Department of Environmental Conservation

**Division of Environmental Remediation**

# Record of Decision

## Liberty Industrial Finishing Site
## Town of Islip, Suffolk County
## Site Number 1-52-108

**March 1999**

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

# DECLARATION STATEMENT - RECORD OF DECISION

## Liberty Industrial Finishing Inactive Hazardous Waste Disposal Site
## Town of Islip, Suffolk County, New York
## Site No. 1-52-108

**Statement of Purpose and Basis**

The Record of Decision (ROD) presents the selected remedial action for the Liberty Industrial Finishing 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 Liberty Industrial Finishing Inactive Hazardous Waste Disposal 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 B of the ROD.

**Assessment of the Site**

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

**Description of Selected Remedy**

Based upon the results of the Remedial Investigation/Feasibility Study (RI/FS) for the Liberty Industrial Finishing site and the criteria identified for evaluation of alternatives the NYSDEC has selected source removal and mitigation and assessment of on-site and off-site groundwater quality as the remedy for this site. The components of the remedy are as follows:

- Removal of the upper two (2) feet of contaminated soil from the area of the underground plating waste storage tanks and pipe gallery;
- Removal of soil to a minimum of eight (8) feet below ground surface (bgs) at the west end of the underground storage tank (UST) pipe gallery;
- Installation of a nonporous asphalt cap over the UST and pipe gallery area to prevent surface water from infiltrating the contaminated area and leaching metals from the subsurface soil into the groundwater;

- Excavation and off-site disposal of contaminated sediments/sludge from four storm water dry wells and one leaching pool;

- Installation of deep groundwater monitoring wells and performance of long-term groundwater monitoring of shallow and deep wells to insure the effectiveness of the remedial measures and to protect the public drinking water supply;

- Remediation of the groundwater contamination plume by natural attenuation;

- Implementation of institutional controls and recording of deed restrictions in the chain of title of the property to restrict future use of groundwater at the site.

**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, 1995
Date

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

## TABLE OF CONTENTS

## TABLE OF CONTENTS

## 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 a remedy to address the significant threat to human health and/or the environment created by the presence of hazardous waste at the Liberty Industrial Finishing Site, which has been designated a Class 2 site by the NYSDEC. A Class 2 site is a site that has been determined to be a significant threat to human health and/or the environment. Liberty Industrial Finishing operated a metal finishing facility at the site from 1978-1997. The Suffolk County Department of Health Services has documented disposal of hazardous wastes, including chromium and cadmium on several occasions from Liberty's operations at the site. Discharges to the environment included: leaks from a tank farm containing six underground storage tanks, discharges to surface soils, and discharges to drainage structures such as stormwater dry wells and leaching pools. Some of the wastes have migrated from the site to surrounding areas, including the shallow groundwater southeast of the site. These disposal activities have resulted in the following significant threats to the public health and/or the environment:

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

- a significant threat to human health associated with potential exposure to site-related contaminants in contaminated surface soil and on-site contaminated shallow groundwater.

As more fully described in Sections 3 and 4 of this document, the Remedial Investigation (RI) performed by the NYSDEC revealed areas of surface and subsurface soils that were significantly contaminated with metals. These contaminated soils are situated above the water table. The sediments in four stormwater dry wells and one leaching pool were found to be significantly contaminated with metals and semivolatile organic compounds. Shallow groundwater on-site and downgradient of the site (southeast) was found to be contaminated with metals, primarily chromium.

Two Interim Remedial Measures (IRMs) were conducted during the RI. First, the EPA conducted an emergency removal action at the site to remove waste materials inside the factory building and close the six on-site underground storage tanks (USTs) in place. The following tasks were performed on the interior of the building: pressure washing of vats; vacuuming and pressure washing of floors; and removal of contaminated debris from the vat areas and floors. All waste materials were drummed and disposed of off-site at a permitted disposal facility.

As part of the IRM, the EPA closed the six underground plating waste storage tanks in place using the following procedure: cleaning and sandblasting each tank, filling each tank with clean soil to one (1) foot below the top of the tank, and filling the remainder of the tank and the fill pipe with concrete. The tanks were not removed because the adjacent Long Island Railroad commuter train line would have to have been shut down during excavation. No other remedial actions were performed by EPA as part of this IRM.

Surface soil testing revealed metals contamination at the Town of Islip Ballfield and at the Brentwood Water District property. The metals contamination is not associated with the site. The Town of Islip

excavated one area at the Ballfield and two areas at the Water District Property and backfilled the excavations with clean soil.

In order to restore the Liberty Industrial Finishing 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:

- Removal of the upper two (2) feet of contaminated soil from the area of the underground plating waste storage tanks and pipe gallery;
- Removal of soil to a minimum of eight (8) feet bgs at the west end of the UST pipe gallery;
- Installation of a nonporous asphalt cap over the UST and pipe gallery area to prevent surface water from infiltrating the contaminated area and leaching metals from the subsurface soil into the groundwater;
- Excavation and off-site disposal of contaminated sediments/sludge from four storm water dry wells and one leaching pool;
- Installation of deep groundwater monitoring wells and performance of long-term groundwater monitoring of shallow and deep wells to insure the effectiveness of the remedial measures and to protect the public drinking water supply;
- Remediation of the groundwater contamination plume by natural attenuation;
- Implementation of institutional controls and recording of deed restrictions in the chain of title of the property to restrict future use of groundwater at the site.

The selected remedy, discussed in detail in Section 7 of this document, is intended to attain the remediation goals selected for this site in Section 6 of this Record of Decision (ROD), in conformity with applicable standards, criteria, and guidance (SCGs).

## SECTION 2: SITE LOCATION AND DESCRIPTION

The Liberty Industrial Finishing Site (Site #1-52-108) is situated on 3.9 acres, 1.3 acres of which are undeveloped, in a suburban area at 550 Suffolk Avenue in the Hamlet of Brentwood, Town of Islip, Suffolk County. The site includes one 30,000 square foot single story industrial building. The building was used as a metal finishing facility engaging in finishing, plating, and non-destructive testing of parts and components used primarily in the aircraft industry. The site is bordered by Suffolk Avenue on the north and the Long Island Railroad on the south. Directly south of the railroad is the Town of Islip Athletic Field and the Brentwood Water District well field. The Site Location Map and Study Area Map are included as Figure 1 and Figure 2, respectively.

Six underground storage tanks (USTs) ranging from 3,000-7,000 gallons in capacity are situated on-site and are located outside of the building adjacent to the south wall. These tanks formerly contained waste liquids from the industrial plating operations. The tanks are connected to the building via an underground pipe gallery, located west of the tanks. These vertically-oriented cylindrical tanks are situated two (2) to three (3) feet below ground surface (bgs) and range from four (4) to twelve (12) feet in length.

To date, the site has not been connected to the public sewer system. Liberty Industrial used three types of drainage structures: sanitary leaching pools, stormwater dry wells, and an emergency leaching pool. The sanitary leaching pools were connected to the industrial building and were used for discharge of in-plant sanitary waste. The storm water dry wells collected on-site surface runoff. The emergency leaching pool was connected to the pipe gallery that supplies the USTs. When the USTs were overfilled, the remaining plating waste would discharge into the emergency leaching pool.

Public water is supplied to area residents and businesses. As part of the Remedial Investigation, a well survey was conducted to determine if private wells exist that may be potentially affected by site contamination. Results of the survey indicate that no private wells have been impacted by the site.

The Brentwood public water district well field is located less than 100 feet south of the subject site. The wells are situated at 450-900 feet below ground surface (bgs) in the Magothy aquifer. Groundwater at the site flows southeast and therefore flows to the east and away from the Brentwood Water District property. To date, these wells have not been affected by contamination at the Liberty Industrial Finishing site.

Several clay layers ranging from one (1) foot to 60 feet in thickness, exist above 450 feet bgs at the Brentwood well field. Although the clay layers are discontinuous, they would likely protect the Brentwood well field by slowing or stopping the downward migration of contaminants.

## SECTION 3: SITE HISTORY

### 3.1: Operational/Disposal History

Liberty Industrial Finishing operated a metal finishing facility at the site from 1978-1997. Shortly after Liberty moved into the Brentwood facility, the Suffolk County Department of Health Services (SCDHS) noted serious problems with their operations. Plating wastes were discharged to various leaching pools throughout the site. The highest concentrations were found in the emergency leaching pool located immediately east of the underground plating tanks. Surface discharges were also observed by SCDHS and the plating tanks themselves were also a concern. The SCDHS was most concerned with possible contamination of the nearby supply wells located to the south of the site. In 1982, Liberty signed a Consent Order with Suffolk County to correct the deficiencies. Liberty agreed to: perform leak tests on USTs, repair and test leak detection systems on USTs, seal off piping from the pipe gallery to the emergency leaching pool, and install groundwater monitoring wells. Records from the SCDHS indicated that Liberty had satisfied the terms of the agreement.

On September 18, 1984, during a NYSDEC inspection, problems were noticed at the site. A liquid sample from the sanitary system contained 33 parts per million (ppm) of cadmium, 35.9 ppm of copper, 6 ppm of lead, 6 ppm of silver, 17 ppm of zinc, lesser concentrations of chromium and cyanide, and as much as 3.8 ppm of 1,1,1-trichloroethane. A stormwater dry well was contaminated with lead, cadmium and chromium. A soil sample from outside the northeast corner of the building contained an EP Toxicity concentration of 3.04 ppm for cadmium. As a result of this inspection, the sanitary system and the dry well were pumped and cleaned in July 1985.

## 3.2: Remedial History

The site was originally listed as a class "2a" on the Registry of Inactive Hazardous Waste Disposal Sites on December 12, 1987. A class "2a" was a temporary classification for this site pending further investigation. The results of the investigation were used to determine if the site would be reclassified or delisted. Under a Consent Order with the NYSDEC, a Phase II Investigation was performed by Liberty's consultant in 1987. Five monitoring wells were installed and sampled, including upgradient, on-site, and downgradient wells. Four wells from a prior investigation were also sampled. Two on-site wells exhibited concentrations of 210 parts per billion (ppb) and 8,120 ppb of chromium, which exceeded the groundwater standard of 50 ppb.

A Supplemental Phase II investigation was performed in 1991. Soil sampling for EP Toxicity, volatile organic compounds, and cyanide was performed at three locations. The most notable detection was 11.5 ppm of cyanide in the sediment at the bottom of the leaching pool. Additional rounds of groundwater samples were collected. Chromium concentrations ranging from 2,300 ppb to 5,800 ppb were detected in these samples, which exceeded the groundwater standard of 50 ppb.

A remedial measure was performed by Liberty at the request of the SCDHS on the industrial emergency leaching pool, as a result of the 11.5 ppm of cyanide detected in the Supplemental Phase II Investigation. A total of 45 inches of soil were excavated from the bottom of the leaching pool in 1992.

The site was reclassified as a class "2" on February 10, 1994 because of the disposal of plating wastes into drainage structures and the contaminated groundwater which exceeded NYSDEC groundwater standards. A Consent Order, with an effective date of March 18, 1996, required the site operator/owner to perform a Focused Remedial Investigation (FRI) limited to the area around the six underground plating tanks that leaked and the emergency leaching pool that had historically received untreated plating wastes. Based on available information, these areas were suspected to be the main sources for high levels of hexavalent chromium and, to a lesser extent cadmium, detected in a downgradient off-site monitoring well. Remedial work required by the Consent Order was not implemented by Liberty Industrial Finishing because of alleged financial difficulties.

In 1997, with oversight from the NYSDEC, Liberty Industrial Finishing removed waste materials from the interior of the on-site industrial building. The following materials were disposed of as part of this removal action: cyanide plating waste, phosphates, copper strips, copper strip sludge, metal hydroxide sludges, paint wastes containing methyl-ethyl-ketone, waste from the vapor degreaser containing trichloroethene (TCE), chromic acid solutions, solutions containing cadmium and chromium, and cyanide salts.

Floor sweepings were drummed and disposed of as hazardous waste due to cyanide and metals. All wood flooring was collected but left on-site. The flooring was later disposed of by the Environmental Protection Agency (EPA) as part of an Interim Remedial Measure.

## SECTION 4: SITE CONTAMINATION

To evaluate the contamination present at the site and to evaluate alternatives to address the significant threat to the environment posed by the presence of hazardous waste, the NYSDEC has recently conducted a Remedial Investigation/Feasibility Study (RI/FS).

### 4.1: Summary of the Remedial Investigation

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

The RI was conducted between September 1997 and November 1998. A report entitled, "Remedial Investigation Report", dated January 1999 has been prepared which describes the field activities and findings of the RI in detail.

The RI included the following activities:

- *Public and private water supply well survey to identify potential groundwater receptors;*
- *Geophysical survey to determine the location of subsurface drainage systems that could have been used for waste disposal and areas of buried waste;*
- *Excavation of six test trenches and collection of two soil samples to determine if waste was present in an area of suspected disposal;*
- *Collection of 17 sediment/sludge samples from stormwater dry wells, sanitary leaching pools and an emergency leaching pool to determine if wastes were disposed to these drainage systems;*
- *Collection of 65 surface soil and 42 subsurface soil samples to determine if activities at the site resulted in contamination of soil both on-site and off-site;*
- *Collection of 25 Geoprobe groundwater samples to determine if activities at the site contaminated groundwater on-site and off-site;*
- *Installation and sampling of seven new monitoring wells, together with ten existing, to determine on-site and off-site groundwater quality;*
- *Monitoring of vapors and gases to determine impacts on ambient air;*

- *Performance of a wildlife habitat survey to determine environmental conditions and impacts at the site; and*

- *Performance of an exposure assessment to determine impacts on human health.*

To determine which media (soil, groundwater, etc.) contain contamination at levels of concern, the RI analytical data were compared to New York State Standards, Criteria, and Guidance values (SCGs). Groundwater and drinking water SCGs identified for the Liberty Industrial Finishing 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.

High levels of metals, specifically chromium, were found in the on-site surface soils (maximum 412 ppm), subsurface soils (maximum 1,530 ppm), drainage structures (maximum 579 ppm), and on- and off-site groundwater (maximum 3,600 ppb). High levels of SVOCs (maximum 10,100 of total SVOCs) were also found in the on-site drainage structures. Based on the results of the RI, remediation of these media is required.

For comparison purposes, where applicable, SCGs are provided for each medium.

### 4.1.1 Nature of Contamination

As described in the RI Report, many soil, groundwater and sediment samples were collected at the site to characterize the nature and extent of contamination. The main categories of contaminants which exceed their SCGs are semivolatile organic compounds and inorganics.

The inorganic contaminants of concern are cyanide and the following metals: cadmium, chromium, copper, nickel and zinc. The semivolatile organic compounds are limited to contaminated sediments and include: phenol, benzo(a)anthracene, chrysene, and benzo(a)pyrene.

