



**Office of Environmental  
Remediation**

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**920-924 WESTCHESTER AVENUE  
BRONX, NEW YORK**

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# **Remedial Investigation Report**

**NYC LBCP Site Number: NYC 11CBCP002X**

**Prepared for:**

MJM Construction Services  
242-01 Braddock Avenue  
Bellrose, New York 11426

**Prepared by:**

Hydro Tech Environmental Corp.  
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**NOVEMBER 2010**

## CERTIFICATIONS

I, Mark E. Robbins, am a Qualified Environmental Professional, as defined in proposed RCNY § 43-1402(ar). I have primary direct responsibility for implementation of the Remedial Investigation program for the 920-924 Westchester Avenue Site, **Site No. 11CBCP002X**. I am fully responsible for the content of this Remedial Investigation Report (RIR). I have reviewed its contents and certify that this RIR is technically accurate and that the RIR contains all available and pertinent environmental and public health-related information and data regarding the property.

I certify that this RIR (1) has been developed pursuant to a comprehensive Site history investigation; (2) has investigated all Areas of Concern (AOCs) known or reasonably anticipated based on the comprehensive Site history investigation; (3) has investigated all unanticipated AOCs identified during this RI; and, (4) addresses all relevant environmental media for the entire Site as it is described in the NYC BCP Application.

I certify that the work reported in this RIR is in substantial compliance with the work proposed in the Office of Environmental Remediation (OER) approved Remedial Investigation Work Plan (RIWP).

I certify that the Site description presented in this RIR is identical to the Site description presented in the NYC BCP Application for 920-924 Westchester Avenue..

Mark E. Robbins, C.P.G., C.E.I.  
NYS Qualified Environmental Professional

10/1<sup>st</sup>/2010  
Date

  
\_\_\_\_\_  
Signature

## REMEDIAL INVESTIGATION REPORT

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## LIST OF ACRONYMS

| Acronym   | Definition  |
|-----------|---|
| AOC       | Area of Concern   |
| ASP       | Analytical Services Protocol                            |
| AST       | Aboveground Storage Tank                                |
| CAMP      | Community Air Monitoring Plan                           |
| COC       | Contaminant of Concern                                  |
| CPP       | Citizen Participation Plan                              |
| CSM       | Conceptual Site Model                                   |
| DNAPL     | Dense Nonaqueous Phase Liquid                           |
| DUSR      | Data Usability Summary Report                           |
| FID       | Flame Ionization Detector                               |
| FWRIA     | Fish and Wildlife Resources Impact Analysis             |
| GQS       | Part 703.5 Class GA, Groundwater Quality Standard,      |
| HASP      | Health and Safety Plan                                  |
| HAZWOPER  | Hazardous Waste Operations and Emergency Response       |
| IRM       | Interim Remedial Measure                                |
| BCA       | Brownfield Cleanup Agreement                            |
| BCP       | Brownfield Cleanup Program                              |
| NAPL      | Nonaqueous Phase Liquid                                 |
| NYC DOHMH | New York City Department of Health and Mental Hygiene   |
| NYC OER   | New York City Office of Environmental Remediation       |
| NYS DEC   | New York State Department of Environmental Conservation |
| OSHA      | Occupational Safety and Health Administration           |
| PID       | Photoionization Detector                                |
| QA        | Quality Assurance                                       |
| QAPP      | Quality Assurance Project Plan                          |
| QC        | Quality Control   |
| QHHEA     | Qualitative Human Health Exposure Assessment            |

|      |                                  |
|------|----------------------------------|
| RAOs | Remedial Action Objectives       |
| RAWP | Remedial Action Work Plan        |
| RI   | Remedial Investigation           |
| RIR  | Remedial Investigation Report    |
| RIWP | Remedial Investigation Work Plan |
| SCG  | Standards, Criteria and Guidance |
| SCO  | Soil Cleanup Objective           |
| CEM  | Conceptual Exposure Model        |
| UST  | Underground Storage Tank         |

# EXECUTIVE SUMMARY

## Site Description, Physical Setting and Proposed Use

MJM Construction Services is filing an application to enter two properties into the New York City Brownfield Cleanup Program (BCP) under the management of the Mayor's Office of Environmental Remediation (OER) as a Volunteer. The Sites are defined by two adjacent lots identified as Lot 35 and 38 located at the block front (Block 2697) on the southern-southeastern end of Westchester Avenue between Rogers Place and Intervale Avenue in the central section of the Borough of the Bronx, New York. The Site Plan is provided as **Figure 1**.

Lot 35 was historically utilized as gasoline station from at least 1977 to 1981 and was most recently utilized as an auto maintenance facility. A New York State Department of Environmental Conservation (NYSDEC) Spill **#06-13228** was issued to Lot 35 on March 9<sup>th</sup>, 2007, following a tank test failure of underground storage tank (UST) containing waste oil. NYSDEC Spill **#07-00175** was also issued to Lot 35 on April 4<sup>th</sup>, 2007, following the identification of soil impact in the vicinity of abandoned gasoline USTs. All USTs identified at Lot 35 were closed and removed in August 25<sup>th</sup>, 2008 by Don Carlo Environmental Services, Inc. During tank removal activities, approximately 366 tons of petroleum contaminated soil was properly disposed off-site and a Spill **#08-03439** was called in. This spill case was then closed on September 3<sup>rd</sup>, 2008. Investigations performed by Don Carlo Environmental Services, Inc. and the Applicant confirmed the presence of petroleum contamination in soil and groundwater. Ten off-site and on-site monitoring wells are currently installed at the Site in association with Spills **#06-13228** & **#07-00175**.

Lot 38 consisted of a 1-story warehouse with a full basement. Lot 38 was historically utilized as a bottling facility and was most recently utilized for the storage of various beverages.

The Sites are currently vacant and do not have any building improvements. The topography of the Site is generally level.

The applicant is proposing to make the Sites protective of human health and the environment consistent with the contemplated end use for residential and commercial purposes. Proposed

development of the Sites will consist of a mixed-use residential and commercial building with a community facility and a full basement. The basement will consist of a parking area and will be developed over the entire two Sites.

### **Summary of Past Uses of Site and Areas of Concern**

Three Phase I Environmental Site Assessment (ESA) Reports for the Applicant by Don Carlo Environmental Services, Inc. and Hydro Tech Environmental Corp. were reviewed to establish the site history. Lot 35 was historically utilized as gasoline station from at least 1977 to 1981 and was recently utilized as an auto maintenance facility. A New York State Department of Environmental Conservation (NYSDEC) Spill **#06-13228** was issued to Lot 35 on March 9<sup>th</sup>, 2007, following a tank test failure of underground storage tank (UST) containing waste oil. NYSDEC Spill **#07-00175** was also issued to Lot 35 on April 4<sup>th</sup>, 2007, following the identification of soil impact in the vicinity of abandoned gasoline USTs. All USTs identified at Lot 35 were closed and removed in August 25<sup>th</sup>, 2008. During tank removal activities, approximately 366 tons of petroleum contaminated soil was properly disposed off-site and a Spill **#08-03439** was called in. This spill case was then closed on September 3<sup>rd</sup>, 2008. Lot 38 consisted of a 1-story warehouse with a full basement. Lot 38 was historically utilized as a bottling facility and was most recently utilized for the storage of various beverages.

Area of Concerns (AOCs) are listed below:

1. The presence of Poly Aromatic Hydrocarbons (PAHs), VOCs and metals at concentrations exceeding the Soil Clean up Objectives. PAHs associated with fill material are present in shallow soil from zero to 7 feet in the western and southern portions of Lot 35. VOCs associated with Open NYSDEC Spills **#06-13228** & **#07-00175** are present in deep soil throughout Lot 35. These VOCs extend from 7 feet to the perched groundwater present at the Site. Presence of metals in soil throughout Site.

2. The Presence of VOCs and SVOCs associated with NYSDEC Spills **#06-13228** & **#07-00175** in groundwater beneath Lot 35. Presence of total and dissolved metals in groundwater throughout the Site.
3. Presence of VOCs in soil vapors most likely associated with NYSDEC Spills **06-13228** & **#07-00175** throughout Lot 35. The vapors associated with the spills also extend onto the adjacent site at Lot 38 and beneath the Sidewalks on the south side of Westchester Avenue and the west side of Rogers Place.

### **Summary of the Work Performed under this Remedial Investigation**

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Performed a Ground Penetrating Radar (GPR) survey over approximately 90 percent of Lot 35 and approximately 60 percent of Lot 38 of the Site;
3. Installed eighteen soil borings throughout the two Sites, and collected twenty five soil samples for chemical analysis from the soil borings to evaluate soil quality; These included seven shallow soil samples zero to 2 feet below grade and seven deep soil samples ranging from 6 to 10 feet below grade were collected at Lot 35. A total of eight soil samples were collected from zero to 2 feet beneath the former basement slab at Lot 38, which was approximately 8 feet below grade. Three deep soil samples were collected at depths ranging from 6 to 12 feet below grade from off-site soil probes.
4. Installed six on-site and four off-site groundwater monitoring wells to establish groundwater flow at the two sites and collected ten groundwater samples for chemical analysis to further evaluate groundwater quality;
5. Installed ten soil vapor probes around Site perimeter and collected ten samples for chemical analysis at the two sites;
6. Prepared RIR based upon all investigation results;

### **Summary of the Remedial Investigation Findings**

1. Elevation of the two properties ranges from 35 to 37 feet.

2. Perched groundwater is present on top of bedrock beneath the Sites
3. Depth to groundwater ranges from 7.78 to 10.98 feet at the Sites.
4. Groundwater flow is generally from north to south beneath the Sites.
5. Depth to bedrock is approximately 9 feet below grade ~~at the Site~~.
6. The stratigraphy, from former basement slab at lot 38 to groundwater down, consists of 2 feet of fine to medium grained sand.
7. The stratigraphy, from grade surface at lot 35 to groundwater down, consists of historic fill ranging in thickness from zero to 7 feet (asphalt fragments, of brick tiles and loose to medium compact, brown fine to coarse sand with traces of silt). The fill layer is underlain by natural soil to variable depths ranging from 7 to 17 feet (fine compact sand with trace of silt, gravel, pebbles and decomposed rocks). Rock is located immediately beneath the sand and down to variable depths from 10 to 25 feet (decomposed and fragmented rocks with evidence of mica schist).
8. Boring samples collected during the RI indicate the presence of historic fill material in shallow soil (0 to 7 feet) at Lot 35. The fill material mainly consists of coal, glass and brick fragments.
9. Soil sampled collected during the RI confirm the presence of semi-volatile organic compounds (SVOCs) and metals on-Site and are attributable to the presence of historic fill. SVOCs, specifically classified as Poly Aromatic Hydrocarbons (PAHs) are present in the western and southern portions of Lot 35 at concentrations exceeding the USCO. For example Benzo (a) Anthracene is present in the shallow soil at Lot 35 at concentrations ranging from 1,200 µg/kg in south-central portion of Lot 35 (SP-2) to 16,000 µg/kg in northwestern portion of Lot 35 (SP-7) and Benzo (a) Pyrene at concentrations ranging from 1,100 µg/kg in SP-2 to 14,000 µg/kg in SP-7. Metals were detected across the entire site at concentrations exceeding the USCO. Lead concentrations in shallow soil (urban fill material) range from 25.5 mg/kg in the western portion of Lot 38 (SP-8) to 670 mg/kg in the northwestern portion of Lot 35 (SP-7). Lead concentrations in deep soil range from 1.12 mg/kg in the eastern portion of Lot 35 (SP-4) to 713 mg/kg in the southwestern portion of Lot 35 (SP-1).

10. Evidence of fill material was identified in the southern portion of Lot 38. The fill material contains levels of PAHs at concentrations less than the UUSCO were detected directly beneath the basement slab from 0 to 2 feet and include Benzo (a) Anthracene, Chrysene, Benzo (b) Fluoranthene and Benzo (a) Pyrene. Low levels of Cadmium and Lead were also detected beneath the central portion of the basement slab.
11. Soil samples collected during the RI also confirm the presence of VOCs typical of gasoline constituents in the deep soil throughout Lot 35. These VOCs are directly related to NYSDEC Spill #'s 06-13228 and 07-00175 and are present at concentrations exceeding their respective USCOs. These elevated levels of gasoline compounds extend from 7 feet to the groundwater present at the Site. The major total volatile organic compounds (VOCs) concentration (245,000  $\mu\text{g}/\text{kg}$ ) was detected at the capillary fringe in the central portion of Lot 35 (SP-5). For example in SP-5 the compound 1,2,4-trimethylbenzene is present at a concentrations exceeding 93,000  $\mu\text{g}/\text{kg}$  and total Xylenes is present at a concentrations exceeding 66,000 where  $\mu\text{g}/\text{kg}$ .
12. Groundwater samples collected during the RI confirmed the presence of COCs on-Site in the form of VOCs and SVOCs at Lot 35 and the presence of soil and salinity related metals throughout the Site in isolated locations off-Site. The gasoline compounds are directly related to NYSDEC Spill # 06-13228 and 07-00175. The greatest levels of dissolved gasoline compounds were detected during the RI investigation beneath the southeastern portion of Lot 35 (MW-7) at total concentrations of 4,637  $\mu\text{g}/\text{L}$ . For example 1,2,4-Trimethylbenzene was detected in MW-7 at 2,200  $\mu\text{g}/\text{L}$  and total Xylene at 540  $\mu\text{g}/\text{L}$ . The groundwater plume does not extend downgradient toward the adjacent commercial property located to the south of the Site. Groundwater containing dissolved metals at concentrations exceeding the respective 6NYCRR Part 703.5 Class GA Groundwater Quality Standards for metals such as Aluminum, Chromium, Lead, Iron and Zinc is present beneath the Site. For example detected levels of Aluminum range from 31.1 mg/L in the northwestern portion of Lot 35 (MW-2) to 113 mg/L in the sidewalk along the southern side of Westchester Avenue (MW-10) and Lead range from 0.052 mg/L in the eastern

- portion of Lot 35 (MW-8) to 0.164 mg/L in the south-central portion of Lot 35 (MW-1).
13. Evaluation of groundwater suggests some saline intrusion or road salt and some impact of sample turbidity and overall indicates that the Site will not adversely affect off-site groundwater resources.
  14. Soil vapor samples collected during the RI confirmed the presence of COCs on-Site. These COCs are typical gasoline VOCs and are identified throughout the Sites and beneath the Sidewalks on the south side of Westchester Avenue and the west side of Rogers Place. The soil vapors are attributed to NYSDEC Spill # 06-13228 and #0700175 on Lot 35. No source has been identified on the Lot 38 site. The major on-site vapor concentrations (total concentrations) range from 262 microgram per cubic meter (mcg/m<sup>3</sup>) detected in the western portion of Lot 38 (SG-4; adjacent to Lot 35) to 294,300 mcg/m<sup>3</sup> detected in the vicinity of the former gasoline UST in the northwestern portion of Lot 35 ( SG-10). Off-site vapor concentrations from the spills on Lot 35 range from 173 mcg/m<sup>3</sup> to the north of Lot 38 (SG- 2) to 7,658 mcg/m<sup>3</sup> to the north of Lot 35 (SG-1).
  15. Aboveground Storage Tanks (ASTs) are absent at the Site.

The RI provides sufficient information for the proper evaluation of Remedial Action Alternatives, and selection of the preferred remedy pursuant to proposed RCNY§ 43-1407(f). The RI described in this document complies with applicable guidance (including NYS DEC DER-10). Based on the results of this RI, we conclude that this Site is not a suspected significant threat to human health or the environment.

### **Site Constraints**

The presence of utilities and easements on-Site and off-Site has been investigated by the Qualified Environmental Professional. It has been determined that no risk or impediment to the planned RAWP is posed by utilities or easements on the Site.

# REMEDIAL INVESTIGATION REPORT

## 1.0 INTRODUCTION AND PROJECT OBJECTIVES

### 1.1 PROJECT BACKGROUND

MJM Construction Services applied for the New York City Brownfield Cleanup Program (BCP) in October 2010, remediate two sites on 0.6-acres located at 920-922 Westchester Avenue in Borough of the Bronx in New York City. Applicant applied as a Volunteer in the BCP. Mixed residential use and commercial use is proposed for the properties. When completed, the Sites will contain a mixed-use residential and commercial building with a community facility and a full basement. The bottom of the proposed basement slab will be approximately 11 feet below grade and the basement slab will be approximately 9 inches in thickness. The proposed depth of excavation is approximately 13 feet below surface grade. The building will be identified as 920-922 Westchester Avenue, Bronx, New York. The proposed development will include no open spaces or landscaped areas. Refer to the BCP application for additional information.

This RIR summarizes the nature and extent of contamination as determined from data gathered during the Remedial Investigation (RI), a Tank Closure investigation and two Site Investigations conducted in accordance with an NYSDEC-approved Investigation Work Plans in association with the NYSDEC open spill # #06-13228 & #07-00175 on Lot 35. The RI work was conducted in accordance with an OER-reviewed RIWP and was performed during November 2009. The tank closure investigation was performed during July 2008 and the Site Investigations were performed on April 2009 and August 2009.

The overall objectives of the project are to prepare the Site for Unrestricted use as defined in the BCP, and to remediate environmental conditions at the Site consistent with the NYC Brownfield and Community Revitalization Act as determined by OER in consultation with the New York City Department of Health and Mental Hygiene (NYC DOHMH).

## 1.2 SITE LOCATION AND DESCRIPTION

The Sites are located in the Borough of the Bronx, New York. They are identified as Block 2697; Lots 35 & 38 on the New York City Tax Map. A United States Geological Survey (USGS) topographical quadrangle map ([Figure 2](#)) shows the Site locations. The Sites are situated on an approximately 0.6-acre area bounded by Westchester Avenue and an elevated New York City Transit rail track to the north-northwest, Rogers Place to the west and Interval Avenue to the east. A boundary map is attached to the BCP as **Figure 3**. The property is fully described in the BCP Application

Currently, the Sites are vacant and does not have any building improvements.

## 1.3 DESCRIPTION OF SURROUNDING PROPERTY

The Sites are located on a commercial street within a residential and commercial neighborhood. The property directly to the north consists of 1-story White Castle restaurant and a 3-story commercial/residential building. The property directly to the northwest consists of a vacant lot and a 1-story vacant building. The property directly to the west consists of a Gulf Gas Station. The property directly to the south consists of a 1-story commercial building and a 6-story commercial/residential building. The properties directly to the east consist of two 4-story commercial/residential buildings and an 11-story residential building. (**See Figure 1**).

Within 400 feet radius of the Sites, there is a variety of land uses including: vacant lands, institutional industrial, commercial, transportation and parking, public facilities, residential buildings (1 to multi-family residential apartments) and mixed residential and commercial facilities. The Sites is zoned R7-1/C2-4 (general residential and retail district). Properties located within ¼ mile radius from the Site are zoned R6, R7-1, R7-2 (general residence district) and C1-2 and C2-4 (general retail district)

## Sensitive Receptors

Within 450 feet radius, one school identified as Bronx Lighthouse Charter School is located in the northern upgradient vicinity of the Site. Based on the distance and location of this identified sensitive receptor, the Site should not impact upon its environmental quality.

No day care facilities, hospitals, rivers, streams, wetlands or other sensitive receptors were identified within 1,000 feet from the Sites. The following table indicates the closest sensitive receptors to the Sites.

|                     | Distance (feet) | Direction |
|---------------------|-----------------|-----------|
| Schools             | 448             | N         |
| Day care facilities | 1,500           | S         |
| Hospitals           | 1,800           | W-SW      |
| Rivers, streams     | 4,200           | W         |
| Wetlands            | 6,200           | NW        |

**Figure 4** shows the surrounding land usage, with sensitive environmental receptors indicated.

### 1.4 CONTEMPLATED REDEVELOPMENT PLAN

The RI has been performed to compile and evaluate data and information necessary to develop a Remedial Action Work Plan (RAWP) that will render the Site protective of human health and the environment consistent with the contemplated end use. The proposed redevelopment plan and end use is described here to provide the basis for assessment of the appropriate Remedial Action. However, the Remedial Action that will be performed under an OER-approved RAWP may be implemented without the proposed redevelopment.

The contemplated future use of the Sites will consist of mixed residential and commercial use which includes an 8-story mixed-use residential and commercial building with a community facility and a full basement. The footprint of the building will be 0.44 acres. The basement will consist of a parking area and will be developed beneath the entire building. The bottom of the proposed basement slab will be approximately 11 feet below grade and the basement

slab will be approximately 9 inches in thickness. The proposed depth of excavation is approximately 13 feet below surface grade. The building will be identified as 920-922 Westchester Avenue, Bronx, New York. The proposed development will include no open spaces or landscaped areas.

Details of the proposed Sites development are presented in **Figure 5**.

## **2.0 SITE HISTORY**

### **2.1 PAST USES AND OWNERSHIP**

According to Sanborn Maps, Lot 35 was historically utilized as parking lot in 1950. From at least 1977 to 1981 a gasoline station was present in the eastern portion of Lot 35. From 1983 to 1996, Lot 35 was no longer utilized as a gasoline station. According to the current property owner the 1-story building was most recently utilized as an auto repair facility and Lot 35 was used an auto sales lot. No previous owners at this lot could be identified.

According to Sanborn Maps, Lot 38 was utilized as a 1-story bottling facility with a basement from 1950 to 1981. From 1983 to 1996, the Site was utilized as a 1-story commercial building. Its specific use is unknown. According to the Site owner, this lot was most recently utilized as a warehouse for the storage of various beverages. Previous owners at this lot were identified since 1982 as real estate agencies and food distributors.

The Site is currently owned by Saul Feliciano Sr. and 924 Westchester Ave, LLC.

### **2.2 PREVIOUS INVESTIGATIONS**

Previous investigations performed at the Sites included the following:

- Tank Closure Report, August 25<sup>th</sup>, 2008, Don Carlo Environmental Services, Inc.
- Phase I Environmental Site Assessment (ESA), October 1, 2008, Don Carlo Environmental Services, Inc.
- Phase I Environmental Site Assessment (ESA), October 24, 2008 Hydro Tech Environmental Corp.
- Site Investigation Report, May 15<sup>th</sup>, 2009, Hydro Tech Environmental Corp.
- Groundwater Investigation Report, September 8<sup>th</sup>, 2009, Hydro Tech Environmental Corp.
- Remedial Action Report, February 5<sup>th</sup>, 2010, Hydro Tech Environmental Corp.
- Phase I Environmental Site Assessment (ESA), May 7, 2010, Hydro Tech Environmental Corp.

### 2.3 SIGNIFICANT HISTORICAL ENVIRONMENTAL SITE FEATURES

Phase I Environmental Site Assessment (ESA) reports, dated October 1<sup>st</sup>, 2008, October 24<sup>th</sup>, 2008 and May 6, 2010, were performed at the Site by Don Carlo Environmental Services, Inc. and Hydro Tech. These reports were prepared by Qualified Environmental Professionals and consisted of a Site inspection, a review of all Sanborn Fire Insurance Maps, City Directory Search and environmental Databases Records.

A Tank Closure Report, dated August 25<sup>th</sup>, 2008 by Don Carlo Environmental Services, Inc., documented the excavation and removal activities of one 550-gallon waste oil underground storage tank (UST) from the northeast portion of Lot 35, one 550-gallon fuel oil UST and ten 550-gallon gasoline USTs from the northwestern portion of Lot 35. During the excavation contaminated soil was identified and NYSDEC Spill # **08-03439** was assigned to the incident. Approximately 366 tons of soil was excavated and properly disposed of at a Clean Earth disposal facility located in Logan Township, New Jersey. The tank excavations at the Site were backfilled with imported fill materials.

A Site Investigation report dated May 19<sup>th</sup>, 2009 and a Groundwater Investigation report dated September 8<sup>th</sup>, 2009 were performed by Hydro Tech at the Site (Lot 35 and 38) to address the NYSDEC requirements in associated with open Spill #**06-13228** & #**07-00175** assigned to Lot 35. These investigations were conducted to delineate the soil and groundwater contamination beneath the Site by installing and sampling on-site and off-site soil borings and monitoring wells.

All historical site information including Sanborn Fire Insurance Maps, City Directory Search, Environmental Databases Records and environmental investigations were reviewed to identify all historical features of environmental significance and AOCs prior to preparation of this RIR. All historical documents are presented in **Appendix A**.

A composite map of all historical features of environmental significance has been developed from direct Site inspection(s) and inspection of all Sanborn Fire Insurance Maps and other

sources, and is presented in **Figure 6**. This map provides that basis for identification of AOCs for the Sites, discussed in the next section of this RIR.

## 2.4 AREAS OF CONCERN

AOCs identified during the RI include

Area of Concerns (AOCs) are listed below:

1. The presence of Poly Aromatic Hydrocarbons (PAHs), VOCs and metals at concentrations exceeding the Soil Clean up Objectives. PAHs associated with fill material are present in shallow soil from zero to 7 feet in the western and southern portions of Lot 35. VOCs associated with Open NYSDEC Spills **#06-13228** & **#07-00175** are present in deep soil throughout Lot 35. These VOCs extend from 7 feet to the perched groundwater present at the Site. Presence of metals in soil throughout Site.
2. The Presence of VOCs and SVOCs associated with NYSDEC Spills **#06-13228** & **#07-00175** in groundwater beneath Lot 35. Presence of total and dissolved metals in groundwater throughout the Site.
3. Presence of VOCs in soil vapors attributed to NYSDEC Spills **06-13228** & **#07-00175** are present throughout the Site and beneath the Sidewalks on the south side of Westchester Avenue and the west side of Rogers Place.

All AOCs identified are shown on **Figure 6**.

## 2.5 INTERIM REMEDIAL MEASURES

No Interim Remedial Measures (IRMs) were performed at the Site.

### **3.0 PROJECT ORGANIZATION AND MANAGEMENT**

#### **3.1 PROJECT ORGANIZATION**

The Qualified Environmental Profession responsible for preparation of this RIR is Mark E. Robbins. A list detailing the names, contact information and roles of the principal personnel who participated in the RIR is also included in **Appendix B**. This list includes a facility contact, contact, and contractor and subcontractor contacts.

The Site Safety Coordinator is Paul I. Matli. Resumes of key personnel involved in the Remedial Action are also included in **Appendix B**.

#### **3.2 HEALTH AND SAFETY**

All RI work described in this RIR was performed in full compliance with all applicable laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements. The Health and Safety Plan (HASP) is included in **Appendix C**.

#### **3.3 COMMUNITY AIR MONITORING**

Since no invasive investigation work was performed during the RI activities, no Community Air Monitoring Plan (CAMP) was prepared to monitoring the presence of Volatile Organic Compounds (VOCs) and elevated levels of dust in the air and define action levels and human responses.

#### **3.4 INVESTIGATION DERIVED WASTE**

Known hazardous waste, concentrated solid or semi-solid substances, soils with free product or NAPL and/or grossly contaminated media were not returned to the subsurface. These materials included contaminated soil encountered during tank removal activities and soil cuttings from soil probes and groundwater extracted during the monitoring well sampling. All contaminated soil was disposed at a soil safe disposal facility located in Bridgeport, in Logan Township, New Jersey in accordance with applicable laws, guidance and regulations

as discussed below. All materials generated during the soil sampling and groundwater sampling were stored in two 25-gallon drums and left on-site to be disposed of during the Site remediation.

**Table 1** describes the fate of investigation derived waste and the disposal facility.

#### **4.0 REMEDIAL INVESTIGATION ACTIVITIES AND OBSERVATIONS**

The objective of the RI, previous Tank closure investigation and Site Investigations is to acquire on-Site data to be used to guide further investigations, IRMs, or remediation. To accomplish this objective, Hydro Tech compiled the historical site information, previous environmental investigations and the RI objective to define the following general scope of work:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Performed a Ground Penetrating Radar (GPR) survey over approximately 90 percent of Lot 35 and approximately 60 percent of Lot 38 of the Site;
3. Installed eighteen soil borings throughout the Site, and collected twenty five soil samples for chemical analysis from the soil borings to evaluate soil quality; These included seven shallow soil samples zero to 2 feet below grade and seven deep soil samples ranging from 6 to 10 feet below grade were collected at Lot 35. A total of eight soil samples were collected from zero to 2 feet beneath the former basement slab at Lot 38, which was approximately 8 feet below grade. Three deep soil samples were collected at depths ranging from 6 to 12 feet below grade from off-site soil probes. The soil probes were installed under the guidance of the NYSDEC and the NYCOER. The location, depth and analytical methods were approved and reviewed by both agencies.
4. Installed six on-site and four off-site groundwater monitoring wells to establish groundwater flow and collected ten groundwater samples for chemical analysis to further evaluate groundwater quality. The monitoring wells were installed under the guidance of the NYSDEC and NYCOER. The location, depth and analytical methods were approved and reviewed by both agencies.
5. Installed ten soil vapor probes around Site perimeter and collected ten samples for chemical analysis. The soil vapor probes were installed under the guidance of the NYSDEC and NYCOER. The location, depth and analytical methods were approved and reviewed by both agencies.
6. Prepared RIR based upon all investigation results;

All work was performed in accordance with the HASP in **Appendix C**. Specific detailed descriptions of investigation tasks are included in the following sections.

#### **4.1 GEOPHYSICAL WORK**

A geophysical survey consisting of GPR survey was performed at the Site during the April 2009 Site Investigation. The purpose of the GPR survey was to confirm the removal of all underground storage tanks (USTs) at Lot 35 and to identify the presence of any subsurface anomalies indicative of suspect USTs.

The survey was performed in all accessible portions of the Site over a grid pattern that was determined immediately prior to the survey. The GPR operator wheeled the antenna over the predetermined grid. The GPR takes one “scan” per set unit. The number of scans per unit is based upon the estimated size of targets. As each scan is performed, the antenna emits specific radar amplitude into the subsurface. The amplitude of the radar reflected back to the antenna is based upon the differences in the dielectric constants of the subsurface materials. The differences in amplitude obtained during each scan are graphically displayed on the Control Unit, which are then interpreted by the GPR operator. Additional interpretations are then conducted in the office using computer software.

The GPR survey was performed over approximately 90 percent of Lot 35 excluding the southern portion of the former auto repair shop due to the presence of junk cars and the central and northeastern portions of the parking area due to the presence of parked cars. The GPR survey was performed over approximately 60 percent of Lot 38 excluding the central and northeastern portions of the basement due to the presence of piles of trash. The geophysical survey was conducted successfully beneath all other portions of the Sites. No environmental anomalies indicative of USTs were identified during the GPR survey.

**Figure 7** indicates the location of geophysical locations of interest.

## 4.2 BORINGS, PIEZOMETERS AND MONITORING WELLS

A map showing the location of endpoint samples is shown in **Figure 8**. A map showing the location of borings, wells, and soil vapor is shown in the **Figure 9**. Construction details for soil borings, monitor wells that have been built during this RI are included in **Table 2**.

### Drilling and Soil Logging

Endpoint samples were collected during the excavation of USTs and contaminated soil in July 2<sup>nd</sup>, 2008. Four endpoint samples identified as EP-1 through EP-4 were collected from the fuel oil UST excavation and five endpoint samples identified as EP-1 through EP-4 and BS-1 were collected from the gasoline UST excavation. Soil samples from excavation walls were collected from approximately 12 feet below grade and samples from excavation bottoms were collected from 18 feet below grade.

Eighteen soil probes designated SP-1 through SP-18 were installed and sampled at the Sites. Eight soil probes (SP-8 through SP-12 and SP-16 through SP-18) were installed within the basement area at Lot 38 from basement grade to 2 feet below basement slab at the interface with perched groundwater. This is equivalent to approximately 10 feet below grade surface of the property. Three soil probes were installed in the sidewalk along the south side of Westchester Avenue (SP-13), in the sidewalk along the east side of Rogers Place (SP-14) and in the sidewalk along the north side of East 163<sup>rd</sup> Street (SP-15) from sidewalk grade to 8 feet and 10 feet below grade. The remaining seven soil probes (SP-1 through SP-7) were installed at Lot 35 from grade surface to 8 feet below grade or bedrock refusal and 10 feet below grade at the interface with perched groundwater. All soil probes were installed utilizing Hydro Tech's fleet of Geoprobe<sup>®</sup> (i.e. 6620DT, Tractor and Limited Access Probing unit) fitted with Geoprobe<sup>®</sup> tooling and sampling equipment. Soil samples were collected utilizing a 4-foot long Macro Core sampler fitted with dedicated acetate liners. The Macro Core allows for the collection of both continuous as well as discrete depth soil samples. The soil was screened and characterized at two foot intervals.

Continuous soil samples were collected during soil probe installation. **Table 3** provides the soil characterization results of soil borings. A total of twenty five soil samples were collected from the site for laboratory analysis. A total of seven shallow soil samples zero to 2 feet below grade and seven deep soil samples ranging from 6 to 10 feet below grade were collected at Lot 35. A total of eight soil samples were collected from zero to 2 feet beneath the basement slab at Lot 38, which is approximately 8 feet below grade. Three deep soil samples ranging from 6 to 12 feet below grade were collected from off-site soil probes.

Boring logs were prepared by a Qualified Geologist for all soil samples to document subsurface conditions including, without limitation: soil types and description of non-soil materials; characterization of soils from field instrument measurements (i.e. photoionization detector (PID) depth to groundwater; presence of odor, vapors, soil discoloration, and free and/or residual product. Boring logs with the after mentioned information are attached as **Appendix D**. Soil was described using the New York State Department of Transportation soil description procedure (NYSDOT Soil Mechanics Bureau STP-2 dated May 1, 1975, as amended) or equivalent.

The RI investigation included at a minimum, a boring to the first aquitard with continuous soil sampling for visual observation and head space screening. This exercise indicated no DNAPL was present in any of the soil samples obtained from the Site. Evidence of petroleum was identified in the soil samples obtained from Lot 35.

### **Groundwater Monitoring Well Construction**

A minimum of three groundwater monitoring wells were installed in each affected aquifer or water bearing zone to determine the groundwater flow direction. At least two cased groundwater monitor wells were installed on-Site in the down-hydraulic-gradient direction and at least one well in the up-hydraulic-gradient direction.

A total of six on-site and four off-site monitoring wells were installed, surveyed monitored and sampled. Four monitoring wells (MW-1, MW-2, MW-7 and MW-8) are located at Lot 35. Two monitoring wells (MW- 3 and MW-9) are located at Lot 38. Two monitoring wells

MW-4 and MW-10 are in the sidewalk to the north of the Site along Westchester Avenue. One monitoring well (MW-5) is located in the sidewalk to the west of the Site along Rogers Place. One monitoring well (MW-6) is located in the sidewalk along the southern end of the Site block along East 163<sup>rd</sup> Street. Although MW-6 was found to be dry during installation and over two consecutive sampling events, it was developed in that location as per the NYSDEC requirements.

The total depth of monitoring wells is as follows: MW-3 to MW-5 are 10 feet below grade, MW-6 is 12 feet below grade, MW-1 and MW-2 are 20 feet below grade and MW-8 to MW-10 are 24 feet below grade.

The monitoring wells were installed utilizing similar technology as the soil probes. All monitoring wells are constructed of 2-inch diameter PVC. The screened interval of the wells consists of 0.020-inch slots. The screen portion of the wells is as follows: 1 to 10 feet below basement slab in MW-3, 1 to 23 feet below basement slab in MW-9, 5 to 10 feet below grade in MW-4 to MW-6, 5 to 20 feet below grade in MW-1 and MW-2 and 4 to 20 feet below grade in MW-7, MW-9 and MW-10. The wells installed off-site in the sidewalk and in the undeveloped portion at lot 35 are finished to grade with a limited access manhole cover.

### **Surveying**

A land survey was used to identify the location of all soil borings and monitor wells, the locations are included in **Table 2**.

Monitoring wells were properly installed and their elevation surveyed relative to a permanent surface benchmark.

A qualified geologist performed all survey work reported in this RIR. The surveyor is Timothy Lo.

## **Water Level Measurement**

Three rounds of synoptic static water levels were obtained to provide a Site-specific indication of the groundwater flow direction; this data is included in **Table 4**.

## **Soil Vapor Implants Installation**

During the RI ten on-site and off-site vapor points were installed and sampled. SG-1 through SG-3 were installed in the sidewalk along the northern boundary of the Sites. SG-4 was installed in the eastern portion of Lot 38 in the vicinity of MW-9. SG-5 and SG-6 were installed in the eastern portion of Lot 35 in the vicinity of MW-8 and MW-7, respectively.

SG-7 was installed in the southern portion of Lot 35. SG-8 and SG-9 were installed in the sidewalk along the western boundary of Lot 35. SG-10 was installed at Lot 35 to east the of the former gasoline tank field.

The soil vapor probes were installed utilizing similar technology as the soil probes and in accordance with the NYSDOH Guidance for Evaluating Soil Vapor Intrusion, dated October 2006. Each soil vapor sampling point consisted of a stainless steel screen, or implant, fitted with dedicated polyethylene tubing. Each of the implants is of 1½-inch diameter. The soil vapor implant was installed in the subsurface soil, one foot above the dry source of soil contamination following the general soil characterization exercise in the vicinity of the soil vapor sampling locations. Since no organic vapors are identified during the field screening of the soil probes, soil vapor implants were installed at 1 foot above the perched groundwater. Therefore, soil vapor sample from SG-4 was collected immediately beneath the basement slab at lot 38. Soil vapor samples from SG-1, SG-2 and SG-3 were collected at 5 feet below grade. Soil vapor samples from SG-5 through SG-10 were collected at 8 feet below grade. Glass beads were poured into the hole to fully encompass the screen implant and the hole was sealed with bentonite and quick dry-lock non VOC quick set cement. All implants were finished to grade with limited access manhole cover except for SG4, SG-5, SG-6, SG-7 and SG-10.

Near complete excavation is expected on the property to approximately 13 feet below surface grade to enable construction of a ventilated parking garage. Installation of soil vapor probes in the sidewalk areas enables reproducibility of future sampling after construction is complete.

### **4.3 GEOLOGICAL AND HYDROGEOLOGICAL CONDITIONS**

#### **Geology**

The Site is located in the southeastern portion of the Borough of Bronx, New York. The elevation of the Site is approximately 30 feet above mean sea level (USGS 7.5-Minute Central Park, New York Quadrangle, 1969, Photorevised 1979).

Bronx geology is characterized by a metamorphosed sequence of bedrock known as the Manhattan Prong of the Hartland Formation. The Hartland Formation was formed during the late Cambrian to early Ordovician period and consists of undivided pelitic schist with gneiss and amphibolite. The formation is frequently cross cut by transverse and parallel faults. The area is overlain by Pleistocene aged glacial till deposits. Outcrops of bedrock are common place in the Bronx. Don Carlo confirmed that bedrock was encountered at 12 feet below grade immediately beneath the excavated gasoline USTs. Hydro Tech encountered bedrock beneath the Site at an average depth of 9 feet.

#### **Stratigraphy**

Geotechnical investigations by Hydro Tech were conducted at Lot 35 during November and December 2008 and at Lot 35 and Lot 38 during June 2010. Eleven soil borings were installed at Lot 35. Thirteen soil borings were installed at Lot 38 after temporarily grading this lot with construction debris from demolished buildings at the Site. Boring, and geotechnical logs describing subsurface conditions are presented in **Figure 10**. Three geologic units consisting of (1) fill and sand, (2) clayey soil and (3) decomposed rock were identified. A description of each layer is given below.

Stratum F-Fill (NYC Class 11-65). The uppermost soil encountered in each boring is a layer of fill ranging in thickness from zero to 7 feet. The fill consists of loose to medium compact, brown fine to coarse sand with traces of silt. The fill stratum includes shallow asphalt and fragments of brick tiles.

Stratum S-Sand (NYC Class 7-65): In all borings, the fill stratum is underlain by natural soil to variable depths ranging from 7 to 17 feet. This stratum consists of fine compact sand with trace of silt, material, gravel, pebbles and decomposed rocks.

Stratum R-Rock (NYC Class 2-65): In all boring locations refusal associated with this rock stratum was encountered immediately beneath the sand and extended to variable depths ranging from 10 to 53 feet. Borings located in the eastern and central portions of Lot 35 were terminated at depths of 12 to 18 feet without penetrating this rock stratum. This stratum consisted of decomposed and fragmented rocks with evidence of mica schist and is most likely associated with bedrock present beneath the Site.

### **Bedrock Depth and Configuration**

Bedrock with materials class ranging from 2 to 65 was identified beneath the Site at variable depths ranging from 10 to 53 feet.

### **Hydrogeology**

Groundwater in the Bronx area and around the Sites are not used as a potable (drinking) water source. Bronx residents receive their drinking water supply from surface reservoirs located in upstate New York.

### **Groundwater Depth and Flow Direction**

The depth to groundwater beneath the Site ranges from 7.78 feet in MW-4 to 10.98 feet in MW-1. None of the monitoring wells sampled were found to contain free product. Based on the survey of the casing elevations of monitoring wells utilizing a David White LT8-300 Transit, the groundwater elevation beneath the site was then calculated utilizing a site-

specific benchmark of 30.00 feet and the groundwater flow direction was determined. Utilizing the casing elevation and depth to water, the groundwater elevation was then determined. The groundwater elevation in ranged from 13.38 feet in MW-1 to 16.23 feet in MW-10. The site-specific groundwater flow direction was determined to be toward the south. This flow direction is consistent with the regional groundwater flow directions. A table of water level data for all monitor wells is included in **Table 4**.

A map(s) of groundwater level elevations with data posted on the map and an inferred contour are shown in previous **Figure 11**.

### **Hydraulic Head, Hydraulic Gradient and Groundwater Flow Rate**

Groundwater on top of the bedrock was identified beneath the Site. Data for the hydraulic properties of the groundwater beneath the Site were not calculated.

### **Proximity to Sensitive Environmental Receptors**

A Receptor Survey was performed around the Sites. The results of the sensitive receptor database search indicate one (1) sensitive receptor is located within the search area. This sensitive receptor is listed as public school identified as “Bronx Regional High School” and is located up-hydraulic gradient within 450 mile to the north of the Sites. No other sensitive receptors including day care facilities, hospitals, rivers, streams, wetlands or other sensitive receptors were identified within 1,000 feet from the Site. The following table indicates the closest sensitive receptors to the Site.

|                     | Distance (feet) | Direction |
|---------------------|-----------------|-----------|
| Schools             | 448             | N         |
| Day care facilities | 1,900           | 1900      |
| Hospitals           | 1,800           | W-SW      |
| Rivers, streams     | 4,200           | W         |
| Wetlands            | 6,200           | NW        |

According to the Bureau of Water and Sewer Operations at the New York City Department of Environmental Protection (NYCDEP), up to 98% of the New York City’s surface water is supplied from Catskill/Delaware System west of the Hudson River. The remaining portion

of the water supply is provided from the Croton System (the City's original upstate supply) and the City's groundwater system in southeastern Queens.

Based upon the review of the USGS topographic map (*USGS 7 1/2-Minute Brooklyn, New York Quadrangle, 1969, Photorevised 1979*), no recharge basins or ponds are located within the search area.

### **Historic Fill**

A Historic Fill map showing the location of historic fill present at Lot 35 is provided in **Figure 12**. During June 2010, the basement at Lot 38 was temporary filled to surface grade with construction debris following the demolition activities of the buildings at the Site.

## **4.4 SAMPLE COLLECTION AND CHEMICAL ANALYSIS**

Sampling performed as part of the field characterization was conducted in all potentially contaminated AOCs, including those involving both current and/or former uses of the Site.

Samples have been collected from all AOCs identified in the RI and have been analyzed and reported in this RIR.

Discrete samples have been used exclusively in this RIR for final delineation of the nature and extent of contamination for this RI, and to determine the impact of contaminants on public health and the environment. Discrete samples provide sufficient basis for evaluation of Remedial Actions and selection of a final remedy. Composite samples and field-testing methods have not been used for these purposes.

Chemical analytical work presented in this RIR has been performed under a Quality Assurance Project Plan (QAPP) that includes the following information:

| Factor                                | Description  |
|---------------------------------------|--|
| The project's scope and project goals | The scope of this project is to fully delineate the soil and groundwater contamination beneath the sites and in association with Spill #06-13228 & #07-00175 at lot 35. The goal of this project is to remediate the Site to |

|                                    |   |
|------------------------------------|---|
|                                    | protect public health and the environment.  |
| Project organization               | This project will be overseen by qualified environmental professional including, a Project Director, a Remedial Engineer, a Technical Director, a Project Manager, a Geologist and Health and Safety Officer. |
| Project Manager                    | Paul I. Matli   |
| Quality Assurance Officer          | Yashodhara Saha   |
| Site maps showing sample locations | <b>Figure 8</b> and <b>Figure 9</b> provide a sampling plan illustrating the locations of soil samples, groundwater samples and soil gas samples  |

All samples were properly handled and placed into the appropriately labeled containers. The samples were placed in a cooler filled with ice. All samples were transmitted under proper chain of custody procedures to a State-certified (ELAP) laboratory for confirmatory laboratory analyses. All holding times were met. The laboratory did not report any irregularities with respect to their internal Quality Assurance/Quality Control. Chemical analyses have been performed by American Analytical Laboratories, LLC, Phoenix Analytical Laboratories, Inc. and York Analytical Laboratories Inc., and have been performed in compliance with NYSDEC DER-10 guidance.

All laboratory results are reported in such ways that minimum detection limits are lower than regulatory standards & guidance values.

An Abbreviated Quality Assurance Project Plan (QAPP) has been prepared for the samples to be generated during Site remediation and will be documented in a Remedial Action Work Plan.

### **Soil Sampling**

#### **Soil Sample Collection Methods**

Soil samples from each soil probe were collected utilizing a 4-foot long Macro Core sampler fitted with dedicated acetate liners. The Macro Core allows for the collection of both continuous as well as discrete depth soil samples. The soil was screened and characterized at two foot intervals.

Two soil samples from on-site probes were containerized and analyzed at a State-certified laboratory. At Lot 35, shallow samples for analysis were collected from all soil probes from zero to 2 feet below surface grade. Since organic vapors were identified in the deepest soil samples in soil probes installed at lot 35, the second soil sample was collected from 6 to 8 feet below grade or refusal in SP-3 and SP-6 and from the capillary fringe at 8 to 10 feet below grade in SP-1, SP-2, SP-4, SP-5 and SP-7. At Lot 38, shallow soil samples from SP-8 through SP-12 and SP-16 through SP-19 were collected from zero to 2 feet below the basement slab.

Since no organic vapors were identified by PID in off-site soil probes, only deep soil samples were collected from the capillary fringe at 6 to 8 feet below grade from MW-13, 8 to 10 feet below grade or refusal from SP-14 and 10 to 12 feet below grade or refusal from SP-15.

### **Decontamination Procedures**

Each piece of sampling or other down hole equipment was decontaminated prior to each use in order to ensure that cross-contamination between sampling locations did not occur. The following procedure was utilized in the decontamination process:

- Wipe clean and wash with Alconox<sup>®</sup>
- Potable water rinse
- Methanol rinse
- Deionized water rinse
- Air dry

All decontamination procedures were performed in an area segregated from any sampling areas. Any rinsate from the decontamination area was contained and removed from the site.

### **Field Screening Headspace Methodology**

Prior to soil sample collection, each sample was split into two separate aliquots which were placed into airtight zip-loc bags and 4-ounce and 6-ounce jars. Each soil sample was then characterized in the field for soil classification categories utilizing the Unified Soil Classification System and screened for organic vapors utilizing a Photoionization Detector

(PID) pursuant to section 2.3(b) of DER-10. The PID was calibrated to the compound isobutylene, as published by the manufacturer.

Headspace analyses were conducted on each soil sample by partially filling a zip-loc bag and sealing it, thereby creating a void. This void is referred to as the sample headspace. To facilitate the detection of any hydrocarbons contained within the headspace, the container was agitated for a period of 30 seconds. The probe of the PID was placed within the headspace to measure the organic vapors present. Soil probe logs were generated based upon the soil characterization and the PID field screening.

### **Chemical Analysis**

All soil samples were analyzed for volatile organic compounds (VOCs) via EPA Method 8260, semi-volatile organic compounds (SVOCs) via EPA Method 8270BN, Pesticides and Polychlorinated Biphenyls (PCBs) via EPA Method 8081/8082 and Target Analyte List (TAL) Metals via EPA Method 6010.

### **Groundwater Sampling**

Six on-Site and four off-Site monitoring wells were sampled prior and during the RI, the April 2009 Site Investigation and the August 2009 Groundwater Investigation. These groundwater investigations allowed the complete delineation of the plume of dissolved petroleum constituents, which is located on top of bedrock in perched water beneath the Site.

### **Groundwater Collection Methods**

A total of nine groundwater samples were obtained from on-site and off-site monitoring wells and analyzed at a State-certified laboratory. Each sample was collected utilizing a peristaltic pump fitted with dedicated polyethylene tubing. Initially, each monitoring well was purged 3 to 5 well volumes. The sampling of the wells was performed after the water was allowed to recharge to the original monitoring level. Groundwater samples were placed into 2 pre-cleaned 40-milliliter (mL) vials, 2 pre-cleaned 500 mL plastic containers and 3

pre-cleaned 1,000 mL jars and appropriately labeled. Well purging logs are provided in **Appendix E**.

### **Decontamination Procedures**

Same Decontamination Procedures applied for soil sampling apparatus were also applied for groundwater samples.

### **Field Screening Headspace Methodology**

PID screening of organic vapors accumulated in each monitoring wells was performed during monitoring event of the wells during November 2009 immediately after the cap of the well is removed pursuant to section 2.3(b) of DER-10.

### **Chemical Analysis**

All groundwater samples from monitoring wells were analyzed for volatile organic compounds (VOCs) via EPA Method 8260. Groundwater samples from monitoring wells MW-1, MW-2 and MW-6 through MW-10 were also analyzed semi-volatile organic compounds (SVOCs) via EPA Method 8270BN, Pesticides and Polychlorinated Biphenyls (PCBs) via EPA Method 8081/8082 and Target Analyte List (TAL) Metals via EPA Method 6010. The TAL Metal analyses were performed on both filtered and unfiltered groundwater samples.

