injuries or exposure to hazardous materials.

Mr. Engelmann may designate another qualified H2M employee as Site Health and Safety Officer. All designees will be familiar with all aspects of the HASP and their responsibilities. At all times the Site Health and Safety Officer shall report directly to the Health and Safety Manager.

4.0 LEVELS OF PROTECTION

Anyone entering the investigation site must be protected against potential hazards. The purpose of the personal protection clothing and equipment is to minimize exposure to hazards while working on site. Careful selection and use of adequate PPE should protect the respiratory system, skin, eyes, face, hands, feet, head, body and hearing of all personnel.

The appropriate level of protection is determined prior to the initial entry on site based on available information and preliminary monitoring of the site. Subsequent information may warrant changes in the original level selected. Appropriate equipment to protect personnel against exposure to known or anticipated chemical hazards has been divided into four categories according to the degree of protection afforded.

4.1 Level A Protection

The highest degree of protection is used in a Level A situation. It should be worn when the highest available level of respiratory, skin and eye protection is needed. This level of protection is placed in effect when there is no historic information about the site and it is assumed that the worst possible conditions exist. Situations requiring Level A PPE are not anticipated during the field work.

4.1.1 Personal Protective Equipment

a. Pressure demand, self-contained breathing apparatus, approved by the Occupational Safety and Health Administration (OSHA) and National Institute of Occupational Safety and Health (NIOSH).

b. Fully encapsulating chemical-resistant suit.

c. Coveralls.*

d. Long cotton underwear.*

e. Gloves (outer), chemical-resistant.

f. Gloves (inner), chemical-resistant.

g. Boots, chemical-resistant, steel toe and shank. (Depending on suit construction, worn over or under suit boot.)

h. Hard hat* (under suit).

i. Disposable protective suit, gloves and boots* (worn over fully-encapsulating suit).

j. Two-way radio communications (intrinsically safe).

*Optional

4.1.2 Criteria for Selection

Meeting any of the criteria listed below warrants use of Level A protection:

a. The chemical substance(s) has been identified and requires the highest level of protection for skin, eyes and the respiratory system based on:

(1) Measured (or potential for) high concentrations-of atmospheric vapors, gases, or particulates; or

(2) Site operations and work functions involving high potential for splash, immersion, or exposure to unexpected vapors, gases, or particulates.

b. Extremely hazardous substances are known or suspected to be present and skin contact is possible.

c. The potential exists for contact with substances that destroy skin.

d. Operations must be conducted in confined, poorly ventilated areas until the absence of hazards requiring Level A protection is demonstrated.

e. An oxygen deficient atmosphere where the oxygen level is less than 20.9 percent (%) by volume as measured with an oxygen meter. This condition, existing alone, could result in a down grade to EPA Level B PPE.

f. Total atmospheric readings on photoionization detector indicate readings above 500 parts per million (ppm) of calibration gas equivalents (cge) of unidentified substances.

4.1.3 Limiting Criteria

a. Fully encapsulating suit material must be compatible with the substances involved.

4.1.4 Minimum Decontamination Procedure

Station 1: Segregated equipment drop.

Station 2: Outer garment, boots and gloves wash and rinse.

Station 3: Outer boot and glove removal.

Station 4: Tank change.

Station 5: Boots, gloves and outer garment removal.

Station 6: SCBA removal.

Station 7: Field wash.

4.2 Level B Protection

Level B protection will be used by all personnel entering confined spaces and/or if the conditions outlined in Section 4.2.2 are encountered. Situations requiring Level B PPE are not anticipated during the field work.

4.2.1 Personal Protective Equipment

a. Pressure-demand, self-contained breathing apparatus or cascade supplied air system (OSHA/NIOSH approved).

b. Chemical-resistant clothing (coveralls and long-sleeved jacket; coveralls, hooded, one or two-piece chemical-splash suit; disposable chemical-resistant coveralls).

c. Coveralls.*

d. Gloves (outer), chemical-resistant.

e. Gloves (inner), chemical-resistant.

f. Boots, chemical-resistant, steel toe and shank.

g. Boots (outer), chemical resistant (disposable*).

h. Hard hat (face shield*).

i. Two-way radio communications (intrinsically safe).