### 4.1.2 Extent of Contamination

The following are the media which were investigated and a summary of the findings of the investigation. The analytical data are presented in the following format:

Name of compound (analytical result > soil cleanup objective or groundwater standard).

**Soil**

Contaminated surface soil was found on-site at the eastern end of the UST farm. The surface soil at this location (SS-31) exhibited maximum concentrations of cadmium (277 ppm > 10 ppm), chromium (412 ppm > 50 ppm), copper (145 ppm > 25 ppm), iron (43,000 ppm > 10,000 ppm), mercury (1.5 ppm > 0.1 ppm), nickel (146 ppm > 13 ppm), and zinc (607 ppm > 47 ppm) that exceeded the NYSDEC soil cleanup objectives.

Contaminated surface soil was also found at the Town of Islip Athletic Field and the Brentwood Water District well field. Arsenic-contaminated soil [(381 ppm and 967 ppm) > 7.5 ppm] was found at the southwest corner of the athletic field (SS-01) at concentrations exceeding the NYSDEC cleanup objective. Surface soil contaminated with barium [(385-943 ppm) > 300 ppm], chromium [(217-1,010 ppm) > 50 ppm], cobalt [(97-393 ppm) > 30 ppm], copper [(34-393 ppm) > 25 ppm], nickel [(272-1,050 ppm) > 13 ppm], and zinc [(87.2-3,450 ppm) > 47 ppm] was identified at two locations (SS-24 & SS-25) on the Brentwood Water District property at concentrations exceeding the soil cleanup objectives. These two areas were remediated as an Interim Remedial Measure in August 1998 (see Section 4.2). A summary of the analytical results for surface soil sampling is included in Table 1. Locations of surface soil samples are depicted in Figure 3.

Contaminated subsurface soil was found at two locations adjacent to the six USTs [B-12 (12-16 feet bgs) & B-15 (2-6 feet bgs)] and at one location approximately 125 feet west of the USTs [B-29 (0-8 feet bgs)]. Analytical results revealed concentrations of cadmium [(118-126 ppm) > 10 ppm], chromium [(972-1530 ppm) > 50 ppm] and nickel [(22-139 ppm) > 13 ppm] that exceed soil cleanup objectives. A summary of the analytical results for the subsurface soil sampling locations is included in Table 2. Sample locations are depicted in Figure 4.

## Sediments

Contaminated sediment/sludge was detected in one of the four sanitary leaching pools, which is the western most pool (S-07). This pool exhibited concentrations of cadmium (90 ppm > 10 ppm), chromium (148 ppm > 50 ppm), copper (519 ppm > 25 ppm), and zinc (127 ppm > 47 ppm) that exceeded the NYSDEC soil cleanup objectives.

As part of this investigation, ten (10) on-site stormwater dry wells were sampled. Contaminated sediment/sludge was detected in four stormwater dry wells, one of which is located in the area of the western loading dock (S-03) and the remaining three located in the area of the former eastern loading dock (S-13, S-14, S-15). Analytical results from these dry wells revealed exceedances of soil cleanup objectives for several semivolatile organic compounds and metals, including phenol [(77-1,300 ppb) > 30 ppb], benzo(a)anthracene [(790-1,900 ppb) > 224 ppb], chrysene [(1,300-2,600 ppb) > 400 ppb], benzo(a)pyrene [(760-2,000 ppb) > 61 ppb], cadmium [(35-303 ppb) > 10 ppb], chromium [(191-579 ppb) > 50 ppb], nickel [(32-102 ppb) > 13 ppb] and zinc [(248-866 ppb) > 47 ppb].

The emergency leaching pool (Sample #B-04) was also tested as part of the RI. As discussed in Section 3.2, a remedial measure was performed on this leaching pool in 1992. The analytical results from the RI indicate that this leaching pool was not contaminated above soil cleanup objectives; therefore, the emergency leaching pool is no longer an environmental concern for the site.

Analytical results for sediment/sludge samples are included in Table 3. Sample locations are depicted in Figure 5.

## Groundwater

Groundwater was sampled by two methods as part of this investigation. One method utilized was obtaining grab samples using the Geoprobe™ direct push sampling apparatus. This method was used as a screening tool to determine placement of groundwater monitoring wells and to determine relative levels of contaminants. By measuring water levels in the wells, it was determined that groundwater flow is toward the southeast. The data validation report indicates that the results for metals are estimated as biased high for the Geoprobe™ samples due to high turbidity results. The high levels of metals are likely attributable to the suspended solids contained in the samples.

Groundwater monitoring wells were used to determine on-site and off-site groundwater quality. The monitoring wells were developed for several days prior to sampling and contain larger screen sections which allow for greater water flow rates. These wells provided a more reliable assessment of actual contaminant concentrations than the Geoprobe™ sampling results. Therefore, the discussion below concerning the nature and extent of groundwater contamination will utilize primarily the groundwater monitoring well analytical data.

Monitoring wells were placed in upgradient, on-site, and downgradient locations to determine the boundaries and potential for migration of groundwater contamination. Shallow wells (MW-01 to MW-05, MW-7 to MW-13, MW-15) were installed directly below the water table at approximately 50 feet bgs. Deep wells (MW-14, MW-16, MW-17) were installed at 100 feet bgs. However, one deep well (MW-06) that was sampled is screened in the Magothy aquifer at 265 feet bgs.

Groundwater monitoring well data downgradient (southeast) of the underground plating waste storage tanks and the former eastern loading dock stormwater dry wells indicates exceedances of cadmium, cyanide, and chromium, likely resulting from plating waste disposal or spills and/or leaking underground waste storage tanks. Groundwater contaminated with cadmium (maximum 369 ppb at MW-10 > 10 ppb) and cyanide (maximum 417 ppb at MW-04 > 100 ppb) is primarily in the shallow on-site wells and extends approximately 150 feet downgradient of the site. Analytical results from the December 15, 1997 sampling event indicate that shallow chromium-contaminated groundwater on-site ranged up to 3,600 ppb at MW-04 (groundwater standard: 50 ppb) and immediately off-site (about 150 feet at MW-10) was 3,070 ppb. Results from the most recent sampling event on June 3, 1998 indicate groundwater concentrations of 1,960 ppb for MW-04 and 2,930 ppb for MW-10. Only one deep well (MW-14) exhibited chromium concentrations above groundwater standards. This downgradient well, located about 500 feet from the site and 100 feet bgs, shows a chromium concentration of 53.7 ppb, which slightly exceeds the groundwater standard of 50 ppb. The shallow monitoring well at this location (MW-12) exhibited a chromium concentration of 1.2 ppb. Upgradient wells at the Brentwood Public Library show no evidence of groundwater contamination. Locations of monitoring wells and Geoprobe™ sampling locations are included in Figure 6 and Figure 7, respectively. Figure 6 also includes chromium concentrations for each monitoring well from the June 3, 1998 sampling event. A summary of the analytical results from the monitoring well samples and Geoprobe™ sampling locations are included in Tables 4 and 5, respectively.

Figure 8 depicts the extent of the groundwater plume. As indicated on the figure, the plume emanates southeast from the on-site UST and pipe gallery area and moves in the direction of groundwater flow. The site history (Section 3.1) indicates that discharges to groundwater began in the late 1970's. However, the groundwater

monitoring well data indicate that chromium concentrations meet groundwater standards 500 feet downgradient of the site.

Figure 9 depicts a cross section of the highest concentration gradient for chromium. As indicated on the figure, exceedances of groundwater standards for chromium are limited to the wells situated directly below the water table, except for MW-14 (53.7 ppb) which slightly exceeds the groundwater standard of 50 ppb.

The groundwater contamination plume associated with this site does not threaten the Brentwood Water District well field. Neither groundwater monitoring well located upgradient of the well field (MW-3A & MW-8) exhibited detectable concentrations of chromium. Figure 8 shows that the extent of the groundwater contamination plume is 120 feet east of the Brentwood well field. In addition, the groundwater contamination is limited to 100 feet bgs and has a chromium concentration of 6.2 ppb at the nearest downgradient deep monitoring well (MW-16). The Brentwood wells are screened at a minimum of 450 feet bgs. Also, the Brentwood supply wells are tested on a annual basis and have not shown any evidence of contamination to date. Therefore, the groundwater contamination from the site does not threaten the water quality of the Brentwood well field.

A well survey was conducted as part of the RI. The well survey indicated that there are no public or private wells located within 1.5 miles downgradient of the site. Therefore, there are no known completed exposure pathways within 1.5 miles of this site.

## 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. Two IRMs were completed while performing the RI/FS.

IRM #1

Analytical results for the Town of Islip Athletic Field and the Brentwood Water District property revealed the presence of surface soils that were contaminated with heavy metals (see Section 4.1.2 for analytical results). In August 1998, the Town of Islip performed an IRM in which soil was excavated from areas of both properties for off-site disposal. Referring to Figure 3, soil was excavated from a square-shaped area centered on SS-01 at the Town of Islip ballfield measuring 7 feet by 7 feet by 2 feet deep. Circular excavations were also performed at SS-24 and SS-25 at the Brentwood Water District property, each measuring 6 feet in diameter and 6 feet deep.

IRM #2

The United States Environmental Protection Agency performed an Emergency Removal Action on the site from August 1998 to January 1999. This IRM included removing waste materials from the interior of the factory building and closing the six USTs in place.

The USTs on the south side of the building were closed in place using the following procedure:

- Removing the remaining contents of the tanks including the plastic liners;

- Cleaning and sandblasting the empty tanks;

- Filling the USTs with soil to approximately one (1) foot from the top of each tank; and filling the remaining foot with concrete.

The USTs were not removed because of the proximity of the adjacent Long Island Railroad tracks. An electric line that supplies power to the railroad is located between the tanks and the railroad tracks. Excavation of the tanks would have required the electric line to be shut off which would have resulted in interruption of railroad service.

As part of the IRM performed by the EPA, waste materials were removed from the interior of the factory building. The following tasks were performed in the interior of the building:

- Pressure washing of process vats.

- Vacuuming and pressure washing of floors.

- Removal of contaminated debris from vat areas and floors.

- Packaging all waste materials in drums for off-site disposal at a permitted disposal facility.

## 4.3 Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the health risks can be found in Section 6.0 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 or around the site include:

- ingestion of surface soil in the eastern portion of the underground waste storage tank area.

- ingestion of shallow groundwater.

Residences and businesses located downgradient of the site are provided with public water; therefore, contact with shallow groundwater is unlikely. Ingestion of surface soil will be addressed in Section 7.

## 4.4 Summary of Environmental Exposure Pathways:

This section summarizes the types of environmental exposures which may be presented by the site.

No significant pathways for environmental exposure have been identified at the site.

## 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 Potentially Responsible Party (PRP) for the site is:

**Liberty Industrial Finishing**
**550 Suffolk Avenue**
**Brentwood, New York 11717**

Liberty Industrial Finishing has ceased manufacturing operations at the site. The PRP declined to implement the RI/FS at the site when requested by the NYSDEC because of alleged financial hardship. The RI/FS is being conducted with State Superfund money. After the remedy is selected, the PRP will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRP, the NYSDEC will implement the selected remedial action under the State Superfund. The PRP is subject to legal actions by the State for recovery of all response costs the State has incurred.

The following is the chronological enforcement history of this site.

| Date | Index No. | Subject of Order |
|---|---|---|
| 1987 | W1-0025-84-08 | Phase II investigation of USTs and areas of documented discharges. |
| 1996 | W1-0714-95-01 | Remedial Investigation and remediation of the area around the six USTs. |

## SECTION 6: SUMMARY OF THE REMEDIATION GOALS

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

The goals selected for this site are:

- *Eliminate sources of contamination that exceed SCGs, such as: surface soil, subsurface soil, and stormwater dry well or sanitary leaching pool sediment.*

- *Eliminate, to the extent practicable, ingestion of groundwater affected by the site that does not attain NYSDEC Class GA Ambient Water Quality Criteria.*
- *Mitigate the impacts of contaminated groundwater to the environment by natural attenuation.*
- *Eliminate the potential for direct human contact with the contaminated soil on site.*

## 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 Liberty Industrial Finishing site were identified, screened and evaluated in the report entitled Feasibility Study Report, dated January 1999.

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

### 7.1: Description of Remedial Alternatives

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

***Alternative #1: No Further Action***

| | |
|---|---|
| *Present Worth:* | *$ 264,000* |
| *Capital Cost:* | *$ 0* |
| *Annual O&M:* | *$ 17,200* |
| *Time to Implement* | *0 years* |

This alternative recognizes remediation of the site conducted under two previously completed IRMs. Only continued monitoring would be necessary to evaluate the effectiveness of the remediation completed under the IRM. The monitoring would consist of quarterly sampling of six wells, two on-site (MW-5 and MW-6) and four downgradient (MW-10, MW-12, MW-14, MW-16). Three wells are screened just below the water table at approximately 50 feet bgs (MW-5, MW-10, MW-12), two wells are screened at 100 feet bgs (MW-14, MW-16), and one well is screened at 265 feet bgs (MW-6).

This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

***Alternative #2: Source Removal and Mitigation and Assessment of On-site and Off-site Groundwater Quality***

| | |
|---|---|
| *Present Worth:* | *$ 501,700* |
| *Capital Cost:* | *$ 237,700* |

| | |
|---|---|
| *Annual O&M:* | *S 17,200* |
| *Time to Implement* | *6 months* |

This remedy would consist of four distinct remedial actions: soil excavation, installation of an asphalt cap, removal of sediment from drainage structures, and installation of long-term monitoring wells. First, two (2) feet of soil would be excavated in the vicinity of the UST farm and pipe gallery. This excavation would measure 20 feet long by 150 feet wide.

Since the subsurface soil samples at the west end of the pipe gallery at sample location B-29 (see Figure 4) exhibited concentrations of chromium (1320-1530 ppm) that may exceed characteristic hazardous waste threshold limits, soil at this location would be excavated an additional six (6) feet to a minimum depth of eight (8) feet bgs. This excavation would measure fifteen (15) feet long by fifteen (15) feet wide. A sample would be obtained from the bottom of the excavation and analyzed by the Toxicity Characteristic Leaching Procedure (TCLP) and for total metals to determine if further excavation would be needed. Structural support for the building would be required during excavation.

The soil from both excavations would be disposed of at an off-site permitted treatment, storage, and disposal facility (TSDF).

This remedial action would mitigate the human health concern associated with human contact with contaminated surface soil and would remove the potential hazardous waste from the on-site soils at sample location B-29.

