

1600 PELHAM PARKWAY

BRONX, NEW YORK

Remedial Investigation Report

NYC BCP Site Number: NYC 11CBCP001X

Prepared for:

MJM Construction Services

242-01 Braddock Ave, Bellerose, NY 11426

Prepared by:

Hydro Tech Environmental, Corp.

2171 Jericho Turnpike, Suite 345, Commack, NY 11725 631-462-5866

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 [1600 Pelham Parkway] Site, (NYC BCA Site No. NYC 11CBCP001X). 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 Brownfield Cleanup Agreement (BCA).

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 BCA for 1600 Pelham Parkway and related amendments.

Mark E. Robbins

NYS Qualified Environmental Professional

Date

Signature

REMEDIAL INVESTIGATION REPORT

TABLE OF CONTENTS

LIST OF ACRONYMS	vi
EXECUTIVE SUMMARY	1
REMEDIAL INVESTIGATION REPORT	7
1.0 INTRODUCTION AND PROJECT OBJECTIVES	7
1.1 PROJECT BACKGROUND.....	7
1.2 SITE LOCATION AND DESCRIPTION	7
1.3 DESCRIPTION OF SURROUNDING PROPERTY	8
1.4 CONTEMPLATED REDEVELOPMENT PLAN.....	9
2.0 SITE HISTORY	11
2.1 PAST USES AND OWNERSHIP	11
2.2 PREVIOUS INVESTIGATIONS	11
2.3 SIGNIFICANT HISTORICAL ENVIRONMENTAL SITE FEATURES.....	11
2.4 AREAS OF CONCERN.....	12
2.5 INTERIM REMEDIAL MEASURES	12
3.0 PROJECT ORGANIZATION AND MANAGEMENT.....	13
3.1 PROJECT ORGANIZATION.....	13
3.2 HEALTH AND SAFETY	13
3.3 COMMUNITY AIR MONITORING	13
3.4 INVESTIGATION DERIVED WASTE.....	13

4.0 REMEDIAL INVESTIGATION ACTIVITIES AND OBSERVATIONS 15

 4.1 GEOPHYSICAL WORK..... 15

 4.2 BORINGS, PIEZOMETERS AND MONITORING WELLS 16

 4.3 GEOLOGICAL AND HYDROGEOLOGICAL CONDITIONS 19

 4.4 SAMPLE COLLECTION AND CHEMICAL ANALYSIS..... 23

 4.4.1 Quality Assurance and Quality Control..... 29

 4.5 IDENTIFICATION OF STANDARDS, CRITERIA AND GUIDANCE..... 29

 4.6 ENVIRONMENTAL CONTAMINATION 29

 4.6.1 Soil/Fill Contamination..... 30

 4.6.1.1 Comparison of Soil/Fill with SCGs 31

 4.6.2 Groundwater Contamination..... 32

 4.6.2.1 Comparison of Groundwater with SCGs 32

 4.6.3 On-Site and Off-Site Soil Vapor Contamination 34

 4.6.3.1 Comparison of Soil Vapor with SCGs..... 34

 4.6.X [Other Environmental Media]..... 36

 4.7 REPORTING 35

 4.7.1 Daily Reports 36

 4.7.2 Monthly Reports 36

 4.7.3 Other Reporting..... 36

5.0 ENVIRONMENTAL AND PUBLIC HEALTH ASSESSMENTS 37

 5.1 QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT..... 37

 5.2 FISH & WILDLIFE REMEDIAL IMPACT ANALYSIS..... 41

5.3 SIGNIFICANT THREAT DETERMINATION..... 42

5.4 IMPEDIMENTS TO REMEDIAL ACTION 42

6.0 REMEDIAL ACTION OBJECTIVES 43

6.1 CONCEPTUAL MODEL OF SITE CONTAMINATION..... 43

6.2 REMEDIAL ACTION OBJECTIVES..... 44

6.2.1 Groundwater..... 44

6.2.2 Soil 45

6.2.3 Soil Vapor 45

7.0 CITIZEN PARTICIPATION PLAN 45

8.0 RIR RECOMMENDATIONS, SUMMARY AND FINDINGS**Error! Bookmark not defined.**

FIGURES.....

TABLES

APPENDICES

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
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IRM	Interim Remedial Measure
LBCA	Local 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
UST	Underground Storage Tank

EXECUTIVE SUMMARY

Site Description, Physical Setting and Proposed Use

MJM Construction Services is filing an application to enter into the New York City Brownfield Cleanup Program (NYC BCP) under the management of the Mayor's Office of Environmental Remediation (OER) as a Volunteer. The Site is associated with Brownfield Cleanup Program ID number 11CBCP001X

The Site is approximately 24,042 square feet in area, consists of two adjacent lots identified as 30 and 36 (Block 4223) and is located on the southern side of Pelham Parkway South, to the east of Stillwell Avenue in Bronx, NY. The topography of the Site is generally level. The Site Location Map is provided as Figure 1.

Lot 30 is currently developed with a 2-story commercial building with a partial basement, a 1-story shed, an asphalt parking lot. Lot 36 is currently vacant and undeveloped. The Site is currently unoccupied. The surrounding property uses are predominantly commercial and industrial.

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

Summary of Past Uses of Site and Areas of Concern

Lot 30 was historically utilized for commercial purposes, with the current building developed on-site in 1952. Phase I Environmental Site Assessment (ESA) Report by Advanced Cleanup Technologies, Inc. for the Applicant was reviewed to establish the site history. Lot 36 has been a vacant land since 1929. Information for past uses of Site was obtained by evaluating the Fire Insurance Maps and Regulatory Agency Databases.

AOCs are listed below:

1. Hazardous Materials & Noise E designation, E-166: CEQR #06DCP071K
2. Subsurface anomaly indicative of a UST in northwestern portion of Site.

3. Presence of Poly Aromatic Hydrocarbons (PAHs) in soil from zero to 2 feet in the northeastern, eastern and western quadrants of the Site at concentrations exceeding Soil Clean up Objectives. The concentrations of PAHs in the northeastern portion of the Site vertically extend to deeper soil. Presence of Acetone from 10 to 12 feet soil in the northwestern portion of the Site at a concentration exceeding its Soil Clean Up Objective. Pesticides detected in the western quadrant of the Site from 0 to 2 feet, at concentrations exceeding Soil Cleanup Objectives. Presence of metals in soil/fill throughout Site.
4. Presence of low levels of Naphthalene in groundwater northwest and cross-hydraulic gradient of the Site, in the sidewalk along Pelham Parkway South. Total and dissolved metals in groundwater beneath the Site.
5. Presence of VOCs in soil vapors beneath the sidewalks along Stillwell Avenue and Pelham Parkway South on the north and northwest border of the property.

