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**Division of Environmental Remediation**

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**Record of Decision**  
**Metal Etching Co., Inc. Site**  
**Freeport, New York**  
**Site Number 130110**

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**March 2007**

New York State Department of Environmental Conservation  
ELIOT SPITZER, *Governor*

# **DECLARATION STATEMENT - RECORD OF DECISION**

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## **Metal Etching, Co. Inc. Inactive Hazardous Waste Disposal Site Freeport, New York Site No. 130110**

### **Statement of Purpose and Basis**

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

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

### **Assessment of the Site**

Actual or threatened releases 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/or the environment.

### **Description of Selected Remedy**

Based on the results of the Remedial Investigation and Feasibility Study (RI/FS) for the Metal Etching Co., Inc site and the criteria identified for evaluation of alternatives, the Department has selected the excavation of VOC and metals hot spots, limited excavation of sediments in Freeport Creek, continued operation of the on-site sub-slab depressurization systems, and monitoring of groundwater. The components of the remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. This will include delineating the boundaries of sediment excavation within Freeport Creek.
2. Hot spot excavation, to the extent practicable, of VOC and metal contaminated soil to the depth of groundwater table. Excavated material will be disposed of properly at an off-site facility. Excavated areas will be backfilled with soil meeting the requirements of 6 NYCRR Part 375.

3. Sediment in the on-site stormwater system will be removed and disposed of properly at an off-site facility.
4. Determination of the presence of any USTs on-site will be completed. If USTs are present, they will be closed and removed in accordance with NYSDEC regulations.
5. Areas that are not currently covered, and where excavation is not practicable, will receive a cover of asphalt or ballast underlain by a demarcation layer.
6. Upon completion of the additional Freeport Creek Study and delineation of site related contamination in the area of SED-04, a limited sediment removal from Freeport Creek will be completed.
7. A long-term groundwater monitoring program will be implemented to confirm the effectiveness of the remedy.
8. Imposition of an institutional control in the form of an environmental easement that will require (a) limiting the use and development of the property to commercial use, which will also permit industrial use, in conformance of local zoning; (b) compliance with the approved site management plan; (c) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) submission of a periodic certification of institutional and engineering controls to the Department by the property owner.
9. Development of a site management plan which will include the following institutional and engineering controls: (a) management of the final cover system to restrict excavation below the soil cover's demarcation layer, pavement, or buildings. Excavated soil will be tested, properly handled to protect the health and safety of workers and the nearby community, and will be properly managed in a manner acceptable to the Department; (b) continued evaluation of the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified; (c) monitoring of soil vapor and groundwater; (d) identification of any use restrictions on the site; and (e) provisions for the continued proper operation and maintenance of the components of the remedy.
10. Requirement of the property owner to submit a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that will impair the ability of the controls to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

11. Continued operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.
12. Since the remedy results in untreated hazardous waste remaining at the site, a long-term monitoring program will be instituted. A groundwater monitoring program will be implemented. This program will allow the effectiveness of the remedy to be monitored and will be a component of the long-term management for the site.

**New York State Department of Health Acceptance**

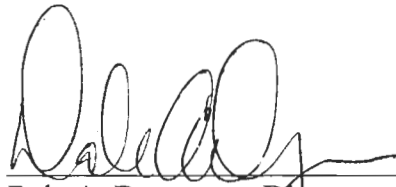
The New York State Department of Health (NYSDOH) concurs that the remedy selected for this site is protective of human health.

**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.

MAR 28 2007

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Date

  
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Dale A. Desnoyers, Director  
Division of Environmental Remediation

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# RECORD OF DECISION

**Metal Etching Co., Inc. Site  
Freeport, New York  
Site No. 130110  
March 2007**

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## **SECTION 1: SUMMARY OF THE RECORD OF DECISION**

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected this remedy for the Metal Etching Co., Inc site. The presence of hazardous waste has created significant threats to human health and/or the environment that are addressed by this remedy. As more fully described in Sections 3 and 5 of this document, historical operations and waste disposal practices have resulted in the disposal of hazardous wastes, including volatile organic compounds (VOCs) and metals. These wastes have contaminated the soil, groundwater, and sediment at the site, and have resulted in:

- a significant threat to human health associated with current and potential exposure to soil, soil vapor, and groundwater.
- a significant environmental threat associated with the current and potential impacts of contaminants to soil, groundwater, and sediment.

To eliminate or mitigate these threats, the Department has selected the excavation of VOC and metals hot spots, limited excavation of sediments in Freeport Creek, continued operation of the on-site sub-slab depressurization systems, and monitoring of groundwater.

The selected remedy, discussed in detail in Section 8, is intended to attain the remediation goals identified for this site in Section 6. The remedy must conform with officially promulgated standards and criteria that are directly applicable, or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, criteria and guidance are hereafter called SCGs.

## **SECTION 2: SITE LOCATION AND DESCRIPTION**

The Metal Etching site (site) is located in Nassau County at 435 South Main Street, Freeport, New York, adjacent to the Freeport Creek. A Site Location Map is presented as Figure 1. The site is approximately 1.05 acres (Figure 2). The site is currently used as a boat dealership, marina, and boat storage yard. Two buildings, a 2,400 sq ft maintenance building and a 1,200 sq ft office building, occupy the site. In addition to these buildings, a large two story boat storage rack is located along the southern border of the study area. The site is bounded to the north by Ray Street, to the west by South Main Street, and the south by Freeport Creek. The topography of the site is relatively flat, with a bulkhead along Freeport Creek.

The site is underlain by glacial outwash deposits that generally consist of varying amounts of sand, silt, and clay. The upper three to four feet of material on the eastern portion of the study area is made up of a densely compacted fill material consisting mainly of gravel and debris (such as brick and wood timbers). Below the fill material is a highly organic humus horizon composed of plant organics and shells. This horizon occurs between four and 11 feet below ground surface (bgs). Well-sorted sands and silts are present below this horizon to approximately 30 feet bgs. Between 30 and 35 feet bgs, clay was encountered. The total depth of the clay was not determined. However, the United States Geological Service (USGS) records indicate that this clay layer is approximately 20 feet in thickness.

Groundwater within the site, which is encountered between three to five feet bgs, is tidally influenced with radial flow towards Freeport Creek. Due to the study area's proximity to Freeport Creek, the shallow groundwater encountered at the study area is saline and therefore unsuitable for drinking. The nearest public supply well is located approximately 6,000 feet north (upgradient) of the study area, and thus is not impacted by the study area's contamination.

### **SECTION 3: SITE HISTORY**

#### **3.1: Operational/Disposal History**

According to available documents, the site has been used for commercial purposes since sometime prior to 1966. The exact date is unknown. Flores Manufacturing, a producer of handbags, operated at the site until 1966. Flores Manufacturing's handbag production process included decorative plating using nickel, chrome, and cadmium. From 1966 to 1999, Metal Etching Corporation manufactured metal nameplates, instrument panels, rulers, and miscellaneous plated products at the site. The process included anodizing, chromate conversion, and chrome/nickel plating. From 1973 to 1982, Metal Etching Corporation operated under the name of Plastic Associates. From 1982 until 1999, the company operated under the Metal Etching Corporation. All operations at the facilities were terminated by 1999. Most site buildings were demolished by 2001.

#### **3.2: Remedial History**

In 2001, the Department listed the site as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites in New York. A Class 2 site is a site where hazardous waste presents a significant threat to the public health or the environment and action is required.

In 2001, during the site building demolition, limited decontamination and investigatory work was performed under the oversight of NYSDEC. Two 4000-gallon tanks, which formerly contained ferric chloride, were decontaminated and removed. The concrete floor of the demolished building was also cleaned.

### **SECTION 4: 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 PRPs for the site, documented to date, include: Freeport Creek Associates, LLC; Metal Etching Company, Inc.; Plastics Associates (P.A. Industries); and Flores Manufacturing.



The PRPs declined to implement the RI/FS at the site when requested by the Department. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the Department will evaluate the site for further action under the State Superfund. The PRPs are subject to legal actions by the State for recovery of all response costs the State has incurred.

## **SECTION 5: SITE CONTAMINATION**

A remedial investigation/feasibility study (RI/FS) has been conducted to evaluate the alternatives for addressing the significant threats to human health and the environment.

### **5.1: 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 May 2004 and March 2005. The field activities and findings of the investigation are described in the RI report.

The Site RI was conducted using the Triad Approach to investigate site groundwater, soil, sediment, surface water, soil vapor, and indoor air. The Triad Approach is a dynamic methodology that allows for real-time data management to guide the field investigations. The remedial study area includes the 1.05 acre site and an additional 1.01 acres located immediately to the south and east that are operated with the site as one parcel. Major components of the RI included a utility survey and geophysical investigation, on-site and off-site soil gas survey, tidal study, indoor air sampling, and soil, groundwater, sediment and surface water sampling.

#### **5.1.1: Standards, Criteria, and Guidance (SCGs)**

To determine whether the soil, groundwater, sediment, soil vapor and indoor air contain contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Groundwater, drinking water, and surface water SCGs are based on the Department's "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.
- Soil SCGs are based on the Department's Cleanup Objectives ("Technical and Administrative Guidance Memorandum [TAGM] 4046; Determination of Soil Cleanup Objectives and Cleanup Levels." and 6 NYCRR Subpart 375-6-Remedial Program Soil Cleanup Objectives)
- Sediment SCGs are based on the Department's "Technical Guidance for Screening Contaminated Sediments."
- Concentrations of VOCs in air were evaluated using the air guidelines provided in the NYSDOH guidance document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," dated October, 2006.

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized in Section 5.1.2. More complete information can be found in the RI report.

### **5.1.2: Nature and Extent of Contamination**

This section describes the findings of the investigation for all environmental media that were investigated.

As described in the RI report, many soil, groundwater, soil vapor, indoor air, surface water and sediment samples were collected to characterize the nature and extent of contamination. As seen in Figures 3 through 10, the main categories of contaminants that exceed their SCGs are VOCs, and inorganics (metals). Primary VOCs detected include tetrachloroethene (PCE) and its degradation products trichloroethene (TCE), 1,2-dichloroethene (DCE), and vinyl chloride (VC). Other VOCs detected above their respective SCG include benzene, toluene, ethylbenzene, xylene, methyl tertiary-butyl ether (MTBE), naphthalene, and chlorobenzene. Metals detected are ubiquitous with historical industrial activities and include, but are not limited to, chromium, copper, nickel, and zinc. For comparison purposes, where applicable, SCGs are provided for each medium.

Chemical concentrations are reported in parts per billion (ppb) for water and parts per million (ppm) for soil, and sediment. Air samples are reported in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

Figures 3 through 10 summarize the degree of contamination for the contaminants of concern in soil and groundwater and compare the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

#### **Subsurface Soil**

The study area soil was characterized by the installation of 69 borings, collection of 273 soil samples which were analyzed for VOCs and metals. As presented in Figure 3, 25 samples at 17 sample locations detected VOCs above their respective SCGs. Benzene, toluene, ethylbenzene, xylene, MTBE, naphthalene, chlorobenzene, PCE, TCE, DCE, and VC were detected above their respective SCGs (Table 1). The distribution of VOCs in soil can be described as four different areas; eastern area, western area, eastern central area, and western central area. The contamination in the eastern portion of the site is predominately petroleum related compounds, with exceedances of ethylbenzene, chlorobenzene, and xylene. In the western portion of the site, near the location of the former fuel oil underground storage tank (UST), xylene and naphthalene were detected above their SCG.

The central portion of the site is divided into the eastern central area and the western central area. The western central area is at the southend side of the 1,200 sq ft building, slightly west of the former plating building. Only TCE was detected above its SCG in this area. The eastern central area of the site is located south of the 2,400 sq ft building and includes the former waste storage/drum storage area. PCE, TCE, and MTBE were the most frequently detected VOCs in this area that exceeded their SCGs. PCE concentrations ranged from non-detect (ND) to 4.3 ppm. TCE concentrations ranged from ND to 10 ppm, while MTBE concentrations ranged from ND to 1.5 ppm. Breakdown compounds of PCE and TCE were also detected in this area, but did not exceed their respective SCGs.

Metals were ubiquitously found across the site at concentrations exceeding their SCGs. The presence of metals in the soil is likely the result of historical activities, airborne pollution from the facility, and natural sources. The predominant constituents of concern are chromium, copper, nickel, and zinc (Table 1). In general, these metals were found at the highest concentrations in the upper seven feet of the soil. As shown on Figure 4, concentrations of metals decrease with depth.

In addition to the on-site soil study, two samples were collected from the existing on-site storm system during the remedial investigation and analyzed for VOCs, SVOCs, pesticides/PCBs and metals. The metals, nickel, copper, and zinc, were detected at concentrations exceeding SCGs (Table 1)

Subsurface soil contamination identified during the RI/FS will be addressed in the remedy selection process.

### **Groundwater**

The groundwater investigation was completed in two stages. The initial phase collected groundwater samples from the 65 borings installed as part of the soil investigation. The groundwater samples were collected at the water table of each boring and analyzed for VOCs and metals. The data collected during the initial phase was then used to locate 10 permanent monitoring wells on the site. Seven wells were installed at the water table interface, while at three locations an additional well was installed to approximately 30 feet bgs directly above the clay layer.

VOCs, predominately MTBE and PCE (with its degradation products TCE, DCE, and VC) were detected in both the initial phase samples and the subsequent monitoring well samples (Table 1 and Figures 5 through 10).

PCE was detected at the water table at concentrations ranging from ND to 250 ppb, while at depth it was detected at concentrations ranging from ND to 1,600 ppb. The highest concentrations of PCE were at depth, were detected west and south of the 2,400 sq ft building in monitoring wells MW-2D and MW-7D. Concentrations of TCE, DCE, and VC followed a similar distribution pattern as PCE, with the frequency of DCE and VC detections rising as PCE and TCE detections declined. The concentration detected and the distribution pattern of the VOCs substantiates that degradation is occurring in the subsurface.

MTBE, a former component of gasoline, was detected across the site at concentrations ranging from ND to 2,100 pbb. The highest concentration of MTBE was located in the area of a suspected UST south west of the 2,400 sq ft building.

Groundwater contamination identified during the RI/FS will be addressed in the remedy selection process.

### **Surface Water**

Eight surface water samples were collected from Freeport Creek in conjunction with sediment samples along the perimeter of the site. Two VOCs (ethylbenzene and xylene) along with one metal (copper) were detected above their SCG (Table 1). These detections were most likely due to boating activities in the area and are not considered related to the site.

No site-related surface water contamination of concern was identified during the RI/FS. Therefore, no remedial alternatives need to be evaluated for surface water.

### **Sediments**

Eight sediment samples were collected in Freeport Creek along the site perimeter and analyzed for VOCs, semivolatile organics (SVOCs), pesticides, PCBs, and metals. No site related SVOCs, pesticides and PCBs were detected at concentrations exceeding their SCGS. Three metals, nickel, chromium and zinc were detected in two sediment samples above their SCGs (Table 1) at two locations.

Sediment contamination identified during the RI/FS will be addressed in the remedy selection process.

### **Soil Vapor/Sub-Slab Vapor/Air**

To assess the potential for migration of VOCs emanating from contaminated groundwater or soil, a soil vapor survey was conducted within the study area from July 2004 through March 2005. Initially Gore Sorber samplers were used to collect soil vapor samples at the site. PCE and/or TCE was detected in each sample. Based on this data, a soil vapor intrusion study was completed at the two on-site buildings. Subslab vapor samples and indoor air samples were collected at each building. The subslab vapor sample collected at the 1,200 sq ft building reported PCE at 292 ug/m<sup>3</sup> and TCE at 187 ug/m<sup>3</sup>. The indoor air sample taken at this building was non-detect for PCE and had a reported TCE concentration of 1 ug/m<sup>3</sup>. The subslab vapor sample collected at the 2,400 sq ft building, reported PCE at 5,772 ug/m<sup>3</sup> and TCE at 16,014 ug/m<sup>3</sup>. Indoor air sample results at this building reported PCE at 1 ug/m<sup>3</sup> and TCE at 2 ug/m<sup>3</sup>. An indoor air study was conducted off-site from December 2005 to October 2006, no indoor air issues were noted.