Excavation would not occur at the other two locations exhibiting subsurface soil contamination (B-12, B-15). These sample locations are directly adjacent to the USTs, which were closed in place during the EPA removal action. Excavation at these locations to depths below two (2) feet may damage or compromise the integrity of the USTs. Excavation may also compromise the structural integrity of the adjacent building.

Also, sample location B-12 is directly adjacent to the Long Island Railroad right-of-way. The Long Island Railroad supplies power to its trains using an underground electric line, which is located between the UST farm and the railroad tracks. Excavation of soil below two (2) feet at sample location B-12 would require shutting off the electricity in the power cable and providing structural support for the railroad bed. Therefore, rail service would be disrupted during excavation at this location.

To mitigate the environmental threat associated with the subsurface soils, this alternative would include the installation of a nonporous asphalt cap over the entire 150-foot by 20-foot excavation above the UST farm and pipe gallery extending to location B-29. After backfilling the deeper excavation with clean soil to two (2) feet bgs, both excavations would be covered with 1.5 feet of clean soil followed by a six (6) inch base consisting of clean gravel. Two (2) inches of asphalt would be laid over the gravel. This remedial measure would prevent surface water from infiltrating the contaminated area and leaching metals from the subsurface soil into the groundwater. Since this contamination source would be immobilized, groundwater would naturally attenuate and long-term monitoring would be conducted to verify that contaminants would reach New York State Class GA groundwater standards.

Other potential sources of groundwater contamination are the sediments in four stormwater dry wells and in one leaching pool. The structures would be cleaned using standard removal techniques such as utilization of a vacuum truck or "guzzler" to remove the sediment and any standing water to a depth of approximately five (5) feet below the sediment surface. The dry wells and leaching pool would be cleaned with a power washer during removal of the sediment. Once the sediment has been removed, end point samples would be collected in order to determine if additional remediation would be required. The contaminated sediments would be disposed of at a permitted TSDF.

For this alternative, groundwater remediation would occur by natural attenuation. This alternative would remove all on-site sources of contamination which would prevent further release of contaminants into the groundwater and result in declining contaminant concentrations in the plume as it disperses downgradient of the site. The plume concentrations meet groundwater standards 500 feet downgradient of the site. As stated in Section 4.1, there are no complete exposure pathways within 1.5 miles downgradient of the site and the Brentwood Public Water Supply well field is not threatened by this site. Therefore, natural attenuation would reduce groundwater contamination to below groundwater standards without threatening the public health or the environment.

Finally, two pairs of groundwater monitoring wells would be installed as part of the remedy: one pair downgradient of the site and one pair on the Brentwood Water District property. For each well pair, one well would be installed in the deep upper glacial aquifer (approximately 150 feet bgs) and the other well would be screened in the shallow Magothy aquifer (approximately 250 feet bgs). These four new wells, along with two existing on-site wells (MW-5 and MW-6) and two existing off-site wells (MW-12 and MW-14), would be monitored on a quarterly basis for up to 30 years to insure the quality of the public water supply and confirm that the groundwater contamination would be confined to the shallow upper glacial aquifer. Proposed locations of long-term monitoring wells are included in Figure 10.

***Alternative #3: Source Removal and Mitigation and Treatment of Contaminated Groundwater***

| | |
|---|---|
| *Present Worth:* | *$ 2,946,000* |
| *Capital Cost:* | *$ 1,102,000* |
| *Annual O&M:* | *$ 148,000* |
| *Time to Implement* | *1 year* |

This alternative would include the following remedial actions: excavation and off-site removal of contaminated surface soil and subsurface soil at sample location B-29, installing an asphalt cap above the UST farm and pipe gallery, removal and off-site disposal of contaminated sediment in one leaching pool and four stormwater dry wells, and groundwater treatment. The first three elements of this alternative were discussed in the previous alternative. The fourth remedial measure would include treatment of contaminated groundwater using an extraction well and on-site treatment system. The well would be installed downgradient of the site on the Town of Islip Athletic Field property at an approximate depth of 70 feet bgs. The well location is depicted on Figure 8. The well would pump at a rate of approximately 80 gallons per minute and well would have a horizontal zone of capture of 120 feet. Metals and cyanide would be removed from the groundwater by precipitation and filtration. The water would be treated to New York State GA drinking water standards before discharge. The treated groundwater would be discharged into a stormwater system via a recharge basin.

The groundwater treatment system would be selected as a focused remedy for this site. The system would be designed to treat the portion of the shallow groundwater plume exceeding 100 ppb of chromium. However, some contaminated groundwater between 50 ppb and 100 ppb, and possibly as high as 500 ppb, has already passed the point where the well would be installed and it is unlikely that this well would remediate the contaminated groundwater found below a depth of 60 feet.

Comprehensive remediation of the groundwater would require a number of both shallow and deep wells placed at varying distances from the source. The more comprehensive system would cost several times more than this alternative.

Since the source areas would be removed and/or isolated as part of this alternative, the remaining contamination is expected to meet groundwater standards by natural attenuation by the same mechanisms discussed in Alternative #2.

## 7.2 Evaluation of Remedial Alternatives

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

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

The three media that require remediation at this site are soil, sediment/sludges, and groundwater. The SCGs for the soil and sediment/sludges are the recommended soil cleanup objectives from the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046: Determination of Soil Cleanup Objectives and Cleanup Levels. The SCGs for groundwater are the Class GA water standards from the Technical and Operational Guidance Series (TOGS) 1.1.1: Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations.

Alternative #1 would not meet the SCGs established at this site, since contaminants would remain in all three media at unacceptably high levels.

Alternatives #2 and #3 would meet the SCGs for the surface soil and sediment/sludge by removal of these media. However, some contaminated subsurface soils would remain in place and would not reach SCGs. The contaminants in these soils would be immobilized due to the installation of the nonporous asphalt cap and would not continue to pose a threat to the environment.

For Alternative #2, Groundwater would naturally attenuate to below the SCGs because the sources of the contamination would be removed/mitigated.

Alternative #3 would meet the SCGs for groundwater by actively remediating the threat through the groundwater treatment system. The remaining groundwater contamination would meet SCGs by natural attenuation.

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 and the environment since receptors that gain access to the site could potentially come into contact with contaminated soil. Also, the continued release of contaminants from the site could threaten the public water supply.

Alternatives #2 and #3 would be protective of human health and the environment through the removal of contaminated dry well/leaching pool sediment/sludge and soil. Groundwater contamination is limited to the shallow upper aquifer. Alternative #2 would rely on natural attenuation to remediate the contaminated groundwater and would include extensive long-term monitoring to insure that natural attenuation of groundwater progresses satisfactorily. Alternative #3 would mitigate the groundwater threat by using extraction and treatment technology and by natural attenuation.

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 have any short-term construction related impacts and could be fully implemented immediately.

Alternative #2 could be fully implemented within about six months of issuance of the Record of Decision. This alternative would be immediately effective in mitigating the potential for direct contact with contaminated soil and mitigating continued impacts to groundwater. No short term impacts are expected with proper implementation of construction related health and safety and construction quality assurance plans.

Alternative #3 could be implemented within one year. In addition to the benefits listed for Alternative #2, this alternative would hydraulically control contaminated shallow groundwater from migrating into the deep aquifer and further downgradient from the site. Some disruption to the community would be expected during installation of the groundwater extraction and treatment system, since the system would be on public property.

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

Alternative #1 would not provide for long-term effectiveness and permanence, since remediation of contaminated sediment/sludge and soil would not occur, contaminants would continue to be released to groundwater, and natural attenuation would not be effective.

Alternative #2 would be considered semi- permanent, with respect to the removal of soil and contaminated sediment/sludge. Placement of the asphalt cover to isolate the contaminated subsurface soil would be considered an effective remedial action in the long-term, but would not be not considered permanent because the asphalt cap would require periodic maintenance. The risk posed by the contaminants that remain in the subsurface are minimal, since these contaminants would be isolated from direct exposure and leaching to groundwater. By mitigating release of contaminants to groundwater, it would be expected that natural attenuation of existing groundwater contamination would eventually be effective and permanent.

In addition to the remedial actions evaluated for Alternative #2, Alternative #3 would include hydraulically controlling and treating groundwater, which would be considered permanent and effective.

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 be effective in reducing the toxicity, volume or mobility of the contaminants at the site, and as a result, natural attenuation would also not be effective. Contaminants would continue to be released to groundwater and migrate in significant, unacceptable concentrations.

Alternative #2 would reduce the mobility and volume of contaminants on-site by removing the contaminated sediment/sludge and the contaminated surface soil for off-site disposal. Placement of the asphalt cap would also significantly reduce the mobility of the contaminants that remain in the subsurface soil. Natural attenuation of the existing impacted groundwater would reduce the toxicity of contaminants in groundwater through dilution, dispersion, and adsorption onto soil.

In addition to the benefits listed for the source areas in Alternative #2, Alternative #3 would reduce the toxicity, mobility and volume of contaminants in groundwater by hydraulically controlling and treating the existing impacted groundwater and by natural attenuation.

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

Alternative #1 could be easily implemented, but as discussed above, would not be effective in protecting human health and the environment.

There are no expected delays in implementation of Alternative #2. Since all work would be conducted on-site, with the exception of the early warning monitoring wells, there would be no expected administrative delays in coordination with local agencies.

The technologies associated with Alternative #3 are commercially available and have been proven effective and reliable. The only potential delay in implementation would be obtaining approval to construct the groundwater

remediation system on Town of Islip property and authorization for discharge of treated groundwater to Town of Islip/Suffolk County Department of Public Works facilities.

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 6.

The estimated long-term (30 year) operation and maintenance (O&M) present worth cost associated with Alternative #1 would be $264,000. The estimated capital cost and present worth O&M cost for Alternative #2 would be $501,700, based on 30 years of continued monitoring. The estimated capital cost and present worth O&M cost of Alternative #3 would be $2,946,000 based on 20 years of operation for the treatment system and continued monitoring. A discount rate of five (5) percent is used to calculate present worth cost.

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

In general the public comments received were supportive of the selective remedy. Comments were received, however, pertaining to the on-site underground storage tanks. Two citizens requested that the underground tanks be removed as part of the remedy. The underground tanks were properly closed in place as part of the EPA removal action. The remaining liquid was pumped from the tanks and the tanks were cleaned and sandblasted. The tanks were then filled with clean soil and capped with concrete. Since the underground tank and pipe gallery area will be capped with asphalt and the underground tanks have been closed in place with a concrete cap, the remaining contaminants in the subsurface soil will be immobilized. However, if tank removal were performed, the adjacent Long Island Railroad line would be shut down because of the presence of a high-voltage underground power line and the integrity of the on-site building may be compromised. Since tank removal would present these significant disadvantages and would only provide a marginal benefit, the tanks will not be removed as part of the remedy.

Also, a citizen requested that more deep monitoring wells be installed at the west end of the site. After reviewing the RI data, the NYSDEC has determined that the nature of on-site groundwater contamination has been sufficiently characterized and that additional on-site investigation is therefore not necessary.

## 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 this site. Alternative #2 includes source removal and mitigation and assessment of on-site and off-site groundwater quality.

This selection is based upon the evaluation of the three alternatives for this site. Alternative #1, the no further action alternative, was eliminated because it did not meet either of the two threshold criteria, compliance with SCGs and protection of human health and the environment.

Of the remaining two alternatives, both alternatives met the requirements of the first six evaluation criteria, except for compliance with SCGs for subsurface soils. The only known remedial action that would enable the subsurface soils to satisfy SCGs would be excavation of subsurface soil, which was determined to be infeasible at two locations. These locations (B-12, B-15) are directly adjacent to the UST farm. The USTs were closed in place as part of an EPA removal action. Therefore, excavating the contaminated soil would risk damaging the USTs and compromising their closure. Also, the excavation would occur adjacent to the industrial building, which may compromise the structural integrity of the building.

One of the sample points (B-12) is directly adjacent to the railroad bed. If this location were excavated, the integrity of the railroad bed may be compromised and the underground power line that is located north of the bed and supplies power to the railroad would need to be shut off. Therefore, excavation at this point would disrupt railroad service.

Capping the UST area and pipe gallery would prevent contaminants in the subsurface soil from leaching into the groundwater and would not present the problems associated with excavating at sample locations B-12 and B-15. For Alternative #2, the groundwater would eventually attenuate to below SCGs. For Alternative #3, the groundwater would be treated to below SCGs by the groundwater treatment system. The subsurface soil would no longer pose a threat to the environment.

Both Alternative #2 and Alternative #3 would mitigate the threat to human health and the environment. As stated in Section 7.1, under Alternative #2 the contaminated groundwater would meet SCGs by natural attenuation prior to completion of exposure pathways. Alternative #3 would actively pump contaminated groundwater in the most contaminated area of the plume but would rely on natural attenuation in less contaminated regions of the plume to meet SCGs for groundwater. Alternative #2 is an acceptable remedy for this site because:

- Sources of groundwater contamination will be removed or mitigated as part of this alternative. Since all remaining soil contamination will be above the water table, continued leaching of contaminants into the groundwater would be eliminated.

- The size of the groundwater contamination plume is limited. Although disposal activities began in 1978, the extent of the plume is only 500 feet downgradient from the site. Chromium concentrations exceeding 1 ppm extend to only 200 feet downgradient of the site.

- The groundwater contamination plume is shallow, with the highest chromium concentrations (3,600 ppb) at 50 feet bgs. The deeper monitoring wells (100 foot bgs) exhibited chromium concentrations (53.7 ppb) that were only of slightly above SCGs (50 ppb). Since disposal of plating waste began at this site over 20 years ago, the analytical data suggests that the plume is not sinking into the deeper aquifer.

- Groundwater travels southeast from the site; therefore, the Brentwood Water District well field which is directly south of the site is not downgradient of the site and is over 100 feet west of the contaminant plume. Annual testing of the well field indicates no impacts from this site. Further, the Brentwood Water District wells draw their water from a minimum depth of 450 feet bgs, well below the plume.

- The well survey conducted for the RI indicated that there are no groundwater receptors within 1.5 miles downgradient of the site.

Alternative #2 was preferred for short-term effectiveness, implementability, and cost. The advantages of Alternative #3 include long-term effectiveness and permanence, and reduction of toxicity, mobility and volume. Since Alternative #2 satisfies all seven evaluation criteria and the additional remedial benefit of Alternative #3 does not justify the large cost increase, Alternative #2 was chosen for this site.

The estimated present worth cost to implement the remedy is $501,700. The cost to construct the remedy is estimated to be $237,700 and the estimated average annual operation and maintenance cost for 30 years is $17,200.