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 geophysical survey(s) over 50 percent of the Site and identified geophysical anomalies;
3. Installed ten soil borings across the entire project Site, and collected twenty soil samples for chemical analysis from the soil borings to evaluate soil quality;
4. Installed six groundwater monitoring wells (shallow and deep) throughout the Site to establish groundwater flow and collected five groundwater samples for chemical analysis to evaluate groundwater quality; one monitoring well was dry during sampling;
5. Installed four oil vapor probes around Site perimeter and collected four samples for chemical analysis;
6. Prepared RIR based upon all investigation results.

Summary of the Remedial Investigation Findings

1. Depth to groundwater ranges from 6 to 12 feet at the Site.
2. Groundwater flow is generally from north to south beneath the Site.

3. Depth to bedrock is approximately 12 feet at the Site.
4. The stratigraphy, from surface grade to 12 feet down, consists of several feet of historic fill underlain by 12 feet of organic silty clay.
5. Boring samples collected during the RI indicate the presence of historic fill material on-Site. Historic fill was identified from zero to at least 2 feet throughout the Site. The fill mainly consists of coal, glass and brick fragments.
6. Soil samples collected during the RI confirmed the presence of Semi-Volatile Organic Compounds (SVOCs) and metals on-Site and are attributable to the presence of historic fill. SVOCs, specifically characterized as Poly Aromatic Hydrocarbons (PAHs) are present in shallow soil in the northeastern, western and eastern quadrants of the Site and in deep soil in the northeastern and north-central portions of the Site at concentrations exceeding the Unrestricted Soil Cleanup Objectives USCO. For example Benzo (a) Anthracene is present at concentrations ranging from 1,800 $\mu\text{g}/\text{kg}$ to 19,000 $\mu\text{g}/\text{kg}$ and Benzo (b) Fluoranthene at concentrations ranging from 1,400 $\mu\text{g}/\text{kg}$ to 16,000 $\mu\text{g}/\text{kg}$. In addition, individual Metals were detected across the entire site at concentrations exceeding the USCO. Lead concentrations in shallow soil range from 7.46 $\mu\text{g}/\text{kg}$ to 453 $\mu\text{g}/\text{kg}$. Lead concentrations in deep soil range from 25.4 mg/kg to 618 mg/kg . Pesticides detected in the western quadrant of the Site from 0 to 2 feet, at concentrations exceeding USCO. Chlordane (alpha) was detected at a concentration of 780 $\mu\text{g}/\text{kg}$ and p,p-DDE was detected at a concentration of 84 $\mu\text{g}/\text{kg}$.
7. Groundwater samples collected during the RI confirmed the presence of soil and salinity related metals on-Site. VOCs and SVOCs were detected in an isolated location off-Site. Groundwater containing dissolved metals at concentrations exceeding the respective 6NYCRR Part 703.5 Class GA Groundwater Quality Standards for aluminum, iron, sodium magnesium and zinc is present beneath the Site. For example detected levels of Aluminum range from 0.1 mg/L to 66.8 mg/L and Zinc range from 0.142 mg/L to 1.07 mg/L .
8. 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.

9. Soil vapor samples collected during the RI confirmed the presence of volatile organic compound^s in the range from 1,038.26 ug/m³ to 5,781.4 ug/m³ on the north side of the property in the south side of the sidewalks along Pelham Parkway South and Stillwell Avenue. The site contaminants observed in soil vapor are attributable to a gasoline or gasoline-associated source. Some of these VOA constituents have been identified in one soil sample onsite, at SD-2, with a relatively low total concentration of 0.4 mg/kg. Gasoline management activities were not identified in past usage of the site. However, an on-site source of soil vapor cannot be ruled out. The remedial action for the property will involve removal of soil down to a depth of 12 feet below grade over most of the property and will remove potential source areas.
10. An underground Storage Tank (UST) is suspected at one location. The UST is believed to be formerly used for space heating for the adjacent two-story building. All USTs will be removed during remediation. Soil sampling adjacent to the suspected UST area did not show any petroleum contamination or NAPL.
11. Aboveground Storage Tanks (ASTs) are absent at the Site.
12. A Qualitative Human Health Exposure Assessment (QHHEA) was performed and indicated that potential exposure pathways are considered incomplete for future conditions.

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 does not pose a 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.

Figures

<u>Figure #</u>	<u>Description</u>
1.	Site Location and Surrounding Land Usage Map indicated on a USGS Topographical Map
2.	Site Boundary and Proposed Site Development Map
3.	Composite Map of Historical Features and Areas of Concern identified by Phase I/Phase II and Remedial Investigation Reports
4.	Geophysical Locations and/or Anomalies and Location of Soil Borings, Wells, and Implants
5.	Geological Cross-Sections
6.	Groundwater Level Contours
7.	Historic Fill Map
8.	Soils Sampling Locations and Exceedences of Standards, Criteria and Guidance
9.	Groundwater Sampling Locations and Exceedences of groundwater standards in 6NYCRR Part 703.5
10.	Soil Vapor Sampling Locations

Tables

<u>Table #</u>	<u>Description</u>
1.	Fate and Management of Investigation Derived Waste
2.	Characterization of Soil Samples
3.	Construction Details for Soil Borings and Monitoring Wells
4.	Groundwater Level Data
5.	Sample Collection Data: soil/groundwater/soil vapor
6.	Site-Specific Standards, Criteria and Guidance
7.	Soil Analytical Data
8.	Ranked Data Tables for Soil Samples
9.	Groundwater Exceeding Standards in 6NYCRR Part 703.5
10.	Summary of Soil Vapor Analytical Data

Appendices

<u>Appendix</u>	<u>Description</u>
A.	Sanborn Maps, Phase I ESA report (CD)
B.	Resumes and Contact List
C.	Health and Safety Plan (CD)
D.	Soil Boring, Test Pit and Geologic Logs (CD)
E.	Groundwater Sampling and Well Purging Logs (CD)
F.	Soil Vapor Sampling Logs (CD)
G.	Soil Analytical Data (CD)
H.	Groundwater Analytical Data (CD)
I.	Soil Vapor Analytical Data (CD)
J.	Digital Photographs of Remedial Investigation (CD)
K.	Standards, Criteria and Guidance
L.	Complete Remedial Investigation Report (including Appendices) CD

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 September, 2009, to investigate and remediate a 0.55-acre Site located at 1600 Pelham Parkway in Borough of Bronx in New York City. BCA Applicant applied as a Volunteer in the BCP. Site usage type, i.e. residential use is proposed for the property. When completed, the Site will be developed with one 4-story commercial building and one 7-story residential building. The commercial building will be utilized as a medical facility with a parking area on the ground floor. Neither of the buildings will have a basement. The northeast portion of the site will be undeveloped and will be utilized as accessory parking.