Soil vapor and indoor air contamination identified during the RI/FS was addressed during the IRM described in Section 5.2.

### **5.2: Interim Remedial Measures**

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

Mitigation measures were taken at the two on-site buildings to address potential human exposures (via inhalation) to volatile organic compounds associated with soil vapor intrusion. Sub-slab depressurization systems were installed beneath each building, each system uses an in-line ventilation fan to vent vapors from beneath the buildings.

### **5.3: 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 human exposure pathways can be found in Section 5 of the RI report. An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: [1] a contaminant source, [2]

contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.

The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge). Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway exist. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

Contact exposure to on-site contaminated surface and sub-surface soil is a potential exposure pathway. However, the majority of the site is covered with concrete or gravel therefore, contact exposure is not likely. In addition, the site is surrounded by a fence further minimizing the potential for public exposure.

Ingestion of on-site contaminated groundwater is a potential exposure pathway. However, the area is served with public water and therefore, ingestion exposure is not likely.

On-site inhalation exposure of contaminated indoor air via vapor intrusion is a potential exposure pathway. However, mitigation systems have been installed on both on-site buildings; therefore, the exposure to contaminated soil vapor is minimized. The potential for soil vapor intrusion and resulting inhalation exposures at off-site structures has been evaluated and site-related contamination has not been found to impact off-site structures.

Ingestion and direct contact exposure with contaminated surface water and/or sediment in the Freeport Creek is a potential exposure pathway. However, direct contact and/or ingestion exposure is not likely due to limited access to the creek for public receptors. In addition, the site is located in a highly industrialized stretch of the Freeport Creek, which is not likely to be used for recreational use.

#### **5.4: Summary of Environmental Assessment**

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands.

The Fish and Wildlife Impact Analysis, which is included in the RI report, presents a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors.

The following environmental exposure pathways and ecological risks have been identified:

- Sediments in the Freeport Creek, a tidal estuary, may become affected by surface water run-off containing levels of metals that may affect survival of benthic organisms and may bioaccumulate in fish.

However, based upon the fish and wildlife resources and exposure pathways identified in this assessment, and the results of the screening analysis, no site-related adverse impacts to fish and wildlife resources have occurred or are expected to occur on, adjacent to, or within a 0.5-mile radius of the Former Metal Etching Site, with the possible exception of the storm drain, sanitary sewer, and sediments in the vicinity of SED-04.

Site contamination has also impacted the groundwater resource in the surficial aquifer.

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

The remediation goals for this site are to eliminate or reduce to the extent practicable:

- exposures of persons at or around the site to VOCs and metals in soil, groundwater, sediment, and indoor air;
- environmental exposures of flora or fauna to VOCs and metals in soil, groundwater, and sediment;
- the release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards; and
- the release of contaminants from soil and groundwater into indoor air through soil vapor.

Further, the remediation goals for the site include attaining to the extent practicable:

- ambient groundwater quality standards.

## **SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES**

The selected remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Metal Etching Co, Inc Site were identified, screened and evaluated in the FS report which is available at the document repositories established for this site.

A summary of the remedial alternatives that were considered for this site is discussed below. The present worth represents the amount of money invested in the current year that will be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth

costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring will cease after 30 years if remediation goals are not achieved.

**7.1: Description of Remedial Alternatives**

The following potential remedies were considered to address the contaminated soils, sediments, surface water, groundwater, soil vapor, and indoor air at the site.

**Alternative 1: No Further Action**

The No Further Action alternative recognizes remediation of the site conducted under a previously completed IRM. To evaluate the effectiveness of the remediation completed under the IRM, only continued monitoring is necessary.

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: Surface Cover, Soil Vapor Extraction, and Monitored Natural Attenuation**

<i>Present Worth:</i> .....	\$2,200,000
<i>Capital Cost:</i> .....	\$250,000
<i>Annual Costs:</i>	
<i>(Years 1-30):</i> .....	\$64,000

Alternative 2 (Figure 11) would be comprised of the following actions: installation and maintenance of a surface cover, installation of a Soil Vapor Extraction (SVE) system, monitored natural attenuation of groundwater and sediment, removal of sediment from the on-site storm water system, closure and removal of any USTs, continued operation of the sub-slab depressurization systems and an environmental easement.

Under this alternative potential contact with site contamination would be reduced and/or eliminated with the installation of an asphalt or ballast cover across exposed portions of the site. An SVE system would be used to remediate VOC contamination within the vadose zone, thereby reducing the ongoing source of groundwater contamination. The system would be installed in three segments: one segment would be installed along the eastern portion of the site, the second segment along the north east portion of the site, and the third segment along the southern portion of the site. The sub-slab depressurization systems installed as an IRM would continue to operate under this alternative.

Additionally, groundwater and sediment would be monitored to confirm that attenuation of contaminants continues.

To ensure compliance with the objectives of this alternative, an environmental easement would be put in place requiring a site management plan. The site management plan would be developed to: i) address residual contaminated soils that may be excavated from the site during future redevelopment. The plan would require soil characterization and, where applicable, disposal/reuse in accordance with NYSDEC

regulations; ii) provide maintenance of the surface cover; iii) provide long-term groundwater monitoring; iv) provide operation and maintenance of the sub-slab depressurization system and SVE system; v) evaluate the potential for vapor intrusion for buildings developed on the site, including provision for mitigation of any impacts identified; vi) and identify any use restrictions.

**Alternative 3: Hot Spot Excavation to Water Table, Surface Cover, Sediment Removal, and Groundwater Monitoring**

<i>Present Worth:</i> .....	\$2,200,000
<i>Capital Cost:</i> .....	\$1,500,000
<i>Annual Costs:</i>	
<i>(Years 1-30):</i> .....	\$23,000

Alternative 3 (Figure 12) would be comprised of the following actions: hot spot excavation limited to the depth of the groundwater table, installation and maintenance of a surface cover, limited sediment removal from Freeport Creek, monitoring of groundwater, removal of sediment from the on-site storm water system, closure and removal of any USTs, continued operation of the sub-slab depressurization systems and an environmental easement.

Under this alternative potential contact with site contamination would be reduced and/or eliminated, and the source of continuing groundwater contamination removed by excavation of soils with VOCs and metals exceeding their respective SCGs to the extent practical. Excavation would be limited to the depth of the groundwater table approximately 5 feet bgs. Excavated soil would be disposed of properly at an off-site facility. Remaining subsurface contamination would be assessed based upon sampling of the groundwater. Excavated areas would be backfilled with soil meeting the requirements of 6 NYCRR Part 375. Areas that are currently not covered, and where excavation is not practicable, will receive a cover of asphalt or ballast underlain by a demarcation layer.

During the remedial design, further delineation of Freeport Creek sediment contamination will be completed in the area of SED-04. Results of this delineation will determine the bounds of the limited sediment removal within Freeport Creek.

Upon completion of the excavation activities, groundwater would be monitored to confirm the effectiveness of the remedy.

To ensure compliance with the objectives of this alternative, an environmental easement would be put in place requiring a site management plan. The site management plan would be developed to: i) address residual contaminated soils that may be excavated from the site during future redevelopment. The plan would require soil characterization and, where applicable, disposal/reuse in accordance with NYSDEC regulations; ii) provide maintenance of the surface cover; iii) provide long-term groundwater monitoring; iv) provide operation and maintenance of the sub-slab depressurization system; v) evaluate the potential for vapor intrusion for buildings developed on the site, including provision for mitigation of any impacts identified; vi) and identify any use restrictions.



**Alternative 4: Hot Spot Excavation to 14 feet bgs, Backfill with Zero Valent Iron (ZVI), Limited Sediment Removal, and Groundwater Monitored Attenuation**

<i>Present Worth:</i> .....	\$4,800,000
<i>Capital Cost:</i> .....	\$4,100,000
<i>Annual Costs:</i>	
<i>(Years 1-30):</i> .....	\$22,000

Alternative 4 (Figure 13) would be comprised of the following actions: hot spot excavation to the depth of 14 feet bgs, backfill with a soil and zero valent iron (ZVI) mixture, installation and maintenance of a surface cover, limited sediment removal from Freeport Creek, monitoring of groundwater, removal of sediment from the on-site storm water system, closure and removal of any USTs, continued operation of the sub-slab depressurization systems and an environmental easement.

Under this alternative potential contact with site contamination would be reduced and/or eliminated, and the source of continuing groundwater contamination removed by excavation of soils with VOCs and metals exceeding their respective SCGs to the extent practical. Excavation would be limited to a depth of 14 feet bgs. Excavated soil would be disposed of properly at an off-site facility. Remaining subsurface contamination would be assessed based upon sampling of the groundwater. Excavated areas would be backfilled with a soil and ZVI mixture to help accelerate groundwater attenuation. Areas that are currently not covered, and where excavation is not practicable, will receive a cover of asphalt or ballast underlain by a demarcation layer.

During the remedial design, further delineation of Freeport Creek sediment contamination will be completed in the area of SED-04. Results of this delineation will determine the bounds of the limited sediment removal within Freeport Creek.

Upon completion of the excavation and backfill activities, groundwater would be monitored to confirm the effectiveness of the remedy.

To ensure compliance with the objectives of this alternative, an environmental easement would be put in place requiring a site management plan. The site management plan would be developed to: i) address residual contaminated soils that may be excavated from the site during future redevelopment. The plan would require soil characterization and, where applicable, disposal/reuse in accordance with NYSDEC regulations; ii) provide maintenance of the surface cover; iii) provide long-term groundwater monitoring; iv) provide operation and maintenance of the sub-slab depressurization system; v) evaluate the potential for vapor intrusion for buildings developed on the site, including provision for mitigation of any impacts identified; vi) an identify any use restrictions.

**Alternative 5: Hot Spot Excavation to 14 feet bgs, SVE System, ZVI Wall, and Limited Sediment Removal**

<i>Present Worth:</i> .....	\$8,400,000
<i>Capital Cost:</i> .....	\$7,300,000
<i>Annual Costs:</i>	
<i>(Years 1-30):</i> .....	\$35,000

Alternative 5 (Figure 14) would be comprised of the following actions: hot spot excavation to a maximum depth of 14 feet bgs, installation of a SVE system, installation of a ZVI wall, limited sediment removal from Freeport Creek, removal of sediment from the on-site storm water system, closure and removal of any USTs, continued operation of the sub-slab depressurization systems and an environmental easement.

Under this alternative potential contact with site contamination would be reduced and/or eliminated, and the source of continuing groundwater contamination removed by excavation of soils with VOCs and metals exceeding their respective SCGs to the extent practical. Depth of excavation would be limited to 14 feet bgs. Excavated soil would be disposed of properly at an off-site facility. Excavated areas would be backfilled with soil meeting the requirements of 6 NYCRR Part 375. Areas that are currently not covered, and where excavation is not practicable, will receive a cover of asphalt or ballast underlain by a demarcation layer.

To address residual groundwater contamination, an ZVI wall would be installed on-site to intercept groundwater flow to Freeport Creek.

Additionally, to treat residual VOC contamination beneath the existing site buildings, a SVE system would be installed.

During the remedial design, further delineation of Freeport Creek sediment contamination will be completed in the area of SED-04. Results of this delineation will determine the bounds of the limited sediment removal within Freeport Creek.

To ensure compliance with the objectives of this alternative, an environmental easement would be put in place requiring a site management plan. The site management plan would be developed to: i) address residual contaminated soils that may be excavated from the site during future redevelopment. The plan would require soil characterization and, where applicable, disposal/reuse in accordance with NYSDEC regulations; ii) provide maintenance of the surface cover; iii) provide maintenance of the ZVI wall; iv) long-term groundwater monitoring; v) provide operation and maintenance of the sub-slab depressurization system and SVE system; vi) evaluate the potential for vapor intrusion for buildings developed on the site, including provision for mitigation of any impacts identified; vii) an identify any use restrictions.

**Alternative 6: Excavation of all Contaminated Soil to 14 feet bgs, ZVI Wall, and Limited Sediment Removal**

<i>Present Worth:</i> .....	\$26,000,000
<i>Capital Cost:</i> .....	26,000,000
<i>Annual Costs:</i>	
<i>(Years 1-30):</i> .....	\$12,000

Alternative 6 (Figure 15) would be comprised of the following actions: excavation of contamination to a maximum depth of 14 feet bgs, installation of a ZVI wall, limited sediment removal from Freeport Creek, removal of sediment from the on-site storm water system, closure and removal of any USTs, continued operation of the sub-slab depressurization systems and an environmental easement.

Under this alternative potential contact with site contamination would be reduced and/or eliminated, and the source of continuing groundwater contamination removed by excavation of soils with VOCs and metals exceeding their respective SCGs. Depth of excavation would be limited to 14 feet bgs. To facilitate the removal of VOC contaminated soil beneath the on-site buildings, the buildings would be removed. Excavated soil would be disposed of properly at an off-site facility. Excavated areas would be backfilled with soil meeting the requirements of 6 NYCRR Part 375.

To address any residual groundwater contamination, an ZVI wall would be installed on-site to treat and intercept groundwater flow.

During the remedial design, further delineation of Freeport Creek sediment contamination will be completed in the area of SED-04. Results of this delineation will determine the bounds of the limited sediment removal within Freeport Creek.

To ensure compliance with the objectives of this alternative, an environmental easement would be put in place requiring a site management plan. The site management plan would be developed to: i) address residual contaminated soils that may be excavated from the site during future redevelopment. The plan would require soil characterization and, where applicable, disposal/reuse in accordance with NYSDEC regulations; ii) provide maintenance of the surface cover; iii) provide maintenance of the ZVI wall; iv) long-term groundwater monitoring; v) provide operation and maintenance of the sub-slab depressurization system; vi) evaluate the potential for vapor intrusion for buildings developed on the site, including provision for mitigation of any impacts identified; vii) and identify any use restrictions.

**7.2 Evaluation of Remedial Alternatives**

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs the remediation of inactive hazardous waste disposal sites in New York. A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

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

1. 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.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

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

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

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 engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

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.

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

7. Cost-Effectiveness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision. The costs for each alternative are presented in Table 2.

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

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the PRAP have been evaluated. The responsiveness summary (Appendix A) presents the public comments received and the manner in which the Department addressed the concerns raised.

In general, the public comments received were supportive of the selected remedy.

## **SECTION 8: SUMMARY OF THE SELECTED REMEDY**

Based on the Administrative Record (Appendix B) and the discussion presented below, the Department has selected Alternative 3, (Hot Spot Excavation to Water Table, Surface Cover, Sediment Removal, and Groundwater Monitoring) as the remedy for this site. The elements of this remedy are described at the end of this section.

The selected remedy is based on the results of the RI and the evaluation of alternatives presented in the FS.

Alternative 3 has been selected because, as described below, it satisfies the threshold criteria and provides the best balance of the remaining criteria described in Section 7.2. Alternative 3 will achieve the remedial goals (as described in Section 6) by eliminating the most significant source of contamination in the soil. By removing the source area, it will create the conditions needed to restore groundwater quality to the extent practicable. Alternatives 2, 4, 5, and 6 would also comply with these threshold criteria, however they do not present the best balance for the remaining criteria.

Because Alternatives 2 through 6 satisfy the threshold criteria, the five balancing criteria are particularly important in selecting a final remedy for the site.

Alternatives 2 through 5 all have short term impacts that are easily controlled by standard construction means. However Alternatives 4 and 5, in comparison to Alternatives 2 and 3, would have a greater impact in the short term due to the necessity for dewatering the excavation area and soil. Alternative 6, due to the extensive nature of its excavation and the building demolition, would have the greatest impact on the surrounding areas and the potential risk to workers is the greatest.

Achieving long-term effectiveness is best accomplished by excavation and removal of the source of groundwater contamination, such as proposed in Alternatives 3 through 6. Alternative 3 is favorable because it removes, to the extent practicable, the vadose zone source of groundwater contamination. Since the majority of the VOC and metal contamination in the soil is located in the vadose (above the groundwater table), Alternative 3 will result in the removal of the majority of the source area without having to excavate into the groundwater.

