Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

ITT Sealectro Site

Village of Mamaroneck, Westchester County

Site Number 3-60-027

March 1999

New York State Department of Environmental Conservation

GEORGE E. PATAKI, *Governor* JOHN P. CAHILL, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

ITT Sealectro Inactive Hazardous Waste Site
Village of Mamaroneck, Westchester County, New York
Site No. 3-60-027

Statement of Purpose and Basis

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

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the ITT Sealectro Inactive Hazardous Waste Site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A bibliography of the documents included as a part of the Administrative Record is included in Appendix A of the ROD.

Assessment of the Site

Actual or threatened release of hazardous waste constituents from this site have been addressed by implementing the interim response action identified in this ROD. The removal of underground storage tanks and contaminated soil from the site has reduced the threat to public health and the environment. Therefore, a groundwater monitoring program will be implemented to monitor the effectiveness of previous remedial actions in preventing further contamination of the groundwater.

Description of Selected Remedy

Based upon the results of the Remedial Investigation/Feasibility Study (RI/FS) for the ITT Sealectro Site and the criteria identified for evaluation of alternatives the NYSDEC has selected Monitored Natural Attenuation. The components of the remedy are as follows:

- The continued operation and maintenance of the solvent UST area IRM, which includes the groundwater extraction and treatment system.

- A long term monitoring program will be instituted. A set of year-by-year cleanup goals have been established for each of the wells MW-2, MW-2D, MW-3, MW-3D, MW-11, MW-12. A set of goals for TW-1 will be established when sufficient data are collected to set base line concentrations and compute the year-by-year goals.

- An indoor air quality monitoring program.

- An indoor air quality monitoring program.

- A Contingency Remedial Plan that will be triggered if the maximum annual concentration at any of wells being monitored exceeds the cleanup goals by 20% for three consecutive years. Additionally, if the NYSDOH determines that impacts to indoor air quality from the infiltration of site-related contamination requires mitigation measures, the contingency plan or other controls will be implemented.

New York State Department of Health Acceptance

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

Declaration

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

March 31, 1999
Date

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

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SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) has selected the remedy to address the significant threat to human health and/or the environment created by the presence of hazardous waste at the ITT Sealectro site. The Site is listed on the New York State Inactive Hazardous Waste Disposal Registry as a class 2 site. The Site was listed as a class 2 site, since there is significant threat to the environment. Leaking underground storage tanks and drums resulted in the disposal of a number of hazardous wastes, including tetrachloroethylene, trichloroethylene, 1,1,1-trichloroethane, and dichloroethylene at the Site. These disposal activities resulted in the following significant threats to the public health and/or the environment:

- a significant threat to human health associated with contaminant vapors potentially impacting the indoor air of the on-site building.

- a significant environmental threat associated with the impacts of contaminants to soil, groundwater and surface water.

In order to restore the ITT Sealectro inactive hazardous waste disposal site to predisposal conditions to the extent feasible and authorized by law, but at a minimum to eliminate or mitigate the significant threats to the public health and/or the environment that the hazardous waste disposed at the site has caused, the following remedy was selected:

- Based on the findings of the RI/FS, the NYSDEC is selecting a Monitored Natural Attenuation remedy with continued operation and maintenance of the ground water extraction and treatment system, the establishment of a set of year-by-year groundwater cleanup goals for each of the wells being monitored, a groundwater monitoring program, an indoor air quality monitoring plan, a contingency plan, and institutional controls. The set of year-by-year cleanup goals provides a numerical yardstick by which to gauge the effectiveness of the IRMs. The contingency plan will be implemented if the goals are exceeded by 20% for three consecutive years at any of the wells being monitored. Additionally, if the NYSDOH determines that impacts to indoor air quality from the infiltration of site-related contamination requires mitigation measures, the contingency plan or other controls will be implemented.

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

SECTION 2: SITE LOCATION AND DESCRIPTION

ITT Sealectro (the Site), is located in the Village of Mamaroneck in Westchester County at 139 Hoyt Street. The Site is 0.92 acre in size and contains a single story building which sits on a concrete slab. The Site is in an urban commercial/industrial area with a plastic manufacturing facility to the west and a photo and film processing facility to the east. Bordering the Site to the north is the Sheldrake River and across the river is an auto wrecking yard. Hoyt Street and the railroad tracks are located immediately south of the site. The Sheldrake River flows into Long Island Sound (Fig. 1 & Fig. 2).

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The Site was used between 1960 and 1990 for manufacturing and assembling electronic parts and jewelry. Over the years there were several changes in ownership and use. The original site property owner and operator was Sealectro Corp. In 1981, BICC acquired Sealectro Corp. to form Sealectro-BICC. In 1986 Sealectro-BICC sold the Site to 139 Hoyt Street Assoc., which then leased the property back to Sealectro-BICC. In 1988 ITT Components, Inc. bought out Sealectro-BICC and renamed the company as ITT-Sealectro. The lease expired in 1990 when the ITT-Sealectro operation ceased. The Site was managed by Northbrook Management Corp. A foreclosure of 139 Hoyt Street Assoc. by National Wesminster Bank, NY took place in 1991 and the Site property was placed under receivership and managed by Alfred Weisman Realty, Inc. The Site has since been purchased by Simone Development Co., the current owner. The building has been subdivided into two units and each unit is being leased. One lessee (American Tile Company) is operating a warehouse for flooring material, and the other lessee (International Health Specialists) is operating a kidney dialysis treatment center.

Several manufacturing operations including screw machine operations, electroplating, and connector assembly were performed at the facility from 1960 until November 1990. The screw machine operation was discontinued in January 1975. The electroplating department operated until 1986. From 1986 until 1990, the facility was primarily used for assembling small parts, and not for manufacturing. During the manufacturing operation, an outdoor drum storage area held various solvent drums that contained mainly trichloroethene (TCE) and 1,1,1-trichloroethane (1,1,1-TCA). TCE and 1,1,1-TCA were used as one of the contact cleaners. In 1991, during the removal of underground storage tanks (USTs), it was discovered that the USTs were leaking. The soils were found to be contaminated with 1,1,1-TCA and tetrachloroethene (PCE). The groundwater was contaminated with 1,1,1-TCA, PCE, TCE, 1,2-dichloroethene (1,2-DCE), 1,1-dichloroethene (1,1-DCE), 1,1-dichloroethane (1,1-DCA), and vinyl chloride (VC). The Site was listed as a Class 2 in the NYS Registry of Inactive Hazardous Waste Disposal Sites in March 1992. An RI/FS Order on Consent was executed in September 1992.

3.2: Remedial History

Interim Remedial Measures (IRMs) were conducted in three areas; one at the location of the solvent UST area (**Fig. 3**), one at the fuel oil UST area (**Fig. 4**), and one in the former drum storage area (**Fig. 2**). Although these IRMs were conducted before there was a signed order on consent, once the RI/FS Order on Consent was signed, the NYSDEC acknowledged the IRM work and data.

In 1991, nine USTs and highly contaminated soils were removed from the front of the building. The nine USTs included one fuel tank, and eight solvent and waste solvent tanks. The fuel tank had a capacity of 2,500 gallons, six solvent tanks had a storage capacity of 500 gallons each, and the remaining two solvent tanks had a storage capacity of 275 gallons.

In 1992, additional soils were removed during the construction and installation of two groundwater recovery and treatment systems. The first system is for recovery and treatment of groundwater contaminated with solvents, and consists of six 15 ft. horizontal recovery wells, placed approximately 12 ft. below the building floor (**Fig.5**). A pit was created during the excavation of the contaminated soils. Then the horizontal wells

were installed in the sidewall of the excavation. The excavated soils, containing VOCs up to 8,200 parts per million (ppm) were removed and sent off-site for proper disposal. The recovered groundwater is treated in an enclosed air sparging tank. Currently this is the only IRM still in operation.

The second recovery system at the location of the former fuel tank recovered both groundwater and light non-aqueous phase liquid (LNAPL). The recovered groundwater and LNAPL passed through an oil-water separator. The recovered water was then treated in an enclosed air sparging tank. The separated oil was collected and shipped off-site for processing at a waste oil recycling facility. The water from both IRM recovery systems was discharged to the Westchester County Department of Environmental Facilities' (WCDEF's) publicly owned treatment works (POTW). The fuel oil area IRM was shut down in 1995 after all recoverable fuel had been collected.

In May 1992, a five-month soil vapor extraction (SVE) pilot study was conducted at the former drum storage area to test the effectiveness of the SVE system. A comparison of the concentrations in the unsaturated soils under the drum storage area before and after the test indicated that the SVE technology was effective. For example, comparison of a soil sample from IW-3 (**Fig. 6**) taken in 1991 with a soil sample from a nearby location (B46) taken in 1993 suggests that the concentration of total VOCs dropped from 76.7 ppm to 0.3 ppm. To the extent that the concentrations of VOCs in the vadose zone (soil above the water table) was considerably reduced during the pilot study, the technology was effective. Data collected subsequently on the nature and extent of contamination at the Site indicated that the bulk of the residual contamination was mostly in the saturated zone in the form of a dense non-aqueous phase liquid (DNAPL), and dispersed widely as globules adsorbed to soil particles. Under these conditions, an SVE systems is not an effective remedial alternative. DNAPL is any denser-than-water chemical compound that is in an undissolved state.

SECTION 4: SITE CONTAMINATION

To evaluate the extent of residual contamination at the Site and to evaluate alternatives to address the threat to human health and/or the environment posed by the residual hazardous waste, the PRP has conducted a Remedial Investigation /Feasibility Study (RI/FS).

4.1: Summary of the Remedial Investigation

The RI commenced in September 1992 after the signing of the Order on Consent, and was completed in August 1995. The RI was conducted in two phases. The first phase was conducted between October 1992 and December 1994; and the second phase between January 1995 and July 1995. The reports entitled Remedial Investigation Report, December 1994 and Remedial Investigation Report Addendum, August 1995 describe the field activities and findings of the RI in detail.

The RI included the following activities:

- Surface water and sediment sampling of the Sheldrake River.
- Installation of two monitoring wells in addition to the seven wells installed prior to the RI to better assess hydrogeologic conditions, groundwater quality and the extent of DNAPL.

- 25 soil borings and collection of 47 soil samples from these borings were analyzed for VOCs. These were in addition to the 24 soil borings conducted prior to the RI from which 60 soil samples were collected.

- Ground penetrating radar survey to determine the presence of LNAPL, DNAPL and bedrock topography.

- Packer tests on two monitoring wells to determine the presence of a DNAPL layer on top of bedrock.

- Installation of recovery well TW-1 (**Fig. 7**) to determine the aquifer yield. TW-1 is a six inch diameter well, about 40 ft deep. This well will be part of the groundwater monitoring program when sufficient data is collected to establish a base line concentration and a set of year-by-year goals is computed.

To determine which media (soil, groundwater, etc.) contain contamination at levels of concern, the RI analytical data was compared to environmental Standards, Criteria, and Guidance values (SCGs). Groundwater, drinking water and surface water SCGs identified for the ITT Sealectro site are based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part V of NYS Sanitary Code. For soils, NYSDEC TAGM 4046 provides soil cleanup objectives for the protection of groundwater, background conditions, and health-based exposure scenarios. Guidance values for evaluating contamination in sediments are provided by the NYSDEC "Technical Guidance for Screening Contaminated Sediments" (**Table 1**). Significant groundwater and soil data are shown on **Table 2**.

Based on the Remedial Investigation results, in comparison to the SCGs and potential public health and environmental exposure routes, certain areas and media of the Site require remediation. These are summarized below. More complete information can be found in the RI Report.

Chemical concentrations in groundwater are reported in parts per billion (ppb), and in soil in parts per million (ppm). For comparison purposes, where applicable, SCGs are provided for groundwater and soil (**Table 1**).

4.1.1 Nature of Contamination:

Chlorinated solvents, which are a type of volatile organic compound (VOC), are the primary chemicals of concern at the Site. Industrial and commercial businesses widely use these compounds for degreasing and cleaning metal parts. The VOCs include: 1,1,1-trichloroethane (1,1,1-TCA), tetrachloroethene (PCE), trichloroethene (TCE), 1,2-dichloroethene (1,2-DCE), 1,1-dichloroethene (1,1-DCE), 1,1-dichloroethane (1,1-DCA), and vinyl chloride (VC). Some of these compounds were not used during the operation of the Site, but were formed by degradation of compounds released into the environment. Petroleum products were also released into the ground because of leaks in the fuel underground storage tank (UST).

4.1.2 Extent of Contamination

Table 1 summarizes the extent of contamination for the contaminants of concern in groundwater and soil, and compares the data with the SCGs for the Site. The following paragraphs describe the media which were

investigated and summarize the findings of the investigation. A detailed description of these investigations is contained in the RI report and the RI Addendum.

Groundwater

There were twelve groundwater monitoring wells installed (**Fig. 8**). The data from the monitoring wells were used to delineate the extent of VOCs and to evaluate the hydrogeologic characteristics and groundwater quality of the overburden aquifer. The monitoring wells were at two basic depths, shallow and deep. The shallow monitoring wells were about 14 feet below ground level and the deep monitoring wells were on the top of bedrock with the deepest at 40 feet below ground level. The background monitoring wells MW-4 and MW-4D were located on Hoyt St. Samples from these wells were collected from February 1992 to February 1997. In 1997, these wells were damaged by construction activities and were properly decommissioned in February 1998. The last sampling of MW-4 took place on May 28, 1997 and had 1,2-DCE at 27 ppb and vinyl chloride at 5 ppb. The last sampling of MW-4D took place on February 25, 1997 and had PCE at 3 ppb.

By using the groundwater elevations that were collected from the wells, it was determined that there is a slight upward flow from the bedrock aquifer to the overburden aquifer. Groundwater flow is to the north-west and discharges into the Sheldrake River .

A packer test was conducted on monitoring wells MW-2D and MW-3D to determine whether a DNAPL layer was present on top of bedrock. Selected depths within the wells were sampled with packers. First the depth of two feet above bedrock was sampled, and then the entire ten foot well screen was sampled. The sampling results from both monitoring wells indicated there was not a DNAPL layer present on site. The DNAPL does exist as globules adsorbed to soil particles and is widely dispersed in the soils in an area under the building. The VOC concentrations within the screened zone of the two monitoring wells were uniform.

The extent of VOC contamination in groundwater starts from the area of the former solvent USTs in the south corner of the building and extends in a westerly direction to the River (**Fig. 9**). It includes the plumes from the former solvent USTs and the former drum storage area. The groundwater contamination is elevated in two locations on site. At monitoring well MW-2D, at the former drum storage area, 6,500 ppb of PCE and 1,300 ppb of 1,1,1-TCA were detected on February 27, 1995. At monitoring well MW-12, inside the building, 6,100 ppb of PCE and 18,000 ppb of 1,1,1-TCA were detected on February 25, 1997.

The latest sampling of the monitoring wells took place on August 24, 1998 and significant results are listed below:

MW-2 18 ppb of 1,1-DCA, 6 ppb of 1,1-DCE, 51 ppb of vinyl chloride;
MW-2D 1,600 ppb of PCE, 62 ppb of 1,1,1-TCA and 1,662 ppb of total VOC.
MW-3 6 ppb of chloroform, 40 ppb of 1,1-DCA, 87 ppb of 1,1-DCE, 6 ppb of 1,2-DCE, 18 ppb of PCE, 42 ppb of 1,1,1-TCA, 6 ppb of TCE;
MW-3D 3 ppb of PCE;
MW-11 3 ppb of chloroethane, 2 ppb of 1,2-DCE; and
MW-12 670 ppb of 1,1-DCE, 890 ppb of 1,2-DCE, 5,900 ppb of PCE, 15,000 ppb of 1,1,1-TCA, 1,100 ppb of TCE, and 23,560 ppb of total VOC.

Recovery well TW-1 was sampled in 1995 with a maximum of21,550 ppb of total VOCs during a 24-hr. pump test. This concentration is not an accurate reflection of the static conditions in the groundwater.

Soil

Twenty-five soil borings were completed and forty-seven soil samples were collected and analyzed. Samples were analyzed for VOCs, semi-volatile organic compounds (SVOCs), and petroleum products. The type of analysis depended on the location of the soil boring. The soil borings extended down to the top of bedrock. Field instruments were used to select sections of the soil boring for laboratory analysis. Certain soil borings had more than one soil sample collected based on the readings of the field instruments. The areas of concern were the former drum storage area, the fuel oil area, the solvent UST area, and the shed area. The location of the soil borings and the areas of concern are shown in **Figure 8.**

In the former drum storage area, eight shallow soil borings (B-41 to B-48) were completed. These soil borings were used to evaluate the effectiveness of *in-situ* vacuum extraction IRM described in Section 3 above, and determine the levels of residual contamination. Only one soil sample from soil boring B-44 had a significant chlorinated VOC level. The sample from B-44 (**Fig. 10**) at 3 to 5 feet depth had 3.3 ppm of TCE, 0.43 ppm of PCE, 0.37 ppm of 1,2-DCE and 0.22 ppm of 1,1,1-TCA. Out of the eight soil borings sampled for SVOCs in this area, three samples had no detectable concentrations, and the remaining five samples had detectable levels of petroleum related contaminants and pentachlorophenol, a hazardous waste. Only one soil sample, B-44 at 3 to 5 feet depth, had pentachlorophenol at 1.1 ppm. This compound is not related to any of the activities that took place on the Site. The cleanup guidance level for this compound in soil is 1 ppm.

In the fuel oil area four shallow soil borings (B-37 to B-40) were completed. The locations of the soil borings were based on previous investigations. Concentrations of all compounds analyzed were below their respective cleanup guidance levels (**Fig. 8**).