### **Soil Vapor Sample Collection Methods**

Five on-Site and five off-Site soil vapor probes were installed during the RI to evaluate the potential for vapor intrusion into the proposed buildings at the Site and to determine the nature and extent of contaminant migration off-Site and the need for a Qualitative Human Health Exposure Assessment.

All soil vapor sampling activities were performed in accordance with the New York State Department of Health Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006. Soil vapor sampling logs are provided in **Appendix F**.

A soil vapor sample from each soil vapor probe was collected utilizing 6 liter pre-cleaned, passivated, evacuated whole air Summa<sup>®</sup> Canister. A 12-inch by 12-inch piece of plastic sheeting was sealed with beeswax around the edges over the sampling probe in order to keep the tracer gas in contact with the probe and the ambient air from entering the probe during testing. In order to insure the integrity of the borehole seal and to verify that ambient air is not inadvertently drawn into the sample, a tracer gas, Helium, was used to enrich the atmosphere in the immediate vicinity of the sampling location. Plastic sheeting was used to keep the tracer gas in contact with the soil vapor probe during the sampling. Prior to soil vapor sampling, approximately 0.3 ml of air was purged out of all vapor points utilizing a syringe.

### **Decontamination Procedures**

The Summa Canisters were calibrated for 4 hours and the soil vapor sampling was run on each canister for a time period of 4 hours. The initial vacuum (inches of mercury) and start time was recorded immediately after opening each Summa Canister. After the sampling was complete, the final vacuum and top time was recorded.

### **Field Screening Headspace Methodology**

Screening of organic vapors accumulated in the tubing of each soil vapor probe was performed prior to soil vapor sampling utilizing a PID pursuant to section 2.3(b) of DER-10.

### **Chemical Analysis**

After the soil vapor sampling, each Summa was labeled and sent to a laboratory certified to perform air analysis in New York State and analyzed for Helium and VOCs via EPA TO-15.

### **Summary for All Media**

The RI consisted of the collection of installation and sampling of eighteen soil probes, ten groundwater monitoring wells and ten soil vapor probes. **Figure 8 and Figure 9** show the location of samples documented in this RIR.

A table showing sample collection information for each matrix performed under this RI is shown in **Table 5**.

#### **4.4.1 QUALITY ASSURANCE AND QUALITY CONTROL**

A Quality Assurance (QA) and Quality Control (QC) program for all data reported in this RIR was established to confirm that all objectives were met and all methodology was consistent with the NYSDEC DER-10 Guidance. All QC sample collection was monitored by a laboratory QA officer to ensure the process was done properly.

All samples were properly handled and placed into the appropriate labeled containers. The soil and groundwater samples were placed in a cooler filled with ice and maintained at a maximum 4 degrees Celsius. All samples were transmitted under proper chain of custody procedures to a State-certified (ELAP) laboratory for confirmatory laboratory analyses. All holding times for each matrix and analysis were met.

QA/QC results summarized in **Appendix G** for soil data, in **Appendix H** for groundwater data and in **Appendix I** for soil vapor data.

#### **4.5 IDENTIFICATION OF STANDARDS, CRITERIA AND GUIDANCE**

Comprehensive list of SCO are included in with **Table 6**. Applicable Site specific Standards Criteria and Guidance (SCGs) for environmental media sampled in this RIR are as follows:

- 6 NYCRR Part 375 Environmental Remedial Programs
- 6 NYCRR Parts 700-706 – Water Quality Standards (June 1998)
- TAGM 3028 – “Contained In” Criteria for Environmental Media: Soil Action Levels (August 1997)
- TOGS 1.1.1 – Ambient Water Quality Standards & Guidance Values and Groundwater Effluent Limitations.
- 6 NYCRR Parts 700-706 - Water Quality Standards (June 1998)
- NYSDOH Indoor Air Guidance For Evaluating Soil Vapor Intrusion in The State of New York (October 2006).
- Spill Response Guidance Manual
- Site Characterization and Technology Selection for CERCLA Sites with Volatile Organic Compounds in Soils (September 1993)

- Citizen Participation in New York’s Hazardous Waste Site Remediation Program: A Guidebook (June 1998)
- TAGM 4046 - Determination of Soil Cleanup Objectives and Cleanup Levels (January 1994)
- TAGM 4013 - Emergency Hazardous Waste Drum Removal/ Surficial Cleanup Procedures (March 1996)
- 10 NYCRR Part 5 of the State Sanitary Code - Drinking Water Supplies (May 1998)
- 10 NYCRR Part 67 – Lead
- 6 NYCRR Part 375 - Inactive Hazardous Waste Disposal Sites
- 6 NYCRR Part 376 - Land Disposal Restrictions
- 

#### **4.6 ENVIRONMENTAL CONTAMINATION**

The RI was conducted during November 2009. A Tank Closure investigation, a Site Investigation and a Groundwater Investigation were conducted during July 2008, April 2009 and August 2009, respectively. These investigations investigated the AOCs identified in **Section 2.4** and **Figure 6**.

The Site was investigated in accordance with NYSDEC-approved Investigation Work Plans dated March 2009 and July 2009 to address the NYSDEC open Spills **#06-13228** & **#07-00175**. Other portions of the Site investigation were performed in accordance to OER - reviewed Site Investigation Work Plan dated September 2009.

The following subsections provide a brief overview of results of chemical analyses of soil, groundwater, and soil vapor and describe the findings for each AOC.

##### **4.6.1 SOIL/FILL CONTAMINATION**

Data collected in this RI investigation are sufficient to delineate the vertical and horizontal distribution of contaminants in soil/fill at the Sites. VOCs associated with historic operations and NYSDEC Spills **#06-13228** & **#07-00175** were identified in the soil collected at Lot 35 at the interface with groundwater (at depths ranging from 7 to 12 feet below grade) at concentrations exceeding their respective Unrestricted Soil Cleanup Objectives SCOs (USCO). SVOCs associated with contaminated urban fill material was identified in the shallow soil (0 to 7 feet below surface grade) located at Lot 35 at concentrations exceeding

their respective USCO. Heavy metals mainly lead were detected throughout Lot 35 and Lot 38 at concentrations exceeding their respective USCO. The findings of SVOC and metals are consistent with the occurrence of historical fill on the properties. No evidence of NAPL in soil or fill was encountered during the RI.

### **Contaminants and Concentration Ranges**

Summary tables of all data for chemical analytical work performed on shallow and deep soil samples is included in **Table 7**. Ranked Data Tables are presented in **Table 8**. The full data set is included in **Appendix G** in digital format.

The total VOC concentrations detected in the deep soil at Lot 35 range from none detected in the southwestern portion in SP-1, SP-2 and SP-4 to 245,000 micrograms/kilograms ( $\mu\text{g}/\text{kg}$ ) to the southeast of the former gasoline USTs in SP-5. For example Total xylenes was detected at a concentration of 66,000  $\mu\text{g}/\text{kg}$  in SP-5. Ethylbenzene was detected at a concentration of 3,500  $\mu\text{g}/\text{kg}$  in the southeastern portion of Lot 35 in SP-3 and 16,000  $\mu\text{g}/\text{kg}$  in SP-5. 1,2,4-trimethylbenzene was detected at a concentrations 89,000  $\mu\text{g}/\text{kg}$  in SP-3 and 93,000  $\mu\text{g}/\text{kg}$  in SP-5.

The total SVOC concentrations detected in shallow soil (urban fill material) at Lot 35 range from 2,630  $\mu\text{g}/\text{kg}$  detected in the central portion in SP-5 to 155,120  $\mu\text{g}/\text{kg}$  to the north of the former gasoline USTs in SP-7. For example Benzo (a) Anthracene is present in the shallow soil at Lot 35 at concentrations ranging from 1,200  $\mu\text{g}/\text{kg}$  in south-central portion in SP-2 to 16,000  $\mu\text{g}/\text{kg}$  in northwestern portion in SP-7 and Benzo (a) Pyrene at concentrations ranging from 1,100  $\mu\text{g}/\text{kg}$  in SP-2 to 14,000  $\mu\text{g}/\text{kg}$  in SP-7.

Individual Metals, mainly lead are present in shallow and deep soil throughout the Sites at concentrations exceeding their respective USCOs. For example Lead concentrations in shallow soil at Lot 35 range from 125 mg/kg in the southern portion in SP-1 to 670 mg/kg in SP-7. Lead concentrations in deep soil at lot 35 range from 1.12 mg/kg in eastern portion in SP-4 to 713 mg/kg in SP-1. Lead concentration in soil samples collected beneath the

basement slab at Lot 38 range from 2.13 mg/kg in the central portion in SP-17 to 127 mg/kg in southern portion in SP-9.

#### **4.6.1.1 COMPARISON OF SOIL/FILL WITH SCGS**

**Table 7** shows exceedances of on-Site soil/fill from 6NYCRR Part 375-6.8 unrestricted Soil Cleanup Objectives (USCOs). Data collected in this RI are sufficient to delineate the vertical and horizontal distribution of contaminants in soil at the Site.

VOCs are present only in the deep soil beneath the central (SP-5) and southeastern portions (SP-3) of Lot 35 of the Site at concentrations exceeding the USCO). These VOCs mainly consist of compounds typically associated with gasoline such as Ethylbenzene, o-Xylene, m,p-Xylene, Isopropylbenzene, n-Propylbenzene, 1,3,5-Trimethylbenzene, 1,2,4-Trimethylbenzene and Naphthalene. These VOCs are consistent with the historical on-site operations and the open NYSDEC Spills #06-13228 & #07-00175 associated with the property. This contaminated soil will be managed under a NYSDEC approved Remedial Action Work Plan.

SVOCs associated with contaminated urban fill material are present in the shallow soil in the southern (SP-1 to SP-2) and northwestern portions (SP-6 and SP-7) of Lot 35 of the Site at concentrations exceeding USCOs. The SVOCs detected in the shallow soil at Lot 35 extend vertically to deeper soil beneath the southeastern portion (SP-1) and to the south of the former waste oil and fuel oil USTs (SP-5). These SVOCs included Benzo (a) Anthracene, Chrysene, Benzo (b) Fluoranthene, Benzo (k) Fluoranthene, Benzo (a) Pyrene, and Dibenzo (a,h) Perylene. These compounds and findings of metals in soil/fill are consistent with the occurrence of historical fill and the spills. This contaminated soil/fill at this Lot will be managed under a NYSDEC approved Remedial Action Work Plan.

No VOCs or SVOCs at concentrations exceeding USCOs were present beneath the basement slab at Lot 38. Two individual metals Lead and Zinc were detected at Lot 38 beneath the western portion of the basement slab at concentrations exceeding USCOs. Since Lot 35 and

Lot 38 will be developed with the same building, the soil at these two lots will be managed under the same NYSDEC approved Remedial Action Work Plan.

**Figures 13a** and **Figure 13b** provide a diagram depicting the location and exceedances from 6 NYCRR Part 375-6.8 Part 375-6.8 for unrestricted SCOs.

#### **4.6.2 GROUNDWATER CONTAMINATION**

##### **Contaminants and Concentration Ranges**

A groundwater plume of gasoline constituents is present in the central portion of Lot 35 in the vicinity of the former UST location. This groundwater contamination is consistent with the historical on-site operations as a gasoline station and the open NYSDEC Spills **#06-13228** & **#07-00175** associated with the property.

The groundwater plume is characterized by a total VOC concentration of 4,637 micrograms per Liter ( $\mu\text{g/L}$ ) detected in MW-7, which is located in southeastern portion of Lot 35. A total VOC concentration of 3,661  $\mu\text{g/L}$  is detected in the vicinity of the former gasoline in MW-2 which is located in the western portion of Lot 35.

Dissolved gasoline compounds such as Ethylbenzene was detected at 930  $\mu\text{g/L}$  in SP-2 and 180  $\mu\text{g/L}$  in SP-7. Total Xylenes was detected at 263  $\mu\text{g/L}$  in SP-2 and 581  $\mu\text{g/L}$  in SP-7. 1,2,4-Trimethylbenzene was detected at 1,700  $\mu\text{g/L}$  in SP-2 and 2,200  $\mu\text{g/L}$  in SP-7.

Methyl-tert-butyl-ether (MTBE) is detected at a concentration of 12  $\mu\text{g/L}$  in the north central portion of Lot 38 in MW-3.

Heavy metals, including Aluminum, Chromium, Lead, Iron and Zinc is present beneath the Site. Detected levels of Aluminum range from 31.1 mg/L in the northwestern portion of Lot 35 (MW-2) to 113 mg/L in the sidewalk along the southern side of Westchester Avenue (MW-10) and Lead range from 0.052 mg/L in the eastern portion of Lot 35 (MW-8) to 0.164 mg/L in the south-central portion of Lot 35 (MW-1).

A summary table of chemical data for all analytical work performed on groundwater samples is included in **Table 9**. The full data set is included in **Appendix H** in digital format. The Data collected in this RIR is sufficient to delineate the ~~vertical and~~ horizontal distribution of contaminants in groundwater at the Site.

#### **4.6.2.1 COMPARISON OF GROUNDWATER WITH SCGS**

A dissolved phase VOC plume consisting of levels of ethylbenzene, xylenes and trimethylbenzenes at concentrations exceeding their respective 6 NYCRR Part 703.5 Class GA groundwater standards is present beneath the former gasoline underground storage tanks (USTs) in the northwestern portion of Lot 35. This plume is located on top of bedrock and does not appear to extend to the south-central and southwestern portions of Lot 35. This is evidenced by the fact that no levels of any petroleum compounds were identified in the down gradient wells (MW-1 and MW-2) at concentrations exceeding GA groundwater standards.

The individual VOC, MTBE detected in the central portion of Lot 38 in MW-3 is not identified in the soil or groundwater plume beneath the spill area at Lot 35. This well is cross-hydraulic gradient from the spill on Lot 35. Past use of the property as a basement since the origin of the use of MtBE in 1979, and the lack of gasoline distribution or other related uses, suggest an offsite, upgradient source for the MtBE.

The occurrence of generally lower levels of soil vapors associated with gasoline on the north side of Lot 38 may be due to the spill on Lot 35.

Heavy metals were detected in the groundwater throughout the Sites at concentrations exceeding their respective 6NYCRR Part 703.5 groundwater quality standard. The heavy metals contaminants consist of metals such as lead (maximum concentration of 0.164 mg/L) and other metals derived from road salting (Sodium, maximum concentration of 322 mg/L) and those influenced by sample turbidity (Aluminum, maximum concentration of 64.4 mg/L; Iron, maximum concentration of 1,120 mg/L).

**Table 9** shows exceedances in monitoring wells from 6NYCRR Part 703.5 Class GA groundwater standards.

A diagram that summarizes exceedances from 6 NYCRR Part 703.5 groundwater standards and indicates the locations of these exceedances is shown in **Figure 14**.

#### **4.6.3 ON-SITE AND OFF-SITE SOIL VAPOR CONTAMINATION**

The results of the soil vapor sampling indicate VOCs associated with petroleum constituents are present at the Site and beneath the Sidewalks adjacent to the north and west of the Site, along Westchester Avenue and Rogers Place respectively.

A summary table of data for all chemical analytical work performed on soil vapor and related air samples is included in **Table 10**. The full data set is included in **Appendix I** in digital format.

##### **4.6.3.1 COMPARISON OF SOIL VAPOR WITH SCGS**

**Table 10** provides the organic compounds detected in the soil vapor sample obtained from soil vapor probes SG-1 through SG-10. NYS DOH Final Guidance on Soil Vapor Intrusion (October 2006) does not provide background concentrations or standards, criteria or guidance for soil vapors compounds identified in this study.

The major on-site vapor concentrations (total concentrations of VOCs) range from 262 microgram per cubic meter ( $\text{mcg}/\text{m}^3$ ) detected in the western portion of Lot 38 in SG-4 to 294,300  $\text{mcg}/\text{m}^3$  detected in the vicinity of the former gasoline UST in the northwestern portion of Lot 35 in SG-10. The on-site vapors consisted of gasoline constituents including of Toluene (maximum concentration of 420  $\text{mcg}/\text{m}^3$ ), Ethylbenzene (maximum concentration of 180  $\text{mcg}/\text{m}^3$ ), m,p-Xylenes (maximum concentration of 490  $\text{mcg}/\text{m}^3$ ).

Additionally, soil vapors were detected beneath the sidewalk along the south side of Westchester Avenue and the west side of Rogers Place. Off-site vapor concentrations (total concentrations of VOCs) range from 173  $\text{mcg}/\text{m}^3$  to the north of Lot 38 in SG-2 to 7,658  $\text{mcg}/\text{m}^3$  to the north of Lot 35 in SG-1. Off-site vapor contaminants also consist of gasoline constituents such as Toluene (maximum concentration of 1,200  $\text{mcg}/\text{m}^3$ ), Ethylbenzene

(maximum concentration of 530 mcg/m<sup>3</sup>), m,p-Xylenes (maximum concentration of 490 mcg/m<sup>3</sup>), 1,2,4-Trimethylbenzene (maximum concentration of 1,400 mcg/m<sup>3</sup>).

The results of the off-site soil vapor detected upgradient to Lot 38 suggest VOCs associated with petroleum constituents, probably from gasoline related sources, beneath the Sidewalks, along Westchester Avenue and Rogers Place. Evidence from groundwater suggests a gasoline-associated source of MTBE upgradient and north of Lot 38 since no MTBE is evident in soil or groundwater sampling conducted around the spills on Lot 35 on-site. The property does border on Westchester Avenue to the north, which is a considerable vehicular thoroughfare in a busy residential and commercial area in the Bronx and a gasoline filling station to the west. The occurrence of lower levels of soil vapors associated with gasoline on the north side of Lot 38 (compared to Lot 35) may be due to the spill on Lot 35 or from an off-site spill, or some combination of both.

Under the remedial action that is currently contemplated for the property, soil/fill will be excavated to a depth of about 13 feet throughout the property and will ensure removal of soil vapor sources beneath Lot 35. Given the elevated concentrations of petroleum compounds detected under the sidewalk, soil vapor sampling will be proposed following the remedial action between the property and adjacent sidewalks to assess the source of elevated off-site vapors.

A diagram that summarizes the presence of soil vapors is shown in **Figure 15**.

#### **4.7 OTHER REPORTING**

Photographs were taken of the RI activities and are included in digital (jpeg) format in **Appendix J**. The photos illustrate all RI elements and are of acceptable quality.

Job-Site record keeping for all RI work and other site investigations was appropriately documented. These records were maintained in Hydro Tech offices.

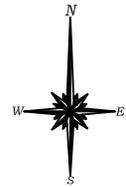
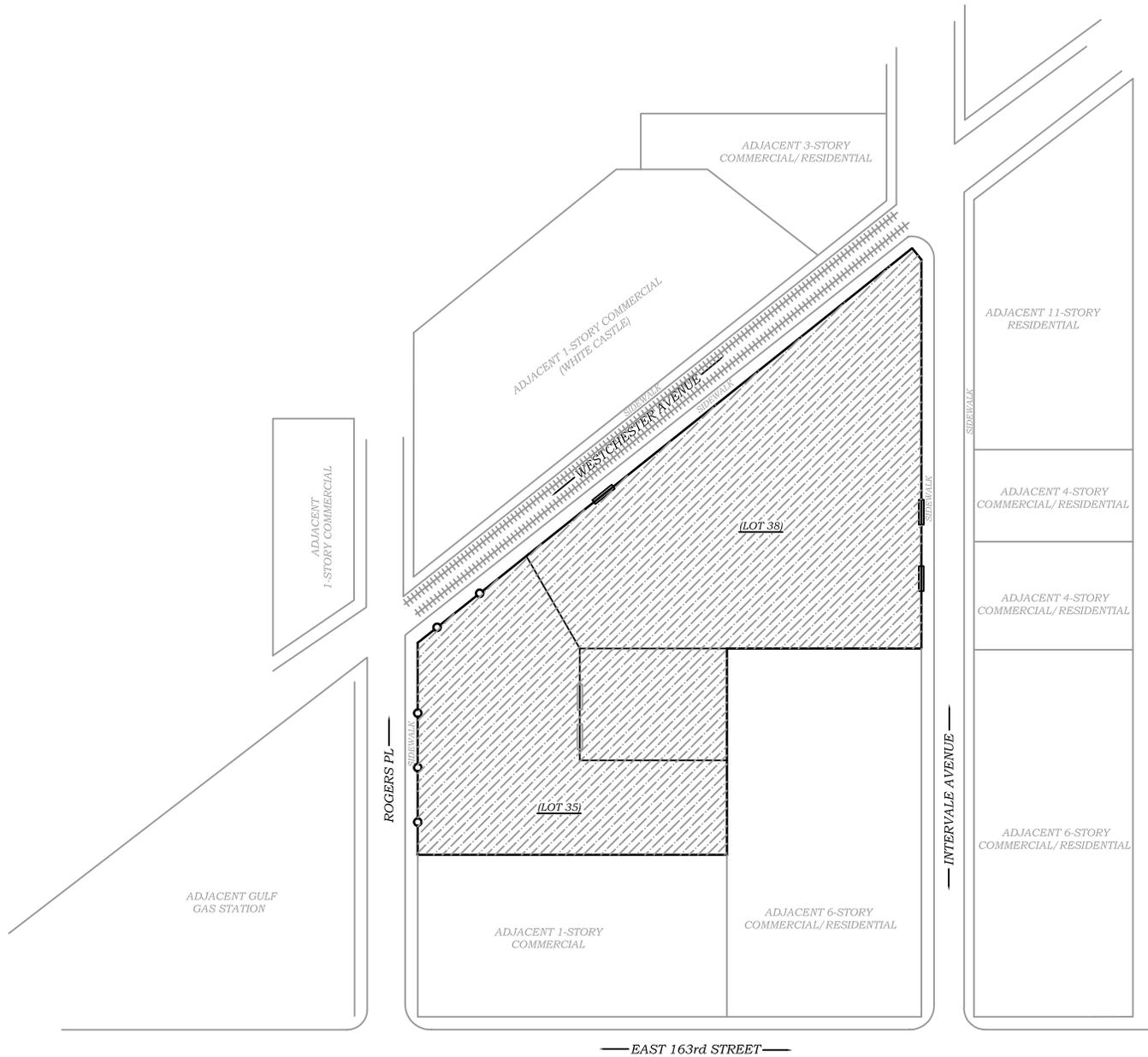
#### **4.8 PRIOR ACTIVITY**

Evaluation of the data and information in this RIR suggests that the Sites are not suspected inactive hazardous waste sites, as defined in 6 NYCRR Part 375.

#### **4.9 IMPEDIMENTS TO REMEDIAL ACTION**

The presence of utilities and easements on-Site and off-Site has been investigated by the Qualified Environmental Professional. It has been determined that no risk or impediment to the planned RAWP is posed by utilities or easements on the Site.

## Figures



- LEGEND:**
- THE SITE
  - STEEL FENCE
  - ROLL-UP GATE
  - ELEVATED NYC TRANSIT RAILWAY



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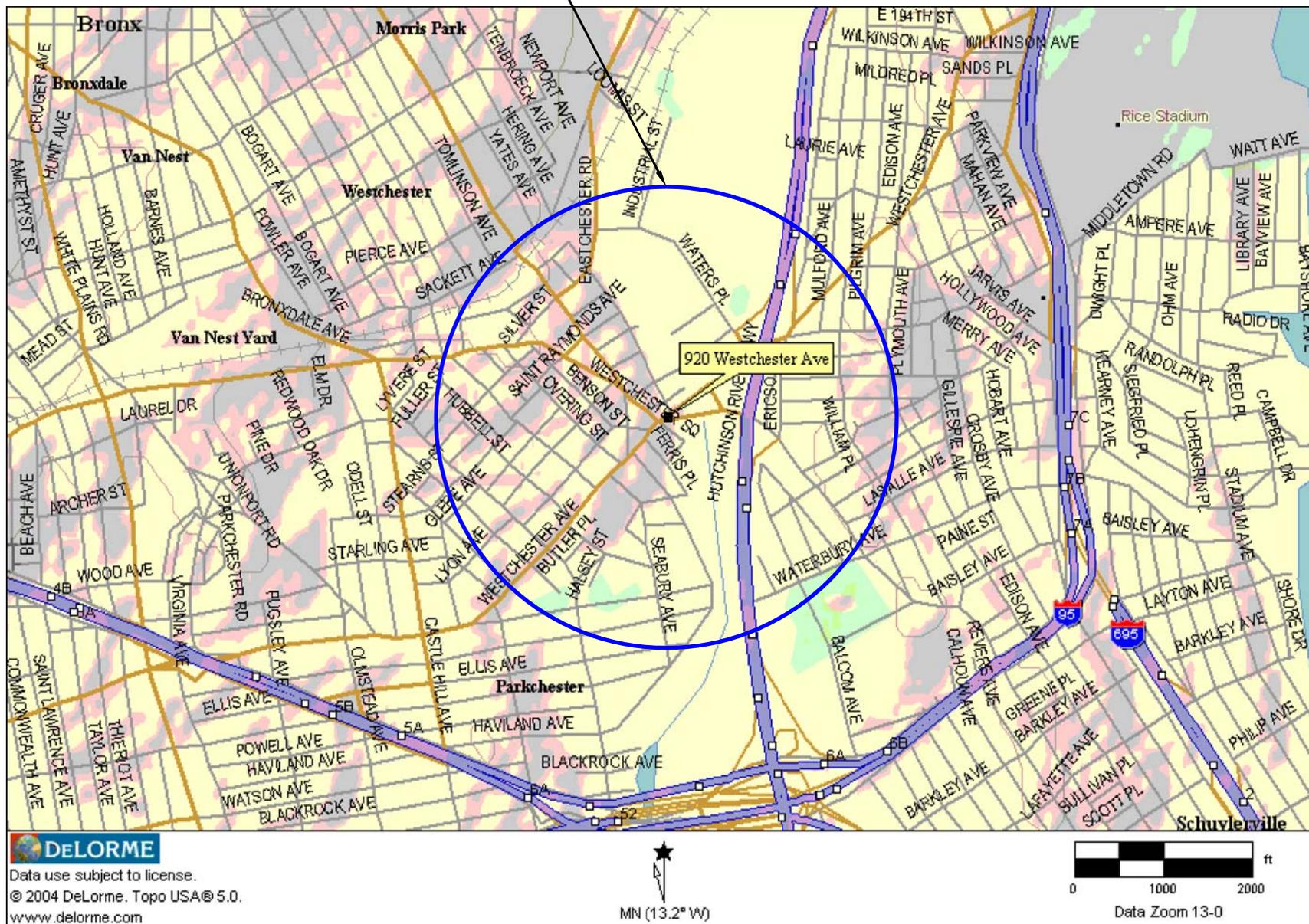
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 Bronx, NY.

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 Reviewed By: M.R.  
 Approved By: M.S.  
 Date: 01/26/10  
 Scale: AS NOTED

TITLE:

FIGURE 1: SITE PLAN

**1/2 MILES RADIUS AROUND  
SUBJECT SITE**



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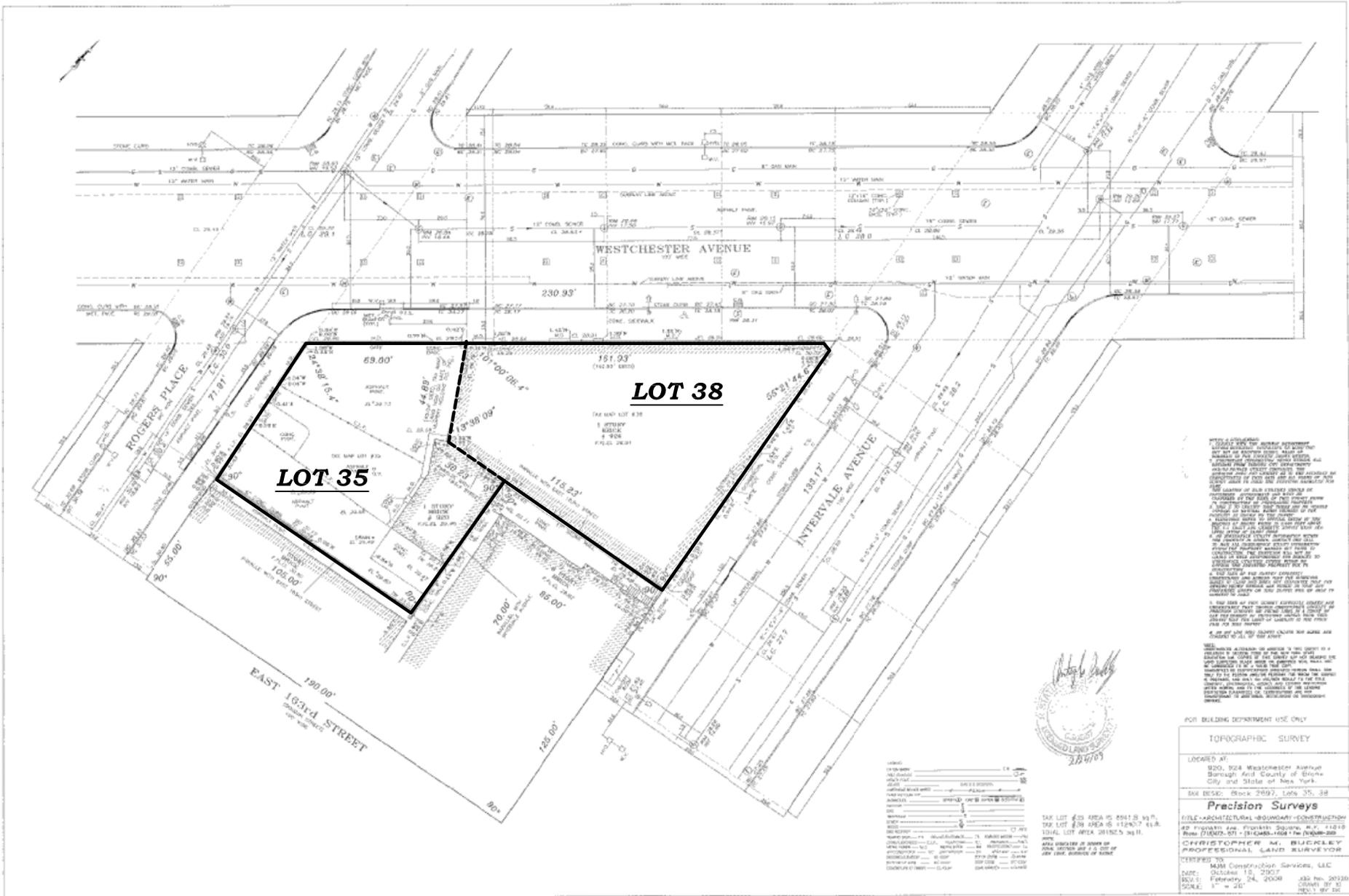
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FIGURE 2: UNITED STATES GEOLOGICAL SURVEY (USGS) TOPOGRAPHICAL QUADRANGLE



THIS IS A PRELIMINARY SURVEY AND SHOULD NOT BE USED FOR ANY PURPOSES WITHOUT THE WRITTEN CONSENT OF THE SURVEYOR. THE SURVEYOR HAS NOT CONDUCTED A VISUAL INSPECTION OF THE SITE AND HAS NOT BEEN ADVISED OF ANY OBSTRUCTIONS TO THE SURVEY. THE SURVEYOR HAS NOT BEEN ADVISED OF ANY ADVERSE CLAIMS OR INTERESTS IN THE PROPERTY. THE SURVEYOR HAS NOT BEEN ADVISED OF ANY OTHER MATTERS THAT MAY AFFECT THE SURVEY. THE SURVEYOR HAS NOT BEEN ADVISED OF ANY OTHER MATTERS THAT MAY AFFECT THE SURVEY. THE SURVEYOR HAS NOT BEEN ADVISED OF ANY OTHER MATTERS THAT MAY AFFECT THE SURVEY.



|  |  |
|--|--|
| FOR BUILDING DEPARTMENT USE ONLY   |  |
| TOPOGRAPHIC SURVEY   |  |
| LOCATED AT:  | 920, 924 Westchester Avenue<br>Borough and County of Bronx<br>City and State of New York |
| SAF. BESS.:  | Block 2987, Lots 35, 38  |
| <b>Precision Surveys</b>   |  |
| FILE NO. ARCHITECTURAL BOUNDARY SURVEYING<br>430 PROJECT AND PROPERTY SURVEYING, 411-1115<br>Rosa (718) 273-5711 • (914) 483-1408 • The Precision Survey |  |
| CERTIFIED TO: M&B Construction Services, LLC   |  |
| DATE:  | October 15, 2007   |
| BY:  | February 24, 2008  |
| SCALE:   | 1" = 20'   |



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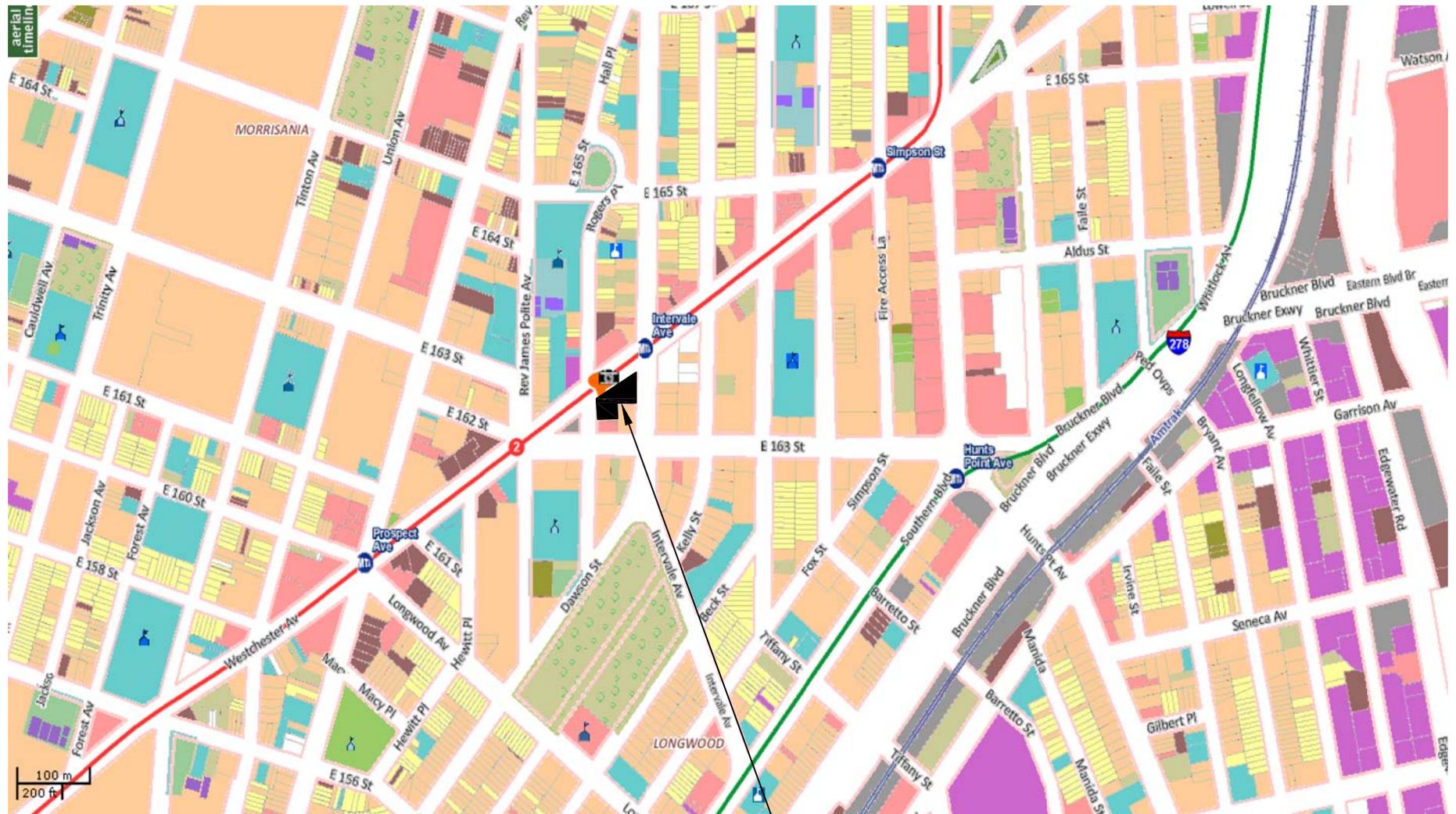
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| Approved By: | M.S.     |
| Date:        | 11/02/10 |
| Scale:       | AS NOTED |

TITLE:

FIGURE 3: SITE BOUNDARY MAP



**SUBJECT SITE**



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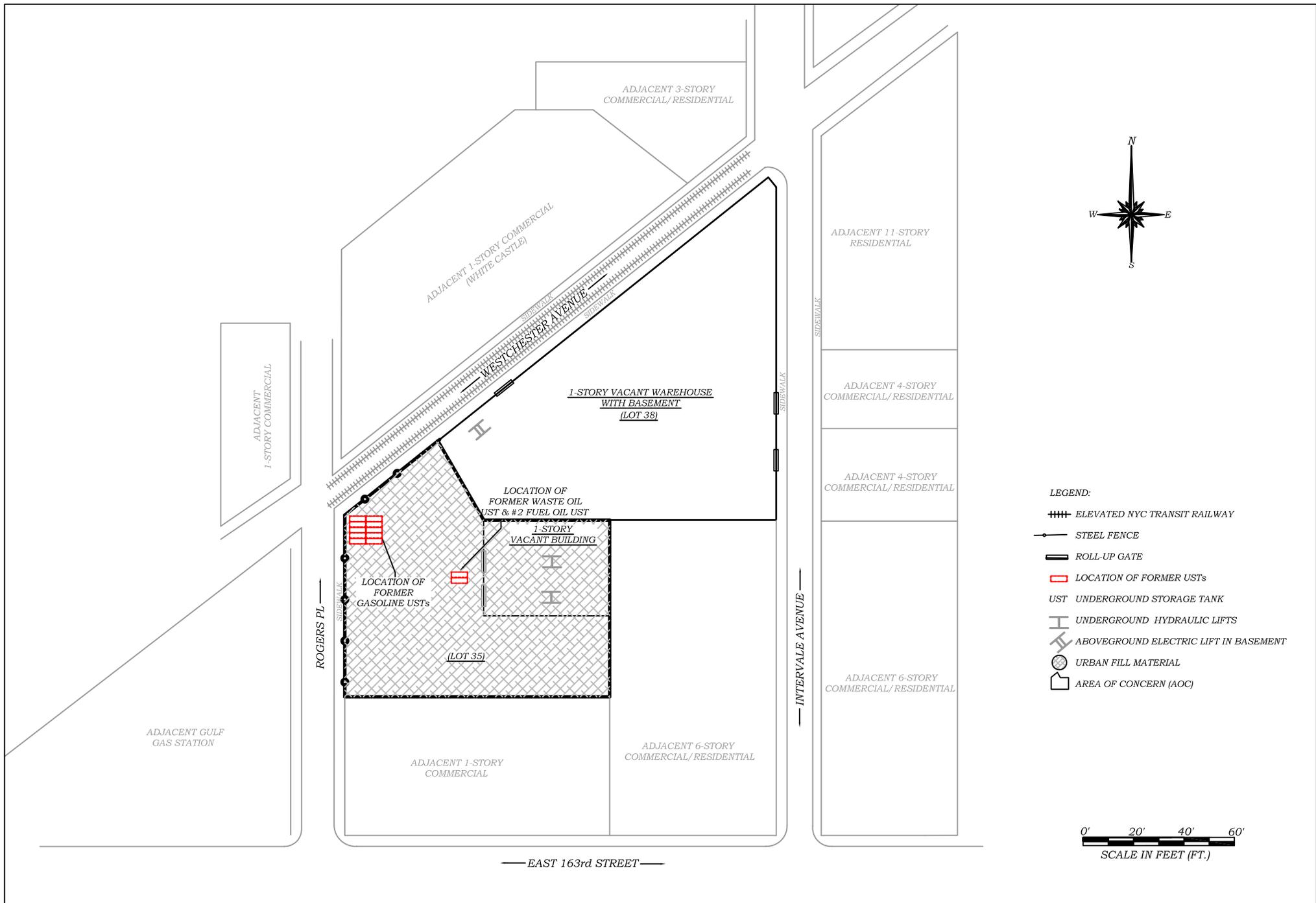
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Approved By: M.S  
Date: 01/26/10  
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TITLE:

FIGURE 4: LAND USE MAP





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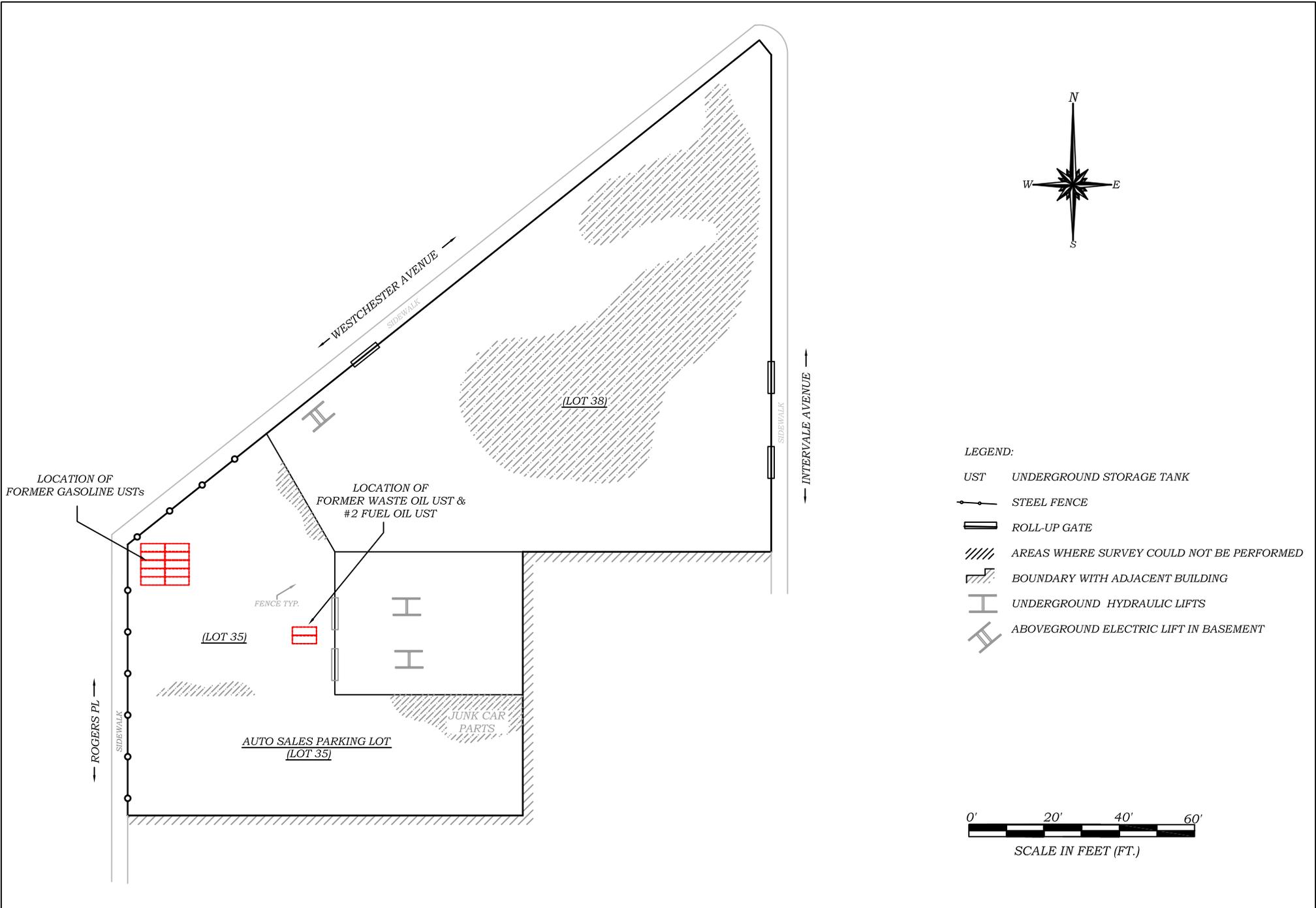
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**FIGURE 6: COMPOSITE MAP OF HISTORICAL FEATURES AND AREAS OF CONCERN IDENTIFIED IN HISTORICAL SITE INFORMATION**



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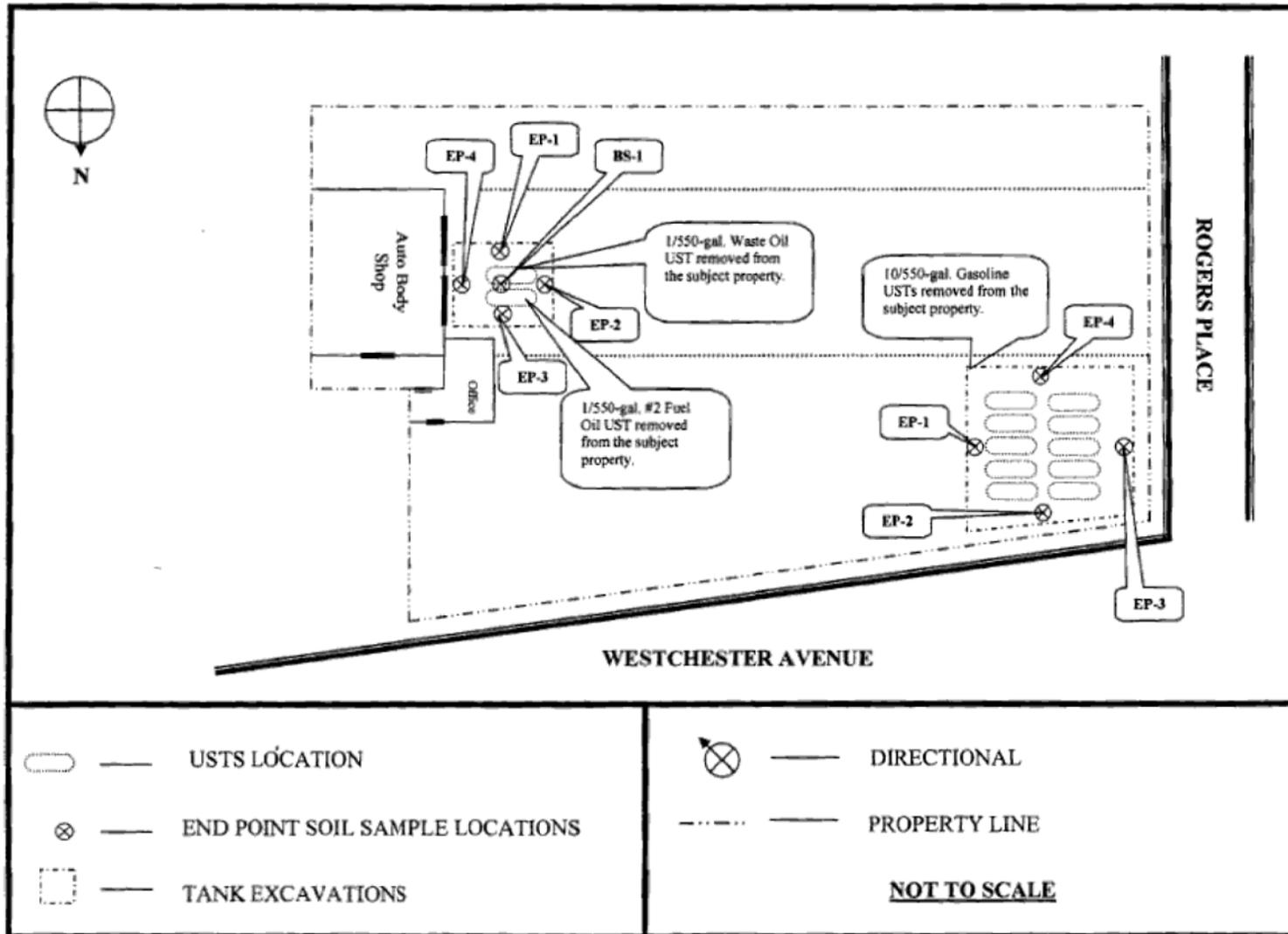
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FIGURE 7: GEOPHYSICAL SURVEY LOCATION