*Optional

4.2.2 Criteria for Selection

Meeting any one of these criteria warrants use of Level B protection:

a. The type(s) and atmospheric concentration(s) of toxic substances have been identified and require the highest level of respiratory protection, but a lower level of skin and eye protection than is required with Level A. These would be atmospheres:

(1) With concentrations immediately dangerous-to life and health (IDLH); or

(2) Exceeding limits of protection afforded by a full-face, air-purifying mask; or

(3) Containing substances for which air-purifying canisters do not exist or have low removal efficiency; or

(4) Containing substances requiring air-supplied equipment, but substances and/or concentrations do not represent a serious skin hazard.

b. The atmosphere contains less than 20.9 percent oxygen.

c. Site operations make it highly unlikely that the small, unprotected area of the head or neck will be contacted by splashes of extremely hazardous substances.

d. Total atmospheric concentrations in the breathing zone of unidentified vapors or gases range from 50 ppm to 500 ppm (calibration gas equivalence units) on monitoring instruments, and vapors are not suspected of containing high levels of chemicals toxic to skin.

4.2.3 Limiting Criteria

a. Use only when the vapor or gases present are not suspected of containing high concentrations of chemicals that are harmful to skin or capable of being absorbed through skin contact.

b. Use only when it is highly unlikely that the work being done will generate high concentrations of vapors, gases, or particulates or splashes of material that will affect exposed skin.

4.2.4 Minimum Decontamination Procedures

Station 1: Equipment drop.

Station 2: Outer garment, boots and gloves wash and rinse.

Station 3: Outer boot and glove removal.

Station 4: Tank change.

Station 5: Boot, gloves and outer glove removal.

Station 6: SCBA removal.

Station 7: Field wash.

4.3 Level C Protection

Level C protection will be used by all personnel if the conditions outlined in Section 4.3.2 are encountered.

4.3.1 Personal Protective Equipment

a. Full-face, air purifying, canister-equipped respirator (MSHA and NIOSH approved).

b. Chemical-resistant clothing (coveralls; hooded, two-piece chemical splash suits; chemical-resistant hood and apron; disposable chemical-resistant coveralls).

c. Coveralls.*

d. Gloves (outer), chemical-resistant.

e. Gloves (inner), chemical-resistant.

f. Boots, chemical-resistant, steel toe and shank.

g. Boots (outer), chemical-resistant (disposable*).

h. Hard hat (face shield*).

i. Escape mask.*

j. Two-way radio communications (intrinsically safe).

*Optional

4.3.2 Criteria for Selection

Meeting all of these criteria permits use of Level C Protection:

a. Measured air concentrations of identified substances will be reduced by the respirator to, at or below the substance's exposure limit, and the concentration is within the service limit of the canister.

b. Atmospheric contaminant concentrations do not exceed IDLH levels.

c. Atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect the small area of skin left unprotected by chemical-resistant clothing.

d. Job functions have been determined not to require self-contained breathing apparatus.

e. Total vapor readings register between 5 ppm cge and 50 ppm cge above background on instruments.

f. Air will be monitored periodically.

g. Cartridges are available and are approved by NIOSH and MSHA for the specific chemical(s) encountered.

4.3.3 Limiting Criteria

a. Atmospheric concentration of chemicals must not exceed IDLH levels.

b. The atmosphere must contain at least 20.9 percent oxygen.

c. Must have sufficient information available regarding specific compounds, and their concentrations, likely to be encountered.

4.3.4 Minimum Decontamination Procedures

Station 1: Equipment drop.

Station 2: Outer boot and glove removal.

Station 3: Canister or mask change.

Station 4: Boots, gloves and outer garment removal.

Station 5: Face piece removal.

Station 6: Field wash.

4.4 Level D Protection

Level D protection has been selected for personnel for this project. Should conditions change, re-evaluation of personnel protection will be conducted.

4.4.1 Personal Protective Equipment

a. Coveralls.

b. Gloves.*

c. Boots/shoes, leather or chemical-resistant, steel toe and shank.

d. Boots (outer), chemical/resistant (disposable).*

e. Safety glasses or chemical splash goggles.*

f. Hard hat (face shield*).

g. Escape mask.*

*Optional

4.4.2 Criteria for Selection

Meeting any of these criteria allows use of Level D protection:

a. No hazardous air pollutants have been measured.

b. Work functions preclude splashes, immersion, or potential for unexpected inhalation of any chemicals.

c. Extensive information on suspected hazards/risks are known.