Seven shallow soil borings (B-31 to B-34, B-49, B-50 & B-51) and six deep soil borings (B-35, B-36, B-52 & B-55) were completed in the solvent UST and the Shed areas. All soil borings had detectable levels of VOCs. Significant results are shown in **Table 2**. The maximum concentration was detected in B-36 at 25 to 28.5 feet depth range with PCE at 440 ppm and 1,1,1 -TCA at 110 ppm. All other samples had concentrations of less than 10 ppm of any one compound. B-36 is located 10 feet to the west of the building and 30 feet in front of the shed (Shed Area). It is downgradient of the former solvent USTs locations.

Sediments

Sediment samples were collected from the Sheldrake River. The samples were collected fifty feet from the Site both upstream and downstream from the Site. At each sampling point, four samples were collected and then mixed to form a single composite sample.

There were no VOCs detected in the Sheldrake River sediment. There were slightly elevated levels of lead detected in the sediment, but elevated levels were detected in both the upgradient and downgradient samples. Therefore, the sources of lead in the River sediment remain unknown (**Fig. 11**).

Surface Water

The Sheldrake River is a Class C river that joins the Mamaroneck River a quarter of a mile downstream. The Mamaroneck River discharges into Long Island Sound (**Fig. 11**). Three surface water samples were collected from the Sheldrake River. The samples were collected upstream, downstream and across from the Site. .The surface water samples had up to 24 ppb of 1,1,1-TCA. Both upstream and downstream samples had detectable levels of VOCs.

Air

In October 1993, two indoor air samples were collected and tested for eight site-related VOCs to determine potential impacts to indoor air quality from the migration of VOCs in the soil and groundwater beneath the facility. In addition, one ambient air sample was collected outside the facility to evaluate background VOC concentrations. None of the VOCs tested for were detected above the method detection limit of 0.2 and 0.1 milligrams per cubic meter of air. At the request of the NYSDOH, a second round of indoor and outdoor air sampling was conducted at the site on December 30, 1998, the results of which are presented in **Table 3**. The purpose of the second round of sampling was to determine potential impacts to indoor air quality from VOCs using significantly lower method detection limits than the original sampling round. Three indoor ambient air samples and one outdoor ambient air sample were collected and tested for site-related VOCs. These indoor air sampling results showed impacts to indoor air quality when compared to the results for the outdoor ambient air sample collected. Site-related contaminants were detected in the sample collected from the International Health Specialists space and include PCE, 1,1,1-TCA, TCE, 1,1-DCA, toluene, m-xylene, p-xylene and benzene. Site-related contaminants were also detected in the sample collected from the adjacent American Tile Company warehouse space and include PCE, TCE, 1,1,1-TCA, 1,1-DCA, toluene, and m-xylene, p-xylene. In general, these compounds were not detected above the laboratory detection limit in the outdoor ambient air sample collected. The indoor and outdoor air data were also compared to the 25th to 75th percentile concentration ranges reported in the U.S. Environmental Protection Agency's Volatile Organic Compounds Database Update (USEPA Database) and the NYSDOH Control Home Database. Sampling sites in these databases are offices and residences not known to be affected by spills or other unusual sources of chemical contamination. The 25th percentile to 75th percentile range is used to indicate the range of typical background.

Site related chemicals detected in the indoor ambient air that are elevated above their respective databases ranges include PCE, TCE, 1,1,1- TCA and 1,1-DCA. Additional sampling is required to confirm these data and to determine the need for remedial measures.

4.2 Interim Remedial Measures:

Interim Remedial Measures (IRMs) are conducted at sites when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS.

The IRMs conducted on the Site were described more fully in Section 3.2

4.3 Summary of Human Exposure Pathways:

A baseline risk assessment was conducted to identify potential exposure pathways to site-related contaminants and to assess the potential risks to human health associated with these pathways. The results of the assessment are presented in Section 6 of the RI report.

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

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

- Dermal contact with and incidental ingestion of surface water in adjacent Sheldrake River.
- Ingestion of contaminated groundwater should it be used for potable purposes such as drinking, cooking, or bathing.
- Inhalation of VOCs in the form of vapors from contaminated soil or groundwater.

Recreational users of Sheldrake River adjacent to and downstream from the site could be exposed to VOCs via dermal contact and incidental ingestion due to the discharge of contaminated groundwater into the water body. The extent of exposure would likely be minimal due to the expected dilution effect on concentration levels after groundwater discharges into the river and the infrequent and short duration of contact involving recreational use of the water body.

Since the entire Village is supplied with public drinking water, it is unlikely that ingestion of contaminated groundwater has occurred or would occur in the future.

In 1993, indoor and outdoor ambient air samples were collected at the site and tested for site-related VOCs. Although none of the VOCs tested for were detected, the method detection limits used were 50 to 100 times higher than typical indoor air levels for the compounds. In December 1998, a second round of indoor and outdoor ambient air sampling was conducted at the site. These air samples were tested for site-related VOCs using approved methodology and lowered detection limits. The December 1998 air sampling results indicate the presence of site-related contaminants in indoor air. These data, when compared to the outdoor ambient air quality sample results and the NYSDOH and USEPA databases, indicate impacts to indoor air quality from site-related contamination, particularly from PCE, TCE, 1,1,1-TCA and 1,1-DCA. Additional sampling is required to confirm the most recent air sampling results. If the additional sampling results indicate the same impacts to indoor air quality, remedial measures will be required to further reduce the infiltration of site-related contamination into the building so as to eliminate the impacts to indoor air quality.

4.4 Summary of Environmental Exposure Pathways:

The Fish and Wildlife Impact Assessment included in the RI presents a more detailed discussion of the potential impacts from the Site to fish and wildlife resources. The following pathways for environmental exposure have been identified:

Surface Water: The Sheldrake River is class C surface water which is defined suitable for fish propagation and survival. The NYSDEC conducted a field investigation of the Sheldrake River in 1996. The investigation results did not show any contaminates from the Site in the fish specimens collected.

Sediment: No VOCs were detected in the sediment samples.

SECTION 5: ENFORCEMENT STATUS

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

The NYSDEC and the ITT Sealectro Corp. entered into an Order on Consent on September 30, 1992. The Order obligates the responsible parties to implement a remedial program.

The following is the chronological enforcement history of the Site.

Date	Index No.	Subject of Order
9/30/92	N/A	RI /FS and Remedial Program

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to restore the Site to pre-disposal conditions, to the extent feasible and authorized by law.

At a minimum, the remedy selected should eliminate or mitigate all significant threats to public health and to the environment presented by the hazardous waste disposed at the Site through the proper application of scientific and engineering principles.

The goals selected for the Site are:

- Reduce, control, or eliminate to the extent practicable the contamination present within the soils.
- Eliminate the potential for direct human or animal contact with the contaminated soils on site.
- Mitigate the impacts of contaminated groundwater to the environment.
- Provide for attainment of SCGs for groundwater quality in accordance with the year-by-year goals established for the Site (**Figs. 12 -17**).
- Mitigate the impacts of site-related contamination on the indoor air quality.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy should be protective of human health and the environment, be cost effective, comply with other statutory laws and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the ITT Sealectro site were identified, screened and evaluated in the reports entitled Feasibility Study 11/95, and Final Feasibility Study 1/99o

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

7.1: Description of Alternatives

The potential remedies are intended to address the contaminated groundwater at the Site.

Alternative 1: No Action

The no action alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative would decommission the existing IRM groundwater collection and treatment systems. The solvent and fuel oil recovery wells would be properly abandoned. This alternative would leave the Site in its present condition and would not provide any additional protection to human health or the environment.

Present Worth:	$101,500
Capital Cost:	$101,500
AnnualO&M:	$0
Time to Implement	6 months

Alternative 2: Monitored Natural Attenuation

This alternative recognizes the past IRMs conducted at the Site and would require continued operation and maintenance of the groundwater recovery and treatment system. Additionally it would require that a groundwater monitoring program with a set of year-by-year cleanup goals be instituted to evaluate the effectiveness of the remediation completed under the IRMs.

This alternative would contain provisions for institutional controls such as deed restrictions, fencing, and maintenance of the existing asphalt pavement.

The deed restrictions would include restrictions on land use and activities that would expose contaminated materials, and prohibiting the installation of potable wells. There is currently an 8 ft. high fence around the Site. The existing asphalt pavement in the on-site parking lots would be maintained to limit human contact with site soils and reduce dust generation.

An approved groundwater monitoring plan with numerical year-by-year groundwater cleanup goals and an approved contingency remedial plan are integral elements of this Alternative. The PRP would submit a groundwater monitoring program, an indoor air monitoring program, contingency remedial plan and an operation and maintenance plan for approval by the NYSDEC and NYSDOH. Under the groundwater

monitoring plan, wells MW-2, MW-2D, MW-3, MW-3D, MW-11, MW-12 and TW-1 would be used as monitoring points for the monitoring program (**Fig. 2**). The recovery well TW-1 needs to be monitored quarterly for at least two years to develop enough information to establish year-by-year cleanup goals. A contingency plan would be implemented if either of the following two criteria are met: First, if the annual maximum VOC concentration in any of the wells exceeds the year-by-year cleanup goals by 20% for three consecutive years; and secondly, if the NYSDOH determines that the contamination in the indoor air requires mitigation measures.

The operation and maintenance (O&M) for Alternative 2 would be maintaining fences, the parking lot asphalt, groundwater monitoring wells, and conducting the groundwater monitoring program.

Present Worth:	$ 1,750,000*
Capital Cost:	$ 21,000
Annual O&M:	$ 93,000
Time to Implement	6 months

*Costs for monitoring TW-1 and indoor air monitoring program not included.

If implemented, the contingency plan would include a groundwater recovery and treatment system at each of the groundwater monitoring wells that trigger the implementation. The cost of implementing the contingency plan is not included in the above amounts. Well RW-2, which is at the source of the contamination and is part of the solvent recovery system, would be monitored to establish a correlation in the groundwater data collected from all the other monitoring wells. Additional remedial measures, which may include the development and use of innovative technology as approved by NYSDEC, would be required if the contingency plan fails to achieve the year by year goals.

Alternative 3: Slurry Containment Wall

This alternative includes institutional controls and deed restrictions stated in Alternative 2, groundwater monitoring program, an indoor air monitoring program, a slurry wall containment system, one groundwater recovery well, groundwater treatment and discharge of treated groundwater to the Westchester County Department of Environmental Facilities (WCDEF) publicly owned treatment works (POTW).

The slurry wall would be installed around the perimeter of the Site. A slurry wall is a containment wall that would limit the groundwater flow across the Site. Standard construction and trenching techniques would be used to excavate the trench for the slurry wall. The construction of the slurry wall between the River and the building would require a temporary diversion of the River. The trench would be approximately 2 ft. to 3 ft. wide and would extend down to bedrock, approximately 30 ft. to 40 ft. During excavation the trench would be filled with a bentonite slurry to keep the trench open. When the trench has been excavated to its total depth, it would be filled with an engineered material such as a soil-bentonite mixture. This engineered material would in turn displace the bentonite slurry which would be collected at the ground surface. Within the slurry wall groundwater recharge and groundwater inflow from the bedrock is expected to result in an elevated groundwater level. If the groundwater level within the slurry wall rises much above the groundwater level outside the slurry wall, the contaminated groundwater might flow out from inside the wall. In order to prevent this potential migration of contaminants, a recovery well would be installed inside the slurry wall. The well would be pumped on a periodic basis to maintain the level of groundwater inside the wall lower than that outside.

The O&M for Alternative 3 would be continued monitoring of groundwater for VOCs and oil & grease, discharging treated water to the WCDEF POTW, mechanical inspection and servicing of the treatment system; vapor-phase carbon replacement from the air sparging tank, and annual site reviews.

Present Worth:	$ 4,600,000
Capital Cost:	$ 2,656,168
Annual O&M:	$ 182,200(yrs 1-5)
	$ 125,800(yrs 5-15)
	$ 110,800(yrs 15-30)
Time to Implement	1 year

Alternative 4: Groundwater Extraction

This alternative includes; institutional controls and deed restrictions stated in Alternative 2, groundwater monitoring program, an indoor air monitoring program, groundwater extraction of the DNAPL area, groundwater treatment, and discharge of treated groundwater to the WCDEF POTW.

The groundwater extraction and groundwater treatment system would use four recovery wells. Four recovery wells would be located in areas of high contamination. The recovery well network would consist of two existing wells and two additional proposed wells. The network would include well RW-2 located near the building at the source of the contamination and well TW-1, a large diameter well located in the parking lot. The proposed location of the third well would be near or at MW-2D. There is a possibility that MW-2D would be converted into the recovery well. The last proposed location of a recovery well would be under the building. With minor modifications to the system to handle the increased amount of groundwater flow, the groundwater would be pumped to the current treatment system. The shut-off criteria would be based on the year-by-year cleanup goals.

The O&M for Alternative 4 are continued monitoring groundwater for VOCs, servicing the treatment system, vapor-phase carbon replacement, and annual site reviews.

Present Worth:	$ 1,400,000
Capital Cost:	$ 210,000
Annual O&M:	$ 200,000(yrs. 1-5)
	$ 30,000(yrs. 5-30)
Time to Implement:	6 months - 1 year

Alternative 5: *In Situ* Air Stripping and Air Sparging

This alternative includes institutional controls and deed restrictions stated in Alternative 2, groundwater monitoring program, an indoor air monitoring program, and construction and operation of an *in situ* air stripping (soil vapor extraction) system and an *in situ* air sparging system.

This alternative includes the installation of two sets of wells with one set delivering air into the groundwater and the other set extracting air and vapors from the ground. The recovered air would then be treated to remove the VOCs. The vadose zone encompasses those soils above the water table between 0 ft. and about 8 ft. below ground surface, and the overburden saturated zone encompasses those soils below the water table from about 8 ft. below the ground surface to the top of bedrock. The *in situ* air stripping system would be used to treat the

contaminated soils in the vadose zone and the *in situ* air sparging system would be used to treat contaminated soils and groundwater in the saturated soil. Both systems would be connected to an air emission control unit to treat the vapors extracted from the extraction wells. The emission control unit would consist of prefabricated carbon canisters. Sampling ports would be placed in the exhaust stack to measure air flow, air speed, air pressure differentials, and VOC levels.

The *in situ* air stripping system would be comprised of eleven shallow extraction wells, nine passive inlet/sparge wells, two deep extraction/sparge wells, and, a positive displacement blower with a manifold. The shallow extraction wells would be placed in areas of high VOC contamination based on the soil borings conducted for the RI report. The deep extraction/sparge wells would be placed within the building and would have a split screen to provide both air stripping points and air sparging points. The locations of the extraction/sparge wells would be in areas where DNAPL was detected. The building interior wells would be flush mounted with pipelines placed in trenches in the building's floor. All extraction wells would be connected to the manifold displacement blower.

The *in situ* air sparging system would have nine inlet/sparge wells, two extraction/sparge wells (description stated above), a series of horizontal wells, and an air sparging blower. Many of the wells and equipment would have a dual purpose, being used for both air stripping and air sparging. Horizontal wells would be placed along the foundation of the building at a depth of 28 ft. The horizontal wells and sparge wells would be connected to the air sparge blower.

The O&M for Alternative 5 would include institutional controls, continued groundwater monitoring for VOCs, bimonthly and monthly compliance monitoring of the exhaust stack for VOCs, mechanical inspection and servicing of the *in situ* air striping and air sparging systems, replacement of carbon canisters for the air emission unit, and annual site reviews.

Present Worth	$ 2,400,000
Capital Cost:	$ 962,000
Annual O&M:	$ 196,200 (yrs. 1-5)
	$ 124,800 (yrs. 5-15)
	$ 124,800 (yrs. 15-30)
Time to Implement	6 months - 1 year

7.2 Evaluation of Remedial Alternatives

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

1. **Compliance with New York State Standards, Criteria, and Guidance (SCGs).** Compliance with SCGs is prescribed though applicable environmental laws, regulations, standards, and guidance.

The important SCGs associated with the Site are the New York State Surface and Groundwater Quality Standards (6NYCRR Part 703) for the groundwater and the NYSDEC Technical and Administrative Guidance

Memorandum (TAGM) 4046 for soil cleanup guidance values. Under current conditions there are VOCs in the groundwater and soils that exceed SCGs for soils and groundwater.

Alternative 1 would not provide for the attainment of groundwater or soil SCGs unless they were reached through natural attenuation. Alternative 2 includes the O&M of the existing recovery treatment system, the establishment of year-by-year cleanup goals and a contingency plan that would be triggered if the goals are exceeded by 20% for three consecutive years. This would expedite the compliance with SCGs as compared to Alternative 1. While Alternative 3 would require pumping of groundwater within the containment wall to equalize groundwater levels on both sides of the wall, no appreciable removal of contaminants would occur, because of the limited pumping that would be required. Because of the slow dissolution rates and disposition of DNAPL the attainment of SCGs under Alternative 4 would require a considerable period of time. The exact period is difficult to ascertain. Alternative 5 would not meet SCGs for the Site because the extraction system would not be effective in the saturated zone, which contains most of the residual contamination.

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

Alternative 1 would not be protective of human health or the environment. Human contact with contaminated groundwater, although not expected, would not be reduced. There are no provisions in Alternative 1 to mitigate future release of contaminants into the building on Site or to the aquifer. The year-by-year goals with the contingency remedial plan of Alternative 2 would provide limited mitigation to future release of contaminants from the Site to the principal aquifer. For reasons explained in Item 1. Alternatives 3, 4, and 5 would provide additional limited protection.