FI

**920-922 WESTCHESTER AVENUE, BRONX, NY – SITE PLAN**



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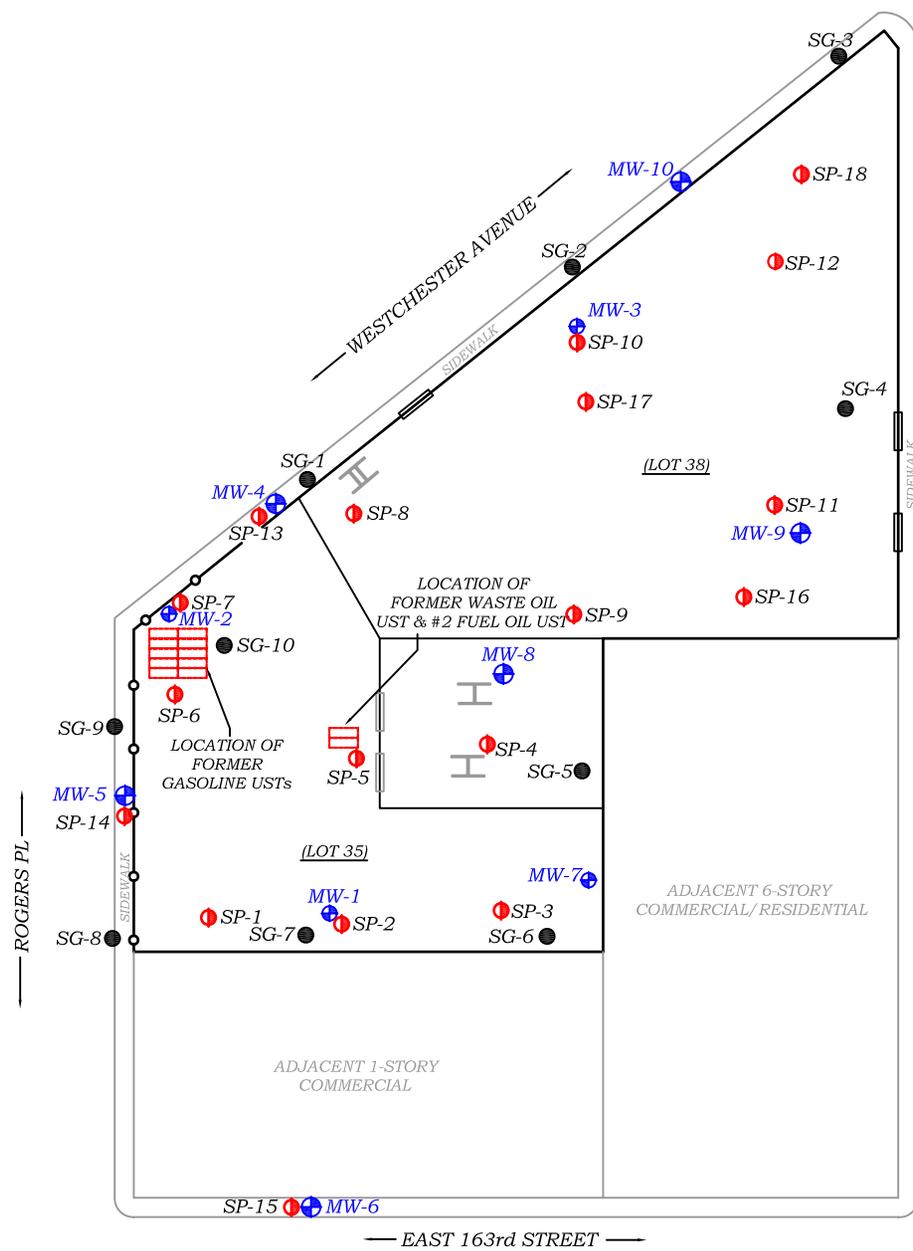
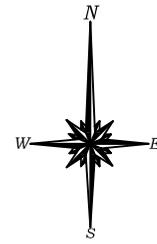
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FIGURE 8: END POINT SAMPLES LOCATION



**LEGEND:**

- STEEL FENCE
- ROLL-UP GATE
- MONITORING WELL LOCATION (MW)  
(MW-1 TO MW-3 INSTALLED DURING THE MAY 15TH, 2009 SITE INVESTIGATION)  
(MW-4 TO MW-6 INSTALLED DURING THE SEPT. 8TH, 2009 GROUNDWATER INVESTIGATION)  
(MW-7 TO MW-10 INSTALLED DURING THE REMEDIAL INVESTIGATION)
- SOIL VAPOR IMPLANT (SG) INSTALLED DURING THE REMEDIAL INVESTIGATION
- SOIL PROBE LOCATION (SP)  
(SP-1 TO SP-12 INSTALLED DURING THE MAY 15TH, 2009 SITE INVESTIGATION)  
(SP-13 TO SP-15 INSTALLED DURING THE SEPT. 8TH, 2009 GROUNDWATER INVESTIGATION)  
(SP-16 TO SP-18 INSTALLED DURING THE REMEDIAL INVESTIGATION)
- UST UNDERGROUND STORAGE TANK
- MW MONITORING WELL
- SG SOIL GAS IMPLANT
- SP SOIL PROBE
- UNDERGROUND HYDRAULIC LIFTS
- ABOVEGROUND ELECTRIC LIFT IN BASEMENT



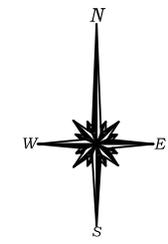
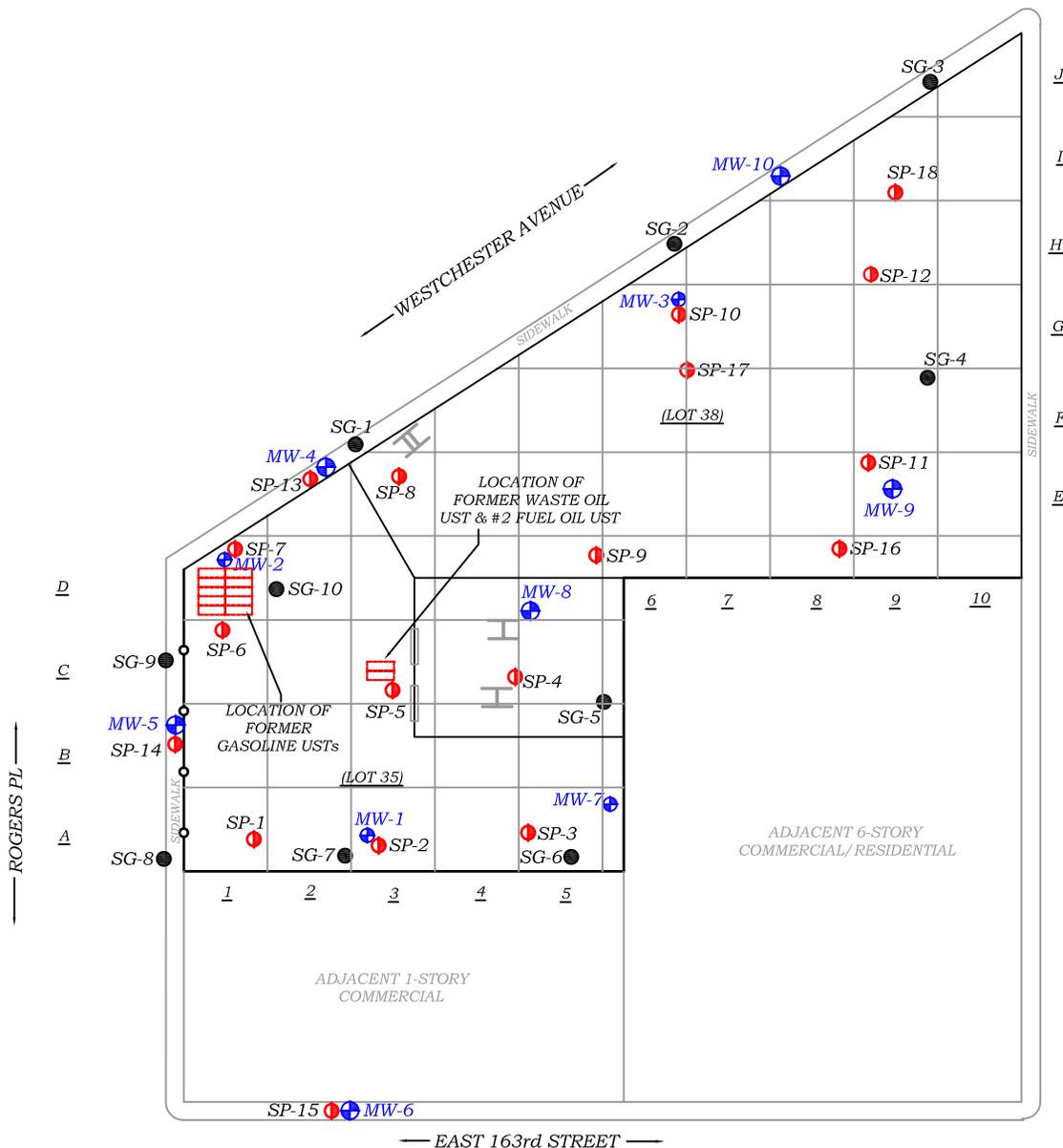
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TITLE:  
**FIGURE 9A: SAMPLING PLAN OF SOIL PROBES, MONITORING WELLS AND SOIL VAPOR PROBES**



LEGEND:

- MONITORING WELL LOCATION (MW)
- SOIL VAPOR IMPLANT (SG)
- SOIL PROBE LOCATION (SP)
- UST UNDERGROUND STORAGE TANK
- MW MONITORING WELL
- SG SOIL GAS IMPLANT
- SP SOIL PROBE
- UNDERGROUND HYDRAULIC LIFTS
- ABOVEGROUND ELECTRIC LIFT IN BASEMENT



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TITLE:

FIGURE 9B: SAMPLING PLAN WITH ALPHA NUMERIC GRID

| HYDRO TECH ENVIRONMENTAL CORP.   |                       | GEOCHEMICAL BORING LOG   |                 |                             |                     |
|--|-----------------------|--|-----------------|-----------------------------|---------------------|
| <small>HYDRO TECH ENVIRONMENTAL CORP.<br/>150 WEST 17TH STREET, 15TH FLOOR<br/>NEW YORK, NY 10011<br/>WWW.HYDROTECHENVIRONMENTAL.COM</small> |                       | <small>HYDRO TECH ENVIRONMENTAL CORP.<br/>150 WEST 17TH STREET, 15TH FLOOR<br/>NEW YORK, NY 10011<br/>WWW.HYDROTECHENVIRONMENTAL.COM</small> |                 |                             |                     |
| Client: MAIN CONSTRUCTION SERVICES, LLC  | Date Start: 11-24-08  | Boring #: B-1  |                 |                             |                     |
| Location: 920-924 WESTCHESTER AVENUE   | Date Finish: 11-24-08 |  |                 |                             |                     |
| County: BROOKLYN   | Block: 2097           | Lot: 33.6.30   |                 |                             |                     |
| City Information: YEAR 2006  | Make: GEOPHORE        | Model: 663007  | Mounting: TRACK |                             |                     |
| DEPTH FROM TO  | SAMPLE                | MATERIAL DESCRIPTION   | REC'D IN SOIL   | SPOON BLOWS PER 6" INTERVAL | REMARKS             |
| 0.0'-2.0'  | S-1                   | FILL MATERIAL, ASPHALT, DARK BROWN SOIL  | 12"             | 2 1                         | (FILL)(1-6S)        |
| 5.0'-7.0'  | S-2                   | FILL MATERIAL, DARK BROWN SAND, CLAY MATERIAL  | 12"             | 3 2                         | (SP9B-6S)           |
| 10.0'-12.0'  | S-3                   | DARK CLAYEY SOIL, CORRES. MOST   | 12"             | 4 3                         | (SC9B-6S)           |
| 15.0'-17.0'  | S-4                   | DARK CLAYEY SOIL, DECOMPOSED ROCK  | 2"              | 50                          | REFUSAL AT (15'-3") |
| Hammer Drop: 30 INCH<br>Spoon Hammer: 140 L.B.S.<br>Spoon size: 2 INCH   |                       | Driller: Manual Plo<br>Helper: Eghan   |                 | PAGE 1 OF 1                 |                     |

| HYDRO TECH ENVIRONMENTAL CORP.   |                       | GEOCHEMICAL BORING LOG   |                 |                             |                               |
|--|-----------------------|--|-----------------|-----------------------------|-------------------------------|
| <small>HYDRO TECH ENVIRONMENTAL CORP.<br/>150 WEST 17TH STREET, 15TH FLOOR<br/>NEW YORK, NY 10011<br/>WWW.HYDROTECHENVIRONMENTAL.COM</small> |                       | <small>HYDRO TECH ENVIRONMENTAL CORP.<br/>150 WEST 17TH STREET, 15TH FLOOR<br/>NEW YORK, NY 10011<br/>WWW.HYDROTECHENVIRONMENTAL.COM</small> |                 |                             |                               |
| Client: MAIN CONSTRUCTION SERVICES, LLC  | Date Start: 11-24-08  | Boring #: B-2  |                 |                             |                               |
| Location: 920-924 WESTCHESTER AVENUE   | Date Finish: 11-24-08 |  |                 |                             |                               |
| County: BROOKLYN   | Block: 2097           | Lot: 33.6.30   |                 |                             |                               |
| City Information: YEAR 2006  | Make: CME 75          | Model: F-800   | Mounting: TRACK |                             |                               |
| DEPTH FROM TO  | SAMPLE                | MATERIAL DESCRIPTION   | REC'D IN SOIL   | SPOON BLOWS PER 6" INTERVAL | REMARKS                       |
| 0.0'-2.0'  | S-1                   | FILL MATERIAL, ASPHALT, ROCKS  | 12"             | 1 2                         | (FILL)(1-6S)                  |
| 5.0'-7.0'  | S-2                   | DARK BROWN SOIL, CLAYEY MATERIAL   | 18"             | 5 14                        | (SP9B-6S)                     |
| 10.0'-10.1'  | S-3                   | DECOMPOSED ROCK  | 1"              | 100 0                       | (7-6S)<br>REFUSAL AT (10'-1") |
| 10.1'-13.0'  | S-4                   | NO RECOVERY - ROLLER BIT   |                 |                             |                               |
| 12.6'-17.0'  | R-1                   | ROCK CORED FROM 12.6' TO 17.0' FRAGMENTED  | 5.0'            | 40%                         | MICA SCHIST (3-6S)            |
| 17.6'-23.0'  | R-2                   | ROCK CORED FROM 17.6' TO 23.0'   | 5.0'            | 60%                         | MICA SCHIST (4-6S)            |
| Hammer Drop: 30 INCH<br>Spoon Hammer: 140 L.B.S.<br>Spoon size: 2 INCH   |                       | Driller: Kostas<br>Helper: Jaber   |                 | PAGE 1 OF 1                 |                               |

| HYDRO TECH ENVIRONMENTAL CORP.   |                      | GEOCHEMICAL BORING LOG   |                 |                             |                     |
|--|----------------------|--|-----------------|-----------------------------|---------------------|
| <small>HYDRO TECH ENVIRONMENTAL CORP.<br/>150 WEST 17TH STREET, 15TH FLOOR<br/>NEW YORK, NY 10011<br/>WWW.HYDROTECHENVIRONMENTAL.COM</small> |                      | <small>HYDRO TECH ENVIRONMENTAL CORP.<br/>150 WEST 17TH STREET, 15TH FLOOR<br/>NEW YORK, NY 10011<br/>WWW.HYDROTECHENVIRONMENTAL.COM</small> |                 |                             |                     |
| Client: MAIN CONSTRUCTION SERVICES, LLC  | Date Start: 12-1-08  | Boring #: B-3  |                 |                             |                     |
| Location: 920-924 WESTCHESTER AVENUE   | Date Finish: 12-1-08 |  |                 |                             |                     |
| County: BROOKLYN   | Block: 2097          | Lot: 33.6.30   |                 |                             |                     |
| City Information: YEAR 2006  | Make: GEOPHORE       | Model: 663007  | Mounting: TRACK |                             |                     |
| DEPTH FROM TO  | SAMPLE               | MATERIAL DESCRIPTION   | REC'D IN SOIL   | SPOON BLOWS PER 6" INTERVAL | REMARKS             |
| 0.0'-2.0'  | S-1                  | FILL MATERIAL, CONCRETE AND ASPHALT  | 12"             | 3 3                         | (FILL)(1-6S)        |
| 5.0'-7.0'  | S-2                  | SAND MIXED WITH FIBERS AND CLAYEY MATERIALS  | 12"             | 2 4                         | (SP9B-6S)           |
| 10.0'-12.0'  | S-3                  | DARK CLAYEY SAND   | 12"             | 5 3                         | (SC9B-6S)           |
| 15.0'-17.0'  | S-4                  | DARK CLAYEY SOIL, DECOMPOSED ROCK  | 5"              | 55                          | REFUSAL AT (15'-5") |
| Hammer Drop: 30 INCH<br>Spoon Hammer: 140 L.B.S.<br>Spoon size: 2 INCH   |                      | Driller: Manual Plo<br>Helper: Eghan   |                 | PAGE 1 OF 1                 |                     |

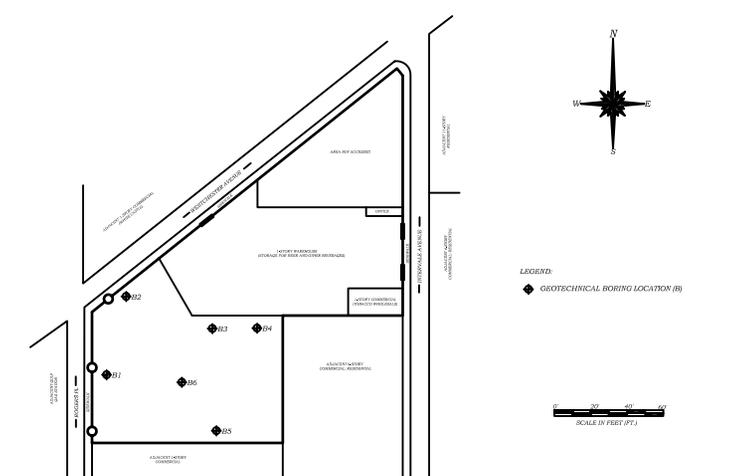
| HYDRO TECH ENVIRONMENTAL CORP.   |                      | GEOCHEMICAL BORING LOG   |                 |                             |                     |
|--|----------------------|--|-----------------|-----------------------------|---------------------|
| <small>HYDRO TECH ENVIRONMENTAL CORP.<br/>150 WEST 17TH STREET, 15TH FLOOR<br/>NEW YORK, NY 10011<br/>WWW.HYDROTECHENVIRONMENTAL.COM</small> |                      | <small>HYDRO TECH ENVIRONMENTAL CORP.<br/>150 WEST 17TH STREET, 15TH FLOOR<br/>NEW YORK, NY 10011<br/>WWW.HYDROTECHENVIRONMENTAL.COM</small> |                 |                             |                     |
| Client: MAIN CONSTRUCTION SERVICES, LLC  | Date Start: 12-2-08  | Boring #: B-4  |                 |                             |                     |
| Location: 920-924 WESTCHESTER AVENUE   | Date Finish: 12-2-08 |  |                 |                             |                     |
| County: BROOKLYN   | Block: 2097          | Lot: 33.6.30   |                 |                             |                     |
| City Information: YEAR 2006  | Make: GEOPHORE       | Model: 663007  | Mounting: TRACK |                             |                     |
| DEPTH FROM TO  | SAMPLE               | MATERIAL DESCRIPTION   | REC'D IN SOIL   | SPOON BLOWS PER 6" INTERVAL | REMARKS             |
| 0.0'-2.0'  | S-1                  | FILL MATERIAL, DARK BROWN SOIL   | 12"             | 4 5                         | (FILL)(1-6S)        |
| 5.0'-7.0'  | S-2                  | DARK BROWN SOIL WITH CLAY MATERIAL   | 8"              | 2 3                         | (SP9B-6S)           |
| 10.0'-12.0'  | S-3                  | DECOMPOSED ROCK  | 5"              | 65                          | REFUSAL AT (10'-5") |
| Hammer Drop: 30 INCH<br>Spoon Hammer: 140 L.B.S.<br>Spoon size: 2 INCH   |                      | Driller: Manual Plo<br>Helper: Eghan   |                 | PAGE 1 OF 1                 |                     |

| HYDRO TECH ENVIRONMENTAL CORP.   |                      | GEOCHEMICAL BORING LOG   |                 |                             |                     |
|--|----------------------|--|-----------------|-----------------------------|---------------------|
| <small>HYDRO TECH ENVIRONMENTAL CORP.<br/>150 WEST 17TH STREET, 15TH FLOOR<br/>NEW YORK, NY 10011<br/>WWW.HYDROTECHENVIRONMENTAL.COM</small> |                      | <small>HYDRO TECH ENVIRONMENTAL CORP.<br/>150 WEST 17TH STREET, 15TH FLOOR<br/>NEW YORK, NY 10011<br/>WWW.HYDROTECHENVIRONMENTAL.COM</small> |                 |                             |                     |
| Client: MAIN CONSTRUCTION SERVICES, LLC  | Date Start: 12-2-08  | Boring #: B-5  |                 |                             |                     |
| Location: 920-924 WESTCHESTER AVENUE   | Date Finish: 12-2-08 |  |                 |                             |                     |
| County: BROOKLYN   | Block: 2097          | Lot: 33.6.30   |                 |                             |                     |
| City Information: YEAR 2006  | Make: GEOPHORE       | Model: 663007  | Mounting: TRACK |                             |                     |
| DEPTH FROM TO  | SAMPLE               | MATERIAL DESCRIPTION   | REC'D IN SOIL   | SPOON BLOWS PER 6" INTERVAL | REMARKS             |
| 0.0'-2.0'  | S-1                  | FILL MATERIAL, ASPHALT AND CONCRETE, BROWN SOIL  | 12"             | 4 3                         | (FILL)(1-6S)        |
| 5.0'-7.0'  | S-2                  | DARK BROWN SOIL WITH CLAY MATERIAL   | 10"             | 3 1                         | (SP9B-6S)           |
| 10.0'-12.0'  | S-3                  | DARK CLAYEY SAND   | 12"             | 3 5                         | (SC9B-6S)           |
| 13.0'-17.0'  | S-4                  | CLAYEY SOIL, DECOMPOSED ROCK   | 2"              | 45                          | REFUSAL AT (13'-5") |
| Hammer Drop: 30 INCH<br>Spoon Hammer: 140 L.B.S.<br>Spoon size: 2 INCH   |                      | Driller: Manual Plo<br>Helper: Eghan   |                 | PAGE 1 OF 1                 |                     |

| HYDRO TECH ENVIRONMENTAL CORP.   |  | UNIFIED SOIL CLASSIFICATION  |                             |
|--|--|--|-----------------------------|
| <small>HYDRO TECH ENVIRONMENTAL CORP.<br/>150 WEST 17TH STREET, 15TH FLOOR<br/>NEW YORK, NY 10011<br/>WWW.HYDROTECHENVIRONMENTAL.COM</small> |  | <small>HYDRO TECH ENVIRONMENTAL CORP.<br/>150 WEST 17TH STREET, 15TH FLOOR<br/>NEW YORK, NY 10011<br/>WWW.HYDROTECHENVIRONMENTAL.COM</small> |                             |
| SOIL GROUP   | TYPICAL NAME   | ALLOWED SETTLEMENT (INCH)  | ALLOWED SETTLEMENT (% OF D) |
| CU   | WELL GRADED SAND, GRAVEL, SAND MIXTURES, LITTLE OR NO FINE           | 1.0  | 10                          |
| UC   | POORLY GRADED SAND, GRAVEL OR SAND, SILT, CLAY, SILT OR CLAY         | 1.5  | 15                          |
| GW   | WELL GRADED SAND, GRAVEL, SAND MIXTURES, LITTLE OR NO FINE           | 1.0  | 10                          |
| GM   | POORLY GRADED SAND, GRAVEL OR SAND, SILT, CLAY, SILT OR CLAY         | 1.5  | 15                          |
| SW   | SILT, SILTY SAND, SAND, SILT MIXTURES                                | 1.0  | 10                          |
| SM   | CLAYEY SAND, SAND, CLAY MIXTURES                                     | 1.0  | 10                          |
| SC   | INTERMEDIATE TO VERY LOW PLASTICITY CLAYEY SILT OR SILTY CLAYEY SILT | 1.0  | 10                          |
| CL   | INTERMEDIATE TO HIGH PLASTICITY CLAYEY SILT OR SILTY CLAYEY SILT     | 1.0  | 10                          |
| ML   | LOW PLASTICITY CLAYEY SILT OR SILTY CLAYEY SILT                      | 1.0  | 10                          |
| CL   | INTERMEDIATE TO HIGH PLASTICITY SILT CLAYEY SILT                     | 1.0  | 10                          |
| ML   | LOW PLASTICITY SILT CLAYEY SILT                                      | 1.0  | 10                          |
| CH   | ORGANIC CLAYEY SILT OR SILTY CLAYEY SILT                             | 1.0  | 10                          |
| PT   | PEAT AND OTHER ORGANIC SOILS   | 1.0  | 10                          |

| HYDRO TECH ENVIRONMENTAL CORP.   |                      | GENERAL NOTES  |                 |
|--|----------------------|--|-----------------|
| <small>HYDRO TECH ENVIRONMENTAL CORP.<br/>150 WEST 17TH STREET, 15TH FLOOR<br/>NEW YORK, NY 10011<br/>WWW.HYDROTECHENVIRONMENTAL.COM</small>   |                      | <small>HYDRO TECH ENVIRONMENTAL CORP.<br/>150 WEST 17TH STREET, 15TH FLOOR<br/>NEW YORK, NY 10011<br/>WWW.HYDROTECHENVIRONMENTAL.COM</small> |                 |
| Client: MAIN CONSTRUCTION SERVICES, LLC  | Date Start: 12-2-08  | Boring #: B-6  |                 |
| Location: 920-924 WESTCHESTER AVENUE   | Date Finish: 12-2-08 |  |                 |
| County: BROOKLYN   | Block: 2097          | Lot: 33.6.30   |                 |
| City Information: YEAR 2006  | Make: CME 75         | Model: F-800   | Mounting: TRACK |
| <ol style="list-style-type: none"> <li>CASING: 3" I.D. TO ROTARY SAMPLER, 2" SPLIT SPOON, 1" I.D. HAMMER, 30" DROP CORE BARREL, DOUBLE TUBE, 1.5" DIA. CORE (S.S.) DOUBLE TUBE, 1.5" DIA. CORE (S.S.)</li> <li>NYC CONTROLLED INSPECTION SUPERVISING ENGINEER SHAK SAAD, P.E., NY #107874.</li> <li>NYC BUILDING LAW CLASSIFICATION SYSTEM SECTION 2408 TABLE 11-1, NOTED (S-30).</li> <li>SAMPLE DESCRIPTION AND STRATIFICATION AS PER ASTM METHOD AND ASTM NOTED (S-30).</li> <li>ALL WORK PERFORMED IN ACCORDANCE WITH APPLICABLE SECTIONS OF NYC BUILDING LAWS, SECTION 2406 THROUGH 2546.</li> <li>UNIFIED SOIL CLASSIFICATION SYSTEM NOTED (S-30).</li> <li>GROUND WATER NOTED, NOT ENCOUNTERED.</li> <li>BORING LOCATIONS AS PER DIRECTION OF CLIENT, SEE PLAN.</li> <li>UNLESS WELL POINT IS INSTALLED, WATER LEVEL REPORTED OCCURS AT THE TIME BORING WAS TAKEN AND MAY NOT BE THAT OF ACTUAL WATER TABLE FLUCTUATIONS IN GROUNDWATER LEVEL CAUSED BY TIDAL AND SEASONAL CHANGES HAVE NOT BEEN CONSIDERED.</li> <li>SPOON BLOW COUNT IS SHOWN IN 6" INCREMENTS FOR 2 DRIVE. TO OBTAIN BLOWS PER FOOT (N) USE THE 2ND AND 3RD 6" INCREMENT.</li> </ol> |                      |  |                 |
| THIS REPORT IS SUBMITTED WITH THE SPECIFIC UNDERSTANDING THAT THE SOLE LIABILITY OF HYDRO TECH ENVIRONMENTAL CORP., ITS ENGINEERS AND EMPLOYEES, FOR ERRORS AND OMISSIONS IS LIMITED TO THE AMOUNT OF THE FEE PAID FOR THIS REPORT. THE USE OF THIS REPORT WILL CONSTITUTE AN ACCEPTANCE BY THE CLIENT OF THIS DISCLAIMER. THE FEE CHARGED FOR THIS REPORT IS PROPORTIONAL TO THE SCOPE OF WORK PERFORMED. HYDRO TECH ENVIRONMENTAL CORP. DOES NOT ACCEPT RESPONSIBILITY FOR THE ACCURACY OF THE DATA REPORTED HEREIN. HYDRO TECH ENVIRONMENTAL CORP. DOES NOT ACCEPT RESPONSIBILITY FOR THE ACCURACY OF THE DATA REPORTED HEREIN. HYDRO TECH ENVIRONMENTAL CORP. DOES NOT ACCEPT RESPONSIBILITY FOR THE ACCURACY OF THE DATA REPORTED HEREIN. HYDRO TECH ENVIRONMENTAL CORP. DOES NOT ACCEPT RESPONSIBILITY FOR THE ACCURACY OF THE DATA REPORTED HEREIN.   |                      |  |                 |
| Hammer Drop: 30 INCH<br>Spoon Hammer: 140 L.B.S.<br>Spoon size: 2 INCH   |                      | Driller: Kostas<br>Helper: Jaber   |                 |
| PAGE 1 OF 1  |                      |  |                 |

| HYDRO TECH ENVIRONMENTAL CORP.   |                      | GEOCHEMICAL BORING LOG   |                 |                             |                              |
|--|----------------------|--|-----------------|-----------------------------|------------------------------|
| <small>HYDRO TECH ENVIRONMENTAL CORP.<br/>150 WEST 17TH STREET, 15TH FLOOR<br/>NEW YORK, NY 10011<br/>WWW.HYDROTECHENVIRONMENTAL.COM</small> |                      | <small>HYDRO TECH ENVIRONMENTAL CORP.<br/>150 WEST 17TH STREET, 15TH FLOOR<br/>NEW YORK, NY 10011<br/>WWW.HYDROTECHENVIRONMENTAL.COM</small> |                 |                             |                              |
| Client: MAIN CONSTRUCTION SERVICES, LLC  | Date Start: 12-2-08  | Boring #: B-6  |                 |                             |                              |
| Location: 920-924 WESTCHESTER AVENUE   | Date Finish: 12-2-08 |  |                 |                             |                              |
| County: BROOKLYN   | Block: 2097          | Lot: 33.6.30   |                 |                             |                              |
| City Information: YEAR 2006  | Make: CME 75         | Model: F-800   | Mounting: TRACK |                             |                              |
| DEPTH FROM TO  | SAMPLE               | MATERIAL DESCRIPTION   | REC'D IN SOIL   | SPOON BLOWS PER 6" INTERVAL | REMARKS                      |
| 0.0'-2.0'  | S-1                  | FILL MATERIAL, BROWN SOIL  | 18"             | 3 4                         | (FILL)(1-6S)                 |
| 5.0'-7.0'  | S-2                  | DARK BROWN SOIL WITH CLAY MATERIAL   | 14"             | 5 4                         | (SP9B-6S)                    |
| 10.0'-13.0'  | S-3                  | DECOMPOSED MICA SCHIST   | 10"             | 17 30                       | (7-6S)<br>REFUSAL AT (11.4') |
| 11.6'-15.0'  | S-4                  | ROLLER BIT (HARD AND SOFT) NO RECOVERY   |                 |                             |                              |
| 15.0'-20.0'  | R-1                  | ROCK CORED FROM 15.0' TO 20.0'   | 5.0'            | 70%                         | MICA SCHIST (3-6S)           |
| 20.0'-23.0'  | R-2                  | ROCK CORED FROM 20.0' TO 23.0'   | 5.0'            | 90%                         | MICA SCHIST (3-6S)           |
| Hammer Drop: 30 INCH<br>Spoon Hammer: 140 L.B.S.<br>Spoon size: 2 INCH   |                      | Driller: Kostas<br>Helper: Jaber   |                 |                             |                              |
| PAGE 1 OF 1  |                      |  |                 |                             |                              |



**Hydro Tech Environmental Corp.**

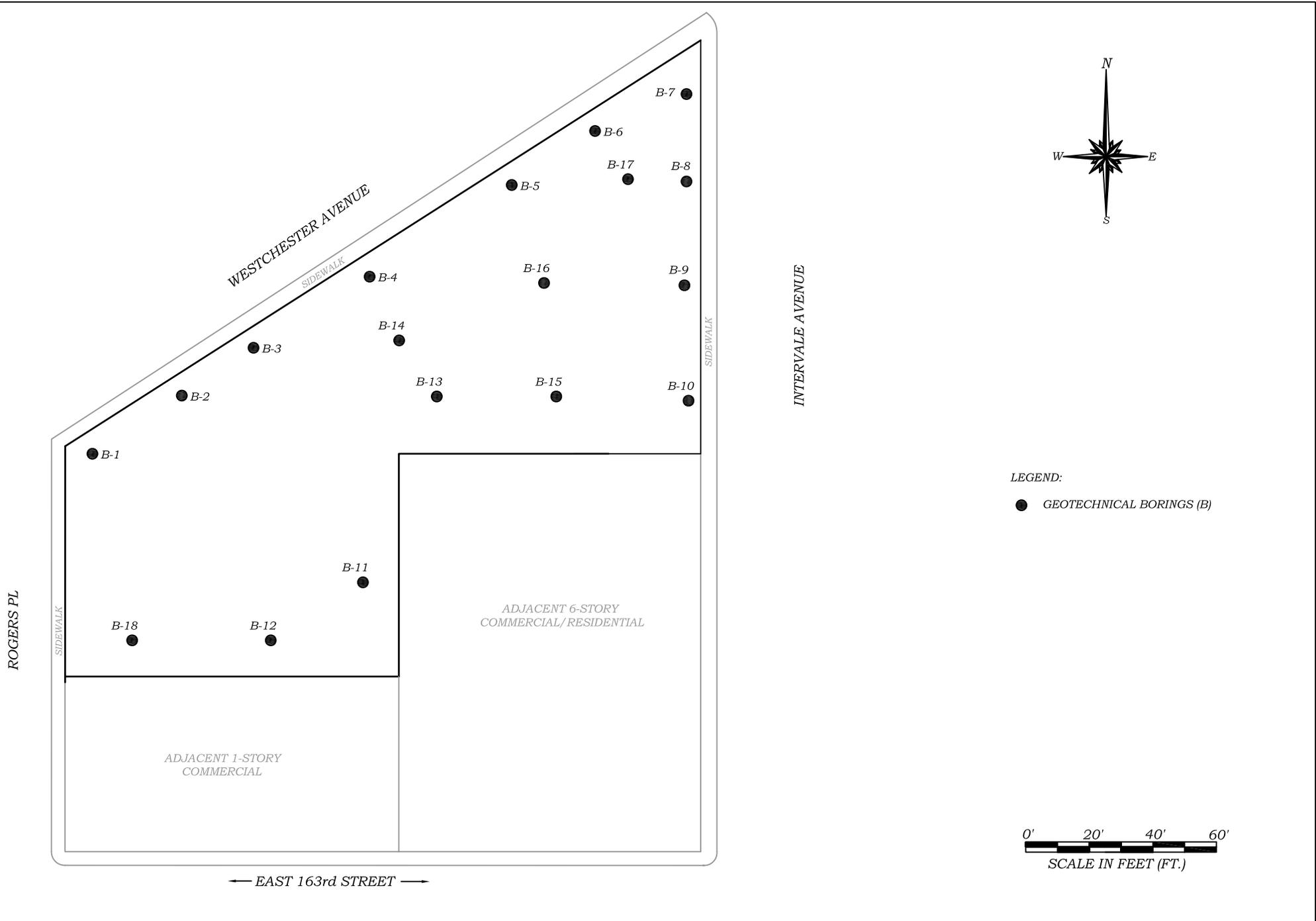
MAIN OFFICE: 2171 JERICHO TURNPIKE, SUITE 345  
 COMMACK, NEW YORK 11725  
 T (631)462-5866 F (631)462-5877

NYC OFFICE: 15 OCEAN AVENUE, 2nd Floor  
 BROOKLYN, NEW YORK 11225  
 T (718)636-0800 F (718)636-0900

www.hydrotechenvironmental.com

|                  |        |
|------------------|--------|
| Drawn By: C.Q    | TITLE: |
| Reviewed By: M.R |        |
| Approved By: M.S |        |
| Date: 11/02/10   |        |
| Scale: AS NOTED  |        |

FIGURE 10.A: GEOTECHNICAL BORING DETAILS



LEGEND:  
 ● GEOTECHNICAL BORINGS (B)



|   |   |   |                   |        |
|---|---|---|-------------------|--------|
|  <p><b>Hydro Tech Environmental Corp.</b><br/>         MAIN OFFICE: 2171 JERICO TURNPIKE, SUITE 345<br/>         COMMACK, NEW YORK 11725<br/>         T (631)462-5866 F (631)462-5877<br/>         www.hydrotechenvironmental.com</p> | <p><b>Hydro Tech Environmental Corp.</b><br/>         NYC OFFICE: 15 OCEAN AVENUE, 2nd Floor<br/>         BROOKLYN, NEW YORK 11225<br/>         T (718)636-0800 F (718)636-0900</p> | <p>920-924 Westchester Avenue<br/>         Bronx, NY.</p> | Drawn By: C.Q.    | TITLE: |
|   |   |   | Reviewed By: M.R. |        |
|   |   |   | Approved By: M.S. |        |
|   |   |   | Date: 11/02/10    |        |
|   |   |   | Scale: AS NOTED   |        |

FIGURE 10.B: GEOTECHNICAL BORING DETAILS



# HYDRO TECH ENVIRONMENTAL CORP.

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 WWW.HYDROTECHENVIRONMENTAL.COM

**NYC OFFICE:**  
 15 OCEAN AVENUE, SECOND FLOOR  
 BROOKLYN, NEW YORK 11225

## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-01-10      Boring #: B-1  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-01-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                             | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |    | REMARKS                             |
|---------------|--------|--|--------------|-----------------------------|----|-------------------------------------|
|               |        |  |              |                             |    |                                     |
| 0.0'-2.0'     | S-1    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL          | 18"          | 4                           | 4  | (FILL)(11-65)                       |
|               |        |  |              | 3                           | 2  |                                     |
| 5.0'-7.0'     | S-2    | DARK BROWN SAND, GRAY CLAY MIXTURE               | 24"          | 3                           | 5  | (SP)(8-65)                          |
|               |        |  |              | 6                           | 7  |                                     |
| 11.0'-13.0'   | S-3    | GREY CLAY MIXTURE WITH SOIL, COBBLES, MOIST      | 15"          | 16                          | 11 | Bedrock at 13'<br>(SC)(9-65)        |
|               |        |  |              | 10                          | 19 |                                     |
| 13.0'-18.0'   | S-4    | GREY AND LIGHT BROWN MICA SCHIST BEDROCK MIXTURE | 5'           | CORING                      |    | Bedrock Coring to 18'<br>(BR)(6-65) |
|               |        |  |              |                             |    |                                     |
|               |        |  |              |                             |    |                                     |
|               |        |  |              |                             |    |                                     |

Hammer Drop: 30 INCH.      Driller: Elbio Cruz  
 Spoon Hammer: 140 L.B.S.      Helper: Silvestre Castillo  
 Spoon size: 2 INCH.



# HYDRO TECH ENVIRONMENTAL CORP.

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NYC OFFICE:  
 15 OCEAN AVENUE, SECOND FLOOR  
 BROOKLYN, NEW YORK 11225

## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-01-10      Boring #: B-2  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-01-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                           | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |    | REMARKS                                    |
|---------------|--------|--|--------------|-----------------------------|----|--|
|               |        |  |              |                             |    |  |
| 0.0'-2.0'     | S-1    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL        | 16"          | 2                           | 3  | (FILL)(11-65)                              |
|               |        |  |              | 5                           | 5  |  |
| 5.0'-7.0'     | S-2    | DARK BROWN SAND, GRAY CLAY MIXTURE             | 22"          | 3                           | 2  | (SC)(9-65)                                 |
|               |        |  |              | 3                           | 6  |  |
| 10.0'-12.0'   | S-3    | GREY CLAY MIXTURE WITH SOIL, COBBLES, MOIST    | 12"          | 7                           | 5  | (SC)(9-65)                                 |
|               |        |  |              | 8                           | 19 |  |
| 15.0'-17.0'   | S-4    | DARK MICA SCHIST BEDROCK MIXTURE WITH WET SAND | 10"          | 42                          | 23 | End of Boring Bedrock at 17'<br>(SC)(9-65) |
|               |        |  |              | 10                          | 15 |  |
|               |        |  |              |                             |    |  |
|               |        |  |              |                             |    |  |
|               |        |  |              |                             |    |  |

Hammer Drop: 30 INCH.      Driller: Elbio Cruz  
 Spoon Hammer: 140 L.B.S.      Helper: Silvestre Castillo  
 Spoon size: 2 INCH.



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**NYC OFFICE:**  
 15 OCEAN AVENUE, SECOND FLOOR  
 BROOKLYN, NEW YORK 11225

## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-02-10      Boring #: B-3  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-02-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                             | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |    | REMARKS                                |
|---------------|--------|--|--------------|-----------------------------|----|--|
|               |        |  |              |                             |    |  |
| 0.0'-2.0'     | S-1    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL          | 18"          | 13                          | 11 | (FILL)(11-65)                          |
|               |        |  |              | 11                          | 9  |  |
| 5.0'-7.0'     | S-2    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL          | 14"          | 4                           | 7  | (SP)(8-65)                             |
|               |        |  |              | 4                           | 4  |  |
| 10.0'-12.0'   | S-3    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES   | 16"          | 3                           | 2  | (SP)(8-65)                             |
|               |        |  |              | 3                           | 5  |  |
| 15.0'-17.0'   | S-4    | GREY CLAY MIXTURE WITH SOIL, COBBLES, MOIST      | 18"          | 2                           | 4  | (SC)(9-65)                             |
|               |        |  |              | 8                           | 16 |  |
| 20.0'-20.6'   | S-5    | DARK MICA SCHIST BEDROCK MIXTURE WITH WET SAND   | 6"           | 20                          | -  | Bedrock at 20'-6"<br>(SC)(9-65)        |
|               |        |  |              | -                           | -  |  |
| 20.6'-25.6'   | S-6    | GREY AND LIGHT BROWN MICA SCHIST BEDROCK MIXTURE | 5'           | CORING                      |    | Bedrock Coring to 25'-6"<br>(BR)(6-65) |
|               |        |  |              |                             |    |  |

Hammer Drop: 30 INCH.  
 Spoon Hammer: 140 L.B.S.  
 Spoon size: 2 INCH.

Driller: Elbio Cruz  
 Helper: Silvestre Castillo



# HYDRO TECH ENVIRONMENTAL CORP.

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**NYC OFFICE:**  
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 BROOKLYN, NEW YORK 11225

## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-02-10      Boring #: B-4  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-02-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                           | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |   | REMARKS                                    |
|---------------|--------|--|--------------|-----------------------------|---|--|
|               |        |  |              |                             |   |  |
| 0.0'-2.0'     | S-1    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL        | 6"           | 7                           | 8 | (FILL)(11-65)                              |
|               |        |  |              | 6                           | 1 |  |
| 5.0'-7.0'     | S-2    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL        | 7"           | 15                          | 6 | (SP)(8-65)                                 |
|               |        |  |              | 6                           | 5 |  |
| 10.0'-12.0'   | S-3    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 17"          | 4                           | 5 | (SP)(8-65)                                 |
|               |        |  |              | 6                           | 7 |  |
| 15.0'-17.0'   | S-4    | GREY CLAY MIXTURE WITH SOIL, COBBLES, MOIST    | 20"          | 4                           | 3 | (SC)(9-65)                                 |
|               |        |  |              | 2                           | 1 |  |
| 20.0'-21.0'   | S-5    | DARK MICA SCHIST BEDROCK MIXTURE WITH WET SAND | 12"          | 4                           | 8 | End of Boring Bedrock at 21'<br>(SC)(9-65) |
|               |        |  |              | -                           | - |  |
|               |        |  |              |                             |   |  |
|               |        |  |              |                             |   |  |

Hammer Drop:      30 INCH.      Driller:      Elbio Cruz  
 Spoon Hammer:      140 L.B.S.      Helper:      Silvestre Castillo  
 Spoon size:      2 INCH.



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## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-03-10      Boring #: B-5  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-03-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                             | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |    | REMARKS                             |
|---------------|--------|--|--------------|-----------------------------|----|-------------------------------------|
| 0.0'-2.0'     | S-1    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL          | 13"          | 8                           | 3  | (FILL)(11-65)                       |
|               |        |  |              | 5                           | 5  |                                     |
| 5.0'-7.0'     | S-2    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL          | 13"          | 2                           | 2  | (SP)(8-65)                          |
|               |        |  |              | 1                           | 6  |                                     |
| 10.0'-12.0'   | S-3    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES   | 18"          | 5                           | 2  | (SP)(8-65)                          |
|               |        |  |              | 3                           | 5  |                                     |
| 15.0'-17.0'   | S-4    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES   | 24"          | -                           | 1  | (SC)(9-65)                          |
|               |        |  |              | 3                           | 4  |                                     |
| 20.0'-22.0'   | S-5    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES   | 20"          | 3                           | 6  | (SC)(9-65)                          |
|               |        |  |              | 4                           | 1  |                                     |
| 26.0'-28.0'   | S-6    | DARK MICA SCHIST BEDROCK MIXTURE WITH WET SAND   | 24"          | -                           | -  | Bedrock at 28'<br>(SC)(9-65)        |
|               |        |  |              | 3                           | 13 |                                     |
| 28.0'-38.0'   | S-7    | GREY AND LIGHT BROWN MICA SCHIST BEDROCK MIXTURE | 10'          | CORING                      |    | Bedrock Coring to 38'<br>(BR)(6-65) |

Hammer Drop:      30 INCH.      Driller:      Elbio Cruz  
 Spoon Hammer:      140 L.B.S.      Helper:      Silvestre Castillo  
 Spoon size:      2 INCH.



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## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC Date Start: 06-03-10 Boring #: B-6  
 Location: 920-924 WESTCHESTER AVENUE Date Finish: 06-03-10  
 County: BRONX Block: 2697 Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006 Make: GEOPROBE Model: 6620DT Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                           | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |    | REMARKS                      |
|---------------|--------|--|--------------|-----------------------------|----|------------------------------|
|               |        |  |              |                             |    |                              |
| 0.0'-2.0'     | S-1    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL        | 13"          | 10                          | 4  | (FILL)(11-65)                |
|               |        |  |              | 3                           | 1  |                              |
| 5.0'-7.0'     | S-2    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL        | 14"          | -                           | 1  | (SP)(8-65)                   |
|               |        |  |              | 1                           | 2  |                              |
| 10.0'-12.0'   | S-3    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 17"          | 7                           | 4  | (SP)(8-65)                   |
|               |        |  |              | 5                           | 4  |                              |
| 15.0'-17.0'   | S-4    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 14"          | 4                           | 7  | (SP)(8-65)                   |
|               |        |  |              | 8                           | 4  |                              |
| 20.0'-22.0'   | S-5    | WET FINE SAND MIXTURE WITH CLAY AND COBBLES    | 18"          | 2                           | 5  | (SC)(9-65)                   |
|               |        |  |              | 7                           | 4  |                              |
| 25.0'-27.0'   | S-6    | WET FINE SAND MIXTURE WITH CLAY AND COBBLES    | 12"          | 3                           | 4  | (SC)(9-65)                   |
|               |        |  |              | 2                           | 8  |                              |
| 32.0'-34.0'   | S-7    | DARK MICA SCHIST BEDROCK MIXTURE WITH WET SAND | 15"          | 10                          | 8  | Bedrock at 34'<br>(SC)(9-65) |
|               |        |  |              | 7                           | 14 |                              |

Hammer Drop: 30 INCH.  
 Spoon Hammer: 140 L.B.S.  
 Spoon size: 2 INCH.

Driller: Elbio Cruz  
 Helper: Silvestre Castillo



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## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-03-10      Boring #: B-6  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-03-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                             | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |  | REMARKS                          |
|---------------|--------|--|--------------|-----------------------------|--|----------------------------------|
|               |        |  |              |                             |  |                                  |
| 34.0'-39.0'   | S-8    | GREY AND LIGHT BROWN MICA SCHIST BEDROCK MIXTURE | 5'           | CORING                      |  | Bedrock Coring to 39' (BR)(6-65) |
|               |        |  |              |                             |  |                                  |
|               |        |  |              |                             |  |                                  |
|               |        |  |              |                             |  |                                  |
|               |        |  |              |                             |  |                                  |
|               |        |  |              |                             |  |                                  |
|               |        |  |              |                             |  |                                  |
|               |        |  |              |                             |  |                                  |

Hammer Drop: 30 INCH.      Driller: Elbio Cruz  
 Spoon Hammer: 140 L.B.S.      Helper: Silvestre Castillo  
 Spoon size: 2 INCH.



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## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-04-10      Boring #: B-7  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-04-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                           | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |   | REMARKS       |
|---------------|--------|--|--------------|-----------------------------|---|---------------|
| 0.0'-2.0'     | S-1    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL        | 14"          | 10                          | 3 | (FILL)(11-65) |
|               |        |  |              | 2                           | 2 |               |
| 5.0'-7.0'     | S-2    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL        | 8"           | 1                           | 1 | (SP)(8-65)    |
|               |        |  |              | 1                           | 1 |               |
| 10.0'-12.0'   | S-3    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 14"          | 4                           | 3 | (SP)(8-65)    |
|               |        |  |              | 3                           | 3 |               |
| 15.0'-17.0'   | S-4    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 18"          | 2                           | 4 | (SP)(8-65)    |
|               |        |  |              | 5                           | 1 |               |
| 20.0'-22.0'   | S-5    | WET FINE SAND MIXTURE WITH CLAY AND COBBLES    | 18"          | 1                           | 5 | (SC)(9-65)    |
|               |        |  |              | 4                           | 8 |               |
| 25.0'-27.0'   | S-6    | WET FINE SAND MIXTURE WITH CLAY AND COBBLES    | 12"          | 10                          | 7 | (SC)(9-65)    |
|               |        |  |              | 8                           | 6 |               |
| 30.0'-32.0'   | S-7    | WET FINE SAND MIXTURE WITH CLAY AND COBBLES    | 12"          | 5                           | 6 | (SC)(9-65)    |
|               |        |  |              | 2                           | 7 |               |

Hammer Drop:      30 INCH.      Driller:      Elbio Cruz  
 Spoon Hammer:      140 L.B.S.      Helper:      Silvestre Castillo  
 Spoon size:      2 INCH.



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 BROOKLYN, NEW YORK 11225

## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-04-10      Boring #: B-7  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-04-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                             | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |    | REMARKS                             |
|---------------|--------|--|--------------|-----------------------------|----|-------------------------------------|
|               |        |  |              |                             |    |                                     |
| 35.0'-37.0'   | S-8    | WET FINE SAND MIXTURE WITH CLAY AND COBBLES      | 12"          | 7                           | 12 | (SC)(9-65)                          |
|               |        |  |              | 14                          | 4  |                                     |
| 41.0'-43.0'   | S-9    | WET FINE SAND MIXTURE WITH CLAY AND COBBLES      | 16"          | 15                          | 11 | Bedrock at 43'<br>(SC)(9-65)        |
|               |        |  |              | 9                           | 7  |                                     |
| 43.0'-53.0'   | S-10   | GREY AND LIGHT BROWN MICA SCHIST BEDROCK MIXTURE | 10'          | CORING                      |    | Bedrock Coring to 53'<br>(BR)(6-65) |
|               |        |  |              |                             |    |                                     |
|               |        |  |              |                             |    |                                     |
|               |        |  |              |                             |    |                                     |
|               |        |  |              |                             |    |                                     |
|               |        |  |              |                             |    |                                     |

Hammer Drop: 30 INCH.      Driller: Elbio Cruz  
 Spoon Hammer: 140 L.B.S.      Helper: Silvestre Castillo  
 Spoon size: 2 INCH.