4.4.3 Limiting Criteria

a. The atmosphere must contain at least 20.9 percent oxygen.

4.4.4 Minimum Decontamination Procedure

Station 1: Equipment drop.

Station 2: Hand and face wash.

4.5 Duration of Work Period

The anticipated duration of the work period will be established prior to daily activities. The work will only be performed during daylight hours. Other factors that may limit the length of time personnel can work include:

a. Air supply consumption (SCBA-assisted work);

b. Suit/ensemble, air purifying chemical cartridge, permeation and penetration by chemical contaminants; and

c. Ambient temperature and weather conditions.

d. Contractual requirements.

4.5.1 Air Supply Consumption

The duration of the air supply must be considered before any SCBA-assisted work activity (Levels A and B) commences. Although the anticipated operating time of an SCBA is clearly indicated on the breathing apparatus the following variables should be considered and work actions and operating time adjusted accordingly:

Work Rate: The actual in-use duration of SCBA's may be reduced by one-third to one-half during strenuous work, e.g. drum handling, major lifting or any task requiring repetitive speed of motion.

Fitness: Well conditioned individuals generally utilize oxygen more efficiently and can extract more oxygen from a given volume of air than unfit individuals, thereby slightly increasing the SCBA operating time.

Body Size: Larger individuals generally consume air at a higher rate than smaller individuals, thereby decreasing the SCBA operating time.

Breathing Patterns: Quick, shallow or irregular breaths consume air more rapidly than deep, regular spaced breaths. Heat induced anxiety and lack of acclimatization may induce hyperventilation, resulting in decreased SCBA operating times.

4.5.2 Suit/Ensemble, Air Purifying Chemical Cartridge, Permeation and Penetration

The possibility of chemical permeation or penetration of chemical protective clothing (CPC) ensembles and air purifying respirator (APR) chemical cartridges during the work mission is always a matter of concern and may limit mission duration. It should be remembered that no single clothing material is an effective barrier to all chemicals or all combinations of chemicals, and no material is an effective barrier to prolonged chemical exposure. Manufacturer recommendations should be followed.

In addition, when performing work in Level C respiratory protection, care should be taken to inspect the respirators prior to usage. The chemical cartridges should be changed, at a minimum, on a daily basis, or when the cartridge becomes dirty, damaged or when breakthrough is suspected.

4.5.3 Ambient Temperature

The ambient temperature has a major influence on work period duration as it effects both the worker and the protective integrity of ensembles (see Section 11.4.1) as well as the operation of the monitoring equipment. When ambient temperatures rise or fall to a level which may hinder personnel performance or becomes a threat to personal safety, consideration should be given to stop work and recommence work when temperatures or conditions are less severe.

5.0 AMBIENT AIR MONITORING

Based on site-specific air monitoring data, elevated levels of VOCs in the atmosphere are not anticipated during site activities. The presence of VOCs will be evaluated using a photoionization detector (PID). Background air quality monitoring will be performed continuously in the Exclusion Zone and the Contamination Reduction Zone (see Section 7.0). Periodic air monitoring will be conducted in the Support Zone. If necessary, the level of personal protection required will be upgraded based upon ambient air monitoring results.

6.0 DETERMINATION OF THE SITE-SPECIAL LEVEL OF HAZARD

Categories of personnel protection required depend on the degree of hazard and probability of exposure by a route of entry into the body. For this site, the most probable potential route of entry is via inhalation of gases and dermal adsorbtion of contaminants released from field activities.

Based upon the known site history and disposal practices, the appropriate level of protection for the field operations at the site is Level D. The determination of Level D protection is based on the fact that field work will be performed in open, well-ventilated areas and that the potential for accidents and injuries due to obstructions caused by and/or magnified by the use of level A, B, or C protection (i.e., slip/trip hazards) is greater than the potential for problems associated with exposure from contaminants using level D protection. Level C protection will be used if ambient air monitoring results warrant a protective equipment upgrade (above Level D conditions). The Site Health and Safety Officer will be responsible for requesting an upgrade in the level of personnel protection. The final decision will be made by the Health and Safety Manager in conjunction with the Project Manager.

A PID will be used to monitor air quality throughout the course of field work. If necessary (based upon field equipment readings), the work zone will be evacuated and consideration will be given to upgrading the level of protection. An upgrade to the appropriate level of protection for field personnel will be required before re-entering the work zone if hazardous conditions persist.