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

Alternative 1 would not require any construction and would not have any impacts on the community, the workers and the environment. The contingency remedial plan of Alternative 2 may cause limited impacts to the workers and the environment. Alternative 3 may require an extensive construction period that would cause impacts to the community, the workers, and the environment, because of generation of dust, use of construction equipment, traffic and possible diversion of the river. Alternatives 4 and 5 would require a shorter construction period and would cause lesser impacts to the community, the workers, and the environment. These impacts would be mitigated through controls using a Health and Safety Plan in accordance with Occupational Health and Safety Standards, New York State Department of Health, and standard construction practices to avoid nuisance conditions.

4. **Long-term Effectiveness and Permanence.** This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

Alternative 1 would provide no effective or permanent remedy for the Site. All existing and potential future risks would remain unchanged. Alternative 2 would provide long term management through the monitoring

program and deed restrictions. The existing treatment system and the contingency remedial plan for Alternative 2, if implemented, would provide long term effectiveness and permanence by removal of contaminants and control of their transport. Alternatives 3 and 4 would limit the potential future risks to the aquifer. Alternative 4 has no satisfactory year-by-year goals against which to measure its effectiveness on a continuing basis. Alternative 5 would create the risk of releasing contaminated vapor inside the building.

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

Alternative 1 would not reduce the toxicity, mobility, or volume of the wastes at the Site. The existing treatment system for Alternative 2 would reduce the volume of the contaminants in the groundwater through recovery and treatment. Additionally, if the contingency plan is implemented, a greater mass of contaminant would be extracted and removed. Alternative 3 would reduce the mobility of the contaminants in the soils and groundwater by the construction of the slurry wall. Alternatives 4 and 5 would reduce the volume of the contaminants in the groundwater and soil.

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

The technologies and construction methods proposed in all of the alternatives and the contingency plan are accepted by the NYSDEC. Alternative 3 would be the most difficult to implement because it involves the most construction and will require a significant degree of cooperation from the owner, and the State for diversion of the River. Alternative 5 also requires a significant amount of construction, but only requires obtaining access from the property owner and not the State, so it would be slightly less difficult to implement than Alternative 3. Alternative 2 and 4 require significantly less construction and would be easier to implement than Alternatives 4 and 5. Alternative 1 would be the easiest to implement.

7. **Cost.** Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision. The costs for each alternative are presented in **Table 3**.

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

8. **Community Acceptance.** - Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan have been evaluated. The "Responsiveness Summary" included as Appendix B presents the public comments received and the Department's response to the concerns raised. No significant public comments were received.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based upon the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC is selecting Alternative 2 as the remedy for the Site.

This proposal is based on the limited additional benefit that proven technologies such as considered in Alternatives 3, 4, and 5 in Section 7.1 will provide with respect to expediting the attainment of SCGs or cost-effectiveness given the nature, extent and the disposition of the contamination at this site. The remedy provides further evaluation of the existing treatment system, a reasonable time frame and goals for cleanup, and implementation of a contingency plan if triggered. Because of the nature and extent of the contamination, development and use of innovative technology may be required should the contingency plan fail to meet the remedial goals.

This alternative will include a groundwater monitoring program and a contingency remedial plan. The solvent UST area IRM will continue to operate until the shut down criteria to be established by the NYSDEC or SCGs are met. Institutional controls are also part of the remedy. A set of year-by-year cleanup goals has been established for each well, and if the VOC concentrations follow the cleanup goals, the VOCs will be meet the SCGs by 30 years. The data gathered in the groundwater monitoring program will be compared to the year-by-year cleanup goals.

If the total maximum VOC concentrations exceed the year-by-year cleanup goals by 20% for three consecutive years, the contingency remedial plan will be implemented. The contingency remedial plan will consist of groundwater recovery at each of the wells that trigger the implementation of the contingency plan. Recovered water will be piped to the on-site treatment system.

Additionally, if the NYSDOH determines that impacts to indoor air quality from the infiltration of site-related contamination require mitigation measures, the contingency plan or other controls will be implemented.

The contingency plan will have the same year-by-year cleanup levels as the monitoring program. Additional measures, which may include the development and use of innovative technology, will be studied and implemented if the contingency plan does not achieve the cleanup goals.

The estimated present worth cost to implement the remedy is $1,751,000*. The cost to construct the remedy is estimated to be $0 and the estimated average annual operation and maintenance cost for 30 years is $93,000*.

*Costs for monitoring TW-1 and indoor air monitoring program not included.

The elements of the selected remedy are as follows:

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

2. The continued operation and maintenance of the solvent UST area IRM, which includes the groundwater extraction and treatment system at the former location of the eight solvent USTs.

3. Since the remedy results in untreated hazardous waste remaining at the Site, a long term monitoring program will be instituted. A set of year-by-year cleanup goals have been established for each of the wells MW-2, MW-2D, MW-3, MW-3D, MW-11, MW-12. A set of goals for TW-1 will be established when sufficient data are collected to set base line concentrations and compute the year-by-year goals.

4. An indoor air quality monitoring program.

5. A Contingency Remedial Plan that will be triggered if the maximum annual concentration at any of wells being monitored exceeds the cleanup goals by 20% for three consecutive years. Additionally, if the NYSDOH determines that impacts to indoor air quality from the infiltration of site-related contamination requires mitigation measures, the contingency plan or other controls will be implemented.

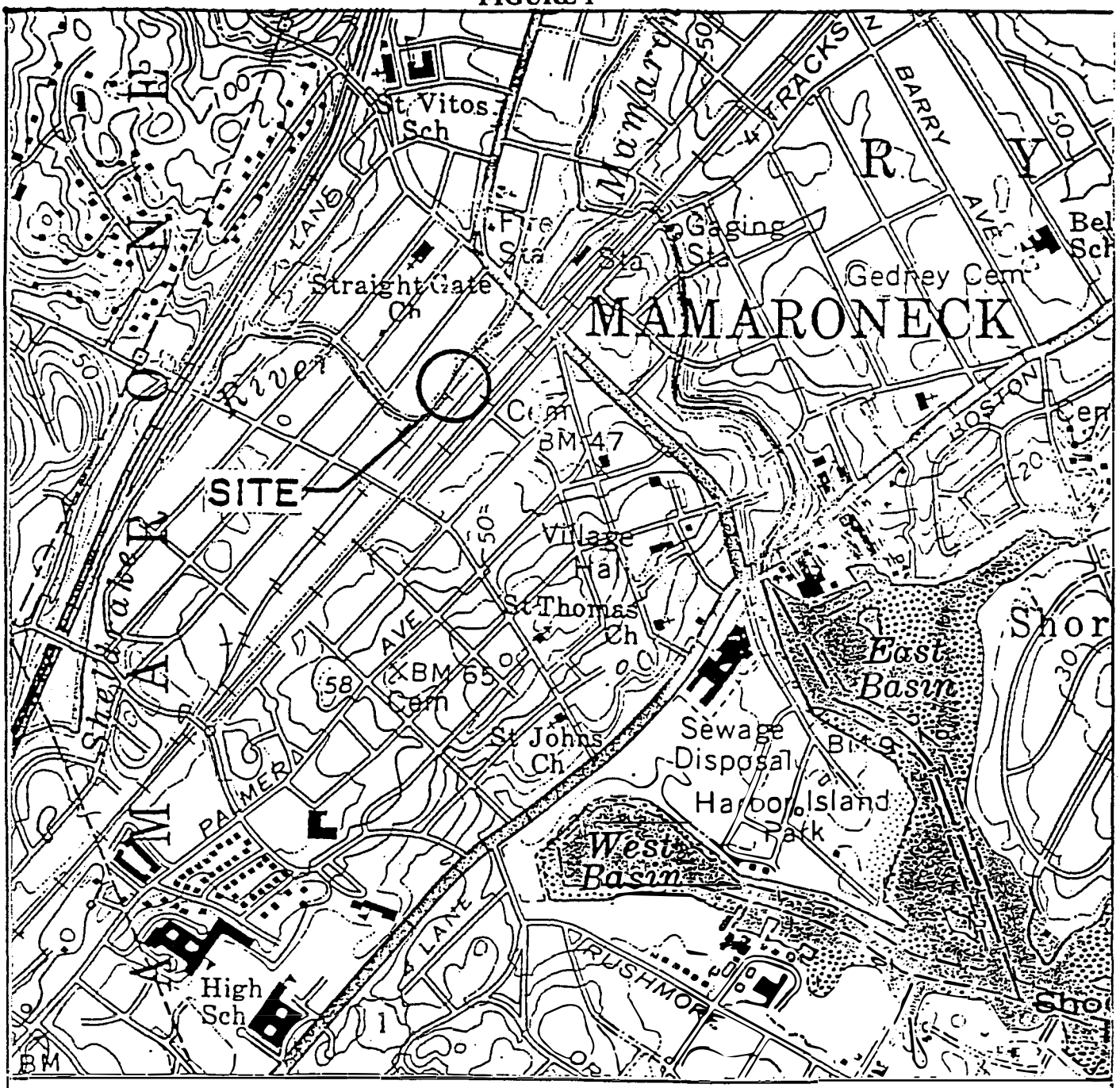
6. Institutional controls would be implemented to restrict land use and activities that would expose contaminated materials, and prohibit the installation of potable wells. In addition, the existing asphalt pavement over the on-site parking lots and the perimeter fencing will be maintained.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

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

- A repository for documents pertaining to the site was established.
- An availability session was held to present the results of the Remedial Investigation.
- A site mailing list was established which included nearby property owners, local political officials local media and other interested parties.
- A Fact Sheet was drafted and sent to the Site mailing list.
- A public meeting was held to present the PRAP to the public.
- In March, 1999 a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public comment period for the PRAP.

FIGURE 1



ITT SEALECTRO
MAMARONECK, NEW YORK

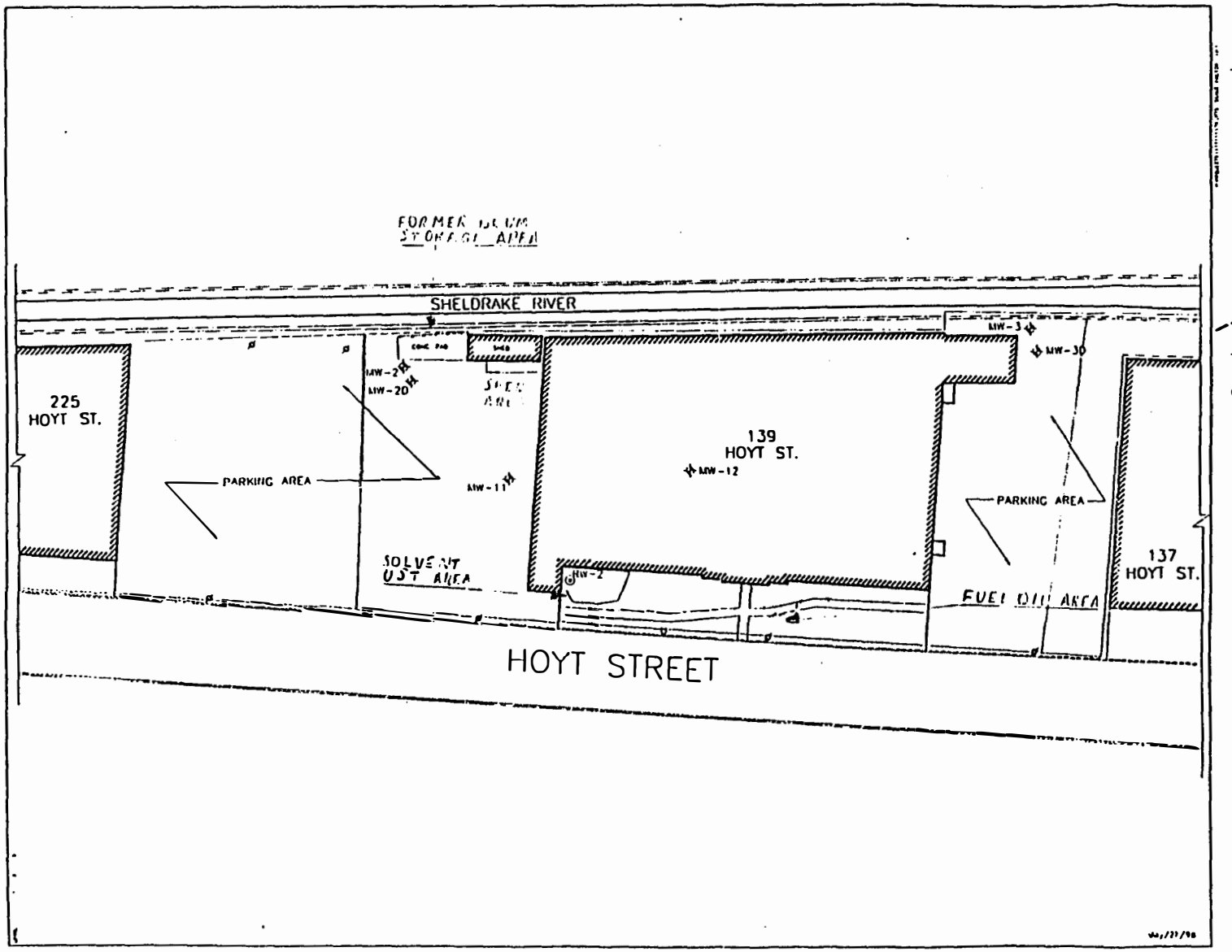
QUADRANGLE LOCATION

SITE LOCATION MAP

0 1000 2000

SCALE IN FEET

ADAPTED FROM U.S.G.S. QUAD. 7.5 MIN. QUAD. MAP, MAMARONECK, NEW YORK



ITT SEALECTRO
MAMARONECK, NEW YORK

LEGEND

- PROPERTY LINE
- MONITORING WELL LOCATION
- RECOVERY WELL LOCATION
- UTILITY POLE

MONITORING WELL LOCATION MAP

40 0 40

APPROX. SCALE IN FEET

3356.015-34F

O'BRIEN & GERE

FIGURE 2

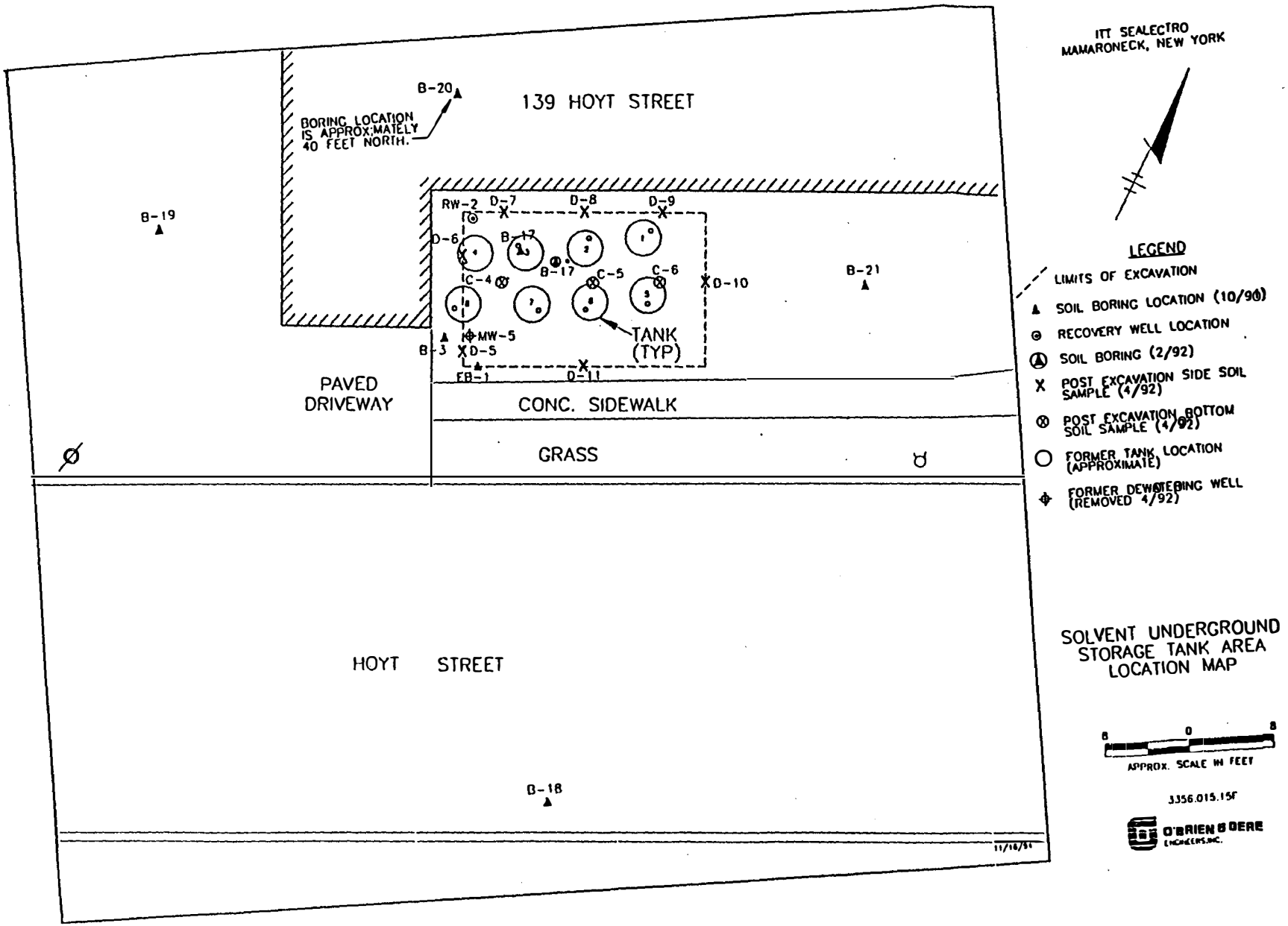
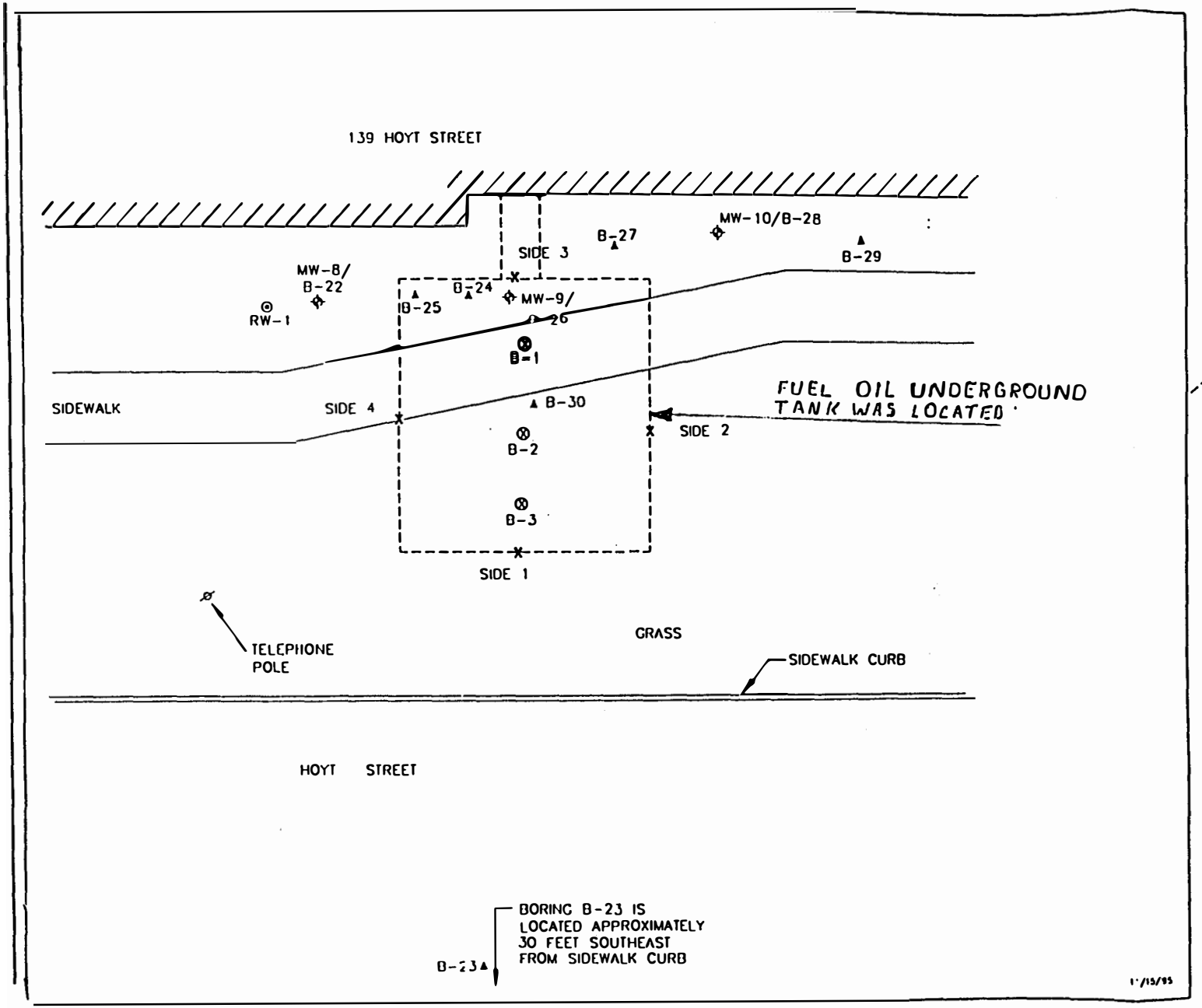

