RECORD OF DECISION

Former Rochester Metal Etching Company
State Superfund Project
Rochester, Monroe County
Site No. 828100
March 2011

Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

DECLARATION STATEMENT - RECORD OF DECISION

Former Rochester Metal Etching Company
State Superfund Project
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Statement of Purpose and Basis

This document presents the remedy for the Former Rochester Metal Etching Company site, a Class 2 inactive hazardous waste disposal site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375, 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 Former Rochester Metal Etching Company site and the public's input to the proposed remedy 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.

Description of Selected Remedy

The elements of the selected remedy are as follows:

A. Response Actions:

1. A soil vapor intrusion mitigation system (sub-slab depressurization system) will be installed within the site building located at 100 Lake Avenue. The guidelines for soil vapor intrusion mitigation can be found in NYSDOH's "Guidance for Evaluating Soil Vapor Intrusion in the State of New York."

2. A soil vapor intrusion mitigation system was offered to the property owners of one off-site mixed use building in 2006. The owners subsequently declined the installation of a system. Should the owners request to have a system installed in the future, the NYSDEC shall make provisions for the installation of a system and/or soil vapor intrusion monitoring if determined to still be needed at that time. Indoor air quality was not impacted within the property building and soil vapor intrusion mitigation was recommended based on sub-slab VOC concentrations.

3. Soil vapor intrusion monitoring was offered to the property owners of one off-site manufacturing building in 2006. The owners subsequently declined the monitoring. Should the owners request to have the property monitored in the future, the NYSDEC shall determine if soil

vapor intrusion monitoring is still appropriate. Indoor air quality was not impacted within the property building and monitoring was recommended based on sub-slab VOC concentrations.

B. Engineering Controls:

1. Maintain the cover over the limits of the site property which includes asphalt paving, concrete paving, sidewalks, and the building footprint.

2. Maintain a soil vapor intrusion mitigation system (sub-slab depressurization) that mitigates the current exposure of vapor intrusion within the on-site building.

3. The operation of the components of the remedy would continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

C. Institutional Controls:

1. Imposition of an institutional control in the form of an environmental easement for the controlled property that would include:

(a) limit the use and development of the controlled property to: commercial and/or industrial use;

(b) restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Department, NYSDOH or County DOH;

(c) prohibit agriculture or vegetable gardens on the controlled property;

(d) require compliance to the Department approved Site Management Plan;

(e) require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3).

2. The remedy would require the development, Department approval, and implementation of a Site Management Plan for the site which would include the following:

(a) an Institutional and Engineering Control Plan that identifies all use restrictions and engineering systems for the site and manages future development of the site including:

(i) provisions for management of future excavations in area of residual contamination,

(ii) groundwater restrictions,

(iii) management and inspection of the final engineering cover system,

(iv) and maintaining site access controls and Department notification;

(b) an Operation and Maintenance Plan to assure continued operation, maintenance, monitoring, inspection, and reporting of the active components of the remedy.

(i) provision to maintain all active components of the operation, maintenance, monitoring plan.

(ii) maintaining site access controls and Department notification;

(iii) providing the Department access to the site and O&M records.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy 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 29 2011

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

RECORD OF DECISION

Former Rochester Metal Etching Company
Rochester, Monroe County
Site No. 828100
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SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of hazardous wastes at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of hazardous wastes at this site, as more fully described in this document, has contaminated various environmental media. The remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This Record of Decision (ROD) identifies the selected remedy, summarizes the other alternatives considered, and discusses the reasons for selecting the remedy.

The New York State Inactive Hazardous Waste Disposal Site Remedial Program (also known as the State Superfund Program) is an enforcement program, the mission of which is to identify and characterize suspected inactive hazardous waste disposal sites and to investigate and remediate those sites found to pose a significant threat to public health and environment.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: SITE DESCRIPTION AND HISTORY

The Rochester Metal Etching Company (RME) site is located at 100 Lake Avenue in Rochester, Monroe County, New York. The main feature of the 0.22 acre site is a two story building surrounded by paved parking areas and walkways. The site, located within the Community Center zoning district, is near the intersection of Lake Avenue and Spencer Street within a developed urban area of downtown Rochester. The site property, currently used for commercial purposes, is generally flat with the exception of the southeast corner of the property, which dips to the east. Based on the monitoring wells and site topography, the groundwater flows to the east/northeast towards the Genesee River, located approximately 500 ft to the east of the RME site. At this location, the Genesee River is located within a gorge which is 100 feet below the elevation of the RME site.

The surrounding properties include commercial and industrial parcels which are covered by buildings and pavement (paved parking or roads). The site is bounded to the north by a mixed use building (commercial first floor/apartments upper floors) and a vehicle rental location across Spencer Street, to the west across Lake Avenue by parking lots, to the east by a frozen food facility, and to the south by a diner.

The RME site is underlain by unconsolidated glacial till deposits consisting of fine sand and silt with varying amounts of fine to coarse gravel and Lockport Group bedrock. The overburden soil is generally unsaturated with localized occurrence of water at the overburden/bedrock interface. The thickness of overburden/depth to bedrock ranges from 3.5 ft beneath the site building to approximately 13 ft in the parking lot on the west side of the building.

The RME facility manufactured etched and lithographed metal nameplates from 1967 until 1996 when manufacturing operations ceased. Ferric chloride was reportedly used to etch stainless steel and brass, and hydrofluoric acid and hydrochloric acid solutions were used to etch aluminum. Chlorinated VOCs consisting of tetrachloroethene (PCE), trichloroethylene (TCE), and 1,1,1-trichloroethane (1,1,1-TCA) were used for degreasing. Prior uses that appear to have led to site contamination include metal plating, machining and etching, along with the improper disposal of process wastewater into a series of sumps, drains and trenches.

From 1998 to 1999, the NYSDEC conducted a preliminary investigation of the RME facility. The investigation data led to the listing of the Rochester Metal Etching (RME) Company site as a Class 2 Inactive Hazardous Waste Disposal Site in 2001 and the subsequent completion of the RME site remedial investigation/feasibility study (RI/FS) in 2007.

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. Although no IRMs were approved by the Department, The Brotherhood, MC Inc. (the current site property owner) conducted the following work:

- Concrete Filling of Basement Sumps and Collection Trenches

The sumps and the trench associated with the RME site facility provided the primary preferential pathways identified for the transport and migration of site constituents to subsurface soil and groundwater. In 2005, the owners of the RME site filled in the sumps and the trench with concrete, eliminating these structures as potential pathways for the transport of materials from inside the facility to subsurface media. It is unknown if the trenches were properly cleaned prior to filling with concrete.

- Site Cover

In 2009, the owners of the RME site paved the entire site with asphalt, including the previously exposed surface soil area located in the southeast corner of the site. The boundaries of the site are either covered by asphalt paving or the site building, thus eliminating the potential of direct contact with contaminated soils on site.

A site location map is attached as Figure 1.

SECTION 3: <u>LAND USE AND PHYSICAL SETTING</u>

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to commercial use (which allows for industrial use) as described in Part 375-1.8(g) is/are being evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the investigation to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is included in the Tables for the media being evaluated in Exhibit A.

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:

Rochester Metal Etching Company

Red Brick Associates

The Brotherhood M.C., Inc.

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.

SECTION 5: SITE CONTAMINATION

5.1: Summary of the Remedial Investigation

A Remedial Investigation (RI) has been conducted. The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The field activities and findings of the investigation are described in the RI Report.

The following general activities are conducted during an RI:

- Research of historical information,
- Geophysical survey to determine the lateral extent of wastes,
- Test pits, soil borings, and monitoring well installations,
- Sampling of waste, surface and subsurface soils, groundwater, and soil vapor,

- Sampling of surface water and sediment,
- Ecological and Human Health Exposure Assessments.

5.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to 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.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. The tables found in Exhibit A list the applicable SCGs in the footnotes. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

5.1.2: RI Information

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor
- indoor air

The data have identified contaminants of concern. A "contaminant of concern" is a hazardous waste that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized in Exhibit A. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

tetrachloroethylene (pce)	copper
trichloroethene (tce)	chromium
1,1,1-trichloroethane	mercury
lead	nickel
arsenic	silver
barium	zinc
cadmium	

As illustrated in Exhibit A, the contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil
- soil vapor

- indoor air

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 issuance of the Record of Decision.

There were no IRMs performed at this site during the RI.

5.3: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure*.

People are not drinking site-related contaminants in drinking water since the area is served by a public water supply not affected by this contamination. Direct contact with contaminants in the soil is unlikely because the majority of the site is covered with buildings and pavement. Volatile organic compounds in the soil may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Soil vapor intrusion sampling identified impacts in indoor air quality. This impact is limited to one on-site building and two off-site buildings. Installation of a sub-slab depressurization system (a system that ventilates/removes air beneath the building) and follow-up monitoring has been recommended to reduce the levels of contaminants in the indoor air. However, actions have not been taken.

5.4: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water.

Based upon the resources and pathways identified and the toxicity of the contaminants of ecological concern at this site, a Fish and Wildlife Resources Impact Analysis (FWRIA) was deemed not necessary for OU 01.

The primary contaminants of concern at the site include volatile organic compounds (VOCs) trichloroethene (TCE), 1,1,1-trichloroethane (1,1,1-TCA) and tetrachloroethene (PCE), and inorganic compounds (metals) chromium and copper. VOCs are present in on-site groundwater and indoor air at concentrations exceeding the respective standards, criteria and guidance values (SCGs). Although VOCs exceeded the SCGs within the on-site overburden groundwater, no SCGs were exceeded in on-site soils (with the exception of acetone) or within the downgradient off-site deep bedrock monitoring wells. Metals contamination was detected within the on-site soils and overburden groundwater as well as within the downgradient off-site bedrock monitoring wells at concentrations exceeding the respective SCGs. Investigations did not reveal the presence of an on-site source area based on sampling conducted beneath the building foundation.

TCE was detected in 6 of 13 groundwater samples collected during the RI at concentrations exceeding the SCG for TCE and was the chlorinated volatile organic compound (CVOC) detected at the highest concentration in groundwater (460 ppb). The highest CVOC concentration was detected within monitoring well MW-2, located north of the Site building. TCE was not detected within off-site bedrock monitoring wells.