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; and

2. Construction of the remedial design, which will include the following remedial actions;

- Removal of contaminated soil from the upper two (2) feet in the area of the underground plating waste storage tanks and pipe gallery;

- Removal of soil to a minimum of eight (8) feet bgs at the west end of the UST pipe gallery;

- Installation of an asphalt cap over the UST and pipe gallery area;

- Excavation and off-site disposal of contaminated sediments/sludge from four stormwater dry wells and one sanitary leaching pool; and

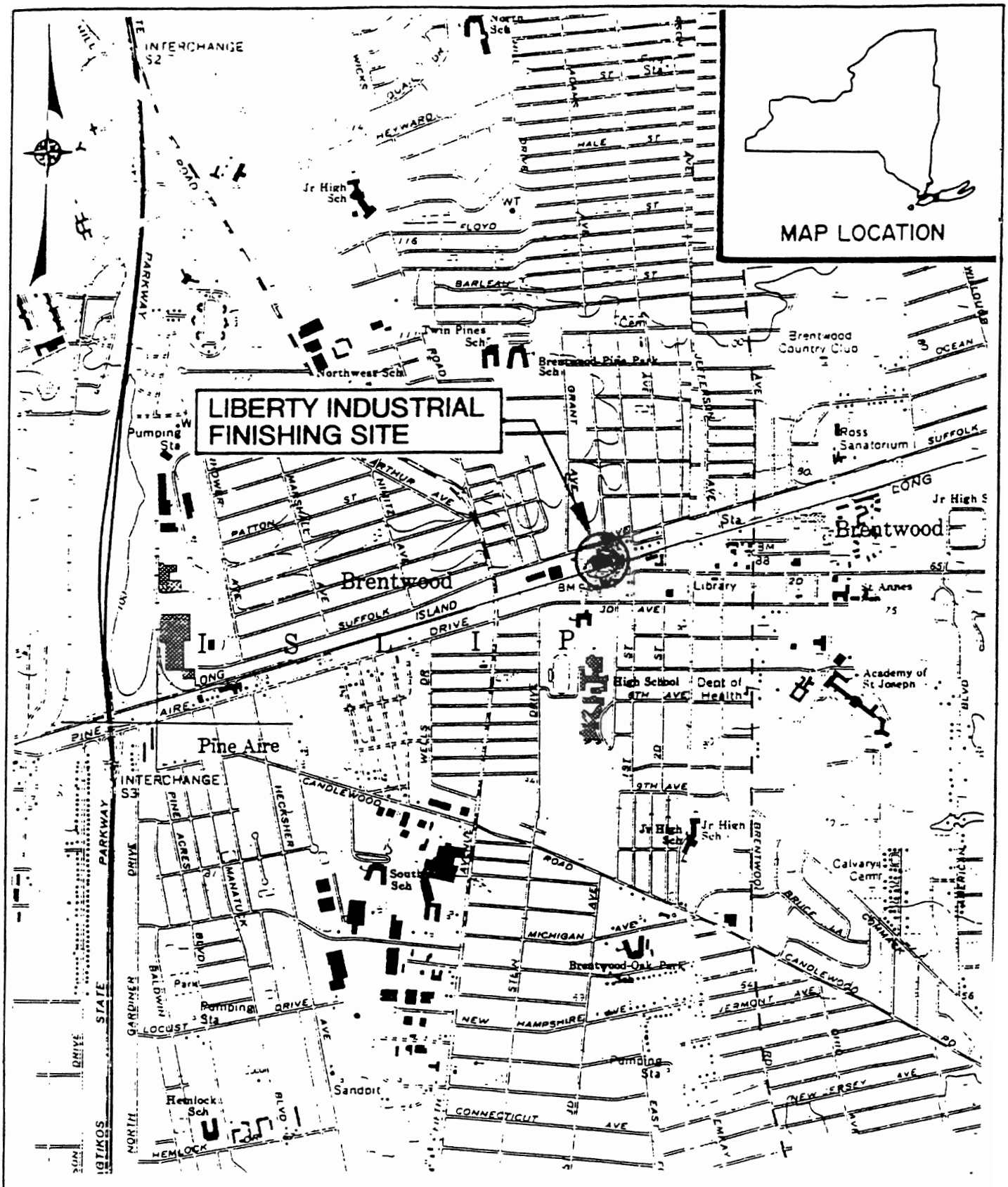
- Institutional controls will be implemented and deed restrictions will be recorded in the chain of title of the property to restrict future use of groundwater at the site.

  Since the remedy results in untreated contaminated groundwater remaining at the site, a long term monitoring program will be instituted. Four groundwater monitoring wells will be installed with two wells located downgradient of the site and two wells located on the Brentwood Water District property. These wells, together with four existing on-site monitoring wells, will be tested on a quarterly basis for a 30-year period. Monitoring requirements will be reevaluated on an annual basis, based on analytical results. This program will allow the effectiveness of the source removal and mitigation to be monitored and will be a component of the operation and maintenance for the site.

## SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation (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.
- A site mailing list was established which included nearby property owners, local political officials local media and other interested parties.
- Fact Sheets were mailed to the contact list in August 1997 and February 1999 to update interested parties on the site status.
- Public informational meetings were held in September 1997 and March 1999 to discuss the project and answer questions posed by the public.
- In February 1999 a public information sheet was mailed to the public contact list and a public meeting was held on March 11, 1999 to present the Liberty Industrial Finishing Site Proposed Remedial Action Plan (PRAP). A 30 day public comment period was established for the receipt of written comments which ended on March 26, 1999.
- 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.

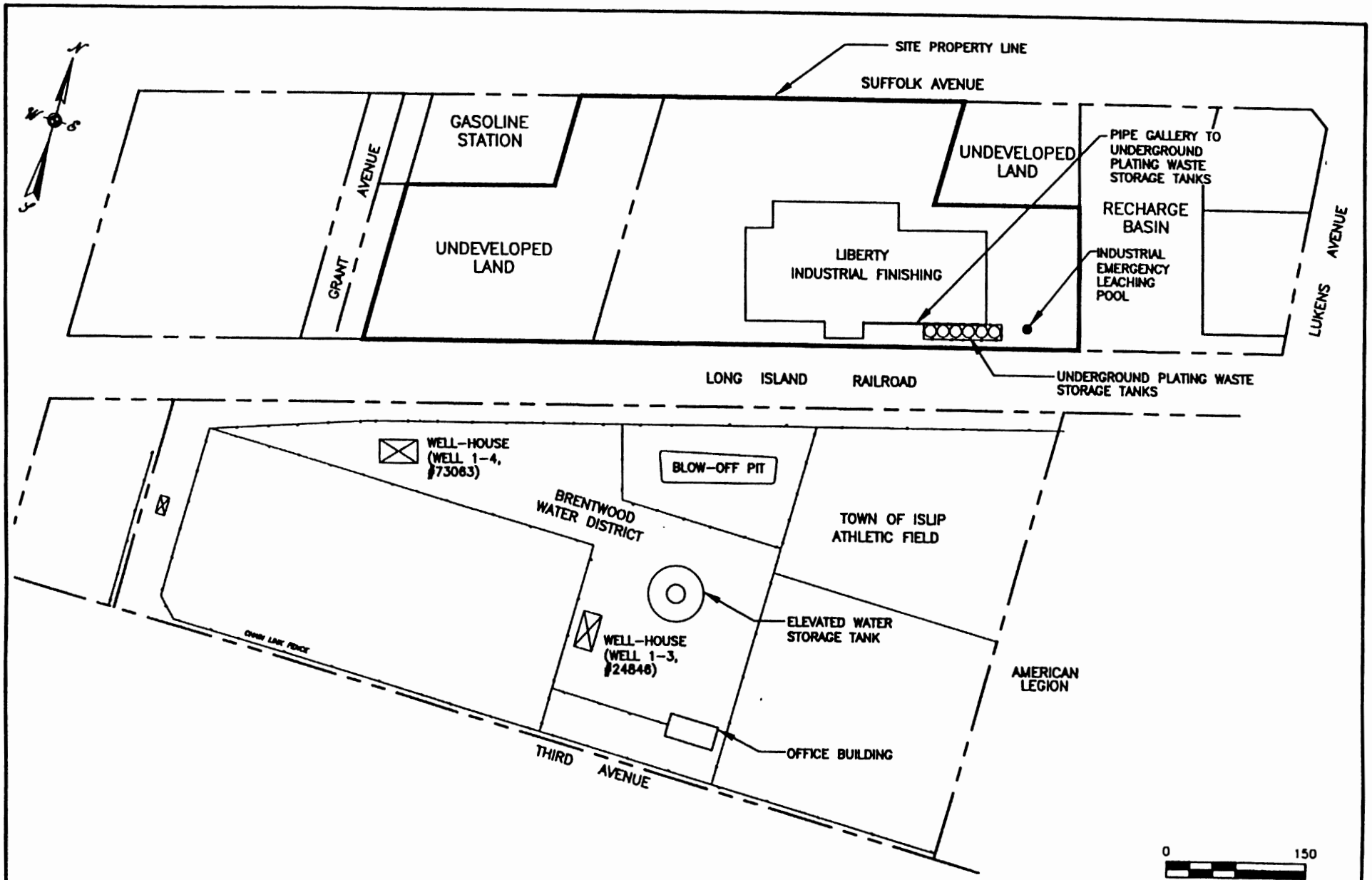



LIBERTY INDUSTRIAL FINISHING SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
BRENTWOOD, NEW YORK

SITE LOCATION MAP

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

FIGURE 1

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LIBERTY INDUSTRIAL FINISHING SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
BRENTWOOD, NEW YORK

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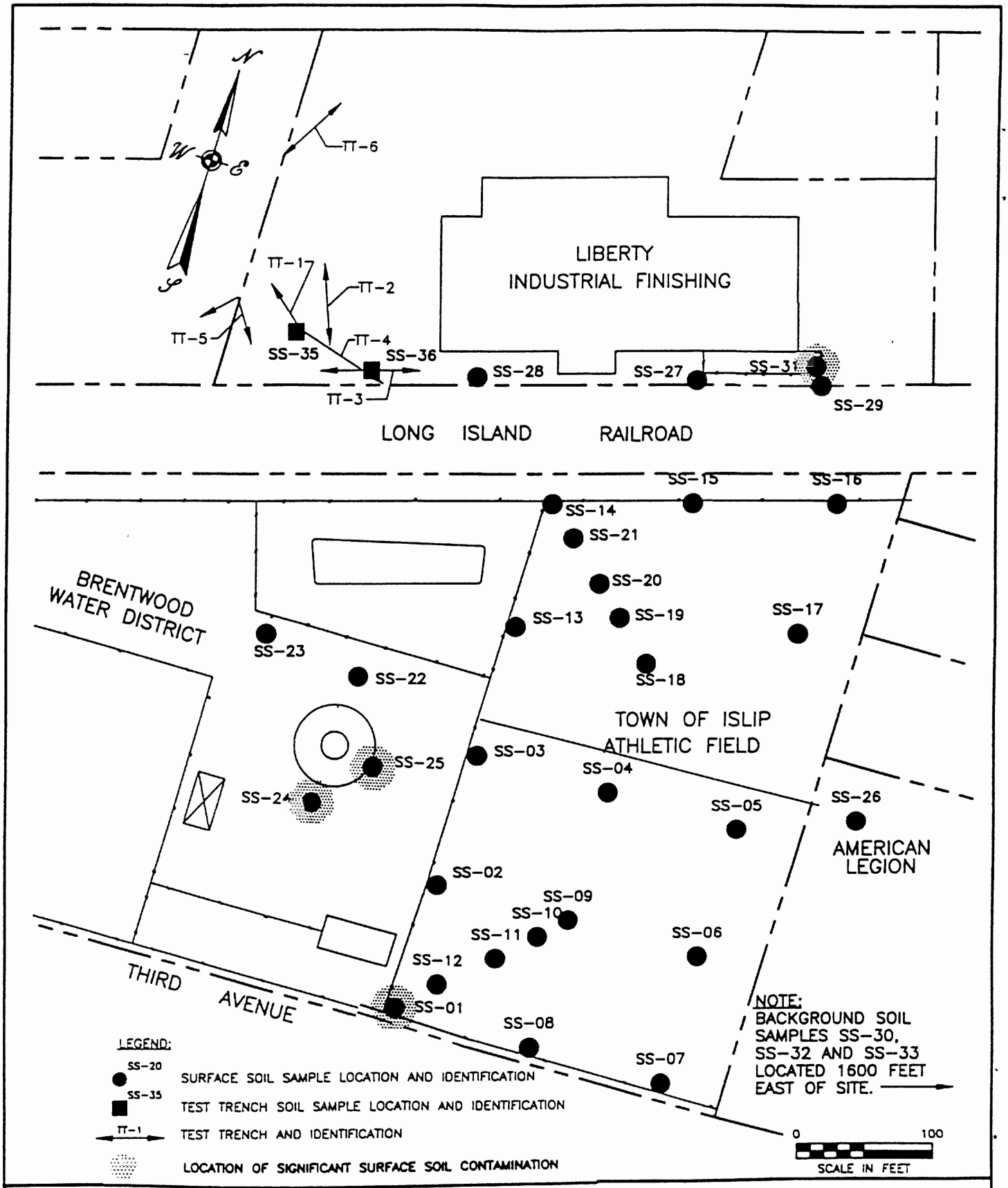
# STUDY AREA MAP

FIGURE 2

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LIBERTY INDUSTRIAL FINISHING SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
BRENTWOOD, NEW YORK