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## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-04-10      Boring #: B-8  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-04-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                           | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |    | REMARKS                      |
|---------------|--------|--|--------------|-----------------------------|----|------------------------------|
| 0.0'-2.0'     | S-1    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL        | 13"          | 5                           | 4  | (FILL)(11-65)                |
|               |        |  |              | 2                           | 2  |                              |
| 5.0'-7.0'     | S-2    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL        | 18"          | 2                           | 1  | (SP)(8-65)                   |
|               |        |  |              | 1                           | 3  |                              |
| 10.0'-12.0'   | S-3    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 18"          | 7                           | 5  | (SP)(8-65)                   |
|               |        |  |              | 5                           | 5  |                              |
| 15.0'-17.0'   | S-4    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 19"          | 5                           | 6  | (SP)(8-65)                   |
|               |        |  |              | 4                           | 4  |                              |
| 20.0'-22.0'   | S-5    | WET FINE SAND MIXTURE WITH CLAY AND COBBLES    | 19"          | 5                           | 7  | (SC)(9-65)                   |
|               |        |  |              | 7                           | 4  |                              |
| 25.0'-27.0'   | S-6    | WET FINE SAND MIXTURE WITH CLAY AND COBBLES    | 12"          | 10                          | 4  | (SC)(9-65)                   |
|               |        |  |              | 11                          | 8  |                              |
| 32.0'-34.0'   | S-7    | DARK MICA SCHIST BEDROCK MIXTURE WITH WET SAND | 16"          | 10                          | 9  | Bedrock at 34'<br>(SC)(9-65) |
|               |        |  |              | 13                          | 14 |                              |

Hammer Drop: 30 INCH.      Driller: Elbio Cruz  
 Spoon Hammer: 140 L.B.S.      Helper: Silvestre Castillo  
 Spoon size: 2 INCH.



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## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-04-10      Boring #: B-8  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-04-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                             | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |  | REMARKS                          |
|---------------|--------|--|--------------|-----------------------------|--|----------------------------------|
| 34.0' - 39.0' | S-8    | GREY AND LIGHT BROWN MICA SCHIST BEDROCK MIXTURE | 5'           | CORING                      |  | Bedrock Coring to 39' (BR)(6-65) |
|               |        |  |              |                             |  |                                  |
|               |        |  |              |                             |  |                                  |
|               |        |  |              |                             |  |                                  |
|               |        |  |              |                             |  |                                  |
|               |        |  |              |                             |  |                                  |
|               |        |  |              |                             |  |                                  |
|               |        |  |              |                             |  |                                  |

Hammer Drop: 30 INCH.      Driller: Elbio Cruz  
 Spoon Hammer: 140 L.B.S.      Helper: Silvestre Castillo  
 Spoon size: 2 INCH.

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BROOKLYN, NEW YORK 11225

## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-07-10      Boring #: B-9  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-07-10  
 County: BRONX      Lot:   38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                           | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |    | REMARKS       |
|---------------|--------|--|--------------|-----------------------------|----|---------------|
| 0.0'-2.0'     | S-1    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL        | 20"          | 8                           | 7  | (FILL)(11-65) |
|               |        |  |              | 4                           | 3  |               |
| 5.0'-7.0'     | S-2    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL        | 17"          | -                           | -  | (SP)(8-65)    |
|               |        |  |              | -                           | 3  |               |
| 10.0'-12.0'   | S-3    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 20"          | 3                           | 2  | (SP)(8-65)    |
|               |        |  |              | 6                           | 6  |               |
| 15.0'-17.0'   | S-4    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 19"          | 2                           | 1  | (SP)(8-65)    |
|               |        |  |              | 4                           | 5  |               |
| 20.0'-22.0'   | S-5    | WET FINE SAND MIXTURE WITH CLAY AND COBBLES    | 21"          | 5                           | 6  | (SC)(9-65)    |
|               |        |  |              | 6                           | 5  |               |
| 25.0'-27.0'   | S-6    | WET FINE SAND MIXTURE WITH CLAY AND COBBLES    | 14"          | 3                           | 6  | (SC)(9-65)    |
|               |        |  |              | 8                           | 9  |               |
| 30.0'-32.0'   | S-7    | WET FINE SAND MIXTURE WITH CLAY AND COBBLES    | 15"          | 11                          | 14 | (SC)(9-65)    |
|               |        |  |              | 18                          | 15 |               |

Hammer Drop: 30 INCH.  
 Spoon Hammer: 140 L.B.S.  
 Spoon size: 2 INCH.

Driller: Elbio Cruz  
 Helper: Silvestre Castillo



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## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-05-10      Boring #: B-9  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-05-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                             | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |   | REMARKS                             |
|---------------|--------|--|--------------|-----------------------------|---|-------------------------------------|
|               |        |  |              |                             |   |                                     |
| 35.0'-35.6'   | S-8    | WET FINE SAND MIXTURE WITH CLAY AND COBBLES      | 6"           | 9                           | - | Bedrock at 35'-6" (SC)(9-65)        |
|               |        |  |              | -                           | - |                                     |
| 35.6'-45.6'   | S-9    | GREY AND LIGHT BROWN MICA SCHIST BEDROCK MIXTURE | 10'          | CORING                      |   | Bedrock Coring to 45'-6" (BR)(6-65) |
|               |        |  |              |                             |   |                                     |
|               |        |  |              |                             |   |                                     |
|               |        |  |              |                             |   |                                     |
|               |        |  |              |                             |   |                                     |
|               |        |  |              |                             |   |                                     |

Hammer Drop: 30 INCH.      Driller: Elbio Cruz  
 Spoon Hammer: 140 L.B.S.      Helper: Silvestre Castillo  
 Spoon size: 2 INCH.



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 BROOKLYN, NEW YORK 11225

## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-07-10      Boring #: B-10  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-07-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                           | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |    | REMARKS                         |
|---------------|--------|--|--------------|-----------------------------|----|---------------------------------|
|               |        |  |              |                             |    |                                 |
| 0.0'-2.0'     | S-1    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL        | 13"          | 8                           | 3  | (FILL)(11-65)                   |
|               |        |  |              | 5                           | 5  |                                 |
| 5.0'-7.0'     | S-2    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL        | 13"          | 2                           | 2  | (SP)(8-65)                      |
|               |        |  |              | 1                           | 6  |                                 |
| 10.0'-12.0'   | S-3    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 18"          | 2                           | 5  | (SP)(8-65)                      |
|               |        |  |              | 3                           | 5  |                                 |
| 15.0'-17.0'   | S-4    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 24"          | -                           | 6  | (SP)(8-65)                      |
|               |        |  |              | 4                           | 5  |                                 |
| 20.0'-22.0'   | S-5    | WET FINE SAND MIXTURE WITH CLAY AND COBBLES    | 20"          | 3                           | 6  | (SC)(9-65)                      |
|               |        |  |              | 4                           | 4  |                                 |
| 25.0'-27.0'   | S-6    | WET FINE SAND MIXTURE WITH CLAY AND COBBLES    | 24"          | -                           | -  | (SC)(9-65)                      |
|               |        |  |              | 3                           | 12 |                                 |
| 31.0'-33.6'   | S-7    | DARK MICA SCHIST BEDROCK MIXTURE WITH WET SAND | 24"          | 5                           | 9  | Bedrock at 33'-6"<br>(SC)(9-65) |
|               |        |  |              | 16                          | 18 |                                 |

Hammer Drop: 30 INCH.      Driller: Elbio Cruz  
 Spoon Hammer: 140 L.B.S.      Helper: Silvestre Castillo  
 Spoon size: 2 INCH.



# HYDRO TECH ENVIRONMENTAL CORP.

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NYC OFFICE:  
15 OCEAN AVENUE, SECOND FLOOR  
BROOKLYN, NEW YORK 11225

## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC Date Start: 06-05-10 Boring #: B-10  
 Location: 920-924 WESTCHESTER AVENUE Date Finish: 06-05-10  
 County: BRONX Block: 2697 Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006 Make: GEOPROBE Model: 6620DT Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                             | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |  | REMARKS                             |
|---------------|--------|--|--------------|-----------------------------|--|-------------------------------------|
| 33.6'-38.6'   | S-8    | GREY AND LIGHT BROWN MICA SCHIST BEDROCK MIXTURE | 5'           | CORING                      |  | Bedrock Coring to 38'-6" (BR)(6-65) |
|               |        |  |              |                             |  |                                     |
|               |        |  |              |                             |  |                                     |
|               |        |  |              |                             |  |                                     |
|               |        |  |              |                             |  |                                     |
|               |        |  |              |                             |  |                                     |
|               |        |  |              |                             |  |                                     |
|               |        |  |              |                             |  |                                     |
|               |        |  |              |                             |  |                                     |
|               |        |  |              |                             |  |                                     |

Hammer Drop: 30 INCH. Driller: Elbio Cruz  
 Spoon Hammer: 140 L.B.S. Helper: Silvestre Castillo  
 Spoon size: 2 INCH.



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## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-09-10      Boring #: B-11  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-09-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                             | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |    | REMARKS                             |
|---------------|--------|--|--------------|-----------------------------|----|-------------------------------------|
|               |        |  |              |                             |    |                                     |
| 0.0'-2.0'     | S-1    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL          | 16"          | 2                           | 2  | (FILL)(11-65)                       |
|               |        |  |              | 4                           | 3  |                                     |
| 5.0'-7.0'     | S-2    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES   | 10"          | 4                           | 3  | (SP)(8-65)                          |
|               |        |  |              | 3                           | 2  |                                     |
| 10.0'-12.0'   | S-3    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES   | 18"          | 6                           | 7  | (SP)(8-65)                          |
|               |        |  |              | 8                           | 9  |                                     |
| 15.0'-17.0'   | S-4    | GREY CLAY MIXTURE WITH SOIL, COBBLES, MOIST      | 22"          | -                           | -  | (SC)(9-65)                          |
|               |        |  |              | 2                           | 1  |                                     |
| 22.0'-24.0'   | S-5    | DARK MICA SCHIST BEDROCK MIXTURE WITH WET SAND   | 14"          | 24                          | 12 | Bedrock at 24'<br>(SC)(9-65)        |
|               |        |  |              | 9                           | 9  |                                     |
| 24.0'-29.0'   | S-6    | GREY AND LIGHT BROWN MICA SCHIST BEDROCK MIXTURE | 5'           | CORING                      |    | Bedrock Coring to 29'<br>(BR)(6-65) |
|               |        |  |              |                             |    |                                     |

Hammer Drop: 30 INCH.      Driller: Elbio Cruz  
 Spoon Hammer: 140 L.B.S.      Helper: Silvestre Castillo  
 Spoon size: 2 INCH.



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## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-09-10      Boring #: B-12  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-09-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION  | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |    | REMARKS                             |
|---------------|--------|---|--------------|-----------------------------|----|-------------------------------------|
|               |        |   |              |                             |    |                                     |
| 0.0'-2.0'     | S-1    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL                       | 17"          | 4                           | 3  | (FILL)(11-65)                       |
|               |        |   |              | 4                           | 9  |                                     |
| 5.0'-7.0'     | S-2    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES                | 16"          | 33                          | 4  | (SP)(8-65)                          |
|               |        |   |              | 3                           | 2  |                                     |
| 10.0'-12.0'   | S-3    | WET FINE SAND BROWN AND GRAY MIXTURE WITH PEBBLES AND COBBLES | 14"          | 6                           | 7  | (SP)(8-65)                          |
|               |        |   |              | 5                           | 7  |                                     |
| 16.0'-18.0'   | S-4    | GREY CLAY MIXTURE WITH SOIL, COBBLES, AND MICA BEDROCK        | 20"          | 11                          | 23 | Bedrock at 18'<br>(SC)(9-65)        |
|               |        |   |              | 15                          | 17 |                                     |
| 18.0'-28.0'   | S-5    | GREY AND LIGHT BROWN MICA SCHIST BEDROCK MIXTURE              | 10'          | CORING                      |    | Bedrock Coring to 28'<br>(BR)(6-65) |
|               |        |   |              |                             |    |                                     |
|               |        |   |              |                             |    |                                     |

Hammer Drop: 30 INCH.      Driller: Elbio Cruz  
 Spoon Hammer: 140 L.B.S.      Helper: Silvestre Castillo  
 Spoon size: 2 INCH.



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## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-10-10      Boring #: B-13  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-10-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                             | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |    | REMARKS                                |
|---------------|--------|--|--------------|-----------------------------|----|--|
|               |        |  |              |                             |    |  |
| 0.0'-2.0'     | S-1    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL          | 22"          | 7                           | 12 | (FILL)(11-65)                          |
|               |        |  |              | 21                          | 27 |  |
| 5.0'-7.0'     | S-2    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES   | 15"          | 20                          | 19 | (SP)(8-65)                             |
|               |        |  |              | 12                          | 15 |  |
| 10.0'-12.0'   | S-3    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES   | 23"          | 7                           | 9  | (SP)(8-65)                             |
|               |        |  |              | 9                           | 9  |  |
| 15.0'-17.0'   | S-4    | GREY CLAY MIXTURE WITH SOIL, COBBLES, MOIST      | 24"          | 2                           | 1  | (SC)(9-65)                             |
|               |        |  |              | 1                           | 1  |  |
| 22.0'-24.6'   | S-5    | DARK MICA SCHIST BEDROCK MIXTURE WITH WET SAND   | 16"          | 6                           | 7  | Bedrock at 24'-6"<br>(SC)(9-65)        |
|               |        |  |              | 8                           | 18 |  |
| 24.6'-28.6'   | S-6    | GREY AND LIGHT BROWN MICA SCHIST BEDROCK MIXTURE | 4'           | CORING                      |    | Bedrock Coring to 28'-6"<br>(BR)(6-65) |
|               |        |  |              |                             |    |  |

Hammer Drop: 30 INCH.      Driller: Elbio Cruz  
 Spoon Hammer: 140 L.B.S.      Helper: Silvestre Castillo  
 Spoon size: 2 INCH.



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## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-10-10      Boring #: B-14  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-10-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                           | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |    | REMARKS                         |
|---------------|--------|--|--------------|-----------------------------|----|---------------------------------|
|               |        |  |              |                             |    |                                 |
| 0.0'-2.0'     | S-1    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL        | 16"          | 4                           | 6  | (FILL)(11-65)                   |
|               |        |  |              | 11                          | 13 |                                 |
| 5.0'-7.0'     | S-2    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 17"          | 12                          | 10 | (SP)(8-65)                      |
|               |        |  |              | 7                           | 9  |                                 |
| 10.0'-12.0'   | S-3    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 18"          | 10                          | 10 | (SP)(8-65)                      |
|               |        |  |              | 12                          | 13 |                                 |
| 15.0'-17.0'   | S-4    | GREY CLAY MIXTURE WITH SOIL, COBBLES, MOIST    | 3"           | 5                           | 3  | (SC)(9-65)                      |
|               |        |  |              | 3                           | 3  |                                 |
| 22.0'-24.6'   | S-5    | DARK MICA SCHIST BEDROCK MIXTURE WITH WET SAND | 13"          | 5                           | 4  | Bedrock at 24'-6"<br>(SC)(9-65) |
|               |        |  |              | 5                           | 3  |                                 |
|               |        |  |              |                             |    |                                 |
|               |        |  |              |                             |    |                                 |

Hammer Drop: 30 INCH.      Driller: Elbio Cruz  
 Spoon Hammer: 140 L.B.S.      Helper: Silvestre Castillo  
 Spoon size: 2 INCH.



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## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-11-10      Boring #: B-15  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-11-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                           | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |    | REMARKS                         |
|---------------|--------|--|--------------|-----------------------------|----|---------------------------------|
|               |        |  |              |                             |    |                                 |
| 0.0'-2.0'     | S-1    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL        | 14"          | 18                          | 14 | (FILL)(11-65)                   |
|               |        |  |              | 15                          | 21 |                                 |
| 5.0'-7.0'     | S-2    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 21"          | 8                           | 8  | (SP)(8-65)                      |
|               |        |  |              | 10                          | 13 |                                 |
| 10.0'-12.0'   | S-3    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 23"          | 2                           | 2  | (SP)(8-65)                      |
|               |        |  |              | 2                           | 3  |                                 |
| 15.0'-17.0'   | S-4    | GREY CLAY MIXTURE WITH SOIL, COBBLES, MOIST    | 17"          | 1                           | 1  | (SC)(9-65)                      |
|               |        |  |              | 1                           | 2  |                                 |
| 20.0'-22.0'   | S-5    | GREY CLAY MIXTURE WITH SOIL, COBBLES, MOIST    | 7"           | 4                           | 7  | (SC)(9-65)                      |
|               |        |  |              | 12                          | 13 |                                 |
| 25.0'-27.0'   | S-6    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 11"          | 10                          | 12 | (SC)(9-65)                      |
|               |        |  |              | 11                          | 11 |                                 |
| 27.0'-29.6'   | S-7    | DARK MICA SCHIST BEDROCK MIXTURE WITH WET SAND | 12"          | 10                          | 12 | Bedrock at 29'-6"<br>(SC)(9-65) |
|               |        |  |              | 8                           | 14 |                                 |

Hammer Drop: 30 INCH.      Driller: Elbio Cruz  
 Spoon Hammer: 140 L.B.S.      Helper: Silvestre Castillo  
 Spoon size: 2 INCH.



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## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-08-10      Boring #: B-15  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-08-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                             | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |  | REMARKS                             |
|---------------|--------|--|--------------|-----------------------------|--|-------------------------------------|
| 29.6' - 35.6' | S-8    | GREY AND LIGHT BROWN MICA SCHIST BEDROCK MIXTURE | 6'           | CORING                      |  | Bedrock Coring to 35'-6" (BR)(6-65) |
|               |        |  |              |                             |  |                                     |
|               |        |  |              |                             |  |                                     |
|               |        |  |              |                             |  |                                     |
|               |        |  |              |                             |  |                                     |
|               |        |  |              |                             |  |                                     |
|               |        |  |              |                             |  |                                     |
|               |        |  |              |                             |  |                                     |
|               |        |  |              |                             |  |                                     |
|               |        |  |              |                             |  |                                     |

Hammer Drop:      30 INCH.      Driller:      Elbio Cruz  
 Spoon Hammer:      140 L.B.S.      Helper:      Silvestre Castillo  
 Spoon size:      2 INCH.



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## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-11-10      Boring #: B-16  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-11-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                           | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |    | REMARKS                         |
|---------------|--------|--|--------------|-----------------------------|----|---------------------------------|
|               |        |  |              |                             |    |                                 |
| 0.0'-2.0'     | S-1    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL        | 11"          | 6                           | 14 | (FILL)(11-65)                   |
|               |        |  |              | 33                          | 5  |                                 |
| 5.0'-7.0'     | S-2    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 21"          | 6                           | 5  | (SP)(8-65)                      |
|               |        |  |              | 5                           | 5  |                                 |
| 10.0'-12.0'   | S-3    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 16"          | 4                           | 4  | (SP)(8-65)                      |
|               |        |  |              | 4                           | 5  |                                 |
| 15.0'-17.0'   | S-4    | GREY CLAY MIXTURE WITH SOIL, COBBLES, MOIST    | 16"          | 4                           | 3  | (SC)(9-65)                      |
|               |        |  |              | 2                           | 1  |                                 |
| 20.0'-22.0'   | S-5    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 17"          | 2                           | 2  | (SC)(9-65)                      |
|               |        |  |              | 4                           | 5  |                                 |
| 25.0'-27.6'   | S-6    | DARK MICA SCHIST BEDROCK MIXTURE WITH WET SAND | 4"           | 29                          | 11 | Bedrock at 27'-6"<br>(SC)(9-65) |
|               |        |  |              | 16                          | 19 |                                 |
|               |        |  |              |                             |    |                                 |

Hammer Drop: 30 INCH.      Driller: Elbio Cruz  
 Spoon Hammer: 140 L.B.S.      Helper: Silvestre Castillo  
 Spoon size: 2 INCH.



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## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC Date Start: 06-14-10 Boring #: B-17  
 Location: 920-924 WESTCHESTER AVENUE Date Finish: 06-14-10  
 County: BRONX Block: 2697 Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006 Make: GEOPROBE Model: 6620DT Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                           | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |    | REMARKS                         |
|---------------|--------|--|--------------|-----------------------------|----|---------------------------------|
| 0.0'-2.0'     | S-1    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL        | 17"          | 3                           | 6  | (FILL)(11-65)                   |
|               |        |  |              | 49                          | 28 |                                 |
| 5.0'-7.0'     | S-2    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL        | 20"          | 4                           | 6  | (SP)(8-65)                      |
|               |        |  |              | 7                           | 11 |                                 |
| 10.0'-12.0'   | S-3    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 0"           | 4                           | 4  | (SP)(8-65)                      |
|               |        |  |              | 5                           | 5  |                                 |
| 15.0'-17.0'   | S-4    | WET FINE SAND MIXTURE WITH PEBBLES AND COBBLES | 16"          | 4                           | 4  | (SP)(8-65)                      |
|               |        |  |              | 4                           | 5  |                                 |
| 20.0'-22.0'   | S-5    | WET FINE SAND MIXTURE WITH CLAY AND COBBLES    | 24"          | 0                           | 1  | (SC)(9-65)                      |
|               |        |  |              | 2                           | 3  |                                 |
| 25.0'-27.0'   | S-6    | WET FINE SAND MIXTURE WITH CLAY AND COBBLES    | 14"          | 11                          | 5  | (SC)(9-65)                      |
|               |        |  |              | 7                           | 10 |                                 |
| 30.0'-32.6'   | S-7    | DARK MICA SCHIST BEDROCK MIXTURE WITH WET SAND | 15"          | 19                          | 20 | Bedrock at 32'-6"<br>(SC)(9-65) |
|               |        |  |              | 15                          | 14 |                                 |

Hammer Drop: 30 INCH.  
 Spoon Hammer: 140 L.B.S.  
 Spoon size: 2 INCH.

Driller: Elbio Cruz  
 Helper: Silvestre Castillo





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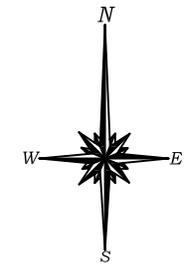
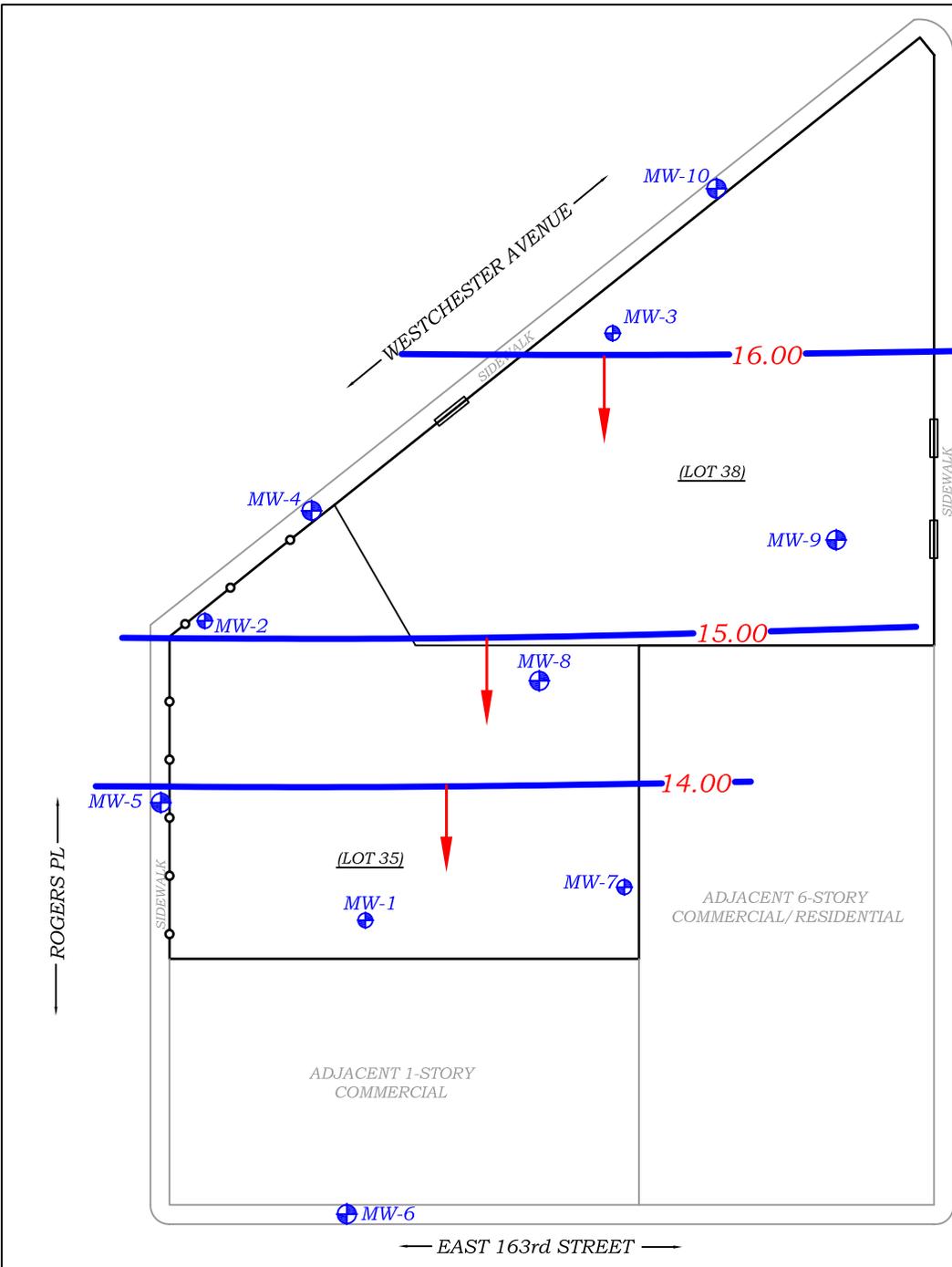
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 BROOKLYN, NEW YORK 11225

## GEOTECHNICAL BORING LOG

Client: MJM CONSTRUCTION SERVICES, LLC      Date Start: 06-15-10      Boring #: B-18  
 Location: 920-924 WESTCHESTER AVENUE      Date Finish: 06-15-10  
 County: BRONX      Block: 2697      Lot: 35 & 38  
 Rig Information  
 Classification: YEAR: 2006      Make: GEOPROBE      Model: 6620DT      Mounting: TRACK

| DEPTH FROM/TO | SAMPLE | MATERIAL DESCRIPTION                             | REC. IN SOIL | SPOON BLOWS PER 6" INTERVAL |    | REMARKS                             |
|---------------|--------|--|--------------|-----------------------------|----|-------------------------------------|
|               |        |  |              |                             |    |                                     |
| 0.0'-2.0'     | S-1    | FILL MATERIAL, ASPHALT, DARK BROWN SOIL          | 3"           | 4                           | 4  | (FILL)(11-65)                       |
|               |        |  |              | 6                           | 7  |                                     |
| 5.0'-7.0'     | S-2    | DARK BROWN SAND, GRAY CLAY MIXTURE               | 10"          | 18                          | 50 | Bedrock at 7'<br>(SP)(8-65)         |
|               |        |  |              | 10                          | -  |                                     |
| 7.0'-16.0'    | S-3    | GREY AND LIGHT BROWN MICA SCHIST BEDROCK MIXTURE | 9'           | CORING                      |    | Bedrock Coring to 16'<br>(BR)(6-65) |
|               |        |  |              |                             |    |                                     |
|               |        |  |              |                             |    |                                     |
|               |        |  |              |                             |    |                                     |
|               |        |  |              |                             |    |                                     |
|               |        |  |              |                             |    |                                     |

Hammer Drop: 30 INCH.      Driller: Elbio Cruz  
 Spoon Hammer: 140 L.B.S.      Helper: Silvestre Castillo  
 Spoon size: 2 INCH.



**LEGEND:**

- MONITORING WELL LOCATION (MW)
- STEEL FENCE
- ROLL-UP GATE
- MW MONITORING WELL
- C.I. CONTOUR INTERVAL
- DASHED WHERE INFERRED

C.I. = 1.00 FOOT

| MONITORING WELL ID | GROUNDWATER ELEVATION |
|--------------------|-----------------------|
| MW-1               | 13.38                 |
| MW-2               | 15.05                 |
| MW-3               | 16.08                 |
| MW-4               | 15.62                 |
| MW-5               | 13.69                 |
| MW-6               | DRY                   |
| MW-7               | 13.41                 |
| MW-8               | 14.53                 |
| MW-9               | 15.81                 |
| MW-10              | 16.23                 |



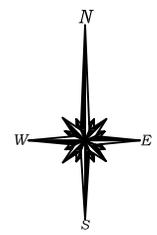
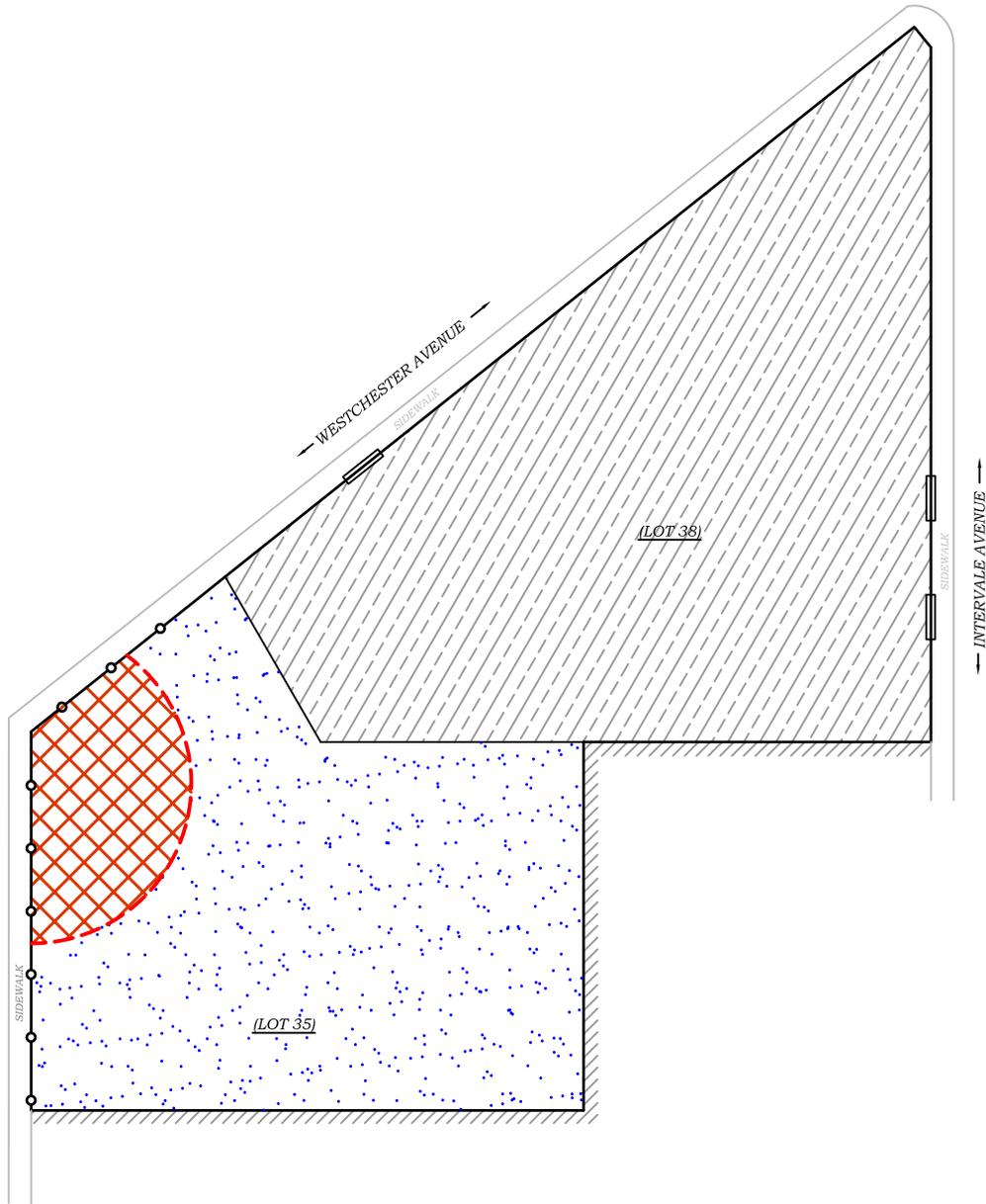
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 Bronx, NY.

Drawn By: C.Q.  
 Reviewed By: M.R.  
 Approved By: M.S.  
 Date: 01/26/10  
 Scale: AS NOTED

TITLE:  
**FIGURE 11: GROUNDWATER FLOW CONTOUR MAP - NOVEMBER 2009**



- LEGEND:
- STEEL FENCE
  - ROLL-UP GATE
  - BOUNDARY WITH ADJACENT BUILDING
  - FILL MATERIAL AT 7 FEET BELOW GRADE SURFACE
  - FILL MATERIAL AT 2 FEET BELOW GRADE SURFACE
  - DEMOLITION MATERIAL TO COVER THE BASEMENT SECTION



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TITLE:

FIGURE 12: HISTORICAL FILL MAP

| SP-7                     |         |       |  |
|--------------------------|---------|-------|--|
| DEPTH                    | 0' - 2' |       |  |
| VOC                      | ND      |       |  |
| SVOC                     | µg/Kg   | UUSCO |  |
| Benzo (a) Anthracene     | 16,000  | 1,000 |  |
| Chrysene                 | 16,000  | 1,000 |  |
| Benzo (b) Fluoranthene   | 16,000  | 1,000 |  |
| Benzo (k) Fluoranthene   | 5,000   | 800   |  |
| Benzo (a) Pyrene         | 14,000  | 1,000 |  |
| Indeno (1,2,3-cd)Pyrene  | 6,800   | 500   |  |
| Dibenzo (a,h) Anthracene | 2,000   | 300   |  |
| Total SVOCs              | 155,120 | NS    |  |

| SP-6                    |         |       |  |
|-------------------------|---------|-------|--|
| DEPTH                   | 0' - 2' |       |  |
| VOC                     | ND      |       |  |
| SVOC                    | µg/Kg   | UUSCO |  |
| Benzo (a) Anthracene    | 1,600   | 1,000 |  |
| Chrysene                | 1,700   | 1,000 |  |
| Benzo (b) Fluoranthene  | 1,900   | 1,000 |  |
| Benzo (a) Pyrene        | 1,600   | 1,000 |  |
| Indeno (1,2,3-cd)Pyrene | 770     | 500   |  |
| Total SVOCs             | 16,340  | NS    |  |

| SP-14 |    |
|-------|----|
| VOC   | ND |
| SVOC  | ND |

| SP-1                   |         |       |  |
|------------------------|---------|-------|--|
| DEPTH                  | 0' - 2' |       |  |
| VOC                    | ND      |       |  |
| SVOC                   | µg/Kg   | UUSCO |  |
| Benzo (a) Anthracene   | 2,000   | 1,000 |  |
| Chrysene               | 2,000   | 1,000 |  |
| Benzo (b) Fluoranthene | 2,200   | 1,000 |  |
| Benzo (k) Fluoranthene | 900     | 800   |  |
| Benzo (a) Pyrene       | 1,700   | 1,000 |  |
| Total SVOCs            | 18,100  | NS    |  |

| SP-2                   |         |       |  |
|------------------------|---------|-------|--|
| DEPTH                  | 0' - 2' |       |  |
| VOC                    | ND      |       |  |
| SVOC                   | µg/Kg   | UUSCO |  |
| Benzo (a) Anthracene   | 1,200   | 1,000 |  |
| Chrysene               | 1,300   | 1,000 |  |
| Benzo (b) Fluoranthene | 1,500   | 1,000 |  |
| Benzo (a) Pyrene       | 1,100   | 1,000 |  |
| Total SVOCs            | 11,790  | NS    |  |

| SP-15 |    |
|-------|----|
| VOC   | ND |
| SVOC  | ND |

| SP-3                    |         |       |  |
|-------------------------|---------|-------|--|
| DEPTH                   | 0' - 2' |       |  |
| VOC                     | ND      |       |  |
| SVOC                    | µg/Kg   | UUSCO |  |
| Benzo (a) Anthracene    | 5,900   | 1,000 |  |
| Chrysene                | 6,200   | 1,000 |  |
| Benzo (b) Fluoranthene  | 7,000   | 1,000 |  |
| Benzo (k) Fluoranthene  | 2,700   | 800   |  |
| Benzo (a) Pyrene        | 4,800   | 1,000 |  |
| Indeno (1,2,3-cd)Pyrene | 1,500   | 500   |  |
| Total SVOCs             | 57,700  | NS    |  |

| SP-17 |    |
|-------|----|
| VOC   | ND |
| SVOC  | ND |

| SP-10 |    |
|-------|----|
| VOC   | ND |
| SVOC  | ND |

| SP-18 |    |
|-------|----|
| VOC   | ND |
| SVOC  | ND |

| SP-13 |    |
|-------|----|
| VOC   | ND |
| SVOC  | ND |

| SP-9 |    |
|------|----|
| SVOC | ND |
| VOC  | ND |

| SP-4 |    |
|------|----|
| VOC  | ND |
| SVOC | ND |

| SP-5 |    |
|------|----|
| SVOC | ND |
| VOC  | ND |

| SP-18 |    |
|-------|----|
| VOC   | ND |
| SVOC  | ND |

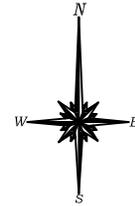
| SP-12 |    |
|-------|----|
| VOC   | ND |
| SVOC  | ND |

| SP-11 |    |
|-------|----|
| VOC   | ND |
| SVOC  | ND |

| SP-16 |    |
|-------|----|
| VOC   | ND |
| SVOC  | ND |

LEGEND:

- STEEL FENCE
- ROLL-UP GATE
- SOIL PROBE LOCATION (SP)
- SP SOIL PROBE
- VOC VOLATILE ORGANIC COMPOUND
- SVOC SEMI VOLATILE ORGANIC COMPOUND
- µg/Kg MICROGRAMS PER KILOGRAM
- ND NONE DETECTED
- NS NO STANDARD
- UUSCO UNRESTRICTED USE SOIL CLEANUP OBJECTIVE (6NYCRR pt. 375-68)
- SHADED VALUES EXCEED UUSCO



ROGERS PL.

WESTCHESTER AVENUE

INTERVALE AVENUE

ADJACENT 1-STORY COMMERCIAL

ADJACENT 6-STORY COMMERCIAL/RESIDENTIAL

EAST 163rd STREET



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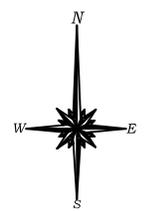
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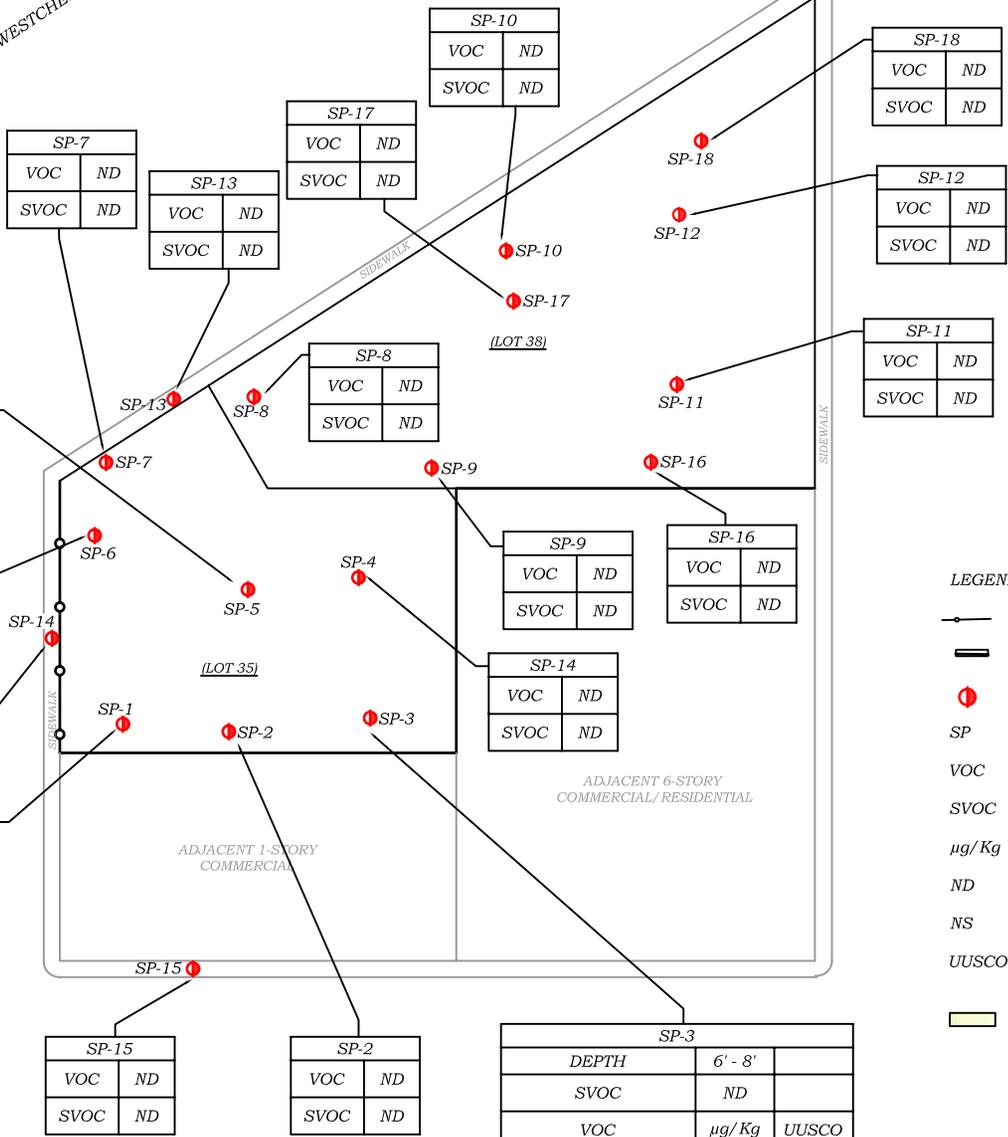
FIGURE 13A: SOIL CONTAMINATION DIAGRAM - (SHALLOW)

WESTCHESTER AVENUE



| SP-5                   |          |        |
|------------------------|----------|--------|
| DEPTH                  | 8' - 10' |        |
| VOC                    | µg/Kg    | UUSCO  |
| Ethylbenzene           | 16,000   | 1.0    |
| n-Propylbenzene        | 16,000   | 3,900  |
| 1,2,4-Trimethylbenzene | 93,000   | 3,600  |
| Total VOCs             | 245,000  | NS     |
| SP-5                   |          |        |
| DEPTH                  | 8' - 10' |        |
| SVOC                   | µg/Kg    | UUSCO  |
| Naphthalene            | 28,000   | 12,000 |
| Total SVOCs            | 51,150   | NS     |

| SP-1                    |          |       |
|-------------------------|----------|-------|
| VOC                     | ND       |       |
| SP-1                    |          |       |
| DEPTH                   | 8' - 10' |       |
| SVOC                    | µg/Kg    | UUSCO |
| Benzo (a) Anthracene    | 3,100    | 1,000 |
| Chrysene                | 3,000    | 1,000 |
| Benzo (b) Fluoranthene  | 3,100    | 1,000 |
| Benzo (k) Fluoranthene  | 1,300    | 800   |
| Benzo (a) Pyrene        | 2,800    | 1,000 |
| Indeno (1,2,3-cd)Pyrene | 950      | 500   |
| Total SVOCs             | 30,410   | NS    |



LEGEND:

- STEEL FENCE
- ROLL-UP GATE
- SOIL PROBE LOCATION (SP)
- SP SOIL PROBE
- VOC VOLATILE ORGANIC COMPOUND
- SVOC SEMI VOLATILE ORGANIC COMPOUND
- µg/Kg MICROGRAMS PER KILOGRAM
- ND NONE DETECTED
- NS NO STANDARD
- UUSCO UNRESTRICTED USE SOIL CLEANUP OBJECTIVE (6NYCRR pt. 375-68)
- SHADED VALUES EXCEED UUSCO

| SP-3                   |         |       |
|------------------------|---------|-------|
| DEPTH                  | 6' - 8' |       |
| SVOC                   | ND      |       |
| VOC                    | µg/Kg   | UUSCO |
| Ethylbenzene           | 3,500   | 1.0   |
| n-Propylbenzene        | 6,400   | 3,900 |
| 1,2,4-Trimethylbenzene | 89,000  | 3,600 |
| Total VOCs             | 169,700 | NS    |



EAST 163rd STREET



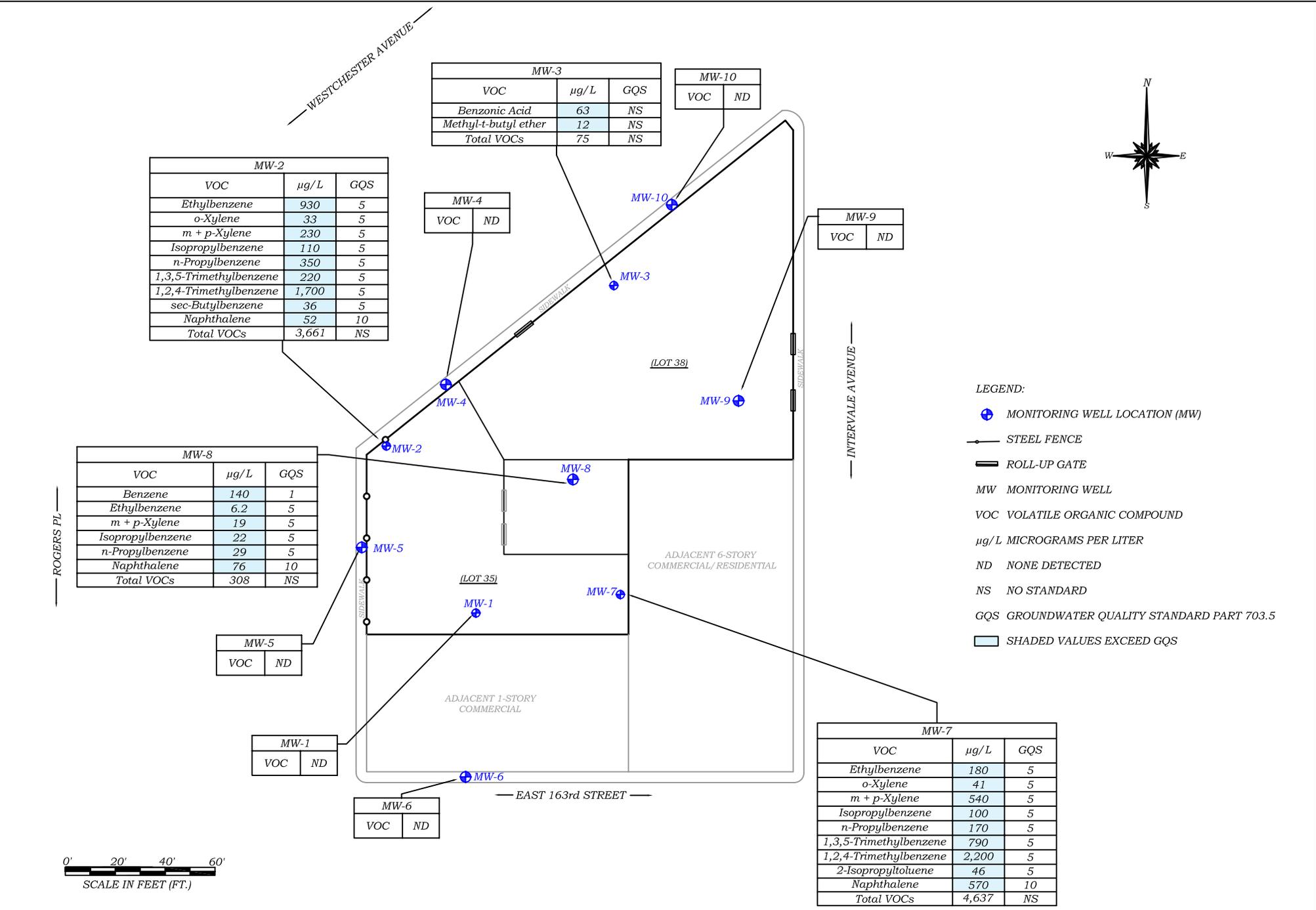
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TITLE:

FIGURE 13B: SOIL CONTAMINATION DIAGRAM - (DEEP)



| SG-1                             |                   |
|----------------------------------|-------------------|
| VOC                              | µg/m <sup>3</sup> |
| Benzene                          | 52                |
| Toluene                          | 1,200             |
| Tetrahydrofuran                  | 44                |
| Ethylbenzene                     | 530               |
| o-Xylene                         | 840               |
| m + p-Xylene                     | 1,400             |
| 4-Ethyl Toluene                  | 1,400             |
| 1,3,5-Trimethylbenzene           | 380               |
| 1,2,4-Trimethylbenzene           | 1,400             |
| n-Hexane                         | 86                |
| n-Heptane                        | 170               |
| Methyl Ethyl Ketone              | 36                |
| Methyl Butyl ketone (2-hexanone) | 120               |
| <b>Total VOCs</b>                | <b>7,658</b>      |

| SG-2              |                   |
|-------------------|-------------------|
| VOC               | µg/m <sup>3</sup> |
| Toluene           | 65                |
| m + p-Xylene      | 57                |
| Acetone           | 51                |
| <b>Total VOCs</b> | <b>173</b>        |

| SG-3              |                   |
|-------------------|-------------------|
| VOC               | µg/m <sup>3</sup> |
| Toluene           | 54                |
| m + p-Xylene      | 75                |
| Acetone           | 56                |
| <b>Total VOCs</b> | <b>185</b>        |

| SG-4              |                   |
|-------------------|-------------------|
| VOC               | µg/m <sup>3</sup> |
| Toluene           | 35                |
| m + p-Xylene      | 57                |
| Acetone           | 170               |
| <b>Total VOCs</b> | <b>262</b>        |

| SG-10                            |                   |
|----------------------------------|-------------------|
| VOC                              | µg/m <sup>3</sup> |
| Tetrahydrofuran                  | 7,500             |
| 2,2,4 Trimethylpentane           | 270,000           |
| Acetone                          | 6,300             |
| n-Hexane                         | 5,700             |
| Methyl Ethyl Ketone              | 100,000           |
| Methyl Butyl ketone (2-hexanone) | 4,800             |
| <b>Total VOCs</b>                | <b>294,300</b>    |

| SG-9                   |                   |
|------------------------|-------------------|
| VOC                    | µg/m <sup>3</sup> |
| Benzene                | 28                |
| Toluene                | 420               |
| Ethylbenzene           | 200               |
| o-Xylene               | 260               |
| m + p-Xylene           | 530               |
| Isopropanol            | 2,800             |
| 2,2,4 Trimethylpentane | 36                |
| Acetone                | 210               |
| 4-Ethyl Toluene        | 330               |
| 1,3,5-Trimethylbenzene | 80                |
| 1,2,4-Trimethylbenzene | 240               |
| n-Hexane               | 54                |
| n-Heptane              | 58                |
| <b>Total VOCs</b>      | <b>5,246</b>      |

| SG-8              |                   |
|-------------------|-------------------|
| VOC               | µg/m <sup>3</sup> |
| Toluene           | 110               |
| Ethylbenzene      | 33                |
| o-Xylene          | 38                |
| m + p-Xylene      | 84                |
| Isopropanol       | 1,000             |
| Acetone           | 150               |
| <b>Total VOCs</b> | <b>1,415</b>      |

| SG-7              |                   |
|-------------------|-------------------|
| VOC               | µg/m <sup>3</sup> |
| Toluene           | 58                |
| <b>Total VOCs</b> | <b>315</b>        |

| SG-6                   |                   |
|------------------------|-------------------|
| VOC                    | µg/m <sup>3</sup> |
| Toluene                | 420               |
| Ethylbenzene           | 180               |
| o-Xylene               | 260               |
| m + p-Xylene           | 490               |
| 4-Ethyl Toluene        | 350               |
| 1,3,5-Trimethylbenzene | 100               |
| 1,2,4-Trimethylbenzene | 250               |
| <b>Total VOCs</b>      | <b>2,050</b>      |

| SG-5                             |                   |
|----------------------------------|-------------------|
| VOC                              | µg/m <sup>3</sup> |
| Toluene                          | 81                |
| Tetrahydrofuran                  | 39                |
| o-Xylene                         | 40                |
| m + p-Xylene                     | 75                |
| Isopropanol                      | 120               |
| 2,2,4 Trimethylpentane           | 1,400             |
| Acetone                          | 80                |
| n-Hexane                         | 34                |
| Methyl Ethyl Ketone              | 30                |
| Methyl Butyl ketone (2-hexanone) | 50                |
| <b>Total VOCs</b>                | <b>1,949</b>      |



LEGEND:

- STEEL FENCE
- ROLL-UP GATE
- SOIL VAPOR IMPLANT (SG)
- SG SOIL VAPOR IMPLANT
- VOC VOLATILE ORGANIC COMPOUND
- µg/m<sup>3</sup> MICROGRAMS PER MILLIGRAM



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Approved By: M.S.  
Date: 01/26/10  
Scale: AS NOTED

TITLE:

FIGURE 15: SOIL VAPOR CONTAMINATION DIAGRAM

## **Tables**

# TABLE 1

## Fate and Management of Investigation Derived Waste

| Media                                     | Quantity       | Disposal Facility                     | Location           |
|---|----------------|---------------------------------------|--------------------|
| Soil/fill cuttings (grossly contaminated) | 50 pounds      | To be defined during Site remediation |                    |
| Soil/grossly contaminated)                | 366 tons       | Soil Safe Inc.                        | Logan Township, NJ |
| Extracted groundwater                     | 20 gallon drum | To be defined during Site remediation |                    |
| General Trash                             |                |                                       |                    |
|   |                |                                       |                    |

**TABLE 2****Construction Details for Soil Borings**

|             | ID No. | Date of construction | Total Depth | Diameter | Ground surface elevation | Screened interval | Construction medium (PVC, Steel, etc) | Location            |
|-------------|--------|----------------------|-------------|----------|--------------------------|-------------------|---------------------------------------|---------------------|
| Soil Boring | SP-1   | 4/24/2009            | 10 ft       | 1½-inch  | surface                  | n/a               |                                       | SW of Lot 35        |
| Soil Boring | SP-2   | 4/24/2009            | 10 ft       | 1½-inch  | surface                  | n/a               |                                       | S-central of Lot    |
| Soil Boring | SP-3   | 4/27/2009            | 8 ft        | 1½-inch  | surface                  | n/a               |                                       | Center of Lot 35    |
| Soil Boring | SP-4   | 4/24/2009            | 10 ft       | 1½-inch  | surface                  | n/a               |                                       | E of Lot 35         |
| Soil Boring | SP-5   | 4/27/2009            | 10 ft       | 1½-inch  | surface                  | n/a               |                                       | S-central of Lot 35 |
| Soil Boring | SP-6   | 4/27/2009            | 8 ft        | 1½-inch  | surface                  | n/a               |                                       | W of Lot 35         |
| Soil Boring | SP-7   | 4/27/2009            | 10 ft       | 1½-inch  | surface                  | n/a               |                                       | NW of Lot 35        |
| Soil Boring | SP-8   | 4/28/2009            | 2 ft        | 1½-inch  | basement                 | n/a               |                                       | NW of Lot 38        |
| Soil Boring | SP-9   | 4/28/2009            | 2 ft        | 1½-inch  | basement                 | n/a               |                                       | S of Lot 38         |
| Soil Boring | SP-10  | 4/28/2009            | 2 ft        | 1½-inch  | basement                 | n/a               |                                       | N-centrl of Lot 38  |
| Soil Boring | SP-11  | 4/28/2009            | 2 ft        | 1½-inch  | basement                 | n/a               |                                       | SE of Lot 38        |
| Soil Boring | SP-12  | 4/28/2009            | 2 ft        | 1½-inch  | basement                 | n/a               |                                       | NE of Lot 38        |
| Soil Boring | SP-13  | 8/20/2009            | 8 ft        | 1½-inch  | sidewalk                 | n/a               |                                       | Off-site N Lot 35   |
| Soil Boring | SP-14  | 8/20/2009            | 10 ft       | 1½-inch  | sidewalk                 | n/a               |                                       | Off-site W Lot 35   |
| Soil Boring | SP-15  | 8/20/2009            | 12 ft       | 1½-inch  | sidewalk                 | n/a               |                                       | Off-site S Lot 35   |
| Soil Boring | SP-16  | 11/02/2009           | 2 ft        | 1½-inch  | basement                 | n/a               |                                       | SE of Lot 38        |
| Soil Boring | SP-17  | 11/02/2009           | 2 ft        | 1½-inch  | basement                 | n/a               |                                       | Center of Lot 38    |
| Soil Boring | SP-18  | 11/02/2009           | 2 ft        | 1½-inch  | basement                 | n/a               |                                       | NE of Lot 38        |

**TABLE 2 (Cont.)****Construction Details for Monitoring Wells**

|               | ID No. | Date of construction | Total Depth | Diameter | Ground surface elevation | Screened interval             | Construction medium (PVC, Steel, etc) | Location           |
|---------------|--------|----------------------|-------------|----------|--------------------------|-------------------------------|---------------------------------------|--------------------|
| Monitor Wells | MW-1   | 4/24/2009            | 20 ft       | 1 in     | surface                  | Riser = 5ft<br>Screen = 15 ft | Manhole cover                         | SP-2               |
| Monitor Wells | MW-2   | 4/24/2009            | 20 ft       | 1 in     | surface                  | Riser = 5ft<br>Screen = 15 ft | Manhole cover                         | SP-6               |
| Monitor Wells | MW-3   | 4/28/2009            | 10 ft       | 1 in     | surface                  | Riser = 1 ft<br>Screen = 9 ft | Manhole cover                         | SP-10              |
| Monitor Wells | MW-4   | 8/20/2009            | 10 ft       | 1 in     | sidewalk                 | Riser = 5 ft<br>Screen = 5 ft | Manhole cover                         | SP-13              |
| Monitor Wells | MW-5   | 8/20/2009            | 10 ft       | 1 in     | sidewalk                 | Riser = 5 ft<br>Screen = 5 ft | Manhole cover                         | SP-14              |
| Monitor Wells | MW-6   | 8/20/2009            | 12 ft       | 1 in     | sidewalk                 | Riser = 5ft<br>Screen = 7ft   | Manhole cover                         | SP-15              |
| Monitor Wells | MW-7   | 11/3/2009            | 24 ft       | 1 in     | basement                 | Riser = 4ft<br>Screen = 20ft  | Riser only                            | SE of Lot 35       |
| Monitor Wells | MW-8   | 11/3/2009            | 24 ft       | 1 in     | basement                 | Riser = 4ft<br>Screen = 20ft  | Riser only                            | NE of Lot 35       |
| Monitor Wells | MW-9   | 11/3/2009            | 24 ft       | 1 in     | basement                 | Riser = 1ft<br>Screen = 23ft  | Riser only                            | E centrl Lot 35    |
| Monitor Wells | MW-10  | 11/3/2009            | 24 ft       | 1 in     | basement                 | Riser = 4ft<br>Screen = 20ft  | Manhole cover                         | Off-site-NE Lot 38 |

**Table 3**  
**Field Characterization Results of Soil Probes**

| Soil Probe | Sampling Depths (ft) | PID Reading (ppm) | Soil Characterization  |
|------------|----------------------|-------------------|--|
| SP-1       | 0'-2'                | 0.0               | asphalt, gravel, soil, fine-medium grained brown sand, no odor         |
|            | 2'-4'                | 0.0               | S.A.B  |
|            | 4'-6'                | 0.0               | asphalt, gravel, soil, gray fine-medium grained sand, no odor          |
|            | 6'-8'                | 0.0               | gravel, soil, gray fine-medium grained silty sand, no odor             |
|            | 8'-10'               | 0.0               | S.A.B., Groundwater  |
| SP-2       | 0'-2'                | 0.0               | asphalt, gravel, soil, fine-medium grained brown sand, no odor         |
|            | 2'-4'                | 0.0               | S.A.B  |
|            | 4'-6'                | 0.0               | asphalt, gravel, soil, gray fine-medium grained sand, no odor          |
|            | 6'-8'                | 0.0               | gravel, soil, gray fine-medium grained silty sand, no odor             |
|            | 8'-10'               | 0.0               | S.A.B., Groundwater  |
| SP-3       | 0'-2'                | 0.0               | asphalt, gravel, soil, fine-medium grained brown sand, no odor         |
|            | 2'-4'                | 0.0               | S.A.B  |
|            | 4'-6'                | 0.0               | asphalt, gravel, soil, gray fine-medium grained sand, no odor          |
|            | 6'-8'                | 6.8               | gravel, soil, gray fine-medium grained silty sand, petro odor, Refusal |
| SP-4       | 0'-2'                | 0.0               | asphalt, gravel, soil, fine-medium grained brown sand, no odor         |
|            | 2'-4'                | 0.0               | S.A.B  |
|            | 4'-6'                | 0.0               | asphalt, gravel, soil, gray fine-medium grained sand, no odor          |
|            | 6'-8'                | 0.0               | gravel, soil, gray fine-medium grained silty sand, no odor             |
|            | 8'-10'               | 0.0               | S.A.B., Groundwater  |
| SP-5       | 0'-2'                | 0.0               | asphalt, gravel, soil, fine-medium grained brown sand, no odor         |
|            | 2'-4'                | 0.0               | S.A.B  |
|            | 4'-6'                | 0.0               | asphalt, gravel, soil, gray fine-medium grained sand, no odor          |
|            | 6'-8'                | 5.1               | gravel, soil, gray fine-medium grained silty sand, petro odor          |
|            | 8'-10'               | 6.8               | S.A.B., Groundwater  |
| SP-6       | 0'-2'                | 0.0               | asphalt, gravel, soil, fine-medium grained brown sand, no odor         |
|            | 2'-4'                | 0.0               | S.A.B  |
|            | 4'-6'                | 0.0               | asphalt, gravel, soil, gray fine-medium grained sand, no odor          |
|            | 6'-8'                | 0.0               | gravel, soil, gray fine-medium grained silty sand, no odor, Refusal    |

*ft...feet*

*ppm...part per million*

*S.A.B....same as before*

**Table 3 (Cont.)**  
**Field Characterization Results of Soil Probes**

| Soil Probe | Sampling Depths (ft) | PID Reading (ppm) | Soil Characterization   |
|------------|----------------------|-------------------|---|
| SP-7       | 0'-2'                | 0.0               | asphalt, gravel, soil, fine-medium grained brown sand, no odor            |
|            | 2'-4'                | 0.0               | S.A.B   |
|            | 4'-6'                | 0.0               | asphalt, gravel, soil, gray fine-medium grained sand, no odor             |
|            | 6'-8'                | 5.7               | gravel, soil, gray fine-medium grained silty sand, petro odor             |
|            | 8'-10'               | 9.3               | S.A.B., Groundwater   |
| SP-8       | 0'-2'                | 0.0               | concrete, gravel, soil, fine-medium grained sand, no odor, Groundwater    |
| SP-9       | 0'-2'                | 0.0               | concrete, gravel, soil, fine-medium grained sand, no odor, Groundwater    |
| SP-10      | 0'-2'                | 0.0               | concrete, gravel, soil, fine-medium grained sand, no odor, Groundwater    |
| SP-11      | 0'-2'                | 0.0               | concrete, gravel, soil, fine-medium grained sand, no odor, Groundwater    |
| SP-12      | 0'-2'                | 0.0               | concrete, gravel, soil, fine-medium grained sand, no odor, Groundwater    |
| SP-13      | 0'-2'                | 0.01              | Concrete, fine grained silty sand with pebbles. No odor                   |
|            | 2'-4'                | 0.01              | Brown fine grained silty sand with pebbles. No odor                       |
|            | 4'-6'                | 0.01              | S.A.B.  |
|            | 8'-10'               | 0.01              | S.A.B. Groundwater  |
| SP-14      | 0'-2'                | 0.01              | Concrete, fine grained silty sand with pebbles and stones. No odor        |
|            | 2'-4'                | 0.01              | Fine to medium grained silty sand with pebbles and stones. No odor        |
|            | 4'-6'                | 0.01              | S.A.B.  |
|            | 6'-8'                | 0.01              | S.A.B.  |
|            | 8'-10'               | 0.01              | Brown fine grained silty sand with pebbles. No odor. Refusal              |
| SP-15      | 0'-2'                | 0.01              | Concrete, fine grained silty sand with pebbles and fill material. No odor |
|            | 2'-4'                | 0.01              | Fine to medium grained silty sand with mica and mica stones. No odor      |
|            | 4'-6'                | 0.01              | S.A.B.  |
|            | 6'-8'                | 0.01              | S.A.B.  |
|            | 2'-4'                | 0.01              | S.A.B.  |
|            | 4'-6'                | 0.01              | Fine grained silty sand with pebbles. No odor. Refusal                    |
| 6'-8'      | 0.01                 | S.A.B. Refusal    |   |
| SP-16      | 0'-2'                | 0.0               | concrete, gravel, soil, fine-medium grained sand, no odor, Groundwater    |
| SP-17      | 0'-2'                | 0.0               | concrete, gravel, soil, fine-medium grained sand, no odor, Groundwater    |
| SP-18      | 0'-2'                | 0.0               | concrete, gravel, soil, fine-medium grained sand, no odor, Groundwater    |

*ft...feet*

*ppm...part per million*

*S.A.B....same as before*

**Table 4**  
**Groundwater Level Data**

| Well ID | April 24, 2009    |                     |                            | August 21, 2009   |                     |                            | November 6, 2009  |                     |                            |
|---------|-------------------|---------------------|----------------------------|-------------------|---------------------|----------------------------|-------------------|---------------------|----------------------------|
|         | Free Product (ft) | Depth to Water (ft) | Groundwater Elevation (ft) | Free Product (ft) | Depth to Water (ft) | Groundwater Elevation (ft) | Free Product (ft) | Depth to Water (ft) | Groundwater Elevation (ft) |
| MW-1    | ND                | 10.40               | 15.52                      | ND                | 10.40               | 13.96                      | ND                | 10.98               | 13.38                      |
| MW-2    | ND                | 8.50                | 15.70                      | ND                | 8.37                | 15.25                      | ND                | 8.57                | 15.05                      |
| MW-3    | ND                | 1.45                | 16.53                      | ND                | 1.33                | 16.07                      | ND                | 1.32                | 16.08                      |
| MW-4    | -                 | -                   | -                          | ND                | 7.56                | 15.50                      | ND                | 7.44                | 15.62                      |
| MW-5    | -                 | -                   | -                          | ND                | 9.33                | 14.36                      | ND                | 10                  | 13.69                      |
| MW-6    | -                 | -                   | -                          | x                 | x                   | x                          | x                 | x                   | x                          |
| MW-7    | -                 | -                   | -                          | -                 | -                   | -                          | ND                | 10.79               | 13.41                      |
| MW-8    | -                 | -                   | -                          | -                 | -                   | -                          | ND                | 10                  | 14.53                      |
| MW-9    | -                 | -                   | -                          | -                 | -                   | -                          | ND                | 2.58                | 15.81                      |
| MW-10   | -                 | -                   | -                          | -                 | -                   | -                          | ND                | 9.03                | 16.23                      |

*ft...Feet*

*ND...None Detected*

*x...dry at this time*

*x...no well at this time*

# TABLE 5

## Sample Collection Data for Endpoint Soil

| Soil Sample ID and Depth            | Location on Grid Map | Analytical Parameters | Analytical Methods                              |
|-------------------------------------|----------------------|-----------------------|---|
| EP- 1 (12 feet) (F/W oil USTs pit)  | Not defined          | VOCs, SVOCs           | VOCs: EPA Method 8260<br>SVOCs: EPA Method 8270 |
| EP- 2 (12 feet) (F/W Oil USTs pit)  | Not defined          |                       |   |
| EP- 3 (12 feet) (F/W Oil USTs pit)  | Not defined          |                       |   |
| EP- 4 (12 feet) (F/W Oil USTs pit)  | Not defined          |                       |   |
| BS- 1 (18 feet) (F/W Oil USTs pit)  | Not defined          |                       |   |
| EP- 1 (12 feet) (gasoline USTs pit) | Not defined          |                       |   |
| EP- 2 (12 feet) (gasoline USTs pit) | Not defined          |                       |   |
| EP- 3 (12 feet) (gasoline USTs pit) | Not defined          |                       |   |
| EP- 4 (12 feet) (gasoline USTs pit) | Not defined          |                       |   |

**TABLE 5 (Cont.)****Sample Collection Data for Soil**

| <b>Soil Sample ID and Depth</b> | <b>Location on Grid Map</b> | <b>Analytical Parameters</b>                            | <b>Analytical Methods</b>   |
|---------------------------------|-----------------------------|---|---|
| SP- 1 (0-2 feet) + (8-10 feet)  | A1                          | VOCs, SVOCs, Pesticides, PCBs, Metals                   | VOCs: EPA Method 8260<br>SVOCs: EPA Method 8270 BN<br>Pesticides: EPA Method 8081<br>PCBs: EPA Method 8082<br>Metals: EPA Method 6010 |
| SP- 2 (0-2 feet) + (8-10 feet)  | A3                          |   |   |
| SP- 3 (0-2 feet) + (6-8 feet)   | A5                          |   |   |
| SP- 4 (0-2 feet) + (8-10 feet)  | C4                          |   |   |
| SP- 5 (0-2 feet) + (8-10 feet)  | C3                          |   |   |
| SP- 6 (0-2 feet) + (6-8 feet)   | C1                          |   |   |
| SP- 7 (0-2 feet) + (8-10 feet)  | D1                          |   |   |
| SP- 8 (0-2 feet)                | E3                          |   |   |
| SP- 9 (0-2 feet)                | D5                          |   |   |
| SP- 10 (0-2 feet)               | G5                          |   |   |
| SP- 11 (0-2 feet)               | F8                          |   |   |
| SP- 12 (0-2 feet)               | H8                          |   |   |
| SP- 13 (6-8 feet)               | Sidewalk                    | VOCs, SVOCs   | VOCs: EPA Method 8260<br>SVOCs: EPA Method 8270   |
| SP- 14 (8-10 feet)              | Sidewalk                    |   |   |
| SP- 15 (10-12 feet)             | Sidewalk                    |   |   |
| SP- 16 (0-2 feet)               | D7                          | VOCs, SVOCs, Pesticides, PCBs, Metals, Chromium species | VOCs: EPA Method 8260<br>SVOCs: EPA Method 8270<br>Pesticides: EPA Method 8081<br>PCBs: EPA Method 8082                               |
| SP- 17 (0-2 feet)               | G6                          |   |   |
| SP- 18 (0-2 feet)               | I8                          |   |   |

**TABLE 5 (Cont.)****Sample Collection Data for Groundwater**

| <b>Groundwater Sample ID</b> | <b>Location on Grid Map</b> | <b>Analytical Parameters</b>                           | <b>Analytical Methods</b>  |
|------------------------------|-----------------------------|--|--|
| MW-1                         | A3                          | VOCs, SVOCs, Pesticides, PCBs, Total /Dissolved Metals | VOCs: EPA Method 8260; SVOCs: EPA Method 8270 BN; Pesticides: EPA Method 8081 ; PCBs: EPA Method 8082; Metals: EPA Method 6010 |
| MW-2                         | D1                          |  |  |
| MW-3                         | G5                          |  |  |
| MW-4                         | Sidewalk                    | VOCs, SVOCs  | VOCs: EPA Method 8260; SVOCs: EPA Method 8270 BN   |
| MW-5                         | Sidewalk                    |  |  |
| MW-6                         | Sidewalk                    | Dry  | Dry  |
| MW-7                         | A6                          | VOCs, SVOCs, Pesticides, PCBs, Total /Dissolved Metals | VOCs: EPA Method 8260; SVOCs: EPA Method 8270 BN; Pesticides: EPA Method 8081 ; PCBs: EPA Method 8082; Metals: EPA Method 6010 |
| MW-8                         | D5                          |  |  |
| MW-9                         | E8                          |  |  |
| MW-10                        | Sidewalk                    |  |  |

**TABLE 5 (Cont.)**

**Sample Collection Data for Soil Gas**

| <b>Groundwater Sample ID</b> | <b>Location on Grid Map</b> | <b>Analytical Parameters</b> | <b>Analytical Methods</b>           |
|------------------------------|-----------------------------|------------------------------|-------------------------------------|
| SG- 1                        | Sidewalk                    | VOCs and Helium              | TO + 15<br>Helium : EPA 3C Modified |
| SG- 2                        | Sidewalk                    |                              |                                     |
| SG- 3                        | Sidewalk                    |                              |                                     |
| SG- 4                        | G8                          |                              |                                     |
| SG- 5                        | C5                          |                              |                                     |
| SG- 6                        | A5                          |                              |                                     |
| SG- 7                        | A2                          |                              |                                     |
| SG- 8                        | Sidewalk                    |                              |                                     |
| SG- 9                        | Sidewalk                    |                              |                                     |
| SG- 10                       | D2                          |                              |                                     |

**Table 6****Unrestricted Use Soil Cleanup Objectives**

| Contaminant                         | CAS Number | Unrestricted Use    |
|-------------------------------------|------------|---------------------|
| <b>Metals</b>                       |            |                     |
| Arsenic                             | 7440-38-2  | 13 °                |
| Barium                              | 7440-39-3  | 350 °               |
| Beryllium                           | 7440-41-7  | 7.2                 |
| Cadmium                             | 7440-43-9  | 2.5 °               |
| Chromium, hexavalent °              | 18540-29-9 | 1 <sup>b</sup>      |
| Chromium, trivalent °               | 16065-83-1 | 30 °                |
| Copper                              | 7440-50-8  | 50                  |
| Total Cyanide <sup>e,f</sup>        |            | 27                  |
| Lead                                | 7439-92-1  | 63 °                |
| Manganese                           | 7439-96-5  | 1600 °              |
| Total Mercury                       |            | 0.18 °              |
| Nickel                              | 7440-02-0  | 30                  |
| Selenium                            | 7782-49-2  | 3.9 <sup>c</sup>    |
| Silver                              | 7440-22-4  | 2                   |
| Zinc                                | 7440-66-6  | 109 °               |
| <b>PCBs/Pesticides</b>              |            |                     |
| 2,4,5-TP Acid (Silvex) <sup>f</sup> | 93-72-1    | 3.8                 |
| 4,4'-DDE                            | 72-55-9    | 0.0033 <sup>b</sup> |
| 4,4'-DDT                            | 50-29-3    | 0.0033 <sup>b</sup> |
| 4,4'-DDD                            | 72-54-8    | 0.0033 <sup>b</sup> |
| Aldrin                              | 309-00-2   | 0.005 °             |
| alpha-BHC                           | 319-84-6   | 0.02                |
| beta-BHC                            | 319-85-7   | 0.036               |
| Chlordane (alpha)                   | 5103-71-9  | 0.094               |

**Table 375-6.8(a):Unrestricted Use Soil Cleanup Objectives**

| <b>Contaminant</b>                    | <b>CAS Number</b> | <b>Unrestricted Use</b> |
|---------------------------------------|-------------------|-------------------------|
| delta-BHC <sup>g</sup>                | 319-86-8          | 0.04                    |
| Dibenzofuran <sup>f</sup>             | 132-64-9          | 7                       |
| Dieldrin                              | 60-57-1           | 0.005 <sup>c</sup>      |
| Endosulfan I <sup>d, f</sup>          | 959-98-8          | 2.4                     |
| Endosulfan II <sup>d, f</sup>         | 33213-65-9        | 2.4                     |
| Endosulfan sulfate <sup>d, f</sup>    | 1031-07-8         | 2.4                     |
| Endrin                                | 72-20-8           | 0.014                   |
| Heptachlor                            | 76-44-8           | 0.042                   |
| Lindane                               | 58-89-9           | 0.1                     |
| Polychlorinated biphenyls             | 1336-36-3         | 0.1                     |
| <b>Semivolatile organic compounds</b> |                   |                         |
| Acenaphthene                          | 83-32-9           | 20                      |
| Acenaphthylene <sup>f</sup>           | 208-96-8          | 100 <sup>a</sup>        |
| Anthracene <sup>f</sup>               | 120-12-7          | 100 <sup>a</sup>        |
| Benz(a)anthracene <sup>f</sup>        | 56-55-3           | 1 <sup>c</sup>          |
| Benzo(a)pyrene                        | 50-32-8           | 1 <sup>c</sup>          |
| Benzo(b)fluoranthene <sup>f</sup>     | 205-99-2          | 1 <sup>c</sup>          |
| Benzo(g,h,i)perylene <sup>f</sup>     | 191-24-2          | 100                     |
| Benzo(k)fluoranthene <sup>f</sup>     | 207-08-9          | 0.8 <sup>c</sup>        |
| Chrysene <sup>f</sup>                 | 218-01-9          | 1 <sup>c</sup>          |
| Dibenz(a,h)anthracene <sup>f</sup>    | 53-70-3           | 0.33 <sup>b</sup>       |
| Fluoranthene <sup>f</sup>             | 206-44-0          | 100 <sup>a</sup>        |
| Fluorene                              | 86-73-7           | 30                      |
| Indeno(1,2,3-cd)pyrene <sup>f</sup>   | 193-39-5          | 0.5 <sup>c</sup>        |
| m-Cresol <sup>f</sup>                 | 108-39-4          | 0.33 <sup>b</sup>       |
| Naphthalene <sup>f</sup>              | 91-20-3           | 12                      |
| o-Cresol <sup>f</sup>                 | 95-48-7           | 0.33 <sup>b</sup>       |

**Table 375-6.8(a):Unrestricted Use Soil Cleanup Objectives**

| <b>Contaminant</b>                    | <b>CAS Number</b> | <b>Unrestricted Use</b> |
|---------------------------------------|-------------------|-------------------------|
| p-Cresol <sup>f</sup>                 | 106-44-5          | 0.33 <sup>b</sup>       |
| Pentachlorophenol                     | 87-86-5           | 0.8 <sup>b</sup>        |
| Phenanthrene <sup>f</sup>             | 85-01-8           | 100                     |
| Phenol                                | 108-95-2          | 0.33 <sup>b</sup>       |
| Pyrene <sup>f</sup>                   | 129-00-0          | 100                     |
| <b>Volatile organic compounds</b>     |                   |                         |
| 1,1,1-Trichloroethane <sup>f</sup>    | 71-55-6           | 0.68                    |
| 1,1-Dichloroethane <sup>f</sup>       | 75-34-3           | 0.27                    |
| 1,1-Dichloroethene <sup>f</sup>       | 75-35-4           | 0.33                    |
| 1,2-Dichlorobenzene <sup>f</sup>      | 95-50-1           | 1.1                     |
| 1,2-Dichloroethane                    | 107-06-2          | 0.02 <sup>c</sup>       |
| cis -1,2-Dichloroethene <sup>f</sup>  | 156-59-2          | 0.25                    |
| trans-1,2-Dichloroethene <sup>f</sup> | 156-60-5          | 0.19                    |
| 1,3-Dichlorobenzene <sup>f</sup>      | 541-73-1          | 2.4                     |
| 1,4-Dichlorobenzene                   | 106-46-7          | 1.8                     |
| 1,4-Dioxane                           | 123-91-1          | 0.1 <sup>b</sup>        |
| Acetone                               | 67-64-1           | 0.05                    |
| Benzene                               | 71-43-2           | 0.06                    |
| n-Butylbenzene <sup>f</sup>           | 104-51-8          | 12                      |
| Carbon tetrachloride <sup>f</sup>     | 56-23-5           | 0.76                    |
| Chlorobenzene                         | 108-90-7          | 1.1                     |
| Chloroform                            | 67-66-3           | 0.37                    |
| Ethylbenzene <sup>f</sup>             | 100-41-4          | 1                       |
| Hexachlorobenzene <sup>f</sup>        | 118-74-1          | 0.33 <sup>b</sup>       |
| Methyl ethyl ketone                   | 78-93-3           | 0.12                    |
| Methyl tert-butyl ether <sup>f</sup>  | 1634-04-4         | 0.93                    |
| Methylene chloride                    | 75-09-2           | 0.05                    |

**Table 375-6.8(a): Unrestricted Use Soil Cleanup Objectives**

| Contaminant                         | CAS Number | Unrestricted Use |
|-------------------------------------|------------|------------------|
| n - Propylbenzene <sup>f</sup>      | 103-65-1   | 3.9              |
| sec-Butylbenzene <sup>f</sup>       | 135-98-8   | 11               |
| tert-Butylbenzene <sup>f</sup>      | 98-06-6    | 5.9              |
| Tetrachloroethene                   | 127-18-4   | 1.3              |
| Toluene                             | 108-88-3   | 0.7              |
| Trichloroethene                     | 79-01-6    | 0.47             |
| 1,2,4-Trimethylbenzene <sup>f</sup> | 95-63-6    | 3.6              |
| 1,3,5-Trimethylbenzene <sup>f</sup> | 108-67-8   | 8.4              |
| Vinyl chloride <sup>f</sup>         | 75-01-4    | 0.02             |
| Xylene (mixed)                      | 1330-20-7  | 0.26             |

All soil cleanup objectives (SCOs) are in parts per million (ppm).

**Footnotes**

<sup>a</sup> The SCOs for unrestricted use were capped at a maximum value of 100 ppm. See [Technical Support Document \(TSD\)](#), section 9.3.

<sup>b</sup> For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the Track 1 SCO value.

<sup>c</sup> For constituents where the calculated SCO was lower than the rural soil background concentration, as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 1 SCO value for this use of the site.

<sup>d</sup> SCO is the sum of endosulfan I, endosulfan II and endosulfan sulfate.

<sup>e</sup> The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.

<sup>f</sup> Protection of ecological resources SCOs were not developed for contaminants identified in Table 375-6.8(b) with “NS”. Where such contaminants appear in Table 375-6.8(a), the applicant may be required by the Department to calculate a protection of ecological resources SCO according to the TSD.

(b) Restricted use soil cleanup objectives.

**Table 375-6.8(b): Restricted Use Soil Cleanup Objectives**

| Contaminant                       | CAS Number | Protection of Public Health |                        |                     |                     | Protection of Ecological Resources | Protection of Ground-water |
|-----------------------------------|------------|-----------------------------|------------------------|---------------------|---------------------|------------------------------------|----------------------------|
|                                   |            | Residential                 | Restricted-Residential | Commercial          | Industrial          |                                    |                            |
| <b>Metals</b>                     |            |                             |                        |                     |                     |                                    |                            |
| Arsenic                           | 7440-38-2  | 16 <sup>f</sup>             | 16 <sup>f</sup>        | 16 <sup>f</sup>     | 16 <sup>f</sup>     | 13 <sup>f</sup>                    | 16 <sup>f</sup>            |
| Barium                            | 7440-39-3  | 350 <sup>f</sup>            | 400                    | 400                 | 10,000 <sup>d</sup> | 433                                | 820                        |
| Beryllium                         | 7440-41-7  | 14                          | 72                     | 590                 | 2,700               | 10                                 | 47                         |
| Cadmium                           | 7440-43-9  | 2.5 <sup>f</sup>            | 4.3                    | 9.3                 | 60                  | 4                                  | 7.5                        |
| Chromium, hexavalent <sup>h</sup> | 18540-29-9 | 22                          | 110                    | 400                 | 800                 | 1 <sup>e</sup>                     | 19                         |
| Chromium, trivalent <sup>h</sup>  | 16065-83-1 | 36                          | 180                    | 1,500               | 6,800               | 41                                 | NS                         |
| Copper                            | 7440-50-8  | 270                         | 270                    | 270                 | 10,000 <sup>d</sup> | 50                                 | 1,720                      |
| Total Cyanide <sup>h</sup>        |            | 27                          | 27                     | 27                  | 10,000 <sup>d</sup> | NS                                 | 40                         |
| Lead                              | 7439-92-1  | 400                         | 400                    | 1,000               | 3,900               | 63 <sup>f</sup>                    | 450                        |
| Manganese                         | 7439-96-5  | 2,000 <sup>f</sup>          | 2,000 <sup>f</sup>     | 10,000 <sup>d</sup> | 10,000 <sup>d</sup> | 1600 <sup>f</sup>                  | 2,000 <sup>f</sup>         |
| Total Mercury                     |            | 0.81 <sup>j</sup>           | 0.81 <sup>j</sup>      | 2.8 <sup>j</sup>    | 5.7 <sup>j</sup>    | 0.18 <sup>f</sup>                  | 0.73                       |
| Nickel                            | 7440-02-0  | 140                         | 310                    | 310                 | 10,000 <sup>d</sup> | 30                                 | 130                        |
| Selenium                          | 7782-49-2  | 36                          | 180                    | 1,500               | 6,800               | 3.9 <sup>f</sup>                   | 4 <sup>f</sup>             |
| Silver                            | 7440-22-4  | 36                          | 180                    | 1,500               | 6,800               | 2                                  | 8.3                        |
| Zinc                              | 7440-66-6  | 2200                        | 10,000 <sup>d</sup>    | 10,000 <sup>d</sup> | 10,000 <sup>d</sup> | 109 <sup>f</sup>                   | 2,480                      |
| <b>PCBs/Pesticides</b>            |            |                             |                        |                     |                     |                                    |                            |
| 2,4,5-TP Acid (Silvex)            | 93-72-1    | 58                          | 100 <sup>a</sup>       | 500 <sup>b</sup>    | 1,000 <sup>c</sup>  | NS                                 | 3.8                        |
| 4,4'-DDE                          | 72-55-9    | 1.8                         | 8.9                    | 62                  | 120                 | 0.0033 <sup>e</sup>                | 17                         |
| 4,4'-DDT                          | 50-29-3    | 1.7                         | 7.9                    | 47                  | 94                  | 0.0033 <sup>e</sup>                | 136                        |
| 4,4'-DDD                          | 72-54-8    | 2.6                         | 13                     | 92                  | 180                 | 0.0033 <sup>e</sup>                | 14                         |
| Aldrin                            | 309-00-2   | 0.019                       | 0.097                  | 0.68                | 1.4                 | 0.14                               | 0.19                       |
| alpha-BHC                         | 319-84-6   | 0.097                       | 0.48                   | 3.4                 | 6.8                 | 0.04 <sup>g</sup>                  | 0.02                       |
| beta-BHC                          | 319-85-7   | 0.072                       | 0.36                   | 3                   | 14                  | 0.6                                | 0.09                       |
| Chlordane (alpha)                 | 5103-71-9  | 0.91                        | 4.2                    | 24                  | 47                  | 1.3                                | 2.9                        |

**Table 375-6.8(b): Restricted Use Soil Cleanup Objectives**

| Contaminant               | CAS Number | Protection of Public Health |                        |                  |                    | Protection of Ecological Resources | Protection of Ground-water |
|---------------------------|------------|-----------------------------|------------------------|------------------|--------------------|------------------------------------|----------------------------|
|                           |            | Residential                 | Restricted-Residential | Commercial       | Industrial         |                                    |                            |
| delta-BHC                 | 319-86-8   | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | 0.04 <sup>g</sup>                  | 0.25                       |
| Dibenzofuran              | 132-64-9   | 14                          | 59                     | 350              | 1,000 <sup>c</sup> | NS                                 | 210                        |
| Dieldrin                  | 60-57-1    | 0.039                       | 0.2                    | 1.4              | 2.8                | 0.006                              | 0.1                        |
| Endosulfan I              | 959-98-8   | 4.8 <sup>i</sup>            | 24 <sup>i</sup>        | 200 <sup>i</sup> | 920 <sup>i</sup>   | NS                                 | 102                        |
| Endosulfan II             | 33213-65-9 | 4.8 <sup>i</sup>            | 24 <sup>i</sup>        | 200 <sup>i</sup> | 920 <sup>i</sup>   | NS                                 | 102                        |
| Endosulfan sulfate        | 1031-07-8  | 4.8 <sup>i</sup>            | 24 <sup>i</sup>        | 200 <sup>i</sup> | 920 <sup>i</sup>   | NS                                 | 1,000 <sup>c</sup>         |
| Endrin                    | 72-20-8    | 2.2                         | 11                     | 89               | 410                | 0.014                              | 0.06                       |
| Heptachlor                | 76-44-8    | 0.42                        | 2.1                    | 15               | 29                 | 0.14                               | 0.38                       |
| Lindane                   | 58-89-9    | 0.28                        | 1.3                    | 9.2              | 23                 | 6                                  | 0.1                        |
| Polychlorinated biphenyls | 1336-36-3  | 1                           | 1                      | 1                | 25                 | 1                                  | 3.2                        |
| <b>Semivolatiles</b>      |            |                             |                        |                  |                    |                                    |                            |
| Acenaphthene              | 83-32-9    | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | 20                                 | 98                         |
| Acenaphthylene            | 208-96-8   | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 107                        |
| Anthracene                | 120-12-7   | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 1,000 <sup>c</sup>         |
| Benz(a)anthracene         | 56-55-3    | 1 <sup>f</sup>              | 1 <sup>f</sup>         | 5.6              | 11                 | NS                                 | 1 <sup>f</sup>             |
| Benzo(a)pyrene            | 50-32-8    | 1 <sup>f</sup>              | 1 <sup>f</sup>         | 1 <sup>f</sup>   | 1.1                | 2.6                                | 22                         |
| Benzo(b)fluoranthene      | 205-99-2   | 1 <sup>f</sup>              | 1 <sup>f</sup>         | 5.6              | 11                 | NS                                 | 1.7                        |
| Benzo(g,h,i)perylene      | 191-24-2   | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 1,000 <sup>c</sup>         |
| Benzo(k)fluoranthene      | 207-08-9   | 1                           | 3.9                    | 56               | 110                | NS                                 | 1.7                        |
| Chrysene                  | 218-01-9   | 1 <sup>f</sup>              | 3.9                    | 56               | 110                | NS                                 | 1 <sup>f</sup>             |
| Dibenz(a,h)anthracene     | 53-70-3    | 0.33 <sup>e</sup>           | 0.33 <sup>e</sup>      | 0.56             | 1.1                | NS                                 | 1,000 <sup>c</sup>         |
| Fluoranthene              | 206-44-0   | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 1,000 <sup>c</sup>         |
| Fluorene                  | 86-73-7    | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | 30                                 | 386                        |
| Indeno(1,2,3-cd)pyrene    | 193-39-5   | 0.5 <sup>f</sup>            | 0.5 <sup>f</sup>       | 5.6              | 11                 | NS                                 | 8.2                        |
| m-Cresol                  | 108-39-4   | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 0.33 <sup>e</sup>          |
| Naphthalene               | 91-20-3    | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 12                         |

**Table 375-6.8(b): Restricted Use Soil Cleanup Objectives**

| Contaminant              | CAS Number | Protection of Public Health |                        |                  |                    | Protection of Ecological Resources | Protection of Ground-water |
|--------------------------|------------|-----------------------------|------------------------|------------------|--------------------|------------------------------------|----------------------------|
|                          |            | Residential                 | Restricted-Residential | Commercial       | Industrial         |                                    |                            |
| o-Cresol                 | 95-48-7    | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 0.33 <sup>e</sup>          |
| p-Cresol                 | 106-44-5   | 34                          | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 0.33 <sup>e</sup>          |
| Pentachlorophenol        | 87-86-5    | 2.4                         | 6.7                    | 6.7              | 55                 | 0.8 <sup>e</sup>                   | 0.8 <sup>e</sup>           |
| Phenanthrene             | 85-01-8    | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 1,000 <sup>c</sup>         |
| Phenol                   | 108-95-2   | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | 30                                 | 0.33 <sup>e</sup>          |
| Pyrene                   | 129-00-0   | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 1,000 <sup>c</sup>         |
| <b>Volatiles</b>         |            |                             |                        |                  |                    |                                    |                            |
| 1,1,1-Trichloroethane    | 71-55-6    | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 0.68                       |
| 1,1-Dichloroethane       | 75-34-3    | 19                          | 26                     | 240              | 480                | NS                                 | 0.27                       |
| 1,1-Dichloroethene       | 75-35-4    | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 0.33                       |
| 1,2-Dichlorobenzene      | 95-50-1    | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 1.1                        |
| 1,2-Dichloroethane       | 107-06-2   | 2.3                         | 3.1                    | 30               | 60                 | 10                                 | 0.02 <sup>f</sup>          |
| cis-1,2-Dichloroethene   | 156-59-2   | 59                          | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 0.25                       |
| trans-1,2-Dichloroethene | 156-60-5   | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 0.19                       |
| 1,3-Dichlorobenzene      | 541-73-1   | 17                          | 49                     | 280              | 560                | NS                                 | 2.4                        |
| 1,4-Dichlorobenzene      | 106-46-7   | 9.8                         | 13                     | 130              | 250                | 20                                 | 1.8                        |
| 1,4-Dioxane              | 123-91-1   | 9.8                         | 13                     | 130              | 250                | 0.1 <sup>e</sup>                   | 0.1 <sup>e</sup>           |
| Acetone                  | 67-64-1    | 100 <sup>a</sup>            | 100 <sup>b</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | 2.2                                | 0.05                       |
| Benzene                  | 71-43-2    | 2.9                         | 4.8                    | 44               | 89                 | 70                                 | 0.06                       |
| Butylbenzene             | 104-51-8   | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 12                         |
| Carbon tetrachloride     | 56-23-5    | 1.4                         | 2.4                    | 22               | 44                 | NS                                 | 0.76                       |
| Chlorobenzene            | 108-90-7   | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | 40                                 | 1.1                        |
| Chloroform               | 67-66-3    | 10                          | 49                     | 350              | 700                | 12                                 | 0.37                       |
| Ethylbenzene             | 100-41-4   | 30                          | 41                     | 390              | 780                | NS                                 | 1                          |
| Hexachlorobenzene        | 118-74-1   | 0.33 <sup>e</sup>           | 1.2                    | 6                | 12                 | NS                                 | 3.2                        |
| Methyl ethyl ketone      | 78-93-3    | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | 100 <sup>a</sup>                   | 0.12                       |

**Table 375-6.8(b): Restricted Use Soil Cleanup Objectives**

| Contaminant             | CAS Number | Protection of Public Health |                        |                  |                    | Protection of Ecological Resources | Protection of Ground-water |
|-------------------------|------------|-----------------------------|------------------------|------------------|--------------------|------------------------------------|----------------------------|
|                         |            | Residential                 | Restricted-Residential | Commercial       | Industrial         |                                    |                            |
| Methyl tert-butyl ether | 1634-04-4  | 62                          | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 0.93                       |
| Methylene chloride      | 75-09-2    | 51                          | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | 12                                 | 0.05                       |
| n-Propylbenzene         | 103-65-1   | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 3.9                        |
| sec-Butylbenzene        | 135-98-8   | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 11                         |
| tert-Butylbenzene       | 98-06-6    | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | NS                                 | 5.9                        |
| Tetrachloroethene       | 127-18-4   | 5.5                         | 19                     | 150              | 300                | 2                                  | 1.3                        |
| Toluene                 | 108-88-3   | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | 36                                 | 0.7                        |
| Trichloroethene         | 79-01-6    | 10                          | 21                     | 200              | 400                | 2                                  | 0.47                       |
| 1,2,4-Trimethylbenzene  | 95-63-6    | 47                          | 52                     | 190              | 380                | NS                                 | 3.6                        |
| 1,3,5- Trimethylbenzene | 108-67-8   | 47                          | 52                     | 190              | 380                | NS                                 | 8.4                        |
| Vinyl chloride          | 75-01-4    | 0.21                        | 0.9                    | 13               | 27                 | NS                                 | 0.02                       |
| Xylene (mixed)          | 1330-20-7  | 100 <sup>a</sup>            | 100 <sup>a</sup>       | 500 <sup>b</sup> | 1,000 <sup>c</sup> | 0.26                               | 1.6                        |

All soil cleanup objectives (SCOs) are in parts per million (ppm).

NS=Not specified. See [Technical Support Document \(TSD\)](#).

### Footnotes

<sup>a</sup> The SCOs for residential, restricted-residential and ecological resources use were capped at a maximum value of 100 ppm. See TSD section 9.3.

<sup>b</sup> The SCOs for commercial use were capped at a maximum value of 500 ppm. See TSD section 9.3.

<sup>c</sup> The SCOs for industrial use and the protection of groundwater were capped at a maximum value of 1000 ppm. See TSD section 9.3.

<sup>d</sup> The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3.

<sup>e</sup> For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the SCO value.

<sup>f</sup> For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.

<sup>g</sup> This SCO is derived from data on mixed isomers of BHC.

<sup>h</sup> The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.

<sup>i</sup> This SCO is for the sum of endosulfan I, endosulfan II, and endosulfan sulfate.

<sup>j</sup> This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts). See TSD Table 5.6-1.

|           |   |
|-----------|---|
| I         | The monthly geometric mean, from a minimum of five examinations, shall not exceed 2,000.                          |
| A-Special | The geometric mean, of not less than five samples, taken over not more than a 30-day period shall not exceed 200. |

**(c) The total and fecal coliform standards for classes B, C, D, SB, SC and I shall be met during all periods:**

- (1) when disinfection is required for SPDES permitted discharges directly into, or affecting the best usage of, the water; or
- (2) when the department determines it necessary to protect human health.

**Historical Note**

Sec. filed March 20, 1967; repealed, new filed: April 28, 1972; Aug. 2, 1978; amd. filed Nov. 5, 1984; repealed, new filed Aug. 2, 1991; amd. filed Dec. 10, 1993 eff. 30 days after filing. Amended (a). **The text reflects revisions filed January 17, 2008 and effective February 16, 2008.**

**§703.5 Water quality standards for taste-, color- and odor-producing, toxic and other deleterious substances**

(a) Water quality standards for specific substances or groups of substances are listed in [Table 1](#) of subdivision (f) of this section for the applicable water classes. The substance name is listed with the associated Chemical Abstract Service Registry Number (CAS No.) where applicable. For entries in [Table 1](#) of subdivision (f) of this section that refer to chemical groups, congeners or other expressions of multiple substances, the standard applies to the sum of the substances, unless otherwise indicated.

(b) Standards are Health (Water Source), Health (Fish Consumption), Aquatic (Chronic), Aquatic (Acute), Wildlife, Aesthetic (Water Source), Aesthetic (Food Source), or Recreation based and are respectively designated as H(W), H(FC), A(C), A(A), W, E(W), E(F), or R in the column headed "Type." Where more than one Type of standard is listed for a water class, the most stringent applies.

(c) The "Basis Code" in [Table 1](#) of subdivision (f) of this section provides a further description of the basis of the standard. A list of basis codes is found in [Table 2](#) of subdivision (f) of this section.

(d) The standard is the maximum allowable concentration in micrograms per liter (ug/L), unless otherwise noted. A standard defined by the symbol "ND" means not detectable by the analytical tests specified or approved pursuant to Part 700 of this Title.

(e) Special interpretive remarks are provided as necessary.