In addition to potential chemical hazards, there also exists potentially greater physical hazards associated with the activities at the facility. Due to the nature of the OSGI, heavy equipment including drill rigs and trucks will be on site throughout the project. Therefore, all personnel should always be aware of vehicular traffic while working. All work must be performed in strict accordance with OSHA regulations. Hard hats must be worn at all times around heavy equipment and/or in the vicinity of suspended loads.

7.0 DESIGNATED WORK ZONES

Work zones will be determined prior to commencement of a specific field activity. An area large enough to encompass the activity will be delineated as the work/exclusion zone. Only qualified field personnel with the proper PPE involved in the field activity will be allowed into the designated zone. Within the work/exclusion zone, ambient air quality will be periodically monitored using a PID to determine any changes from background air quality. If subsequent measurements suggest a significant change in air quality, the work area will be immediately evacuated. An upgrade to the appropriate level of PPE for field personnel will be required before re-entering the work zone.

8.0 DECONTAMINATION STATIONS

Decontamination stations will be located in fixed areas to be used for the cleaning of all heavy equipment, vehicles, tools and supplies required for the completion of field operations. Personnel decontamination procedures for the appropriate levels of protection are described in Section 4.0.

9.0 SITE ACCESS CONTROL

Vehicular access to the drilling locations is readily attainable. Appropriate traffic controls and barricades will used in areas of vehicular and pedestrian traffic.

10.0 PERSONAL HYGIENE

The following personal hygiene rules must be followed while performing work at the site:

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

2. Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking, or any other activities.

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

4. No excessive facial hair (i.e., beards), which interferes with a satisfactory fit of the mask-to-face seal, is allowed on personnel required who wear respiratory protective equipment.

5. Contact with contaminated or suspected contaminated surfaces will be avoided. Whenever possible, walking through puddles, mud and discolored surfaces; kneeling on ground; leaning, sitting, or placing equipment on drums, containers, vehicles, or the ground will be avoided.

6. Medicine and alcohol can increase the effects from exposure to toxic chemicals. Prescribed drugs will not be taken by personnel on site where the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician. Alcoholic beverage intake will be prohibited during all on-site field operations.

11.0 CONTINGENCY PLAN

Section 11.0 shall serve as the investigation Contingency Plan. It has been developed to identify precautionary measures, possible emergency conditions, and emergency procedures. The plan shall be implemented by the Site Health and Safety Officer.

11.1 Emergency Medical Care and Treatment

This section addresses emergency medical care and treatment of field personnel, resulting from possible exposures to toxic substances and injuries due to accidents. The following items will be included in emergency care provisions (see Appendix A-2):

a. Name, address and telephone number of the nearest medical treatment facility will be conspicuously posted. Directions for locating the facility, plus the travel time, will be readily available.

b. Names and telephone numbers of ambulance service, police and fire departments, and procedures for obtaining these services will be conspicuously posted.

c. Procedure for prompt notification of the H2M Site Health and Safety Officer.

d. Emergency eyewash fountains and first aid equipment will be readily available on site and located in an area known to all personnel.

e. Specific procedures for handling personnel with excessive exposure to chemicals or contaminated soil.

f. Readily available dry-chemical fire extinguisher.

11.2 Off-Site Emergency Medical Care

The Site Health and Safety Officer shall pre-arrange for access to emergency medical care services at a convenient and readily accessible medical facility and establish emergency routes. The Site Health and Safety Officer shall establish emergency communications with emergency response services.

11.3 Personnel Accidents

Bodily injuries which occur as a result of an accident during the operation at the site will be handled in the following manner:

a. First aid equipment will be available on site for minor injuries. If the injuries are not considered minor, proceed to the next step.

b. The local first aid squad rescue unit, a paramedic unit, the local hospital and the Site Health and Safety Officer shall be notified of the nature of the emergency.

c. The injured employee shall be transported by the local emergency vehicle to the local hospital.

d. A written report shall be prepared by the Site Health and Safety Officer detailing the events and actions taken during the emergency within 48 hours of the accident.

e. See Appendix A-2 for a list of emergency contacts in the Plainview area.