# SURFACE SOIL SAMPLE AND TEST TRENCH LOCATIONS

FIGURE 3

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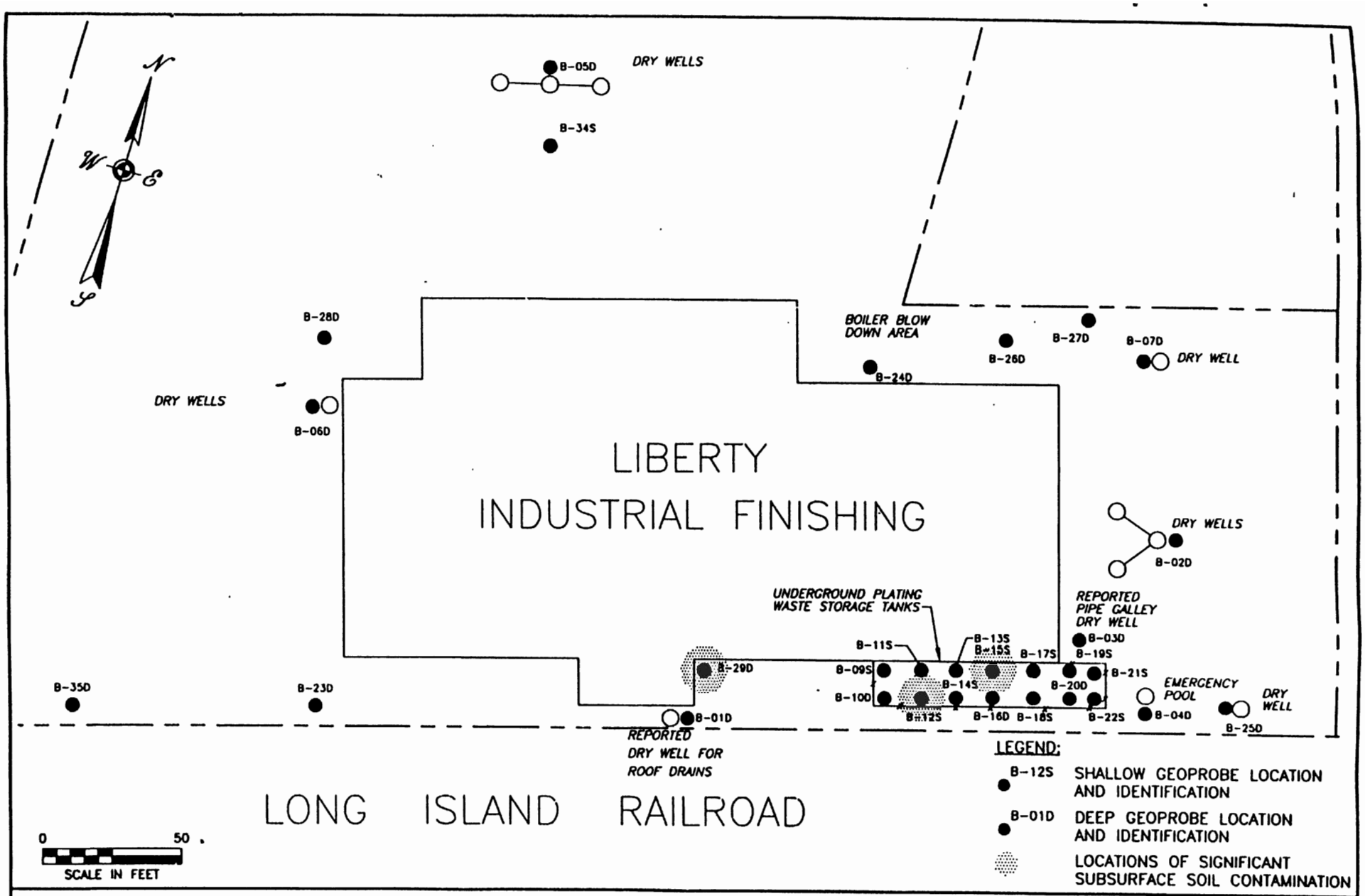


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LIBERTY INDUSTRIAL FINISHING SITE
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BRENTWOOD, NEW YORK

# LOCATIONS OF SIGNIFICANT SUBSURFACE SOIL CONTAMINATION

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FIGURE 4

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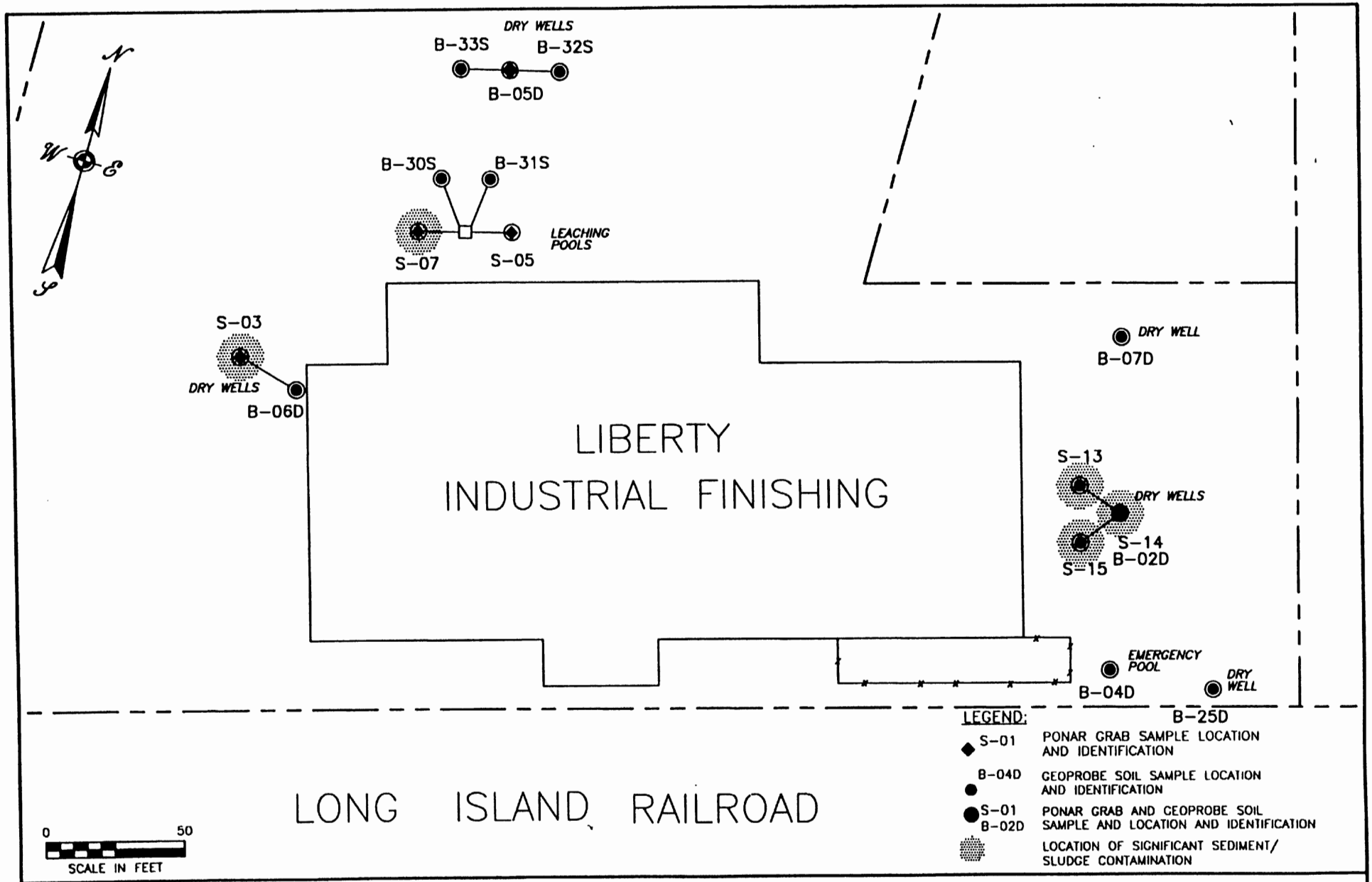


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BRENTWOOD, NEW YORK

## LOCATIONS OF SIGNIFICANT DRYWELL/ LEACHING POOL SEDIMENT/SLUDGE CONTAMINATION

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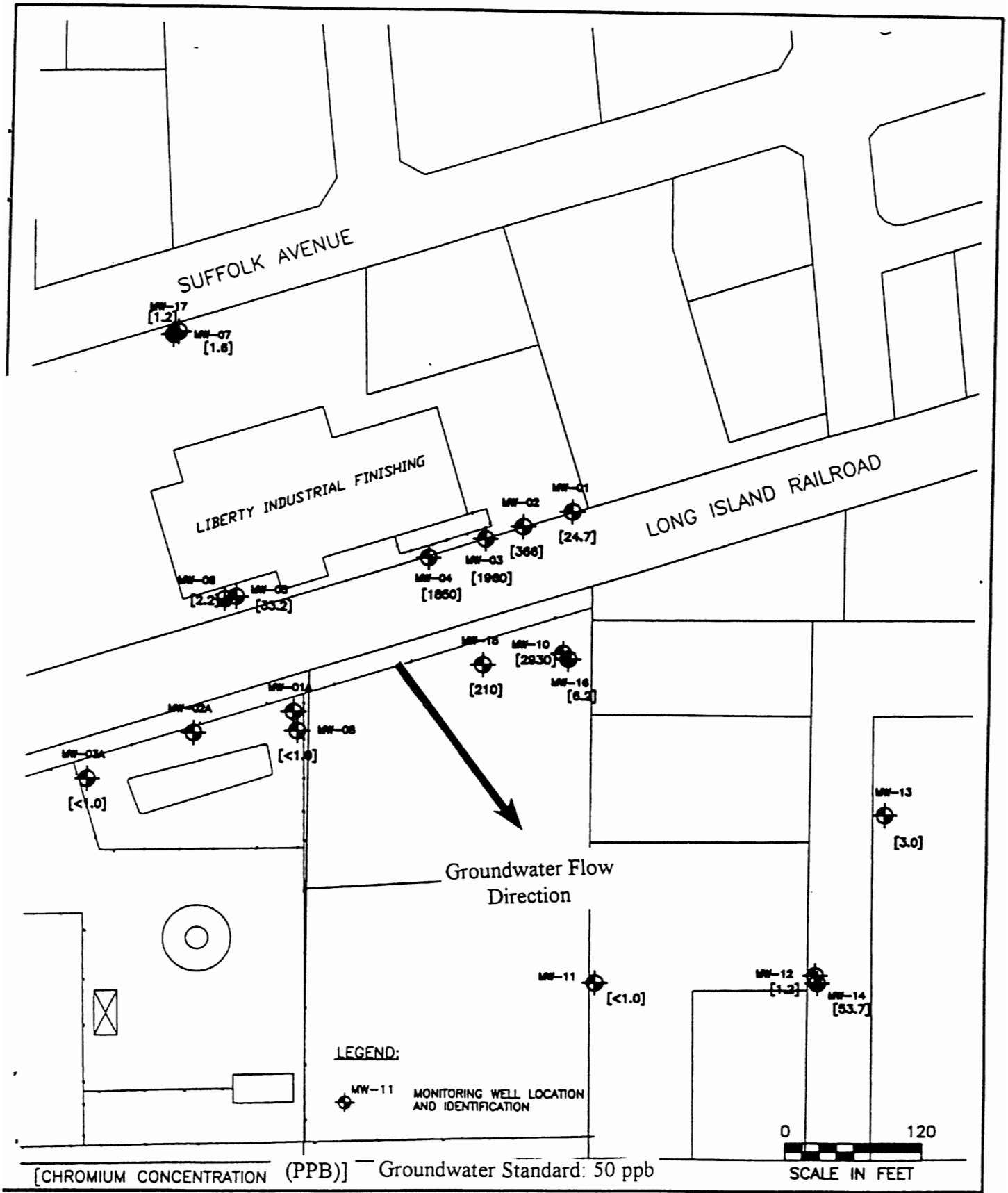
FIGURE 5




LIBERTY INDUSTRIAL FINISHING SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
BRENTWOOD, NEW YORK

## MONITORING WELL GROUNDWATER SAMPLE RESULTS FOR CHROMIUM

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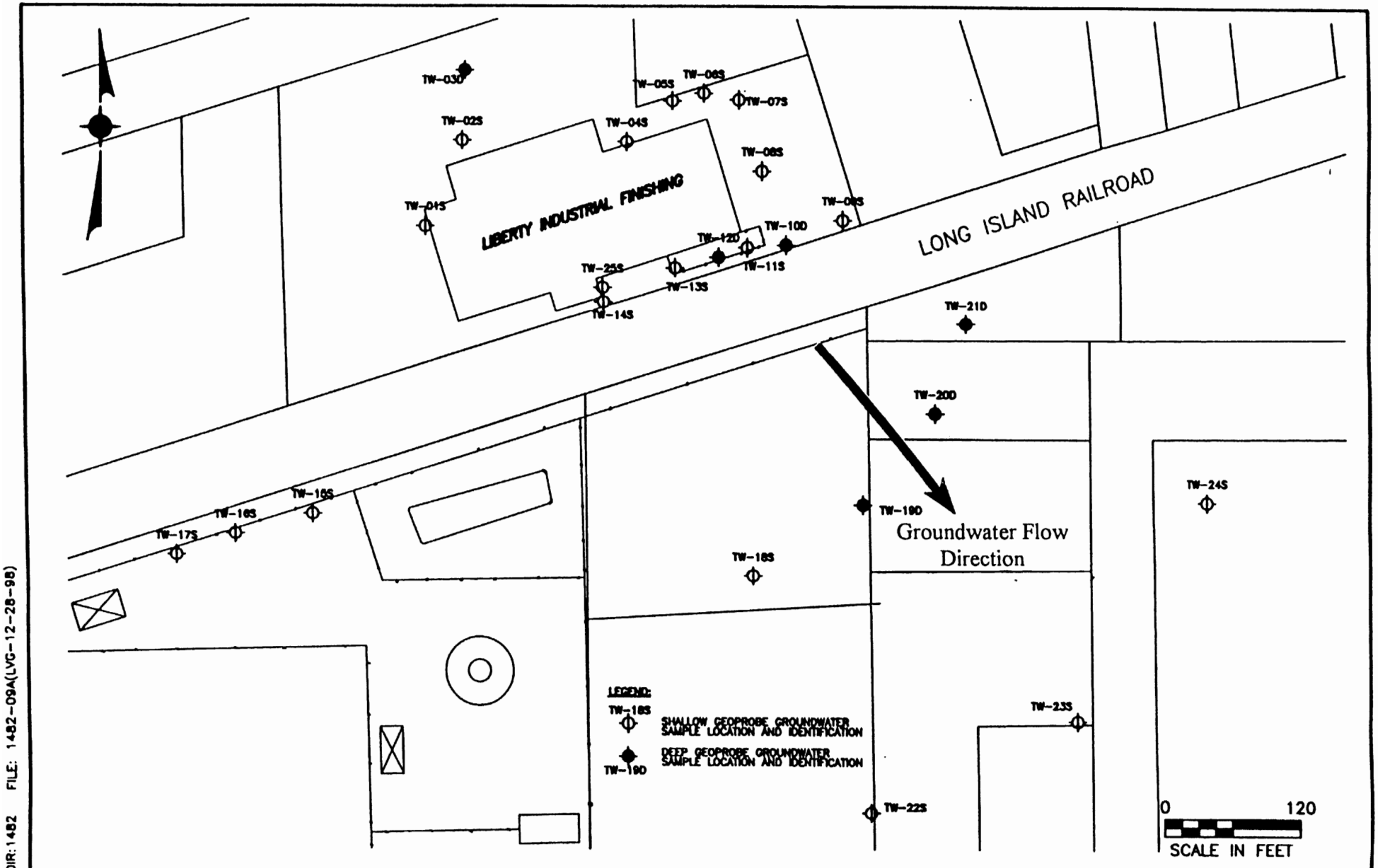
FIGURE 6