ITT SEALECTRO
MAMARONECK, NEW YORK
139 HOYT STREET
B-20
BORING LOCATION IS APPROXIMATELY 40 FEET NORTH.
B-19
B-21
B-18
RW-2
D-7
D-8
D-9
D-6
B-17
C-4
C-5
C-6
D-10
MW-5
B-3
D-5
EB-1
D-11
TANK (TYP)
PAVED DRIVEWAY
CONC. SIDEWALK
GRASS
HOYT STREET
LEGEND
LIMITS OF EXCAVATION
SOIL BORING LOCATION (10/90)
RECOVERY WELL LOCATION
SOIL BORING (2/92)
POST EXCAVATION SIDE SOIL SAMPLE (4/92)
POST EXCAVATION BOTTOM SOIL SAMPLE (4/92)
FORMER TANK LOCATION (APPROXIMATE)
FORMER DEWATERING WELL (REMOVED 4/92)
SOLVENT UNDERGROUND STORAGE TANK AREA LOCATION MAP
8 0 8
APPROX. SCALE IN FEET
3356.015.15F
O'BRIEN & GERE ENGINEERS, INC.

FIGURE 3

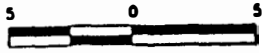


LEGEND

- APPROXIMATE LIMITS OF EXCAVATION
- MONITORING WELL LOCATION
- SOIL BORING LOCATION (12/92)
- RECOVERY WELL LOCATION
- POST EXCAVATION SIDE SOIL SAMPLE (4/92)
- POST EXCAVATION BOTTOM SOIL SAMPLE (4/92)

ITT SEALECTRO
MAMARONECK, NEW YORK

FUEL OIL UNDERGROUND
STORAGE TANK AREA
LOCATION MAP



3356.024.07F

O'BRIEN & GERE ENGINEERS, INC.

FIGURE 4

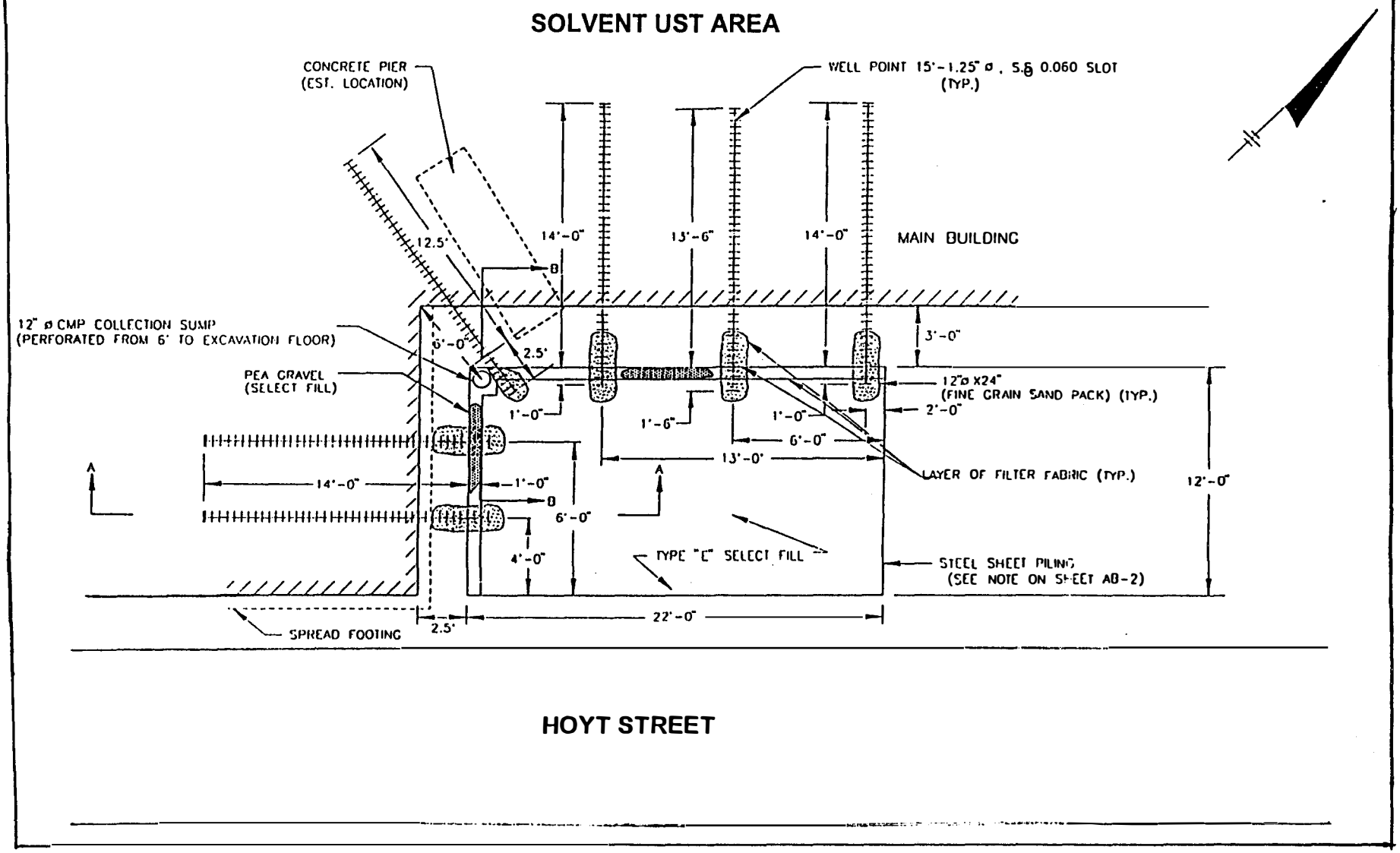

SOLVENT UST AREA
CONCRETE PIER
(EST. LOCATION)
WELL POINT 15'-1.25" ø , S.S 0.060 SLOT
(TYP.)
MAIN BUILDING
12.5'
14'-0"
15'-6"
14'-0"
12" ø CMP COLLECTION SUMP
(PERFORATED FROM 6' TO EXCAVATION FLOOR)
PEA GRAVEL
(SELECT FILL)
6'-0"
2.5'
3'-0"
12"ø X24"
(FINE GRAIN SAND PACK) (TYP.)
2'-0"
1'-0"
1'-6"
1'-0"
6'-0"
13'-0"
LAYER OF FILTER FABRIC (TYP.)
12'-0"
14'-0"
1'-0"
6'-0"
4'-0"
TYPE "E" SELECT FILL
STEEL SHEET PILING
(SEE NOTE ON SHEET A8-2)
SPREAD FOOTING
2.5'
22'-0"
HOYT STREET

FIGURE 5

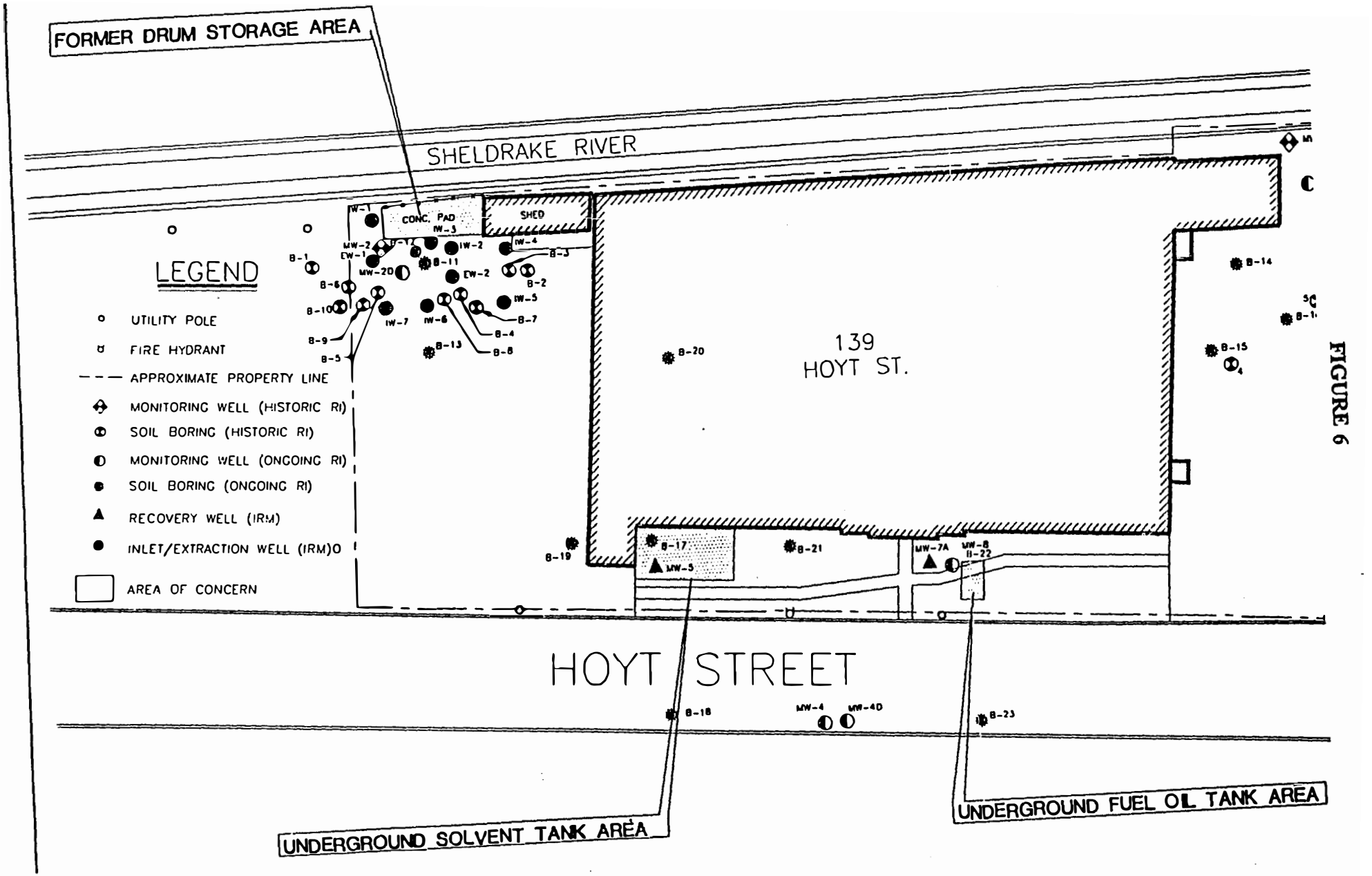

FORMER DRUM STORAGE AREA
SHELDRAKE RIVER
CONC. PAD
SHED
LEGEND
UTILITY POLE
FIRE HYDRANT
APPROXIMATE PROPERTY LINE
MONITORING WELL (HISTORIC RI)
SOIL BORING (HISTORIC RI)
MONITORING WELL (ONGOING RI)
SOIL BORING (ONGOING RI)
RECOVERY WELL (IRM)
INLET/EXTRACTION WELL (IRM)O
AREA OF CONCERN
139
HOYT ST.
HOYT STREET
UNDERGROUND SOLVENT TANK AREA
UNDERGROUND FUEL OIL TANK AREA

FIGURE 6

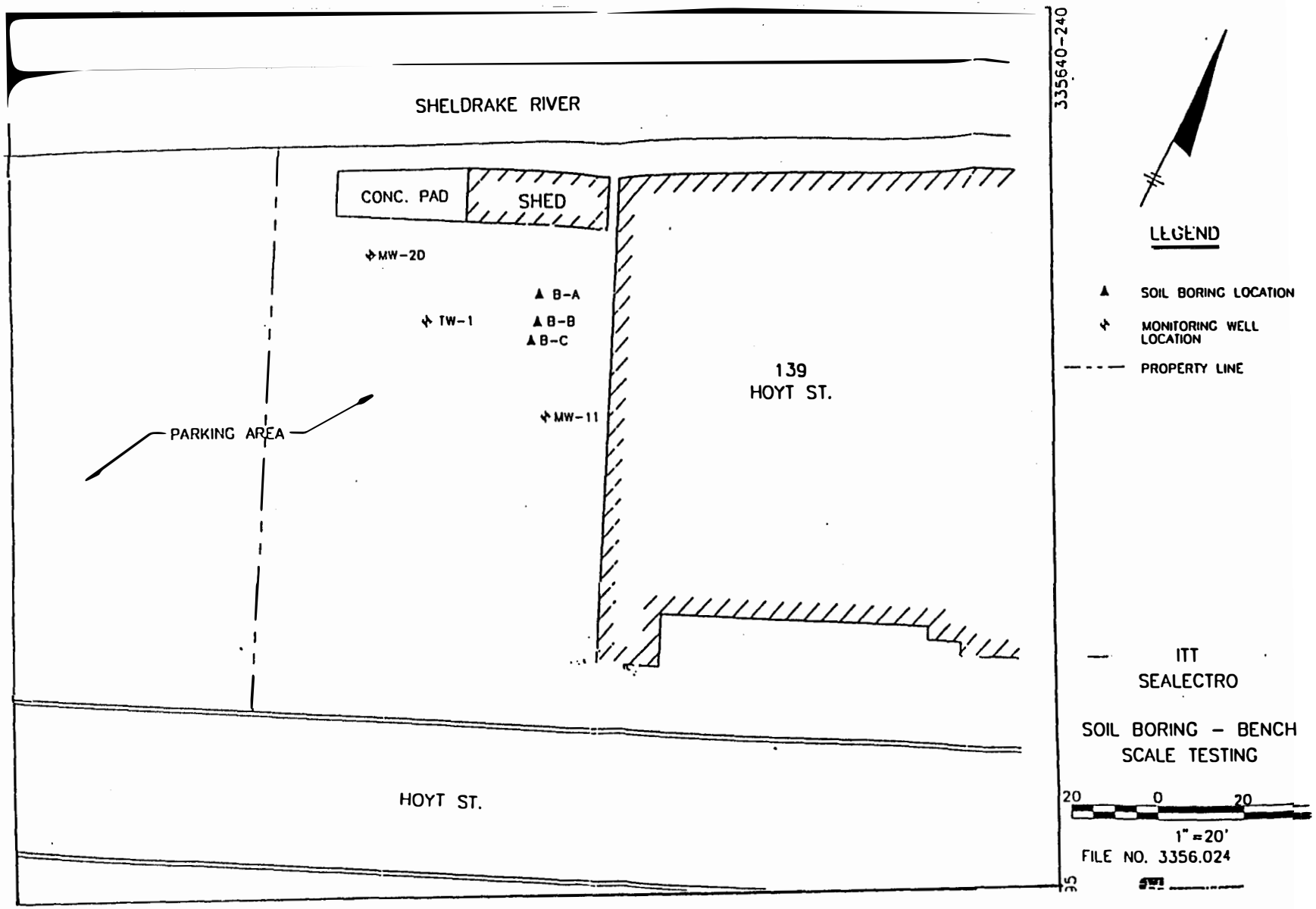

SHELDRAKE RIVER
335640-240
CONC. PAD
SHED
MW-20
B-A
TW-1
B-B
B-C
139
HOYT ST.
MW-11
PARKING AREA
HOYT ST.
LEGEND
SOIL BORING LOCATION
MONITORING WELL LOCATION
PROPERTY LINE
ITT
SEALECTRO
SOIL BORING – BENCH SCALE TESTING
20 0 20
1" = 20'
FILE NO. 3356.024