(f) *Tables.*

**Table 1 (cf. section 703.5) WATER QUALITY STANDARDS SURFACE WATERS AND GROUNDWATER**

| SUBSTANCE<br>(CAS No.) | WATER CLASSES | STANDARD<br>(ug/L) | TYPE | BASIS<br>CODE |
|------------------------|---------------|--------------------|------|---------------|
|------------------------|---------------|--------------------|------|---------------|

|  |                           |       |       |   |
|--|---------------------------|-------|-------|---|
| Acenaphthene<br>(83-32-9)  | A, A-S, AA, AA-S          | 20    | E(WS) | U |
| Acetaldehyde<br>(75-07-0)  | A, A-S, AA, AA-S          | 8     | H(WS) | A |
|  | GA                        | 8     | H(WS) | A |
| Acrolein<br>(107-02-8)   | GA                        | *     | H(WS) | J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |                           |       |       |   |
| Acrylamide<br>(79-06-1)  | GA                        | *     | H(WS) | J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |                           |       |       |   |
| Acrylonitrile<br>(107-13-1)  | GA                        | *     | H(WS) | J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |                           |       |       |   |
| Alachlor<br>(15972-60-8)   | A, A-S, AA, AA-S          | 0.5   | H(WS) | A |
|  | GA                        | 0.5   | H(WS) | A |
| Aldicarb<br>(116-06-3)   | A, A-S, AA, AA-S          | 7     | H(WS) | B |
|  | GA                        | *     | H(WS) |   |
| Remark: * Refer to standards for "Aldicarb and Methomyl."  |                           |       |       |   |
| Aldicarb and Methomyl<br>(116-06-3; 16752-77-5)  | GA                        | 0.35* | H(WS) | F |
| Remark: * Applies to the sum of these substances.  |                           |       |       |   |
| Aldrin<br>(309-00-2)   | GA                        | ND    | H(WS) | F |
|  | A, A-S, AA, AA-S, B, C, D | *     | H(FC) |   |
|  | SA, SB, SC, SD            | *     | H(FC) |   |
| Remark: * Refer to standards for "Aldrin and Dieldrin."  |                           |       |       |   |
| Aldrin and Dieldrin<br>(309-00-2; 60-57-1)   | A, A-S, AA, AA-S, B, C, D | 0.001 | H(FC) |   |
|  | SA, SB, SC, SD            | 0.001 | H(FC) |   |
| Remark: * Applies to the sum of these substances.  |                           |       |       |   |
| Alkyldimethyl benzyl ammonium chloride<br>(68391-01-5)   | A, A-S, AA, AA-S, B, C    | *     | A(C)  |   |
| Remark: * Refer to standards for "Quaternary ammonium compounds."  |                           |       |       |   |
| Allyl chloride<br>(107-05-1)   | GA                        | *     | H(WS) | J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |                           |       |       |   |
| Aluminum, ionic<br>(CAS No. Not Applicable)  | A, A-S, AA, AA-S, B, C    | 100*  | A(C)  |   |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15 (c) of this Title. |                           |       |       |   |
| Ametryn  | GA                        | 50    | H(WS) | J |

|   |                           |        |        |        |
|---|---------------------------|--------|--------|--------|
| (834-12-8)  |                           |        |        |        |
| 4-Aminobiphenyl<br>(92-67-1)  | GA                        | *      | H(W/S) | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |        |        |        |
| Aminocresols<br>(95-84-1; 2835-95-2; 2835-99-6)   | A, A-S, AA, AA-S          | *      | E(W/S) |        |
|   | GA                        | *      | E(W/S) |        |
|   | A, A-S, AA, AA-S, B, C, D | **     | E(F/S) |        |
| Remarks: * Refer to standards for "Phenolic compounds (total phenols)."<br>** Refer to standards for "Phenols, total unchlorinated."  |                           |        |        |        |
| 3-Aminotoluene<br>(108-44-1)  | GA                        | *      | H(W/S) | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |        |        |        |
| 4-Aminotoluene<br>(106-49-0)  | GA                        | *      | H(W/S) | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |        |        |        |
| Ammonia and Ammonium<br>(7664-41-7; CAS No. Not Applicable)   | A, A-S, AA, AA-S          | 2,000* | H(W/S) | H<br>H |
|   | GA                        | 2,000* | H(W/S) |        |
|   | A, A-S, AA, AA-S, B, C    | **     | A(C)   |        |
|   | D                         | **     | A(A)   |        |
|   | SA, SB, SC, I             | 35***  | A(C)   |        |
|   | SA, SB, SC, I, SD         | 230*** | A(A)   |        |
| Remarks: * NH <sub>3</sub> + NH <sub>4</sub> <sup>+</sup> as N.<br><br>** Un-ionized ammonia as NH <sub>3</sub> ; tables below provide the standard in ug/L at varying pH and temperature for different classes and specifications. Linear interpolation between the listed pH values and temperatures is applicable.<br><br>*** Applies to un-ionized ammonia as NH <sub>3</sub> |                           |        |        |        |

**Classes A, A-S, AA, AA-S, B, C with the (T) or (TS) Specification**

| pH      | 0°C | 5°C | 10°C | 15-30°C |
|---------|-----|-----|------|---------|
| 6.50    | 0.7 | 0.9 | 1.3  | 1.9     |
| 6.75    | 1.2 | 1.7 | 2.3  | 3.3     |
| 7.00    | 2.1 | 2.9 | 4.2  | 5.9     |
| 7.25    | 3.7 | 5.2 | 7.4  | 11      |
| 7.50    | 6.6 | 9.3 | 13   | 19      |
| 7.75    | 11  | 15  | 22   | 31      |
| 8.0-9.0 | 13  | 18  | 25   | 35      |

**Classes A, A-S, AA, AA-S, B, C without the (T) or (TS) Specification**

| pH   | 0°C | 5°C | 10°C | 15°C | 20-30°C |
|------|-----|-----|------|------|---------|
| 6.50 | 0.7 | 0.9 | 1.3  | 1.9  | 2.6     |
| 6.75 | 1.2 | 1.7 | 2.3  | 3.3  | 4.7     |
| 7.00 | 2.1 | 2.9 | 4.2  | 5.9  | 8.3     |
| 7.25 | 3.7 | 5.2 | 7.4  | 11   | 15      |
| 7.50 | 6.6 | 9.3 | 13   | 19   | 26      |

|         |    |    |    |    |    |
|---------|----|----|----|----|----|
| 7.75    | 11 | 15 | 22 | 31 | 43 |
| 8.0-9.0 | 13 | 18 | 25 | 35 | 50 |

**Class D**

| pH      | 0°C | 5°C | 10°C | 15°C | 20°C | 25-30°C |
|---------|-----|-----|------|------|------|---------|
| 6.50    | 9.1 | 13  | 18   | 26   | 36   | 51      |
| 6.75    | 15  | 21  | 30   | 42   | 59   | 84      |
| 7.00    | 23  | 33  | 46   | 66   | 93   | 131     |
| 7.25    | 34  | 48  | 68   | 95   | 140  | 190     |
| 7.50    | 45  | 64  | 91   | 130  | 180  | 260     |
| 7.75    | 56  | 80  | 110  | 160  | 220  | 320     |
| 8.0-9.0 | 65  | 92  | 130  | 180  | 260  | 370     |

**Table 1 (cf. section 703.5)(Continued)WATER QUALITY STANDARDS SURFACE WATERS AND GROUNDWATER**

| SUBSTANCE (CAS No.)   | WATER CLASSES   | STANDARD (ug/L)                         | TYPE   | BASIS CODE |
|---|---|---|--|------------|
| Aniline<br>(62-53-3)  | A, A-S, AA, AA-S<br>GA  | 5<br>*                                  | H(W)<br>H(W)                                 | I<br>J     |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |   |   |  |            |
| Antimony<br>(CAS No. Not Applicable)  | A, A-S, AA, AA-S<br>GA  | 3<br>3                                  | H(W)<br>H(W)                                 | B<br>B     |
| Arsenic<br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S<br>GA<br>A, A-S, AA, AA-S, B, C<br>A, A-S, AA, AA-S, B, C, D<br>SA, SB, SC<br>SD | 50<br>25<br>150*<br>340*<br>63*<br>120* | H(W)<br>H(W)<br>A(C)<br>A(A)<br>A(C)<br>A(A) | G<br>F     |
| Remark: * Dissolved arsenic form.   |   |   |  |            |
| Asbestos<br>(CAS No. Not Applicable)  | A, A-S, AA, AA-S<br>GA  | *<br>*                                  | H(W)<br>H(W)                                 | G<br>G     |
| Remark: * 7,000,000 fibers (longer than 10 um)/L  |   |   |  |            |
| Atrazine<br>(1912-24-9)   | GA  | 7.5                                     | H(W)   | F          |
| Azinphosmethyl<br>(86-50-0)   | GA<br>A, A-S, AA, AA-S, B, C<br>SA, SB, SC  | 4.4<br>0.005*<br>0.01                   | H(W)<br>A(C)<br>A(C)                         | F          |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) of this Title. |   |   |  |            |
| Azobenzene<br>(103-33-3)  | GA  | *                                       | H(W)   | J          |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |   |   |  |            |
| Barium<br>(CAS No. Not Applicable)  | A, A-S, AA, AA-S<br>GA  | 1,000<br>1,000                          | H(W)<br>H(W)                                 | G<br>F     |
| Benefin<br>(1861-40-1)  | GA  | 35                                      | H(W)   | F          |
| Benzene   | A, A-S, AA, AA-S<br>GA  | 1<br>1                                  | H(W)<br>H(W)                                 | A<br>A     |

|  |  |                          |                        |        |
|--|--|--------------------------|------------------------|--------|
| (71-43-2)  | A, A-S, AA, AA-S, B, C, D<br>SA, SB, SC, I, SD   | 10<br>10                 | H(FC)<br>H(FC)         | A<br>A |
| Benzidine<br>(92-87-5)   | GA<br>A, A-S, AA, AA-S, B, C<br>D                | *<br>0.1**<br>0.1**      | H(WS)<br>A(C)<br>A(A)  | J      |
| Remarks: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.<br><br>** For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) and (d) of this Title.                       |  |                          |                        |        |
| Benzo(a)pyrene<br>(50-32-8)  | GA   | ND                       | H(WS)                  | F      |
| Beryllium<br>(CAS No. Not Applicable)  | A, A-S, AA, AA-S, B, C                           | **                       | A(C)                   |        |
| Remarks: * 11 ug/L when hardness is less than or equal to 75 ppm; 1,100 ug/L when hardness is greater than 75 ppm.<br><br>** For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) of this Title.<br><br>Aquatic Type standards apply to acid-soluble form. |  |                          |                        |        |
| 1,1'-Biphenyl<br>(92-52-4)   | GA   | *                        | H(WS)                  | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |  |                          |                        |        |
| Bis(2-chloroethoxy)methane<br>(111-91-1)   | GA   | *                        | H(WS)                  | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |  |                          |                        |        |
| Bis(2-chloroethyl)ether<br>(111-44-4)  | GA   | 1.0                      | H(WS)                  | F      |
| Bis(chloromethyl)ether<br>(542-88-1)   | GA   | *                        | H(WS)                  | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |  |                          |                        |        |
| Bis(2-chloro-1-methylethyl) ether<br>(108-60-1)  | GA   | *                        | H(WS)                  | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |  |                          |                        |        |
| Bis(2-ethylhexyl)phthalate<br>(117-81-7)   | A, A-S, AA, AA-S<br>GA<br>A, A-S, AA, AA-S, B, C | 5<br>5<br>0.6            | H(WS)<br>H(WS)<br>A(C) | A<br>A |
| Boron<br>(CAS No. Not Applicable)  | GA<br>A, A-S, AA, AA-S, B, C<br>SA, SB, SC       | 1,000<br>10,000<br>1,000 | H(WS)<br>A(C)<br>A(C)  | H      |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) of this Title.<br><br>Aquatic Type standards apply to acid-soluble form.  |  |                          |                        |        |
| Bromacil<br>(314-40-9)   | GA   | 4.4                      | H(WS)                  | F      |
| Bromobenzene<br>(108-86-1)   | GA   | *                        | H(WS)                  | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this  |  |                          |                        |        |

|   |  |                                |  |            |
|---|--|--------------------------------|--|------------|
| Table) applies to this substance.   |  |                                |  |            |
| Bromochloromethane<br>(74-97-5)   | A, A-S, AA, AA-S<br>GA   | 5<br>*                         | H(WS)<br>H(WS)                                 | I<br>J     |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |  |                                |  |            |
| Bromomethane<br>(74-83-9)   | A, A-S, AA, AA-S<br>GA   | 5<br>*                         | H(WS)<br>H(WS)                                 | I<br>J     |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |  |                                |  |            |
| Butachlor<br>(23184-66-9)   | GA   | 3.5                            | H(WS)  | F          |
| cis-2-Butenal<br>(15798-64-8)   | GA   | *                              | H(WS)  | J          |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |  |                                |  |            |
| trans-2-Butenal<br>(123-73-9)   | GA   | *                              | H(WS)  | J          |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |  |                                |  |            |
| cis-2-Butenenitrile<br>(1190-76-7)  | GA   | *                              | H(WS)  | J          |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |  |                                |  |            |
| trans-2-Butenenitrile<br>(627-26-9)   | GA   | *                              | H(WS)  | J          |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |  |                                |  |            |
| Butylate<br>(2008-41-5)   | GA   | 50                             | H(WS)  | J          |
| n-Butylbenzene<br>(104-51-8)  | A, A-S, AA, AA-S<br>GA   | 5<br>*                         | H(WS)<br>H(WS)                                 | I<br>J     |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |  |                                |  |            |
| sec-Butylbenzene<br>(135-98-8)  | A, A-S, AA, AA-S<br>GA   | 5<br>*                         | H(WS)<br>H(WS)                                 | I<br>J     |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |  |                                |  |            |
| tert-Butylbenzene<br>(98-06-6)  | A, A-S, AA, AA-S<br>GA   | 5<br>*                         | H(WS)<br>H(WS)                                 | I<br>J     |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |  |                                |  |            |
| Cadmium<br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S<br>GA<br>A, A-S, AA, AA-S, B, C<br>A, A-S, AA, AA-S, B, C, D<br>SA, SB, SC, I<br>SD | 5<br>5<br>*<br>**<br>7.7<br>21 | H(WS)<br>H(WS)<br>A(C)<br>A(A)<br>A(C)<br>A(A) | B,G<br>B,G |
| Remarks: * (0.85) exp(0.7852 [ln (ppm hardness)] - 2.715)<br>** (0.85) exp(1.128 [ln (ppm hardness)] - 3.6867)                                |  |                                |  |            |

|  |   |                         |                       |   |
|--|---|-------------------------|-----------------------|---|
| Aquatic Type standards apply to dissolved form.  |   |                         |                       |   |
| Captan<br>(133-06-2)   | GA  | 18                      | H(WS)                 | F |
| Carbaryl<br>(63-25-2)  | GA  | 29                      | H(WS)                 | F |
| Carbofuran<br>(1563-66-2)  | A, A-S, AA, AA-S<br>A, A-S, AA, AA-S, B, C<br>D | 15<br>1.0*<br>10*       | H(WS)<br>A(C)<br>A(A) | B |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) and (d) of this Title.  |   |                         |                       |   |
| Carbon disulfide<br>(75-15-0)  | A, A-S, AA, AA-S                                | 60                      | H(WS)                 | B |
|  | GA  | 60                      | H(WS)                 | B |
| Carbon tetrachloride<br>(56-23-5)  | GA  | 5                       | H(WS)                 | F |
| Carboxin<br>(5234-68-4)  | GA  | 50                      | H(WS)                 | J |
| Chloramben<br>(CAS No. Not Applicable)   | GA  | 50*                     | H(WS)                 | J |
| Remark: * Includes: related forms that convert to the organic acid upon acidification to a pH of 2 or less; and esters of the organic acid.  |   |                         |                       |   |
| Chloranil<br>(118-75-2)  | GA  | *                       | H(WS)                 | J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |   |                         |                       |   |
| Chlordane<br>(57-74-9)   | A, A-S, AA, AA-S                                | 0.05                    | H(WS)                 | A |
|  | GA  | 0.05                    | H(WS)                 | A |
|  | A, A-S, AA, AA-S, B, C, D                       | $2 \times 10^{-5}$      | H(FC)                 | A |
|  | SA, SB, SC, I, SD                               | $2 \times 10^{-5}$      | H(FC)                 | A |
| Chloride<br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S                                | 250,000                 | H(WS)                 | H |
|  | GA  | 250,000                 | H(WS)                 | H |
| Chlorinated dibenzo-p-dioxins and Chlorinated dibenzofurans<br>(CAS No. Not applicable)  | A, A-S, AA, AA-S                                | $7 \times 10^{-7}$ *    | H(WS)                 | A |
|  | GA  | $7 \times 10^{-7}$ *    | H(WS)                 | A |
|  | A, A-S, AA, AA-S, B, C, D                       | $6 \times 10^{-10}$ *   | H(FC)                 | A |
|  | SA, SB, SC, I, SD                               | $6 \times 10^{-10}$ *   | H(FC)                 | A |
|  | A, A-S, AA, AA-S, B, C, D                       | $3.1 \times 10^{-9}$ ** | W                     |   |
|  | SA, SB, SC, I, SD                               | $3.1 \times 10^{-9}$ ** | W                     |   |
| <p>Remarks: * Value is for the total of the chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans that are listed in the table below as equivalents of 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD).</p> <p>The 2,3,7,8-TCDD equivalent for a congener for the H(WS) standards is obtained by multiplying the concentration of that congener by its Toxicity Equivalency Factor (TEF) from the table below.</p> <p>The 2,3,7,8-TCDD equivalent for a congener for the H(FC) standards is obtained by multiplying the concentration of that congener by its TEF and its Bioaccumulation Equivalency Factor (BEF) from the table below.</p> <p>** Applies only to 2,3,7,8-TCDD</p> |   |                         |                       |   |

| CONGENER                               | TEF | BEF |
|--|-----|-----|
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin    | 1   | 1   |
| 1,2,3,7,8-Pentachlorodibenzo-p-dioxin  | 0.5 | 0.9 |
| 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin | 0.1 | 0.3 |
| 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin | 0.1 | 0.1 |

|   |       |      |
|---|-------|------|
| 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin    | 0.1   | 0.1  |
| 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin | 0.01  | 0.05 |
| Octachlorodibenzo-p-dioxin                | 0.001 | 0.01 |
| 2,3,7,8-Tetrachlorodibenzofuran           | 0.1   | 0.8  |
| 1,2,3,7,8-Pentachlorodibenzofuran         | 0.05  | 0.2  |
| 2,3,4,7,8-Pentachlorodibenzofuran         | 0.5   | 1.6  |
| 1,2,3,4,7,8-Hexachlorodibenzofuran        | 0.1   | 0.08 |
| 1,2,3,6,7,8-Hexachlorodibenzofuran        | 0.1   | 0.2  |
| 2,3,4,6,7,8-Hexachlorodibenzofuran        | 0.1   | 0.7  |
| 1,2,3,7,8,9-Hexachlorodibenzofuran        | 0.1   | 0.6  |
| 1,2,3,4,6,7,8-Heptachlorodibenzofuran     | 0.01  | 0.01 |
| 1,2,3,4,7,8,9-Heptachlorodibenzofuran     | 0.01  | 0.4  |
| Octachlorodibenzofuran                    | 0.001 | 0.02 |

|  |  |                      |                              |   |
|--|--|----------------------|------------------------------|---|
| Chlorine, Total Residual<br>(CAS No. Not Applicable) | A, A-S, AA, AA-S, B, C<br>D<br>SA, SB, SC, I<br>SD | 5<br>19<br>7.5<br>13 | A(C)<br>A(A)<br>A(C)<br>A(A) |   |
| 2-Chloroaniline<br>(95-51-2)                         | GA   | *                    | H(WS)                        | J |

Remark: \* The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.

|                               |    |   |       |   |
|-------------------------------|----|---|-------|---|
| 3-Chloroaniline<br>(108-42-9) | GA | * | H(WS) | J |
|-------------------------------|----|---|-------|---|

Remark: \* The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.

|                               |    |   |       |   |
|-------------------------------|----|---|-------|---|
| 4-Chloroaniline<br>(106-47-8) | GA | * | H(WS) | J |
|-------------------------------|----|---|-------|---|

Remark: \* The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.

|                             |                           |     |       |   |
|-----------------------------|---------------------------|-----|-------|---|
| Chlorobenzene<br>(108-90-7) | A, A-S, AA, AA-S          | 5   | H(WS) | I |
|                             | GA                        | *   | H(WS) | J |
|                             | A, A-S, AA, AA-S, B, C, D | 400 | H(FC) | B |
|                             | SA, SB, SC, I, SD         | 400 | H(FC) | B |
|                             | A, A-S, AA, AA-S, B, C    | 5   | A(C)  |   |
|                             | A, A-S, AA, AA-S          | 20  | E(WS) | U |
|                             | D                         | 50  | E(FS) | V |

Remark: \* The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.

|                                       |                        |        |                |        |
|---------------------------------------|------------------------|--------|----------------|--------|
| 4-Chlorobenzotrifluoride<br>(98-56-6) | A, A-S, AA, AA-S<br>GA | 5<br>* | H(WS)<br>H(WS) | I<br>J |
|---------------------------------------|------------------------|--------|----------------|--------|

Remark: \* The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.

|                              |    |   |       |   |
|------------------------------|----|---|-------|---|
| 1-Chlorobutane<br>(109-69-3) | GA | * | H(WS) | J |
|------------------------------|----|---|-------|---|

Remark: \* The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.

|   |                        |        |                |        |
|---|------------------------|--------|----------------|--------|
| Chloroethane<br>(75-00-3)   | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| Chloroform<br>(67-66-3)   | A, A-S, AA, AA-S<br>GA | 7<br>7 | H(WS)<br>H(WS) | A<br>A |
| Chloromethyl methyl ether<br>(107-30-2)   | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 2-Chloronaphthalene<br>(91-58-7)  | A, A-S, AA, AA-S       | 10     | E(WS)          | U      |
| 2-Chloronitrobenzene<br>(88-73-3)   | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 3-Chloronitrobenzene<br>(121-73-3)  | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 4-Chloronitrobenzene<br>(100-00-5)  | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| Chloroprene<br>(126-99-8)   | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| Chlorothalonil<br>(1897-45-6)   | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 2-Chlorotoluene<br>(95-49-8)  | A, A-S, AA, AA-S<br>GA | 5<br>* | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 3-Chlorotoluene<br>(108-41-8)   | A, A-S, AA, AA-S<br>GA | 5<br>* | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 4-Chlorotoluene<br>(106-43-4)   | A, A-S, AA, AA-S<br>GA | 5<br>* | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 4-Chloro-o-toluidine<br>(95-69-2)   | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |

|  |                           |        |                |        |
|--|---------------------------|--------|----------------|--------|
| 5-Chloro-o-toluidine<br>(95-79-4)  | GA                        | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |                           |        |                |        |
| 3-Chloro-1,1,1-trifluoropropane<br>(460-35-5)  | A, A-S, AA, AA-S<br>GA    | 5<br>* | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |                           |        |                |        |
| Chromium<br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S          | 50     | H(WS)          | G      |
|  | GA                        | 50     | H(WS)          | G      |
|  | A, A-S, AA, AA-S, B, C    | *      | A(C)           |        |
|  | A, A-S, AA, AA-S, B, C, D | **     | A(A)           |        |
| Remarks: * (0.86) exp(0.819 [ln (ppm hardness)]) + 0.6848<br>** (0.316) exp(0.819 [ln (ppm hardness)]) + 3.7256<br>Aquatic Type standards apply to dissolved form and do not include hexavalent chromium.  |                           |        |                |        |
| Chromium (hexavalent)<br>(CAS No. Not Applicable)  | GA                        | 50     | H(WS)          | F      |
|  | A, A-S, AA, AA-S, B, C    | 11*    | A(C)           |        |
|  | A, A-S, AA, AA-S, B, C, D | 16*    | A(A)           |        |
|  | SA, SB, SC                | 54**   | A(C)           |        |
|  | SD                        | 1200** | A(A)           |        |
| Remarks: * Applies to dissolved form.<br>** Applies to acid-soluble form.  |                           |        |                |        |
| Cobalt<br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S, B, C    | 5*     | A(C)           |        |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) of this Title.<br>Aquatic Type standards apply to acid-soluble form.  |                           |        |                |        |
| Copper<br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S          | 200    | H(WS)          | H      |
|  | GA                        | 200    | H(WS)          | H      |
|  | A, A-S, AA, AA-S, B, C    | *      | A(C)           |        |
|  | A, A-S, AA, AA-S, B, C, D | **     | A(A)           |        |
|  | SA, SB, SC, I             | ***    | A(C)           |        |
|  | SA, SB, SC, I, SD         | ****   | A(A)           |        |
| Remarks: * (0.96) exp(0.8545 [ln (ppm hardness)]) - 1.702<br>** (0.96) exp(0.9422 [ln (ppm hardness)]) - 1.7<br>*** Standard is 3.4 ug/L except in New York/New Jersey harbor where it is 5.6 ug/L.<br>**** Standard is 4.8 ug/L except in New York/New Jersey harbor where it is 7.9 ug/L.<br>Aquatic Type standards apply to dissolved form. |                           |        |                |        |
| Cyanide<br>(CAS No. Not Applicable)  | A, A-S, AA, AA-S          | 200    | H(WS)          | B      |
|  | GA                        | 200    | H(WS)          | B      |
|  | A, A-S, AA, AA-S, B, C, D | 9000   | H(FC)          | B      |
|  | SA, SB, SC, I, SD         | 9000   | H(FC)          | B      |
|  | A, A-S, AA, AA-S, B, C    | 5.2*   | A(C)           |        |
|  | A, A-S, AA, AA-S, B, C, D | 22*    | A(A)           |        |

|  |  |  |  |                  |
|--|--|--|--|------------------|
|  | SA, SB, SC   | 1.0*   | A(C)                                       |                  |
|  | SD   | 1.0*   | A(A)                                       |                  |
| Remark: * As free cyanide: the sum of HCN and CN <sup>-</sup> expressed as CN.   |  |  |  |                  |
| Cyanogen bromide<br>(506-68-3)   | GA   | *  | H(WS)                                      | J                |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |  |  |  |                  |
| Cyanogen chloride<br>(506-77-4)  | GA   | *  | H(WS)                                      | J                |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |  |  |  |                  |
| Dalapon<br>(CAS No. Not Applicable)  | GA   | 50*  | H(WS)                                      | J                |
| Remark: * Includes: related forms that convert to the organic acid upon acidification to a pH of 2 or less; and esters of the organic acid.  |  |  |  |                  |
| p,p'-DDD<br>(72-54-8)  | A, A-S, AA, AA-S<br>GA<br>A, A-S, AA, AA-S, B, C, D<br>SA, SB, SC, I, SD<br>A, A-S, AA, AA-S, B, C, D<br>SA, SB, SC, I, SD | 0.3<br>0.3<br>$8 \times 10^{-5}$<br>$8 \times 10^{-5}$<br>*<br>*   | H(WS)<br>H(WS)<br>H(FC)<br>H(FC)<br>W<br>W | A<br>A<br>A<br>A |
| Remark: * See standard for p,p'-DDT.   |  |  |  |                  |
| p,p'-DDE<br>(72-55-9)  | A, A-S, AA, AA-S<br>GA<br>A, A-S, AA, AA-S, B, C, D<br>SA, SB, SC, I, SD<br>A, A-S, AA, AA-S, B, C, D<br>SA, SB, SC, I, SD | 0.2<br>0.2<br>$7 \times 10^{-6}$<br>$7 \times 10^{-6}$<br>*<br>*   | H(WS)<br>H(WS)<br>H(FC)<br>H(FC)<br>W<br>W | A<br>A<br>A<br>A |
| Remark: * See standard for p,p'-DDT.   |  |  |  |                  |
| p,p'-DDT<br>(50-29-3)  | A, A-S, AA, AA-S<br>GA<br>A, A-S, AA, AA-S, B, C, D<br>SA, SB, SC, I, SD<br>A, A-S, AA, AA-S, B, C, D<br>SA, SB, SC, I, SD | 0.2<br>0.2<br>$1 \times 10^{-5}$<br>$1 \times 10^{-5}$<br>$1.1 \times 10^{-5+}$<br>$1.1 \times 10^{-5+}$ | H(WS)<br>H(WS)<br>H(FC)<br>H(FC)<br>W<br>W | A<br>A<br>A<br>A |
| Remark: * Applies to the sum of p,p'-DDD, p,p'-DDE and p,p'-DDT.   |  |  |  |                  |
| Dechlorane Plus<br>(13560-89-9)  | A, A-S, AA, AA-S<br>GA   | 5<br>*   | H(WS)<br>H(WS)                             | I<br>J           |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |  |  |  |                  |
| Demeton<br>(8065-48-3; 298-03-3; 126-75-0)   | A, A-S, AA, AA-S, B, C<br>SA, SB, SC   | 0.1*<br>0.1  | A(C)<br>A(C)                               |                  |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) of this Title.<br>Standards apply to the sum of these substances. |  |  |  |                  |
| Diazinon<br>(333-41-5)   | GA<br>A, A-S, AA, AA-S, B, C   | 0.7<br>0.08*   | H(WS)<br>A(C)                              | F                |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) of this Title.  |  |  |  |                  |
| 1,2-Dibromobenzene<br>(583-53-9)   | A, A-S, AA, AA-S<br>GA   | 5<br>*   | H(WS)<br>H(WS)                             | I<br>J           |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |  |  |  |                  |

|   |                        |              |                |        |
|---|------------------------|--------------|----------------|--------|
| 1,3-Dibromobenzene<br>(108-36-1)  | A, A-S, AA, AA-S<br>GA | 5<br>*       | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                        |              |                |        |
| 1,4-Dibromobenzene<br>(106-37-6)  | A, A-S, AA, AA-S<br>GA | 5<br>*       | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                        |              |                |        |
| 1,2-Dibromo-3-chloropropane<br>(96-12-8)  | A, A-S, AA, AA-S<br>GA | 0.04<br>0.04 | H(WS)<br>H(WS) | A<br>A |
| Dibromodichloromethane<br>(594-18-3)  | A, A-S, AA, AA-S<br>GA | 5<br>*       | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                        |              |                |        |
| Dibromomethane<br>(74-95-3)   | GA                     | *            | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                        |              |                |        |
| Di-n-butyl phthalate<br>(84-74-2)   | GA                     | 50           | H(WS)          | J      |
| Dicamba<br>(1918-00-9)  | GA                     | 0.44         | H(WS)          | F      |
| Dichlorobenzenes<br>(95-50-1; 541-73-1; 106-46-7)   | A, A-S, AA, AA-S       | 3*           | H(WS)          | A      |
|   | GA                     | 3*           | H(WS)          | A      |
|   | A, A-S, AA, AA-S, B, C | 5**          | A(C)           |        |
|   | A, A-S, AA, AA-S       | 20***/30**** | E(WS)          | U      |
|   | D                      | 50**         | E(FS)          | V      |
| Remarks: * Applies to each isomer (1,2-,1,3- and 1,4-dichlorobenzene) individually.<br>** Applies to the sum of 1,2-, 1,3- and 1,4-dichlorobenzene.<br>For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) of this Title.<br>*** Applies to 1,3-dichlorobenzene only.<br>**** Applies to 1,4-dichlorobenzene only. |                        |              |                |        |
| 3,3'-Dichlorobenzidine<br>(91-94-1)   | GA                     | *            | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                        |              |                |        |
| 3,4-Dichlorobenzotrifluoride<br>(328-84-7)  | A, A-S, AA, AA-S<br>GA | 5<br>*       | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                        |              |                |        |
| cis-1,4-Dichloro-2-butene<br>(1476-11-5)  | GA                     | *            | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                        |              |                |        |
| trans-1,4-Dichloro-2-butene   | GA                     | *            | H(WS)          | J      |

|  |   |                   |                         |        |  |
|--|---|-------------------|-------------------------|--------|--|
| (110-57-6)   |   |                   |                         |        |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |   |                   |                         |        |  |
| Dichlorodifluoromethane<br>(75-71-8)   | GA  | *                 | H(WS)                   | J      |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |   |                   |                         |        |  |
| 1,1-Dichloroethane<br>(75-34-3)  | A, A-S, AA, AA-S<br>GA                              | 5<br>*            | H(WS)<br>H(WS)          | I<br>J |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |   |                   |                         |        |  |
| 1,2-Dichloroethane<br>(107-06-2)   | A, A-S, AA, AA-S<br>GA                              | 0.6<br>0.6        | H(WS)<br>H(WS)          | A<br>A |  |
| 1,1-Dichloroethene<br>(75-35-4)  | GA  | *                 | H(WS)                   | J      |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |   |                   |                         |        |  |
| cis-1,2-Dichloroethene<br>(156-59-2)   | A, A-S, AA, AA-S<br>GA                              | 5<br>*            | H(WS)<br>H(WS)          | I<br>J |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |   |                   |                         |        |  |
| trans-1,2-Dichloroethene<br>(156-60-5)   | A, A-S, AA, AA-S<br>GA                              | 5<br>*            | H(WS)<br>H(WS)          | I<br>J |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |   |                   |                         |        |  |
| Dichlorofluoromethane<br>(75-43-4)   | A, A-S, AA, AA-S<br>GA                              | 5<br>*            | H(WS)<br>H(WS)          | I<br>J |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |   |                   |                         |        |  |
| 2,4-Dichlorophenol<br>(120-83-2)   | A, A-S, AA, AA-S<br>GA<br>A, A-S, AA, AA-S, B, C, D | 0.3*<br>**<br>*** | E(WS)<br>E(WS)<br>E(FS) | U      |  |
| Remarks: * Also see standards for "Phenolic compounds (total phenols)."<br>** Refer to standards for "Phenolic compounds (total phenols)."<br>*** Refer to standards for "Phenols, total chlorinated." |   |                   |                         |        |  |
| 2,4-Dichlorophenoxyacetic acid<br>(94-75-7)  | A, A-S, AA, AA-S<br>GA                              | 50<br>50          | H(WS)<br>H(WS)          | G<br>G |  |
| 1,1-Dichloropropane<br>(78-99-9)   | A, A-S, AA, AA-S<br>GA                              | 5<br>*            | H(WS)<br>H(WS)          | I<br>J |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |   |                   |                         |        |  |
| 1,2-Dichloropropane<br>(78-87-5)   | A, A-S, AA, AA-S<br>GA                              | 1<br>1            | H(WS)<br>H(WS)          | A<br>A |  |
| 1,3-Dichloropropane<br>(142-28-9)  | A, A-S, AA, AA-S<br>GA                              | 5<br>*            | H(WS)<br>H(WS)          | I<br>J |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |   |                   |                         |        |  |
| 2,2-Dichloropropane  | A, A-S, AA, AA-S                                    | 5                 | H(WS)                   | I      |  |

|   |   |                    |                |        |
|---|---|--------------------|----------------|--------|
| (594-20-7)  | GA  | *                  | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |   |                    |                |        |
| 1,3-Dichloropropene<br>(542-75-6)   | A, A-S, AA, AA-S<br>GA                              | 0.4*<br>0.4*       | H(WS)<br>H(WS) | A<br>A |
| Remark: * Applies to the sum of cis- and trans-1,3-dichloropropene, CAS Nos. 10061-01-5 and 10061-02-6, respectively.                         |   |                    |                |        |
| 2,3-Dichlorotoluene<br>(32768-54-0)   | A, A-S, AA, AA-S<br>GA                              | 5<br>*             | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |   |                    |                |        |
| 2,4-Dichlorotoluene<br>(95-73-8)  | A, A-S, AA, AA-S<br>GA                              | 5<br>*             | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |   |                    |                |        |
| 2,5-Dichlorotoluene<br>(19398-61-9)   | A, A-S, AA, AA-S<br>GA                              | 5<br>*             | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |   |                    |                |        |
| 2,6-Dichlorotoluene<br>(118-69-4)   | A, A-S, AA, AA-S<br>GA                              | 5<br>*             | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |   |                    |                |        |
| 3,4-Dichlorotoluene<br>(95-75-0)  | A, A-S, AA, AA-S<br>GA                              | 5<br>*             | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |   |                    |                |        |
| 3,5-Dichlorotoluene<br>(25186-47-4)   | A, A-S, AA, AA-S<br>GA                              | 5<br>*             | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |   |                    |                |        |
| Dieldrin<br>(60-57-1)   | A, A-S, AA, AA-S                                    | 0.004              | H(WS)          | A      |
|   | GA  | 0.004              | H(WS)          | A      |
|   | A, A-S, AA, AA-S, B, C, D                           | $6 \times 10^{-7}$ | H(FC)          | A      |
|   | SA, SB, SC, I, SD                                   | $6 \times 10^{-7}$ | H(FC)          | A      |
|   | A, A-S, AA, AA-S, B, C                              | 0.056              | A(C)           |        |
| Di(2-ethylhexyl)adipate<br>(103-23-1)   | A, A-S, AA, AA-S<br>GA                              | 20<br>20           | H(WS)<br>H(WS) | A<br>A |
|   | 1,2-Difluoro-1,1,2,2-tetrachloroethane<br>(76-12-0) | GA                 | *              | H(WS)  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |   |                    |                |        |
| 1,2-Diisopropylbenzene<br>(577-55-9)  | GA  | *                  | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |   |                    |                |        |

|   |                        |        |                |        |
|---|------------------------|--------|----------------|--------|
| 1,3-Diisopropylbenzene<br>(99-62-7)   | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 1,4-Diisopropylbenzene<br>(100-18-5)  | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| N,N-Dimethylaniline<br>(121-69-7)   | A, A-S, AA, AA-S<br>GA | 1<br>1 | H(WS)<br>H(WS) | A<br>A |
| 2,3-Dimethylaniline<br>(87-59-2)  | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 2,4-Dimethylaniline<br>(95-68-1)  | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 2,5-Dimethylaniline<br>(95-78-3)  | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 2,6-Dimethylaniline<br>(87-62-7)  | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 3,4-Dimethylaniline<br>(95-64-7)  | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 3,5-Dimethylaniline<br>(108-69-0)   | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 3,3'-Dimethylbenzidine<br>(119-93-7)  | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 4,4'-Dimethylbibenzyl<br>(538-39-6)   | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 4,4'-Dimethyldiphenylmethane<br>(4957-14-6)   | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| alpha, alpha-Dimethylphenethylamine<br>(122-09-8)   | GA                     | *      | H(WS)          | J      |

|   |                           |      |       |   |  |
|---|---------------------------|------|-------|---|--|
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                           |      |       |   |  |
| 2,4-Dimethylphenol<br>(105-67-9)  | A, A-S, AA, AA-S, B, C, D | 1000 | H(FC) | B |  |
|   | SA, SB, SC, I, SD         | 1000 | H(FC) | B |  |
|   | A, A-S, AA, AA-S          | *    | E(WS) |   |  |
|   | GA                        | *    | E(WS) |   |  |
|   | A, A-S, AA, AA-S, B, C, D | **   | E(FS) |   |  |
| Remarks: * Refer to standards for "Phenolic compounds (total phenols)."   |                           |      |       |   |  |
| ** Refer to standards for "Phenols, total unchlorinated."   |                           |      |       |   |  |
| Dimethyl tetrachloroterephthalate<br>(1861-32-1)  | GA                        | 50   | H(WS) | J |  |
| 1,3-Dinitrobenzene<br>(99-65-0)   | GA                        | *    | H(WS) | J |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                           |      |       |   |  |
| 2,4-Dinitrophenol<br>(51-28-5)  | A, A-S, AA, AA-S, B, C, D | 400  | H(FC) | B |  |
|   | SA, SB, SC, I, SD         | 400  | H(FC) | B |  |
|   | A, A-S, AA, AA-S          | *    | E(WS) |   |  |
|   | GA                        | *    | E(WS) |   |  |
|   | A, A-S, AA, AA-S, B, C, D | **   | E(FS) |   |  |
| Remarks: * Refer to standards for "Phenolic compounds (total phenols)."   |                           |      |       |   |  |
| ** Refer to standards for "Phenols, total unchlorinated."   |                           |      |       |   |  |
| 2,3-Dinitrotoluene<br>(602-01-7)  | GA                        | *    | H(WS) | J |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                           |      |       |   |  |
| 2,4-Dinitrotoluene<br>(121-14-2)  | GA                        | *    | H(WS) | J |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                           |      |       |   |  |
| 2,5-Dinitrotoluene<br>(619-15-8)  | GA                        | *    | H(WS) | J |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                           |      |       |   |  |
| 2,6-Dinitrotoluene<br>(606-20-2)  | GA                        | *    | H(WS) | J |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                           |      |       |   |  |
| 3,4-Dinitrotoluene<br>(610-39-9)  | GA                        | *    | H(WS) | J |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                           |      |       |   |  |
| 3,5-Dinitrotoluene<br>(618-85-9)  | GA                        | *    | H(WS) | J |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                           |      |       |   |  |
|   |                           |      |       |   |  |

|   |                           |  |                |        |
|---|---------------------------|--|----------------|--------|
| Diphenamid<br>(957-51-7)  | GA                        | 50                                       | H(WS)          | J      |
| Diphenylamine<br>(122-39-4)   | GA                        | *  | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |  |                |        |
| Diphenylhydrazines<br>(122-66-7; 530-50-7)  | GA                        | ND*                                      | H(WS)          | F      |
| Remark: * Applies to the sum of 1,1- and 1,2-diphenylhydrazine, CAS Nos. 530-50-7 and 122-66-7, respectively.   |                           |  |                |        |
| Diquat<br>(2764-72-9)   | A, A-S, AA, AA-S<br>GA    | 20*<br>20*                               | H(WS)<br>H(WS) | B<br>B |
| Remark: * Applies to the concentration of diquat ion whether free or as an undissociated salt.  |                           |  |                |        |
| Disulfoton<br>(298-04-4)  | GA                        | *  | H(WS)          |        |
| Remark: * Refer to standards for "Phorate and Disulfoton."  |                           |  |                |        |
| Dyphylline<br>(479-18-5)  | A, A-S, AA, AA-S          | 50                                       | H(WS)          | B      |
| Endosulfan<br>(115-29-7)  | A, A-S, AA, AA-S, B, C    | 0.009                                    | A(C)           |        |
|   | D                         | 0.22*                                    | A(A)           |        |
|   | SA, SB, SC                | 0.001                                    | A(C)           |        |
|   | SD                        | 0.034                                    | A(A)           |        |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(d) of this Title. |                           |  |                |        |
| Endrin<br>(72-20-8)   | A, A-S, AA, AA-S          | 0.2                                      | H(WS)          | G      |
|   | GA                        | ND                                       | H(WS)          | F      |
|   | A, A-S, AA, AA-S, B, C, D | 0.002                                    | H(FC)          |        |
|   | SA, SB, SC, SD            | 0.002                                    | H(FC)          |        |
|   | A, A-S, AA, AA-S, B, C    | 0.036                                    | A(C)           |        |
|   | A, A-S, AA, AA-S, B, C, D | 0.086                                    | A(A)           |        |
| Endrin aldehyde<br>(7421-93-4)  | GA                        | *  | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |  |                |        |
| Endrin ketone<br>(53494-70-5)   | GA                        | *  | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |  |                |        |
| Ethylbenzene<br>(100-41-4)  | A, A-S, AA, AA-S<br>GA    | 5<br>*                                   | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |  |                |        |
| Ethylene dibromide<br>(106-93-4)  | A, A-S, AA, AA-S<br>GA    | $6 \times 10^{-4}$<br>$6 \times 10^{-4}$ | H(WS)<br>H(WS) | A<br>A |
| Ethylenethiourea<br>(96-45-7)   | GA                        | ND                                       | H(WS)          | F      |

|  |                           |                    |       |   |
|--|---------------------------|--------------------|-------|---|
| Ferbam<br>(14484-64-1)   | GA                        | 4.2                | H(WS) | F |
| Fluometuron<br>(2164-17-2)   | GA                        | 50                 | H(WS) | J |
| Fluoride<br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S          | 1500               | H(WS) | H |
|  | GA                        | 1500               | H(WS) | F |
|  | A, A-S, AA, AA-S, B, C    | *                  | A(C)  |   |
|  | D                         | **                 | A(A)  |   |
| Remarks: * (0.02) exp(0.907 [ln (ppm hardness)] + 7.394)<br>** (0.1) exp(0.907 [ln (ppm hardness)] + 7.394)<br>For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) and (d) of this Title. |                           |                    |       |   |
| Foaming agents<br>(CAS No. Not Applicable)   | GA                        | 500*               | E(WS) | U |
| Remark: * Determined as methylene blue active substances (MBAS) or by other tests as specified by the Commissioner.  |                           |                    |       |   |
| Folpet<br>(133-07-3)   | GA                        | 50                 | H(WS) | J |
| Formaldehyde<br>(50-00-0)  | A, A-S, AA, AA-S          | 8                  | H(WS) | A |
|  | GA                        | 8                  | H(WS) | A |
| Gross alpha radiation<br>(CAS No. Not Applicable)  | A, A-S, AA, AA-S          | *                  | H(WS) | G |
|  | GA                        | *                  | H(WS) | G |
| Remark: * 15 picocuries per liter, excluding radon and uranium.  |                           |                    |       |   |
| Gross beta radiation<br>(CAS No. Not Applicable)   | A, AA                     | *                  | H(WS) | H |
|  | GA                        | *                  | H(WS) | H |
| Remark: * 1,000 picocuries per liter, excluding strontium-90 and alpha emitters.   |                           |                    |       |   |
| Heptachlor<br>(76-44-8)  | A, A-S, AA, AA-S          | 0.04               | H(WS) | A |
|  | GA                        | 0.04               | H(WS) | A |
|  | A, A-S, AA, AA-S, B, C, D | $2 \times 10^{-4}$ | H(FC) | A |
|  | SA, SB, SC, I, SD         | $2 \times 10^{-4}$ | H(FC) | A |
| Heptachlor epoxide<br>(1024-57-3)  | A, A-S, AA, AA-S          | 0.03               | H(WS) | A |
|  | GA                        | 0.03               | H(WS) | A |
|  | A, A-S, AA, AA-S, B, C, D | $3 \times 10^{-4}$ | H(FC) | A |
|  | SA, SB, SC, I, SD         | $3 \times 10^{-4}$ | H(FC) | A |
| Hexachlorobenzene<br>(118-74-1)  | A, A-S, AA, AA-S          | 0.04               | H(WS) | A |
|  | GA                        | 0.04               | H(WS) | A |
|  | A, A-S, AA, AA-S, B, C, D | $3 \times 10^{-5}$ | H(FC) | A |
|  | SA, SB, SC, I, SD         | $3 \times 10^{-5}$ | H(FC) | A |
| Hexachlorobutadiene<br>(87-68-3)   | A, A-S, AA, A-S           | 0.5                | H(WS) | B |
|  | GA                        | 0.5                | H(WS) | B |
|  | A, A-S, AA, AA-S, B, C, D | 0.01               | H(FC) | B |
|  | SA, SB, SC, I, SD         | 0.01               | H(FC) | B |
|  | A, A-S, AA, AA-S, B, C    | 1.0*               | A(C)  |   |
|  | D                         | 10*                | A(A)  |   |
|  | SA, SB, SC                | 0.3                | A(C)  |   |
|  | SD                        | 3.0                | A(A)  |   |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) and (d) of this Title.  |                           |                    |       |   |
| alpha-Hexachlorocyclohexane<br>(319-84-6)  | A, A-S, AA, AA-S          | 0.01               | H(WS) | A |
|  | GA                        | 0.01               | H(WS) | A |
|  | A, A-S, AA, AA-S, B, C, D | 0.002              | H(FC) | A |
|  | SA, SB, SC, I, SD         | 0.002              | H(FC) | A |
| beta-Hexachlorocyclohexane   | A, A-S, AA, AA-S          | 0.04               | H(WS) | A |

|  |   |  |  |                        |
|--|---|--|--|------------------------|
| (319-85-7)   | GA<br>A, A-S, AA, AA-S, B, C, D<br>SA, SB, SC, I, SD  | 0.04<br>0.007<br>0.007                     | H(WS)<br>H(FC)<br>H(FC)                    | A<br>A<br>A            |
| delta-Hexachlorocyclohexane<br>(319-86-8)  | A, A-S, AA, AA-S<br>GA<br>A, A-S, AA, AA-S, B, C, D<br>SA, SB, SC, I, SD                              | 0.04<br>0.04<br>0.008<br>0.008             | H(WS)<br>H(WS)<br>H(FC)<br>H(FC)           | A<br>A<br>A<br>A       |
| epsilon-Hexachlorocyclohexane<br>(6108-10-7)   | A, A-S, AA, AA-S<br>GA<br>A, A-S, AA, AA-S, B, C, D<br>SA, SB, SC, I, SD                              | 0.04<br>0.04<br>0.008<br>0.008             | H(WS)<br>H(WS)<br>H(FC)<br>H(FC)           | A<br>A<br>A<br>A       |
| gamma-Hexachlorocyclohexane<br>(58-89-9)   | A, A-S, AA, AA-S<br>GA<br>A, A-S, AA, AA-S, B, C, D<br>SA, SB, SC, I, SD<br>A, A-S, AA, AA-S, B, C, D | 0.05<br>0.05<br>0.008<br>0.008<br>0.95     | H(WS)<br>H(WS)<br>H(FC)<br>H(FC)<br>A(A)   | A<br>A<br>A<br>A<br>A  |
| Hexachlorocyclopentadiene<br>(77-47-4)   | GA<br>A, A-S, AA, AA-S, B, C<br>D<br>SA, SB, SC<br>SD<br>A, A-S, AA, AA-S                             | *<br>0.45**<br>4.5**<br>0.07<br>0.7<br>1.0 | H(WS)<br>A(C)<br>A(A)<br>A(C)<br>A(A)<br>E | J<br><br><br><br><br>U |
| <p>Remarks: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.</p> <p>** For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) and (d) of this Title.</p>  |   |  |  |                        |
| Hexachloroethane<br>(67-72-1)  | A, A-S, AA, AA-S<br>GA<br>A, A-S, AA, AA-S, B, C, D<br>SA, SB, SC, I, SD                              | 5<br>*<br>0.6<br>0.6                       | H(WS)<br>H(WS)<br>H(FC)<br>H(FC)           | A, I<br>J<br>A<br>A    |
| <p>Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.</p>   |   |  |  |                        |
| Hexachlorophene<br>(70-30-4)   | GA<br>A, A-S, AA, AA-S<br>GA<br>A, A-S, AA, AA-S, B, C, D   | *<br>**<br>**<br>***                       | H(WS)<br>E(WS)<br>E(WS)<br>E(FS)           | J                      |
| <p>Remarks: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.</p> <p>** Refer to standards for "Phenolic compounds (total phenols)."</p> <p>*** Refer to standards for "Phenols, total chlorinated."</p>   |   |  |  |                        |
| Hexachloropropene<br>(1888-71-7)   | GA  | *  | H(WS)                                      | J                      |
| <p>Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.</p>   |   |  |  |                        |
| Hexazinone<br>(51235-04-2)   | GA  | 50   | H(WS)                                      | J                      |
| Hydrazine<br>(302-01-2)  | A, A-S, AA, AA-S, B, C<br>D   | *<br>**                                    | A(C)<br>A(A)                               |                        |
| <p>Remarks: * 5 ug/L at less than 50 ppm hardness and 10 ug/L at greater than or equal to 50 ppm hardness.</p> <p>** 50 ug/L at less than 50 ppm hardness and 100 ug/L at greater than or equal to 50 ppm hardness.</p> <p>For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) and (d) of this Title.</p> |   |  |  |                        |
| Hydrogen sulfide<br>(7783-06-4)  | A, A-S, AA, AA-S, B, C<br>SA, SB, SC  | 2.0*<br>2.0                                | A(C)<br>A(C)                               |                        |
| <p>Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) of this Title.</p> <p>Aquatic Type standards apply to undissociated form.</p>  |   |  |  |                        |