All Alternatives proposed are implementable, however of the six alternatives, Alternatives 4, 5, and 6 require excavation below the groundwater table. This type of excavation activity will require dewatering of the excavation and soil, treatment of dewatering water, and the potential need for shoring or benching of the excavation. While these requirements are implementable, due to the constraints of the site size, the brackish nature of the site groundwater, and the tidal influence of Freeport Creek, Alternatives 4, 5, and 6 will be more difficult to implement than Alternative 3 (which does not require excavation below the groundwater table). In addition to the excavation implementation issues, Alternatives 5 and 6 require a ZVI wall. The ZVI wall may be difficult to construct due to the tidal influence of Freeport Creek and the space limitations of the site.

With the exception of Alternative 1 and 2, the other alternatives reduce the volume, and thereby the toxicity and mobility, of waste on-site via soil excavation. The extent of excavation varies by

alternative. The anticipated volumes of removal for Alternatives 3, 4, 5, and 6 are 1,650 cubic yards (cy), 4,871 cy, 6,857 cy, and 46,667 cy, respectively.

Alternatives 2 and 3 would also achieve reduction in toxicity, mobility, and volume through natural attenuation of the VOCs in the groundwater. Whereas, Alternatives 4, 5, and 6 use natural attenuation augmented by zero valence iron degradation of VOCs to further reduce toxicity, mobility, and volume.

The cost of alternatives varies significantly. As the volume of soil excavated increases, the level of complexity of the excavation increases, thereby further increasing cost. The costs for Alternative 2 through 6 are presented in Table 2.

The estimated present worth cost to implement the remedy is \$2,200,000. The cost to construct the remedy is estimated to be \$1,500,000 and the estimated average annual site management costs for 30 years is \$23,000/yr.

The elements of the selected remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. This will include delineating the boundaries of sediment excavation within Freeport Creek.
2. Hot spot excavation, to the extent practicable, of VOC and metal contaminated soil to the depth of groundwater table. Excavated material will be disposed of properly at an off-site facility. Excavated areas will be backfilled with soil meeting the requirements of 6 NYCRR Part 375.
3. Sediment in the on-site stormwater system will be removed and disposed of properly at an off-site facility.
4. Determination of the presence of USTs on-site will be completed. If USTs are present, they will be closed and removed in accordance with NYSDEC regulations.
5. Areas that are not currently covered, and where excavation is not practicable, will receive a cover of asphalt or ballast underlain by a demarcation layer.
6. Upon completion of the additional Freeport Creek Study and delineation of site related contamination in the area of SED-04, a limited sediment removal from Freeport Creek will be completed.
7. A long-term groundwater monitoring program will be implemented to confirm the effectiveness of the remedy.

8. Imposition of an institutional control in the form of an environmental easement that will require (a) limiting the use and development of the property to commercial use, which will also permit industrial use, in conformance of local zoning; (b) compliance with the approved site management plan; (c) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) submission of a periodic certification of institutional and engineering controls to the Department by the property owner.
9. Development of a site management plan which will include the following institutional and engineering controls: (a) management of the final cover system to restrict excavation below the soil cover's demarcation layer, pavement, or buildings. Excavated soil will be tested, properly handled to protect the health and safety of workers and the nearby community, and will be properly managed in a manner acceptable to the Department; (b) continued evaluation of the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified; (c) monitoring of soil vapor and groundwater; (d) identification of any use restrictions on the site; and (e) provisions for the continued proper operation and maintenance of the components of the remedy.
10. Requirement of the property owner to submit a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that will impair the ability of the controls to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.
11. Continued operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.
12. Since the remedy results in untreated hazardous waste remaining at the site, a long-term monitoring program will be instituted. A groundwater monitoring program will be implemented. This program will allow the effectiveness of the remedy to be monitored and will be a component of the long-term management for the site.

## **SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION**

As part of the remedial investigation process, a number of Citizen Participation activities were undertaken 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:

- Repositories for documents pertaining to the site were established.
- A public contact list, which included nearby property owners, elected officials, local media and other interested parties, was established.
- A fact sheet was sent to the public contact list on February 8, 2007 announcing the release of the proposed Remedial Action Plan (PRAP).
- A public meeting was held on March 1, 2007 to present and receive comment on the PRAP.
- A responsiveness summary (Appendix A) was prepared to address the comments received during the public comment period for the PRAP.



**Table 1**  
**Metal Etching Standards, Criteria, and Guidance**

<b>Subsurface Soil</b>	<b>Constituent</b>	<b>SCG</b>	<b>Units</b>
Volatile Organic Compounds (VOCs)	Tetrachloroethene (PCE)	1.4	ppm
	Trichloroethene (TCE)	0.7	ppm
	1,2-Dichloroethene (DCE)	0.3	ppm
	Vinyl Chloride	0.2	ppm
	Benzene	0.06	ppm
	Toluene	1.5	ppm
	Ethylbenzene	5.5	ppm
	Xylene	1.2	ppm
	Methyl Tertiary-Butyl Ether (MTBE)	0.12	ppm
	Napthalene	13	ppm
	Chlorobenzene	17	ppm
Inorganics (Metals)			
	Chromium	50	ppm
	Copper	25	ppm
	Nickel	13	ppm
	Zinc	20	ppm
<b>Groundwater</b>	<b>Constituent</b>	<b>SCG</b>	<b>Units</b>
Volatile Organic Compounds (VOCs)	Tetrachloroethene (PCE)	5	ppb
	Trichloroethene (TCE)	5	ppb
	1,2-Dichloroethene (DCE)	5	ppb
	Vinyl Chloride	2	ppb
	Methyl Tertiary-Butyl Ether (MTBE)	10	ppb
Inorganics (Metals)			
	Chromium	50	ppb
	Copper	200	ppb
	Nickel	100	ppb
	Zinc	2,000	ppb

**Table 1 (cont.)  
Metal Etching Standards, Criteria, and Guidance**

<b>Surface Water</b>	<b>Constituent</b>	<b>SCG</b>	<b>Units</b>
Volatile Organic Compounds (VOCs)	Ethylbenzene	4,500	ppb
	Xylene	1,900	ppb
Inorganics (Metals)			
	Copper	3,400	ppb
<b>Sediment</b>			
<b>Sediment</b>	<b>Constituent</b>	<b>SCG</b>	<b>Units</b>
Inorganics (Metals)	Chromium	81	ppm
	Nickel	20.9	ppm
	Zinc	150	ppm

**Table 2**  
**Remedial Alternative Costs**

<b>Remedial Alternative</b>	<b>Capital Cost (\$)</b>	<b>Annual Costs (\$)</b>	<b>Total Present Worth (\$)</b>
No Action	-0-	-0-	-0-
<b>Alternative 2: Surface Cover, Soil Vapor Extraction, and Monitored Natural Attenuation</b>	\$250,000	\$1,900,000	\$2,200,000
<b>Alternative 3: Hot Spot Excavation to Water Table, Surface Cover, Sediment Removal, and Groundwater Monitoring</b>	\$1,500,000	\$680,000	\$2,200,000
<b>Alternative 4: Hot Spot Excavation to 14 feet bgs, Backfill with ZVI, Limited Sediment Removal, and Groundwater Monitoring</b>	\$4,100,000	\$670,000	\$4,800,000
<b>Alternative 5: Hot Spot Excavation to 14 feet bgs, SVE System, ZVI Wall, and Limited Sediment Removal</b>	\$7,300,000	1,100,000	\$8,400,000
<b>Alternative 6: Excavation, ZVI Wall, and Limited Sediment Removal</b>	\$26,000,000	200,000	26,000,000

# **APPENDIX A**

## **Responsiveness Summary**

# RESPONSIVENESS SUMMARY

**Metal Etching Co., Inc.  
Freeport, New York  
Site No. 13110**

The Proposed Remedial Action Plan (PRAP) for the Metal Etching Co., Inc. site, was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on February 8, 2007. The PRAP outlined the remedial measure proposed for the contaminated the soil, groundwater, and sediment at the Metal Etching Co., Inc. site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on March 1, 2007, which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on March 12, 2007.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the Department's responses:

Comments 1 through 7 were raised by Nassau County Legislator David Denenberg.

**COMMENT 1:**

Who is paying for the site? Is there a PRP?

**RESPONSE 1:**

The Metal Etching Site Remedial Investigation and Feasibility Study were conducted under the New York State Superfund Program. There has been several PRPs identified for the site, they declined to complete the Remedial Investigation and Feasibility Study. See Section 4 of the ROD.

**COMMENT 2 (Nassau County Legislature David Denenberg):**

How do you make certain that contamination is not impacting the creek?

**RESPONSE 2:**

During the Remedial Investigation, surface water and sediment samples were collected from Freeport Creek. The remedy will be implemented to ensure that contamination does not impact Freeport Creek in the future.

**COMMENT 3 (Nassau County Legislature David Denenberg):**

Where did the MTBE come from that was found on the site?

**RESPONSE 3:**

The NYSDEC was unable to ascertain the original source of MTBE found on the site.

**COMMENT 4 (Nassau County Legislature David Denenberg):**

Where is dredged sediment going?

**RESPONSE 4:**

The sediment dredged from Freeport Creek will be dewatered, analyzed, and properly disposed of at an off-site facility. The facility will be determined during the Remedial Design.

**COMMENT 5 (Nassau County Legislature David Denenberg):**

What is the amount of soil that is going to be removed from the site?

**RESPONSE 5:**

It is estimated that 1,650 cubic yards of material will be removed from the Metal Etching site as part of the remedy.

**COMMENT 6 (Nassau County Legislature David Denenberg):**

Can VOCs come out into the air during the remediation process?

**RESPONSE 6:**

It is possible that VOCs will volatilize at very low levels from the soil during excavation; however, a Community Air Monitoring Program will be implemented during the remedial action to ensure that the community is not exposed to elevated levels of VOCs.

**COMMENT 7 (Nassau County Legislature David Denenberg):**

How are you monitoring water quality when they are taking dredged sediment out of the canal?

**RESPONSE 7:**

During the Remedial Design a monitoring program will be developed to monitor the quality of Freeport Creek to ensure that it is not affected by the sediment dredging operation.

**COMMENT 8:**

People go fishing by the Freeport Recreation Center (the south side). Are there any impacts to the fish in this area?

**RESPONSE 8:**

The Fish and Wildlife Impact Assessment that was performed as part of the Remedial Investigation did not identify any impacts to the fish in this area related to the Metal Etching Site.

**COMMENT 14:**

How will the NYSDEC inform the public and other potential users of this site about the past environmental contamination that has taken place?

**RESPONSE 14:**

An environmental easement will be placed on the Metal Etching site. The easement is a legal restriction on the use of the land in a manner inconsistent with the site engineering controls or site management plan.

**COMMENT 15:**

What brought the site to the NYSDEC attention in 2001?

**RESPONSE 15:**

The Department became aware of the conditions at the site as a result of a tank removal on-site.

**COMMENT 16:**

When will work start?

**RESPONSE 16:**

Several Potentially Responsible Parties (PRPs) have been identified for this site. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the Department will evaluate the site for further action under the State Superfund. Timing is uncertain.

**COMMENT 17:**

Who actually owns this property?

**RESPONSE 17:**

The site is currently owned by Freeport Creek Associates, LLC.

**COMMENT 18:**

Mr. Louis Volta submitted a letter (dated February 16, 2007) which included the following comments:

Under the topic "Health Issues" your fact sheet states that "...contaminated surface water is a potential exposure pathway. However...exposure is not likely due to limited access to the creek for public receptors". Have you considered what happens during periods of high tides? It is a common sight in the canals off South Main Street to see water in the streets, basements, crawl spaces and gardens after hurricanes, nor'easters and even normal high tides. This would seem to be an exposure pathway that deserves serious consideration.

**RESPONSE 18:**

The exposure pathway that may be created by flooding in the area of Metal Etching was evaluated during the Feasibility Study. Surface water samples collected during the remedial investigation indicate that the waters of Freeport Creek have not been impacted by Metal Etching contamination. To ensure that future contamination does not occur, the selected remedy will

**COMMENT 9:**

Is there any public health risk from a broken water supply pipe that is passing near this contamination? Essentially can contamination get into the public water supply from a broken pipe?

**RESPONSE 9:**

No. Your public water supply distribution system is under pressure, there should be no infiltration of non-potable water during a line break. It should also be noted that the public water supply line does not cross the Metal Etching Site contamination.

**COMMENT 10:**

How does the sub-slab system work?

**RESPONSE 10:**

A sub-slab depressurization system (SSDS), much like a radon mitigation system, essentially reduces the possibility of vapors beneath a slab from entering a building. A low amount of suction is applied below the foundation of the building and the vapors are vented to the outside. The system uses minimal electricity and should not noticeably affect heating and cooling efficiency.

**COMMENT 11:**

What is the project cost? Is the state paying for it?

**RESPONSE 11:**

The estimated cost of remediation is \$2,200,000. Several Potentially Responsible Parties (PRPs) have been identified for this site. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the Department will evaluate the site for further action under the State Superfund. The PRPs are subject to legal actions by the State for recovery of all response costs the State has incurred.

**COMMENT 12:**

Are previous companies responsible for this cleanup financially?

**RESPONSE 12:**

See response to Comment # 11 and Section 4 of the ROD.

**COMMENT 13:**

Where did the old asphalt, cement and other material from this site go?

**RESPONSE 13:**

The reconfiguration of the site to a boat marina did not occur under the purview of the NYSDEC, and the Department is not aware of any records detailing the handling of that material. Therefore, we are unable to address this question.



remove subsurface contamination, and will provide cover in the form of asphalt or ballast in areas where excavation will not occur. These measures should prevent contamination of flood waters should flooding of the site occur.