FIGURE 7

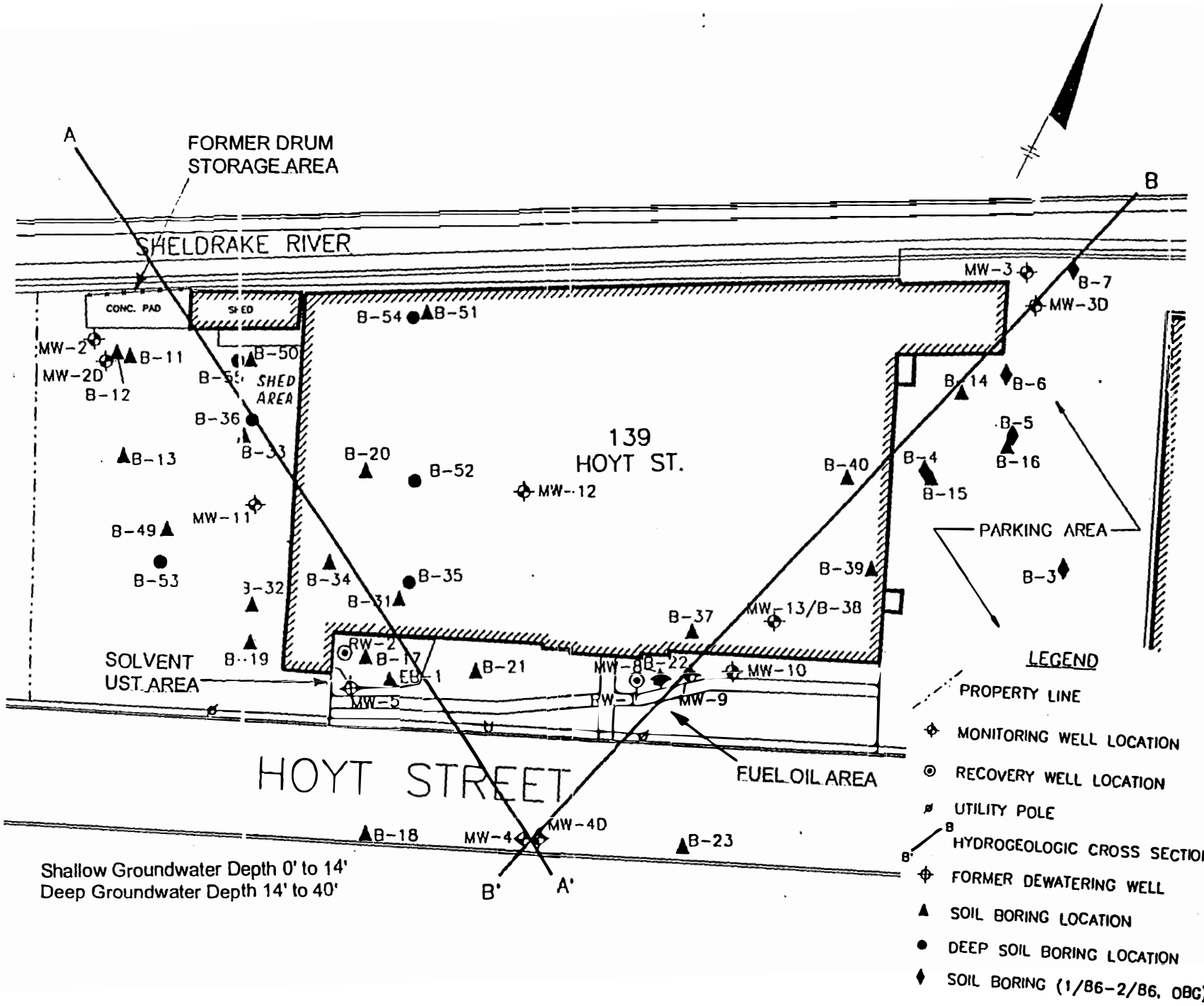

A
FORMER DRUM
STORAGE AREA
B
SHELDRAKE RIVER
CONC. PAD
SHED
SHED
AREA
MW-2
MW-20
B-11
B-12
B-50
B-55
B-36
B-33
B-13
B-54
B-51
B-20
B-52
139
HOYT ST.
MW-12
MW-11
B-49
B-53
B-32
B-34
B-35
B-31
B-19
SOLVENT
UST AREA
RW-2
B-17
EW-1
B-21
MW-5
MW-8
B-22
MW-10
RW-1
MW-9
MW-3
B-7
MW-3D
B-14
B-6
B-5
B-16
B-40
B-4
B-15
PARKING AREA
B-39
B-3
B-37
MW-13/B-38
FUEL OIL AREA
HOYT STREET
B-18
MW-4
MW-4D
B-23
B'
A'
Shallow Groundwater Depth 0' to 14'
Deep Groundwater Depth 14' to 40'
LEGEND
PROPERTY LINE
MONITORING WELL LOCATION
RECOVERY WELL LOCATION
UTILITY POLE
B
B'
HYDROGEOLOGIC CROSS SECTION
FORMER DEWATERING WELL
SOIL BORING LOCATION
DEEP SOIL BORING LOCATION
SOIL BORING (1/86-2/86, OBG)

FIGURE 8

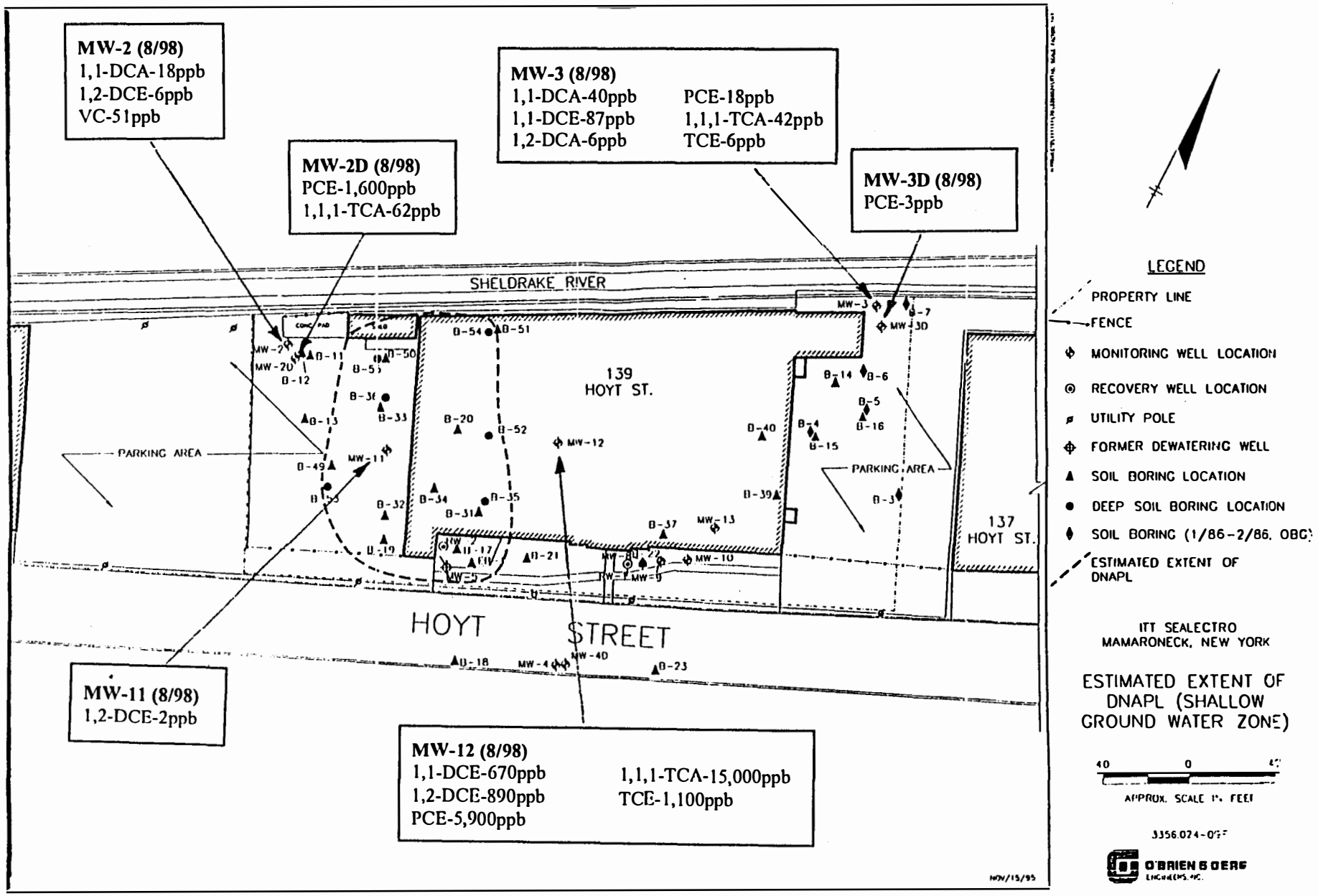

MW-2 (8/98)
1,1-DCA-18ppb
1,2-DCE-6ppb
VC-51ppb
MW-2D (8/98)
PCE-1,600ppb
1,1,1-TCA-62ppb
MW-3 (8/98)
1,1-DCA-40ppb
1,1-DCE-87ppb
1,2-DCA-6ppb
PCE-18ppb
1,1,1-TCA-42ppb
TCE-6ppb
MW-3D (8/98)
PCE-3ppb
SHELDRAKE RIVER
139
HOYT ST.
137
HOYT ST.
PARKING AREA
PARKING AREA
HOYT STREET
MW-11 (8/98)
1,2-DCE-2ppb
MW-12 (8/98)
1,1-DCE-670ppb
1,2-DCE-890ppb
PCE-5,900ppb
1,1,1-TCA-15,000ppb
TCE-1,100ppb
NOV/15/95
LEGEND
PROPERTY LINE
FENCE
MONITORING WELL LOCATION
RECOVERY WELL LOCATION
UTILITY POLE
FORMER DEWATERING WELL
SOIL BORING LOCATION
DEEP SOIL BORING LOCATION
SOIL BORING (1/86-2/86, OBG)
ESTIMATED EXTENT OF DNAPL
ITT SEALECTRO
MAMARONECK, NEW YORK
ESTIMATED EXTENT OF DNAPL (SHALLOW GROUND WATER ZONE)
40
0
APPROX. SCALE IN FEET
3356.024-005
O'BRIEN & GERE
ENGINEERS, INC.

FIGURE 9

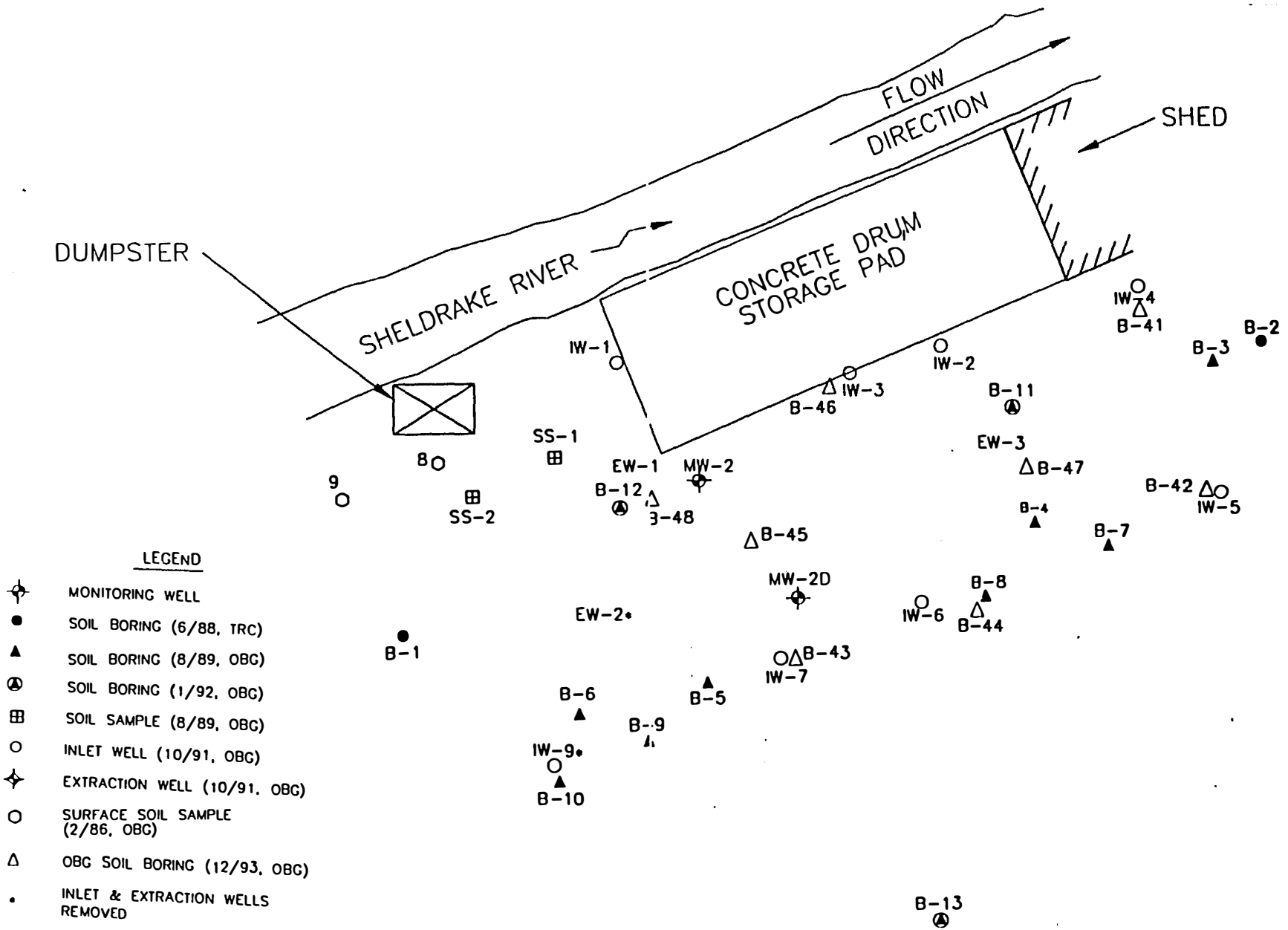
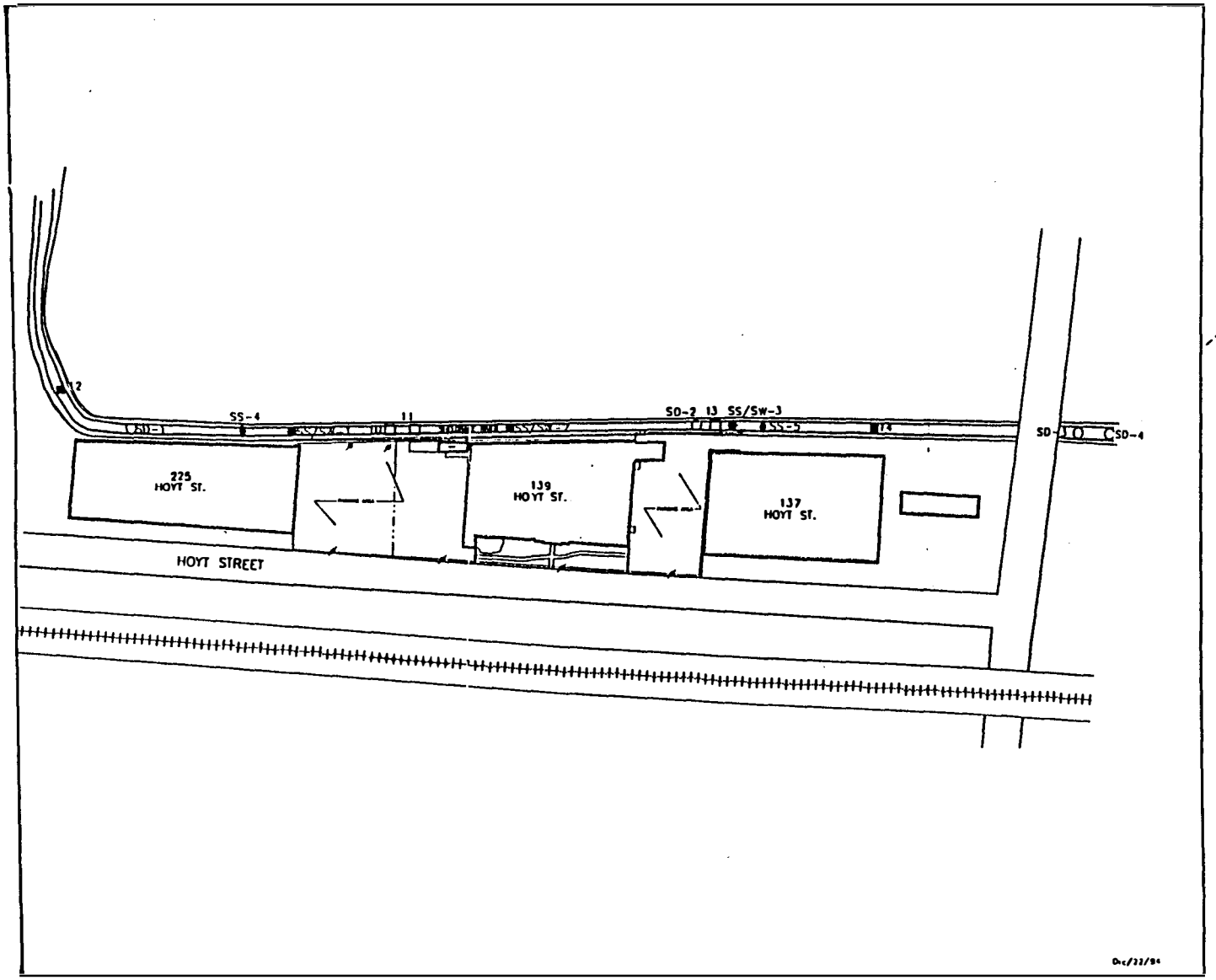