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REMEDIAL INVESTIGATION/FEASIBILITY STUDY
BRENTWOOD, NEW YORK

GEOPROBE GROUNDWATER SAMPLE LOCATIONS

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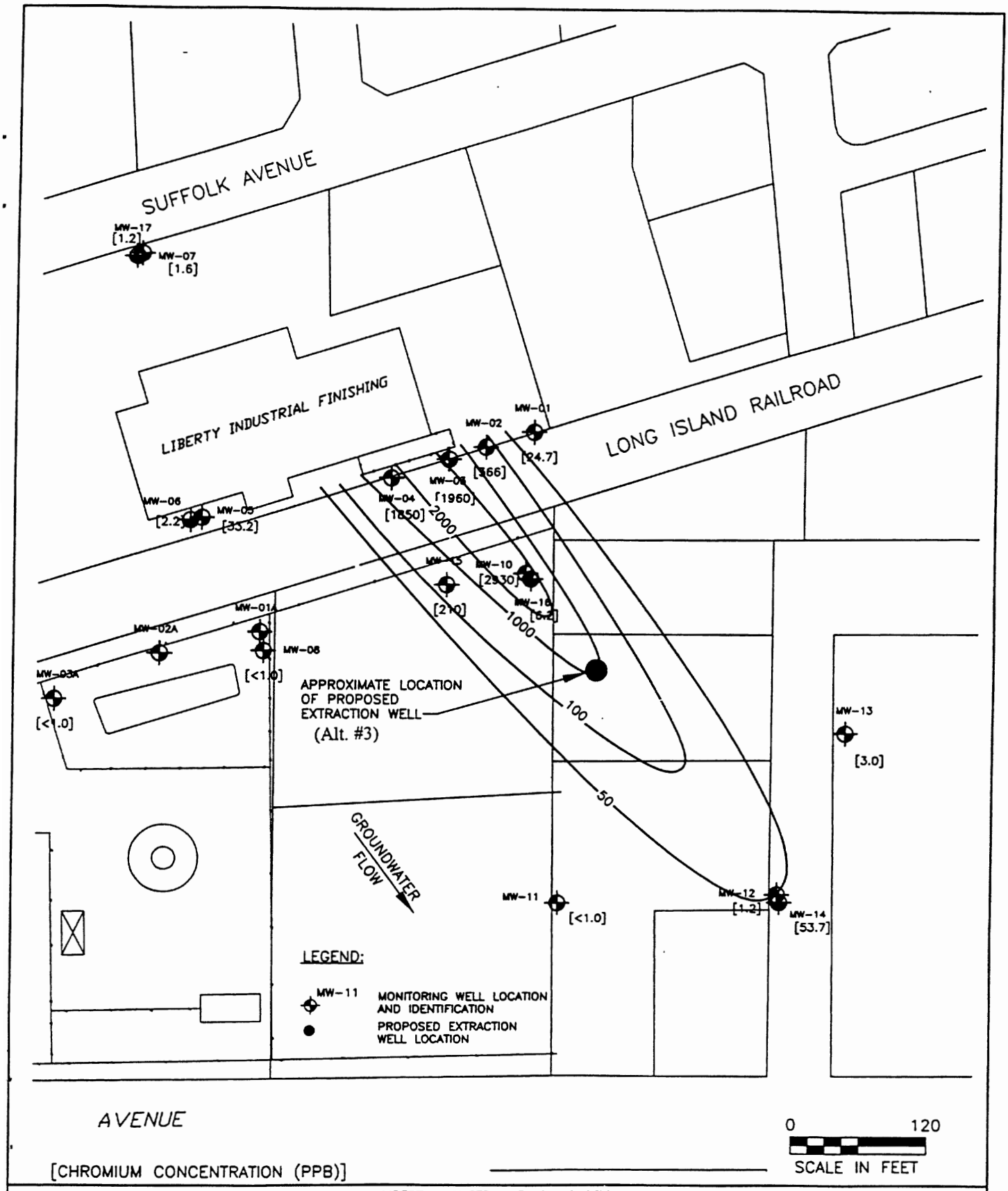
FIGURE 7




LIBERTY INDUSTRIAL FINISHING SITE
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
BRENTWOOD, NEW YORK

## GROUNDWATER CONTAMINATION CONTOURS SAMPLE RESULTS FOR CHROMIUM

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FIGURE 8

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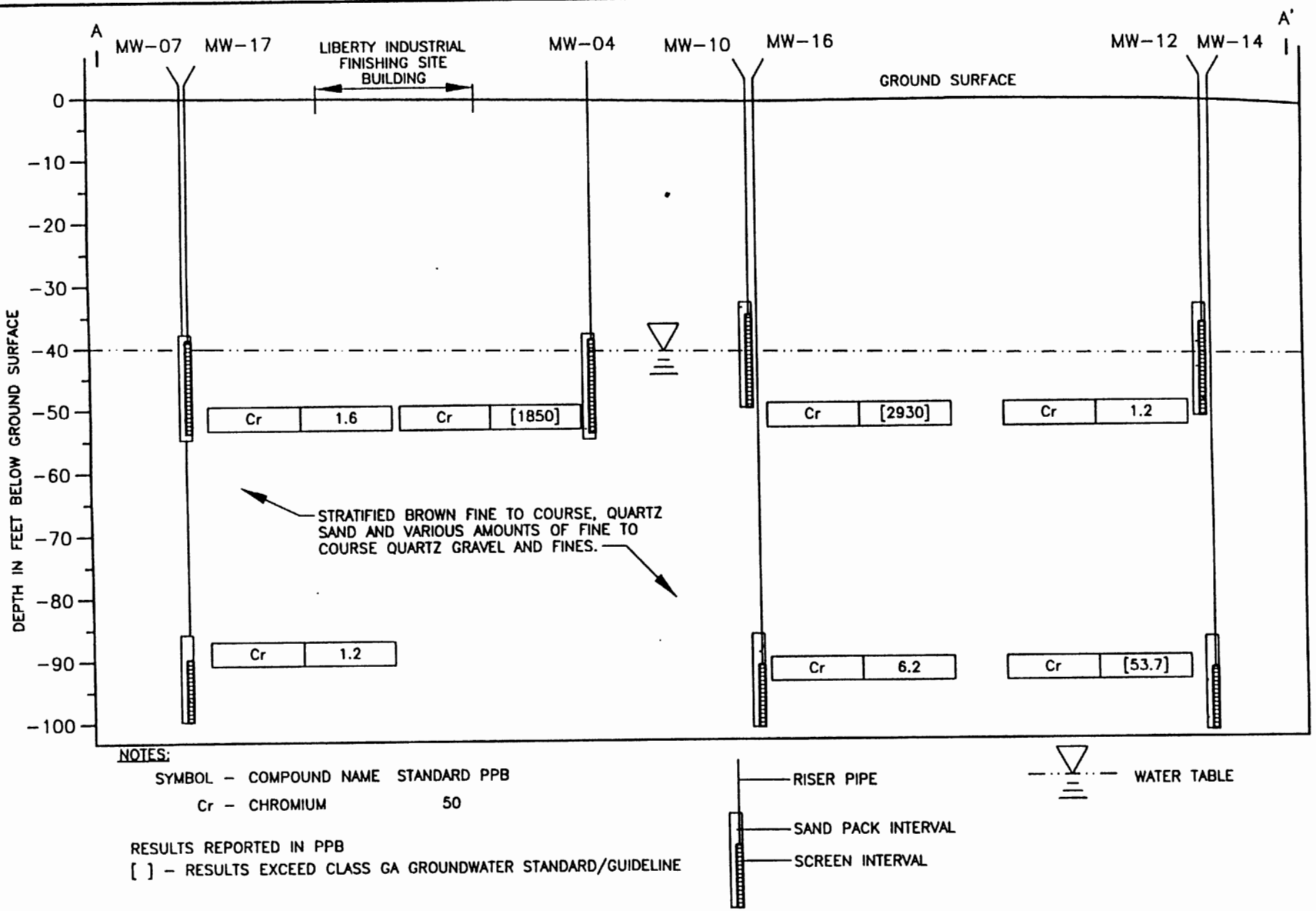


LIBERTY INDUSTRIAL FINISHING SITE
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BRENTWOOD, NEW YORK

# CHROMIUM CONTAMINATION CROSS-SECTION

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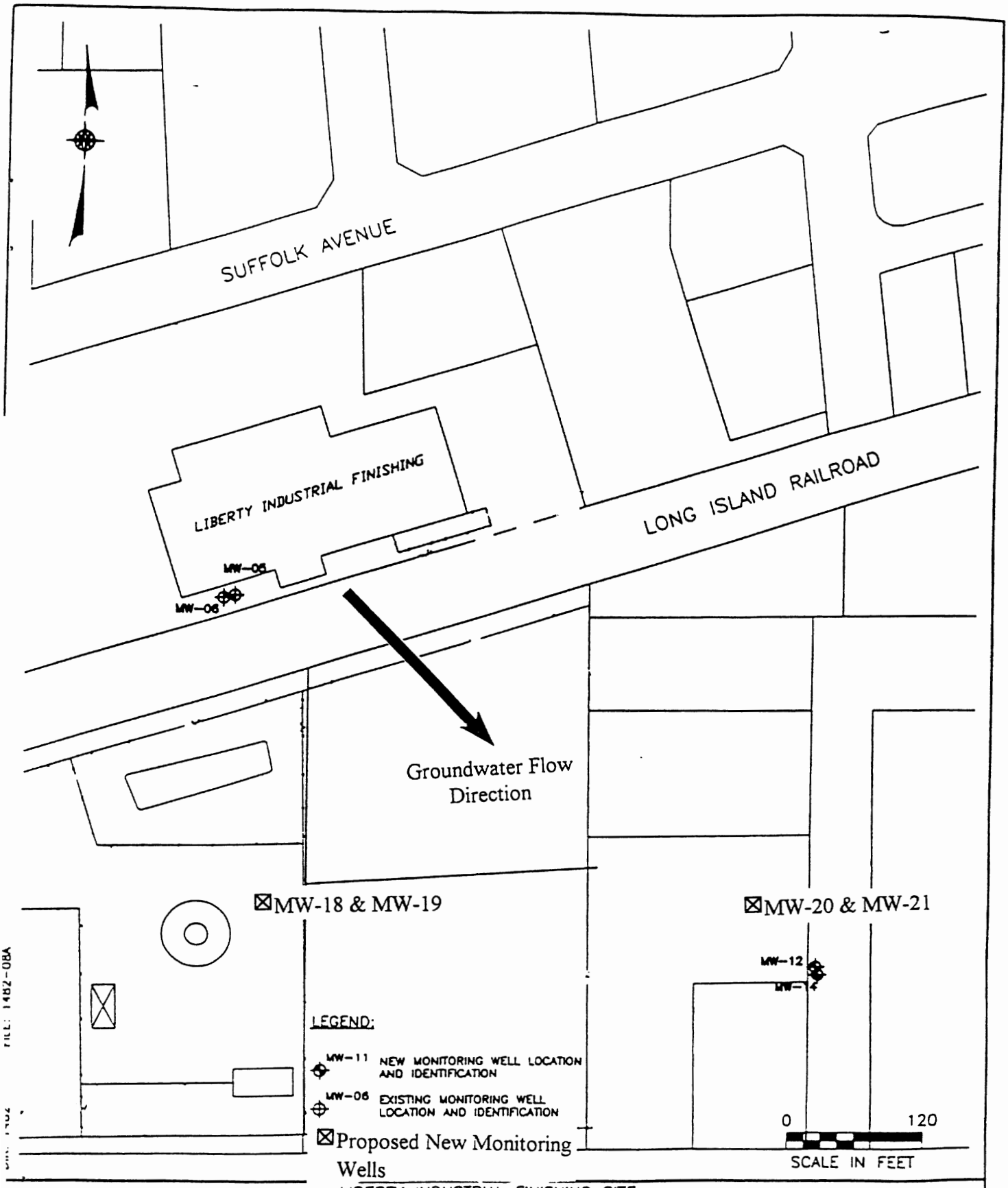
FIGURE 9




LIBERTY INDUSTRIAL FINISHING SITE
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BRENTWOOD, NEW YORK

LONG-TERM MONITORING WELL LOCATIONS

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FIGURE 10

# TABLE 1
# LIBERTY INDUSTRIAL FINISHING SITE (1-52-108)
# SURFACE SOIL SAMPLE RESULTS
# SAMPLED FROM APRIL TO JUNE 1997

| SAMPLE LOCATION | On-site | | Off-site | | | | Background** | | Soil Cleanup Objectives |
|---|---|---|---|---|---|---|---|---|---|
| | | | Athletic Field* | | Water District* | | | | |
| SAMPLE DEPTH, INCHES | 0-2 | 2-6 | 0-2 | 2-6 | 0-2 | 2-6 | 0-2 | 2-6 | |
| METALS | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm |
| | | | | | | | | | |
| Arsenic | BSC | BSC | BSC-381 | BSC-967 | BSC-7.6 | BSC | 3.83 | 3.27 | 7.5 |
| Barium | BSC | BSC | BSC | BSC | BSC-943 | BSC | 24.1 | 20.2 | 300 |
| Beryllium | BSC-0.50 | 12.8-35.4 | BSC-1.5 | BSC-0.84 | 0.72-17.8 | BSC-5.8 | 0.26 | 0.23 | 0.24*** |
| Cadmium | BSC-277 | 10.6-35.4 | BSC | BSC | BSC | BSC | 0.24 | ND | 10 |
| Chromium | BSC-412 | BSC-80.5 | BSC-74.6 | BSC | BSC-1,010 | BSC-264 | 10.8 | 8.4 | 50 |
| Cobalt | BSC | BSC | BSC-35.9 | BSC | BSC-393 | BSC-106 | 2.77 | 2.33 | 30 |
| Copper | BSC-145 | BSC-48.3 | BSC-208 | BSC-37 | BSC-3,130 | 128-1,020 | 7.8 | 5.7 | 25 |
| Iron | BSC-43,000 | BSC | BSC-22,400 | BSC-44,700 | 10,500-153,000 | BSC-54,300 | 11,347 | 8,627 | 10,000*** |
| Lead | BSC | BSC | BSC | BSC | BSC-2,220 | BSC-1,360 | 60.7 | 52.7 | 400 |
| Mercury | BSC-1.5 | BSC | BSC-0.43 | BSC-0.36 | BSC | BSC-0.44 | ND | ND | 0.1 |
| Nickel | BSC-146 | 13.9-63.0 | BSC-77.1 | BSC-18.8 | 50.3-1,050 | BSC-437 | 6.33 | 5.03 | 13 |
| Selenium | BSC | BSC | BSC-4.5 | BSCD-2.5 | BSC-50.1 | BSC-11.5 | 1.06 | 1.00 | 2 |
| Vanadium | BSC | BSC | BSC | BSC | BSC | BSC | 17.1 | 13.7 | 150 |
| Zinc | 52.9-607 | 89.8-180 | BSC-728 | BSC-182 | 408-3,540 | 66.8-2,730 | 58.6 | 34.8 | 47*** |