This RIR summarizes the nature and extent of contamination as determined from data gathered during the Remedial Investigation (RI). A portion of the RI work was conducted in accordance with an NYCDEP-approved Investigation Work Plan in association with the CEQR E designation and was performed between January 13th, 2009 and January 14th, 2009. Other portions of the RI work were conducted in accordance with an OER-reviewed RIWP and were performed between November 2nd, 2009 and November 9th, 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 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 Site is located in Bronx, New York City and is identified as Block 4223 and Lot 30, 36 on the New York City Tax Map. A United States Geological Survey (USGS) topographical quadrangle map (Figure 1) shows the Site location. The Site is situated on an approximately

0.55-acre area bounded by Pelham Parkway South to the north, Bassett Avenue, AMTRAK rail road ,a parking lot and a 2-story bar/restaurant to the south, horse stable and a 2-story house to the east, and Stillwell Avenue and a residential building to the west (see Figure 2). A boundary map is attached to the BCP. The property is fully described in the BCA Application

Lot 30 of the Site consists of a 2-story building with a partial basement and a parking lot. One (1) UST is suspected to be located to the northwest of the building. Lot 36 of the Site consists of a vacant and undeveloped lot.

Currently, the Site is unoccupied and existing buildings are unoccupied.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The Site is located in a commercial and residential neighborhood. Pelham Parkway South is located to the north of the Site. Bassett Avenue, AMTRAK rail road, a parking lot and a 2-story bar/restaurant are located to the south of the Site. A 2-story house and horse stable is located to the east of the Site. Stillwell Avenue and a residential building are located to the west of the Site. (see Figure 2).

Within 400 feet radius of the Site, there is a variety of land uses including: vacant land, institutional, industrial, commercial, transportation and parking, public facilities, residential buildings (one to multi-family residential apartments) and mixed residential and commercial facilities. The Site is zoned R-6A (general residential district). Properties located within ¼ mile radius from the Site are zoned R4, R3X, R3-2 (general residence district) and M1-1 (general manufacturing district).

Sensitive Receptors

Within 528 feet mile radius, there is one school (Albert Einstein College) located to the west and crossgradient 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 Site. The following table indicates the closest sensitive receptors to the Site.

	Distance (feet)	Direction
Schools	528	W
Day care facilities	1,900	W
Hospitals	1,800	W-SW
Rivers, streams	4,200	W
Wetlands	6,200	NW

Figure 1 shows the surrounding land usage, with sensitive environmental receptors indicated.

1.4 CONTEMPLATED REDEVELOPMENT PLAN

The contemplated future use of the Site will consist of residential and commercial use. A 4-story commercial building with a parking lot on the main floor will be constructed in the western half of the site (approximately 9,408 square feet in area). The building will not have a basement. The commercial building will be utilized as a medical facility and will identified as 1600 Pelham Parkway South.

A 7-story residential building will be constructed in the northeastern quarter of the site and the southeastern quarter will remain undeveloped and will be used for accessory parking. The residential building will not have a basement. The residential building will be identified at 1640 Pelham Parkway South.

The Site is approximately 0.55 acres in area. The commercial building will occupy approximately half of the site (approximately 6,029 square feet). The residential building will occupy approximately one quarter (approximately 6,193 square feet) and the parking area will occupy the remaining quarter. Remaining areas will be parking area open to sky. The proposed development will include areas an open space in the eastern portion.

Layout of the proposed site development is presented in Figure 2. The current zoning designation is R-6A and residential. The proposed use is consistent with existing zoning for the property.

Details of the proposed Site development are presented in Figure 2.

2.0 SITE HISTORY

2.1 PAST USES AND OWNERSHIP

Lot 30 of the Site was a vacant land from 1929 to 1951. From 1978 to 1981, Lot 30 was developed with a 2-story building which was utilized as a fish store and an apartment. In 1988, Lot 30 was structurally unchanged and was utilized for residential and commercial purposes. Lot 30 is currently unoccupied.

Lot 36 of the Site was historically vacant and undeveloped from 1929 to today.

The Site is currently owned by Pelham Parkway Towers, LLC.

2.2 PREVIOUS INVESTIGATIONS

2.3 SIGNIFICANT HISTORICAL ENVIRONMENTAL SITE FEATURES

A Phase I Environmental Site Assessment (ESA) report, dated September 6, 2007 was performed at the Site by Advanced Cleanup Technologies, Inc. This report consisted of a Site inspection and a review of all applicable Sanborn Fire Insurance Maps, a City Directory Search and a review of Environmental Databases Records.

A Phase II ESA was performed by Hydro Tech in January 2009. The scope of work was based upon an NYCDEP approved Investigation Work Plan in order to address the Hazmat “E” designation of the Site.

All Sanborn Fire Insurance Maps, City Directory Search and Environmental Databases Records and remedial investigations available for this Site were reviewed to identify all historical features of environmental significance and AOCs prior to preparation of this RIR. All Sanborn Fire Insurance Maps, City Directory Search and environmental Databases Records and remedial investigations 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 3. This map provides that basis for identification of AOCs for this Site, discussed in the next section of this RIR.

2.4 AREAS OF CONCERN

AOCs identified during the RI include:

Phase I ESA report:

- Hazmat “E” designation of Site.
- The presence of fuel oil UST in northwestern portion of Site.
- Suspect ACM on building siding.

Remedial investigation

- Identification of petroleum and metal constituents above regulatory standards in soil and groundwater beneath the Site
- Identification of volatile organic constituents in soil vapor beneath the sidewalks surrounding the Site.

All AOCs identified are shown on Figures 3, 8, 9 10 and 11.

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 Professional 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. This list includes a facility contact, MJM Construction Services contact, and contractor and subcontractor contacts.

The Site Safety Coordinator is Mukta Patil. 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 excavation work was performed during the RI activities, no Community Air Monitoring Plan (CAMP) was prepared to monitor the presence of Volatile Organic Compounds (VOCs) and elevated levels of dust in the air or 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 generated during the RI and thereby not returned to the subsurface. Soil cuttings from soil probes and groundwater extracted during the monitoring well sampling were stored in two 25-gallon drums and left on-site to be disposed of during the remedial Site excavation. All contaminated soil will be 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.

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 is to acquire on-Site data to be used to guide further investigations, IRMs, or remediation. To accomplish this objective, Hydro Tech completed the following 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 survey on over 50 percent of the Site and identified geophysical anomalies;
3. Installed ten soil borings across the entire project Site, and collected twenty soil samples for chemical analysis from the soil borings to evaluate soil quality;
4. Installed six groundwater monitoring wells (shallow and deep) throughout the Site to establish groundwater flow and collected five groundwater samples for chemical analysis to evaluate groundwater quality; one monitoring well was dry during sampling;
5. Installed four soil vapor probes around Site perimeter and collected four samples for chemical analysis;
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

Geophysical work performed during the RI included a ground penetrating radar survey. The survey was performed in January 2009 utilizing a GSSI SIR-3000 Control Unit and a 400-megahertz shielded antenna over all accessible portions of the Site in a grid fashion. The purpose of the GPR survey was to confirm the presence of an underground storage tank (UST) in the northwestern portion of Lot 30, and to clear all sampling locations of subsurface obstructions such as underground utilities and piping during remedial work.