FLOW DIRECTION
SHED
DUMPSTER
SHELDRAKE RIVER
CONCRETE DRUM STORAGE PAD
IW-1
IW-2
IW-3
IW-4
B-41
B-2
B-3
B-46
B-11
SS-1
EW-3
B-47
EW-1
MW-2
B-12
B-48
B-42
IW-5
B-4
B-7
SS-2
B-45
MW-2D
B-8
EW-2
IW-6
B-44
B-1
B-43
IW-7
B-6
B-5
B-9
IW-9
B-10
B-13
LEGEND
MONITORING WELL
SOIL BORING (6/88, TRC)
SOIL BORING (8/89, OBG)
SOIL BORING (1/92, OBG)
SOIL SAMPLE (8/89, OBG)
INLET WELL (10/91, OBG)
EXTRACTION WELL (10/91, OBG)
SURFACE SOIL SAMPLE (2/86, OBG)
OBG SOIL BORING (12/93, OBG)
INLET & EXTRACTION WELLS REMOVED

FIGURE 10



ITT SEALECTRO
MAMARONECK, NEW YORK

LEGEND

- PROPERTY LINE
- SEDIMENT SAMPLE (2/86-OBG)
- UTILITY POLE
- SURFACE WATER/SEDIMENT SAMPLE (2/86, OBG)
- SURFACE WATER/SEDIMENT SAMPLE (2/92-4/92, OBG)
- RIVER SEDIMENT SAMPLE (6/88, TRC)
- SEDIMENT SAMPLE (6/94, OBG)

SHELDRAKE RIVER
SURFACE WATER/SEDIMENT
SAMPLE LOCATION MAP

100 0 100
APPROX. SCALE IN FEET

3356.015.13F

O'BRIEN & GERE
ENGINEERS, INC.

FIGURE 11

Year	Annual Cleanup Goals
0	538
1	488
2	442
3	400
4	363
5	329
6	298
7	270
8	245
9	222
10	201
11	182
12	165
13	149
14	135
15	123
16	111
17	101
18	91
19	83
20	75
21	68
22	62
23	56
24	51
25	46
26	42
27	38
28	34
29	31
30	28

Concentrations in ug/L

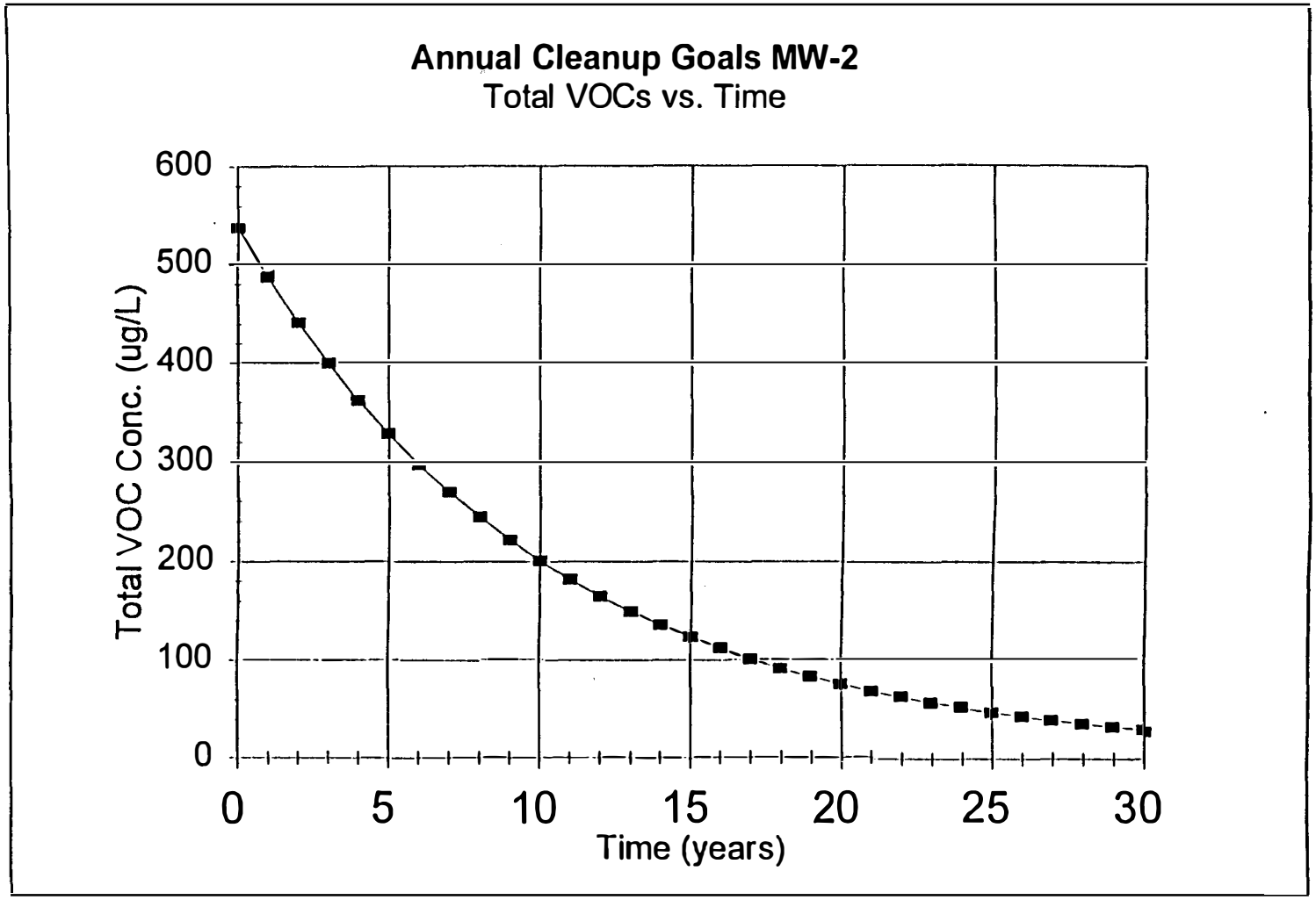


FIGURE 12

Year	Annual Cleanup Goals
0	7855
1	6485
2	5354
3	4420
4	3649
5	3013
6	2487
7	2053
8	1695
9	1400
10	1155
11	954
12	788
13	650
14	537
15	443
16	366
17	302
18	249
19	206
20	170
21	140
22	116
23	96
24	79
25	65
26	54
27	44
28	37
29	30
30	25

Concentrations in ug/L

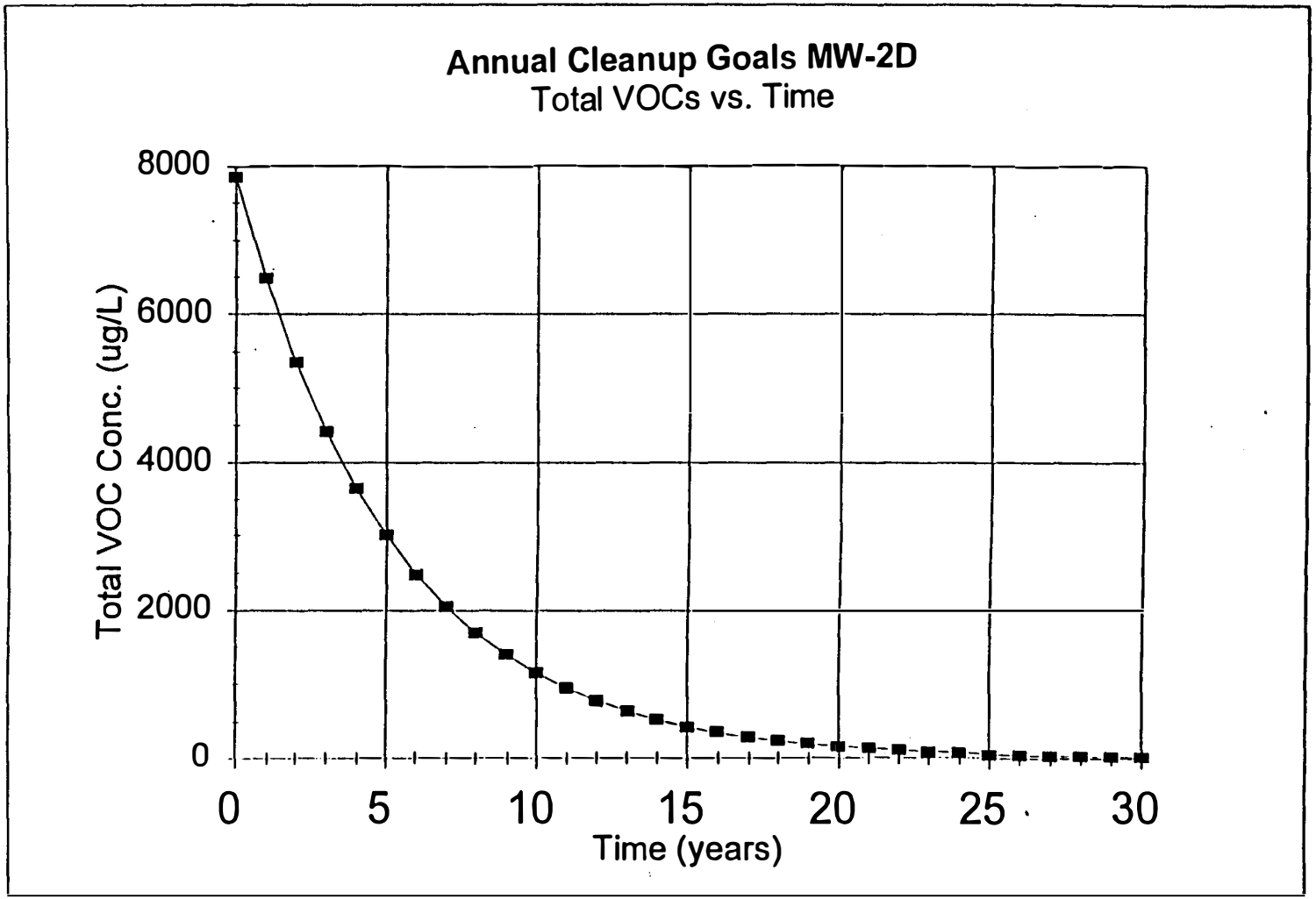


FIGURE 13

Year	Annual Cleanup Goals
0	1879
1	1650
2	1449
3	1272
4	1117
5	981
6	861
7	756
8	664
9	583
10	512
11	450
12	395
13	347
14	304
15	267
16	235
17	206
18	181
19	159
20	139
21	122
22	108
23	94
24	83
25	73
26	64
27	56
28	49
29	43
30	38

Concentrations in ug/L

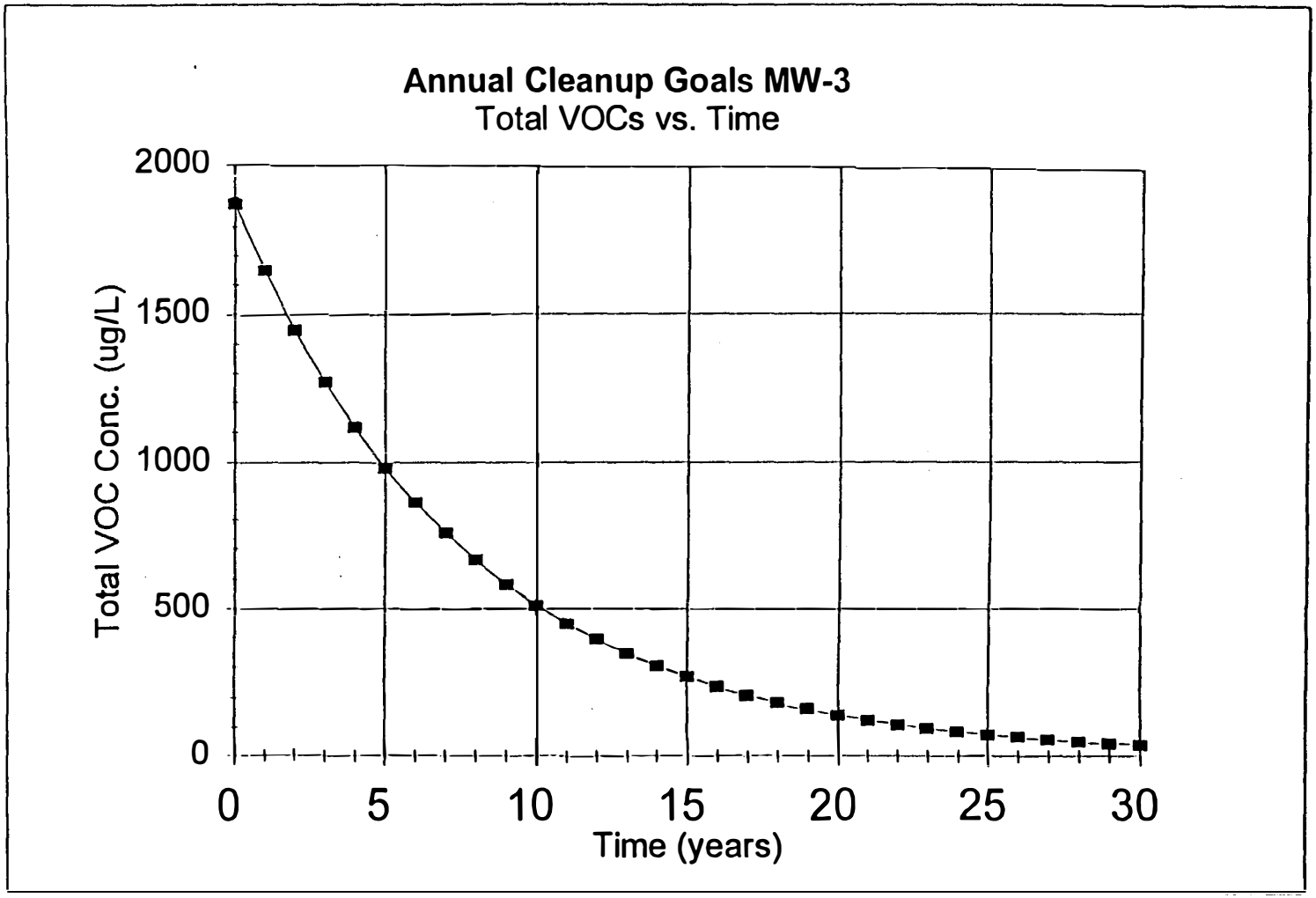


FIGURE 14

Year	Annual Cleanup Goals
0	1071
1	951
2	844
3	749
4	665
5	590
6	524
7	465
8	413
9	366
10	325
11	289
12	256
13	227
14	202
15	179
16	159
17	141
18	125
19	111
20	99
21	88
22	78
23	69
24	61
25	54
26	48
27	43
28	38
29	34
30	30