11.4 Personnel Exposure

In the event that any person is splashed or otherwise excessively contaminated by chemicals, the following procedure will be undertaken:

a. Disposable clothing contaminated with observable amounts of chemical residue is to be removed and replaced immediately.

b. In the event of direct skin contact in Level D, the affected area is to be washed immediately with soap and water, or other solutions as directed by medical personnel.

c. The Site Health and Safety Officer or other individuals who hold a current first aid certificate will determine the immediate course of action to be undertaken. This may involve using the first aid kit and/or eyewash stations.

11.4.1 Weather

Adverse weather conditions are an important consideration in planning and conducting site operations. Hot or cold weather can cause physical discomfort, loss of efficiency, and personal injury. Of particular importance is heat stress resulting when protective clothing decreases natural body ventilation. One or more of the following will help reduce heat stress:

a. Provide plenty of liquids. To replace body fluids (water and electrolytes) lost because of sweating, use a 0.1 percent salt water solution, more heavily salted foods, or commercial mixes. The commercial mixes may be preferable for those employees on a low sodium diet.

b. Provide cooling devices to aid natural body ventilation. These devices, however, add weight, and their use should be balanced against worker efficiency. Long cotton underwear help absorb moisture and protect the skin from direct contact with heat absorbing protective clothing.

c. Install mobile showers and/or hose down facilities to reduce body temperature and cool protective clothing.

d. In extremely hot weather, conduct non-emergency response operations in the early morning or evening.

e. Ensure that adequate shelter is available to protect personnel against heat, cold, rain, snow, etc.

f. In hot weather, rotate shifts of workers wearing impervious clothing.

11.4.2 Heat Stress

If field operations are conducted in the warm summer months, heat related fatigue will be closely monitored. Monitoring of personnel wearing impervious clothing should commence when the ambient temperature is 70 degrees Fahrenheit or above. Frequency of monitoring should increase as the ambient temperature increases or as slow recovery rates are indicated. When temperatures exceeds 85 degrees Fahrenheit, workers should be monitored for heat stress after every work period. The following screening mechanism will be used to monitor for heat stress:

Heart rate (HR) will be periodically measured by the radial pulse for 30 seconds during a resting period. The HR should not exceed 110 beats per minute. If the HR is higher, the next work period should be shortened by 33 percent. If the pulse rate is 100 beats per minute at the beginning of the next rest period, the following work cycle should be shortened by 33 percent.

Heat-related illnesses range from heat fatigue to heat stroke, the most serious. Heat stroke requires prompt treatment to prevent irreversible damage or death. Protective clothing may have to be cut off. Less serious forms of heat stress require prompt attention or they may lead to a heat stroke. Unless the victim is obviously contaminated, decontamination should be omitted or minimized and treatment begun immediately. Heat-related problems can be categorized into:

Heat Rash:	Caused by continuous exposure to hot and humid air and aggravated by chafing clothes. Decreases ability to tolerate heat as well as being a nuisance.
Heat Cramps	Caused by profuse perspiration with inadequate fluid intake and chemical replacement (especially salts). Signs: muscle spasm and pain in the extremities and abdomen.
Heat Exhaustion	Caused by increased stress on various organs to meet increased demands to cool the body. Signs: shallow breathing; pale, cool, moist skin; profuse sweating; dizziness and lassitude.
Heat Stroke:	The most severe form of heat stress. The body must be cooled immediately to prevent severe injury and/or death. Signs and symptoms are: red, hot, dry skin; no perspiration; nausea; dizziness and confusion; strong, rapid pulse; coma.

Some of the symptoms of heat stress are: hot dry skin, fever, nausea, cramps, red or spotted skin, confusion, lightheadedness, delirium, rapid pulse, convulsions and unconsciousness. For workers suffering from heat stress, the following actions should be taken:

1. Remove the victim to a cool area

2. Loosen clothing

3. Thoroughly soak the victim in cool water or apply cold compresses

4. Call for medical assistance.

11.4.3 Cold Stress

If field operations are conducted in the cold winter months, cold stress will be monitored. Two factors influence the development of a cold injury: ambient temperature and the velocity of the wind. Wind chill is used to describe the chilling effect of moving air in combination with low temperature. For instance, 10 degrees Fahrenheit air with a wind of 15 miles per hour (mph) is equivalent in chilling effect to still air at -18 degrees Fahrenheit.

As a general rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increases to 10 mph. Additionally, water conducts heat 240 times faster than air. Thus, the body cools suddenly when chemical-protective equipment is removed if the clothing underneath is perspiration soaked.