During the RI, vapor intrusion (VI) sampling was completed in 2004 at the on-site RME building and in 2006 at three (3) off-site properties located in the near vicinity of the site. Based on the VI sampling, TCE and methylene chloride were the only VOCs detected in indoor air samples at concentrations above their respective SCG of 5 µg/m3 and 60 µg/m3. Specifically, TCE was detected in 6 of 17 indoor air samples at concentrations above the SCG of 5 µg/m3 and methylene chloride was detected in 3 of 6 indoor air samples at concentrations above the SCG of 60 µg/m3. All of the indoor air exceedances occurred within the first floor and basement indoor air samples of the on-site RME building, no exceedances were detected within any of the off-site properties.

Copper and chromium were frequently detected above Part 375 SCGs for unrestricted uses and other metals were detected above the Part 375 SCGs less frequently. Copper exceeded the Part 375 SCG of 50 ppm in 28 of 43 subsurface soil samples collected and chromium exceeded the Part 375 SCG of 30 ppm in 26 of 47 surface soil samples collected. The highest concentration of copper, 13,400 ppm, was detected in deeper soil (3 to 5 ft) at SB-10 located next to the collection trench beneath the site building. At NR-2 located within 30 feet of SB-10, the highest concentration of chromium was detected in upper soil (0 to 2 feet interval) at 10,300 ppm. The analytical results suggest that metal etching wastes entered the ground under the RME building. The trench and sumps inside the RME building historically provided a likely pathway to the subsurface soil and groundwater.

Metals contamination was seen in the overburden, overburden/bedrock interface, and bedrock groundwater. The most frequent SCG exceedances were seen in the inorganic compounds copper and chromium. Copper exceeded the SCG in 7 of 12 samples and ranged in concentration from 50 ppb to 9,260 ppb in the overburden well MW-3. Chromium exceeded the SCG in 6 of 11 samples and ranged in concentration from non-detect to 2,310 ppb in the overburden well MW-2.

The RME site is surrounded by properties occupied by buildings and paved parking lots, therefore, the extensive pavement existing on-site eliminates most potential pathways to on-site receptors.

The RME site drains primarily toward the Genesee River located approximately 500 feet east of the RME site. The Genesee River flows north and discharges into Lake Ontario, approximately 6 river miles downstream. The potential migration of contaminants from the overburden groundwater on the RME site to the Genesee River is considered complete, but is limited due to the lack of contiguous groundwater in the overburden which restricts the affected groundwater to the vicinity of the site. The potential migration of contaminants from the bedrock groundwater to the Genesee River is also considered complete, but the potential affects from RME site constituents would not be expected to result in detectable increases in the levels of constituents in the river due to the fact that infiltration of water into the waste material is minimized by the cap over the site.

SECTION 6: SUMMARY OF THE EVALUATION OF ALTERNATIVES

To be selected the 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. The remedy must also attain the remedial action objectives identified for the site, which are presented in Exhibit B. Potential remedial alternatives for the Site were identified, screened and evaluated in the feasibility study (FS) report.

A summary of the remedial alternatives that were considered for this site is presented in Exhibit C. Cost information is presented in the form of present worth, which represents the amount of money invested in the current year that would 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 would cease after 30 years if remediation goals are not achieved. A summary of the Remedial Alternatives Costs is included as Exhibit D.

6.1: Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375. 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 six "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. 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.

4. 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.

5. Short-term Impacts and 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.

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.

8. Land Use. When cleanup to pre-disposal conditions is determined to be infeasible, the Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

The final criterion, Community Acceptance, 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.

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

6.2: Elements of the Remedy

The basis for the Department's remedy is set forth at Exhibit E.

The estimated present worth cost to implement the remedy is 175000. The cost to construct the remedy is estimated to be 35000 and the estimated average annual cost is 11000.

The elements of the selected remedy are as follows:

A. Response Actions:

1. A soil vapor intrusion mitigation system (sub-slab depressurization system) will be installed within the site building located at 100 Lake Avenue. The guidelines for soil vapor intrusion mitigation can be found in NYSDOH's "Guidance for Evaluating Soil Vapor Intrusion in the State of New York."

2. A soil vapor intrusion mitigation system was offered to the property owners of one off-site mixed use building in 2006. The owners subsequently declined the installation of a system. Should the owners request to have a system installed in the future, the NYSDEC shall make provisions for the installation of a system and/or soil vapor intrusion monitoring if determined to still be needed at that time. Indoor air quality was not impacted within the property building and soil vapor intrusion mitigation was recommended based on sub-slab VOC concentrations.

3. Soil vapor intrusion monitoring was offered to the property owners of one off-site manufacturing building in 2006. The owners subsequently declined the monitoring. Should the owners request to have the property monitored in the future, the NYSDEC shall determine if soil vapor intrusion monitoring is still appropriate. Indoor air quality was not impacted within the property building and monitoring was recommended based on sub-slab VOC concentrations.

B. Engineering Controls:

1. Maintain the cover over the limits of the site property which includes asphalt paving, concrete paving, sidewalks, and the building footprint.

2. Maintain a soil vapor intrusion mitigation system (sub-slab depressurization) that mitigates the current exposure of vapor intrusion within the on-site building.

3. The operation of the components of the remedy would continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

C. Institutional Controls:

1. Imposition of an institutional control in the form of an environmental easement for the controlled property that would include:

(a) limit the use and development of the controlled property to: commercial and/or industrial use;

(b) restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the Department, NYSDOH or County DOH;

(c) prohibit agriculture or vegetable gardens on the controlled property;

(d) require compliance to the Department approved Site Management Plan;

(e) require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3).

2. The remedy would require the development, Department approval, and implementation of a Site Management Plan for the site which would include the following:

(a) an Institutional and Engineering Control Plan that identifies all use restrictions and engineering systems for the site and manages future development of the site including:

(i) provisions for management of future excavations in area of residual contamination,

(ii) groundwater restrictions,

(iii) management and inspection of the final engineering cover system,

(iv) and maintaining site access controls and Department notification;

(b) an Operation and Maintenance Plan to assure continued operation, maintenance, monitoring, inspection, and reporting of the active components of the remedy.

(i) provisions to maintain all active components of the operation, maintenance, monitoring plan.

(ii) maintaining site access controls and Department notification;

(iii) providing the Department access to the site and O&M records.

Exhibit A

Nature and Extent of Contamination

This section describes the findings of the Remedial Investigation for all environmental media that were evaluated. As described in Section 5.1.2, samples were collected from various environmental media to characterize the nature and extent of contamination.

For each medium, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants are arranged into surface soil, sub-surface soil, groundwater, soil vapor/sub-slab vapor/air categories; {volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides/ polychlorinated biphenyls (PCBs), and inorganics (metals and cyanide)}. For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use. For soil, if applicable, the Restricted Use SCGs identified in Section 5.1.1 are also presented.

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

As described in the RI report, many waste, surface soil, subsurface soil, groundwater, indoor air, soil vapor and outdoor air samples were collected to characterize the nature and extent of contamination. Samples collected during the RI were submitted for volatile organic compounds (VOCs), inorganic compounds (metals), semi-volatile organic compounds (SVOCs), pesticides and polychlorinated biphenyls (PCBs) analysis. Site characterization sample results collected as part of the Department's *Site Investigation Report, September 2000,* were also used to evaluate the nature and extent of the soil and groundwater contamination and are discussed below as appropriate. As summarized in Table 2, the main categories of contaminants that exceed their SCGs are chlorinated volatile organic compounds (CVOCs) and inorganic compounds (metals). 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. Air samples are reported in micrograms per cubic meter ($\mu g/m^3$). Figures 2 through 6 and Table 2 summarizes the degree of contamination for the contaminants of concern in surface soil, subsurface soil, groundwater, soil vapor and indoor air 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.

Waste Materials

The sumps (SMP-1, SMP-2 and SMP-3) and trenches (TR-1, through TR-5) located in the basement areas of the RME facility where plating operations were conducted, were investigated as potential pathways for the migration of constituents into subsurface soil and groundwater below the facility. Waste material and standing water samples were collected from the structures and analyzed for metals and volatile organic compounds. Elevated concentrations of copper and chromium were detected in the sump and trench samples providing evidence that these structures were used to convey process wastes. The highest concentrations of copper and chromium detected in these structures were found in the trench waste materials at concentrations greater than 4,000 ppm. Other inorganic constituents were also detected in these structures at elevated concentrations. Trace levels of TCE and acetone were detected in the sumps and trench at low level concentrations (< 1 ppm). Standing water collected from sump SMP-1 revealed detectable concentrations of copper, lead, and zinc at concentrations greater than 20,000 ppb. No VOCs were detected in the water collected from the sump. The locations of waste material samples are illustrated on

Figure 2.

Waste identified during the RI/FS was addressed during the work completed in 2005 by The Brotherhood, MC Inc. (current site property owners). The work, described in Section 5.2, involved filling the sumps and trenches with concrete and thus eliminating these structures as potential pathways for hazardous waste transport. It is unknown if the trenches were properly cleaned prior to filling with concrete. So, although the waste may remain, it is either encased within the concrete or capped with the concrete, thus minimizing the migration of the waste from this area.

Surface Soil

Twelve surface soil samples were collected from a depth of 0-2 inches below surface vegetation from the previously exposed soil area located in the southeast corner of the site. The surface soil samples were analyzed for inorganic compounds. Elevated concentrations were primarily detected for chromium, copper, lead, mercury and zinc. The inorganics having the highest frequency of exceeding applicable SCGs included chromium which exceeded the Part 375 unrestricted SCG of 30 ppm in all samples collected, copper which exceeded the Part 375 unrestricted SCG of 50 in all samples collected, lead which exceeded the Part 375 unrestricted SCG of 63 in all samples collected, mercury which exceeded the Part 375 unrestricted SCG of 0.18 ppm in 10 of 12 samples collected, and zinc which exceeded the Part 375 unrestricted SCG of 109 ppm in all samples collected. When compared to Part 375 commercial SCGs, the frequency of surface soil exceedances was much lower than unrestricted exceedances. Metals in surface soil that exceeded the Part 375 commercial SCGs included arsenic in 1 of 12 samples, barium in 3 of 12 samples, chromium in 2 of 12 samples, copper in 3 of 4 samples, and lead in 7 of 12 samples.