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 not performed inside the building on Lot 30 (due to the presence of storage materials restricting GPR maneuverability) or in some portions of the parking lot (due to the presence of abandoned automobiles). The GPR could not be performed on Lot 36 due to the presence of a coarse, rugged surface. The GPR survey was performed successfully over all other portions of the Site. One subsurface anomaly approximately 12 feet long and 8 feet wide was identified to the northeast of the building and in the vicinity of a vent pipe and fill port. The anomaly is likely indicative of the presence of a UST in this portion of the Site.

Figure 4 indicates the location of geophysical locations of interest and/or anomalies.

4.2 BORINGS, PIEZOMETERS AND MONITORING WELLS

Drilling and Soil Logging

Ten soil borings designated as SP-1 through SP-10 were installed and sampled as part of the RI. SP-1 was installed utilizing Hydro Tech’s Limited Access Probing Unit fitted with Geoprobe[®] tooling and sampling equipment, south of the UST anomaly to a depth of 4 feet below the basement slab. This is approximately equivalent to 12 feet below grade of the property. SP-2 through SP-10 were installed utilizing Hydro Tech’s Geoprobe[®] 6620DT to bedrock which was encountered at a depth of 12 to 12 ½ feet. SP-2 and SP-3 were installed in the northern portion of Lot 30; SP-6, SP-7 and SP-10 were installed in the southern portion of Lot 30. SP-4 was installed in the northeastern portion of Lot 36 and SP-5, SP-8 and SP-9 were installed in the southern

portion of Lot 36. 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 samples were collected during drilling for Site characterization purposes. Table 2 provides the soil characterization information. Two soil samples from each soil probe were obtained for confirmatory analyses. If no PID readings or no in-field observation of contamination was noted, the soil samples from 0 to 2 feet and the deepest dry soil sample were obtained. Ten shallow soil samples and ten deep soil samples, for a total of twenty soil samples were obtained from the Site.

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 afore 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 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 evidence of petroleum or DNAPL was present in any of the soil samples obtained from the Site.

A map showing the location of borings, wells, and soil vapor probes is shown in the previous Figure 4.

Construction details for soil borings and monitoring wells that have been built during this RI are included in Table 3.

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 three on-site and three off-site monitoring wells were installed, surveyed monitored and sampled. Monitoring well MW-1 is located in the sidewalk along Stillwell Avenue, MW-2 and MW-3 are located in the sidewalk along Pelham Parkway South. Monitoring wells MW-4 and MW-5 are located in the southern portion of Lot 36. Monitoring well MW-6 is located in the southern portion of Lot 30 although water was encountered during well installation. MW-1 was found to be dry during the sampling and surveying events. One groundwater sample was obtained from each of the remaining monitoring wells (MW-2 through MW-6) for a total of five samples.

Surveying

A land survey was used to identify the location of all soil borings and monitor wells, the locations are included in Table 3.

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

All survey work reported in this RI was performed by a Hydro Tech geologist, Timothy Lo.

Water Level Measurement

Three round(s) 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 RIR four soil vapor implants were installed in the sidewalks surrounding the Site and sampled. SV-1 was installed in the sidewalk along Stillwell Avenue and SV-2, SV-3 and SV-4 were installed in the sidewalk along Pelham Parkway South. Generally, near complete excavation is expected on the property to 12 feet below grade to enable construction of a ventilated parking garage. Installation of soil vapor probes in the sidewalk area enables reproducibility of future sampling after construction is complete.

4.3 GEOLOGICAL AND HYDROGEOLOGICAL CONDITIONS

Geology

The Site is located in the northeastern portion of the Borough of Bronx, New York. The elevation of the Site is approximately 10 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.

Stratigraphy

A geotechnical investigation by Pillory Associates was conducted at the Site in September 2009. Four test borings and one groundwater observation well were installed at the Site. Boring, and geologic logs describing subsurface conditions are presented in Appendix D. Three geologic units consisting of (1) fill material and marsh, (2) glacial soil and (3) Gneiss bedrock were identified. A description of each layer is given below.

Fill (NYC Class 7): Fill material was encountered in each boring ranging in thickness from 0 to 2 feet in the northeastern, western and eastern quadrants of the Site and from 10 to 12 feet in the northeastern and north-central portions. The fill consists of poorly graded silty sand with varying amounts of gravel and miscellaneous debris. The fill is loose to medium compact.

Marsh deposit (NYC Class 6): A thick marsh deposit was encountered beneath the fill layer in all borings. The marsh predominantly consists of soft compressible peat (PT) and organic clayey silt (OL-OH). In borings installed in the northern portion of Lot 30 and the eastern portion of Lot 36, a layer of loose sand was encountered overlying the peat and organic silt.

Glacial Alluvium: A thin deposit of glacial alluvium was encountered beneath the fill and tidal marsh layers. The alluvium primarily consists of silty sand and sandy silt with minor percentages of gravel. The sand is classified as SM Class 3b and the silt is classified as ML Class 5.

Glacial Till Class SM-SW-3a: A thick deposit of glacial till was encountered in all borings, except in the eastern portion of Lot 36. The material primarily consists of well graded sand with varying percentages of silt and gravel.

Bedrock Class 1a/1b: Gneiss bedrock was encountered at 12 feet. The rock was classified as sound rock/medium hard rock.

Groundwater: Groundwater was measured in the observation well at a depth of 10 feet below the current ground surface.

Bedrock Depth and Configuration

Bedrock with materials class ranging from 2 to 75 was identified beneath the Site. The bedrock is generally metamorphic in character and Ordovician and Precambrian in age. . Bedrock was encountered at 12 feet during the Site investigation.

Hydrogeology

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

Aquifers and Water Bearing Units

At present, infiltration of precipitation into the water table is likely present in Lot 36 as it is not paved and absent in Lot 30 as it is still covered with asphalt and standing buildings. Grain size and soil permeability beneath the Site has not been determined.

Groundwater Depth and Flow Direction

The depth to groundwater beneath the Site and the surrounding sidewalks during November 2009 ranges from 6.29 feet in MW-6 to 11.17 feet in MW-2. 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. The site-specific groundwater flow direction was determined to be toward the south. This flow direction is consistent with the regional groundwater flow direction.

The tabulation of water level data for all monitor wells is included in Table 4.

A map of groundwater level elevations, (including data posted on the map and an inferred contour) is shown in Figure 6.