BSC - below soil cleanup objectives

ND - indicates that the analyte was not detected

* Samples collected before IRM

** Background samples collected at Brentwood Public Library, located 1600 feet east of site

*** Soil Cleanup Objectives calculated by averaging of six background soil samples

**TABLE 2**
**LIBERTY INDUSTRIAL FINISHING SITE (1-52-108)**
**SUMMARY OF EXCEEDANCES OF NYSDEC RECOMMENDED SOIL CLEANUP OBJECTIVES**
**SUBSURFACE SOIL SAMPLES**
**TAL METALS**

| SAMPLE LOCATION | On-Site (UST Area) | | | | | | | | | | NYSDEC SOIL CLEANUP OBJECTIVES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID | B-12S | B-14S | B-15S | B-16D | B-17S | B-18S | B-19S | B-20D | B-29D | B-29D | |
| SAMPLE DEPTH, FT | 12-16 | 12-16 | 2-6 | 12-16 | 8-12 | 12-16 | 8-12 | 8-12 | 0-4 | 4-8 | |
| DATE SAMPLED | 3/11/98 | 3/12/98 | 3/12/98 | 3/12/98 | 3/12/98 | 3/12/98 | 3/6/98 | 3/6/98 | 3/10/98 | 3/10/98 | |
| METALS | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm | ppm |
| Cadmium | **126** | **19** | **118** | 7 | **19.7** | 6.7 | **22.7** | 0.96 | 1.4 | 0.4 | 10 |
| Chromium | 12.9 | 6.4 | **972** | 27.5 | 30.9 | 3.1 | 3 | 5.4 | **1320** | **1530** | 50 |
| Copper | 3.9 | 6.8 | **87.8** | 8.3 | 3.8 | 18.6 | 2.8 | 1.3 | **39.8** | **31.6** | 25 |
| Nickel | 8.6 | 7.6 | **139** | **14.8** | 9.3 | **18.7** | **17.4** | **13.2** | **22** | 9.9 | 13 |
| Cyanide* | 8.08 | 5.58 | 14.6 | ND | 17.9 | 2.13 | 5.38 | ND | ND | ND | |

NOTES
Results in bold exceed NYSDEC Recommended Soil Cleanup Objectives
*Detections of Cyanide - no NYSDEC Recommended Soil Cleanup Objective
ND: Not Detected

**TABLE 3**
**LIBERTY INDUSTRIAL FINISHING SITE (1-52-108)**
**SUMMARY OF EXCEEDANCES OF NYSDEC RECOMMENDED SOIL CLEANUP OBJECTIVES**
**DRYWELL/LEACHING POOL SEDIMENT/SLUDGE SAMPLES**

| SAMPLE LOCATION | Sanitary Leaching Pools | Storm Water Dry Wells | | | | NYSDEC Soil Cleanup Objectives (mg/kg) |
|---|---|---|---|---|---|---|
| SAMPLE ID | S-07 | S-03 | S-13 | S-14 | S-15 | |
| SAMPLE DEPTH | 0-2" | 0-2" | 0-2" | 0-2" | 0-2" | |
| DATE OF COLLECTION | 12/19/97 | 12/19/97 | 12/19/97 | 12/19/97 | 12/19/97 | |
| | | | | | | |
| SEMIVOLATILE ORGANICS (ppb) | | | | | | |
| Phenol | ND | **77** | ND | **120** | **1300** | 30 |
| Dimethyl Phthalate | ND | 140 | **2300** | **3500** | **2300** | 2000 |
| Benzo(a)anthracene | 130 | **790** | **860** | **920** | **1900** | 224 |
| Chrysene | 240 | **2000** | **1300** | **1600** | **2600** | 400 |
| Benzo(b)fluoranthene | 75 | **1200** | 920 | **1300** | **2000** | 1100 |
| Benzo(k)fluoranthene | 72 | **1300** | 1100 | **1200** | **1600** | 1100 |
| Benzo(a)pyrene | **120** | **760** | **1000** | **1100** | **2000** | 61 |
| Dibenzo(a,h)anthracene | ND | ND | ND | **170** | ND | 14 |
| Total CaPAHs*** | 637 | 6050 | 5180 | 6290 | **10100** | 10000 |
| | | | | | | |
| METALS (mg/kg) | | | | | | |
| Beryllium | ND | **0.42** | **0.54** | ND | **0.4** | 0.24** |
| Cadmium | **89.8** | **303** | **52.8** | **186** | **34.9** | 10 |
| Chromium | **148** | **579** | **330** | **314** | **191** | 50 |
| Copper | **519** | **131** | **172** | **208** | **62.5** | 25 |
| Iron | 6380 | **10700** | 7980 | 9630 | **12800** | 10000** |
| Mercury | **0.96** | ND | ND | ND | ND | 0.1 |
| Nickel | 11.5 | **102** | **51.7** | **67** | **31.9** | 13 |
| Selenium | **3.8** | 2 | 1.1 | 2 | 1.2 | 2 |
| Zinc | 127 | **528** | **554** | **866** | **248** | 47** |
| Cyanide | 2.6* | ND | 6.69* | ND | 4.34* | |

NOTES
Results in bold exceed NYSDEC Recommended Soil Cleanup Objectives
*:Detections of Cyanide - no NYSDEC Recommended Soil Cleanup Objective
**: Soil cleanup objectives calculated using results from background samples SS-30, SS-32, SS-33
***: CaPAH refers to Carcinogenic polyaromatic hydrocarbons
ND: Not Detected

**TABLE 4**
**LIBERTY INDUSTRIAL FINISHING SITE (1-52-108)**
**SUMMARY OF EXCEEDANCES OF NEW YORK STATE GROUNDWATER STANDARDS**
**GROUNDWATER MONITORING WELL SAMPLES**

| SAMPLE TYPE | Shallow Wells (50 feet bgs) | | | Deep Wells (100 feet bgs)* | | | NYSDEC Groundwater Standards (ppb) |
|---|---|---|---|---|---|---|---|
| SAMPLE LOCATION | Upgradient | On-site | Downgradient | Upgradient | On-site | Downgradient | |
| | (ppb) | (ppb) | (ppb) | (ppb) | (ppb) | (ppb) | |
| SAMPLE DATE | 12/97 & 6/98 | 12/97 & 6/98 | 12/97 & 6/98 | 6/98 | 12/97 & 6/98 | 12/97 & 6/98 | |
| | | | | | | | |
| Antimony | BGA | BGA-22.5 | BGA-20.7 | 4.9 | BGA | BGA | 3 |
| Cadmium | BGA | BGA-16.3 | BGA-369 | BGA | BGA | BGA-15.2 | 10 |
| Chromium | BGA | BGA-3,600 | BGA-3,070 | BGA | BGA | BGA-53.7 | 50 |
| Sodium | 27,700-43,200 | BGA-90,200 | BGA-41,100 | BGA | BGA | BGA-27,200 | 20000 |
| Cyanide | BGA | BGA-417 | BGA | BGA | BGA | BGA | 100 |

NOTES
BGA: Result does not exceed NYSDEC Groundwater Standards
*: The on-site deep well was screened at 265 feet bgs

**TABLE 5**
**LIBERTY INDUSTRIAL FINISHING SITE (1-52-108)**
**GEOPROBE GROUNDWATER SAMPLING RESULTS**

| SAMPLE TYPE | Shallow Samples (50 feet bgs) | | | Deep Samples (100 feet bgs) | | | NYSDEC Class GA |
|---|---|---|---|---|---|---|---|
| SAMPLE LOCATION | Upgradient | On-site | Downgradient | Upgradient | On-site | Downgradient | Groundwater |
| | (ppb) | (ppb) | (ppb) | (ppb) | (ppb) | (ppb) | Standards |
| SAMPLE DATE | 2/98-3/98 | 2/98-3/98 | 2/98-3/98 | 2/98-3/98 | 2/98-3/98 | 2/98-3/98 | (ppb) |
| | | | | | | | |
| Antimony | 6.2 | 3.9-35.7 | 3.1-9.2 | 6.1 | 4.1-8.9 | 6.3-8.6 | 3 |
| Arsenic | 26.3 | BGA-34.7 | BGA-27.2 | 60.9 | BGA-26.2 | 34.9-70.6 | 25 |
| Beryllium | BGA | BGA-5.2 | BGA-3.7 | 6.8 | BGA-3.2 | 5.8-7.7 | 3 |
| Cadmium | BGA | BGA-22.8 | BGA-18.9 | BGA | BGA | BGA-14.2 | 10 |
| Chromium | 1510 | 174-9,070 | 359-1,930 | 2,680 | 941-1,170 | 1,880-4,290 | 50 |
| Copper | BGA | BGA-342 | BGA | 503 | BGA-248 | 223-508 | 200 |
| Iron | 178,000 | 14,800-467,000 | 54,600-312,000 | 424,000 | 112,000-198,000 | 275,000-676,000 | 300 |
| Lead | 63.3 | BGA-571 | BGA-91.6 | 194 | 27.2-76.6 | 89.7-231 | 25 |
| Manganese | 5,860 | BGA-5,860 | 1,780-7,600 | 10600 | 2,660-3,180 | 4,770-13,400 | 300 |
| Selenium | 14.9 | BGA-16.4 | BGA-14.8 | 28.4 | BGA-19.1 | 13.2-27.6 | 10 |
| Sodium | BGA | BGA-88,500 | BGA-34,400 | 20900 | BGA-22,200 | 22,000-27,000 | 20,000 |
| Thalium | BGA | BGA-15.4 | BGA-14.7 | 14.5 | BGA-8.2 | 14.6-33 | 4 |
| Zinc | 679 | BGA-1940 | BGA-1,170 | 993 | BGA-467 | BGA-1,660 | 300 |

Notes
BGA: Below New York State Groundwater Limit
All samples were unfiltered

**Table 6**
**Remedial Alternative Costs**

| Remedial Alternative | Capital Cost | Annual O&M | Total Present Worth |
|---|---|---|---|
| Alt. #1: No Further Action | $0 | $17,200 | $264,000 |
| Alt. #2: Source Removal and Mitigation and Assessment of On-Site and Off-Site Groundwater Quality | $237,700 | $17,200 | $501,700 |
| Alt. #3: Source Removal and Mitigation and Treatment of Contaminated Groundwater | $1,102,000 | $148,000 | $2,946,000 |

# APPENDIX A

## Responsiveness Summary

# RESPONSIVENESS SUMMARY

**Liberty Industrial Finishing Site**
**Proposed Remedial Action Plan**
**Town of Islip, Suffolk County**
**Site No. 1-52-108**

The Proposed Remedial Action Plan (PRAP) for the Liberty Industrial Finishing site, was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repositories on February 24, 1999. This Plan outlined the preferred remedial measure proposed for the remediation of the contaminated soil, sediment, and groundwater at the Liberty Industrial Finishing site. The preferred remedy is source removal and assessment of on-site and off-site groundwater quality.

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

A public meeting was held on March 11, 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. Written comments were received from Assemblyman Paul Harenberg, Mr. Sy Robbins of the Suffolk County Department of Health Services (SCDHS), and Ms. Elsa Ford of the Brentwood/Bayshore Breast Cancer Coalition.

The public comment period for the PRAP ended on March 26, 1999.

This Responsiveness Summary responds to all questions and comments raised at the March 11, 1999 public meeting and to the written comments received.

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

**COMMENT 1:** Why aren't the Brentwood water supply wells tested quarterly instead of annually?

**RESPONSE 1:** According to the Suffolk County Department of Health Services, the wells are tested twice each year: once by the SCDHS and once by the Brentwood Water District. In addition to the annual samples, both the Brentwood Water District and the SCDHS test several distribution samples throughout the year. The SCDHS indicated that the current testing frequency is sufficient because of the well depths (minimum 450 feet bgs). They indicated that any contamination entering the public water supply would be detected before a public health risk occurs.

**COMMENT 2:** The Fact Sheet indicated that the surface soils at the Town of Islip Athletic Field were contaminated with metals? Is there a public health risk for children utilizing the athletic field?

**RESPONSE 2:** The only contaminated soils found at the athletic field were located in a small area at the southwest corner of the property. These soils were excavated by the Town of Islip and disposed of off-site. The area was then filled with clean soil. Since no known contaminated soil remains at the athletic field, the field is not a public health risk.

**COMMENT 3:** The RI predicted dire consequences for the groundwater and public water supply. However, the FS appeared to discount the groundwater contamination. Why is the groundwater contamination being discounted?

**RESPONSE 3:** The RI data indicate that the groundwater contamination plume continues to be fed by the on-site source areas. Since all of the on-site source areas will be removed and/or mitigated as part of the selected remedy, the groundwater contamination will naturally attenuate to meet NYSDOH drinking water standards. The Brentwood Public Water Supply Wells are located at 450 feet bgs while the groundwater contamination is limited to the upper aquifer (50 feet bgs). The groundwater flows southeast while the public supply wells are located southwest of the site.

**COMMENT 4:** Six hundred children use the Town of Islip Athletic Field. Will these children be protected from airborne contaminants during construction of the remedy? Can the construction be delayed until after August 1, 1999, which is the end of the youth baseball season?

**RESPONSE 4:** Before construction of the remedy begins, a Community Health and Safety Plan will be implemented to protect nearby residents from potential impacts from the construction activities. The construction schedule can be arranged to coordinate with the athletic field schedule. A public meeting will be planned before construction activities begin to address issues related to construction of the remedy.

**COMMENT 5:** Can the soils at the Town of Islip Athletic Field be tested following construction of the remedy?

**RESPONSE 5:** Yes, the athletic field surface soils will be tested before commencement and after completion of construction activities to determine if they were impacted by construction activities.

**COMMENT 6:** Could the contaminated groundwater seep into basements?

**RESPONSE 6:** The water table is located at approximately 50 feet bgs, well below the depth of a residential basement. The contaminants are metals which tend to bind to the soil, rather than emit vapors. Therefore, groundwater contamination related to the Liberty Industrial site will not affect residential basements.

**COMMENT 7:** Could contamination be present in the groundwater south of the furthest monitoring wells? Groundwater downgradient of the site should be tested until chromium concentrations of zero are detected.

**RESPONSE 7:** Since the furthest downgradient wells detected metals concentrations that meet or marginally exceed NYSDOH drinking water standards, it is unlikely that groundwater contamination would be found further downgradient. However, additional monitoring wells will be placed further downgradient of the site to insure that groundwater contamination has not migrated further downgradient of the site and monitor the effectiveness of the implemented remedy.