The presence of these levels of metals in surface soils suggests that metal etching wastes may have been discharged in some manner to the ground surface outside the basement door. During the time of surface soil sampling, this relatively small portion of area (approximately 15 feet by 40 feet) was the only exposed soil located on the site and all other surface areas were either covered by the building foundation or asphalt/concrete cover. The exposed soil area was covered with asphalt in 2009 and therefore these soils no longer pose a threat as a direct contact pathway. Additionally, the asphalt serves as a cover over the inorganic waste, thus reducing the infiltration of water into the contamination and the migration of the contamination into groundwater. The locations of the surface soil samples are illustrated on Figure 2 and summarized within Table 2.

Three background soil samples, designated as BS-1, BS-2 and BS-3, were collected off-site along Spencer Street and analyzed for metals and SVOCs. The background soil sample results revealed detectable concentrations of inorganic constituents less than the Part 375 SCGs for unrestricted uses, except for hexavalent chromium, copper, lead, mercury and zinc. Hexavalent chromium exceeded the Part 375 SCG of 1 ppm in two (2) background samples at 12 ppm. Copper exceeded the Part 375 SCG of 50 ppm in one (1) background sample at 98 ppm. Lead exceeded the Part 375 SCG of 63 in two (2) background samples at 66 and 347 ppm. Mercury exceeded the unrestricted use SCG of 0.18 ppm in one (1) background samples at 0.38 ppm. Zinc exceeded the Part 375 SCG of 109 in one (1) background sample at 205 ppm.

In background samples, SVOC concentrations were less than Part 375 SCGs for unrestricted uses, except at location BS-2 where four PAHs were detected above the applicable Part 375 SCGs. At location BS-2, benzo(k)fluoranthene, benzo(a)pyrene, dibenzo(a,h)anthracene, and benzo(a)anthracene were detected at 12, 14, 2.9, and 15 ppm, respectively. It is common for background samples collected from urban areas to have PAH concentrations above Part 375 SCGs for unrestricted uses. The locations of the background soil samples are illustrated in Figure 3.

Surface soil contamination identified during the RI/FS was addressed during the ASPHALT COVER WORK completed in 2009 which involved paving the entire site and thus eliminating the potential of direct contact with contaminated soils on site as described in Section 5.2.

Table #2 – Surface Soil				
SURFACE SOIL	**Contaminants of Concern**	**Concentration Range Detected (ppm)[a]**	**Unrestricted SCG[b] (ppm)[a]**	**Frequency of Exceeding SCG**
Inorganic Compounds	Arsenic	3.9 – 26	13	3 of 12
	Barium	85 – 1150 J	350	3 of 12
	Cadmium	1.1 – 3.9 J	2.5	4 of 12
	Chromium	33 J – 1890 J	30	12 of 12
	Hex. Chromium	ND – 23 J	1	1 of 9
	Copper	160 – 6110	50	4 of 4
	Lead	290 J – 12500 J	63	12 of 12
	Mercury	0.06 – 0.9	0.18	10 of 12
	Nickel	10 J – 190 J	30	4 of 12
	Silver	0.32 – 10 J	2	5 of 12
	Zinc	247 - 1010	109	12 of 12

[a] ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
[b] SCG = standards, criteria, and guidance values;
Soil SCGs are based on the Department's Cleanup Objectives contained within 6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives for Unrestricted Use.
ND = Compound Not Detected

Subsurface Soil

Subsurface soil samples were collected beneath the building footprint at 17 locations at depths ranging from just below the foundation flooring to six feet below the flooring. Soil samples were collected outside of the Site building footprint at 15 locations at depth ranging from ground surface to 12 feet below grade. Subsurface soil samples collected during the Site Investigation and RI were analyzed for inorganic compounds, VOCs, SVOCs, pesticides and PCBs. In general, the soil sample results indicated the widespread presence of discolored soil and the presence of inorganic constituents detected above Part 375 SCGs for unrestricted uses. Soil samples were described within the soil boring logs as including brownish yellow, red, green, and pink stains which can be suggestive of metal etching wastes. The locations of the subsurface soil samples are illustrated on Figure 2 and summarized within Table 2.

Copper and chromium were frequently detected above Part 375 SCGs for unrestricted uses and other metals were detected above the Part 375 SCGs less frequently. Copper exceeded the Part 375 SCG of 50 ppm in 28 of the 43 subsurface soil samples collected and chromium exceeded the Part 375 SCG of 30 ppm in 26 of 47 surface soil samples collected. The highest concentration of copper, 13,400 ppm, was detected in deeper soil (3 to 5 ft) at SB-10 located next to the collection trench beneath the site building. At NR-2, located within 30 feet of SB-10, the highest concentration of chromium was detected in upper soil (0 to 2 feet interval) at 10,300 ppm. The analytical results suggest that metal etching wastes entered the ground under the RME building. The trench and sumps inside the RME building historically provided a likely pathway to the subsurface soil and groundwater.

North of the former RME facility (MW-2, SB-2, and SB-3), copper was detected in soil exceeding the Part 375 SCG for unrestricted uses, including deeper soil intervals (between 8 and 10 feet). At SB-3, chromium was also in deep soil exceeding Part 375 SCGs for unrestricted uses. Since the ground surface in this area is covered by pavement, it is likely that the migration of metals from under the building accounts for the detection of metals in subsurface soils at these locations. The elevated levels of metals detected in groundwater from MW-2 support this inference, as metals dissolved in groundwater may be transported to downgradient locations.

When compared to Part 375 commercial SCGs, the frequency of soil exceedances was much lower than unrestricted exceedances. Copper and chromium exceeded the Part 375 commercial SCGs 21 of 43 and 5 of 47 samples, respectively. Other metals less frequently exceeding the commercial SCGs included arsenic in 4 of 47 samples, barium in 1 of 47 samples, hexivalent chromium in 1 of 23 samples, and lead in 3 of 47 samples.

Organic constituents (VOCs, SVOCs, and pesticides and PCBs) were not detected or were detected in soil at concentrations less than the applicable Part 375 SCGs for unrestricted uses, except for the VOC acetone and SVOCs pentachlorophenol, and phenol.

Acetone exceeded the Part 375 SCG for unrestricted uses in 21 of the 29 soil samples collected. The detection of acetone ranged from non-detect to 1 ppm, compared to Part 375 SCG for unrestricted uses of 0.05 ppm. Acetone may have been used as a solvent at the RME facility. However, historic documents that were reviewed as part of the RI did not account for its use at the facility.

Phenol was detected at SB-11, at 12 ppm, exceeding the Part 375 unrestricted SCG of 0.33 ppm. Pentachlorophenol was detected at SB-14 at 1.0 ppm, exceeding the Part 375 unrestricted SCG of 0.8 ppm. Phenols are utilized in a variety of uses, including paint removal, which may have been associated with metal etching products. The isolated detection of organic compounds indicates that while these compounds may be associated with the RME site, their occurrence in soil appears limited.

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

Table #1 – Subsurface Soil

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Inorganic Compounds	Arsenic	3 – 19	13	5 of 47
	Barium	11 – 451	350	2 of 47
	Cadmium	ND – 3.7	2.5	2of 47
	Chromium	3 – 10300	30	26 of 47
	Hex. Chromium	ND – 1700 J	1	13 of 23
	Copper	9.6 – 13400	50	28 of 43
	Lead	4.2 – 4270	63	16 of 47
	Mercury	0.03 - 0.74	0.18	7 of 35

Table #1 – Subsurface Soil				
SUBSURFACE SOIL	**Contaminants of Concern**	**Concentration Range Detected (ppm)[a]**	**Unrestricted SCG[b] (ppm)[a]**	**Frequency of Exceeding SCG**
	Nickel	4.2 – 259	30	10 of 47
	Silver	ND – 4.1	2	4 of 46
	Zinc	19 - 737	109	13 of 47
Volatile Organic Compounds (VOCs)	1,1,1-Trichloroethane	ND - 0.014	0.68	0 of 24
	1,2-Dichloroethane	ND - 0.001	0.02	0 of 22
	Acetone	ND - 1.0 D	0.05	21 of 29
	Benzene	ND - 0.034	0.06	0 of 21
	Chloroform	ND - 0.001	0.37	0 of 22
	cis-1,2-Dichloroethene	ND - 0.03	0.25	0 of 21
	Methylene Chloride	ND - 0.001	0.05	0 of 22
	Tetrachloroethene	ND - 0.16	1.3	0 of 26
	Toluene	ND - 0.019	0.7	0 of 21
	Trichloroethene	ND - 0.087	0.47	0 of 28
	Xylenes	ND- 0.13	0.26	0 of 22
SVOCs	Pentachlorophenol	ND - 1.0	0.8	1 of 9
	Phenol	ND - 12	0.33	1 of 10
Pesticides/ PCBs	Pesticides and PCBs	ND	---	0 of 3

[a] ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
[b] SCG = standards, criteria, and guidance values;
Soil SCGs are based on the Department's Cleanup Objectives contained within 6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives for Unrestricted Use.
ND = Compound Not Detected

Groundwater

Groundwater samples were collected from three overburden (MW-1, MW-2 and MW-3), one overburden/bedrock interface (MW-3B) and two bedrock (MW-1B and MW-2B) monitoring wells during the RI. Two overburden monitoring wells (MW-2 and MW-3) were also sampled in 2009 during a limited supplemental groundwater investigation. Overburden monitoring well MW-4 was consistently dry and therefore, no groundwater samples have been obtained from this location. MW-1 was also dry in 2004 and 2009 and was unable to be sampled during these sampling events. The groundwater samples were analyzed for metals, VOCs, SVOCs, pesticides and PCBs. Analytical results of groundwater sampling completed during the RI and supplemental sampling were similar to previous investigation results and identified the presence of chlorinated VOCs in overburden groundwater and inorganic constituents in overburden and bedrock groundwater at levels above the SCGs. The locations of the sampled monitoring wells are illustrated on Figure 4 and summarized within Table 2.