|   |                           |       |       |   |
|---|---------------------------|-------|-------|---|
| Hydroquinone<br>(123-31-9)  | A, A-S, AA, AA-S, B, C    | 2.2** | A(C)  |   |
|   | D                         | 4.4** | A(A)  |   |
|   | A, A-S, AA, AA-S          | *     | E(WS) |   |
|   | GA                        | *     | E(WS) |   |
|   | A, A-S, AA, AA-S, B, C, D | ***   | E(FS) |   |
| Remarks: * Refer to standards for "Phenolic compounds (total phenols)."   |                           |       |       |   |
| ** For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) and (d) of this Title.        |                           |       |       |   |
| *** Refer to standards for "Phenols, total unchlorinated."  |                           |       |       |   |
| Iron<br>(CAS No. Not Applicable)  | A, A-S, AA, AA-S          | 300   | E(WS) | G |
|   | GA                        | 300*  | E(WS) | F |
| Remarks: * Also see standard for "Iron and Manganese."  |                           |       |       |   |
| Iron and Manganese<br>(CAS No. Not Applicable)  | GA                        | 500*  | E(WS) | F |
| Remark: * Applies to the sum of these substances; also see individual standards for "Iron" and "Manganese."   |                           |       |       |   |
| Isodecyl diphenyl phosphate<br>(29761-21-5)   | A, A-S, AA, AA-S, B, C    | 1.7*  | A(C)  |   |
|   | D                         | 22*   | A(A)  |   |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) and (d) of this Title. |                           |       |       |   |
| Isodrin<br>(465-73-6)   | GA                        | *     | H(WS) | J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |       |       |   |
| Isopropalin<br>(33820-53-0)   | GA                        | *     | H(WS) | J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |       |       |   |
| Isopropylbenzene<br>(98-82-8)   | GA                        | *     | H(WS) | J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |       |       |   |
| 2-Isopropyltoluene<br>(527-84-4)  | A, A-S, AA, AA-S          | 5     | H(WS) | I |
|   | GA                        | *     | H(WS) | J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |       |       |   |
| 3-Isopropyltoluene<br>(535-77-3)  | A, A-S, AA, AA-S          | 5     | H(WS) | I |
|   | GA                        | *     | H(WS) | J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |       |       |   |
| 4-Isopropyltoluene<br>(99-87-6)   | A, A-S, AA, AA-S          | 5     | H(WS) | I |
|   | GA                        | *     | H(WS) | J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |       |       |   |
| Isothiazolones, total (isothiazolinones)<br>(includes 5-chloro-2-methyl-4-isothiazolin-3-one)   | A, A-S, AA, AA-S, B, C    | 1*    | A(C)  |   |
|   | D                         | 10*   | A(A)  |   |

|   |                                     |                      |       |       |   |  |
|---|-------------------------------------|----------------------|-------|-------|---|--|
| & 2-methyl-4-isothiazolin-3-one)<br>(CAS No. Not Applicable)  |                                     |                      |       |       |   |  |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) and (d) of this Title.<br>Standards apply to the sum of these substances.                                      |                                     |                      |       |       |   |  |
| Kepone<br>(143-50-0)  | GA                                  | ND                   | H(WS) | F     |   |  |
| Lead<br>(CAS No. Not Applicable)  | A, A-S, AA, AA-S                    | 50                   | H(WS) | G     |   |  |
|   | GA                                  | 25                   | H(WS) | F     |   |  |
|   | A, A-S, AA, AA-S, B, C              | *                    | A(C)  |       |   |  |
|   | A, A-S, AA, AA-S, B, C, D           | **                   | A(A)  |       |   |  |
|   | SA, SB, SC, I                       | 8                    | A(C)  |       |   |  |
|   | SA, SB, SC, I, SD                   | 204                  | A(A)  |       |   |  |
| Remarks: * {1.46203 - [ln (hardness) (0.145712)]} exp (1.273 [ln (hardness)] - 4.297)<br>** {1.46203 - [ln (hardness) (0.145712)]} exp (1.273 [ln (hardness)] - 1.052)<br>Aquatic Type standards apply to dissolved form.   |                                     |                      |       |       |   |  |
| Linear alkyl benzene sulfonates (LAS)<br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S, B, C              | 40*                  | A(C)  |       |   |  |
| Remark: * LAS with side chains greater than 13 carbons only; applies to the sum of these substances.<br>* For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) of this Title. |                                     |                      |       |       |   |  |
| Magnesium<br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S                    | 35,000               | H(WS) | B     |   |  |
| Malathion<br>(121-75-5)   | GA                                  | 7.0                  | H(WS) | F     |   |  |
|   | A, A-S, AA, AA-S, B, C              | 0.1*                 | A(C)  |       |   |  |
|   | SA, SB, SC                          | 0.1                  | A(C)  |       |   |  |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) of this Title.   |                                     |                      |       |       |   |  |
| Mancozeb<br>(8018-01-7)   | GA                                  | 1.8                  | H(WS) | F     |   |  |
| Maneb<br>(12427-38-2)   | GA                                  | 1.8                  | H(WS) | F     |   |  |
| Manganese<br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S                    | 300                  | E(WS) | G     |   |  |
|   | GA                                  | 300*                 | E(WS) | F     |   |  |
| Remark: * Also see standards for "Iron and Manganese."  |                                     |                      |       |       |   |  |
| Mercury<br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S                    | 0.7                  | H(WS) | B     |   |  |
|   | GA                                  | 0.7                  | H(WS) | B     |   |  |
|   | A, A-S, AA, AA-S, B, C, D           | $7 \times 10^{-4}$ * | H(FC) | B     |   |  |
|   | SA, SB, SC, I, SD                   | $7 \times 10^{-4}$ * | H(FC) | B     |   |  |
|   | A, A-S, AA, AA-S, B, C              | 0.77*                | A(C)  |       |   |  |
|   | A, A-S, AA, AA-S, B, C, D           | 1.4*                 | A(A)  |       |   |  |
|   | A, A-S, AA, AA-S, B, C, D           | 0.0026*              | W     |       |   |  |
|   | SA, SB, SC, I, SD                   | 0.0026*              | W     |       |   |  |
|   | Remark * Applies to dissolved form. |                      |       |       |   |  |
|   | Methacrylonitrile<br>(126-98-7)     | GA                   | *     | H(WS) | J |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                                     |                      |       |       |   |  |

|   |                              |        |                |        |
|---|------------------------------|--------|----------------|--------|
| Methomyl<br>(16752-77-5)  | GA                           | *      | H(WS)          |        |
| Remark: * Refer to standard for "Aldicarb and Methomyl."  |                              |        |                |        |
| Methoxychlor<br>(72-43-5)   | A, A-S, AA, AA-S             | 35     | H(WS)          | H      |
|   | GA                           | 35     | H(WS)          | F      |
|   | A, A-S, AA, AA-S, B, C       | 0.03*  | A(C)           |        |
|   | SA, SB, SC                   | 0.03   | A(C)           |        |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) of this Title. |                              |        |                |        |
| N-Methylaniline<br>(100-61-8)   | A, A-S, AA, AA-S<br>GA       | 5<br>* | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                              |        |                |        |
| Methyl chloride<br>(74-87-3)  | A, A-S, AA, AA-S             | 5      | H(WS)          | I      |
|   | GA                           | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                              |        |                |        |
| 2-Methyl-4-chlorophenoxyacetic acid<br>(94-74-6)  | GA                           | 0.44   | H(WS)          | F      |
| 4,4'-Methylene-bis-(2-chloroaniline)<br>(101-14-4)  | GA                           | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                              |        |                |        |
| 4,4'-Methylene-bis-(N-methyl)aniline<br>(1807-55-2)   | GA                           | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                              |        |                |        |
| 4,4'-Methylene-bis-(N,N'-dimethyl)aniline<br>(101-61-1)   | GA                           | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                              |        |                |        |
| Methylene bithiocyanate<br>(6317-18-6)  | A, A-S, AA, AA-S, B, C       | 1.0*   | A(C)           |        |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) of this Title. |                              |        |                |        |
| Methylene chloride<br>(75-09-2)   | A, A-S, AA, AA-S<br>GA       | 5<br>* | H(WS)<br>H(WS) | I<br>J |
|   | A, A-S, AA, AA-S, B, C, D    | 200    | H(FC)          | A      |
|   | SA, SB, SC, I, SD            | 200    | H(FC)          | A      |
|   |                              |        |                |        |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                              |        |                |        |
| Methyl iodide<br>(74-88-4)  | GA                           | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                              |        |                |        |
| Methyl methacrylate<br>(80-62-6)  | GA                           | 50     | H(WS)          | J      |
| Methyl parathion  | GA<br>A, A-S, AA, AA-S, B, C | *<br>* | H(WS)<br>A(C)  |        |

|   |   |  |  |                       |  |
|---|---|--|--|-----------------------|--|
| (298-00-0)  |   |  |  |                       |  |
| Remark: * Refer to the standards for "Parathion and Methyl parathion."  |   |  |  |                       |  |
| alpha-Methylstyrene<br>(98-83-9)  | A, A-S, AA, AA-S<br>GA  | 5<br>*   | H(WS)<br>H(WS)   | I<br>J                |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |   |  |  |                       |  |
| 2-Methylstyrene<br>(611-15-4)   | A, A-S, AA, AA-S<br>GA  | 5<br>*   | H(WS)<br>H(WS)   | I<br>J                |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |   |  |  |                       |  |
| 3-Methylstyrene<br>(100-80-1)   | A, A-S, AA, AA-S<br>GA  | 5<br>*   | H(WS)<br>H(WS)   | I<br>J                |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |   |  |  |                       |  |
| 4-Methylstyrene<br>(622-97-9)   | A, A-S, AA, AA-S<br>GA  | 5<br>*   | H(WS)<br>H(WS)   | I<br>J                |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |   |  |  |                       |  |
| Metolachlor<br>(51218-45-2)   | A, A-S, AA, AA-S<br>GA  | 10<br>10   | H(WS)<br>H(WS)   | A<br>A                |  |
| Metribuzin<br>(21087-64-9)  | GA  | 50   | H(WS)  | J                     |  |
| Mirex<br>(2385-85-5)  | A, A-S, AA, AA-S<br>GA<br>A, A-S, AA, AA-S, B, C, D<br>SA, SB, SC, I, SD<br>A, A-S, AA, AA-S, B, C<br>D<br>SA, SB, SC | 0.03<br>0.03<br>$1 \times 10^{-6}$<br>$1 \times 10^{-6}$<br>0.001*<br>0.001* | H(WS)<br>H(WS)<br>H(FC)<br>H(FC)<br>A(C)<br>A(A)<br>A(C) | A<br>A<br>A<br>A<br>A |  |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) and (d) of this Title. |   |  |  |                       |  |
| Nabam<br>(142-59-6)   | GA  | 1.8  | H(WS)  | F                     |  |
| Naphthalene<br>(91-20-3)  | A, A-S, AA, AA-S  | 10   | E(WS)  | U                     |  |
| Niacinamide<br>(98-92-0)  | A, A-S, AA, AA-S  | 500  | H(WS)  | B                     |  |
| Nickel<br>(CAS No. Not Applicable)  | A, A-S, AA, AA-S<br>GA<br>A, A-S, AA, AA-S, B, C<br>A, A-S, AA, AA-S, B, C, D<br>SA, SB, SC, I<br>SA, SB, SC, I, SD   | 100<br>100<br>*<br>**<br>8.2<br>74   | H(WS)<br>H(WS)<br>A(C)<br>A(A)<br>A(C)<br>A(A)           | B<br>B                |  |
| Remarks: * $(0.997) \exp(0.846 [\ln(\text{hardness})] + 0.0584)$<br><br>** $(0.998) \exp(0.846 [\ln(\text{hardness})] + 2.255)$<br><br>Aquatic Type standards apply to dissolved form.            |   |  |  |                       |  |
| Nitralin<br>(4726-14-1)   | GA  | 35   | H(WS)  | F                     |  |
|   |   |  |  |                       |  |

|  |  |                        |                         |             |
|--|--|------------------------|-------------------------|-------------|
| Nitrate (expressed as N)<br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S<br>GA                           | 10,000*<br>10,000*     | H(WS)<br>H(WS)          | G<br>G      |
| Remark: * Also see standards for "Nitrate and Nitrite."  |  |                        |                         |             |
| Nitrate and Nitrite (expressed as N)<br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S<br>GA                           | 10,000*<br>10,000*     | H(WS)<br>H(WS)          | G<br>G      |
| Remark: * Applies to the sum of these substances; also see individual standards for "Nitrate" and "Nitrite."   |  |                        |                         |             |
| Nitrotriacetic acid<br>(CAS No. Not Applicable)  | A, A-S, AA, AA-S<br>GA<br>A, A-S, AA, AA-S, B, C | 3*<br>3*<br>5,000**    | H(WS)<br>H(WS)<br>A(C)  | A<br>A      |
| Remarks: * Includes related forms that convert to nitrotriacetic acid upon acidification to a pH of 2.3 or less.<br>** Applies to nitrotriacetate.<br>** For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) of this Title. |  |                        |                         |             |
| Nitrite (expressed as N)<br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S<br>GA<br>A, A-S, AA, AA-S, B, C | 1,000*<br>1,000*<br>** | H(WS)<br>H(WS)<br>A(C)  | G<br>G      |
| Remarks: * Also see standards for "Nitrate and Nitrite."<br>** Standard is 100 ug/L except 20 ug/L for trout waters (T or TS).<br>** For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) of this Title.                     |  |                        |                         |             |
| 2-Nitroaniline<br>(88-74-4)  | GA   | *                      | H(WS)                   | J           |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |  |                        |                         |             |
| 3-Nitroaniline<br>(99-09-2)  | GA   | *                      | H(WS)                   | J           |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |  |                        |                         |             |
| 4-Nitroaniline<br>(100-01-6)   | GA   | *                      | H(WS)                   | J           |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |  |                        |                         |             |
| Nitrobenzene<br>(98-95-3)  | A, A-S, AA, AA-S<br>GA<br>A, A-S, AA, AA-S       | 0.4<br>0.4<br>30       | H(WS)<br>H(WS)<br>E(WS) | A<br>A<br>U |
| 2-Nitrotoluene<br>(88-72-2)  | GA   | *                      | H(WS)                   | J           |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |  |                        |                         |             |
| 3-Nitrotoluene<br>(99-08-1)  | GA   | *                      | H(WS)                   | J           |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |  |                        |                         |             |
| 4-Nitrotoluene<br>(99-99-0)  | GA   | *                      | H(WS)                   | J           |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |  |                        |                         |             |
| 5-Nitro-o-toluidine<br>(99-55-8)   | GA   | *                      | H(WS)                   | J           |

|  |                              |                      |               |   |
|--|------------------------------|----------------------|---------------|---|
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |                              |                      |               |   |
| Octachlorostyrene<br>(29082-74-4)  | A, A-S, AA, AA-S             | 0.2                  | H(WS)         | B |
|  | GA                           | 0.2                  | H(WS)         | B |
|  | A, A-S, AA, AA-S, B, C, D    | 6 x 10 <sup>-6</sup> | H(FC)         | B |
|  | SA, SB, SC, I, SD            | 6 x 10 <sup>-6</sup> | H(FC)         | B |
| Oxamyl<br>(23135-22-0)   | GA                           | 50                   | H(WS)         | J |
| Paraquat<br>(4685-14-7)  | GA                           | 3.0                  | H(WS)         | F |
| Parathion<br>(56-38-2)   | GA                           | *                    | H(WS)         |   |
|  | A, A-S, AA, AA-S, B, C       | *                    | A(C)          |   |
|  | A, A-S, AA, AA-S, B, C, D    | 0.065                | A(A)          |   |
| Remark: * Refer to standards for "Parathion and Methyl parathion."   |                              |                      |               |   |
| Parathion and Methyl parathion<br>(56-38-2; 298-00-0)  | GA<br>A, A-S, AA, AA-S, B, C | 1.5*<br>0.008**      | H(WS)<br>A(C) | F |
| Remarks: * Applies to the sum of these substances.<br><br>** Applies to the sum of these substances. For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) of this Title. |                              |                      |               |   |
| Pendimethalin<br>(40487-42-1)  | GA                           | *                    | H(WS)         | J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |                              |                      |               |   |
| Pentachlorobenzene<br>(608-93-5)   | GA                           | *                    | H(WS)         | J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |                              |                      |               |   |
| Pentachloroethane<br>(76-01-7)   | GA                           | *                    | H(WS)         | J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |                              |                      |               |   |
| Pentachloronitrobenzene<br>(82-68-8)   | GA                           | ND                   | H(WS)         | F |
| Pentachlorophenol<br>(87-86-5)   | A, A-S, AA, AA-S, B, C       | *                    | A(C)          |   |
|  | A, A-S, AA, AA-S, B, C, D    | **                   | A(A)          |   |
|  | A, A-S, AA, AA-S             | ***                  | E(WS)         |   |
|  | GA                           | ***                  | E(WS)         |   |
|  | A, A-S, AA, AA-S, B, C, D    | ****                 | E(FS)         |   |
| Remarks: * exp [1.005 (pH) - 5.134]<br><br>** exp [1.005 (pH) - 4.869]<br><br>*** Refer to standards for "Phenolic compounds (total phenols)."<br><br>**** Refer to standards for "Phenols, total chlorinated."  |                              |                      |               |   |
| Phenol<br>(108-95-2)   | A, A-S, AA, AA-S             | *                    | E(WS)         |   |
|  | GA                           | *                    | E(WS)         |   |

|   |   |                 |                         |        |
|---|---|-----------------|-------------------------|--------|
|   | A, A-S, AA, AA-S, B, C, D                           | **              | E(FS)                   |        |
| Remarks: * Refer to standards for "Phenolic compounds (total phenols)."   |   |                 |                         |        |
| ** Refer to standards for "Phenols, total unchlorinated."   |   |                 |                         |        |
| Phenolic compounds<br>(total phenols)<br><br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S<br>GA                              | 1*<br>1*        | E(WS)<br>E(WS)          | U<br>U |
| Remark: * Applies to the sum of these substances.   |   |                 |                         |        |
| Phenols, total chlorinated<br><br>(CAS No. Not Applicable)  | A, A-S, AA, AA-S<br>GA<br>A, A-S, AA, AA-S, B, C, D | *<br>*<br>1.0** | E(WS)<br>E(WS)<br>E(FS) | V      |
| Remarks: * Refer to standards for "Phenolic compounds (total phenols)."   |   |                 |                         |        |
| ** Applies to the sum of these substances.  |   |                 |                         |        |
| Phenols, total unchlorinated<br><br>(CAS No. Not Applicable)  | A, A-S, AA, AA-S<br>GA<br>A, A-S, AA, AA-S, B, C, D | *<br>*<br>5.0** | E(WS)<br>E(WS)<br>E(FS) | V      |
| Remarks: * Refer to standards for "Phenolic compounds (total phenols)."   |   |                 |                         |        |
| ** Applies to the sum of these substances.  |   |                 |                         |        |
| 1,2-Phenylenediamine<br><br>(95-54-5)   | GA  | *               | H(WS)                   | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |   |                 |                         |        |
| 1,3-Phenylenediamine<br><br>(108-45-2)  | GA  | *               | H(WS)                   | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |   |                 |                         |        |
| 1,4-Phenylenediamine<br><br>(106-50-3)  | GA  | *               | H(WS)                   | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |   |                 |                         |        |
| Phenyl ether<br><br>(101-84-8)  | A, A-S, AA, AA-S                                    | 10              | E(WS)                   | U      |
| Phenyldiazine<br><br>(100-63-0)   | GA  | *               | H(WS)                   | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |   |                 |                         |        |
| 3-Phenyl-1-propene<br><br>(637-50-3)  | A, A-S, AA, AA-S<br>GA                              | 5<br>*          | H(WS)<br>H(WS)          | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |   |                 |                         |        |
| cis-1-Phenyl-1-propene<br><br>(766-90-5)  | A, A-S, AA, AA-S<br>GA                              | 5<br>*          | H(WS)<br>H(WS)          | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |   |                 |                         |        |
| trans-1-Phenyl-1-propene<br><br>(873-66-5)  | A, A-S, AA, AA-S<br>GA                              | 5<br>*          | H(WS)<br>H(WS)          | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |   |                 |                         |        |
| Phorate   | GA  | *               | H(WS)                   |        |

|   |                           |                          |                |        |
|---|---------------------------|--------------------------|----------------|--------|
| (298-02-2)  |                           |                          |                |        |
| Remark: * Refer to standards for "Phorate and Disulfoton."  |                           |                          |                |        |
| Phorate and Disulfoton<br>(298-02-2; 298-04-4)  | GA                        | ND*                      | H(WS)          | F      |
| Remark: * Applies to sum of these substances.   |                           |                          |                |        |
| Picloram<br>(CAS No. Not Applicable)  | GA                        | 50*                      | H(WS)          | J      |
| Remark: * Includes: related forms that convert to the organic acid upon acidification to a pH of 2 or less; and esters of the organic acid.   |                           |                          |                |        |
| Polybrominated biphenyls<br>(CAS No. Not Applicable)  | GA                        | *                        | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to each congener individually.   |                           |                          |                |        |
| Polychlorinated biphenyls<br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S          | 0.09*                    | H(WS)          | A      |
|   | GA                        | 0.09*                    | H(WS)          | A      |
|   | A, A-S, AA, AA-S, B, C, D | 1 x 10 <sup>-6</sup> *   | H(FC)          | A      |
|   | SA, SB, SC, I, SD         | 1 x 10 <sup>-6</sup> *   | H(FC)          | A      |
|   | A, A-S, AA, AA-S, B, C, D | 1.2 x 10 <sup>-4</sup> * | W              |        |
|   | SA, SB, SC, I, SD         | 1.2 x 10 <sup>-4</sup> * | W              |        |
| Remark: * Applies to the sum of these substances.   |                           |                          |                |        |
| Principal organic contaminant<br>(CAS No. Not Applicable)   | GA                        | 5                        | H(WS)          | J      |
| <p>Remarks: This standard applies to any and every individual substance, whether listed in this Table or not, that is in one of the principal organic contaminant classes as defined in section 700.1 of this Title except any substance that has a H(WS) Type standard for class GA waters (other than 5 ug/L with Basis Code J) listed elsewhere in this Table.</p> <p>For the convenience of the reader, the principal organic contaminant standard of 5 ug/L (Basis Code J), is listed in this Table for some but not all substances regulated by this standard.</p> <p>A less stringent guidance value for an individual substance may be substituted for this standard if so determined by the Commissioner of the New York State Department of Health.</p> |                           |                          |                |        |
| Prometon<br>(1610-18-0)   | GA                        | 50                       | H(WS)          | J      |
| Propachlor<br>(1918-16-7)   | GA                        | 35                       | H(WS)          | F      |
| Propanil<br>(709-98-8)  | GA                        | 7.0                      | H(WS)          | F      |
| Propazine<br>(139-40-2)   | GA                        | 16                       | H(WS)          | F      |
| Propham<br>(122-42-9)   | GA                        | 50                       | H(WS)          | J      |
| n-Propylbenzene<br>(103-65-1)   | A, A-S, AA, AA-S<br>GA    | 5<br>*                   | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |                          |                |        |
| Quaternary ammonium compounds<br>(including dimethyl benzylammonium chloride &  | A, A-S, AA, AA-S, B, C    | 10*                      | A(C)           |        |

|   |                        |         |                |        |   |
|---|------------------------|---------|----------------|--------|---|
| dimethylethyl benzyl ammonium chloride<br><br>(CAS No. Not Applicable)  |                        |         |                |        |   |
| Remarks: * Applies to the sum of these substances.<br><br>* For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) of this Title.   |                        |         |                |        |   |
| Radium 226<br><br>(CAS No. Not Applicable)  | A, AA<br>GA            | *<br>*  | H(WS)<br>H(WS) | H<br>H |   |
| Remark: * 3 picocuries per liter; also see standards for "Radium 226 and Radium 228."   |                        |         |                |        |   |
| Radium 226 and Radium 228<br><br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S<br>GA | *<br>*  | H(WS)<br>H(WS) | G<br>G |   |
| Remark: * 5 picocuries per liter; Applies to the sum of these substances.   |                        |         |                |        |   |
| Radium 228<br><br>(CAS No. Not Applicable)  | A, A-S, AA, AA-S<br>GA | *<br>*  | H(WS)<br>H(WS) |        |   |
| Remark: * Refer to standards for "Radium 226 and Radium 228."   |                        |         |                |        |   |
| Selenium<br><br>(CAS No. Not Applicable)  | A, A-S, AA, AA-S       | 10      | H(WS)          | G      |   |
|   | GA                     | 10      | H(WS)          | G      |   |
|   | A, A-S, AA, AA-S, B, C | 4.6*    | A(C)           |        |   |
| Remark: * Aquatic Type standard applies to dissolved form.  |                        |         |                |        |   |
| Silver<br><br>(CAS No. Not Applicable)  | A, A-S, AA, AA-S       | 50      | H(WS)          | G      |   |
|   | GA                     | 50      | H(WS)          | F      |   |
|   | A, A-S, AA, AA-S, B, C | 0.1*    | A(C)           |        |   |
|   | D                      | **      | A(A)           |        |   |
|   | SD                     | 2.3     | A(A)           |        |   |
| Remarks: * Applies to ionic silver.<br><br>** $\exp(1.72 [\ln(\text{ppm hardness})] - 6.52)$ .<br><br>Standards for D and SD Classes apply to acid-soluble form.<br><br>For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) and (d) of this Title. |                        |         |                |        |   |
| Simazine<br><br>(122-34-9)  | A, A-S, AA, AA-S       | 0.5     | H(WS)          | A      |   |
|   | GA                     | 0.5     | H(WS)          | A      |   |
| Sodium<br><br>(CAS No. Not Applicable)  | GA                     | 20,000  | H(WS)          | H      |   |
| Strontium 90<br><br>(CAS No. Not Applicable)  | A, A-S, AA, AA-S       | *       | H(WS)          | G      |   |
| Remarks: * 8 picocuries per liter.<br><br>If two or more radionuclides are present, the sum of their doses shall not exceed an annual potential dose of 4 millirems per year.   |                        |         |                |        |   |
| Styrene<br><br>(100-42-5)   | GA                     | *       | H(WS)          | J      | U |
|   | A, A-S, AA, AA-S       | 50      | E(WS)          |        |   |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                        |         |                |        |   |
| Sulfate<br><br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S       | 250,000 | H(WS)          | G      |   |
|   | GA                     | 250,000 | H(WS)          | F      |   |

|  |                             |           |                |        |
|--|-----------------------------|-----------|----------------|--------|
| Sulfite<br>(CAS No. Not Applicable)  | A, A-S, AA, AA-S, B, C      | 200*      | A(C)           |        |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) of this Title.  |                             |           |                |        |
| Tebuthiuron<br>(34014-18-1)  | GA                          | 50        | H(WS)          | J      |
| Terbacil<br>(5902-51-2)  | GA                          | 50        | H(WS)          | J      |
| Tetrachlorobenzenes<br>(634-66-2; 634-90-2; 95-94-3; 12408-10-5)   | GA<br>A, A-S, AA, AA-S      | *<br>10** | H(WS)<br>E(WS) | J<br>U |
| Remarks: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to each isomer (1,2,3,4-, 1,2,3,5-, and 1,2,4,5-tetrachlorobenzene) individually.<br>** Applies to the sum of 1,2,3,4-, 1,2,3,5- and 1,2,4,5-tetrachlorobenzene. |                             |           |                |        |
| 1,1,1,2-Tetrachloroethane<br>(630-20-6)  | A, A-S, AA, AA-S<br>GA      | 5<br>*    | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |                             |           |                |        |
| 1,1,2,2-Tetrachloroethane<br>(79-34-5)   | GA                          | *         | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |                             |           |                |        |
| Tetrachloroethene<br>(127-18-4)  | GA                          | *         | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |                             |           |                |        |
| Tetrachloroterephthalic acid<br>(2136-79-0)  | GA                          | 50        | H(WS)          | J      |
| alpha, alpha, alpha, 4-Tetrachlorotoluene<br>(5216-25-1)   | GA                          | *         | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |                             |           |                |        |
| Thallium<br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S, B, C<br>D | 8*<br>20  | A(C)<br>A(A)   |        |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) of this Title.<br>Aquatic Type standards apply to acid-soluble form.  |                             |           |                |        |
| Theophylline<br>(58-55-9)  | A, A-S, AA, AA-S            | 40        | H(WS)          | B      |
| Thiram<br>(137-26-8)   | GA                          | 1.8       | H(WS)          | F      |
| Toluene<br>(108-88-3)  | A, A-S, AA, AA-S            | 5         | H(WS)          | I      |
|  | GA                          | *         | H(WS)          | J      |
|  | A, A-S, AA, AA-S, B, C, D   | 6000      | H(FC)          | B      |
|  | SA, SB, SC, I, SD           | 6000      | H(FC)          | B      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.  |                             |           |                |        |

|   |                           |                      |                |        |
|---|---------------------------|----------------------|----------------|--------|
| Toluene-2,4-diamine<br>(95-80-7)  | GA                        | *                    | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |                      |                |        |
| Toluene-2,5-diamine<br>(95-70-5)  | GA                        | *                    | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |                      |                |        |
| Toluene-2,6-diamine<br>(823-40-5)   | GA                        | *                    | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |                      |                |        |
| o-Toluidine<br>(95-53-4)  | GA                        | *                    | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |                      |                |        |
| Toxaphene<br>(8001-35-2)  | A, A-S, AA, AA-S          | 0.06                 | H(WS)          | A      |
|   | GA                        | 0.06                 | H(WS)          | A      |
|   | A, A-S, AA, AA-S, B, C, D | 6 x 10 <sup>-6</sup> | H(FC)          | A      |
|   | SA, SB, SC, I, SD         | 6 x 10 <sup>-6</sup> | H(FC)          | A      |
|   | A, A-S, AA, AA-S, B, C    | 0.005                | A(C)           |        |
|   | D                         | 1.6*                 | A(A)           |        |
|   | SA, SB, SC                | 0.005                | A(C)           |        |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic standard if so determined under section 702.15(d) of this Title.  |                           |                      |                |        |
| 1,2,4-Tribromobenzene<br>(615-54-3)   | A, A-S, AA, AA-S<br>GA    | 5<br>*               | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |                      |                |        |
| 2,4,6-Trichloroaniline<br>(634-93-5)  | GA                        | *                    | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                           |                      |                |        |
| Trichlorobenzenes<br>(87-61-6; 120-82-1; 108-70-3; 12002-48-1)  | GA                        | *                    | H(WS)          | J      |
|   | A, A-S, AA, AA-S, B, C    | 5**                  | A(C)           |        |
|   | SA, SB, SC                | 5**                  | A(C)           |        |
|   | A, A-S, AA, AA-S          | 10**                 | E(WS)          | U      |
|   | D                         | 50**                 | E(FS)          | V      |
|   | SD                        | 50**                 | E(FS)          | V      |
| Remarks: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to each isomer (1,2,3-, 1,2,4- and 1,3,5-trichlorobenzene) individually.<br><br>** Applies to the sum of 1,2,3-, 1,2,4- and 1,3,5-trichlorobenzene.<br><br>For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) of this Title |                           |                      |                |        |
| 1,1,1-Trichloroethane<br>(71-55-6)  | A, A-S, AA, AA-S<br>GA    | 5<br>*               | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this   |                           |                      |                |        |

|   |                           |              |                |        |
|---|---------------------------|--------------|----------------|--------|
| Table) applies to this substance.   |                           |              |                |        |
| 1,1,2-Trichloroethane<br>(79-00-5)  | A, A-S, AA, AA-S<br>GA    | 1<br>1       | H(WS)<br>H(WS) | A<br>A |
| Trichloroethene<br>(79-01-6)  | A, A-S, AA, AA-S          | 5            | H(WS)          | I      |
|   | GA                        | *            | H(WS)          | J      |
|   | A, A-S, AA, AA-S, B, C, D | 40           | H(FC)          | A      |
|   | SA, SB, SC, I, SD         | 40           | H(FC)          | A      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                           |              |                |        |
| Trichlorofluoromethane<br>(75-69-4)   | A, A-S, AA, AA-S<br>GA    | 5<br>*       | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                           |              |                |        |
| 2,4,5-Trichlorophenoxyacetic acid<br>(93-76-5)  | GA                        | 35           | H(WS)          | F      |
| 2,4,5-Trichlorophenoxypropionic acid<br>(93-72-1)   | A, A-S, AA, AA-S<br>GA    | 10<br>0.26   | H(WS)<br>H(WS) | G<br>F |
| 1,1,2-Trichloropropane<br>(598-77-6)  | A, A-S, AA, AA-S<br>GA    | 5<br>*       | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                           |              |                |        |
| 1,2,3-Trichloropropane<br>(96-18-4)   | A, A-S, AA, AA-S<br>GA    | 0.04<br>0.04 | H(WS)<br>H(WS) | A<br>A |
| cis-1,2,3-Trichloropropene<br>(13116-57-9)  | A, A-S, AA, AA-S<br>GA    | 5<br>*       | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                           |              |                |        |
| trans-1,2,3-Trichloropropene<br>(13116-58-0)  | A, A-S, AA, AA-S<br>GA    | 5<br>*       | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                           |              |                |        |
| alpha,2,4-Trichlorotoluene<br>(94-99-5)   | A, A-S, AA, AA-S<br>GA    | 5<br>*       | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                           |              |                |        |
| alpha,2,6-Trichlorotoluene<br>(2014-83-7)   | A, A-S, AA, AA-S<br>GA    | 5<br>*       | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                           |              |                |        |
| alpha,3,4-Trichlorotoluene<br>(102-47-6)  | A, A-S, AA, AA-S<br>GA    | 5<br>*       | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                           |              |                |        |
| alpha,alpha,2-Trichlorotoluene<br>(88-66-4)   | A, A-S, AA, AA-S<br>GA    | 5<br>*       | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                           |              |                |        |

|   |                        |        |                |        |
|---|------------------------|--------|----------------|--------|
| Table) applies to this substance.   |                        |        |                |        |
| alpha,alpha,4-Trichlorotoluene<br>(13940-94-8)  | A, A-S, AA, AA-S<br>GA | 5<br>* | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 2,3,4-Trichlorotoluene<br>(7359-72-0)   | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 2,3,5-Trichlorotoluene<br>(56961-86-5)  | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 2,3,6-Trichlorotoluene<br>(2077-46-5)   | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 2,4,5-Trichlorotoluene<br>(6639-30-1)   | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 2,4,6-Trichlorotoluene<br>(23749-65-7)  | GA                     | *      | H(WS)          | J      |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 1,1,1-Trichloro-2,2,2-trifluoroethane<br>(354-58-5)   | A, A-S, AA, AA-S<br>GA | 5<br>* | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 1,1,2-Trichloro-1,2,2-trifluoroethane<br>(76-13-1)  | A, A-S, AA, AA-S<br>GA | 5<br>* | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| Trifluralin<br>(1582-09-8)  | GA                     | 35     | H(WS)          | F      |
| 1,2,3-Trimethylbenzene<br>(526-73-8)  | A, A-S, AA, AA-S<br>GA | 5<br>* | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 1,2,4-Trimethylbenzene<br>(95-63-6)   | A, A-S, AA, AA-S<br>GA | 5<br>* | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| 1,3,5-Trimethylbenzene<br>(108-67-8)  | A, A-S, AA, AA-S<br>GA | 5<br>* | H(WS)<br>H(WS) | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. |                        |        |                |        |
| sym-Trinitrobenzene   | GA                     | *      | H(WS)          | J      |

|   |                             |             |                |        |  |
|---|-----------------------------|-------------|----------------|--------|--|
| (99-35-4)   |                             |             |                |        |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                             |             |                |        |  |
| 2,3,4-Trinitrotoluene<br>(602-29-9)   | GA                          | *           | H(WS)          | J      |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                             |             |                |        |  |
| 2,3,6-Trinitrotoluene<br>(18292-97-2)   | GA                          | *           | H(WS)          | J      |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                             |             |                |        |  |
| 2,4,5-Trinitrotoluene<br>(610-25-3)   | GA                          | *           | H(WS)          | J      |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                             |             |                |        |  |
| 2,4,6-Trinitrotoluene<br>(118-96-7)   | GA                          | *           | H(WS)          | J      |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                             |             |                |        |  |
| 3,4,5-Trinitrotoluene<br>(603-15-6)   | GA                          | *           | H(WS)          | J      |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                             |             |                |        |  |
| Triphenyl phosphate<br>(115-86-6)   | A, A-S, AA, AA-S, B, C<br>D | 4*<br>40*   | A(C)<br>A(A)   |        |  |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) and (d) of this Title.   |                             |             |                |        |  |
| Tritium<br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S            | *           | H(WS)          | G      |  |
| Remark: * 20,000 picocuries per liter; if two or more radionuclides are present, the sum of their annual dose equivalent to the total body or any organ shall not exceed 4 millirems per year.  |                             |             |                |        |  |
| Uranyl ion<br>(Cas No. Not Applicable)  | GA                          | 5,000       | H(WS)          | H      |  |
| Vanadium<br>(CAS No. Not Applicable)  | A, A-S, AA, AA-S, B, C<br>D | 14*<br>190* | A(C)<br>A(A)   |        |  |
| Remark: * For the waters of the Great Lakes System, the department will substitute a guidance value for the aquatic Type standard if so determined under section 702.15(c) and (d) of this Title.<br>Aquatic Type standards apply to acid-soluble form. |                             |             |                |        |  |
| Vinyl chloride<br>(75-01-4)   | GA                          | 2           | H(WS)          | G      |  |
| 1,2-Xylene<br>(95-47-6)   | A, A-S, AA, AA-S<br>GA      | 5<br>*      | H(WS)<br>H(WS) | I<br>J |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                             |             |                |        |  |
| 1,3-Xylene<br>(108-38-3)  | A, A-S, AA, AA-S<br>GA      | 5<br>*      | H(WS)<br>H(WS) | I<br>J |  |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.   |                             |             |                |        |  |

|  |  |                     |                              |        |
|--|--|---------------------|------------------------------|--------|
| Table) applies to this substance.  |  |                     |                              |        |
| 1,4-Xylene<br>(106-42-3)   | A, A-S, AA, AA-S<br>GA   | 5<br>*              | H(WS)<br>H(WS)               | I<br>J |
| Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.                              |  |                     |                              |        |
| Zinc<br>(CAS No. Not Applicable)   | A, A-S, AA, AA-S, B, C<br>A, A-S, AA, AA-S, B, C, D<br>SA, SB, SC, I<br>SD | *<br>**<br>66<br>95 | A(C)<br>A(A)<br>A(C)<br>A(A) |        |
| Remarks: Aquatic Type standards apply to dissolved form.<br>* $\exp(0.85 [\ln(\text{ppm hardness})] + 0.50)$<br>** $0.978 \exp(0.8473 [\ln(\text{ppm hardness})] + 0.884)$ |  |                     |                              |        |
| Zineb<br>(12122-67-7)  | GA   | 1.8                 | H(WS)                        | F      |
| Ziram<br>(137-30-4)  | GA   | 4.2                 | H(WS)                        | F      |

**Table 2  
BASIS OF STANDARDS  
(cf. section 703.5)**

| BASIS CODE | BASIS   |
|------------|---|
| A          | Oncogenic, Human Health   |
| B          | Non-oncogenic, Human Health   |
| F          | Former Groundwater Regulations, 6 NYCRR 703.5(a)(3), Human Health or Aesthetics       |
| G          | Specific MCL, Human Health or Aesthetics  |
| H          | Former Use of or Reference to 10 NYCRR Part 170, Human Health or Aesthetics           |
| I          | Principal Organic Contaminant Classes, Human Health                                   |
| J          | Former Groundwater Reference to 10 NYCRR Subpart 5-1, General Standards, Human Health |
| U          | Potable Water, Aesthetics   |
| V          | Food Source, Aesthetics   |

**Historical Note**

Sec. filed March 20, 1967; repealed, new filed: April 28, 1972; Aug. 2, 1978, amd. filed Nov. 5, 1984; repealed, new filed Aug. 2, 1991; amds. filed: Dec. 10, 1993; Feb. 10, 1998; Mar. 22, 1999 eff. April 7, 1999. Amended (f), Table (1). **The text reflects revisions filed January 17, 2008 and effective February 16, 2008.**

**§703.6 Groundwater effluent limitations for discharges to Class GA waters**

(a) The groundwater effluent limitations in Table 3 of subdivision (e) of this section and effluent limitations as established by section 702.16(c)(1) of this Title apply to a discharge from a point source or outlet or any other discharge within the meaning of the Environmental Conservation Law, section 17-0501 that will or may enter the waters of the State. Unless a demonstration is made to the contrary, it shall be presumed that a discharge to the ground or unsaturated zone is a discharge to groundwater. The groundwater effluent limitation is the maximum allowable concentration in micrograms per liter (ug/L), unless otherwise noted.

**Table 7**  
**Endpoint Soil Samples Organic Analytical Results (Don Carlo)**

| Sample Identification                          | EP-1 (#1) | EP-2 (#1) | EP-3 (#1) | EP-4 (#1) | BS-1 (#1) | EP-1 (#2) | EP-2 (#2) | EP-3 (#2) | EP-4 (#2) | UUSCO   |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|
| Sample Depth                                   | 12'       | 12'       | 12'       | 12'       | 18'       | 12'       | 12'       | 12'       | 12'       |         |
| Sample Date                                    | 7/2/2008  | 7/2/2008  | 7/2/2008  | 7/2/2008  | 7/2/2008  | 7/2/2008  | 7/2/2008  | 7/2/2008  | 7/2/2008  |         |
| Sample Matrix                                  | Soil      |         |
| Units  | ug/kg     |         |
| <b>Volatile Organic Compounds (µg/kg)</b>      |           |           |           |           |           |           |           |           |           |         |
| Methylene Chloride                             | 19        | 18        | 17        | 18        | 17        | 22        | 22        | 21        | 22        | 500     |
| <b>Semi-Volatile Organic Compounds (µg/kg)</b> |           |           |           |           |           |           |           |           |           |         |
| Phenanthrene                                   | 120       | ND        | ND        | 520       | 1,200     | 140       | 130       | 200       | 250       | 100,000 |
| Anthracene                                     | ND        | ND        | ND        | 110       | 120       | ND        | ND        | ND        | ND        | 100,000 |
| Fluoranthene                                   | 240       | 180       | 140       | 660       | 920       | 270       | 260       | 270       | 390       | 100,000 |
| Pyrene   | 170       | 140       | 120       | 420       | 890       | 230       | 290       | 290       | 430       | 100,000 |
| Benzo (a) Anthracene                           | ND        | ND        | ND        | 170       | 340       | ND        | ND        | ND        | ND        | 1,000   |
| Chrysene                                       | 97        | ND        | ND        | 200       | 400       | 120       | 140       | 140       | 180       | 1,000   |
| Benzo (b) Fluoranthene                         | 89        | ND        | ND        | 180       | 300       | 99        | 160       | 140       | 160       | 1,000   |
| Benzo (k) Fluoranthene                         | 91        | ND        | ND        | 180       | 290       | 110       | 120       | 97        | 180       | 800     |
| Benzo (a) Pyrene                               | ND        | ND        | ND        | 190       | 340       | 100       | 140       | 110       | 170       | 1,000   |
| Diethylphthalate                               | 160       | 150       | 260       | 160       | 300       | ND        | ND        | ND        | ND        | NS      |
| Naphthalene                                    | ND        | ND        | ND        | ND        | 180       | ND        | ND        | ND        | ND        | 100,000 |
| Benzo (g,h,l) Perylene                         | ND        | ND        | ND        | 140       | ND        | ND        | ND        | ND        | ND        | 100,000 |
| Total SVOCs                                    | 967       | 470       | 520       | 2,930     | 5,280     | 1,069     | 1,240     | 1,247     | 1,760     | NS      |

NS...No Standard

ND...Not Detected

#1...former location of fuel oil and water oil underground storage tanks

#2...former location of gasoline underground storage tanks

Shaded values represent concentration exceeding the UUSCO

UUSCO...Unrestricted Use Soil Cleanup Objectives (6 NYC RR Pt.375-6.8)

This Table Lists Only Compounds Detected At Concentrations Exceeding Their Respective Method Detection Limit.

**Table 7 (Cont.)  
Shallow Soil Samples Organic Analytical Results (Hydro Tech)**

| Sample Identification                          | SP-1      | SP-2      | SP-3      | SP-4      | SP-5      | SP-6      | SP-7      | SP-8      | SP-9      | SP-10     | SP-11     | SP-12     | SP-16     | SP-17     | SP-18     | UUSCO   |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|
| Sample Depth                                   | 0-2'      | 0-2'      | 0-2'      | 0-2'      | 0-2'      | 0-2'      | 0-2'      | 0-2' (*)  | 0-2' (*)  | 0-2' (*)  | 0-2' (*)  | 0-2' (*)  | 0-2' (*)  | 0-2' (*)  | 0-2' (*)  |         |
| Sample Date                                    | 4/24/2009 | 4/24/2009 | 4/27/2009 | 4/24/2009 | 4/27/2009 | 4/24/2009 | 4/24/2009 | 4/28/2009 | 4/28/2009 | 4/28/2009 | 4/28/2009 | 4/28/2009 | 11/2/2009 | 11/2/2009 | 11/2/2009 |         |
| Sample Matrix                                  | Soil      |         |
| Units  | ug/kg     |         |
| <b>Volatile Organic Compounds (µg/kg)</b>      |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |         |
| ND   |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |         |
| <b>Semi-Volatile Organic Compounds (µg/kg)</b> |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |         |
| Acenaphthylene                                 | ND        | ND        | ND        | ND        | ND        | ND        | 420       | ND        | 100,000 |
| Phenanthrene                                   | 3,000     | 1,400     | 8,500     | 790       | ND        | 850       | 8,900     | 540       | ND        | 100,000 |
| Anthracene                                     | ND        | ND        | 1,800     | ND        | ND        | ND        | 2,200     | ND        | 100,000 |
| Fluoranthene                                   | 3,400     | 2,000     | 9,200     | 790       | 520       | 2,900     | 27,000    | 840       | ND        | 100,000 |
| Pyrene   | 2,900     | 1,800     | 8,700     | 730       | 530       | 3,400     | 32,000    | 990       | ND        | 100,000 |
| Benzo (a) Anthracene                           | 2,000     | 1,200     | 5,900     | ND        | ND        | 1,600     | 16,000    | 470       | ND        | 1,000   |
| Chrysene                                       | 2,000     | 1,300     | 6,200     | ND        | 400       | 1,700     | 16,000    | 440       | ND        | 1,000   |
| bis (2-Ethyl Hexyl) Phthalate                  | ND        | ND        | ND        | ND        | 700       | ND        | NS      |
| Benzo (b) Fluoranthene                         | 2,200     | 1,500     | 7,000     | 410       | 480       | 1,900     | 16,000    | 430       | ND        | 1,000   |
| Benzo (k) Fluoranthene                         | 900       | 600       | 2,700     | ND        | ND        | 640       | 5,000     | ND        | 800     |
| Benzo (a) Pyrene                               | 1,700     | 1,100     | 4,800     | ND        | ND        | 1,600     | 14,000    | 400       | ND        | 1,000   |
| Indeno (1,2,3-cd) Pyrene                       | ND        | 450       | 1,500     | ND        | ND        | 770       | 6,800     | ND        | 500     |
| Dibenzo (a,h) Anthracene                       | ND        | ND        | ND        | ND        | ND        | ND        | 2,000     | ND        | 330     |
| Benzo (g,h,i) Perylene                         | ND        | 440       | 1,400     | ND        | ND        | 980       | 8,800     | ND        | 100,000 |
| Total SVOCs                                    | 18,100    | 11,790    | 57,700    | 2,720     | 2,630     | 16,340    | 155,120   | 4,110     | ND        | NS      |
| <b>Pesticides</b>                              |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |         |
| ND   |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |         |
| <b>PCBs</b>                                    |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |         |
| ND   |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |         |

NS...No Standard

ND...Not Detected

\*... Depth from the a basement slab

Shaded values represent concentration exceeding the UUSCO

UUSCO...Unrestricted Use Soil Cleanup Objectives (6 NYC RR Pt.375-6.8)

This Table Lists Only Compounds Detected At Concentrations Exceeding Their Respective Method Detection Limit.