Local injury resulting from cold is included in the generic term frostbite. There are several degrees of damage. Frostbite of the extremities can be categorized into:

Frost Nip or

Incipient Frostbite. Characterized by suddenly blanching or whitening of skin.

Superficial Frostbite. Skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.

Deep Frostbite. Tissues are cold, pale and solid; extremely serious injury.

Hypothermia. Systemic hypothermia is caused by exposure to freezing or rapidly dropping temperatures. Its symptoms are usually exhibited in five stages: (1) shivering; (2) apathy, listlessness, sleepiness, and (sometimes) rapid cooling of the body temperature to less than 95 degrees Fahrenheit; (3) unconsciousness, glassy stare, slow pulse and slow respiratory rate; (4) freezing of the extremities; and finally, (5) death.

11.5 Fire

The telephone number to the local fire department will be posted along with other emergency numbers conspicuously on-site at all times. (see Appendix A-2). In the event of a fire occurring at the site, the following actions will be undertaken by the Site Health and Safety Officer and the designated fire control personnel:

a. Evacuate all unnecessary personnel from the area of the fire and site, if necessary.

b. Contact the local fire and police departments informing them of the fire and any injuries if they have occurred.

c. Contact the local hospital of the possibility of fire victims.

d. Contact the Site Health and Safety Officer, Health and Safety Manager, and the H2M Project Manager.

11.6 Personnel Protective Equipment Failure

If any site worker experiences a failure or alteration of PPE that affects the protection factor, that person and his/her buddy shall immediately leave the Exclusion Zone. Re-entry shall not be permitted until the equipment has been repaired or replaced to the satisfaction of the Site Health and Safety Officer.

12.0 SUMMARY

The Health and Safety Plan establishes practices and procedures to be followed so that the welfare and safety of workers is protected. It is important that personal equipment and safety requirements be appropriate to protect against the potential or known hazards at a site. Protective equipment will be based upon the type(s), concentration(s), and routes of personal exposure from substances at the site, as well as the potential for hazards due to heavy equipment use, vision impairment, weather, etc. All site operation planning incorporates an analysis of the hazards involved and procedures for preventing or minimizing the risk to personnel. The following summarizes the rules which must be obeyed:

a. The Health and Safety Plan will be made available to all personnel doing field work on site. All personnel must sign this plan, indicating they have read and understood its terms.

b. All personnel will be familiar with standard operating safety procedures and additional instructions contained in the Health and Safety Plan.

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

d. Any required respiratory protective devices and clothing will be worn by all personnel going into work areas.

APPENDIX A-1

HEALTH AND SAFETY PLAN ACKNOWLEDGMENT FORM

I acknowledge that I have read and understand the provisions of this Health and Safety Plan, and that I will, to the best of my ability, abide by the terms of this plan:

Name	Date	Name	Date

APPENDIX A-2

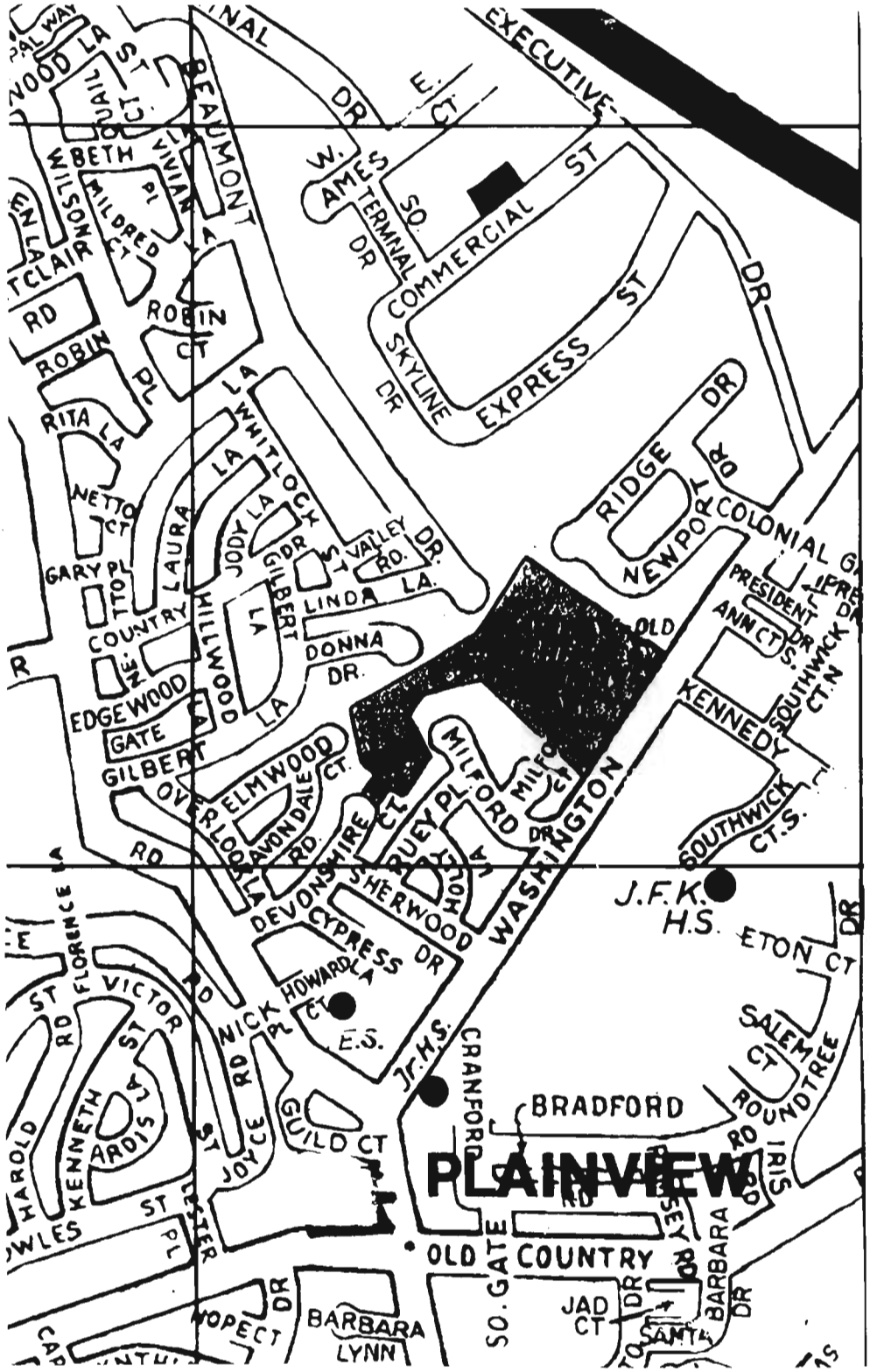
EMERGENCY RESPONSE INFORMATION

EMERGENCY TELEPHONE NUMBERS

All Emergency Rescue Services (Police, Fire, Ambulance)	911
Plainview Fire Department (emergency)	(516) 938-1515
Police Department (non-emergency)	(516) 755-1843
NYSDEC Emergency Spill Response:	(516) 444-0320
North Shore University Hospital at Plainview (non-emergency)	(516) 681-8900
H2M Project Manager: Richard J. Baldwin	(516) 756 - 8000, ext. 611
Health & Safety Manager: Richard J. Baldwin	(516) 756 - 8000, ext. 611

DIRECTIONS TO HOSPITAL:

From the front of the 100 Commercial Street property turn left (northeast) onto Commercial Street. Go approximately 800 feet and turn right (southeast) onto Executive Drive. Take Executive Drive for approximately 0.4 miles and turn right (southwest) onto Washington Avenue. Follow Washington Avenue approximately 0.8 miles and turn left (south) onto Manetto Hill Road. Take Manetto Hill Road for approximately 600 feet and turn right (west) onto Old Country Road. The North Shore University Hospital of Plainview is approximately 0.6 miles up Old Country road on the right-hand side. The hospital route map is attached.



From the front of the 100 Commercial Street property turn left (northeast) onto Commercial Street. Go approximately 800 feet and turn right (southeast) onto Executive Drive. Take Executive Drive for approximately 0.4 miles and turn right (southwest) onto Washington Avenue. Follow Washington Avenue approximately 0.8 miles and turn left (south) onto Manetto Hill Road. Take Manetto Hill Road for approximately 600 feet and turn right (west) onto Old Country Road. The North Shore University Hospital of Plainview is approximately 0.6 miles up Old Country road on the right-hand side.