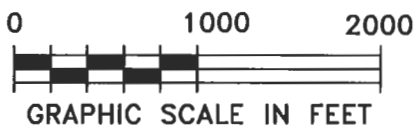
## **APPENDIX B**

### **Administrative Record**


# **Administrative Record**

## **Metal Etching Co., Inc. Site No. 130110**

1. Proposed Remedial Action Plan for the Metal Etching Co., Inc site, dated February 2007, prepared by the Department.
2. “Remedial Investigation/Feasibility Study Work Plan – Metal Etching Co., Inc.”, May 2004, prepared by Environmental Resources Management.
3. “Remedial Investigation – Metal Etching Co., Inc”, January 2007, prepared by Environmental Resources Management.
4. “Feasibility Study – Metal Etching Co., Inc”, January 2007, prepared by Environmental Resources Management.
5. Fact Sheet for the Metal Etching Co. Inc. site, dated February 2007, prepared by the Department

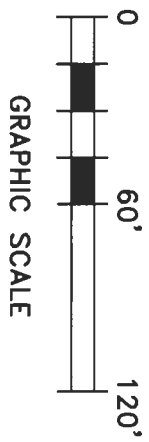


SOURCE: USGS QUADRANGLE MAP, FREEPORT, NY, 1979

TITLE			
SITE LOCATION MAP METAL ETCHING FREEPORT, NEW YORK			
PREPARED FOR		NYSDEC	
 <b>ERM</b> Environmental Resources Management	SCALE	FIGURE	
	GRAPHIC	1	
DATE	JOB NO.	FILE NAME	
12/06/04	0011475	0011475.004	



MAP DERIVED FROM  
 TOPOGRAPHIC MAP OF  
 DESCRIBED PROPERTY  
 AND  
 LOT NOS. 24 & 25  
 MAP OF  
 SUNSHINE PARK  
 ZONING DISTRICT  
 TOWN OF KEESWICHTAD  
 WASHINGTON COUNTY, NEW YORK  
 MASSAU COUNTY MAP NO. 178  
 MASSAU COUNTY FILE NO. 1288  
 FILED JAN. 4, 1971  
 QUADRANT CORNER TO  
 NEW YORK STATE DEPARTMENT  
 OF ENVIRONMENTAL CONSERVATION



- LEGEND**
- SB-04 SOIL BORING
  - P03 PIEZOMETER
  - LM-030 MONITORING WELL
  - SO-01 SOIL GAS POINT
  - VP-01 VERTICAL PROFILE
  - SED-08 SEDIMENT SAMPLE
  - SW-08 SURFACE WATER SAMPLE
  - MANHOLE
  - STUDY AREA
  - SITE
  - STORM SEWER DRAIN

TITLE		SCALE	
SITE AND STUDY AREA BOUNDARIES AND SAMPLE LOCATIONS METAL ETCHING SITE FREEPORT, NEW YORK		GRAPHIC 2	
PREPARED FOR		DATE	
NYSDEC		10/30/08	
DRAWN BY		PROJECT	
ERM		2	
DATE: MFM/EMF		DATE	
0011475		10/30/08	
FEE NAME: 0011475-01-022		PROJECT	
10/30/08		2	

SB-05		NYSDEC RSCOs @ 0.00 = 0.50 1.50 = 2.50 11.00 = 12.00			
Constituent	Units	EASTERN USA BACKGROUND			
Chlorobenzene	(ug/kg)	1700			
Methyl Cyclohexane	(ug/kg)	200 J			
Toluene	(ug/kg)	1400			
Xylenes (Total)	(ug/kg)	700	[10000]	100 J	[1100]

SB-10		NYSDEC RSCOs @ 0.00 = 0.50 1.50 = 2.50 6.00 = 7.00			
Constituent	Units	EASTERN USA BACKGROUND			
Chlorobenzene	(ug/kg)	70 J			
Methyl Cyclohexane	(ug/kg)	200 J			
Toluene	(ug/kg)	1400			
Xylenes (Total)	(ug/kg)	700	100 J	[1700]	

SB-02		NYSDEC RSCOs @ 6.00 = 7.00 11.00 = 12.00			
Constituent	Units	EASTERN USA BACKGROUND			
Chlorobenzene	(ug/kg)	5000	5000		1800
Methyl Cyclohexane	(ug/kg)	2000	2000		1400
Toluene	(ug/kg)	13600	6700	2800	
Xylenes (Total)	(ug/kg)	1500	300	80 J	
Xylenes (Total)	(ug/kg)	1200	[4000]		[1700]

SB-11		NYSDEC RSCOs @ 0.00 = 0.50 1.50 = 2.50			
Constituent	Units	EASTERN USA BACKGROUND			
Chlorobenzene	(ug/kg)	370			
Methyl Cyclohexane	(ug/kg)	200 J			
Methyl Tertiary Butyl Ether	(ug/kg)	100			
Toluene	(ug/kg)	1400	500	[3700]	
Xylenes (Total)	(ug/kg)	700	100 J	500	
Xylenes (Total)	(ug/kg)	1200		600	

SB-02		NYSDEC RSCOs @ 6.00 = 6.50 1.50 = 2.50 6.00 = 7.00 11.00 = 12.00			
Constituent	Units	EASTERN USA BACKGROUND			
Chlorobenzene	(ug/kg)	5000			
Methyl Cyclohexane	(ug/kg)	2000	1000	200 J	
Toluene	(ug/kg)	13000	700	4200 J	500
Xylenes (Total)	(ug/kg)	1200	[2000]		[800]

SB-41		NYSDEC RSCOs @ 1.50 = 2.00	
Constituent	Units	EASTERN USA BACKGROUND	
Toluene	(ug/kg)	700	[1200]

SB-35		NYSDEC RSCOs @ 6.00 = 6.50 1.50 = 2.50 6.00 = 7.00 11.00 = 12.00			
Constituent	Units	EASTERN USA BACKGROUND			
Chlorobenzene	(ug/kg)	470			
Methyl Cyclohexane	(ug/kg)	27000	700	420	250
Toluene	(ug/kg)	1400			
Xylenes (Total)	(ug/kg)	1500	[2000]		[1000]

SB-03		NYSDEC RSCOs @ 0.00 = 0.50 1.50 = 2.50 6.00 = 7.00 11.00 = 12.00			
Constituent	Units	EASTERN USA BACKGROUND			
Ethylbenzene	(ug/kg)	5000			
Methyl Cyclohexane	(ug/kg)	2000			
Naphthalene	(ug/kg)	13000	200 J	80 J	[19000]
Xylenes (Total)	(ug/kg)	1200			[3100]

SB-08		NYSDEC RSCOs @ 4.00 = 6.00 10.00 = 14.00 20.00 = 24.00			
Constituent	Units	EASTERN USA BACKGROUND			
Chlorobenzene	(ug/kg)	5000	4800	200 J	
Ethylbenzene	(ug/kg)	1700	[3700]	80 J	
Methyl Cyclohexane	(ug/kg)	2000	19000	800	
Naphthalene	(ug/kg)	13000	3000	250	
Xylenes (Total)	(ug/kg)	1500	11000	1200	80 J
Xylenes (Total)	(ug/kg)	1200	[18000]		300

SB-00		NYSDEC RSCOs @ 6.00 = 7.00 11.00 = 12.00			
Constituent	Units	EASTERN USA BACKGROUND			
Ethylbenzene	(ug/kg)	5000	3000	80 J	
Methyl Cyclohexane	(ug/kg)	2000	9100	200 J	
Naphthalene	(ug/kg)	13000	[29000]	4000	
Xylenes (Total)	(ug/kg)	1200	1400	[11000]	200 J

SB-05		NYSDEC RSCOs @ 6.00 = 7.00 11.00 = 12.00			
Constituent	Units	EASTERN USA BACKGROUND			
Ethylbenzene	(ug/kg)	5000	420		
Methyl Cyclohexane	(ug/kg)	2000	100 J		
Naphthalene	(ug/kg)	13000	10000	1300	
Xylenes (Total)	(ug/kg)	1200	[4000]		

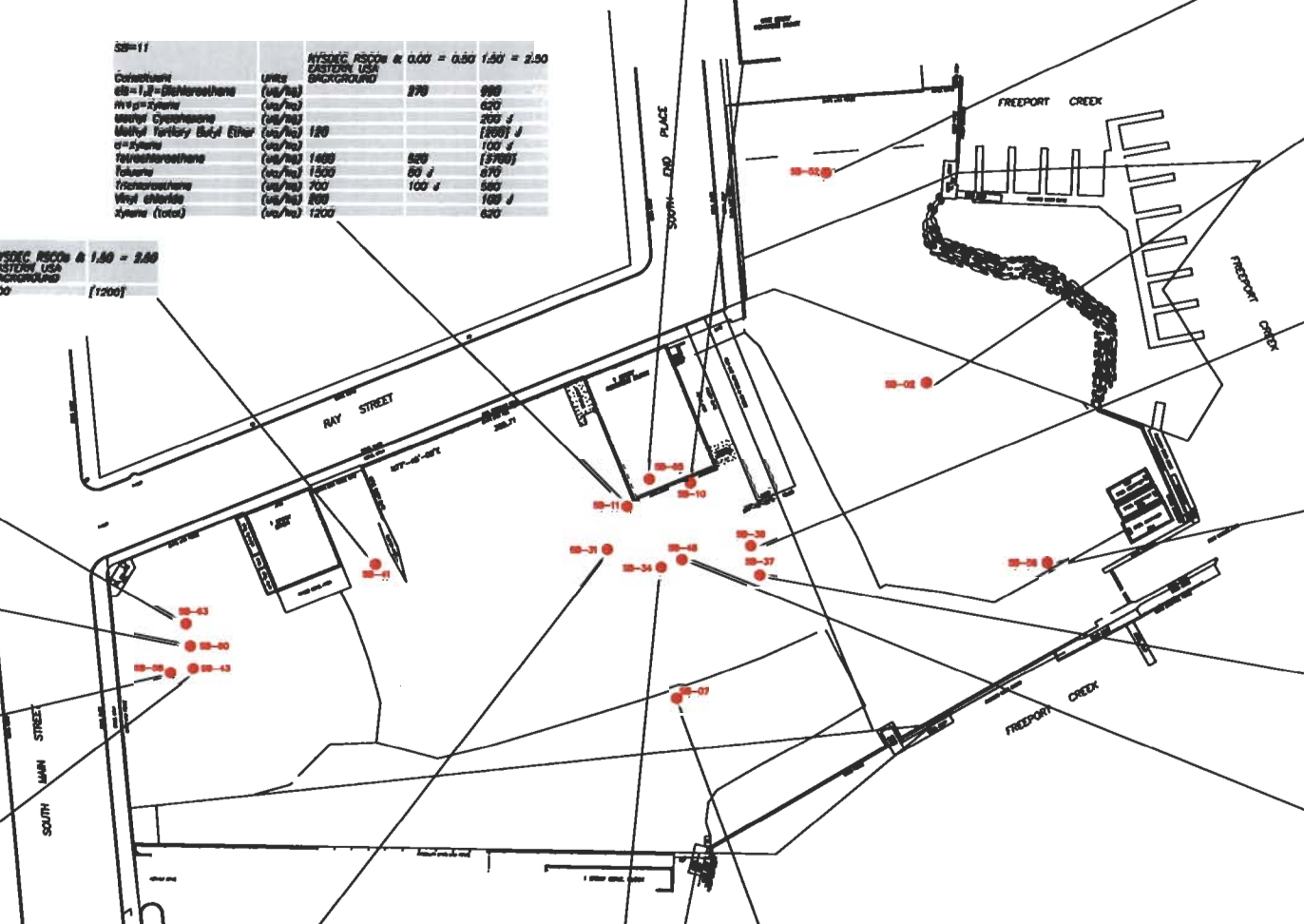
SB-05		NYSDEC RSCOs @ 6.00 = 7.00 11.00 = 12.00			
Constituent	Units	EASTERN USA BACKGROUND			
Ethylbenzene	(ug/kg)	5000	1800	800	
Methyl Cyclohexane	(ug/kg)	2000	370	200 J	
Naphthalene	(ug/kg)	13000	[29000]	[19000]	
Xylenes (Total)	(ug/kg)	1200	600	370	[1200]

SB-01		NYSDEC RSCOs @ 0.00 = 0.50 1.50 = 2.50 6.00 = 7.00 11.00 = 12.00			
Constituent	Units	EASTERN USA BACKGROUND			
Methyl Cyclohexane	(ug/kg)	100 J			
Toluene	(ug/kg)	1400	710	70 J	
Xylenes (Total)	(ug/kg)	1500	60 J	70 J	

SB-35		NYSDEC RSCOs @ 6.00 = 6.50 6.00 = 7.00 11.00 = 12.00 1.00 = 6.00			
Constituent	Units	EASTERN USA BACKGROUND			
Ethylbenzene	(ug/kg)	5000	200 J	200 J	
Methyl Cyclohexane	(ug/kg)	2000	410	470	
Naphthalene	(ug/kg)	13000	17000	4200	36000
Xylenes (Total)	(ug/kg)	1200	[370]	[1500]	
Xylenes (Total)	(ug/kg)	1500	370	600	
Xylenes (Total)	(ug/kg)	1800	100 J	[38000]	200 J
Xylenes (Total)	(ug/kg)	1200		410	470

SB-07		NYSDEC RSCOs @ 0.00 = 0.50 6.00 = 7.00 11.00 = 12.00 1.50 = 2.50			
Constituent	Units	EASTERN USA BACKGROUND			
Ethylbenzene	(ug/kg)	5000			
Methyl Cyclohexane	(ug/kg)	2000	70 J	200 J	
Naphthalene	(ug/kg)	13000	200 J	2000	310
Xylenes (Total)	(ug/kg)	1500	100 J	1100	
Xylenes (Total)	(ug/kg)	1200	60 J	370	1000

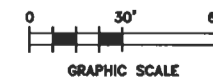
SB-08		NYSDEC RSCOs @ 11.00 = 12.00 0.00 = 0.50 1.50 = 2.50 6.00 = 7.00			
Constituent	Units	EASTERN USA BACKGROUND			
Chlorobenzene	(ug/kg)	80 J			70 J
Methyl Cyclohexane	(ug/kg)	1100	200 J	1000	700
Naphthalene	(ug/kg)	13000	100 J	200 J	200 J
Toluene	(ug/kg)	1400	100 J	200 J	200 J
Xylenes (Total)	(ug/kg)	700	200 J	80 J	70 J



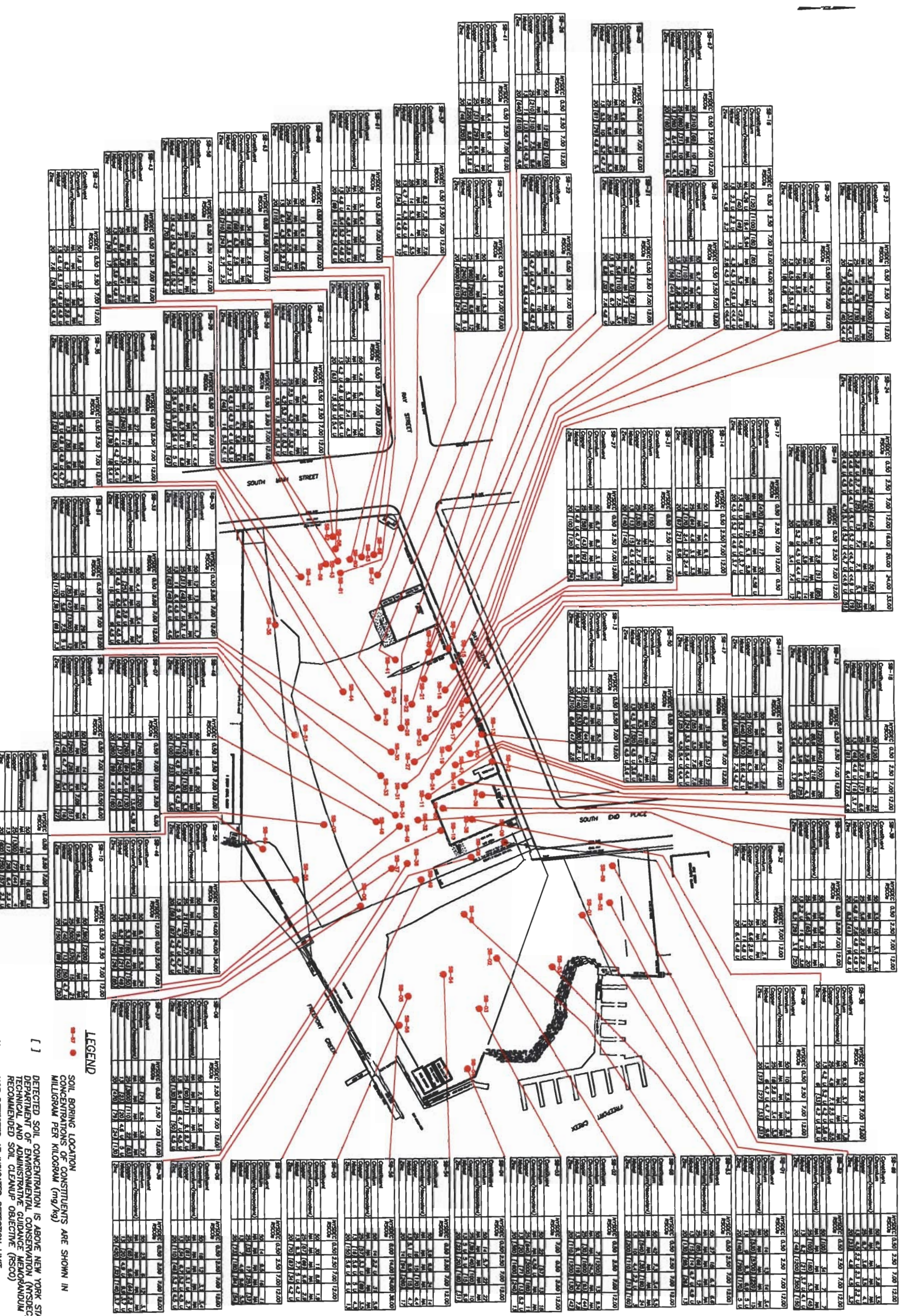
**LEGEND**

- SB-00 SOIL BORING LOCATION WITH VOLATILE ORGANIC COMPOUND CONCENTRATIONS ABOVE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) TECHNICAL AND ADMINISTRATIVE GUIDANCE MEMORANDUM (TAGM) #4046 RECOMMENDED SOIL CLEANUP OBJECTIVE (RSCO)
- [ ] DETECTED SOIL CONCENTRATION IS ABOVE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) TECHNICAL AND ADMINISTRATIVE GUIDANCE MEMORANDUM (TAGM) #4046 RECOMMENDED SOIL CLEANUP OBJECTIVE (RSCO)
- J ESTIMATED VALUE