Proximity to Sensitive Environmental Receptors

A Receptor Survey was performed within a 1,000 feet radius of the Site. 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 a public school identified as “Albert Einstein College”

and is located approximately 528 feet to the west and crossgradient of the Site. 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	528	W
Day care facilities	1,900	W
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 Katskill/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

Historic fill was identified in the soil beneath the Site during the RI. A Historic Fill map showing the location of historic fill on the Site is presented in Figure 7, with thickness marked in the Legend of the Figure. No areas of the Site will be backfilled during construction for the purpose of construction of a full basement.

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 former uses of the Site.

Samples have been collected from all AOCs identified in this 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 characterize the soil and groundwater beneath the site in association with Hazmat "E" designation of the Site. 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	Yashodhara Saha
Quality Assurance Officer	Yashodhara Saha
Site maps showing sample locations	Figure 4 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 Phoenix Environmental Laboratories, Inc. and Spectrum Analytical, Inc., and have been performed in compliance with DER-10.

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 generated associated with the performance of the Remedial investigation and remedial efforts at the above-referenced property which 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. SP-1, SP-2, SP-6, SP-7 and SP-8 were installed on 1/14/2009. SP-3, SP-4 and SP-5 were installed on 1/13/2009. SP-9 and SP-10 were installed on 11/2/2009. Refer boring logs in Appendix D for additional information.

Two soil samples from each soil probe were containerized and analyzed at a State-certified laboratory. Shallow samples for analysis were collected from all soil probes from zero to 2 feet below grade. Since no levels of organic vapors and no visual/olfactory evidence of contamination was identified in any of the soil probes, the deepest dry soil samples were collected from 2 to 4 feet in SP-1, from 10 to 12 feet in SP-2 through SP-8, from 10 to 12 ½ in SP-9 and from 8 to 10 feet in SP-10.

Decontamination Procedures

Each piece of sampling equipment was decontaminated prior to each use. The following procedure was implemented during the decontamination process:

- Wipe clean and wash with Alconox[®]
- 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 were 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 then placed within the headspace to measure the organic vapors present.

Chemical Analysis

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

Groundwater Sampling

Three on-site and three off-site monitoring wells were installed and sampled during the RI. 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

Groundwater samples were obtained utilizing low flow techniques in accordance with NYSDEC protocols. Each well was purged of 3 to 5 volumes of water using a dedicated, factory pre-cleaned polyethylene VossTM bailer suspended on a new, dedicated length of polypropylene string. The sampling of each well was performed after the water was allowed to recharge to the original monitoring level. Groundwater samples were then obtained utilizing a low flow pump fitted with dedicated polyethylene tubing. No groundwater sample was obtained from MW-1 since it was dry. Groundwater samples from MW-2 and MW-3 were obtained on 11/6/2009. Groundwater samples from MW-4, MW-5 and MW-6 were obtained on 11/2/2009. Well purging logs are provided in Appendix E.

Decontamination Procedures

The same decontamination procedures utilized for soil samples was also utilized for the groundwater samples.

Field Screening Headspace Methodology

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

Chemical Analysis

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

Soil Vapor Sampling

Four off-Site soil vapor implants 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.

Soil Vapor Sample Collection Methods

All 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.

The soil vapor sampling implants were installed utilizing similar technology to the soil probes (i.e. direct push). Each soil vapor sampling implant consisted of a stainless steel screen, or implant, fitted with dedicated polyethylene tubing. Each of the implants is 1½-inch in diameter. The soil vapor implants were installed in the sidewalk, within the deepest dry soil. Therefore, soil vapor samples from SV-1, SV-2, SV-3 and SV-4 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 covers. Soil vapor sampling logs are provided in Appendix F.

Soil vapor samples from each soil vapor point were collected utilizing 6 liter pre-cleaned, passivated, evacuated whole air Summa[®] 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 point during the sampling

Decontamination Procedures

Prior to soil vapor sampling, approximately 0.3 ml of air was purged out of all vapor points utilizing a syringe. 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. Immediately after opening each Summa Canister, the initial vacuum (inches of mercury) and start time were recorded. After the sampling was complete, the final vacuum and stop time were recorded.

Field Screening Headspace Methodology

Screening of organic vapors accumulated in the tubing of each soil vapor point 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 Canister was labeled and sent to a laboratory certified to perform air analysis in New York State and analyzed for VOCs via EPA TO-15.

Summary for All Media

The RI consisted of the installation and sampling of ten soil probes, five groundwater monitoring wells and four soil vapor implants. Figure 4 shows the location of samples collected in this investigation. Table 5 provides sample collection information for each matrix performed under this RI.

4.4.1 QUALITY ASSURANCE AND QUALITY CONTROL

A Quality Assurance (QA) and Quality Control (QC) program for the RI 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.

4.5 IDENTIFICATION OF STANDARDS, CRITERIA AND GUIDANCE

Applicable Standards Criteria and Guidance (SCGs) for environmental media sampled in this RIR are included in Table 6.

4.6 ENVIRONMENTAL CONTAMINATION

The RI was conducted between January 2009 and November 2009. The RI investigated each of the AOCs identified in Section 2.4 and Figure 3.

The Site was investigated in accordance with the scope of work presented in the OER-reviewed RIWP dated September, 2009 and a NYCDEP-approved IWP dated November, 2008. Other

portions of the Site investigation were performed in accordance with the scope of work presented in the OER-reviewed RIWP dated September 2009.

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

4.6.1 SOIL/FILL CONTAMINATION

Data collected in this RI is sufficient to delineate the vertical and horizontal distribution of contaminants in soil/fill at the Site. SVOCs were identified in the shallow soil collected in the western quadrant of Lot 30 and from the southeastern quadrant of Lot 36 at concentrations exceeding their respective Unrestricted Soil Cleanup Objectives (USCO). SVOCs were also identified in the shallow soil and above groundwater in the northeastern quadrants of Lot 30 and Lot 36 at concentrations exceeding their respective USCOs. Heavy metals, mainly lead, were identified in the shallow soil and above groundwater throughout the Site. The findings of SVOC and metals are consistent with the occurrence of historical fill on the property. No evidence of NAPL, petroleum or petroleum staining in soil or fill was encountered during the RI. Pesticides, were detected in shallow soil in the western quadrant of Lot 30 at concentrations exceeding USCO.

Contaminants and Concentration Ranges

A summary table of all data for chemical analytical work performed on soil samples is included in Table 7 A to 7 D. The full data set is included in Appendix G in digital format.

SVOCs, specifically characterized as Poly Aromatic Hydrocarbons (PAHs) are present in shallow soil in the northeastern and western portions of Lot 30 and in the northeastern and eastern portions of Lot 36 at concentrations exceeding the USCO. These PAHs in the shallow soil extend vertically to deeper soil beneath the northeastern portions of Lot 30 and Lot 36.

Individual Metals, mainly lead, are present in shallow and deep soil throughout the Site at concentrations exceeding their respective USCOs.

Pesticides, mainly Chlordane and p,p-DDE are present in shallow soil in the western quadrant of the Site at concentrations exceeding USCO.