Groundwater samples analyzed for metals were collected from the overburden, overburden/bedrock interface and bedrock. Groundwater samples collected during the RI were visually observed to contain suspended particles and contain elevated levels of turbidity > 100 NTU. The groundwater samples collected during the RI were not filtered prior to analysis for metals. Groundwater samples collected in 2009, which were filtered prior to analysis, revealed much lower concentrations of metals. This suggests that turbidity may have contributed to the higher metal concentrations detected during the 2004 and 2006 groundwater sampling events.

In general, metals contamination was seen in the overburden, overburden/bedrock interface, and bedrock groundwater. The most frequent SCG exceedances were seen in the inorganic compounds chromium, copper, lead, manganese, and nickel. Chromium exceeded the SCG in 6 of 11 samples and ranged in concentration from non-detect to 2,310 ppb in the overburden well MW-2. Copper exceeded the SCG in 7 of 12 samples and ranged in concentration from 50 ppb to 9,260 ppb in the overburden well MW-3. Lead exceeded the SCG in 7 of 12 samples and ranged in concentration from non-detect to 695 ppb in the bedrock well MW-1B. Manganese exceeded the SCG in 10 of 12 samples and ranged in concentration from non-detect to 111,000 ppb in the bedrock well MW-1B. Nickel exceeded the SCG in 6 of 12 samples and ranged in concentration of non-detect from 1,170 ppb in overburden/bedrock interface well MW-3B. The concentrations of inorganic constituents detected in groundwater appear variable over time and have not exhibited any clear trends. The variability of concentrations of inorganic constituents may be related to the amount of recharge and the turbidity of samples.

Overburden groundwater VOC exceedances include cis-1,2-dichloroethene (cis-1,2-DCE) and trichloroethene (TCE) which exceeded the SCG in 5 of 13 and 6 of 13groundwater samples collected since 2004, respectively. The highest concentrations of cis-1,2-DCE and TCE detected during the 2009 groundwater sampling were in MW-2, located north of the on-site building, at concentrations of 41 ppb and 190 ppb, respectively. Historic SCG exceedances of tetrachloroethene (PCE) and 1,1,1-trichloroethane (1,1,1-TCA) were also detected in the overburden wells. PCE and 1,1,1-TCA were most recently detected at 17 ppb and 66 ppb, respectively, in MW-2 during the 2006 sampling event. The presence of unrelated chlorinated VOCs TCE and 1,1,1-TCA in groundwater suggests the use of at least two separate chemicals. Although the TCE and 1,1,1-TCA are chemically different, they could have been used for the same purpose (i.e, degreasing) during the historical operation of the RME site and may have originated in the same place.

Groundwater samples were collected for VOCs twice from the overburden/bedrock interface monitoring well MW-3B, located downgradient of the on-site building. The SCG was exceeded for cis-1,2-DCE (at 19 ppb) during the most recent groundwater sampling event at this location (2006). Acetone (at 110 ppb) and 2-butanone (at 120 ppb) only exceeded the applicable SCG during the 2004 sampling event within the overburden/bedrock interface. No VOCs were detected within the four bedrock groundwater samples collected from MW-1B or MW-2B during the RI.

SVOCs and pesticides/PCBs were not detected in groundwater samples exceeding the SCGs.

Four (4) off-site grab groundwater samples, designated as GP-1, GP-3, GP-4 and GP-5, were collected upgradient and/or cross gradient of the site along the western side of Lake Avenue and northern side of Spencer Street. The grab samples were advanced to bedrock refusal via a geoprobe and groundwater samples were submitted for VOC analysis. Groundwater was encountered and collected from four of the six locations advanced. No site contaminants were detected within any of the off-site grab groundwater samples. However, unrelated BTEX compounds were detected within 3 of the 4 grab groundwater samples indicating the presence of a separate upgradient source. Elevated concentrations of gasoline compounds were detected in grab sample GP-4, located southwest of the Site. Grab sample GP-5, located at the corner of Spencer Street and Lake Avenue, was observed to contain a sheen and strong petroleum odor and interference by an unknown petroleum hydrocarbon was detected by the laboratory. Grab sample GP-3, located directly upgradient of site well MW-3, was non-detect with exception of toluene at 3.3 ppb. The varying depth to groundwater and bedrock detected during the installation of the grab samples, in addition to the poor overburden groundwater recharge, indicates that groundwater in the overburden in the vicinity of the site is sporadic and limited. The locations of the upgradient groundwater samples are illustrated in Figure 5.

A spill report, SPILL No. 0911080, has been opened for the unknown petroleum hydrocarbons found upgradient of the site.

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

Table #2 - Groundwater

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	Unrestricted SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Inorganic Compounds	Arsenic	ND - 563	25	3 of 11
	Barium	ND – 3120	1000	2 of 12
	Beryllium	ND – 4.6 J	3	2 of 11
	Cadmium	ND – 17.7	5	3 of 12
	Chromium	ND – 2310	50	6 of 11
	Copper	50 – 9260	200	7 of 12
	Lead	ND – 695	25	7 of 12
	Manganese	ND – 111000	300	10 of 12
	Mercury	ND – 1.4	0.7	2 of 11
	Nickel	ND – 1170	100	6 of 12
	Selenium	5.6 – 150	10	4 of 6
	Silver	ND – 2340	50	2 of 11
	Zinc	ND – 4140 EJ	2000	2 of 12
Volatile Organic Compounds (VOCs)	1,1,1-Trichloroethane	ND - 170	5	2 of 13
	2-Butanone	ND - 120	50	1 of 13
	Acetone	ND - 110	50	1 of 13
	Chloroform	ND - 12	7	1 of 13
	cis-1,2-Dichloroethene	ND - 41	5	5 of 13
	Methylene Chloride	ND - 32	5	1 of 13
	Tetrachloroethene	ND - 17	5	2 of 13
	Trichloroethene	ND - 460	5	6 of 13
SVOCs	SVOCs	ND	---	0 of 1
Pesticides/ PCBs	Pesticides and PCBs	ND	---	0 of 1

[a] ppb = parts per billion, which is equivalent to micrograms per liter, ug/L, in water;

[b] SCG = standards, criteria, and guidance values;

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.

ND = Compound Not Detected

Soil Vapor/Sub-Slab Vapor/Air

During the RI, soil vapor intrusion (SVI) sampling was completed in 2004 at the on-site RME building and in 2006 at three (3) off-site properties located in the vicinity of the site. The SVI sampling included the collection of subslab soil vapor, indoor air, and outdoor air samples to evaluate the potential for exposures via soil vapor intrusion. Indoor air sampling was also conducted at one (1) off-site property in 2004 as well as within the on-Site RME building in 2006. Based on the SVI sampling, TCE and methylene chloride were the only VOCs detected in indoor air samples at concentrations exceeding their respective SCG of 5 $\mu g/m^3$ and 60 $\mu g/m^3$. Specifically, TCE was detected in 6 of 17 indoor air samples at concentrations exceeding the SCG of 5 $\mu g/m^3$ and methylene chloride was detected in 3 of 6 indoor air samples at concentrations exceeding the SCG of 60 $\mu g/m^3$. All of the indoor air exceedances occurred within the first floor and basement indoor air samples of the on-site RME building, no exceedances were detected within any of the off-site properties. The VI sampling locations are shown on Figure 6 and a summary of the VOCs detected in indoor air and subslab vapor air samples are provided in Table 2.

The SVI sampling results were also reviewed in accordance with the *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, dated October 2006. The following summarizes the evaluation of the soil vapor intrusion and indoor air sampling:

- Mitigation was recommended for the on-site RME building due to the presence of TCE at elevated concentrations in sub-slab vapor and corresponding indoor air samples collected in 2004. Elevated concentrations of cis-1,2-DCE, PCE and 1,1,1-TCA were also detected in the subslab and/or indoor air during the 2004 soil vapor sampling event. Additional indoor air samples collected in 2006 confirmed the presence of TCE at concentrations exceeding the NYSDOH Guideline of 5 $\mu g/m^3$ in air. Following the soil vapor intrusion and indoor air sampling, the installation of a soil vapor intrusion mitigation system (sub-slab depressurization system) was recommended for the on-site RME building.

- Mitigation was recommended for one (1) off-site commercial/mixed use property due to the presence of TCE at an elevated concentration in 1 of the 2 subslab samples collected in 2006. TCE was also detected in the basement and first floor indoor air samples collected but at concentrations well below the NYSDOH Guideline of 5 $\mu g/m^3$ in air. Elevated concentrations of PCE were also detected in sub-slab vapor during the 2006 SVI sampling event. Following the soil vapor intrusion sampling, the Department offered to install a soil vapor intrusion mitigation system at no cost to the property owner. The owner subsequently declined the mitigation system installation.

- Monitoring was recommended for one (1) off-site manufacturing property due to the presence of TCE in 1 of 2 subslab samples collected in 2006. TCE was also detected in the indoor air samples collected but at concentrations well below the NYSDOH Guideline value of 5 $\mu g/m^3$ in air. Indoor air sampling, conducted at this property in 2004, did not reveal any concentrations exceeding the NYSDOH Guidelines. Following the soil vapor intrusion sampling, the Department offered to monitor the property at no cost to the property owner. The owner subsequently declined additional SVI sampling.

- No further action was recommended for one (1) off-site commercial property. At this location, low concentrations of TCE were detected within sub-slab vapor and indoor air. Following the soil vapor intrusion sampling, the Department notified the property owner that the detected VOC concentrations were considered to be associated with indoor and/or outdoor sources rather than soil vapor intrusion given the concentrations detected in the sub-slab sample.

Other VOCs were detected in the soil vapor intrusion samples detected in the sub-slab vapor, basement air, and first floor air samples. The presence and concentrations of these compounds is consistent with typical background levels of VOCs in indoor and outdoor air.

Soil vapor and/or indoor air contamination identified during the RI/FS will be addressed in the remedy selection process.