MAP DERIVED FROM  
TOPOGRAPHIC MAP OF  
DESCRIBED PROPERTY  
AND  
LOT NOS. 24 & 25  
MAP OF  
SUNSHINE PARK  
SITING AT  
FREEPORT  
TOWN OF HEMPSTEAD  
NASSAU COUNTY, NEW YORK  
UNSATURATED SOIL  
MAP NO. 119  
ISSUED COUNTY MAP NO. 119  
PLAT JUNE 4, 1911  
REPRODUCED ONLY BY  
THE STATE DEPARTMENT  
OF ENVIRONMENTAL CONSERVATION







**LEGEND**

● SOIL BORING LOCATION  
 ○ CONCENTRATIONS OF CONSTITUENTS ARE SHOWN IN MILLIGRAM PER KILOGRAM (mg/kg)

[ ] DETECTED SOIL CONCENTRATION IS ABOVE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) TECHNICAL AND ADMINISTRATIVE GUIDANCE MEMORANDUM RECOMMENDED SOIL CLEANUP OBJECTIVE (RSCCO)  
 U NOT DETECTED AT INDICATED DETECTION LIMIT

METALS DETECTIONS IN SOIL ABOVE SCOS  
 METAL ETCHING SITE NO. 1-30-110  
 FREEPORT, NEW YORK

NYSDEC  
 Environmental Monitoring Management  
 Date: 10/24/08  
 File: 00114762  
 Project: 0011476-00-040

4

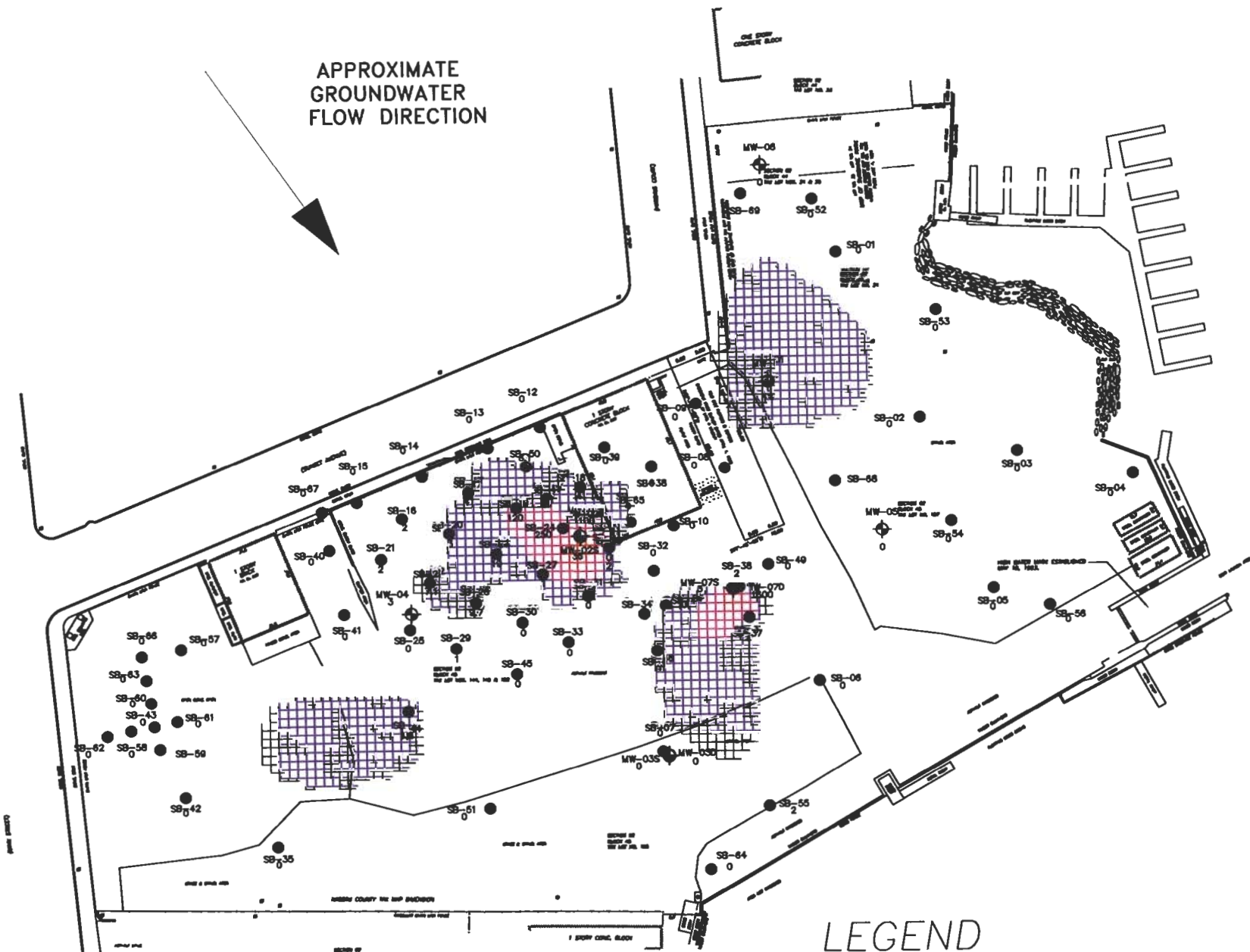
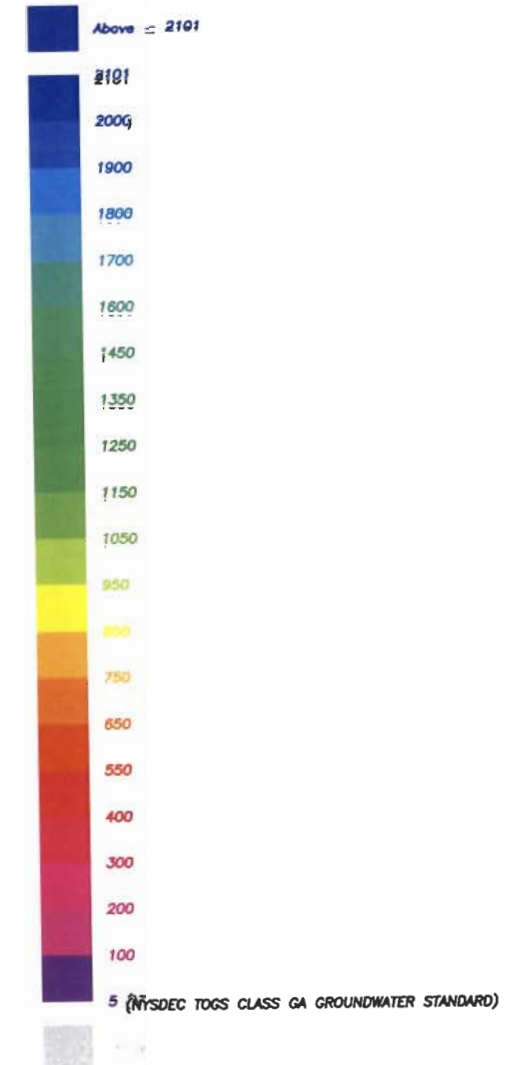
MAP DERIVED FROM DISCLOSED PROPERTY LOT 16, 17 & 23 SARGENT PLOK TRACT FREEPORT TOWNSHIP NEW YORK COUNTY  
 NAD 83 COORDINATE SYSTEM  
 GRAPHIC SCALE  
 0 50' 100'



MAP DERIVED FROM  
TOPOGRAPHIC MAP OF  
DESCRIBED PROPERTY  
AND  
LOT NOS. 24 & 25  
MAP OF  
SUNSHINE PARK  
SITUATED AT  
FREEPORT  
TOWN OF HELIPSTEAD  
NASSAU COUNTY, NEW YORK  
NASSAU COUNTY MAP NO. 179  
NASSAU COUNTY CASE NO. 1526  
FILED: JUNE 4, 1981  
COMMITTED ONLY TO  
NEW YORK STATE DEPARTMENT  
OF ENVIRONMENTAL CONSERVATION

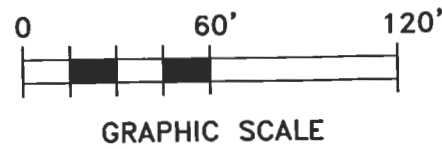
APPROXIMATE  
GROUNDWATER  
FLOW DIRECTION

Concentrations (ug/L)



LEGEND

- Soil Boring Location
- ← Concentration of PCE in groundwater in ppb



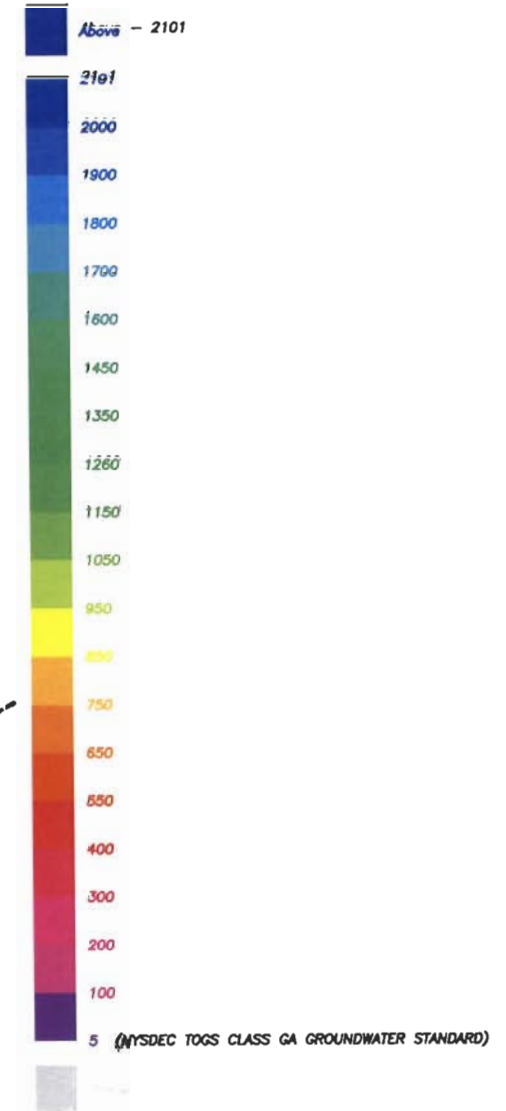
TITLE			
TETRACHLORETHENE (PCE) CONCENTRATIONS WATER TABLE GROUNDWATER SAMPLES			
PROJECT:			
METAL ETCHING, INC.			
Environmental Resources Management		SCALE	FIGURE
ERM		GRAPHIC	5
DRAWN: MFM/EMF		DATE	
JOB NO.: 0011475	FILE NAME: 0011475-00-043	11/1/06	



MAP DERIVED FROM  
 TOPOGRAPHIC MAP OF  
 DESCRIBED PROPERTY  
 AND  
 LOT NOS. 24 & 25  
 MAP OF  
 SUNSHINE PARK  
 SITUATED AT  
 FREEPORT  
 TOWN OF HEMPSTEAD  
 NASSAU COUNTY, NEW YORK  
 NASSAU COUNTY MAP NO. 179  
 NASSAU COUNTY CASE NO. 1328  
 FILED JUNE 4, 1921  
 SUBMITTED ONLY BY  
 NEW YORK STATE DEPARTMENT  
 OF ENVIRONMENTAL CONSERVATION

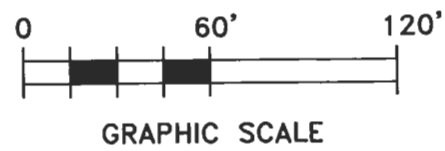
APPROXIMATE  
 GROUNDWATER  
 FLOW DIRECTION

Concentration (ug/l)



LEGEND

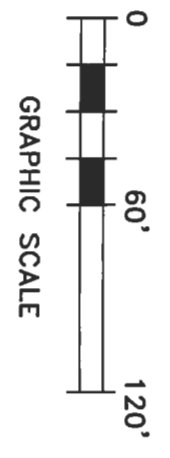
- Soil Boring Location
- └─ Concentration of TCE in groundwater in pbb



TITLE			
TRICHLOROETHENE (TCE) CONCENTRATIONS WATER TABLE GROUNDWATER SAMPLES			
PROJECT:			
METAL ETCHING, INC.			
Environmental Resources Management		SCALE	FIGURE
ERM		GRAPHIC	6
DATE			
DRAWN: MFM/EMF	JOB NO.: G011475	FILE NAME: 0011475-00-044	DATE: 11/1/06

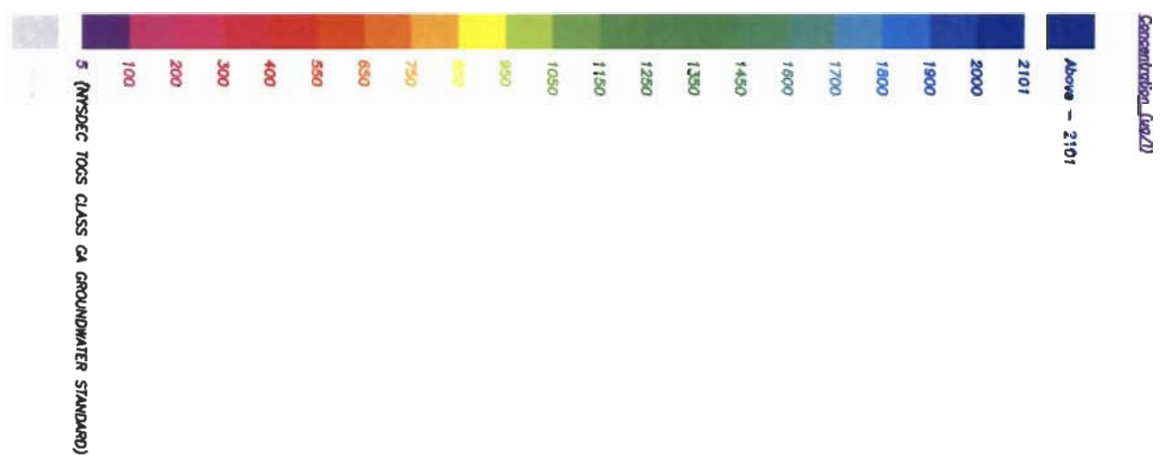
MAP DERIVED FROM  
 TOPOGRAPHIC MAP OF  
 DESCRIBED PROPERTY  
 AND  
 LOT NOS. 24 & 25  
 SITS  
 SITUATED AT  
 SUNSHINE PARK  
 TOWN OF HENNINGTON  
 HUNTSVILLE, ALABAMA  
 HUNTSVILLE COUNTY CODE NO. 128  
 FILED JUNE 4, 1981  
 QUANTIFIED ONLY TO  
 THE EXTENT OF THE  
 METEOROLOGICAL CORRELATION

APPROXIMATE  
 GROUNDWATER  
 FLOW DIRECTION



● Soil Boring Location  
 Concentration of CIS-1,2-Dichloroethene  
 in groundwater in ppb