Computed index parameters, including total SVOCs and total VOCs for soil samples are also included in Table 7A and 7B.

4.6.1.1 COMPARISON OF SOIL/FILL WITH SCGS

Table 7A to 7D shows exceedances of on-Site soil/fill as compared to 6 NYCRR Part 375-6.8 Unrestricted Soil Cleanup Objectives (USCOs).

The total VOC concentrations detected in the deep soil at the Site range from 12 micrograms/kilograms ($\mu\text{g}/\text{kg}$) in the northeastern portion of Lot 36 to 404 micrograms/kilograms ($\mu\text{g}/\text{kg}$) to the east of the inactive UST as evidenced by the results of SP-4 and SP-2, respectively. The VOCs detected include Acetone, 1,3,5-Trimethylbenzene, 1,2,4-Trimethylbenzene, sec-Butylbenzene, 2-Isopropyltoluene, 4-Isopropyltoluene, n-Butylbenzene and Naphthalene. For example Acetone was detected at a maximum concentration of 56 $\mu\text{g}/\text{kg}$ in SP-2. All other VOCs detected in the deep soil are at concentrations less than their respective USCOs. At SP-2 the findings are suggestive of possible low level BTEX, perhaps gasoline – associated contamination in this soil sample. However, these levels are less than restricted residential values for these VOCs.

The total SVOC concentrations detected in deep soil at the Site range from 1,370 $\mu\text{g}/\text{kg}$ in the eastern portion of Lot 30 to 22,210 $\mu\text{g}/\text{kg}$ in the northeastern portion of Lot 36, as evidenced by the results of SP-6 and SP-4, respectively. These SVOCs include Benzo (a) Anthracene, Chrysene, Benzo (b) Fluoranthene, Benzo (k) Fluoranthene, Benzo (a) Pyrene, and Indeno (1,2,3-cd) Pyrene, which are classified as Polycyclic Aromatic Hydrocarbons, or PAHs. These compounds and findings for metals in soil/fill is consistent with onsite occurrence of historical fill.

Pesticides detected in shallow soil in the western quadrant of the Site, in Lot 30, at concentrations exceeding USCO. Chlordane (alpha) was detected at a concentration of 780 µg/kg and p,p-DDE was detected at a concentration of 84 µg/kg.

Figure 8A and 8B show the location and summarizes exceedences when compared to 6NYCRR Part 375-6.8 Part 375-6.8 for USCOs.

Data collected in this RIR is sufficient to delineate the vertical and horizontal distribution of contaminants in soil at the Site.

4.6.2 GROUNDWATER CONTAMINATION

Contaminants and Concentration Ranges

VOCs and SVOCs were identified in the groundwater from the western portion of the sidewalk along Pelham Parkway South. No VOCs or SVOCs were identified in any of the other groundwater samples. Heavy metals, mainly metals derived from saline intrusion or road salting and those influenced by sample turbidity (including sodium, magnesium, aluminum, iron, etc.) were identified in the groundwater throughout the Site. No contaminant sources are evident on the property from the groundwater samples collected in this program. The groundwater appears to be perched.

A summary table[s] of chemical data for all analytical work performed on groundwater samples is included in Table 9A, 9B. The full data set is included in Appendix H in digital format.

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 total VOC concentration of 19 micrograms per Liter (µg/L) was detected in the western portion of the sidewalk, along Pelham Parkway South, a cross-hydraulic gradient well location, in MW-2. The individual VOC, Naphthalene was detected in MW-2 at a concentration of 19

µg/L which exceeds its respective 6NYCRR Part 703.5 groundwater quality standard of 10 µg/L. A total VOC concentration of 1.5 µg/L was detected in the central portion of the sidewalk, along Pelham Parkway South, in MW-3. The individual VOC, Methyl-tert-butyl-ether (MTBE) was detected in an upgradient well, MW-3 at a concentration of 1.5 µg/L. No standard value is provided for MTBE concentrations according to 6NYCRR Part 703.5 groundwater quality standard. MTBE is associated with gasoline used after about 1979. The upgradient location of this monitor well is also consistent with the location of several soil vapor probe locations that identified gasoline or gasoline-associated contaminants in soil vapor on the north side of the property. This suggests a possible upgradient source of gasoline related compounds in both groundwater and in soil vapor.

A total SVOC concentration of 23 micrograms per Liter (µg/L) was detected upgradient/crossgradient in the western portion of the sidewalk, along Pelham Parkway South, in MW-2. The individual SVOC, Naphthalene was detected in a cross-hydraulic gradient well location, MW-2 at a concentration of 23 µg/L which exceeds its respective 6NYCRR Part 703.5 groundwater quality standard of 10 µg/L. This is the same compound detected in the same well as that reported above for the VOC tests (naphthalene is reported in both VOC and SVOC analytical results).

The VOCs and SVOCs found up-gradient and cross-gradient of the property do not extend downgradient of the Site. Based upon the laboratory results, it appears that the VOCs and SVOCs occurrences are few and occur in very low concentrations traveling toward the site but do not exit the site at the downgradient perimeter.

Heavy metals were detected in the groundwater at concentrations exceeding their respective 6NYCRR Part 703.5 groundwater quality standard. The heavy metals contaminants consist of metals derived from saline intrusion or road salting and those influenced by sample turbidity including Aluminum (maximum concentration of 66.8 mg/L), Iron (maximum concentration of 90.8 mg/L), Sodium (maximum concentration of 213 mg/L) and Zinc (maximum concentration of 1.07 mg/L). No groundwater contaminant sources are evident on the property from the

groundwater samples collected in this program and there is no groundwater contamination emanating from the property.

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

A map that summarizes exceedences from 6NYCRR Part 703.5 groundwater standards and indicates the location(s) of these exceedences is shown in Figure 9A, 9B.

4.6.3 ON-SITE AND OFF-SITE SOIL VAPOR CONTAMINATION

A summary table of data for all chemical analytical work performed on soil vapor 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 samples SV-1 through SV-4. NYS DOH Final Guidance on Soil Vapor Intrusion (October 2006) does not provide any background concentrations or standards, criteria or guidance for soil vapor compounds identified in this study.

Soil vapors were detected beneath the sidewalk on the north and north west side of the Site. The soil vapor concentrations range from 1,038 mcg/m³ to the northeast of the Site, along Pelham Parkway South to 5,781 mcg/m³ to the north of the Site, along Stillwell Avenue. The soil vapor contaminants consist of gasoline constituents such as Toluene (maximum concentration of 969 mcg/m³), Ethylbenzene (maximum concentration of 470 mcg/m³), Xylenes (maximum concentration of 2,860 mcg/m³), Benzene (maximum concentration of 61.1 mcg/m³) and 1,2,4-Trimethylbenzene (maximum concentration of 268 mcg/m³). Tetrachloroethene was detected at a concentration of 11.2 mcg/m³ in the sidewalk along Stillwell Avenue.