Table #2 – Indoor Air

INDOOR AIR	Contaminants of Concern	Concentration Range Detected ($\mu g/m^3$)[a]	SCG[b] ($\mu g/m^3$)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	1,1,1-Trichloroethane	ND - 76	NS	NA
	1,1-Dichloroethane	ND - 1.1	NS	NA
	1,1-Dichloroethene	ND - 0.99	NS	NA
	1,2,4-Trimethylbenzene	ND - 88	NS	NA
	1,2-Dichloroethene (total)	ND - 2.1	NS	NA
	2,2,4-Trimethylpentane	ND - 270	NS	NA
	2-Propanol	ND - 54	NS	NA
	4-Ethyltoluene	ND - 64	NS	NA
	Acetone	ND - 1,700	NS	NA
	Benzene	1.2 - 77	NS	NA
	Bromodichloromethane	ND - 1.6	NS	NA
	Carbon Disulfide	ND - 2.1	NS	NA
	Chloroform	ND - 19	NS	NA
	Chloromethane	ND - 2.3	NS	NA
	cis-1,2-Dichloroethene	ND - 2.1	NS	NA
	Cyclohexane	ND - 33	NS	NA
	Ethylbenzene	0.87 - 65	NS	NA
	Heptane	ND - 41	NS	NA
	Hexane	1.6 - 110	NS	NA
	m&p-Xylenes	1.9 - 190	NS	NA
	Methyl Ethyl Ketone	ND - 120	NS	NA
	Methylene Chloride	2.8 - 690	60	3 of 6
	o-Xylene	ND - 69	NS	NA

Table #2 – Indoor Air				
INDOOR AIR	**Contaminants of Concern**	**Concentration Range Detected (µg/m³)[a]**	**SCG[b] (µg/m³)[a]**	**Frequency of Exceeding SCG**
	Tetrachloroethene	ND - 17	100	0 of 17
	Toluene	6.8 - 570	NS	NA
	Trichloroethene	ND - 110	5	6 of 17
	Trichlorofluoromethane	ND - 43	NS	NA
	Xylene (total)	2 - 280	NS	NA

Table #2 – Soil Vapor				
SOIL VAPOR	**Contaminants of Concern**	**Concentration Range Detected (µg/m³)[a]**	**SCG[b] (µg/m³)[a]**	**Frequency of Exceeding SCG**
Volatile Organic Compounds (VOCs)	1,1,1-Trichloroethane	0.33 J - 6000	NS	NA
	1,1-Dichloroethene	ND - 670	NS	NA
	1,2-Dichloroethene (total)	ND - 520	NS	NA
	Benzene	ND - 35	NS	NA
	Carbon Disulfide	ND - 400	NS	NA
	Chloroform	ND - 220	NS	NA
	cis-1,2-Dichloroethene	ND - 520	NS	NA
	Cyclohexane	ND - 76	NS	NA
	Methyl Methacrylate	ND - 570	NS	NA
	Methylene Chloride	ND - 270	NS	NA
	Tetrachloroethene	ND - 103	NS	NA
	Toluene	ND - 83	NS	NA
	Trichloroethene	1.3 - 21000	NS	NA

[a] ug/m3 = micrograms per cubic meter

[b] SCG = standards, criteria, and guidance values;

- 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.
- Concentrations of VOCs in air were compared to air guideline values contained within Table 3.1 and typical background levels of VOCs in indoor and outdoor air using the background levels provided in the NYS guidance document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," dated October 2006. The background levels are not SCGs and are used only as a general tool to assist in data evaluation.

ND = Compound Not Detected
NS = SCG Not Specified for this compound
NA = Not Applicable

Exhibit B

SUMMARY OF THE REMEDIATION OBJECTIVES

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified 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 chlorinated volatile organic compounds (CVOCs) and metals in soil and groundwater;

- the release of residual contaminants from soil into groundwater that may create exceedances of groundwater quality standards; and

- the release of contaminants from groundwater beneath structures into indoor air of overlying structures through soil vapor intrusion

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

- ambient groundwater quality standards; and

- the air guidelines provided in the Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.

Groundwater
RAOs for Public Health Protection

- Eliminate or reduce to the extent practicable exposures of persons at or around the site to chlorinated volatile organic compounds (CVOCs) and metals in soil and groundwater.
- Eliminate or reduce to the extent practicable the release of residual contaminants from soil into groundwater that may create exceedances of groundwater.

RAOs for Environmental Protection

- Attain to the extent practicable ambient groundwater quality standards.

Soil Vapor
RAOs for Public Health Protection

- Eliminate or reduce to the extent practicable the release of contaminants from groundwater beneath structures into indoor air of overlying structures.
- Attain to the extent practicable the air guidelines provided in the Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.

Table #3	
Remedial Objectives	**Remedial Action**
1. Eliminate or reduce to the extent practicable exposures of persons at or around the site to chlorinated volatile organic compounds (CVOCs) and metals in soil and groundwater.	- A cover system including asphalt parking lot, the building, and sidewalks. Groundwater use restrictions.
2. Eliminate or reduce to the extent practicable the release of residual contaminants from soil into groundwater that may create exceedances of groundwater.	- The cover system. A Site Management Plan that includes cover maintenance and drainage controls.
3. Attain to the extent practicable ambient groundwater quality standards.	- The cover system.
4. Eliminate or reduce to the extent practicable the release of contaminants from groundwater beneath structures into indoor air of overlying structures.	- The installation of a sub-slab depressurization (SSD) system at the on-site building. Provision to evaluate the potential for vapor intrusion for off-site buildings, including provision for implementing actions recommended to address exposures.
5. Attain to the extent practicable the air guidelines provided in the Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.	- A provision for evaluation of the potential for soil vapor intrusion should the on-site building use or nature change. A provision for evaluating off-site soil vapor intrusion.

Exhibit C

Description of Remedial Alternatives

The following alternatives were considered based on the remedial action objectives (see Exhibit B) to address the contaminated media identified at the site as described in Exhibit A:

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative leaves the site in its present condition and does not provide any additional protection to public health and the environment.

Alternative 2: No Action with Site Management

The No action with Site Management Alternative recognizes the work at the site completed by the PRP described in Section 5.2 and that Site Management and Engineering Controls, and Institutional Controls are necessary to confirm the effectiveness of the PRP work. This alternative maintains engineering controls which were part of the PRP work and includes institutional controls, in the form of and environmental easement and site management plan, necessary to protect public health and the environment from contamination remaining at the site after the PRP work.

Specifically, Alternative 2 would consist of the implementation of an environmental easement which would be used to restrict the site to commercial uses and the use of groundwater at the site, and require the site property owner to maintain the site cover (pavement/building foundation). Under this alternative, the site owner would be responsible for consenting to the environmental easement for the site property.

Present Worth:..*$92,000*
Capital Cost:..*$30,000*
Annual Costs:
Years 1-30:...*$6,000*

Alternative 3: Soil Vapor Intrusion Mitigation with Site Management

This alternative would consist of the following: the installation, operation, and maintenance of a soil vapor intrusion mitigation system (sub-slab depressurization system) for the on-site building, institutional and engineering controls for the site property, and periodic reviews. Institutional controls (environmental easement) would be used to restrict the site to commercial uses and the use of groundwater at the site. The maintenance of the site engineering control (site cover) would be required to prevent exposure to contaminated soil and groundwater. A site management plan would also be required for the maintenance and operation of the on-site soil vapor intrusion mitigation system as well as include provisions for potential future exposures to contaminated subsurface soils and groundwater (i.e., during building demolition or remodeling). Under this alternative the site owner would be responsible for the installation and maintenance of the soil vapor intrusion mitigation system required for the on-site building as well as consenting to the environmental easement for the site property.

Present Worth:..*$175,000*
Capital Cost:..*$35,000*
Annual Costs:
Years 1-30:...*$11,000*

Alternative 4: Restoration to Pre-Disposal or Unrestricted Conditions

This remedy meets all of the SCGs listed in Section 5.1.1 and soil will meet the unrestricted soil clean objectives listed in Part 375-6.8 (a). The remedy would include the demolition of the 5,000 square foot on-site building in order to expose contaminated on-site soil. Once the building is demolished, the contaminated on-site soil would be excavated and disposed off-site. The depth of soil excavation would be to the top of bedrock (approximately between 3.5 and 13 feet below grade surface). Any groundwater encountered during the soil excavation would be required to be dewatered and properly disposed off-site. Clean fill would be placed within the excavation to the grade surface. The excavation and off-site disposal of the soil would eliminate the metals source area and the potential VOC source area, and therefore prevent future exposures.

Present Worth:..$2,000,000
Capital Cost:...$2,000,000
Annual Costs:..$0

Exhibit D

Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
No Action	$0	$0	$0
No Action with Site Management	$30,000	$6,000	$92,000
Soil Vapor Intrusion Mitigation with Site Management	$35,000	$11,000	$175,000
Restoration to Pre-Disposal or Unrestricted Conditions	$2,000,000	$0	$2,000,000

Exhibit E

SUMMARY OF THE SELECTED REMEDY

The Department selected Alternative #3, Soil Vapor Intrusion Mitigation with Site Management as the remedy for this site. The elements of this remedy are described in Section 6.2. The selected remedy is depicted in Figure #7.

Basis for Selection

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

The proposed remedy is based on the results of the RI and the evaluation of the alternatives presented in the FS and PRAP. Alternative 3 is being proposed because, as described below, it satisfies the threshold criteria and provides the best balance of the primary balancing criteria described in Section 7.2. It would achieve the remediation goals for the site by preventing exposure to contaminated soils and groundwater and mitigating potential exposures to soil vapor. Alternative 3 will prevent the potential exposure to contaminated soil, groundwater, and soil vapor intrusion through the implementation of soil vapor intrusion mitigation with site management. The proposed remedy will prevent exposure to groundwater and soil by land use restrictions and engineering controls, respectively, and prevent exposure to soil vapor through the required installation and operation of a sub-slab depressurization system within the on-site building. The building and site pavement currently provides a cover system over the contamination which minimizes the infiltration of water into the waste and the migration of waste into the groundwater and eliminates direct exposure. This alternative will not restore the site to pre-disposal conditions, but would be protective of the public health and environment and would be implemented at a considerably lower cost.

Alternative 1 (No action) and Alternative 2 (No action with Site Management) do not meet the threshold criteria discussed in Section 7.2 and will not be evaluated further. Alternative 4, by removing all soil contaminated above the unrestricted soil cleanup objective, meets the threshold selection criteria. Alternative 3 will also comply with the threshold criteria but to a lesser degree. Because Alternatives 3 and 4 satisfy the threshold criteria, the six balancing criteria are particularly important in selecting a final remedy for the site.