LEGEND

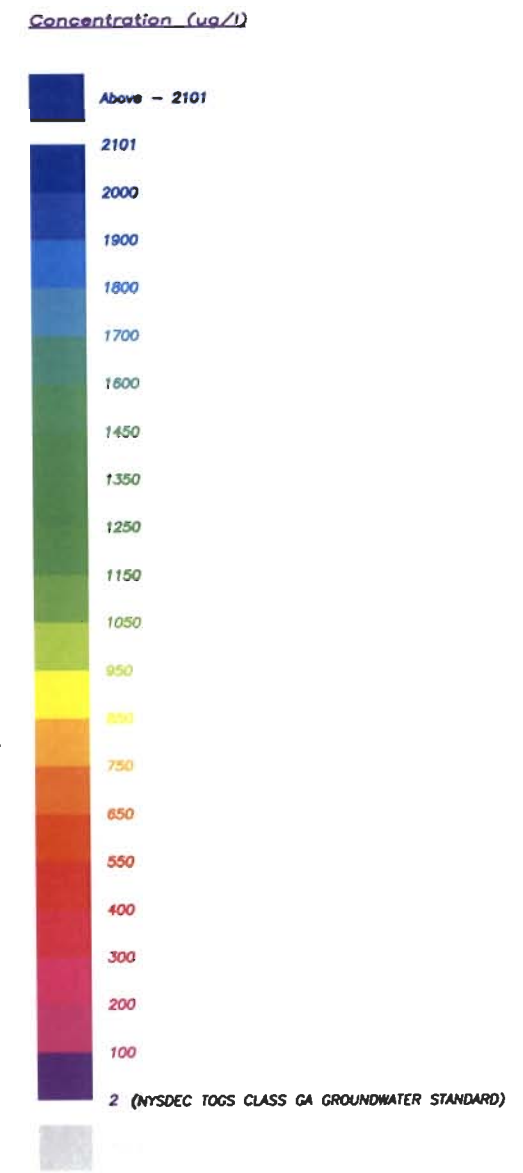


TITLE		CIS-1,2-DICHLOROETHENE CONCENTRATIONS WATER TABLE GROUNDWATER SAMPLES	
PROJECT:		METAL ETCHING, INC.	
SCALE	FIGURE		
GRAPHIC	7		
DATE			
11/1/06			
DRAWN: MFM/EMF    JOB NO.: 0011475    FILE NAME: 0011475-00-045 ERM    Environmental Resource Management			

MAP DERIVED FROM  
 TOPOGRAPHIC MAP OF  
 DESCRIBED PROPERTY  
 AND  
 LOT NOS. 24 & 25  
 MAP OF  
 SUNSHINE PARK  
 SITUATED AT  
 FREEPORT  
 TOWN OF HEMPSTEAD  
 NASSAU COUNTY, NEW YORK  
 NASSAU COUNTY MAP NO. 178  
 NASSAU COUNTY CASE NO. 1528  
 FILED: JUNE 4, 1921  
 GUARANTEED ONLY TO  
 NEW YORK STATE DEPARTMENT  
 OF ENVIRONMENTAL CONSERVATION

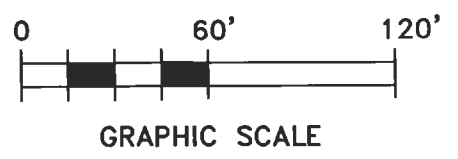


APPROXIMATE  
 GROUNDWATER  
 FLOW DIRECTION



LEGEND

- Soil Boring Location
- └─ Concentration of VC in groundwater in ppb

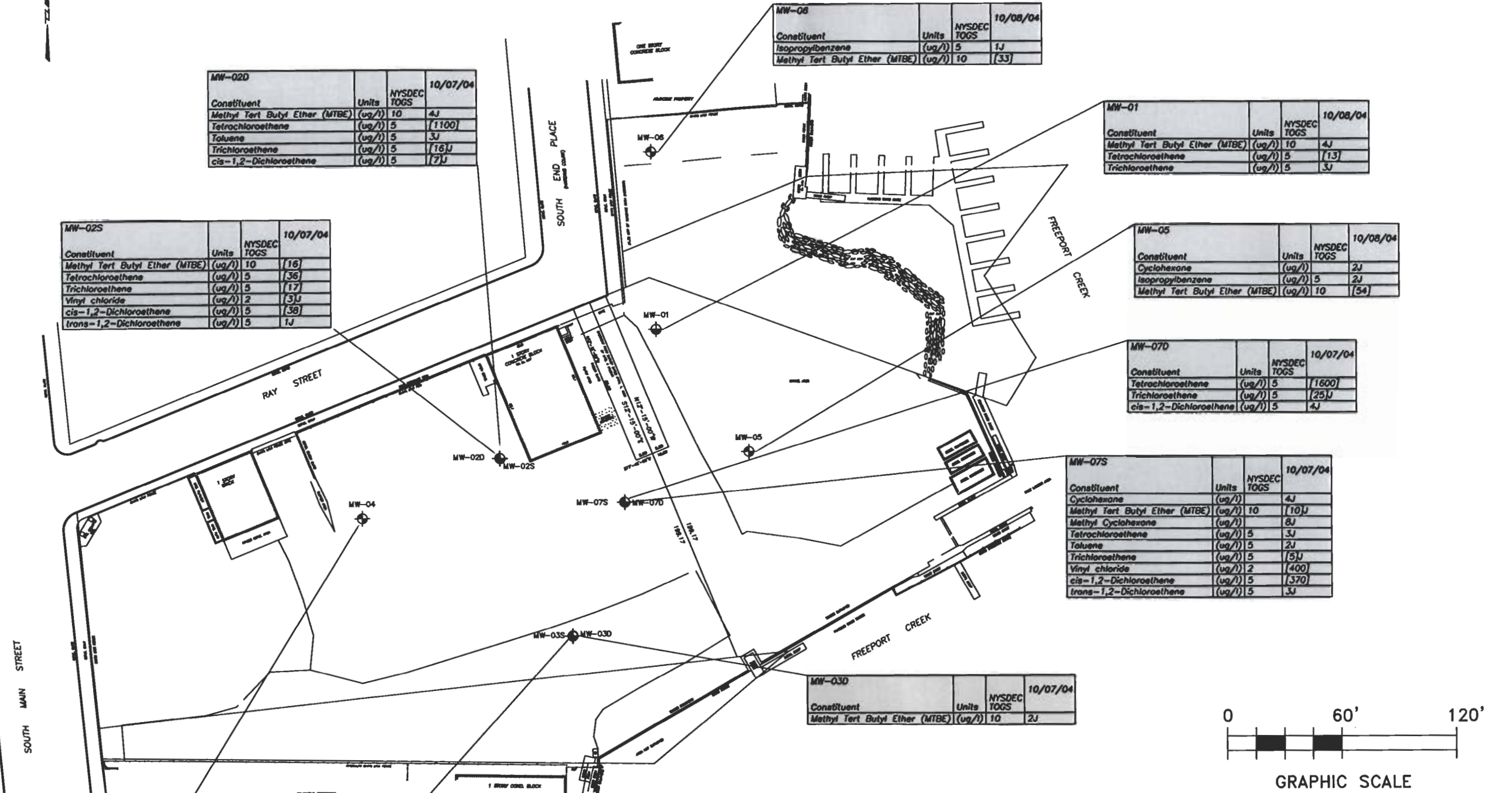


TITLE			
VINYL CHLORIDE (VC) CONCENTRATIONS WATER TABLE GROUNDWATER SAMPLES			
PROJECT:			
METAL ETCHING, INC.			
Environmental Resources Management ERM	SCALE	FIGURE	8
	GRAPHIC		
DRAWN:	JOB NO.:	FILE NAME:	DATE
MFM/EMF	0011475	0011475-00-048	11/1/06



MAP DERIVED FROM  
TOPOGRAPHIC MAP OF  
DESCRIBED PROPERTY  
AND  
LOT NOS. 24 & 25  
MAP OF  
SUNSHINE PARK  
SITUATED AT  
FREEPORT  
TOWN OF HELMSTAD  
NASSAU COUNTY, NEW YORK  
NASSAU COUNTY MAP NO. 179  
NASSAU COUNTY CASE NO. 1528  
FILED JUNE 4, 1921

GUARANTEED ONLY TO:  
NEW YORK STATE DEPARTMENT  
OF ENVIRONMENTAL CONSERVATION



MW-02D			
Constituent	Units	NYSDEC TOGS	10/07/04
Methyl Tert Butyl Ether (MTBE)	(ug/l)	10	4J
Tetrachloroethene	(ug/l)	5	[1100]
Toluene	(ug/l)	5	3J
Trichloroethene	(ug/l)	5	[16]J
cis-1,2-Dichloroethene	(ug/l)	5	[7]J

MW-06			
Constituent	Units	NYSDEC TOGS	10/08/04
Isopropylbenzene	(ug/l)	5	1J
Methyl Tert Butyl Ether (MTBE)	(ug/l)	10	[33]

MW-01			
Constituent	Units	NYSDEC TOGS	10/08/04
Methyl Tert Butyl Ether (MTBE)	(ug/l)	10	4J
Tetrachloroethene	(ug/l)	5	[13]
Trichloroethene	(ug/l)	5	3J

MW-02S			
Constituent	Units	NYSDEC TOGS	10/07/04
Methyl Tert Butyl Ether (MTBE)	(ug/l)	10	[16]
Tetrachloroethene	(ug/l)	5	[36]
Trichloroethene	(ug/l)	5	[17]
Vinyl chloride	(ug/l)	2	[3]J
cis-1,2-Dichloroethene	(ug/l)	5	[58]
trans-1,2-Dichloroethene	(ug/l)	5	1J

MW-05			
Constituent	Units	NYSDEC TOGS	10/08/04
Cyclohexane	(ug/l)	5	2J
Isopropylbenzene	(ug/l)	5	[54]
Methyl Tert Butyl Ether (MTBE)	(ug/l)	10	[54]

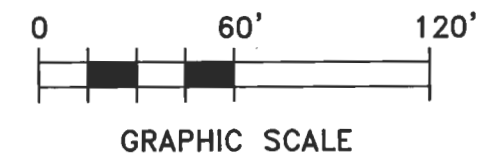
MW-07D			
Constituent	Units	NYSDEC TOGS	10/07/04
Tetrachloroethene	(ug/l)	5	[1600]
Trichloroethene	(ug/l)	5	[25]J
cis-1,2-Dichloroethene	(ug/l)	5	4J

MW-07S			
Constituent	Units	NYSDEC TOGS	10/07/04
Cyclohexane	(ug/l)	5	4J
Methyl Tert Butyl Ether (MTBE)	(ug/l)	10	[10]J
Methyl Cyclohexane	(ug/l)	5	8J
Tetrachloroethene	(ug/l)	5	3J
Toluene	(ug/l)	5	2J
Trichloroethene	(ug/l)	5	[5]J
Vinyl chloride	(ug/l)	2	[400]
cis-1,2-Dichloroethene	(ug/l)	5	[370]
trans-1,2-Dichloroethene	(ug/l)	5	3J

MW-03D			
Constituent	Units	NYSDEC TOGS	10/07/04
Methyl Tert Butyl Ether (MTBE)	(ug/l)	10	2J

MW-04			
Constituent	Units	NYSDEC TOGS	10/08/04
Methyl Tert Butyl Ether (MTBE)	(ug/l)	10	[140]
Tetrachloroethene	(ug/l)	5	3J
Trichloroethene	(ug/l)	5	[3]J
cis-1,2-Dichloroethene	(ug/l)	5	1J

MW-03S			
Constituent	Units	NYSDEC TOGS	10/07/04
Benzene	(ug/l)	1	[6]J
Chlorobenzene	(ug/l)	5	1J
Cyclohexane	(ug/l)	5	1J
Methyl Tert Butyl Ether (MTBE)	(ug/l)	10	[130]
Methyl Cyclohexane	(ug/l)	5	2J
Vinyl chloride	(ug/l)	2	[29]
cis-1,2-Dichloroethene	(ug/l)	5	[32]

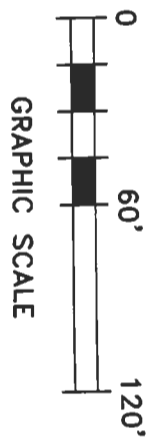
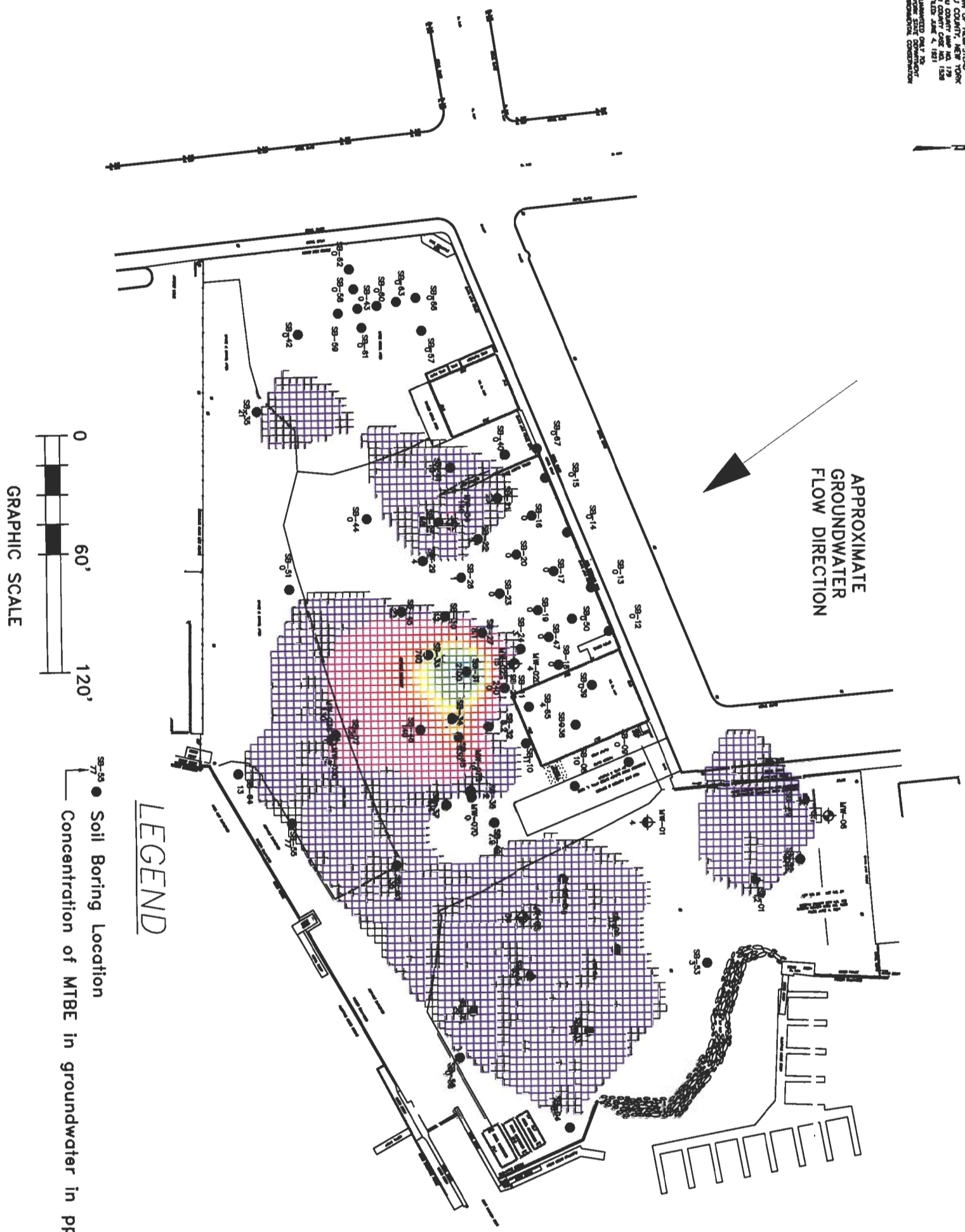


**LEGEND**

- MW-05 MONITORING WELL LOCATION
- [ ] DETECTED GROUNDWATER CONCENTRATION IS ABOVE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) TECHNICAL AND OPERATIONAL GUIDANCE SERIES 111 (TOGS) CLASS GA GROUNDWATER STANDARD
- J ESTIMATED VALUE

TITLE		
VOC DETECTIONS AND EXCEEDENCES MONITORING WELL GROUNDWATER SAMPLES		
PROJECT:		
METAL ETCHING, INC		
Environmental Resources Management ERM DRAWN: MFM/EMF	SCALE	FIGURE
	GRAPHIC	9
DATE	10/23/06	
JOB NO.: 0011475	FILE NAME: 0011475-00-041	