The results of the soil vapor sampling indicate VOCs associated with petroleum constituents, probably from gasoline related sources, beneath the Sidewalk on the northern and northwestern

portion of the site, along Stillwell Avenue and Pelham Parkway South. Tetrachloroethene was detected in the soil vapor sampled one sample in the sidewalk along Stillwell Avenue, off-site and cross-hydraulic gradient from the property. Tetrachloroethene was not detected in any sample collected from soil or groundwater on the property. Stillwell Avenue is a zoned industrial area and numerous industrial activities are located near the property, including a trucking and transfer operation immediately south west of the property. This single occurrence tetrachloroethene is attributed to off-site activities.

Evidence from groundwater suggests a gasoline-associated source of MTBE upgradient and north of the property. While no gasoline or service stations are evident near the property, the property does border on Pelham Parkway, which is a major vehicular thoroughfare in the east Bronx. Thus, a possible offsite source of soil vapor may be from a discharge along the roadway. Further, no activities that generally involve discharge of gasoline-related contaminants have been documented for the property and no gasoline-related compounds have been identified in groundwater on the property or at the down-gradient border of the property—suggesting that a source is not located on-site. However, very low concentration (total VOC of 0.5 ppm) of possible gasoline-related contamination was identified in a soil sample at boring SP-2. This finding generally does not indicate a significant source in this area and generally does not support the soil vapor concentrations observed in the sidewalk off of the property. However, the remedial action that is currently contemplated for the property will involve removal of soil/fill down to a depth of a bout 12 feet throughout most of the property and will ensure removal of this possible soil vapor contribution area. Given the elevated concentrations of petroleum compounds under the sidewalk, additional soil vapor sampling will also be proposed prior to the remedial action between the property and adjacent residential areas to assess for possible exposures.

The absence of tetrachloroethene in onsite soil and groundwater suggests that the one finding of tetrachloroethene in soil vapor in the sidewalk along Stillwell Avenue to the west of the property is derived from industrial operations in that area. A spider map that summarizes the presence of Soil Vapors is shown in Figure 10.

4.7.3 OTHER REPORTING

Photographs were taken of all RI activities and are included in digital (jpeg) format in Appendix J. The photos illustrate all RI elements and are of acceptable quality. Representative photographs of the Site prior to work are included. Representative photographs are provided for each contaminant source area and Site structure.

Job-Site record keeping for all RI work was appropriately documented. These records are maintained in Hydro Tech offices.

5.0 ENVIRONMENTAL AND PUBLIC HEALTH ASSESSMENTS

5.1 QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

Sampling performed during this RI is sufficient to complete a Qualitative Human Health Exposure Assessment (QHHEA). An off-Site QHHEA is included in this section and includes current and future use scenarios. The QHHEA has been prepared in accordance with NYSDEC and NYSDOH guidance (DER-10). Actual or potential human exposures to contaminated Site soil, groundwater, and vapor or dust emissions during and after the development of the Site were considered in the context of a Site Conceptual Exposure Model (SCEM). The SCEM describes potential links between the Site contaminant source(s) and human populations. The SCEM considers potential exposures to contamination present at the site, soil vapors associated with offsite groundwater contamination and potential transport of contamination from the Site to the off-Site environment.

Five elements are considered in the QHHEA in defining exposure pathways. Each element must be present in order for exposure pathways to be considered complete, and thus for a contaminated site to pose a risk to human health or the environment. These elements are discussed separately as follows:

Known and Potential Sources

UNDERGROUND STORAGE TANK

One inactive underground storage tank (UST) is suspected in the northwestern portion of Lot 30. The suspected location of the inactive UST is provided on Figure 3.

No Volatile Organic Compounds (VOCs) and no Semi Volatile Organic Compounds (SVOCs) were detected at concentrations exceeding their respective USCO in the soil sample obtained in the vicinity of the UST.

HISTORIC FILL

The SVOCs listed below have exceeded their respective USCO at the Site and are attributed to urban fill material. These compounds can be attributed to Site conditions; therefore, they were determined to be chemicals-of-interest for this assessment.

Semi Volatile Organic Compounds

Benzo (a) Anthracene	Chrysene	Benzo (b) Fluoranthene
Benzo (k) Fluoranthene	Benzo (a) Pyrene	Indeno (1,2,3-cd) Pyrene

Nature, Extent, Fate and Transport of Contaminants

The environmental media that currently may serve as pathways for contaminant migration are soil, groundwater, and soil gas.

SOIL CONTAMINATION

Urban fill material contaminated with PAHs and heavy metals is currently located in soil/fill on top of bedrock at the Site. The principal exposure threat from these contaminants is due to direct contact

GROUNDWATER CONTAMINATION

Based on the RI and past groundwater investigations, groundwater impacts beneath the Site and the sidewalks are likely associated with sample turbidity and saline intrusion or road salting near the Site. No evidence of off-Site migration of the contaminated groundwater was identified during the groundwater sampling.

SOIL VAPORS

Soil vapors are located off-Site, beneath the sidewalks along Stillwell Avenue and Pelham Parkway South. Vapors have the potential to migrate into structures that exhibit negative pressure when compared to the pressure conditions in the subsurface.

Potential Routes of Exposure

The following exposure pathways are considered most applicable to the Site:

- Dermal absorption through direct contact with soil and water;
- Incidental soil ingestion; and,
- Inhalation of airborne volatiles and particulates.

Existence of Human Health Exposure

POTENTIAL EXPOSURE PATHWAYS FOR SOIL

Human exposure to contaminants in Site soils may occur through direct contact or airborne transport during remedial excavation and construction activities. Construction and remedial workers are expected to be exposed to surface and subsurface soils and groundwater. Their greatest exposure to contaminated materials will be during excavation. Therefore, all construction activities related to excavation should be subject to strict health and safety and air monitoring procedures.

There will be no future human exposures to contaminated soils at the Site. Soils will be excavated to a depth of 12 feet below grade throughout most of the property and disposed off-Site and will eliminate potential source areas. The contemplated remedial action will incorporate capping over any remaining soils. Therefore, potential surface soil exposure pathways are considered incomplete for future conditions.

As such, potential exposures would only occur during site remediation and construction but not under future use scenarios, thus not impacting future occupants of the Site.

POTENTIAL EXPOSURE PATHWAYS FOR GROUNDWATER

The primary human health concern associated with groundwater contamination is the use of groundwater as a potable water supply. No significant human exposure to contaminated groundwater from the Site is occurring at present nor will it occur in the future because the area is served by a public water supply.

Incidental exposure to the groundwater plume contamination beneath the Site to construction workers could occur if soil excavation is extended below the perched groundwater level and during subsequent construction activities. Therefore, excavation and construction activities beneath Site will be subject to strict health and safety and air monitoring procedures. The contemplated remedial action will also include a groundwater use restriction to eliminate any potential future exposure potential.