Alternatives 3 and 4 have short-term impacts which could easily be controlled, however, Alternative 3 will have a much smaller impact as Alternative 4 would require the off-site transportation of contaminated soil and groundwater. The time needed to achieve the remediation goals will be the shortest for Alternative 3 and longest for Alternative 4.

Long-term effectiveness is best accomplished by those alternatives involving excavation of the contaminated overburden soils (Alternative 4). Since most of the residual soil contamination is beneath the site building, Alternative 4 would require the demolition of the building as well as the excavation of soil to the top of bedrock (depth of bedrock ranges from 6 to 13 feet below grade surface). Alternative 4 would result in removal of all of the soil chemical contamination at the site and would remove the need for property use restrictions and long-term monitoring. For Alternative 3, site management will remain effective, but will require property use restrictions and periodic reviews.

Alternative 3 will control potential exposures through the implementation of engineering and institutional controls. Maintenance of the engineering control (i.e., site cover) will also reduce the mobility of contaminants by decreasing the infiltration of surface water runoff through the waste, but it will not reduce the volume of contaminants remaining at the site. Alternative 4, excavation and off-site disposal, would reduce the volume of waste on-site. Approximately 3,400 cubic yards of material will be removed with Alternative 4.

Alternative 3 is favorable in that it is readily implementable. Alternative 4 is also implementable, but would require the demolition of the currently occupied site building and the volume of soil excavated under this alternative would necessitate increased truck traffic on local roads for several months.

The costs of the alternatives vary significantly. Alternative 3 has a low cost, but the contaminated soil and groundwater will not be addressed other than by engineering and institutional controls. With its large volume of soil to be handled, Alternative 4 (excavation and off-site disposal) would have the highest present work cost.

Since the foreseeable use of the site is commercial, Alternative 3 will be less desirable because at least some contaminated soil above the Part 375 6.8(b) commercial soil cleanup objectives will remain on the property whereas Alternative 4 would remove the contaminated soil permanently. However, the residual contamination with Alternative 3 will be controllable with the implementation of engineering (i.e., site cover) and institutional (i.e. environmental easement) controls and periodic reviews. With Alternative 4, removing all of the contaminated soil would result in the removal of most of the unsaturated overburden on-site and site use restrictions would not be necessary.

Alternative 3 is selected as the site remedy because it is protective to human health and the environment, will control potential exposures, will allow the continued use of the site building for commercial purposes, could be implemented quickly and is low cost. The estimated present worth cost to implement the remedy is $175,000. The cost to construct the remedy is estimated to be $35,000 and the estimated average annual costs for 30 years is $11,000.

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Former Rochester Metal Etching Company
State Superfund Project
Rochester, Monroe County
Site No. 828100

The Proposed Remedial Action Plan (PRAP) for the Former Rochester Metal Etching Company 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 22, 2011. The PRAP outlined the remedial measure proposed for the contaminated soil, groundwater, and soil vapor at the Former Rochester Metal Etching Company 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 16, 2011, which included a presentation of the remedial investigation and feasibility study (RI/FS) for the Former Rochester Metal Etching Company 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 24, 2011.

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:

Comment #1: Can the property owner complete the work? Are there guidelines on how to complete the work?

Response #1: After a remedy is selected in a Record of Decision, the Department routinely contacts potentially responsible parties, including property owners, and offers them the opportunity to enter into a consent order to perform the remedy using their own funds.

Guidance for the implementation of the elements of the remedy for this site is available in DER-10 at the website: http://www.dec.ny.gov/regulations/67386.html. The Department also maintains a template for a site management plan at http://www.dec.ny.gov/chemical/48236.html. The New York State Department of Health maintains guidance on soil vapor intrusion and mitigation at:
http://www.health.state.ny.us/environmental/investigations/soil_gas/svi_guidance/svi_training.htm

Comment #2: Is the vapor intrusion mitigation system or sub-slab de-pressurization system like a radon system? We (The Brotherhood M.C., Inc.) said from day one we had no problem putting in the mitigation system and wanted to do it. We are waiting for guidance on how to do the work.

Response #2: A vapor intrusion mitigation system or sub-slab depressurization system are similar to a radon mitigation system. The New York State Department of Health maintains guidance on soil vapor intrusion and mitigation at: http://www.health.state.ny.us/environmental/investigations/soil_gas/svi_guidance/svi_training.htm. The Department's project manager is willing to provide additional information as needed.

Comment #3: Before The Brotherhood M.C. took over the property it was an eyesore. Since then, we have turned it around, added insulation and cleaned the property up. Although the building was built in 1880, it is a beautiful building and we've put a lot into it. We want it safe and not harmful to anyone. We have an attorney, Richard Palumbo. We understand it is our responsibility.

Response #3: The current owner has participated in basement mitigation activities consisting of sealing of the trenches, sumps, and slab cracks, and removal of materials that could interfere with the assessment of sub-slab contributions to indoor air in the basement of the facility or present human exposures. In addition, the current owner has paved or otherwise capped remaining exposed surface soils.

Comment #4: In regard to the proposed easement, with what that asphalt cost us the cap is not going anywhere.

Response #4: The proposed institutional controls for the site is required by state law in the form of an environmental easement. The environmental easement will be used to limit the use and development of the property to commercial use which is consistent with current zoning of the property. The environmental easement will also restrict the use of groundwater as a potable water supply, will require compliance with the Department approved Site Management Plan, and will require that the owner submit to the Department a periodic certification of institutional controls. The environmental easement stays with the property owner, even after a property transfer.

Kirk Minard, Secretary, Brotherhood M.C. submitted a letter (dated March 24, 2011) which included the following comments:

Comment #5: I am writing in response to the Proposed Remedial Action Plan for site No. 828100 (100 Lake Ave.). After reading the PRAP for the above mentioned site and attending the Public Meeting of March 16th, we tend to agree with the implementation of Alternative 3: Soil Vapor Intrusion Mitigation with Site Management. However, we do have some concerns regarding implementation of the work.

As you know we are a Non-Profit organization in the truest sense of the term. Because of this we would strongly urge you to allow us to Install, maintain and monitor the equipment needed to satisfy Alternative 3 of the above mentioned PRAP. We have both the ability and tools to perform the installation, with guidance from the appropriate experts in this field.

We also understand that monitoring of the equipment is important and will maintain and supply the monitoring results to you on a regular basis as you designate.

Once again, we understand the need to address the situation concerning the site. Being a Non-Profit Organization this will be a major financial burden on us and may affect the very future of this organization. However we do want to cooperate with the plan. We only ask that you let us do the work with appropriate guidance from qualified sources.

We thank you very much for your anticipated help in mitigation of this plan. We look forward to a long and successful association with you and your department.

Response #5: See Response #1. The Department's project manager is willing to provide additional information as needed to assist in the implementation of the remedy with efficient use of resources.

APPENDIX B

Administrative Record

Administrative Record

Former Rochester Metal Etching Company
State Superfund Project
Rochester, Monroe County
Site No. 828100

1. Proposed Remedial Action Plan for the Former Rochester Metal Etching Company site, dated February 22, 2011, prepared by the Department.

2. Site Investigation Report for the Former Rochester Metal Etching, dated September 2000, prepared by the Department.

3. Final Report, Rochester Metal Etching Site Remedial Investigation/Feasibility Study, dated September 17, 2007, prepared by O'Brien and Gere Engineers, Inc.

4. Soil Vapor/Indoor Air Monitoring Offer Correspondence to 10 White Street LLC, dated February 10, 2010, prepared by the Department.

5. Soil Vapor/Indoor Air Monitoring Offer Correspondence to 10 White Street LLC, dated March 8, 2011, prepared by the Department.

6. Vapor Mitigation Offer Correspondence to 110 Lake Avenue Property, dated February 10, 2010, prepared by the Department.