MAP DERIVED FROM  
 TOPOGRAPHIC MAP OF  
 DESCRIBED PROPERTY  
 LOT NOS. 24 & 25  
 MAP OF  
 SUNSHINE PARK  
 SITUATED AT  
 FREEPORT  
 TOWN OF WESTFIELD  
 MASSACHUSETTS  
 MASSACHUSETTS  
 METEOROLOGICAL CODE NO. 128  
 FIELD DATE 4, 1991  
 DRAWN BY: [unreadable]  
 CHECKED BY: [unreadable]  
 DATE OF REVISION: [unreadable]  
 OF DIMENSIONAL CONSTRUCTION



**LEGEND**  
 ● Soil Boring Location  
 Concentration of MTBE in groundwater in ppb

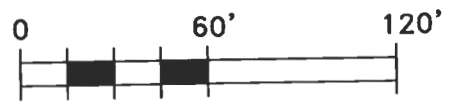


(MTHSDEC TOCS CLASS GA GROUNDWATER STANDARD)

MTE		SCALE		FIGURE
METHYL TERTIARY BUTYL ETHER (MTBE) WATER TABLE GROUNDWATER SAMPLES		GRAPHIC		
PROJECT: METAL ETCHING, INC.		DATE		10
DRAWN BY: ERM		11/1/06		
JOB NO.: 0011475		FILE NAME: Fig 4-14		
DRAWN BY: MFM		DATE		

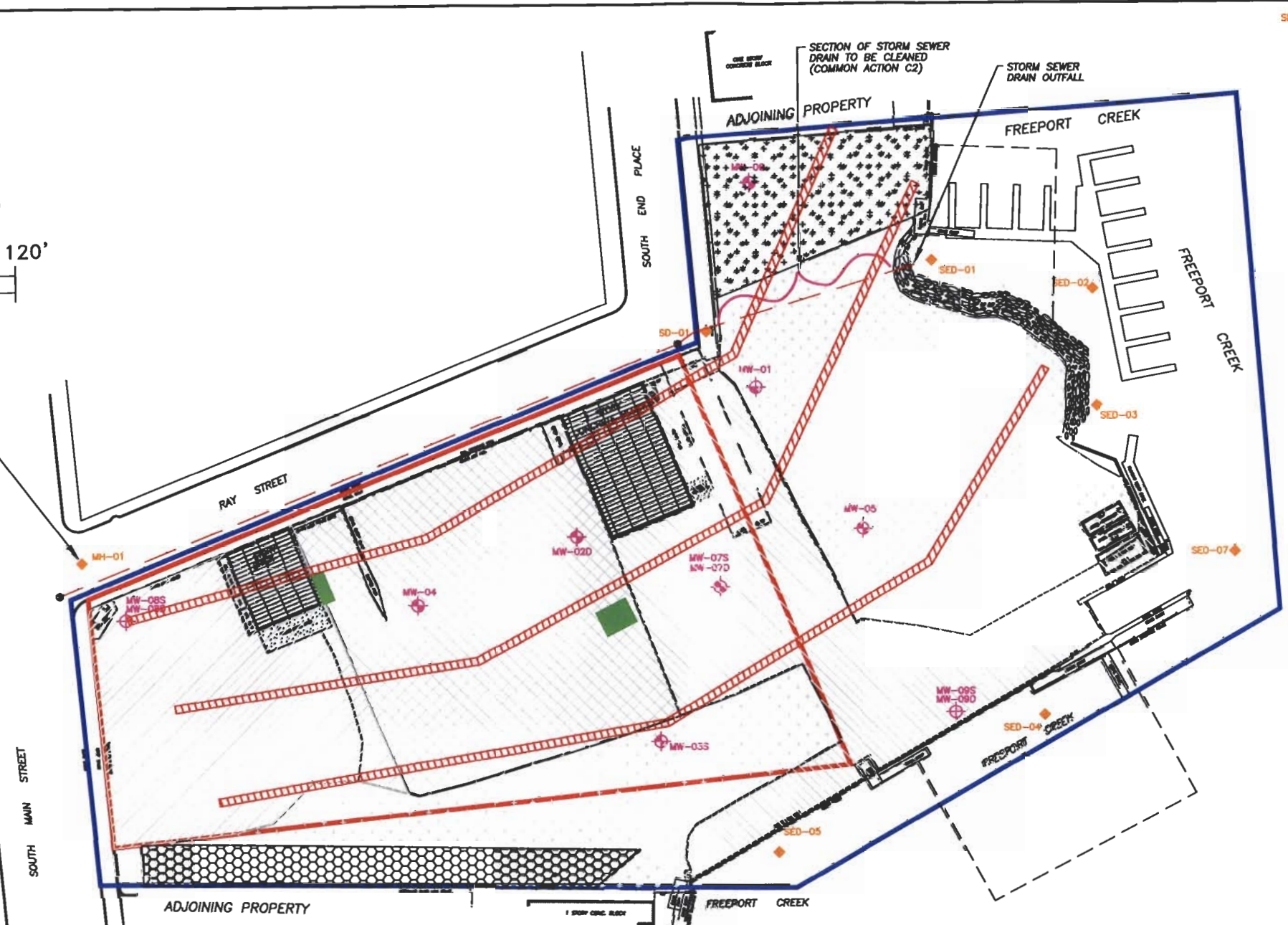


MAP DERIVED FROM  
TOPOGRAPHIC MAP OF  
DESCRIBED PROPERTY  
AND  
LOT NOS. 24 & 25  
MAP OF  
SUNSHINE PARK  
SITUATED AT  
FREEPORT  
TOWN OF HEMPSTEAD  
NASSAU COUNTY, NEW YORK  
NASSAU COUNTY MAP NO. 179  
NASSAU COUNTY CASE NO. 1536  
FILED JUNE 4, 1927  
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OF ENVIRONMENTAL CONSERVATION



GRAPHIC SCALE

MANHOLE TO BE CLEANED  
(COMMON ACTION C2)



- ASPHALT & CONCRETE \*
- ASPHALT \*
- CONCRETE \*
- GRAVEL \*
- INSTALL ASPHALT OR BALLAST COVER OVER CURRENTLY EXPOSED SOILS \*
- GRAVEL, SOIL & WEEDS \*
- SUB-SLAB DEPRESSURIZATION BENEATH SITE BUILDINGS (COMMON ACTION C1)

- STUDY AREA
- SITE
- STORM SEWER DRAIN
- AREA OF IMPACTED SEDIMENT TO BE MONITORED THROUGH MONITORED NATURAL RECOVERY (MNR) (MAY CHANGE BASED ON PRE-DESIGN STUDIES)
- SED-06 SEDIMENT SAMPLE
- MW-08S, MW-08D MONITORING WELLS TO BE INSTALLED, TO BE MONITORED FOR 30 YEARS FOR MONITORED NATURAL ATTENUATION (MNA)
- MW-07S, MW-07D EXISTING MONITORING WELLS TO BE MONITORED FOR 30 YEARS FOR MONITORED NATURAL ATTENUATION (MNA)
- POTENTIAL UST TO BE REMOVED (COMMON ACTION C3)
- PIPING FOR SOIL VAPOR EXTRACTION SYSTEM

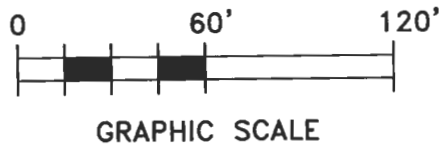
**NOTE:**  
\* TO BE MAINTAINED THROUGH SITE MANAGEMENT PLAN AS PART OF ENVIRONMENTAL EASEMENT (COMMON ACTION C4)

TITLE  
**ALTERNATIVE 2:  
SOIL COVER, GROUNDWATER MNA,  
SVE, AND SEDIMENT MNR  
METAL ETCHING SITE  
FREEPORT, NEW YORK**

PREPARED FOR  
**NYSDEC**

Environmental Resources Management ERM	SCALE	FIGURE
	GRAPHIC	11
DATE	11/1/06	
DRAWN: MFM/EMF	JOB NO.: 0011475	FILE NAME: 0011475-01-038

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MAP OF  
SUNSHINE PARK  
SITUATED AT  
FREEPORT  
TOWN OF HEMPSTEAD  
NASSAU COUNTY, NEW YORK  
NASSAU COUNTY MAP NO. 178  
NASSAU COUNTY CASE NO. 1528  
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MANHOLE TO BE CLEANED  
(COMMON ACTION C2)

MH-01

MW-08S  
MW-08D

MW-04

MW-02S  
MW-02D

MW-03S  
MW-03D

MW-01

MW-05

MW-09S  
MW-09D

SECTION OF STORM SEWER  
DRAIN TO BE CLEANED  
(COMMON ACTION C2)

STORM SEWER  
DRAIN OUTFALL

**LEGEND**

- STUDY AREA
- SITE
- STORM SEWER DRAIN
- AREA OF SEDIMENT REMOVAL (MAY CHANGE BASED ON PRE-DESIGN STUDIES)
- MONITORING WELLS TO BE INSTALLED, TO BE MONITORED FOR 30 YEARS FOR MONITORED NATURAL ATTENUATION (MNA)
- EXISTING MONITORING WELLS TO BE MONITORED FOR 30 YEARS FOR MNA
- POTENTIAL UST TO BE REMOVED (COMMON ACTION C3)
- SUB-SLAB DEPRESSURIZATION BENEATH SITE BUILDINGS (COMMON ACTION C1)
- HOT SPOT EXCAVATION 0 TO 1 FEET BELOW GRADE
- HOT SPOT EXCAVATION 0 TO 4 FEET BELOW GRADE
- HOT SPOT EXCAVATION 1 TO 4 FEET BELOW GRADE
- INSTALL ASPHALT OR BALLAST COVER OVER CURRENTLY EXPOSED SOILS TO BE MAINTAINED THROUGH SITE MANAGEMENT PLAN AS PART OF ENVIRONMENTAL EASEMENT<sup>1</sup>

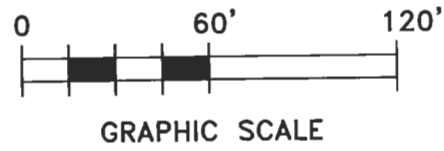
**NOTE:**

1. REFER TO FIGURE 2-1 FOR SURFACE COVERS TO BE MAINTAINED THROUGH SITE MANAGEMENT PLAN AS PART OF ENVIRONMENTAL EASEMENT (COMMON ACTION C4)

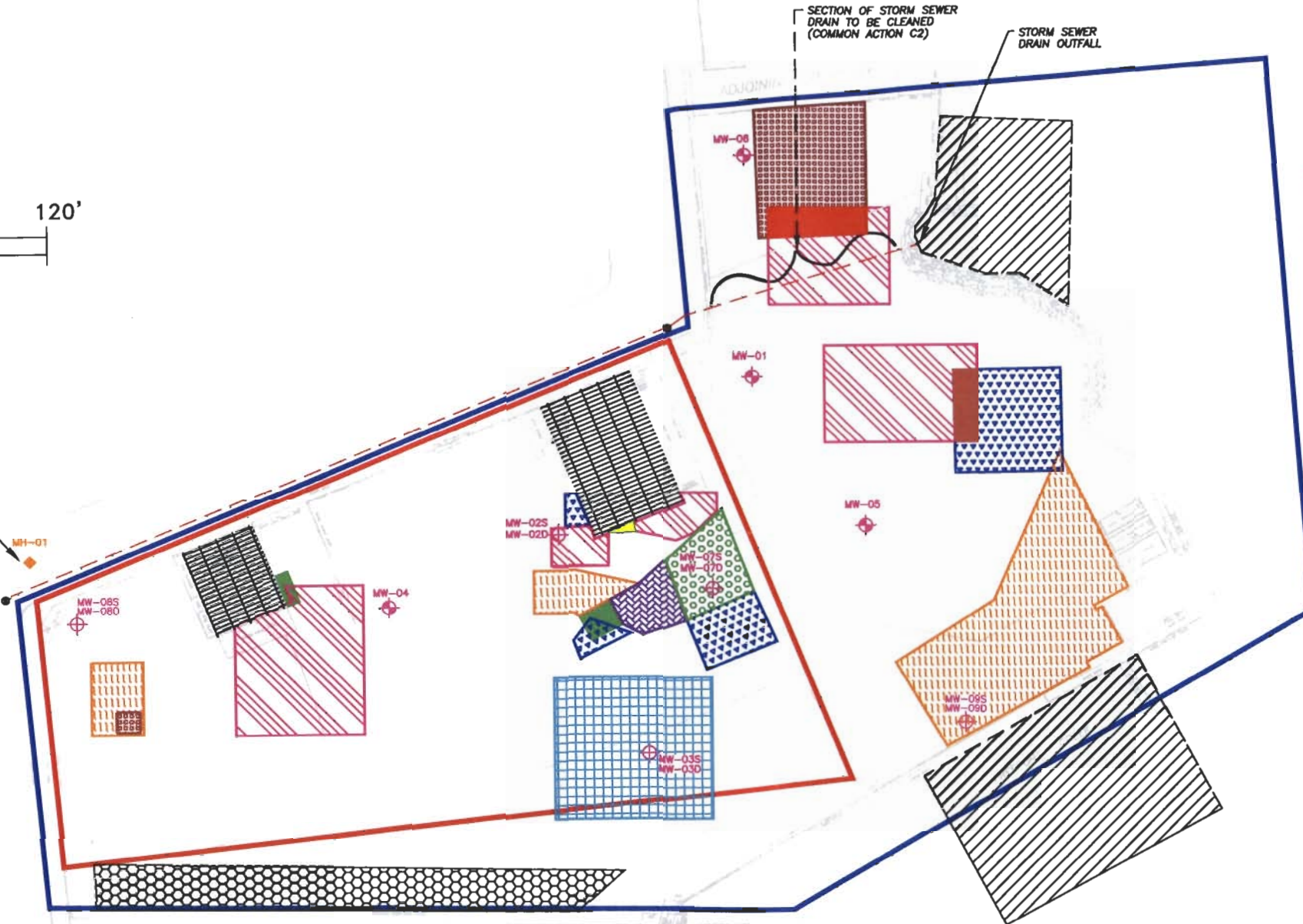
TITLE		ALTERNATIVE 3: HOT SPOT SOIL EXCAVATION TO THE WATER TABLE AND SURFACE COVER, GROUNDWATER MNA AND SEDIMENT REMOVAL METAL ETCHING SITE FREEPORT, NEW YORK	
PREPARED FOR		NYSDEC	
Environmental Resources Management ERM	SCALE	FIGURE	
	GRAPHIC	12	
DATE	11/6/06	DRAMA:	MFM/EMF
JOB NO.:	0011475	FILE NAME:	0011475-01-056



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MAP OF  
SUNSHINE PARK  
SITUATED AT  
FREEPORT  
TOWN OF HEMPSTEAD  
NASSAU COUNTY, NEW YORK  
NASSAU COUNTY MAP NO. 179  
NASSAU COUNTY CASE NO. 1528  
FILED: JUNE 4, 1921  
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MANHOLE TO BE CLEANED  
(COMMON ACTION C2)



**LEGEND**

- STUDY AREA
- SITE
- STORM SEWER DRAIN
- ▨ AREA OF SEDIMENT REMOVAL  
(MAY CHANGE BASED ON PRE-DESIGN STUDIES)
- MW-08S  
MW-08D MONITORING WELLS TO BE INSTALLED, TO BE MONITORED FOR 30 YEARS FOR MONITORED NATURAL ATTENUATION (MNA)
- MW-05 EXISTING MONITORING WELLS TO BE MONITORED FOR 30 YEARS FOR MNA
- POTENTIAL UST TO BE REMOVED  
(COMMON ACTION C3)
- SUB-SLAB DEPRESSURIZATION BENEATH  
SITE BUILDINGS (COMMON ACTION C1)
- HOT SPOT EXCAVATION  
0 TO 1 FEET BELOW GRADE
- HOT SPOT EXCAVATION  
0 TO 4 FEET BELOW GRADE
- HOT SPOT EXCAVATION  
0 TO 14 FEET BELOW GRADE
- HOT SPOT EXCAVATION  
1 TO 4 FEET BELOW GRADE
- HOT SPOT EXCAVATION  
1 TO 9 FEET<sup>1</sup> BELOW GRADE
- HOT SPOT EXCAVATION  
4 TO 9 FEET<sup>1</sup> BELOW GRADE
- HOT SPOT EXCAVATION  
4 TO 14 FEET<sup>1</sup> BELOW GRADE
- HOT SPOT EXCAVATION  
0 TO 1 FEET BELOW GRADE  
AND 4 TO 9 FEET<sup>1</sup> BELOW GRADE
- HOT SPOT EXCAVATION  
0 TO 1 FEET BELOW GRADE  
AND 4 TO 9 FEET<sup>1</sup> BELOW GRADE
- HOT SPOT EXCAVATION  
1 TO 14 FEET<sup>1</sup> BELOW GRADE
- INSTALL ASPHALT OR BALLAST COVER OVER  
CURRENTLY EXPOSED SOILS TO BE MAINTAINED  
THROUGH SITE MANAGEMENT PLAN AS PART OF  
ENVIRONMENTAL EASEMENT<sup>2</sup>