**COMMENT 8:** Deeper profile testing should be taken to determine if discharges from the 1970's have washed down to deeper groundwater levels upgradient of the Brentwood Water District well field. More outpost monitoring wells are needed.

**RESPONSE 8:** The on-site nature and extent of on-site groundwater contamination has been sufficiently characterized by an extensive groundwater sampling program including the analysis of Geoprobe groundwater samples and groundwater monitoring well samples at various depths. The results of this investigation indicate that the groundwater contamination plume is limited to the area southeast of the Liberty Industrial site, which is east of the Brentwood Water District supply wells. However, the NYSDEC will be installing outpost monitoring wells upgradient of the supply wells at 150 feet bgs and 250 feet bgs to detect any contamination that may affect the supply wells before contaminants reach them. Remedial actions would be considered in the unlikely event that the outpost monitoring wells detect contamination.

**COMMENT 9:** Were any soil samples taken directly below the underground tanks?

**RESPONSE 9:** No soil samples were obtained below the underground tanks because the sampling activities would have interfered with the in-place closure of the tanks. However, several subsurface soil samples were obtained directly adjacent to the tanks and should have similar contaminants and concentrations as the soils directly below the tanks.

**COMMENT 10:** Two citizens requested that the underground tanks be removed and that the soil beneath the tanks be excavated. They indicated that the soil below the tanks may be the most contaminated soil at the site. Was the decision to leave the tanks in the ground based on financial rather than health and environmental reasons?

**RESPONSE 10:** The underground tanks were properly closed in place as part of the EPA removal action. The remaining liquid was pumped from the tanks and the tanks were cleaned and sandblasted. The tanks were then filled with clean soil and capped with concrete. Since the underground tank and pipe gallery area will be capped with asphalt and the underground tanks have been closed in place with a concrete cap, the remaining contaminants in the subsurface soil will be immobilized. However, if tank removal were performed, the adjacent Long Island Railroad line would be shut down because of the presence of a high-voltage underground power line and the integrity of the on-site building may be compromised. Since tank removal would

present these significant disadvantages and would only provide a marginal benefit, the tanks will not be removed as part of the remedy.

**COMMENT 11:** What are the human health effects of chromium?

**RESPONSE 11:** Inhalation of high levels of chromium can cause irritation to the nose. Long-term exposure to airborne chromium has been associated with lung cancer in workers exposed to levels that were 100 to 1,000 times higher than those found in the environment. Certain people have an allergy to chromium which causes skin rashes upon dermal contact. Ingestion of large amounts of chromium can cause damage to the kidneys, liver, and stomach. However, the chromium contamination levels associated with this site are not expected to result in any adverse health effects.

**COMMENT 12:** There have recently been several cases of childhood Leukemia in the Brentwood area. Has a Leukemia study been done in the Brentwood area? Can a GIS mapping study or site-specific analysis be done for this site?

**RESPONSE 12:** No cancer case verification study has been performed in the Brentwood area by the NYSDOH. A cancer case verification study or case review involves confirming suspected cancer cases and an examination of the characteristics of the confirmed cases in order to detect any unusual patterns that would indicate the need for further investigation. Approximately one in 300 children will be diagnosed with some type of cancer between birth and age 19. Leukemia is the most common childhood cancer, accounting for approximately one third of all childhood cancer cases. The number of leukemia cancer cases that might be associated with one specific site is usually too small for a statistical analysis to be conducted. However, if specific information on the suspected cases is sent to the NYSDOH, staff will use the Cancer Registry to confirm the cases and will review them to see if they show an unusual pattern. Researchers use geographical mapping programs and databases (GIS) when they conduct a case review.

A letter dated February 16, 1999 was received from Assemblyman Paul Harenberg which included the following comments:

**COMMENT 1:** He and his constituents are anxious and worried about the soil contaminants of cadmium and chromium. He urged us to give this project an expedited position on our list of projects awaiting action.

**RESPONSE 1:** This project has been given a high priority by the NYSDEC. With the issuance of this ROD, design of the remedy and construction of the remedy will follow.

A copy of the letter from Mr. Harenberg is attached.

A letter dated March 12, 1999 was received from Mr. Sy Robbins of the SCDHS which included the following comments:

**COMMENT 1:** The abandonment of the tanks in place does not conform to the requirements of Article 12 of the Suffolk County Sanitary Code.

**RESPONSE 1:** The referenced section of the Suffolk County Sanitary Code indicates that the removal of abandoned underground storage tanks is required except under certain extenuating circumstances. These circumstances exist with respect to the tanks at the Liberty Industrial site. Removal of the tanks would have required interruption of railroad service because a high-voltage underground power line would have been shut off during tank removal. Instead, the tanks were closed in place by emptying the contents, cleaning and sandblasting the tanks, filling the tanks with sand, and capping them with concrete.

**COMMENT 2:** The design of the outpost monitoring wells should be finalized with input from the SCDHS, and will probably require the collection of vertical profile data prior to the selection of screened intervals.

**RESPONSE 2:** As discussed at the public meeting, the NYSDEC will consult with the SCDHS in placing the downgradient monitoring wells.

A copy of Mr. Robbins' letter is attached.

A letter dated March 25, 1999 was received from Ms. Elsa Ford of the Brentwood/Bayshore Breast Cancer Coalition which included the following comments. Other comments are responded to elsewhere in the Responsiveness Summary.

**COMMENT 1:** The building should be tested after the clean up to be sure there will be no exposure from future use.

**RESPONSE 1:** The interior of the building, including the flooring, was remediated as part of the EPA Emergency Removal Action. The emergency removal action included the following tasks: pressure washing of process vats; vacuuming and pressure washing of floors; removal of contaminated debris from vat areas and floors; and packaging all waste materials in drums for off-site disposal at a permitted disposal facility. Since the EPA performed a thorough cleanup of the on-site building, no further testing is needed in the interior of the building.

**COMMENT 2:** A number of health-related issues were not addressed as part of this investigation such as: exposure to a combination of toxins, routes of exposure, and especially sensitive individuals.

**RESPONSE 2:** As stated in the February 1999 Feasibility Study Report, an exposure assessment was performed for the site to determine the constituents of concern and the possible routes of exposure. Several constituents were identified in on-site soils as being in excess of DEC standards, criteria and guidelines (SCGs), however, chromium was the only contaminant in the groundwater that presented a potential health concern. What is important to remember is whether or not the exposure pathways are completed. The routes of exposure examined in the exposure assessment

were again discussed at the March 11, 1999 PRAP meeting. These routes are inhalation, direct contact and ingestion.

Inhalation of contaminated dust or dirt, during remedial activities, by children playing on the ballfield directly south of the site is a potential exposure pathway. This pathway, however, will be prevented by the community health and safety plan which is used to protect the community from exposures to site-related contaminants during any kind of site-related remedial activity, usually involving the disturbance of soils. Particulate air monitoring was included during the RI activities and will be included in the remedial construction in the protective procedures to prevent contaminated dusts or particulates from leaving the site.

Direct contact is an exposure pathway which is unlikely to be completed since the majority of soil contamination on-site is subsurface. Surface soil contamination has been identified, but is located in an area that is not easily accessible to trespassers. Surface soil contamination will be remediated as a part of the selected remedy. Off-site soil contamination identified in the athletic field and at the Brentwood water district were determined to originate from sources other than the site. Contamination identified in these areas has been removed.

Ingestion of site-related contaminants is not considered an exposure pathway that will be completed since the on-site and off-site groundwater contamination is currently not affecting any public supply or private wells. Site-related groundwater contamination, chromium, has been detected no deeper than 50 feet below ground surface (BGS). The groundwater flow direction has been determined to be to the southeast. The closest supply well, the Brentwood water district, is located to the southwest with wells 450 and 700 feet BGS, much deeper than the current groundwater contaminant plume.

Although sensitive individuals are not specifically referenced within the data, determination of exposure pathways considers sensitive populations such as children and the elderly.

A copy of Ms. Ford's letter is attached.

# THE ASSEMBLY
# STATE OF NEW YORK
# ALBANY

PAUL HARENBERG
Assemblyman 5th District
Room 724
Legislative Office Building
Albany, New York 12248
(518) 455-5937

1217-2 Montauk Highway
Oakdale, New York 11769
(516) 589-8685

CHAIRMAN
Majority Steering Committee

COMMITTEES
Higher Education
Mental Health
Veterans Affairs
Ways & Means

February 16, 1999



Raymond Cowen, Regional Director
New York State Dept. of Environmental Conservation
State University of New York
Bldg. 40
Stony Brook, New York 11790

Dear Mr. Cowen:

I write to urge your good faith efforts to expedite plans for a clean-up of the site of the former Liberty Industrial Plant in Brentwood.

My constituents and I are anxious and worried about the soil contaminants of cadmium and chromium. We are anxious that the clean-up happen soon, for fear that pedestrians and youngsters who traffic that area may be hurt. The Liberty site is not far from a school and a library.

I join Supervisor McGowan, Rev. McGowan, and Elsa Ford, as well as all the residents of the Brentwood community in urging that you give this project an expedited position in your list of projects awaiting action.

Thank you.

Very truly yours,

Paul Harenberg

PAUL HARENBERG
Member of Assembly

PH:gb

# COUNTY OF SUFFOLK

ROBERT J. GAFFNEY
SUFFOLK COUNTY EXECUTIVE

DEPARTMENT OF HEALTH SERVICES

CLARE B. BRADLEY, M.D., M.P.H.
COMMISSIONER

March 12, 1999



Mr. Jeffrey Dyber, Project Manager
Division of Environmental Remediation
NYS Dept. of Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010

Dear Mr. Dyber:

RE: PRAP FOR LIBERTY INDUSTRIAL FINISHING (#152108)

On behalf of the Suffolk County Department of Health Services, I would like to offer the following comments on the Proposed Remedial Action Plan for Liberty Industrial Finishing, Brentwood (Site #152108) prepared by the Division of Environmental Remediation (Jan. 1999):

The proposed remedy, which includes soil removal from the underground tank and pipe gallery area, installation of an asphalt cap over this area, removal of contaminated sediment from four stormwater drywells and one sanitary leaching pool, institutional controls and deed restrictions, and long-term groundwater monitoring, should be protective of public health. You should be aware, however, that the abandonment of the tanks in place does not conform to the requirements of Article 12 of the Suffolk County Sanitary Code; you will, therefore, have to contact Mr. Alex Santino of the SCDHS' Office of Pollution Control at (516) 854-2529 to discuss future options. In addition, the design of the outpost monitoring wells should be finalized with input from me, and will probably require the collection of vertical profile data prior to the selection of screened intervals.

If you have any questions, please call me at (516) 853-3196.

Very truly yours,

Sy F. Robbins, C.P.G.
County Hydrogeologist

cc: A. Santino, SCDHS
J. Nealon, NYSDOH
B. Becherer, NYSDEC Region 1
G. Proios, Office Co. Exec.

BRENTWOOD/BAYSHORE
BREAST CANCER COALITION
POST OFFICE BOX 927
BRENTWOOD, N.Y. 11717-0993

To: Mr. Jeffrey L. Dyber
From: Elsa Ford
Ref: Liberty Industrial Finishing Site
Town of Islip, N.Y.
SITE #: 1-52-108

REMEDY FOR LIBERTY INDUSTRIAL FINISHING
TOWN OF ISLIP, N.Y.
SITE # 1-52-108

A remedy can not be selected before there is more information of the exact extent of contamination.

#1: Since there were reports of violations at the site since the '70's[1], the possibility of deeper groundwater contamination above the Brentwood Water District on the west end of the property should be explored. Deep profile testing should be taken to see if contaminants found a S03 dry well and leaching pool S07 for example, have washed down to deeper ground water levels upgradient of the Brentwood Water District well field. There is the possibility of both semi volatiles and metals presence. Heavy metals, usually immobile in soil can move more readily in combination with acid. Acid was involved in the Liberty processes. Ingestion of contaminated ground-water between testing periods of the Brentwood Water District is a possibility that must be addressed. Proposed monitoring wells 18 and 19 are too little, not addressing the upgradient possibility. Any findings would require changes in the proposed remedy. The sooner such threat is detected the better for the Brentwood Water District and community so that specific remedial actions could be taken. The remedy would have to be addressed in the ROD. Note that liberty is located in the Ground water Management Zone 1.

#2: The full extent of the plume from the tank farm has not been plotted to 0. This information is needed for exact determination. Profile testing with a number of screen levels is needed.

#3: I was told that Liberty signed a consent order to remove the underground storage tanks, but later claimed lack of funding. The DEC 4/98 IHWDS in NYS report notes that the EPA was waiting for final approval for appropriation of funds for a removal action. Was the decision to leave the tanks in based on financial rather than health and environmental reasons? The train schedule problem sited in the PRAP could be overcome by using diesel trains on a temporary basis while the problem is corrected. Leaving the tanks in prevents ground wager and other testing at the place where contamination is likely to be the greatest. A deep test well is needed here.

#4: Soil removal work can be scheduled with representatives of the Little League so that contaminated soil won't blow on children playing. This is a route of exposure. The soil at the Little League fields would have to be tested after the Liberty soil removal work is completed.

#5: There should be testing of the building after the clean up to be sure there will not be exposure from future use.

[1] PRAP page 5. "Plating wastes were discharged to various leaching pools throughout the site."

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# BRENTWOOD/BAYSHORE BREAST CANCER COALITION

#6: While granting that the health risk analysis follows current procedures and guidelines, there is reason to apply a stronger measure of prudent avoidance. This is due to the proximity of the Little League Ball Field and the Brentwood Water District. A number of issues not addressed in the current health analysis are exposure to a combination of toxins, routes of exposure, and especially sensitive individuals. For example the same child may eat the contaminated soil and breathe it.

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The need for extraction at proposed or other sites and levels cannot be ruled out at this point. Note that the site for the proposed extraction well on Figure 8 is not on the ball field as stated on page 16 of the PRAP, but on the American Legion property.

I request that these and other issues raised at the public meeting should be reviewed and presented at another public meeting before the writing of the ROD's final selection of remedy for this site.

Elsa Ford, President
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# APPENDIX B

## Administrative Record

## APPENDIX B
## LIBERTY INDUSTRIAL FINISHING ADMINISTRATIVE RECORD

1. Work Plan for Remedial Investigation/Feasibility Study of Liberty Industrial Finishing Site, Dvirka and Bartilucci Consulting Engineers, September 1997

2. Remedial Investigation Report for Liberty Industrial Finishing Site, Dvirka and Bartilucci Consulting Engineers, January 1999

3. Feasibility Study Report for Liberty Industrial Finishing Site, Dvirka and Bartilucci Consulting Engineers, February 1999

4. Proposed Remedial Action Plan for Liberty Industrial Finishing Site, NYSDEC, February 1999