7. Vapor Mitigation Offer Correspondence to 110 Lake Avenue Property, dated March 8, 2011, prepared by the Department.

8. Remedial Investigation Field Activities Plan, dated September 2004, prepared by O'Brien and Gere Engineers, Inc.

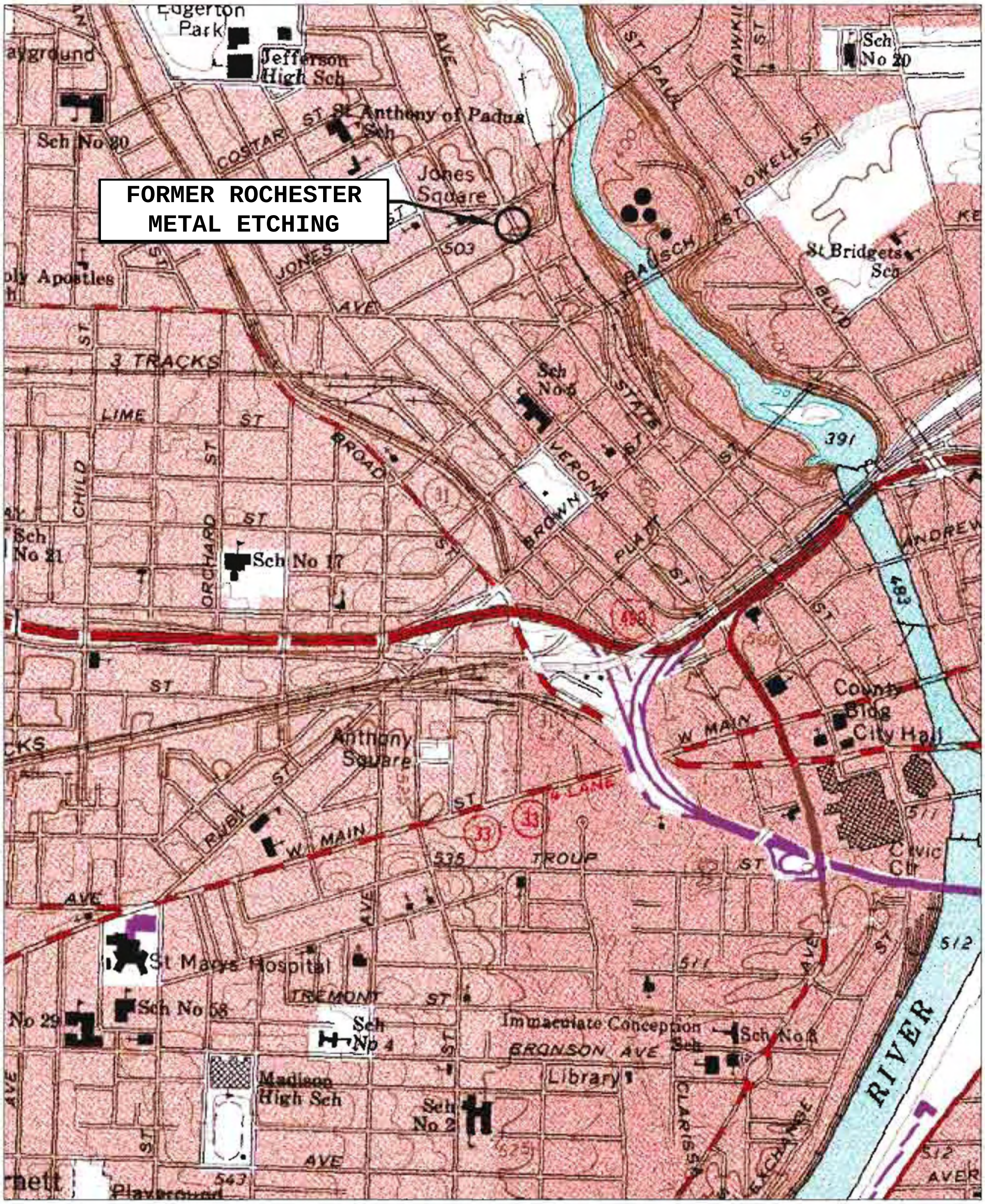


FIGURE 1

NYSDEC
FORMER ROCHESTER METAL ETCHING FACILITY
ROCHESTER, NEW YORK

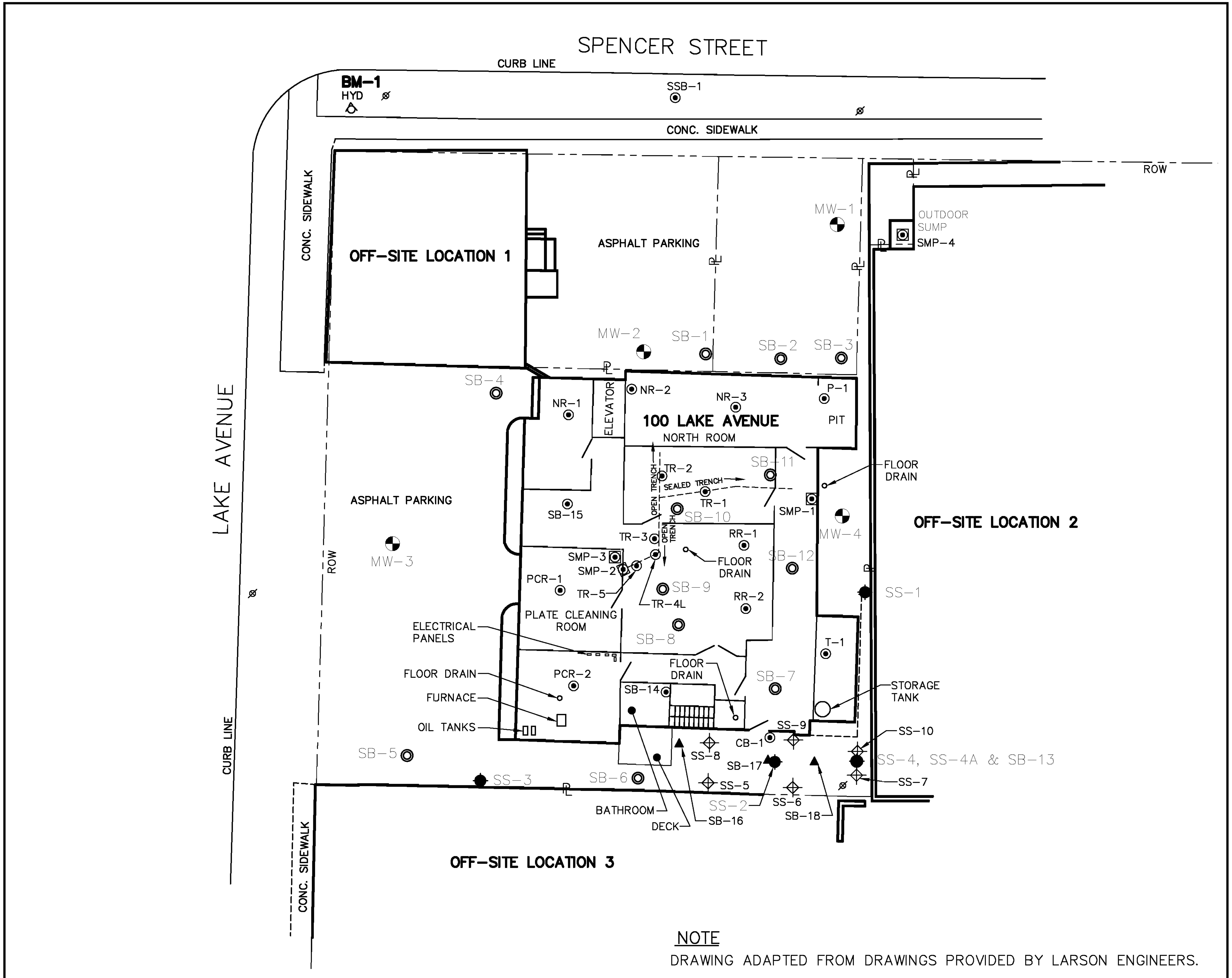
SITE LOCATION MAP

NOT TO SCALE

10653.33909.001
AUGUST 2007

O'BRIEN & GERE ENGINEERS INC.

FIGURE 2



LEGEND

- MONITORING WELL
- 1998-1999 SOIL SAMPLE
- 1998-1999 SOIL BORING
- 2006 SOIL SAMPLE
- 2006 SOIL BORING
- UTILITY POLE
- N/F NOW OR FORMERLY
- FLOOR DRAIN
- RI SAMPLE LOCATION
- TRENCH
- PROPERTY LINE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION ALBANY, NEW YORK

ON-SITE AND SPENCER ST. SAMPLE LOCATIONS

30 0 30
1"=30'

FILE NO. 10653.33909.001
AUGUST 2007

O'BRIEN & GERE ENGINEERS INC.

Aug 29, 2007 - 1:50pm

I:\DIV71\Projects\10653\33909\dwg\Figure 1-2.dwg

FIGURE 3

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LEGEND

BACKGROUND SAMPLE LOCATION

ROCHESTER METAL ETCHING
SITE #8-28-100

NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
ALBANY, NEW YORK

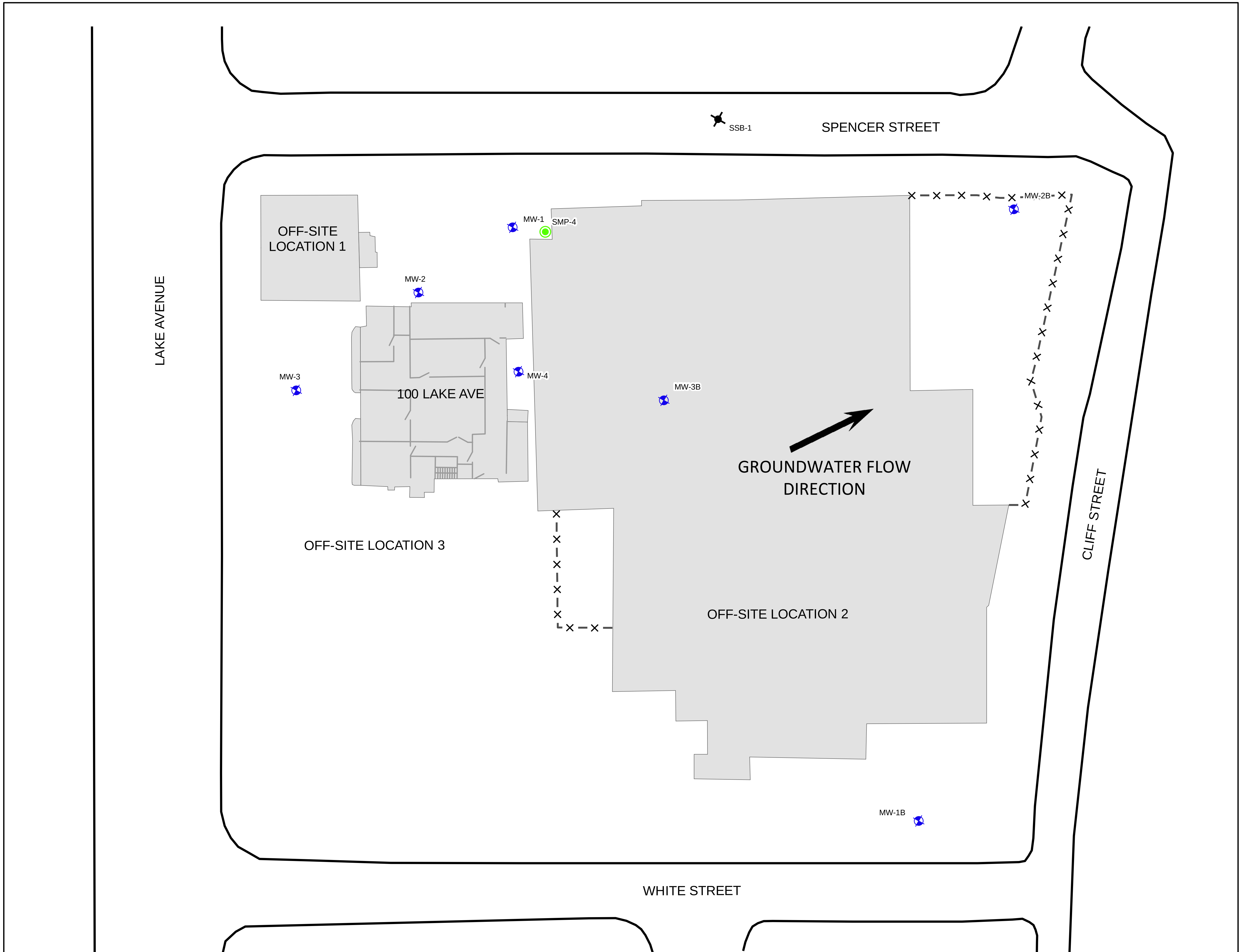
BACKGROUND SOIL SAMPLE LOCATIONS

0 30 60 120
Feet

AUGUST 2007
10653.33909

O'BRIEN & GERE ENGINEERS, INC.