Concentrations in ug/L

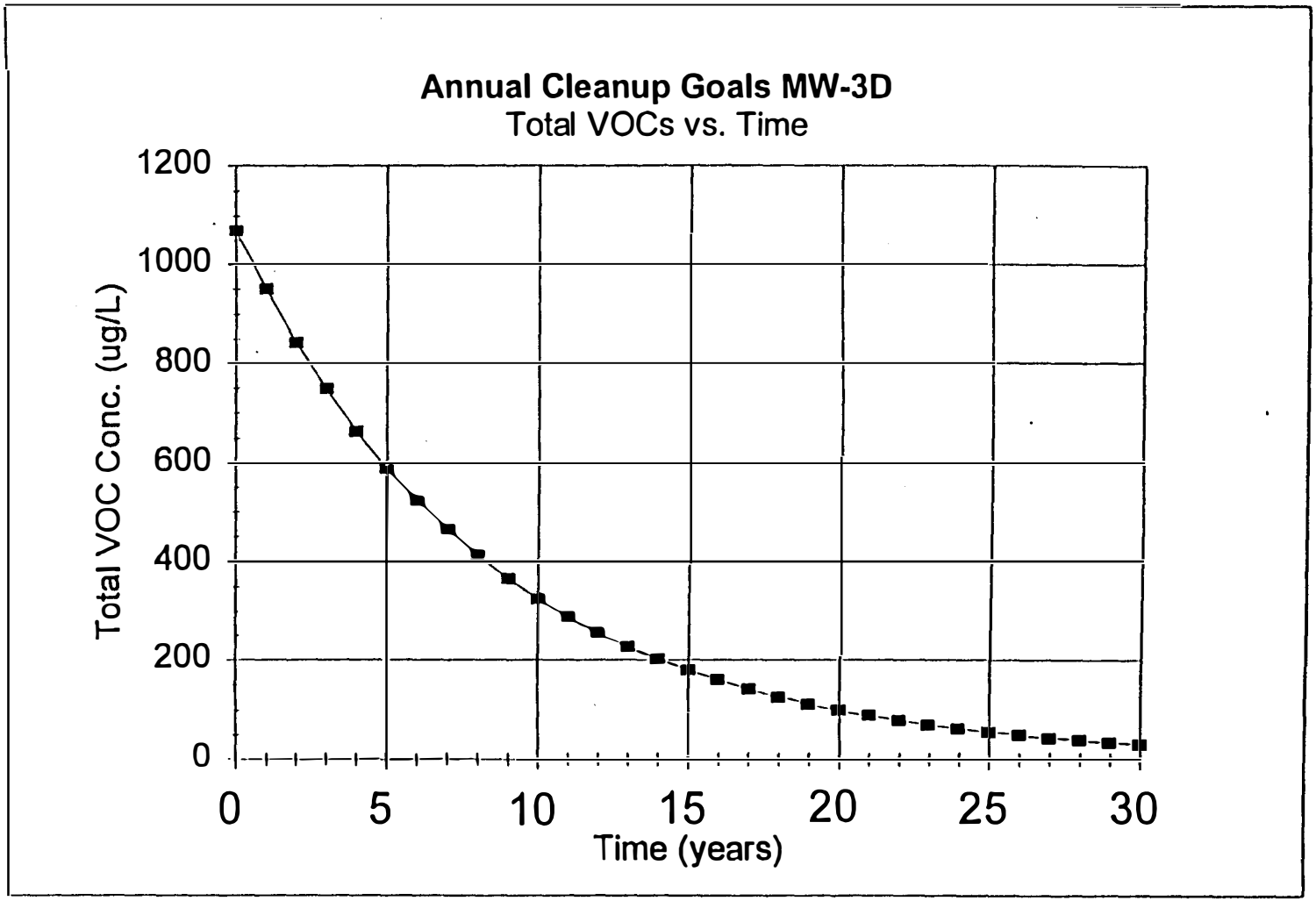


FIGURE 15

Year	Annual Cleanup Goals
0	729
1	661
2	599
3	543
4	492
5	446
6	404
7	366
8	332
9	300
10	272
11	247
12	224
13	203
14	184
15	166
16	151
17	137
18	124
19	112
20	102
21	92
22	84
23	76
24	69
25	62
26	56
27	51
28	46
29	42
30	38

Concentrations in ug/L

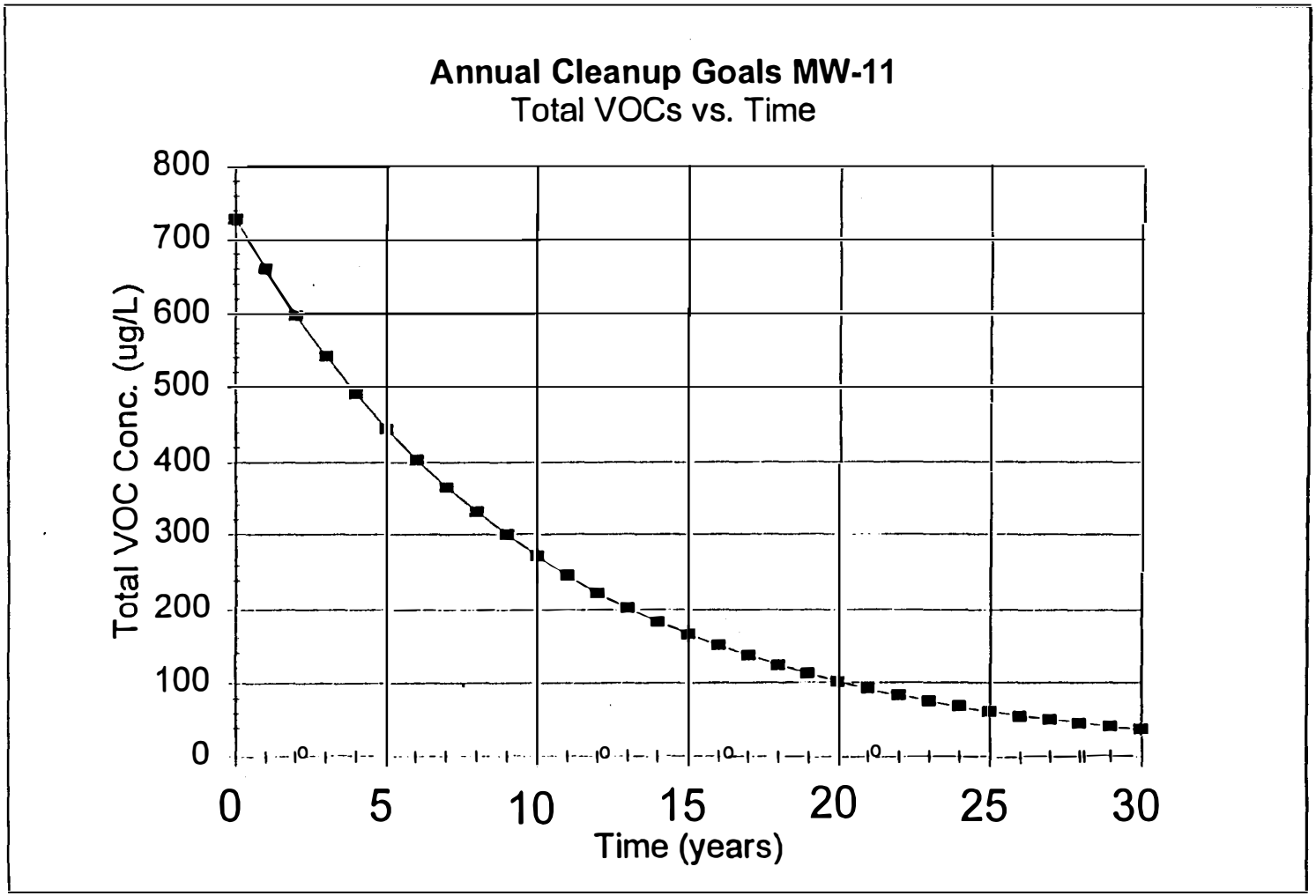


FIGURE 16

Year	Annual Cleanup Goals
0	28691
1	23117
2	18626
3	15008
4	12092
5	9743
6	7850
7	6325
8	5096
9	4106
10	3309
11	2666
12	2148
13	1731
14	1394
15	1124
16	905
17	729
18	588
19	474
20	382
21	307
22	248
23	200
24	161
25	130
26	104
27	84
28	68
29	55
30	44

Concentrations in ug/L

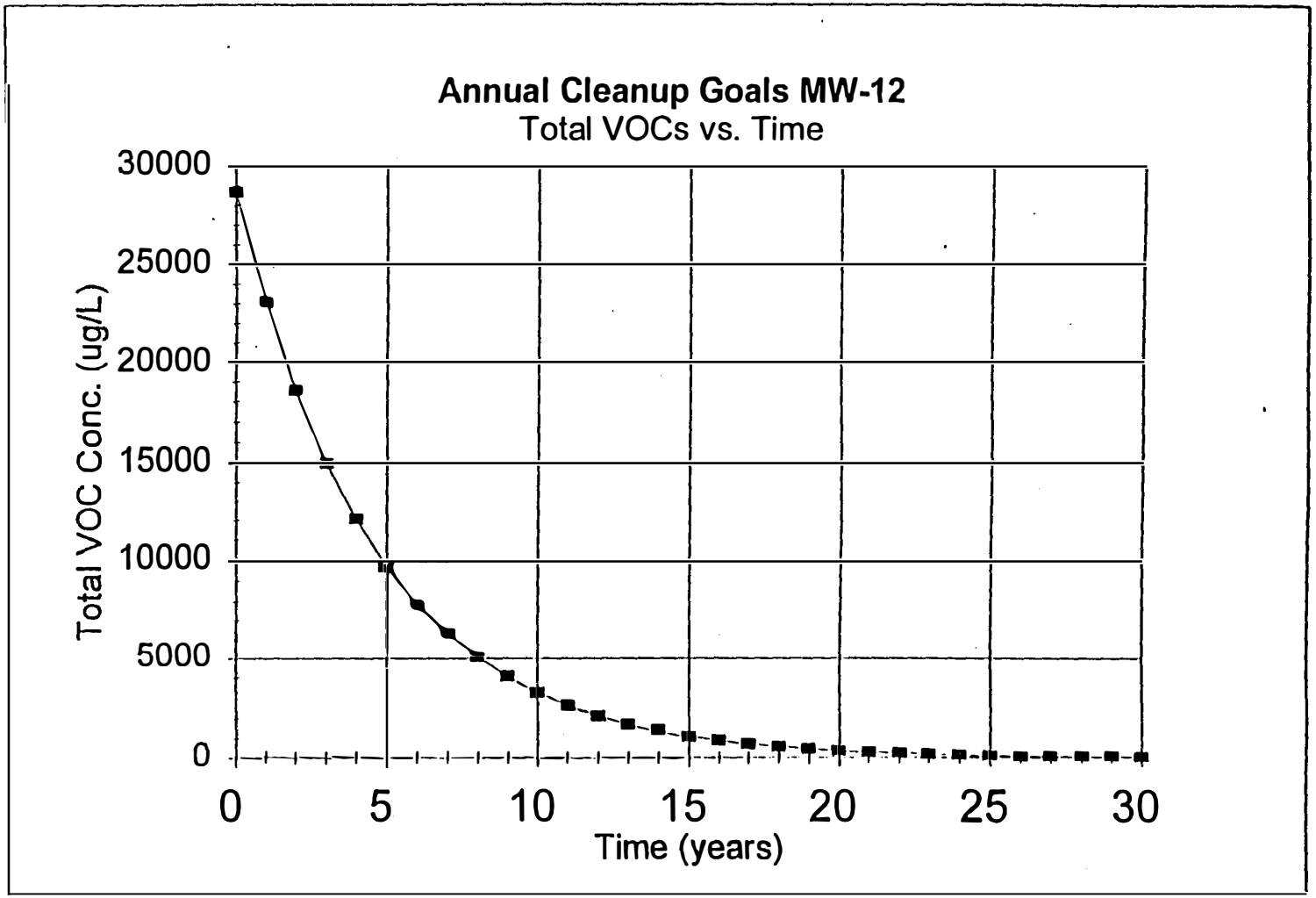


FIGURE 17

Table 1
Nature and Extent of Contamination

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs	SCGs (ppb)
Groundwater [1]	Volatile Organic Compounds (VOCs)	1,1-Dichloroethane	ND to 1,100	125 of 168	5
		1,1-Dichloroethylene	ND to 670	61 of 168	5
		1,2-Dichloroethylene	ND to 1,100	114 of 168	5
		Tetrachloroethylene	ND to 6,500	112 of 168	5
		1,1,1-Trichloroethane	ND to 18,000	114 of 168	5
		Trichloroethylene	ND to 1,600	108 of 168	5
		Vinyl Chloride	ND to 200	48 of 168	2
MEDIA	**CLASS**	**CONTAMINANT OF CONCERN**	**CONCENTRATION RANGE (ppm)**	**FREQUENCY of EXCEEDING SCGs**	**SCGs (ppm)**
Soil [2]	Volatile Organic Compounds (VOCs)	1,1-Dichloroethylene	ND to 0.51	2 of 33	0.4
		1,2-Dichloroethylene	ND to 3.6	13 of 33	0.3
		Tetrachloroethylene	ND to 440	8 of 33	1.4
		1,1,1-Trichloroethane	ND to 110	4 of 33	0.8
		Trichloroethylene	ND to 6.6	5 of 33	0.7
		Vinyl Chloride	0	0 of 33	0.2

Note:

1. The frequency of exceedence is in relation to 168 groundwater samples collected and analyzed since 1988.

2. Soil data represents only the VOCs sampling conducted during the Remedial Investigation.

Table 2
Historical Groundwater and Soil Data

MEDIA	CONTAMINANT OF CONCERN	Historical High Detects & Location (ppb)	Last Sampling Results -8/24/98 (ppb)
Groundwater	1,1-Dichloroethane	1,100 at MW-12 on 8/97	40 at MW-3
	1,1-Dichloroethylene	670 at MW-12 on 8/98	87 at MW-3
	1,2-Dichloroethylene	1,100 at MW-12 on 8/97	890 at MW-12
	Tetrachloroethylene	6,500 at MW-2D on 2/95	5,900 at MW-12
	1,1,1-Trichloroethane	18,000 at MW-12 on 2/97	15,000 at MW-12
	Trichloroethylene	1,600 at MW-12 on 5/97	1,100 at MW-12
	Vinyl Chloride	200 at MW-2 on 8/89	51 at MW-2

MEDIA	CONTAMINANT OF CONCERN	Historical High Detects & Location (ppm)
Soil	1,1-Dichloroethylene	0.45 at B-36, 25' to 28.5' - 1994
	1,2-Dichloroethylene	3.6 at B-36, 21' to 23'5 - 1993
	Tetrachloroethylene	440 at B-36, 25' to 28.5 - 1994
	1,1,1-Trichloroethane	110 at B-36DL, 25' to 28.5' - 1994
	Trichloroethylene	6.6 at B-34, 5' to 7' - 1993

Table 3
Former ITT Sealectro Facility, Mamaroneck, Westchester County
Indoor Air Sampling Results, 12/30/98
Results are micrograms per cubic meter

Compound	IHS	Tile Warehouse	Roof	NYSDOH 25%-75% Range		EPA Database 25%-75% Range	
				Indoor	Outdoor	Indoor	Outdoor
1,1,1-trichloroethane	31	13	<3	2.5-6.7	1.0-2.8	3.0-30	0.7-3.3
1,1-dichloroethane	27	8	<2	<1	<1	NA	ND-0.2
1,2-dichloroethane	<3	<2	<2	<1.0-5.0	<1.0-5.0	NA	NA[o]
benzene	3.1	<2	<2	1.6-5.0	0.9-4.9	3.3-21	2.0-11
ethylbenzene	<3	2.4	<2	1.8-4.8	<1.0-2.5	2.0-9.6	1.0-5.4
tetrachloroethene	70	26	<4	0.8-5.0	0.8-3.4	1.7-11	0.8-5.9
toluene	9.5	5.4	2.3	6.6-25	1.2-5.6	32	0.6-20
trichloroethene	35	41	<3	1.0-2.7	<1.0-2.7	ND-4.5	1.0-2.5
m,p-xylene	5.2	3.6	<2	2.2-9.5	0.8-5.0	11-43	5.0-28
o-xylene	<3	<2	<2	1.9-5.0	0.8-4.7	2-9.3	1.0-6.5

[1] -The United States Environmental Protection Agency's Volatile Organic Compounds Database (EPA database) was published in March 1988. This database is a compilation of indoor and outdoor data from studies across the United States.

[2]- The New York State Department of Health Database (NYSDOH Database) is a summary of indoor and outdoor air sample results in control homes collected and analyzed by the NYSDOH from 1989 through 1996.

< - Means "less than". The number following a "less than sign (<)" is the lowest level the laboratory test can reliably measure (detection limit). If there is a "<" before any number, then the chemical was NOT detected in the sample.

IHS - International Health Specialists NA - Not available ND- Not detected

Table 4
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual O&M	Total Present Worth
No Action	$101,500	$0	$101,500
Monitored Natural Attenuation w/ monitoring program & contingency plan [1]	$21,000	$93,000	$1,750,000
Containment via Slurry Wall	$2,656,168	$127,700	$4,600,000
Groundwater Extraction	$210,000	$58,000	$1,400,000
In Situ Air Stripping & Air Sparging	$962,000	$136,700	$2,400,000

Note:

1. This alternative includes contingency remedial plan and costs will depend on the contamination concentrations on the Site. Costs for monitoring TW-1 and indoor air monitoring program not included.

APPENDIX A

Administrative Record

The Administrative Record for the ITT Sealectro Site, Site No. 360027 is the following:

January 1999	Final Feasibility Study
November 1998	Groundwater Monitoring Plan
August 1998	Groundwater Monitoring Plan Work Plan
May 1998	Groundwater Monitoring Plan Work Plan
November 1995	Feasibility Study
December 1994	Remedial Investigation Report
July 1994	Interim Technical Memorandum Report
July 1993	Remedial Investigation/Feasibility Study Citizen Participation Plan
February 1993	Remedial Investigation/Feasibility Study Work Plan
December 1992	Groundwater Recovery/Treatment and Oil Recovery Systems Modifications
November 1992	Interim Remedial Measures Program Vol. 1 & 2
November 1992	Phase I Focused Remedial Investigation Data Validation
August 1992	Phase I Focused Remedial Investigation Report
August 1992	Focused Remedial Investigation Appendix A1, A2, A3
September 1991	Focused Remedial Investigation

APPENDIX B

Responsiveness Summary

RESPONSIVENESS SUMMARY

ITT Sealectro
Proposed Remedial Action Plan
Village of Mamaroneck, Westchester County
Site No. 3-60-027

The Proposed Remedial Action Plan (PRAP) for the ITT Sealectro site, was prepared by the New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) and issued to the local document repository on February 27, 1999. This Plan outlined the preferred remedial measure proposed for the remediation of the contaminated soil and sediment at the ITT Sealectro site. The preferred remedy is a Monitored Natural Attenuation remedy with continued operation and maintenance of the groundwater extraction and treatment system, the establishment of a set of year-by-year groundwater cleanup goals for each of the wells being monitored, a groundwater monitoring program, an indoor air quality monitoring plan, a contingency plan, and institutional controls.