**Table 7 (Cont.)  
Shallow Soil Samples Inorganic Analytical Results (Hydro Tech)**

| Sample Identification | SP-1      | SP-2      | SP-3      | SP-4      | SP-5      | SP-6      | SP-7      | SP-8      | SP-9      | SP-10     | SP-11     | SP-12     | SP-16     | SP-17     | SP-18     | UUSCO |
|-----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------|
| Sample Depth          | 0-'2'     | 0-'2'     | 0-'2'     | 0-'2'     | 0-'2'     | 0-'2'     | 0-'2'     | 0-'2' (*) | 0-'2' (*) | 0-'2' (*) | 0-'2' (*) | 0-'2' (*) | 0-'2' (*) | 0-'2' (*) | 0-'2' (*) |       |
| Sample Date           | 4/24/2009 | 4/24/2009 | 4/27/2009 | 4/24/2009 | 4/27/2009 | 4/24/2009 | 4/24/2009 | 4/28/2009 | 4/28/2009 | 4/28/2009 | 4/28/2009 | 4/28/2009 | 11/2/2009 | 11/2/2009 | 11/2/2009 |       |
| Sample Matrix         | Soil      |       |
| Units                 | mg/Kg     |       |
| Aluminum              | 5,520     | 6,930     | 9,600     | 18,500    | 6,820     | 24,300    | 7,490     | 9,260     | 8,090     | 11,600    | 9,760     | 4,970     | 7,430     | 5,070     | 9,060     | NS    |
| Antimony              | ND        | ND        | ND        | ND        | ND        | 4.6       | ND        | NS    |
| Arsenic               | 4.5       | 7.6       | 7.8       | ND        | 3.8       | ND        | 5.3       | 1         | 2.5       | 1.4       | 2.8       | 4.7       | 1.1       | ND        | 2.4       | 13    |
| Barium                | 146       | 776       | 498       | 282       | 332       | 282       | 177       | 76.8      | 107       | 85.5      | 78.1      | 40.6      | 103       | 35.4      | 55.7      | 350   |
| Beryllium             | 0.5       | 0.42      | 0.61      | 0.93      | 0.56      | 0.65      | 0.38      | 0.45      | 0.39      | 0.63      | 0.46      | ND        | 0.32      | ND        | 0.35      | 7.2   |
| Cadmium               | 2.34      | 1.84      | 2.27      | 0.56      | 1.81      | 0.46      | 2.85      | ND        | 0.63      | ND        | ND        | ND        | ND        | ND        | ND        | 2.5   |
| Calcium               | 66,000    | 35,800    | 49,600    | 2,580     | 44,200    | 2,270     | 41,200    | 9,320     | 21,700    | 10,200    | 12,000    | 24,000    | 26,400    | 41,000    | 28,200    | NS    |
| Total Chromium        | 15.6      | 19.8      | 25.5      | 31.4      | 18.3      | 55.1      | 31.1      | 21.8      | 21.9      | 27.3      | 25.6      | 13.4      | ND        | ND        | ND        | NS    |
| Chromium Hexavalent   | x         | x         | x         | x         | x         | x         | x         | x         | x         | x         | x         | x         | ND        | ND        | ND        | 1     |
| Chromium Trivalent    | x         | x         | x         | x         | x         | x         | x         | x         | x         | x         | x         | x         | 18.2      | 16.5      | 17.1      | 30    |
| Cobalt                | 7.47      | 8.35      | 12.8      | 7.89      | 9.79      | 18.1      | 8.65      | 8.25      | 7.75      | 11.1      | 9.54      | 5.43      | 6.28      | 4.22      | 6.76      | NS    |
| Copper                | 42.2      | 75.9      | 81.8      | 39.1      | 214       | 48.7      | 114       | 32        | 19.3      | 26.9      | 21        | 21.4      | 20        | 11.6      | 21.6      | 50    |
| Iron                  | 12,700    | 17,100    | 29,200    | 22,000    | 14,700    | 43,200    | 29,600    | 14,800    | 14,500    | 23,500    | 17,400    | 11,500    | 15,400    | 9,650     | 17,000    | NS    |
| Lead                  | 125       | 504       | 269       | 28.1      | 320       | 50.1      | 670       | 25.5      | 127       | 19.8      | 19.4      | 13.1      | 34.3      | 2.13      | 32.9      | 63    |
| Magnesium             | 37,100    | 97.2      | 29,600    | 6,550     | 250,000   | 10,800    | 20,800    | 2,620     | 2,710     | 5,360     | 4,490     | 2,450     | 2,760     | 2,310     | 5,580     | NS    |
| Manganese             | 234       | 299       | 271       | 212       | 200       | 384       | 293       | 303       | 288       | 450       | 294       | 112       | 228       | 102       | 224       | 1,600 |
| Mercury               | 0.16      | 0.44      | 0.15      | 0.15      | 0.15      | 0.1       | 0.26      | ND        | 0.18  |
| Nickel                | 23.2      | 22        | 31.1      | 19.8      | 63.4      | 26.5      | 22.6      | 13.7      | 13.6      | 17.7      | 16.3      | 10.2      | 12.1      | 9.01      | 12        | 30    |
| Potassium             | 2,250     | 1,730     | 5,420     | 7,020     | 3,180     | 12,000    | 2,180     | 1,540     | 1,580     | 2,420     | 1,720     | 972       | 1,670     | 773       | 1,340     | NS    |
| Sodium                | 141       | 177       | 157       | 337       | 570       | 317       | 216       | 231       | 206       | 212       | 181       | 224       | 292       | 225       | 490       | NS    |
| Thallium              | ND        | ND        | ND        | 4.7       | ND        | NS    |
| Vanadium              | 28        | 29        | 46.5      | 63.3      | 33.5      | 82.4      | 27.7      | 25.5      | 26.1      | 38.2      | 34.3      | 25.2      | 25        | 19.9      | 20.4      | NS    |
| Zinc                  | 133       | 438       | 231       | 77.5      | 326       | 108       | 258       | 103       | 114       | 55.2      | 51.3      | 49.2      | 71.3      | 17.8      | 68.8      | 109   |

ND...not detected

mg/kg...milligrams per kilogram

NS...no standard

x...not analyzed at this time

\*... Depth from the a basement slab

Shaded values represent concentration exceeding the UUSCO

UUSCO...Unrestricted Use Soil Cleanup Objectives (6 NYC RR Pt.375-6.8)

This Table Lists Only Compounds Detected At Concentrations Exceeding Their Respective Method Detection Limi

**Table 7 (Cont.)  
Deep Soil Samples Organic Analytical Results (Hydro Tech)**

| Sample Identification                          | SP-1      | SP-2      | SP-3      | SP-4      | SP-5      | SP-6      | SP-7      | SP-13     | SP-14     | SP-15     | UUSCO   |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|
| Sample Depth                                   | 8'-10'    | 8'-10'    | 6'-8'     | 8'-10'    | 8'-10'    | 6'-8'     | 8'-10'    | 6'-8'     | 8'-10'    | 10'-12'   |         |
| Sample Date                                    | 4/24/2009 | 4/24/2009 | 4/27/2009 | 4/24/2009 | 4/27/2009 | 4/24/2009 | 4/24/2009 | 8/20/2009 | 8/20/2009 | 8/20/2009 |         |
| Sample Matrix                                  | Soil      |         |
| Units  | ug/kg     |         |
| <b>Volatile Organic Compounds (µg/kg)</b>      |           |           |           |           |           |           |           |           |           |           |         |
| Acetone  | ND        | ND        | ND        | ND        | ND        | 32        | ND        | ND        | ND        | ND        | 50      |
| Ethylbenzene                                   | ND        | ND        | 3,500     | ND        | 16,000    | ND        | ND        | ND        | ND        | ND        | 1.0     |
| o-Xylene                                       | ND        | ND        | ND        | ND        | 1,700     | ND        | ND        | ND        | ND        | ND        | NS      |
| m + p-Xylene                                   | ND        | ND        | ND        | ND        | 50,000    | ND        | ND        | ND        | ND        | ND        | NS      |
| Isopropylbenzene                               | ND        | ND        | 2,800     | ND        | 3,800     | ND        | ND        | ND        | ND        | ND        | NS      |
| n-Propylbenzene                                | ND        | ND        | 6,400     | ND        | 16,000    | ND        | ND        | ND        | ND        | ND        | 3,900   |
| 1,3,5-Trimethylbenzene                         | ND        | ND        | 33,000    | ND        | 35,000    | ND        | ND        | ND        | ND        | ND        | 8,400   |
| 1,2,4-Trimethylbenzene                         | ND        | ND        | 89,000    | ND        | 93,000    | ND        | 600       | ND        | ND        | ND        | 3,600   |
| sec-Butylbenzene                               | ND        | ND        | 1,800     | ND        | 2,800     | ND        | ND        | ND        | ND        | ND        | 11,000  |
| 4-Isopropyltoluene                             | ND        | ND        | 2,800     | ND        | 1,500     | ND        | ND        | ND        | ND        | ND        | NS      |
| n-Butylbenzene                                 | ND        | ND        | 5,400     | ND        | 7,200     | ND        | ND        | ND        | ND        | ND        | 12,000  |
| Naphthalene                                    | ND        | ND        | 25,000    | ND        | 18,000    | ND        | ND        | ND        | ND        | ND        | NS      |
| Total VOCs                                     | ND        | ND        | 169,700   | ND        | 245,000   | 32        | 600       | ND        | ND        | ND        | NS      |
| <b>Semi-Volatile Organic Compounds (µg/kg)</b> |           |           |           |           |           |           |           |           |           |           |         |
| Naphthalene                                    | ND        | ND        | 4,100     | ND        | 28,000    | ND        | 860       | ND        | ND        | ND        | 12,000  |
| 2-Methylnaphthalene                            | ND        | ND        | 3,200     | ND        | 18,000    | ND        | 690       | ND        | ND        | ND        | NS      |
| Phenanthrene                                   | 3,700     | ND        | ND        | ND        | 1,200     | ND        | ND        | ND        | ND        | ND        | 100,000 |
| Anthracene                                     | 1,100     | ND        | 100,000 |
| Fluoranthene                                   | 4,900     | ND        | ND        | ND        | 1,200     | ND        | ND        | ND        | ND        | ND        | 100,000 |
| Pyrene   | 5,500     | ND        | ND        | ND        | 1,300     | ND        | ND        | ND        | ND        | ND        | 100,000 |
| Benzo (a) Anthracene                           | 3,100     | ND        | ND        | ND        | 520       | ND        | ND        | ND        | ND        | ND        | 1,000   |
| Chrysene                                       | 3,000     | ND        | ND        | ND        | 480       | ND        | ND        | ND        | ND        | ND        | 1,000   |
| Benzo (b) Fluoranthene                         | 3,100     | ND        | ND        | ND        | 450       | ND        | ND        | ND        | ND        | ND        | 1,000   |
| Benzo (k) Fluoranthene                         | 1,300     | ND        | 800     |
| Benzo (a) Pyrene                               | 2,800     | ND        | 1,000   |
| Indeno (1,2,3-cd) Pyrene                       | 950       | ND        | 500     |
| Benzo (g,h,i) Perylene                         | 960       | ND        | 100,000 |
| Total SVOCs                                    | 30,410    | ND        | 7,300     | ND        | 51,150    | ND        | 1,550     | ND        | ND        | ND        | NS      |
| <b>Pesticides</b>                              |           |           |           |           |           |           |           |           |           |           |         |
| ND   |           |           |           |           |           |           |           |           |           |           |         |
| <b>PCBs</b>                                    |           |           |           |           |           |           |           |           |           |           |         |
| ND   |           |           |           |           |           |           |           |           |           |           |         |

NS...No Standard

ND...Not Detected

Shaded values represent concentration exceeding the UUSCO

UUSCO...Unrestricted Use Soil Cleanup Objectives (6 NYC RR Pt.375-6.8)

This Table Lists Only Compounds Detected At Concentrations Exceeding Their Respective Method Detection Limit.

**Table 7 (Cont.)**  
**Deep Soil Samples Inorganic Analytical Results (Hydro Tech)**

| Sample Identification | SP-1      | SP-2      | SP-3      | SP-4      | SP-5      | SP-6      | SP-7      | UUSCO |
|-----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------|
| Sample Depth          | 8'-10'    | 8'-10'    | 6'-8'     | 8'-10'    | 8'-10'    | 6'-8'     | 8'-10'    |       |
| Sample Date           | 4/24/2009 | 4/24/2009 | 4/27/2009 | 4/24/2009 | 4/27/2009 | 4/24/2009 | 4/24/2009 |       |
| Sample Matrix         | Soil      |       |
| Units                 | mg/Kg     | mg/Kg |
| Aluminum              | 12,300    | 16,800    | 20,600    | 5,570     | 7,040     | 13,300    | 10,500    | NS    |
| Antimony              | 5.1       | ND        | ND        | ND        | ND        | ND        | ND        | NS    |
| Arsenic               | 6         | ND        | ND        | ND        | ND        | ND        | 1.5       | 13    |
| Barium                | 439       | 171       | 171       | 120       | 56.9      | 124       | 121       | 350   |
| Beryllium             | 0.63      | 0.95      | 0.64      | 0.43      | 0.48      | 0.66      | 0.48      | 7.2   |
| Cadmium               | 0.8       | 0.37      | 0.65      | ND        | 82.6      | ND        | ND        | 2.5   |
| Calcium               | 5,440     | 2,470     | 3,380     | 1,510     | 3,820     | 1,040     | 1,870     | NS    |
| Total Chromium        | 48.8      | 29.2      | 35.3      | 19.3      | 22.6      | 33.6      | 30.1      | NS    |
| Chromium Hexavalent   | x         | x         | x         | x         | x         | x         | x         | 1     |
| Chromium Trivalent    | x         | x         | x         | x         | x         | x         | x         | 30    |
| Cobalt                | 17.4      | 26.3      | 6.34      | 8.43      | 11        | 17.2      | 7.84      | NS    |
| Copper                | 298       | 87.3      | 7.35      | 8.7       | 25.9      | 42.1      | 20        | 50    |
| Iron                  | 30,400    | 33,500    | 12,100    | 7,520     | 15,600    | 27,000    | 16,200    | NS    |
| Lead                  | 713       | 4.38      | 9.69      | 1.12      | 30.4      | 5.07      | 8.53      | 63    |
| Magnesium             | 6,320     | 7,640     | 2,490     | 2,550     | 3,580     | 4,360     | 3,060     | NS    |
| Manganese             | 336       | 145       | 105       | 73.8      | 390       | 496       | 297       | 1,600 |
| Mercury               | 0.1       | ND        | ND        | ND        | ND        | ND        | ND        | 0.18  |
| Nickel                | 26        | 43.8      | 17.7      | 19.3      | 20.6      | 38.8      | 24.6      | 30    |
| Potassium             | 6,360     | 9.47      | 1,160     | 8.25      | 1,240     | 3,590     | 1,440     | NS    |
| Sodium                | 222       | 198       | 121       | 98.9      | 203       | 117       | 130       | NS    |
| Thallium              | ND        | 5.2       | ND        | ND        | ND        | ND        | ND        | NS    |
| Vanadium              | 56.2      | 45.5      | 27.8      | 13.6      | 25.7      | 49.7      | 27.9      | NS    |
| Zinc                  | 487       | 81.3      | 53.9      | 53.7      | 59.1      | 47.4      | 42.4      | 109   |

*ND...not detected*

*mg/kg...milligrams per kilogram*

*NS...no standard*

*x...not analyzed at this time*

*Shaded values represent concentration exceeding the UUSCO*

*UUSCO...Unrestricted Use Soil Cleanup Objectives (6 NYC RR Pt.375-6.8)*

*This Table Lists Only Compounds Detected At Concentrations Exceeding Their Respective Method Detection Limit.*

**Table 8****Ranked Data Table for Organic Compounds in Deep Soil**

|                       |        |       |     |
|-----------------------|--------|-------|-----|
| Sample Identification | SP-5   | SP-3  | SCO |
| Sample Depth          | 8'-10' | 6'-8' |     |
| Ethylbenzene (ug/kg)  | 16,000 | 3,500 | 1   |

|                                |        |        |       |
|--------------------------------|--------|--------|-------|
| Sample Identification          | SP-5   | SP-3   | SCO   |
| Sample Depth                   | 8'-10' | 6'-8'  |       |
| 1,3,5-Trimethylbenzene (ug/kg) | 35,000 | 33,000 | 8,400 |

|                        |        |        |        |       |
|------------------------|--------|--------|--------|-------|
| Sample Identification  | SP-5   | SP-3   | SP-7   | SCO   |
| Sample Depth           | 8'-10' | 6'-8'  | 8'-10' |       |
| 1,2,4-Trimethylbenzene | 93,000 | 89,000 | 600    | 3,600 |

|                       |         |         |        |       |
|-----------------------|---------|---------|--------|-------|
| Sample Identification | SP-5    | SP-3    | SP-7   | SP-6  |
| Sample Depth          | 8'-10'  | 6'-8'   | 8'-10' | 6'-8' |
| Total VOCs (ug/kg)    | 245,000 | 169,700 | 600    | 32    |

|                       |        |        |         |
|-----------------------|--------|--------|---------|
| Sample Identification | SP-1   | SP-5   | SCO     |
| Sample Depth          | 8'-10' | 8'-10' |         |
| Pyrene (ug/kg)        | 5,500  | 1,300  | 100,000 |

|                              |        |        |       |
|------------------------------|--------|--------|-------|
| Sample Identification        | SP-1   | SP-5   | SCO   |
| Sample Depth                 | 8'-10' | 8'-10' |       |
| Benzo (a) Anthracene (ug/kg) | 3,100  | 520    | 1,000 |
| BaP Equivalent               | 310    | 52     | 100   |

|                       |        |        |       |        |
|-----------------------|--------|--------|-------|--------|
| Sample Identification | SP-5   | SP-1   | SP-3  | SP-7   |
| Sample Depth          | 8'-10' | 8'-10' | 6'-8' | 8'-10' |
| Total SVOCs (ug/kg)   | 51,150 | 30,410 | 7,300 | 1,550  |

SCO...Unrestricted Soil Cleanup Objective

NS...No Standard

**Table 8 (Cont.)****Ranked Data Table for Inorganic Compounds in Deep Soil**

|                       |        |        |     |
|-----------------------|--------|--------|-----|
| Sample Identification | SP-1   | SP-7   | SCO |
| Sample Depth          | 8'-10' | 8'-10' |     |
| Arsenic (mg/Kg)       | 6      | 1.5    |     |

|                       |        |        |       |        |     |
|-----------------------|--------|--------|-------|--------|-----|
| Sample Identification | SP-5   | SP-1   | SP-3  | SP-7   | SCO |
| Sample Depth          | 8'-10' | 8'-10' | 6'-8' | 8'-10' |     |
| Cadmium (mg/Kg)       | 82.6   | 0.8    | 0.65  | 0.37   |     |

|                        |        |       |       |        |        |        |        |     |
|------------------------|--------|-------|-------|--------|--------|--------|--------|-----|
| Sample Identification  | SP-1   | SP-3  | SP-6  | SP-7   | SP-7   | SP-5   | SP-4   | SCO |
| Sample Depth           | 8'-10' | 6'-8' | 6'-8' | 8'-10' | 8'-10' | 8'-10' | 8'-10' |     |
| Total Chromium (mg/Kg) | 48.8   | 35.3  | 33.6  | 30.1   | 29.2   | 22.6   | 19.3   |     |

|                       |        |        |       |        |       |        |        |     |
|-----------------------|--------|--------|-------|--------|-------|--------|--------|-----|
| Sample Identification | SP-1   | SP-5   | SP-3  | SP-7   | SP-6  | SP-7   | SP-4   | SCO |
| Sample Depth          | 8'-10' | 8'-10' | 6'-8' | 8'-10' | 6'-8' | 8'-10' | 8'-10' |     |
| Lead (mg/Kg)          | 713    | 30.4   | 9.69  | 8.53   | 5.07  | 4.38   | 1.12   |     |

|                       |        |     |
|-----------------------|--------|-----|
| Sample Identification | SP-1   | SCO |
| Sample Depth          | 8'-10' |     |
| Mercury (mg/Kg)       | 0.1    |     |

|                       |        |       |        |        |        |        |       |     |
|-----------------------|--------|-------|--------|--------|--------|--------|-------|-----|
| Sample Identification | SP-7   | SP-6  | SP-1   | SP-7   | SP-5   | SP-4   | SP-3  | SCO |
| Sample Depth          | 8'-10' | 6'-8' | 8'-10' | 8'-10' | 8'-10' | 8'-10' | 6'-8' |     |
| Nickel (mg/Kg)        | 43.8   | 38.8  | 26     | 24.6   | 20.6   | 19.3   | 17.7  |     |

**Table 9  
Groundwater Organic Analytical Results (Hydro Tech)**

| Sample Identification                 | MW-1        | MW-2        | MW-3        | MW-4        | MW-5        | MW-7        | MW-8        | MW-9        | MW-10       | 6NYCRR Part 703.5<br>Class GA Groundwater<br>Quality Standards |
|---------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
| Sample Date                           | 4/29/2009   | 4/29/2009   | 4/29/2009   | 8/21/2009   | 8/21/2009   | 11/6/2009   | 11/6/2009   | 11/6/2009   | 11/6/2009   |  |
| Sample Matrix                         | Groundwater |  |
| Units                                 | ug/L   |
| <b>Volatile Organic Compounds</b>     |             |             |             |             |             |             |             |             |             |  |
| Benzene                               | ND          | ND          | ND          | ND          | ND          | ND          | 140         | ND          | ND          | 1  |
| Toluene                               | ND          | ND          | ND          | ND          | ND          | ND          | 4.5         | ND          | ND          | 5  |
| Ethylbenzene                          | ND          | 930         | ND          | ND          | ND          | 180         | 6.2         | ND          | ND          | 5  |
| o-Xylene                              | ND          | 33          | ND          | ND          | ND          | 41          | 1.9         | ND          | ND          | 5  |
| m,p-Xylene                            | ND          | 230         | ND          | ND          | ND          | 540         | 19          | ND          | ND          | 5  |
| Isopropylbenzene                      | ND          | 110         | ND          | ND          | ND          | 100         | 22          | ND          | ND          | 5  |
| n-Propylbenzene                       | ND          | 350         | ND          | ND          | ND          | 170         | 29          | ND          | ND          | 5  |
| 1,3,5-Trimethylbenzene                | ND          | 220         | ND          | ND          | ND          | 790         | ND          | ND          | ND          | 5  |
| 1,2,4-Trimethylbenzene                | ND          | 1,700       | ND          | ND          | ND          | 2,200       | ND          | ND          | ND          | 5  |
| sec-Butylbenzene                      | ND          | 36          | ND          | ND          | ND          | ND          | 1.9         | ND          | ND          | 5  |
| Chlorobenzene                         | ND          | ND          | ND          | ND          | ND          | ND          | 1.5         | ND          | ND          | 5  |
| n-Butylbenzene                        | ND          | ND          | ND          | ND          | ND          | ND          | 2.5         | ND          | ND          | 5  |
| 2-Isopropyltoluene                    | ND          | ND          | ND          | 4.8         | ND          | 46          | 1.1         | ND          | ND          | 5  |
| 1,2-Dichlorobenzene                   | ND          | ND          | ND          | ND          | ND          | ND          | 1.6         | ND          | ND          | 3  |
| Benzoic Acid                          | ND          | ND          | 63          | ND          | ND          | ND          | ND          | ND          | ND          | NS   |
| Vinyl Chloride                        | ND          | ND          | ND          | ND          | ND          | ND          | 1.2         | ND          | ND          | 2  |
| Naphthalene                           | ND          | 52          | ND          | ND          | ND          | 570         | 76          | ND          | ND          | 10   |
| Methyl-t-butyl ether                  | ND          | ND          | 12          | ND          | ND          | ND          | ND          | ND          | 3.7         | NS   |
| Total VOCs                            | ND          | 3,661       | 75          | 4.8         | ND          | 4,637       | 308         | ND          | 3.7         | NS   |
| <b>Semivolatile Organic Compounds</b> |             |             |             |             |             |             |             |             |             |  |
| 2-Methylnaphthalene                   | ND          | 15          | ND          | ND          | ND          | 86          | 5.9         | ND          | ND          | NS   |
| Phenanthrene                          | 0.63        | 1.4         | ND          | ND          | 0.11        | 1.7         | 1           | ND          | ND          | NS   |
| Benzo(a)anthracene                    | 0.4         | 0.22        | ND          | ND          | ND          | 0.22        | ND          | ND          | ND          | NS   |
| Naphthalene                           | ND          | 32          | ND          | ND          | ND          | 340         | 80          | ND          | ND          | 10   |
| Benzo(b)fluoranthene                  | 0.5         | 0.16        | ND          | ND          | ND          | 0.22        | ND          | ND          | ND          | NS   |
| Benzo(a)pyrene                        | 0.39        | 0.12        | ND          | ND          | ND          | 0.16        | ND          | ND          | ND          | NS   |
| Total SVOCs                           | 1.92        | 48.9        | ND          | ND          | 0.11        | 428         | 86.9        | ND          | ND          | NS   |
| <b>Pesticides</b>                     |             |             |             |             |             |             |             |             |             |  |
| ND                                    |             |             |             |             |             |             |             |             |             |  |
| <b>PCBs</b>                           |             |             |             |             |             |             |             |             |             |  |
| ND                                    |             |             |             |             |             |             |             |             |             |  |

NS...No Standard

ug/L...micrograms per Liter

ND...not detected

Shaded values represent concentration exceeding the GQS

This Table Lists Only Compounds Detected At Concentrations Exceeding Their Respective Method Detection Limit.

**Table 9 (Cont.)**  
**Groundwater Inorganic Analytical Results (Unfiltered and Filtered) (Hydro Tech)**

| Sample Identification | MW-1       | MW-1      | MW-2       | MW-2      | MW-3       | MW-3      | MW-7       | MW-7     | MW-8       | MW-8      | MW-9       | MW-9      | MW-10      | MW-10     | 6NYCRR Part<br>703.5 Class GA<br>Groundwater |
|-----------------------|------------|-----------|------------|-----------|------------|-----------|------------|----------|------------|-----------|------------|-----------|------------|-----------|--|
| Sample Date           | 4/29/2009  | 4/29/2009 | 4/29/2009  | 4/29/2009 | 4/29/2009  | 4/29/2009 | 11/6/2009  | #####    | 11/6/2009  | 11/6/2009 | 11/6/2009  | 11/6/2009 | 11/6/2009  | 11/6/2009 |  |
| Sample Matrix         | Unfiltered | Filtered  | Unfiltered | Filtered  | Unfiltered | Filtered  | Unfiltered | Filtered | Unfiltered | Filtered  | Unfiltered | Filtered  | Unfiltered | Filtered  |  |
| Units                 | mg/L       | mg/L      | mg/L       | mg/L      | mg/L       | mg/L      | mg/L       | mg/L     | mg/L       | mg/L      | mg/L       | mg/L      | mg/L       | mg/L      | mg/L   |
| Aluminum              | 64.4       | ND        | 31.1       | 0.59      | 51.1       | 0.03      | 1.97       | 0.36     | 15.8       | 0.1       | 38.3       | 1.36      | 113        | 0.25      | NS   |
| Antimony              | 0.006      | ND        | ND         | ND        | ND         | ND        | ND         | ND       | ND         | ND        | ND         | ND        | ND         | ND        | 0.003  |
| Arsenic               | 0.006      | ND        | 0.019      | ND        | 0.025      | ND        | ND         | ND       | ND         | ND        | 0.006      | 0.005     | ND         | ND        | 0.025  |
| Barium                | 0.809      | 0.082     | 1.48       | 0.248     | 0.665      | 0.14      | 0.057      | 0.047    | 0.397      | 0.203     | 0.488      | 0.11      | 1.33       | 0.071     | 1  |
| Beryllium             | 0.006      | ND        | 0.008      | ND        | ND         | ND        | ND         | ND       | ND         | ND        | 0.002      | ND        | 0.008      | ND        | NS   |
| Cadmium               | ND         | ND        | 0.003      | ND        | ND         | ND        | ND         | ND       | ND         | ND        | 0.002      | ND        | 0.004      | ND        | 0.005  |
| Calcium               | 160        | 153       | 248        | 130       | 242        | 178       | 70.7       | 72.3     | 148        | 149       | 171        | 138       | 303        | 177       | NS   |
| Chromium              | 0.183      | ND        | 0.42       | ND        | 0.2        | ND        | 0.012      | 0.002    | 0.001      | 0.08      | 0.155      | 0.009     | 0.937      | 0.002     | 0.05   |
| Cobalt                | 0.067      | 0.006     | 0.142      | 0.002     | 0.046      | ND        | ND         | ND       | 0.023      | 0.007     | 0.036      | 0.002     | 0.173      | 0.001     | 0.005  |
| Copper                | 0.26       | 0.002     | 0.462      | 0.003     | 0.114      | ND        | 0.012      | 0.002    | 0.066      | 0.006     | 0.135      | 0.009     | 0.861      | 0.003     | 0.2  |
| Iron                  | 234        | 0.072     | 1,120      | 0.945     | 82.5       | 0.104     | 3.78       | 0.455    | 23.6       | 0.356     | 62.1       | 1.63      | 226        | 0.325     | 0.3  |
| Lead                  | 0.164      | ND        | 0.223      | 0.004     | 0.071      | ND        | 0.16       | 0.009    | 0.052      | ND        | 0.138      | 0.004     | 0.078      | ND        | 0.025  |
| Magnesium             | 58.2       | 59.8      | 46.2       | 31.1      | 48.1       | 42.3      | 16.8       | 16.3     | 92.2       | 91.5      | 23.6       | 12.1      | 105        | 33.5      | 0.007  |
| Manganese             | 1.89       | 1.11      | 13.7       | 1.82      | 3.85       | 1.9       | 0.414      | 0.407    | 3.62       | 3.6       | 0.933      | 0.066     | 4.03       | 0.35      | 0.3  |
| Mercury               | 0.0003     | ND        | ND         | ND        | ND         | ND        | ND         | ND       | ND         | ND        | ND         | ND        | ND         | ND        | 0.0007                                       |
| Nickel                | 0.247      | 0.01      | 0.306      | 0.006     | 0.143      | 0.006     | 0.006      | 0.003    | 0.049      | 0.024     | 0.071      | 0.007     | 0.369      | 0.009     | 0.1  |
| Potassium             | 51.3       | 26        | 256        | 17.2      | 29.2       | 13        | 2          | 2.1      | 24.5       | 20.6      | 20         | 12.7      | 45         | 13.5      | NS   |
| Selenium              | ND         | ND        | ND         | 0.011     | ND         | ND        | ND         | ND       | ND         | ND        | ND         | ND        | ND         | ND        | 0.01   |
| Sodium                | 29.9       | 31.1      | 125        | 114       | 322        | 316       | 16.7       | 16.3     | 120        | 135       | 164        | 170       | 268        | 259       | 20   |
| Thallium              | ND         | ND        | 0.002      | ND        | ND         | ND        | ND         | ND       | ND         | ND        | ND         | ND        | ND         | ND        | 0.008  |
| Vanadium              | 0.148      | 0.003     | 0.24       | 0.004     | 0.156      | 0.008     | 0.006      | 0.004    | 0.035      | 0.009     | 0.149      | 0.017     | 0.534      | 0.01      | 0.014  |
| Zinc                  | 0.692      | 0.005     | 0.709      | 0.005     | 0.384      | ND        | 0.1        | 0.003    | 0.129      | 0.008     | 0.29       | 0.016     | 0.767      | 0.004     | NS   |

NS...No Standard

ug/L...micrograms per Liter

ND...not detected

Shaded values represent concentration exceeding the GQS

This Table Lists Only Compounds Detected At Concentrations Exceeding Their Respective Method Detection Limit.

**Table 10**  
**Soil Vapor Samples Organic Analytical Results (Hydro Tech)**

| Sample Identification                     | SG-1              | SG-2              | SG-3              | SG-4              | SG-5              | SG-6              | SG-7              | SG-8              | SG-9              | SG-10             |
|---|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Sample Date                               | 11/6/2009         | 11/6/2009         | 11/6/2009         | 11/6/2009         | 11/9/2009         | 11/9/2009         | 11/9/2009         | 11/9/2009         | 11/9/2009         | 11/6/2009         |
| Sample Matrix                             | Air               |
| Units                                     | ug/m <sup>3</sup> |
| <b>Volatile Organic Compounds (µg/kg)</b> |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| Helium                                    | ND                | 1.9               | ND                |
| Benzene                                   | 52                | ND                | 28                | ND                |
| Toluene                                   | 1,200             | 65                | 54                | 35                | 81                | 420               | 58                | 110               | 420               | ND                |
| Tetrahydrofuran                           | 44                | ND                | ND                | ND                | 39                | ND                | ND                | ND                | ND                | 7,500             |
| Ethylbenzene                              | 530               | ND                | ND                | ND                | ND                | 180               | 57                | 33                | 200               | ND                |
| o-Xylene                                  | 840               | ND                | ND                | ND                | 40                | 260               | ND                | 38                | 260               | ND                |
| m + p-Xylene                              | 1,400             | 57                | 75                | 57                | 75                | 490               | ND                | 84                | 530               | ND                |
| Isopropanol                               | ND                | ND                | ND                | ND                | 120               | ND                | ND                | 1,000             | 2,800             | ND                |
| 2,2,4 Trimethylpentane                    | ND                | ND                | ND                | ND                | 1,400             | ND                | ND                | ND                | 36                | 270,000           |
| Acetone                                   | ND                | 51                | 56                | 170               | 80                | ND                | 200               | 150               | 210               | 6300              |
| 4-Ethyl Toluene                           | 1,400             | ND                | ND                | ND                | ND                | 350               | ND                | ND                | 330               | ND                |
| 1,3,5-Trimethylbenzene                    | 380               | ND                | ND                | ND                | ND                | 100               | ND                | ND                | 80                | ND                |
| 1,2,4-Trimethylbenzene                    | 1,400             | ND                | ND                | ND                | ND                | 250               | ND                | ND                | 240               | ND                |
| n-Hexane                                  | 86                | ND                | ND                | ND                | 34                | ND                | ND                | ND                | 54                | 5,700             |
| n-Heptane                                 | 170               | ND                | 58                | ND                |
| Methyl Isobutyl ketone                    | ND                | 100,00            |
| Methyl ethyl ketone                       | 36                | ND                | ND                | ND                | 30                | ND                | ND                | ND                | ND                | 4,800             |
| Methyl butyl ketone (2-hexanone)          | 120               | ND                | ND                | ND                | 50                | ND                | ND                | ND                | ND                | ND                |
| Total VOCs                                | 7,658             | 173               | 185               | 262               | 1,949             | 2,050             | 315               | 1,415             | 5,246             | 294,300           |

NS...No Standard

ND...Not Detected

This Table Lists Only Compounds Detected At Concentrations Exceeding Their Respective Method Detection Limit.

## **APPENDICES**

## **APPENDIX A**

### **Historical Site Information and Previous Site Investigations (CD-ROM)**

## **APPENDIX B**

### **Resumes and Contact Information for Key Personnel**

| RI Director                                    |   |
|--|---|
| Name   | Hydro Tech Environmental, Corp            |
| Address  | 2171 Jericho Turnpike, Suite 345          |
|  | Commack, NY 11725                         |
| Name   | Mark E. Robbins                           |
| Phone Number                                   | 631-462-5866                              |
| Fax  | 631-457-0030                              |
| Email  | mrobbins@hydrotechenvironmental.com       |
| RI Project Manager and Site Safety Coordinator |   |
| Name   | Hydro Tech Environmental, Corp            |
| Address  | 1111 Fulton Street, 2 <sup>nd</sup> Floor |
|  | Brooklyn, NY 11238                        |
| Name   | Paul I. Matli                             |
| Phone Number                                   | 718-636-0800                              |
| Fax  | 718-636-0900                              |
| Email  | pmatli@hydrotechenvironmental.com         |
| RI Quality Assurance Officer                   |   |
| Name   | Hydro Tech Environmental, Corp            |
| Address  | 1111 Fulton Street, 2 <sup>nd</sup> Floor |
|  | Brooklyn, NY 11238                        |
| Name   | Yashodhara Saha                           |
| Phone Number                                   | 718-636-0800                              |
| Fax  | 718-636-0900                              |
| Email  | ysaha@hydrotechenvironmental.com          |
| Architectural Firm                             |   |
| Name   | Meltzer/Mandl Architects, P.C.            |
| Address  | 215 park Avenue South, Suite 1403         |
|  | New York, NY 10003                        |
| Contact  | Christine J. Gurrieri                     |
| Phone Number                                   | 646-654-2800                              |
| Fax  | 646-654-2801                              |
| Email  | christineG@meltzerman dl.com              |
| Developer                                      |   |
| Name   | MJM Construction Services                 |
| Address  | 242-01 Braddock Avenue                    |
|  | Bellrose, New York 11426                  |
| Contact  | Manny Kanaris                             |
| Phone Number                                   | 718-343-5074                              |
| Fax  | 718-343-5077                              |
| Email  | manny@mjm-services.com                    |



- 2000 – 2001            Assistant Director, Professional Services  
Fenley & Nicol Environmental, Inc., Deer Park, New York
- 1999 – 2000            Senior Geologist  
Fenley & Nicol Environmental, Inc. Deer Park, New York
- 1995 – 1999            Operations Director  
Advanced Cleanup Technologies, Inc., Farmingdale, New  
York
- 1992 – 1995            Project Geologist  
Advanced Cleanup Technologies, Inc., Roslyn Heights, New York

#### Education

B.S. Geology, State University of New York at Oneonta, 1991

#### Affiliations and Certifications

- American Institute of Professional Geologists
- American Association of Petroleum Geologists
- Long Island Geologist Organization
- Geological Society of America
- American Standards in Testing Materials – E50 Committee Member
- Environmental Assessment Association
- OSHA 40-Hour & 8-Hour, Supervisor

#### Registrations and Certifications

- Certified Professional Geologist (C.P.G. # 10527)
- Certified Environmental Inspector (C.E.I. # 73383)
- GPR Operator’s Course, Geophysical Survey Systems, Inc., 1993.

#### Publications/Presentations

- *A Case Study of the Impact of MTBE on the Investigation and Remediation of a Fuel Oil Release*, National Groundwater Focus Conference MTBE in Groundwater: Assessment, Remediation Technologies & Public Policy, Baltimore, MD June 4-5, 2001.
- *Is MTBE in Fuel Oil? Why MTBE Plays a Major Concern on Long Island*, Long Island Business News, February 2001.

## Paul I. Matli (Ph.D.)

|   |  |  |         |
|---|--|--|---------|
| <b>Work Positions</b>   | Apr. 2005-Present  | Hydro Tech Environmental Corp.   | USA     |
|   | <b>Senior Project Manager</b>  |  |         |
|   | Nov.2003-Feb.2004  | Saint Joseph University  | Lebanon |
|   | <b>Vocational lecturer of the course “Ecology and Environment”</b>   |  |         |
|   | May 2003-Jan.2004  | Lebanese Agricultural Research Institute   | Lebanon |
| <b>Agriculture Engineer in the Italian Rural Development Project in the Upper Bekaa valley, Baalbek-Hermel region</b> |  |  |         |
| Apr.1999-Sept.2002  | Tokyo University of Agriculture and Technology   | Japan  |         |
| <b>Teaching Assistant</b>   |  |  |         |
| Oct.1997-Sept.1998  | Ammiq Wetlands   | Lebanon  |         |
| <b>Environmental Manager of Ammiq private wetlands in the Bekaa Valley</b>  |  |  |         |
| <b>Education</b>  | Apr.1999-Sept.2002   | Tokyo University of Agriculture and Technology                                   | Japan   |
|   | <b>Ph.D. in Environmental Sciences</b>   |  |         |
|   | Sept.1995-Sept.1997  | International Centre for Advanced Mediterranean Agronomic Studies, Paris, France | Greece  |
|   | <b>M.Sc. in Environment and Renewable Resources</b>  |  |         |
| Nov.1994- Aug.1995  | International Centre for Advanced Mediterranean Agronomic Studies, Paris, France   | Greece   |         |
| <b>D.S.P.G.S. in Management and Conservation of Mediterranean Ecosystems</b>  |  |  |         |
| Sept.1989-July1994  | University of Saint Joseph   | Lebanon  |         |
| <b>B.Sc. Agricultural Engineer</b>  |  |  |         |
| <b>Publications and Reports</b>   | <b>Matli P.I.</b> , Aoki M., Ozawa Y., Hideshima Y., Nakayama H., and Maruya S. 2002. Characterization of canopy photosynthetic CO <sub>2</sub> flux and leaf stomatal conductance responses of potato crop to changing field meteorological conditions in Hokkaido (in English). <i>Journal of Agricultural Meteorology</i> , <b>58</b> (3)115-122. |  |         |
|   | Dimitrakopoulos A.P., and <b>Matli P.</b> 2001. Bulk density and physical properties of <i>Sarcopoterium spinosum</i> (L.) Spach as fuel characteristics (In English). <i>Journal of Mediterranean Ecology.</i> , <b>2</b> :75-82.   |  |         |
|   | Elzein G., <b>Matli P.</b> , and Darwish S. 1997. Etude de quelques paramètres physico-chimiques et biologiques de l'eau des stations piscicoles à la Béqaa, (in French). <i>Lebanese Scientific Bulletin</i> , <b>10</b> (1):3-20.  |  |         |
|   | <b>Matli P.</b> 1998. Measures and strategies to prevent and manage forest fires in Lebanon (in Arabic). <i>Al Nahar Newspaper; Nahar El Shabab</i> , Sept. 22, pp.2-3.  |  |         |
|   | <b>Matli P.</b> 1997. A preliminary planning of managerial strategies for the conservation and management of Ammiq private wetlands (In English). Technical report submitted to the owners committee of Ammiq Estates-Lebanon, 10p.  |  |         |
| <b>Training and Short Courses</b>   | One-week demonstration of the management of regional natural parks in Languedoc Rousillon-Montpellier, France, June 1998.  |  |         |
|   | One-week short course in Creation and Management of Nature Reserves in Lebanon, Lebanon, Oct. 1997   |  |         |
|   | Two-week short course in Ecology and Management of Wildland Fires in the Mediterranean Region, Greece, Mar. 1997.  |  |         |
|   | 40-Hour OSHA training in health and safety methods in handling hazardous materials, Oct. 2009  |  |         |
| <b>Computer Skills</b>  | Microsoft office; Statistical packages SAS, SPSS.; Sigma plot; Familiarity with GIS  |  |         |
| <b>Languages</b>  | Arabic , French, English and Japanese (except kanji conversational level)  |  |         |

**YASHODHARA SAHA**

2111 Rene Ct  
Ridgewood, NY 11385  
Cell Phone: +1 (347) 324-0398  
E-mail: yashodhara.saha@gmail.com

**EXPERIENCE****Hydro Tech Environmental, Corp. Brooklyn, NY**

*Senior Chemical Engineer-Remediation and Waste Management November 2005-Present*

- Responsible for remedial engineering design, carrying out Site and groundwater remediation. Particular emphasis on bioremediation, chemical oxidation, soil vapor extraction and air sparging.
- Prepare and implement source reduction strategies for facilities to reduce waste generated.
- Currently technical lead providing Comprehensive Remedial investigation to address and close numerous former industrial and aviation facilities listed as Superfund and on the National Priority List.
- Site supervisor providing complete oversight of Construction Projects that require environmental attention.
- Taking the Projects from investigation through final design and construction.
- Designing sub-slab depressurization systems to be placed during foundation layout and providing technical specifications and guidance during all phases of the construction.
- Provide storage tank services including their closure and removal and performing spill prevention and control.

**Langan Engineering & Environmental Consulting Services New York, NY**

*Environmental Intern August 2005-November 2005*

- Responsible for developing sampling and analysis plans for environmental investigations.
- Data assessment and writing site characterization reports upon completion of the field investigation work.
- Responsible for developing Project specific Health and Safety Plan and preparing plot designs using AutoCAD.

**EDUCATION****City College, City University of New York New York, NY**

*Masters of Engineering in Chemical Engineering August 2004- June 2006*

- GPA of 3.66.
- Graduate Research: Layer by layer deposition of polyelectrolyte nanolayers on natural fibers: Cotton, May 25, 2006- with Prof. Alexander Couzis, Dept. of Nanotechnology.
- Graduate Research: The Ocular Environment- Soft lenses as biomaterials, May 22,2006- with Prof. Ilona Kretzchmar, Advanced Materials.

**Sathyabama Engineering College, University of Madras, Chennai (Madras), India**

*Bachelors of Technology in Chemical Engineering August 2000- June 2004*

- GPA of 3.84.
- Top 5% of a total of 42 students in graduating class.
- Top 3% of a total of 42 students in Engineering Mathematics.
- Only student scoring 100% in Operations Research.
- Research in development of Bio-Diesel at the Indian Institute of Technology, Chennai, India.
- Research in Charge Transfer Polymerisation of Styrene using Ultrasound, April 2004 – with Dr.M.Surianarayanan, Central Leather Research Institute, Chennai, India.

**ADDITIONAL**

- Member- Indian Society of Engineers and Architects.
- 6-grade Pianist- Trinity College of London.
- Hobbies: Swimming, Basketball, Skiing, Rock Climbing, Reading and Traveling.

## **APPENDIX C**

### **Health and Safety Plan (CD-ROM)**

## **APPENDIX D**

### **Soil Boring and Geologic Logs (CD-ROM)**

## **APPENDIX E**

### **Groundwater Sampling and Well Purging Logs**

### Before Well Purging

| Well ID Number | Date & Time | Weather Condition | PID and/or FID reading (taken from the well immediately after the cap is removed) | Thickness of NAPL (if present) | pH    | Dissolved Oxygen | Temperature | Specific Conductance S/cm | Total depth of the well from the top of casing or surveyors mark | Depth from the top of the casing to the water | Estimated water volume in the well |
|----------------|-------------|-------------------|---|--------------------------------|-------|------------------|-------------|---------------------------|--|---|------------------------------------|
| MW-1           | 4/29/2009   | Sunny             | 0.01PPM *   | None                           | 6.75* | 76*              | 59.5*       | 0.71*                     | 20   | 10.98*  | 1.48 *                             |
| MW-2           | 4/29/2009   | Sunny             | 0.01PPM *   | None                           | 6.49* | 60.8 *           | 61 *        | 1.94*                     | 20   | 8.57*   | 1.86 *                             |
| MW-3           | 4/29/2009   | Sunny             | 0.01PPM *   | None                           | 7.03* | 73*              | 56.6*       | 1.24 *                    | 10   | 1.32*   | 1.42*                              |
| MW-4           | 8/21/2009   | Sunny             | 0.01PPM *   | None                           | 7.13* | 75 *             | 62.1 *      | 0.92 *                    | 10   | 7.44*   | 0.4*                               |
| MW-5           | 8/21/2009   | Sunny             | 0.01 PPM *  | None                           | 6.67* | 75 *             | 60.1*       | 0.66 *                    | 10   | 10*   | Thin layer*                        |
| MW-6           | 8/21/2009   | Sunny             | Dry   | Dry                            | Dry * | Dry*             | Dry *       | Dry*                      | 12   | Dry*  | Dry*                               |
| MW-7           | 11/6/2009   | Sunny             | 0.01PPM   | None                           | 6.83  | 44               | 60.6        | 0.41                      | 20   | 10.79   | 1.5                                |
| MW-8           | 11/6/2009   | Sunny             | 0.01 PPM  | None                           | 6.92  | 45               | 61.5        | 1.07                      | 20   | 10  | 1.63                               |
| MW-9           | 11/6/2009   | Sunny             | 0.01PPM   | None                           | 7.8   | 86               | 54.8        | 0.78                      | 10   | 2.58  | 1.2                                |
| MW-10          | 11/6/2009   | Sunny             | 0.01PPM   | None                           | 7.8   | 75               | 54.2        | 1.49                      | 20   | 9.03  | 1.8                                |

\* Measured on 11/6/2009

# **APPENDIX F**

## **Soil Vapor Sampling Logs**

| Sample Id | Sample Date(s) | Flow Controller Readout (L/min) | Start sampling Time | Stop Sampling Time | Canister Pressure in Field ("Hg) (Start) | Canister Pressure in Field("Hg) (Stop) | Temp.(F) (Start) | Temp.(F) (Stop) |
|-----------|----------------|---------------------------------|---------------------|--------------------|--|--|------------------|-----------------|
| SG-1      | 11/6/2009      | 0.025                           | 9:30                | 1:29               | 30                                       | 0                                      | 59               | 63              |
| SG-2      | 11/6/2009      | 0.025                           | 9:15                | 1:25               | 30                                       | 0                                      | 59               | 63              |
| SG-3      | 11/6/2009      | 0.025                           | 9:05                | 1:10               | 30                                       | 4                                      | 59               | 63              |
| SG-4      | 11/6/2009      | 0.025                           | 8:45                | 12:30              | 28                                       | 0                                      | 61               | 65              |
| SG-5      | 11/9/2009      | 0.025                           | 9:15                | 1:10               | 30                                       | 6                                      | 62               | 65              |
| SG-6      | 11/9/2009      | 0.025                           | 9:20                | 1:25               | 30                                       | 0                                      | 62               | 65              |
| SG-7      | 11/9/2009      | 0.025                           | 9:25                | 1:30               | 30                                       | 7.5                                    | 62               | 65              |
| SG-8      | 11/9/2009      | 0.025                           | 9:40                | 1:35               | 30                                       | 0                                      | 62               | 65              |
| SG-9      | 11/9/2009      | 0.025                           | 10:45               | 1:45               | 30                                       | 6.5                                    | 59               | 63              |
| SG-10     | 11/6/2009      | 0.025                           | 9:45                | 1:50               | 30                                       | 6                                      | 59               | 63              |

SG... Soil Vapor Sample

"Hg...Inch of Mercury

F... Fahrenheit

L/min... Liters per minute

## **APPENDIX G**

### **Soil Analytical Data (CD-ROM)**

## **APPENDIX H**

### **Groundwater Analytical Data (CD-ROM)**

## **APPENDIX I**

### **Soil Vapor Analytical Data (CD-ROM)**

## **APPENDIX J**

### **Digital Photographs of Remedial Investigations (CD-ROM)**