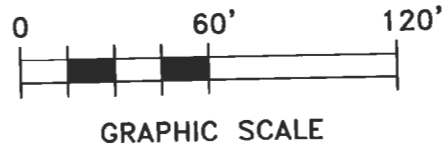
**NOTE:**

1. HOT SPOT EXCAVATION INTERVALS DEEPER THAN 4 FEET BELOW GRADE ARE TO BE BACKFILLED WITH CLEAN FILL AND ZERO VALENT IRON MIXTURE.
2. REFER TO FIGURE 2-1 FOR SURFACE COVERS TO BE MAINTAINED THROUGH SITE MANAGEMENT PLAN AS PART OF ENVIRONMENTAL EASEMENT (COMMON ACTION C4)

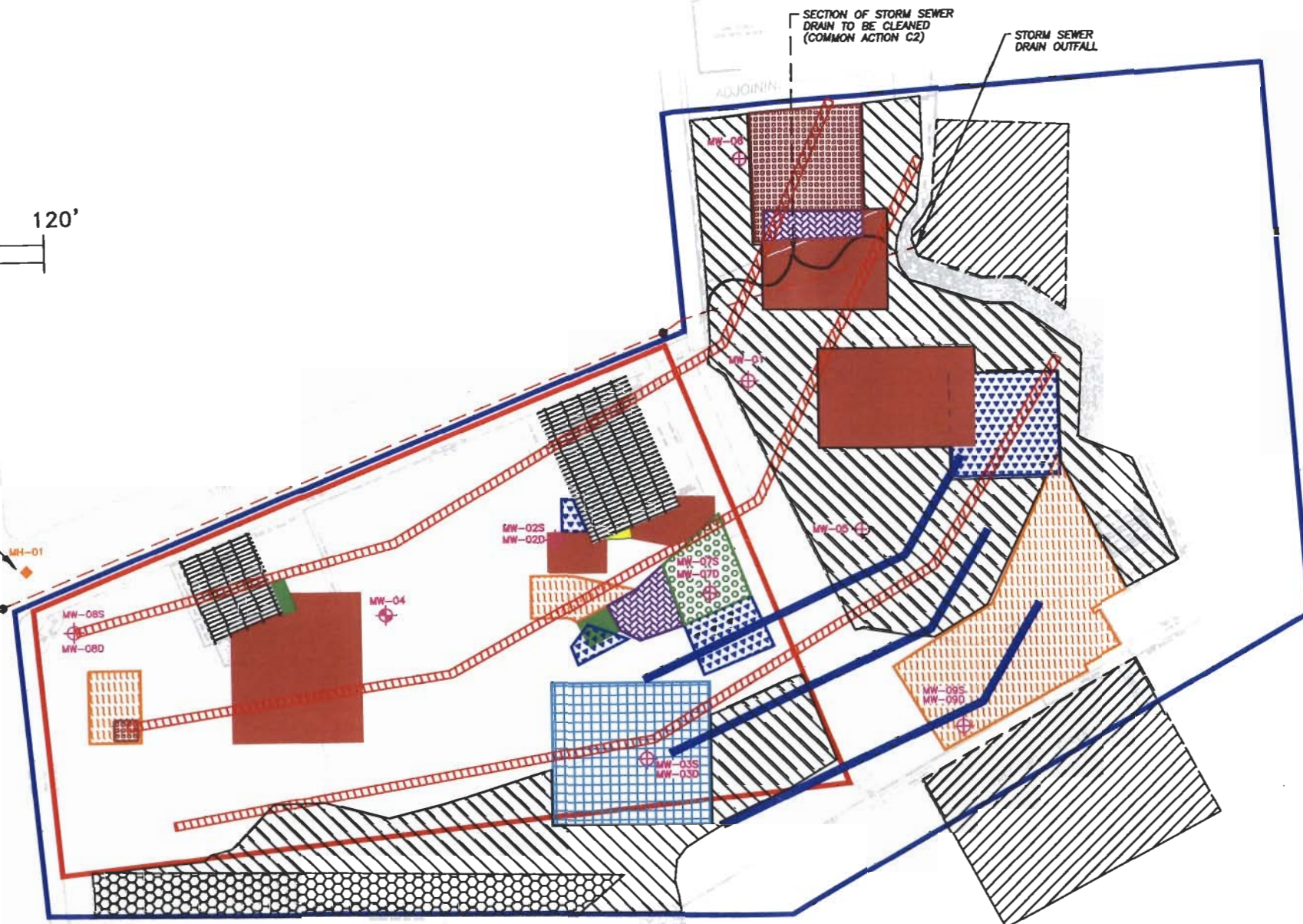
TITLE		ALTERNATIVE 4: HOT SPOT SOIL EXCAVATION, SURFACE COVER GROUNDWATER MNA AND SEDIMENT REMOVAL METAL ETCHING SITE FREEPORT, NEW YORK	
PREPARED FOR		NYSDEC	
Environmental Resources Management ERM	SCALE	FIGURE	13
	GRAPHIC		
DATE	11/1/06		
DRAWN: MFM/EMF	JOB NO.: 0011475	FILE NAME: 0011475-01-039	



MAP DERIVED FROM  
TOPOGRAPHIC MAP OF  
DESCRIBED PROPERTY  
AND  
LOT NOS. 24 & 25  
MAP OF  
SUNSHINE PARK  
SITUATED AT  
FREEPORT  
TOWN OF CHEMPSTEAD  
NASSAU COUNTY, NEW YORK  
NASSAU COUNTY MAP NO. 179  
FILED: JUNE 4, 1921  
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MANHOLE TO BE CLEANED  
(COMMON ACTION C2)



**LEGEND**

- STUDY AREA
- SITE
- STORM SEWER DRAIN
- ▨ AREA OF SEDIMENT REMOVAL  
(MAY CHANGE BASED ON PRE-DESIGN STUDIES)
- MW-08S ⊕  
MW-08D ⊕ MONITORING WELLS TO BE INSTALLED, TO BE  
MONITORED FOR 30 YEARS FOR MONITORED  
NATURAL ATTENUATION (MNA)
- MW-05 ⊕ EXISTING MONITORING WELLS TO BE MONITORED  
FOR 30 YEARS FOR MNA
- POTENTIAL UST TO BE REMOVED  
(COMMON ACTION C3)
- ▨ SUB-SLAB DEPRESSURIZATION BENEATH  
SITE BUILDINGS (COMMON ACTION C1)
- ▨ HOT SPOT EXCAVATION  
0 TO 1 FEET BELOW GRADE
- HOT SPOT EXCAVATION  
0 TO 4 FEET BELOW GRADE
- ▨ HOT SPOT EXCAVATION  
0 TO 14 FEET BELOW GRADE
- ▨ HOT SPOT EXCAVATION  
0 TO 9 FEET BELOW GRADE
- ▨ HOT SPOT EXCAVATION 0 TO 6 INCHES  
AND 4 TO 9 FEET BELOW GRADE
- ▨ HOT SPOT EXCAVATION 0 TO 6 INCHES  
AND 4 TO 14 FEET BELOW GRADE
- ▨ HOT SPOT EXCAVATION  
0 TO 1 FEET BELOW GRADE  
AND 4 TO 9 FEET BELOW GRADE
- ▨ HOT SPOT EXCAVATION  
0 TO 1 FEET BELOW GRADE  
AND 4 TO 9 FEET BELOW GRADE
- ▨ REMOVAL OF UNCAPPED SOILS  
0 TO 6 INCHES BELOW GRADE
- ▨ INSTALL ASPHALT OR BALLAST COVER OVER  
CURRENTLY EXPOSED SOILS TO BE MAINTAINED  
THROUGH SITE MANAGEMENT PLAN AS PART OF  
ENVIRONMENTAL EASEMENT<sup>1</sup>
- ▨ PIPING FOR SOIL VAPOR EXTRACTION SYSTEM
- ZERO VALENT IRON WALL

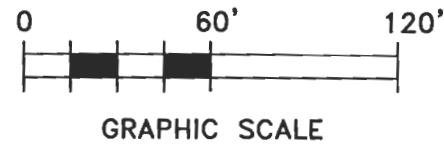
**NOTE:**

1. REFER TO FIGURE 2-1 FOR SURFACE COVERS TO BE MAINTAINED THROUGH SITE MANAGEMENT PLAN AS PART OF ENVIRONMENTAL EASEMENT (COMMON ACTION C4)

TITLE		ALTERNATIVE 5: HOT SPOT SOIL EXCAVATION AND SURFACE COVER, REMOVAL OF UNCAPPED SOIL, ZVI WALL, AND SEDIMENT REMOVAL METAL ETCHING SITE FREEPORT, NEW YORK	
PREPARED FOR		NYSDEC	
Environmental Resources Management ERM	SCALE	FIGURE	14
	GRAPHIC		
DATE	11/1/06		
DRAWN: MFM/EMF	JOB NO.: 0011475	FILE NAME: 0011475-01-053	



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 TOPOGRAPHIC MAP OF  
 DESCRIBED PROPERTY  
 AND  
 LOT NOS. 24 & 25  
 MAP OF  
 SUNSHINE PARK  
 SITUATED AT  
 FREEPORT  
 TOWN OF HEMPSTEAD  
 NASSAU COUNTY, NEW YORK  
 NASSAU COUNTY MAP NO. 179  
 NASSAU COUNTY CASE NO. 1528  
 FILED: JUNE 4, 1921  
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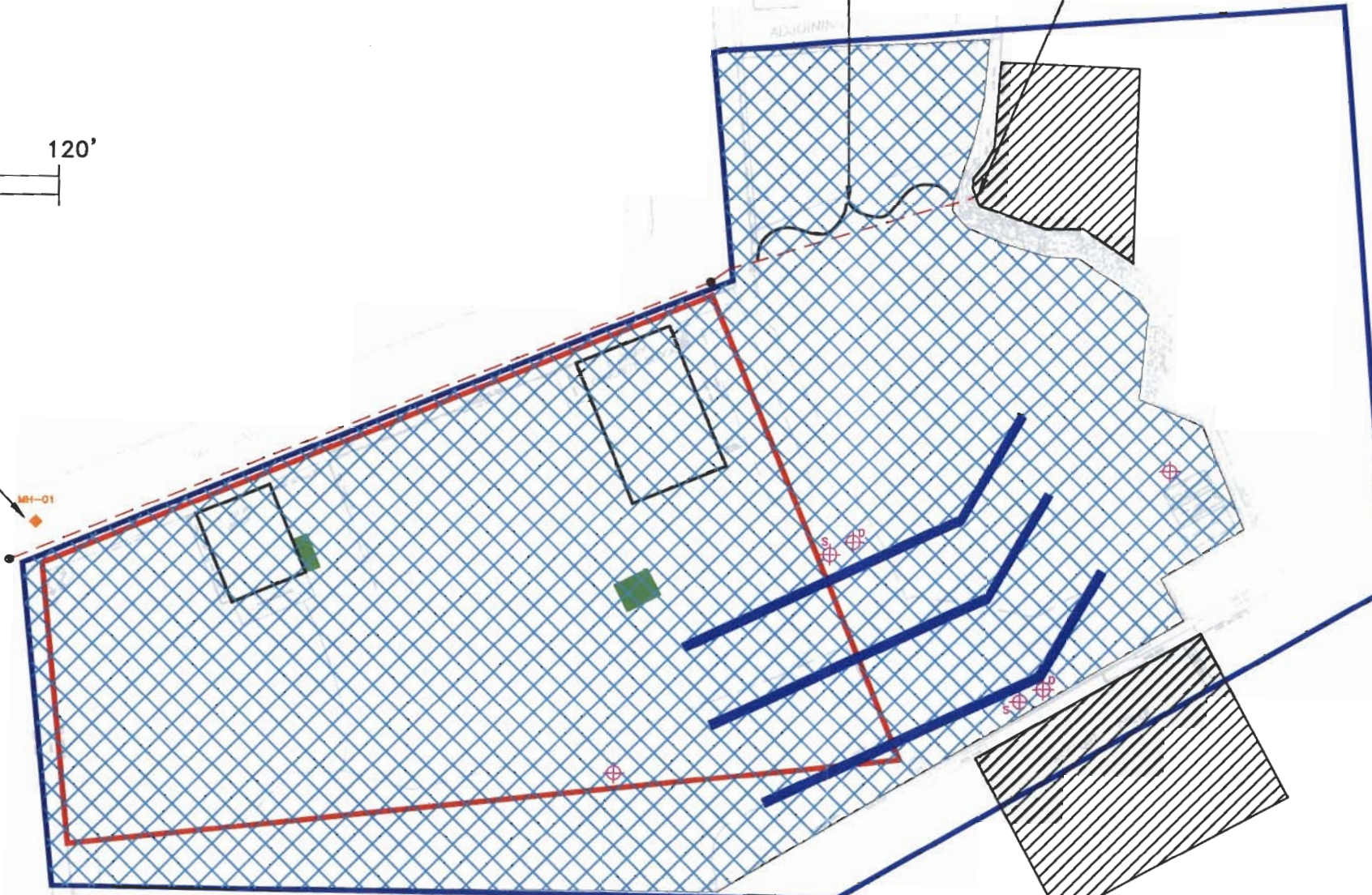


MANHOLE TO BE CLEANED  
 (COMMON ACTION C2)

MH-01

SECTION OF STORM SEWER  
 DRAIN TO BE CLEANED  
 (COMMON ACTION C2)

STORM SEWER  
 DRAIN OUTFALL



**LEGEND**

- ⊕ MONITORING WELLS TO BE INSTALLED
- s SHALLOW
- d DEEP
- STUDY AREA
- SITE
- STORM SEWER DRAIN
- ▨ AREA OF SEDIMENT REMOVAL  
(MAY CHANGE BASED ON PRE-DESIGN STUDIES)
- POTENTIAL UST TO BE REMOVED  
(COMMON ACTION C3)
- ⊗ EXCAVATION OF SOILS EXCEEDING VOC AND METALS  
SCGs TO 14' BELOW GRADE
- BUILDING TO BE DEMOLISHED PRIOR TO SOIL EXCAVATION
- ZERO VALENT IRON WALL

**NOTE:**

1. THE NEED FOR SUB-SLAB DEPRESSURIZATION (COMMON ACTION C1) FOR NEW BUILDINGS CONSTRUCTED POST-REMEDIATION WOULD BE EVALUATED THROUGH SOIL GAS SAMPLING FOLLOWING REMEDIAL ACTION IMPLEMENTATION.
2. ENVIRONMENTAL EASEMENT (COMMON ACTION C4) WOULD BE IMPLEMENTED TO RESTRICT GROUNDWATER USE.

TITLE			
ALTERNATIVE 6: FULL SCALE SOIL EXCAVATION, ZVI WALL AND SEDIMENT REMOVAL METAL ETCHING SITE FREEPORT, NEW YORK			
PREPARED FOR			
NYSDEC			
Environmental Resources Management		SCALE	FIGURE
ERM		GRAPHIC	15
DATE			
DRABNE	JOB NO.:	FILE NAME:	DATE
MFM/EMF	0011475	0011475-01-054	11/1/06