The release of the PRAP was announced via a notice to the mailing list, informing the public of the PRAP's availability.

A public meeting was held on March 16, 1999 which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site.

The public comment period for the PRAP ended on March 28, 1999.

This Responsiveness Summary responds to all questions and comments raised at the March 16, 1999 public meeting.

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

COMMENT 1: You mentioned the Sheldrake River and that there is no swimming there, but is the Harbor, about ½ mile downstream, affected. There is swimming there?

RESPONSE 1: The concentration levels of the volatile organic compounds (VOCs) measured at the surface water are low and should volatilize before reaching the Harbor.

COMMENT 2: What were the levels of VOCs in both the upstream and downstream of the Sheldrake River from the site, and are the differences in the sampling results significant?

RESPONSE 2: There were two sampling events of the Sheldrake River for VOCs. For the

first sampling event the upstream sample detected VOCs at 10 ppb and no VOCs were detected in the downstream sample. For the second sampling event the upstream sample had VOCs at 24 ppb and the downstream sample had VOCs at 19 ppb. The data suggest that a source of VOCs is located upstream of the site and that there is no impact to the Sheldrake River by VOCs from the site. The NYSDEC regrets that the verbal response provided at the public meeting to this comment was in error.

COMMENT 3: For the continuing indoor air monitoring program, will you continue to look at the same constituents?

RESPONSE 3: Yes, the indoor air monitoring program will analyze the same constituents that were detected in the groundwater and soil. The analysis will include the constituents and its daughter breakdown products.

COMMENT 4: Will the air sampling be for 30 years as well (like the groundwater monitoring)?

RESPONSE 4: The NYSDOH will require an initial year of quarterly indoor air monitoring to determine seasonal variations in indoor air quality. The need for additional indoor air monitoring will be based on these findings and future occupancy conditions.

COMMENT 5: The Site is currently used as a treatment center for patients with chronic illnesses, are they any more at risk?

RESPONSE 5: People with pre-existing medical conditions (such as a chronic illness) may, depending on the exact nature of the medical condition and several other factors (e.g. age, sex, diet, genetic differences), be more sensitive to the potential adverse health effects associated with exposure to some environmental contaminants. The increased sensitivity of certain subpopulations (such as those with pre-existing medical conditions) is considered when evaluating the potential health risks for such exposures. At the ITT Sealectro facility, the levels of contaminants in indoor air were relatively low, and exposure to these levels was likely short-term and intermittent. It is therefore unlikely that these exposures pose a health concern for sensitive subpopulations.

COMMENT 6: My business is at 135 Hoyt. How am I affected by this contamination? Is it headed toward my property or is it contained on site? Will I be told if the contamination gets higher toward my property? Will I be advised of the quarterly monitoring results?

RESPONSE 6: The contamination levels at monitoring wells MW-3 and MW-3D, which are closest to 135 Hoyt St., show low levels of contamination. Further, the contamination in these monitoring wells have been decreasing over time. The groundwater flow and contamination is generally towards the Sheldrake River with minor components of the flow in the downstream and upstream direction that may vary seasonally. Data collected to date

indicate that there is no significant impact by the site-related contamination on 135 Hoyt St. The NYSDEC will be requesting ITT to provide the property owner with regular updates on the sampling data. Alternatively, the property owner may request the information under the Freedom of Information Law (FOIL) from the NYSDEC or NYSDOH. The NYSDEC regrets that the verbal response provided at the public meeting to this comment was in error.

COMMENT 7: What are the institutional controls and will they restrict future land use possibilities?

RESPONSE 7: The institutional controls are deed restrictions, fencing, and maintenance of the existing asphalt pavement. Deed restrictions will be used on this site to prevent installation of water supply wells on site to ensure that the on site groundwater will not be used as a potable water source. Fencing will restrict access to the site, while maintenance of the existing asphalt pavement will control the migration of soil gas to the ground surface and prevent exposure to the contaminated soil.

COMMENT 8: How are the wells selected for sampling?

RESPONSE 8: The monitoring wells selected for the groundwater monitoring program were based on the level of contamination. Monitoring wells MW-2, MW-2D, MW-3, MW-3D, MW-11, and MW-12 and test well TW-1 which, historically, have had high contaminant concentration are included in the monitoring program. Many of these wells are exhibiting a decreasing concentration trend.

A letter dated March 27, 1999 was received from Mr. Guy Swenson, O'Brien & Gere Engineers (the PRP's consultant) which included the following comments:

COMMENT 9: Page 1, left column, end of paragraph 1: The threat to the environment should be described as potential. The revised sentence should be: The site was listed as a class 2 site, since there was a potential threat to the environment.

RESPONSE 9: "Threat" can be used to mean a potential to inflict damage. Therefore, use of "potential" is redundant. Moreover, the ITT Sealectro site is a class 2 inactive hazardous waste disposal site. A class 2 site is defined as posing significant threat to the public health or environment and action is required.

COMMENT 10: Page 1, left column, 1st bullet: Insert "potential" for "significant".

RESPONSE 10: See RESPONSE 9.

COMMENT 11: Page 1, left column, 2nd bullet: Insert "potential" for "significant".

RESPONSE 11: See RESPONSE 9.

COMMENT 12: Page 1, right column, 1st paragraph: The soil vapor extraction system removed contaminants from the soils and vapors from the soil pores. In addition, it should be noted that the IRMs have removed over 50% of the contaminant mass. The sentence should be revised to state: "These IRMs have generally resulted in removal of over 50% of the contaminant mass and led to a decrease in the concentration of contaminants in the groundwater at the site."

RESPONSE 12: This statement is an estimate of mass removal and does not change the remedy that is selected for this site. The statement is in the Remedial Investigation Report and the Feasibility Study Report.

COMMENT 13: Page 2, left column, 2nd paragraph: "innovative technologies" should be replaced with "proven innovative technologies". Innovative technologies should be implemented only if there is documented evidence that they will meet the project objective.

RESPONSE 13: It is the responsibility of the PRP to provide the NYSDEC with innovative technology proposals to review. The proposal should be for a technology that has the potential to effectively remediate the contamination on site. The proposals should include results from past bench scale and pilot scale tests, background information, and workplans to conduct new bench scale and pilot scale tests that are site specific. Any innovative technology must satisfy the clean up goals established for this site. In case of failure or refusal on the part of the PRP to study innovative technology appropriate to the Site, the NYSDEC will consider its authority to conduct a study itself.

COMMENT 14: Page 3, left column, 2nd paragraph: Include in the site description that Hoyt Street and the railroad tracks are located immediately south of the site.

RESPONSE 14: The comment has been included in the ROD.

COMMENT 15: Page 3, right column, 2nd paragraph: The description of solvents stored at the site should be modified as follows: During the manufacturing operation an outdoor drum storage area held various solvent drums that contained mainly trichloroethene (TCE) and 1,1,1-trichloroethane.

RESPONSE 15: The comment has been included in the ROD.

COMMENT 16: Page 8, left column, 1st line: The statement that the NYSDEC "acknowledged" the IRM work and data should be replaced with the NYSDEC "accepted" the IRM work and data. This wording is consistent with the PRAP Summary attached to the public meeting notice.

RESPONSE 16: The NYSDEC can only accept (approve) the IRM work and data that is conducted under a signed consent order. The NYSDEC acknowledges that the work undertaken prior to the signing of the consent order has had a beneficial effect.

COMMENT 17: Page 11, left column, 3rd bullet: There were 47 soil samples analyzed

during the RI.

RESPONSE 17: The comment has been included in the ROD.

COMMENT 18: Page 11, left column, 6th bullet: TW-1 is a test well not a recovery well. The third sentence in this bullet should be deleted. Test well TW-1 screens both the shallow and deep ground water zones, therefore the water pumped from the well is not representative of either zone. Monitoring well MW-2 and MW-2D are located approximately 20 ft from TW-1 and are designed to collect water from the shallow zone (MW-2) and the deep zone (MW-2D). These samples from MW-2 and MW-2D are considered more representative than a sample collected from TW-1. Furthermore, TW-1 is a larger diameter well, which will result in increased costs for sampling.

RESPONSE 18: In the November 1995 Feasibility Study Report, the "Localized Soil Flushing Calculations" section describes the intended use of Well TW-1. It states, ".. In the Shed Area existing test recovery well TW-1 will be utilized." The well can be can be adapted to separate the two zones for obtaining separate samples from the shallow and the deep groundwater zones. TW-1 has shown high levels of VOC contamination and will be part of the groundwater monitoring program. Cost for sampling of TW-1 should be provided in the monitoring budget. Alternatively smaller diameter well/s should be installed in close proximity to TW-1, with similar construction design and details.

COMMENT 19: Page 11, right column, 2nd paragraph: This paragraph could be rewritten to state: "Based on the Remedial Investigation results, in comparison to the SCGs and potential public health and environmental exposure routes, an evaluation of remedial alternatives was required for subsurface soil and groundwater in select areas of the site. The RI results are summarized below. More complete information can be found in the RI Report."

RESPONSE 19: Language in the PRAP as written will remain and be carried into the ROD. The case for not meeting the SCGs in the time frame allotted has not been made.

COMMENT 20: Page 13, left column, 3rd paragraph: The discussion of ground water flow should state that the ground water discharges to the Sheldrake River.

RESPONSE 20: The comment has been included in the ROD.

COMMENT 21: Page 13, right column, 2nd paragraph: For MW-12 the concentrations referenced were from a sample collected February 25, 1997.

RESPONSE 21: The comment has been included in the ROD.

COMMENT 22: Page 19, right column, 1st paragraph: At the end of the paragraph the text should state that the existing concentrations do not present an unacceptable risk. This is consistent with the statements made by John Olm of the NYSDOH at the public meeting.

RESPONSE 22: The following sentence will be included in the ROD, "At the ITT

Sealectro facility, the levels of contaminants in indoor air were relatively low, and exposure to these levels was likely short-term and intermittent. It is therefore unlikely that these exposures pose a health concern for occupants of the building."

COMMENT 23: Page 20, right column, 1st paragraph: The statement that remedial measures would be required given the existing concentrations in the indoor air is not consistent with NYSDOH comment at the public meeting. At the meeting the NYSDOH stated that there was no appreciable increase in risk associated with these concentrations. Furthermore, in our letter to John Olm of the NYSDOH dated January 26, 1999, O'Brien & Gere presented risk assessment calculations, which demonstrate that there is no unacceptable risk. The statement should state that if significantly higher concentrations are detected then remedial measures would be required.

RESPONSE 23: The need for remedial measures will be based on a number of criteria, including trends in indoor air quality, changes in occupancy, and changes in the exposure scenario. The NYSDOH will participate in future indoor air monitoring events to verify the limited existing indoor air quality data and attempt to identify additional factors that could influence indoor air quality. Based on these findings and conditions, the NYSDOH may recommend additional remedial measures or controls be implemented to further minimize exposure to site-related contamination.

COMMENT 24: Page 20, right column, paragraph on surface water: ITT and O'Brien & Gere would like a copy of the report or data from the field investigation data of the Sheldrake River completed by the NYSDEC in 1996.

RESPONSE 24: The copy can be obtained by filing a Freedom of Information Law (FOIL) request of the NYSDEC for the PISCES Contaminant Trackdown Studies, Sheldrake and Mill Rivers, 1996.

COMMENT 25: Page 21, right column, 3rd bullet: The figures presented are examples of the year-by-year goals. The year-by-year goals will not be finalized until the final ROD is accepted.

RESPONSE 25: The year-by-year goals have been accepted and are now part of the ROD.

COMMENT 26: Page 21-30, Section 7.1 Description of Alternatives: The alternatives presented do not correspond to the alternatives presented in the FS dated January 1999.

RESPONSE 26: Both the November 1995 Feasibility Study Report and the January 1999 Final Feasibility Study Report were used to select a remedy for this site. The numbering of the alternatives in the ROD is independent of the two Feasibility Studies.

COMMENT 27: Page 28, right column, 1st paragraph: The text regarding TW-1 should be deleted. TW-1 should not be included in the ground water monitoring

program. TW-1 is a test well not a recovery well. Test well TW-1screens both the shallow and deep ground water zones, therefore the water pumped from the well is not representative of either zone. Monitoring well MW-2 and MW-2D are located approximately 20 ft from TW-1 and are designed to collect water from the shallow zone (MW-2) and the deep zone (MW-2D). These samples from MW-2 and MW-2D are considered more representative than a sample collected from TW-1. Furthermore, TW-1 is a larger diameter well, which will result in increased costs for sampling.

RESPONSE 27: See RESPONSE 18.

COMMENT 28: Page 28, right column, 1st paragraph: The contingency plan is focused on ground water quality at the site. Implementation of the plan will not address indoor air concerns. An indoor air remedial plan can be developed at a future date should indoor air concentrations present a risk to the occupants.

RESPONSE 28: The contingency plan is focused on the monitoring programs that will be implemented at the site. There will be a monitoring program for the groundwater and a monitoring program for the indoor air. The NYSDEC and NYSDOH will determine if the contingency plan or other controls will be implemented, based on the data from the monitoring programs.

COMMENT 29: Page 28, right column, Costs: The costs provided in the PRAP are incomplete and do not include a number ~~of~~ items the NYSDEC has added to the remedy such as sampling at TW-1 and the air monitoring program.

RESPONSE 29: The extra cost will be noted in the ROD.

COMMENT 30: Page 28, right column, the last sentence at the bottom: This sentence should be deleted. Proven innovative technologies should be implemented only if there is documented evidence that they will meet the project objective. This language is inconsistent with the Ground Water Monitoring Plan and as discussed above and therefore should be modified or deleted.

RESPONSE 30: See RESPONSE 16.

COMMENT 31: Page 29, left column, 2nd paragraph, fifth line from the bottom of page: The word "form" should be replaced by the word "from".

RESPONSE 31: The comment has been included in the ROD.

COMMENT 32: Page 29, right column, Alternative 4: The ground water extraction alternative is not part of the FS dated January 1999. This discussion should be deleted and replaced with a discussion on the ground water monitoring and contingency remedy presented in the revised FS.

RESPONSE 32: See RESPONSE 26.

COMMENT 33: Page 31, right Column, 1st paragraph: The text indicates that Alternative 5 will not meet SCGs because the extraction system will not be effective in

the saturated zone. The sparging component of the remedy was included specifically to address the saturated zone, however both Alternatives 4 and 5 have a similar disadvantage in that it will take a considerable period of time to attain SCGs because of the presence of DNAPL.

RESPONSE 33: The NYSDEC does not agree with the assumption that air sparging will not be effective on the DNAPL found on this site. The findings of the RI indicate the DNAPL is adsorbed to the soil particles in the form of globules, unlike the usual propensity of DNAPL to collect in the from of a pool on top of the bedrock or other impermeable layer. The specific surface area of the DNAPL under this scenario is high and makes for a good candidate for the air-sparging alternative. This consideration will be revisited should the contingency plan fail. The original PRAP language will remain.

COMMENT 34: Page 31, right column, 3rd paragraph: It should be stated that alternatives 2, 3, 4, and 5 provide protection of human health and the environment through the use of institutional controls.

RESPONSE 34: Original PRAP language will remain.

COMMENT 35: Page 33, right column, top of page: The reference to the use of innovative technology if the Contingency Plan fails, should be deleted or modified. Innovative technologies should be implemented only if there is documented evidence that they will meet the project objective.

RESPONSE 35: See RESPONSE 13.

COMMENT 36: Page 33, right column, 3rd full paragraph: The contingency plan is focused on ground water quality. Implementation of the plan will not address indoor air concerns. An indoor air remedial plan can be developed at a future date should indoor air concentrations present a risk to the occupants.

RESPONSE 36: See RESPONSE 28.

COMMENT 37: Page 33, right column, 5th paragraph: The costs do not include the additional items NYSDEC recently added to the remedy (monitoring of TW-1 and air monitoring).

RESPONSE 37: The extra cost will be noted in the ROD.

COMMENT 38: Page 34, left column, item number 1: Please explain the need for a remedial design program for ground water monitoring program. We do not believe that a remedial design program is necessary and this text should be deleted.

RESPONSE 38: While only a minimal amount of design would be required until and unless the contingency plan is implemented. The consent order signed in September 1992 by the PRP and the NYSDEC is for Remedial Investigation/Feasibility Study and Remedial Design/Remedial Construction. The Remedial Design is due 90 days after the ROD has been signed. The PRP needs to follow the elements of the consent order.

COMMENT 39: Page 34, left column, item number 3: TW-1 is a test well not a recovery well. Test well TW-1 screens both the shallow and deep ground water zones, therefore the water pumped from the well is not representative of either zone. Monitoring well MW-2 and MW-2D are located approximately 20 ft from TW-1 and are designed to collect water from the shallow zone (MW-2) and the deep zone (MW-2D). These samples from MW-2 and MW-2D are considered more representative than a sample collected from TW-1. Furthermore, TW-1 is a larger diameter well, which will result in increased costs for sampling.

RESPONSE 39: See RESPONSE 18.

COMMENT 40: Page 34, right column, item number 4: The contingency plan is focused on ground water quality. Implementation of the plan will not address indoor air concerns. An indoor air remedial plan can be developed at a future date should indoor air concentrations present a risk to the occupants.

RESPONSE 40: See RESPONSE 28.

COMMENT 41: Table 4: This table contains a footnote that indicates that the costs for the contingency plan are included in the $1,750,000 estimate; this is incorrect. The $1,750,000 only reflects the base costs of the remedial alternative.

RESPONSE 41: The extra cost will be noted in the ROD.