FIGURE 4



This document was developed in color. Reproduction in B/W may not represent the data as intended.

LEGEND

- MONITORING WELL
- Temporary Monitoring Well
- Sump 4 Sample Location

ROCHESTER METAL ETCHING
SITE #8-28-100

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ALBANY, NEW YORK

LOCATION OF GROUND WATER MONITORING WELLS

0 20 40 80
Feet

AUGUST 2007
10653.33909

O'BRIEN & GERE ENGINEERS, INC.

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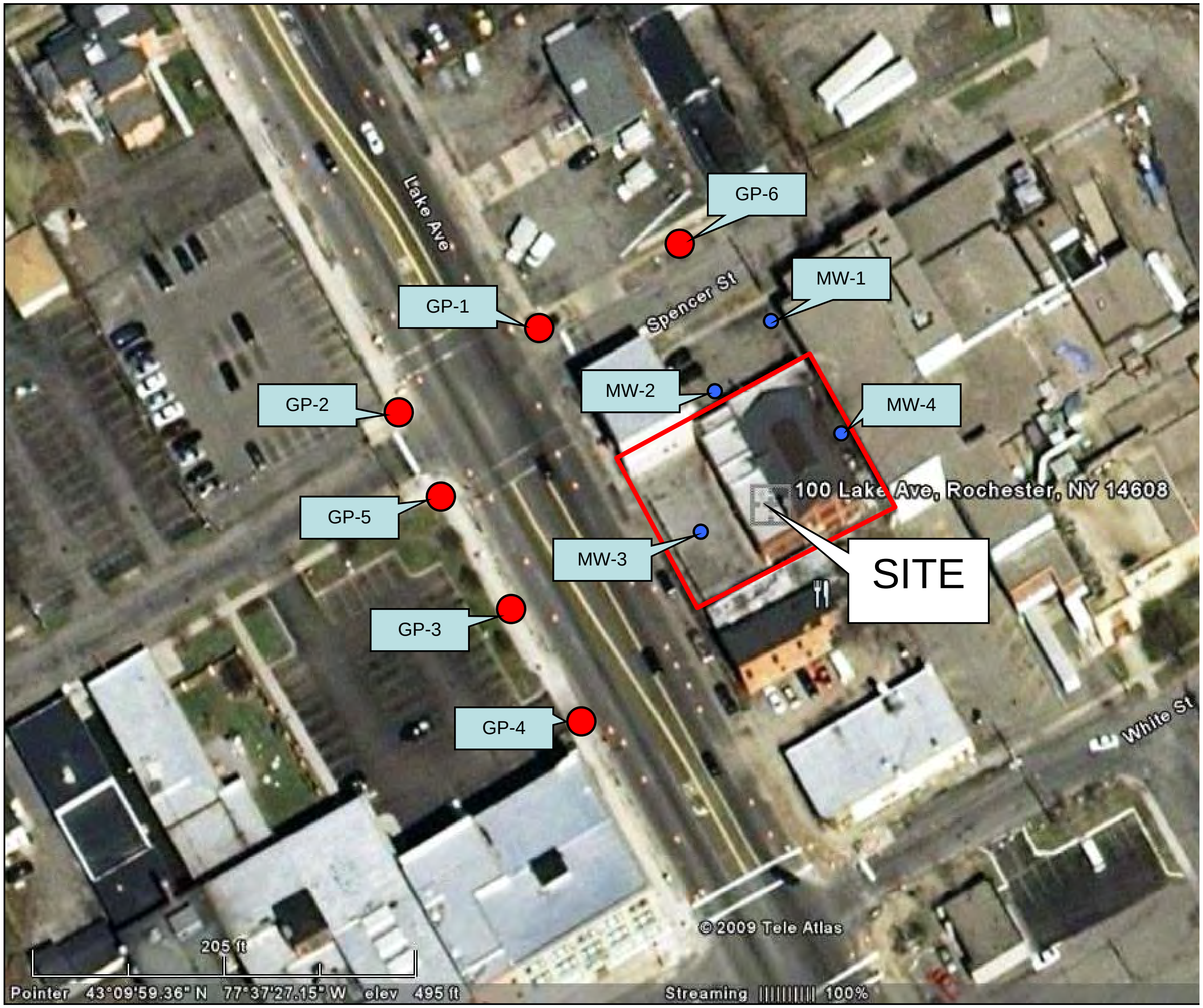
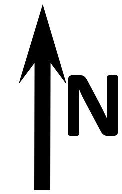
PLOT DATE: 08/17/07 DIV. 71 LSR

FIGURE 5





LEGEND

Upgradient GW Grab Locations

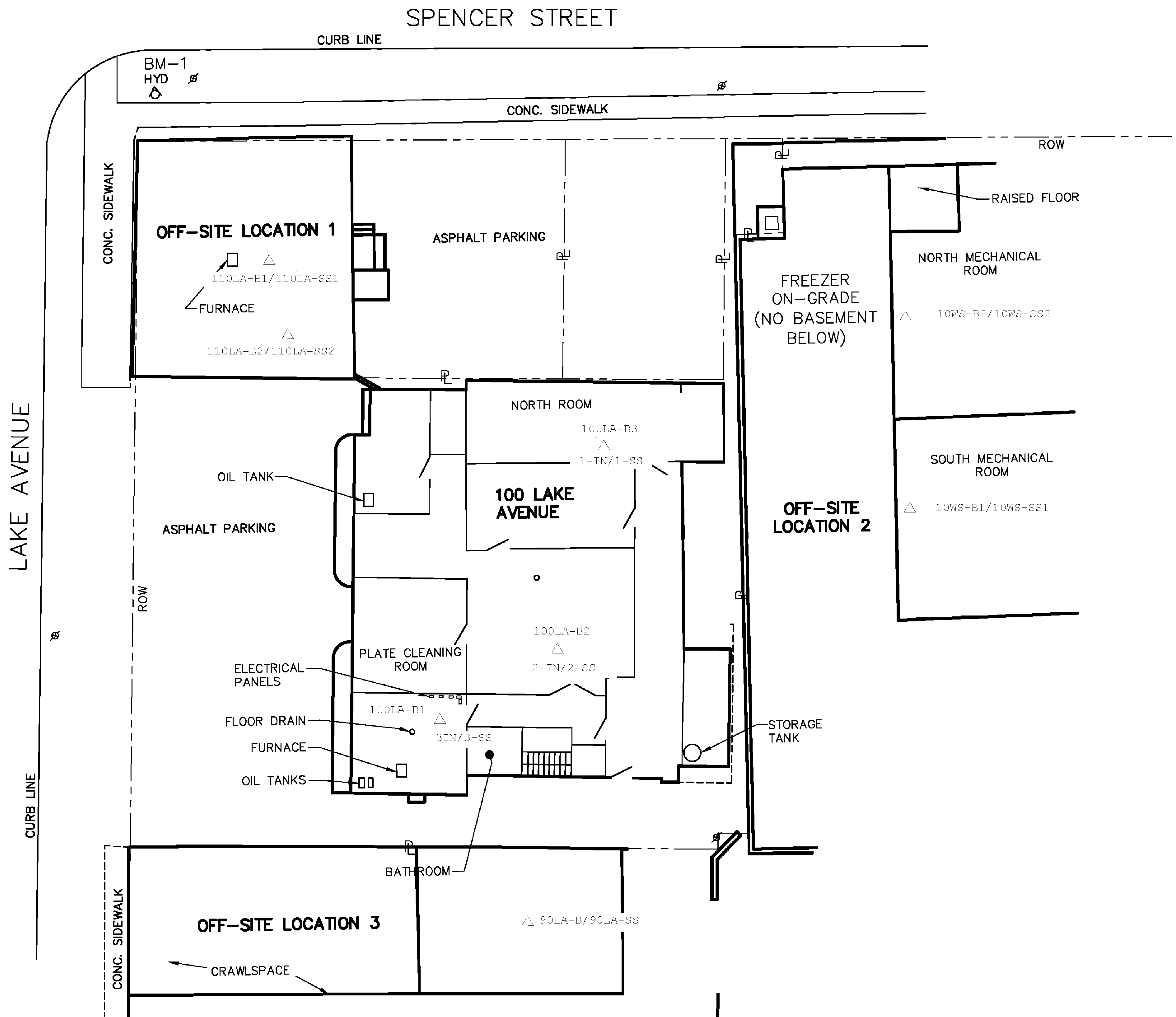
Existing MW Locations

ROCHESTER METAL ETCHING
SITE #8-28-100

NEW YORK STATE
DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
ALBANY, NEW YORK

UPGRADIENT
GROUNDWATER
SAMPLE LOCATIONS

FIGURE 6



NOTE

FIGURE ADAPTED FROM DRAWINGS PROPOSED BY LARSON ENGINEERS (1999), AS PRESENTED IN THE SITE INVESTIGATION REPORT (NYSDEC 2000).

LEGEND

△ PAIRED INDOOR AND SUB-SLAB SAMPLE LOCATION

ROCHESTER METAL ETCHING
SITE #8-28-100

NEW YORK STATE
DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
ALBANY, NEW YORK

VAPOR INTRUSION SAMPLE LOCATIONS

1"=20'   20   0   20

FILE NO. 10653.33909.005
AUGUST 2007

O'BRIEN & GERE ENGINEERS INC.

FIGURE 7

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LEGEND

BACKGROUND SAMPLE LOCATION

ROCHESTER METAL ETCHING
SITE #8-28-100

NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
ALBANY, NEW YORK

Depiction of the Selected Remedy

0 30 60 120
Feet

AUGUST 2007
10653.33909

O'BRIEN & GERE ENGINEERS, INC.

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PLOT DATE: 08/17/07 DIV. 71 LSR