POTENTIAL EXPOSURE PATHWAYS FOR SOIL GAS AND AIR

During future remedial excavation and construction activities at the Site, construction workers could be exposed to airborne contamination (heavy metals or fugitive dust) during construction activities. To protect construction workers from ingestion and inhalation of dust or metals, dust monitoring and dust suppression measures should be implemented based on the procedures outlined in the Site HASP and NYSDEC's TAGM-4031, titled "Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites".

Under future conditions, there will be no potential exposures via transport of fugitive dust or vapors in ambient air because the Site will be covered by buildings, pavement or clean fill. Additionally, vapor barrier sheeting should be installed around the footprint of the building at the site in order to prevent future subsurface vapor infiltration into the building. Finally, the basement of the building will contain a ventilated parking area and will prevent buildup of any vapors within the structure..

Nearby residents (i.e., those living along adjoining sides of the site) may be exposed to either volatile or dust emissions during the construction activities via the inhalation exposure route. As

such, continuous air monitoring will be conducted during construction. Strict health and safety measures to suppress either volatile or dust emissions will be also implemented based on a community air monitoring program.

Residents living in the buildings located to the adjacent to the Site may be impacted by the soil vapors identified in the sidewalks surrounding the Site. As part of the RAWP, additional soil vapor sampling will be proposed to assess the potential for impact to residential areas. It should be noted that visitors to the site could also be exposed to vapors or fugitive dust released during construction activities. However, their exposures would be controlled by strict health and safety measures to suppress either volatile or dust emissions will be also implemented based on a community air monitoring program.

Receptor Populations

Human populations at or near the Site have the potential to become exposed to Site contaminants, and thus are considered as potential receptors. These populations include:

- Construction and remedial workers at the Site, who could encounter contaminants on a short-term basis during construction activities such as soil excavation and operation of the dewatering system;
- Nearby residents that could be exposed to contaminants during construction from off-site migration in air (dust or vapors); and,
- Future site occupants who will be present at the Site on a routine basis.

Overall Human Health Exposure Assessment

Construction related exposures on- and off-site to contaminated soils and groundwater at the Site will be prevented through the implementation of a strict construction health and safety plan and community air monitoring plan. Soils through most of the property will excavated to a depth of 12 feet and disposed off-site. Remaining soils will be covered and managed under a site management plan and thus soil exposure pathways will be considered incomplete, thus not impacting future occupants of the Site. Prohibitions on potable use of groundwater and

groundwater use restrictions will prevent potential exposure to groundwater in the future. Removal of on-site soil will remove potential source areas for soil vapor contamination. Vapor barrier and construction of a ventilated parking garage below grade will further prevent vapor exposures.

5.2 PRIOR ACTIVITY

Evaluation of the data and information in this RIR suggests that the Site is not a suspected significant threat to human health and the environment, as defined in 6NYCRR Part 375.

5.3 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.

6.0 REMEDIAL ACTION OBJECTIVES

6.1 CONCEPTUAL MODEL OF SITE CONTAMINATION

The Conceptual Site Model (CSM) presented in this RIR includes an analysis of the former land uses, an explanation of the original causes and sources of contamination and the general transport and fate of contamination up to the present time. The CSM provides a foundation for the determination of the Remedial Action Objectives (RAOs) for the project.

Overall, the property is unremarkable from an environmental standpoint. Groundwater exhibits little impact from onsite activities and soil contamination is limited mainly to constituents common in historical fill. The property is located adjacent to a major vehicular thoroughfare and an industrial area and soil vapors identified around the perimeter of the site can be attributed to off-site sources of gasoline or associated contaminants, and other industrial activities. MTBE identified in groundwater in an upgradient well along Pelham Parkway suggest a possible offsite source of gasoline constituents in soil vapor. On-site contribution of gasoline constituents to soil vapor is possible, however, contemplated remedial actions will remove soil-fill down to a depth of 12 feet over most of the property and should eliminate any contribution. The contaminants identified at the property are suggestive of early disposal of historical fill materials on the property in layers several feet thick. Fill is composed of construction rubble, bricks, glass and other fill material. Visual evidence in fill and elevated concentrations of SVOCs suggest the presence of some quantities of ash, probably coal ash, and asphalt in the fill. Metals concentrations, mainly lead, are generally low for the fill material. No direct evidence of petroleum products were identified in any of the soil or groundwater samples collected at the property. Fill materials have not had any impact on groundwater quality and limited groundwater impacts seem to be related to saline intrusion or road salting. Trace metals (lead, arsenic, chromium, mercury, etc.) are not observed in groundwater at concentrations exceeding groundwater standards. Elements identified in groundwater at highest concentrations (sodium, aluminum, iron, magnesium, etc.) can be attributed to turbidity and saline influences.

A UST is suspected at the property adjacent to the two-story building and is believed to be a heating oil tank for space heating of the existing two-story building. Soil samples taken immediately adjacent to the tank location do not show any evidence of a petroleum leaks. Any tank at this location and all adjacent soils will be removed during the remedial action and subsequent development activity at the property and proper precautions will be taken to appropriately register and close the tank, to identify potential spills, to collect appropriate samples including end point samples.

6.2 REMEDIAL ACTION OBJECTIVES

Based on the results of the RI and CSM, the following RAOs have been identified for this Site.

6.2.1 GROUNDWATER

RAOs for the protection of Public Health

- Prevent ingestion of groundwater containing contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater.

RAOs for Environmental Protection

- Remove contaminant sources causing impact to groundwater.
- Restore ground water aquifer, to the extent practicable, to pre-disposal/pre-release conditions.
- Monitor groundwater improvement in response to contaminant source removal and/or treatment.
- Removal of the source of groundwater..
- Prevent off-Site migration of contaminated groundwater above applicable groundwater standards.

6.2.2 SOIL

RAOs for the protection of Public Health

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure to, contaminants volatilizing from contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota through ingestion/direct contact with contaminated soil that would cause toxicity or bioaccumulation.

6.2.3 SOIL VAPOR

RAOs for the protection of Public Health

- Prevent inhalation of contaminants in soil vapor.
 - Prevent migration of soil vapor into dwelling and other occupied structures.
 - Prevent migration of soil vapor off-Site.
- **Public Notice of the availability of the Remedial Investigation Report and Remedial Action Work Plan and a 30-day public comment period on the Remedial Action Work Plan.**

Public notice in the form of a fact sheet is sent to all parties listed on the Project Contact List announcing the availability of the Remedial Investigation Report and Remedial Action Work Plan and the initiation of a 30-day public comment period on the Remedial Action Work Plan. The fact sheet summarizes the findings of the RIR and provides details of the RAWP. The public comment period will automatically be extended to a total of 45 days upon public

request. A public meeting or informational session will be conducted by NYC OER upon request.

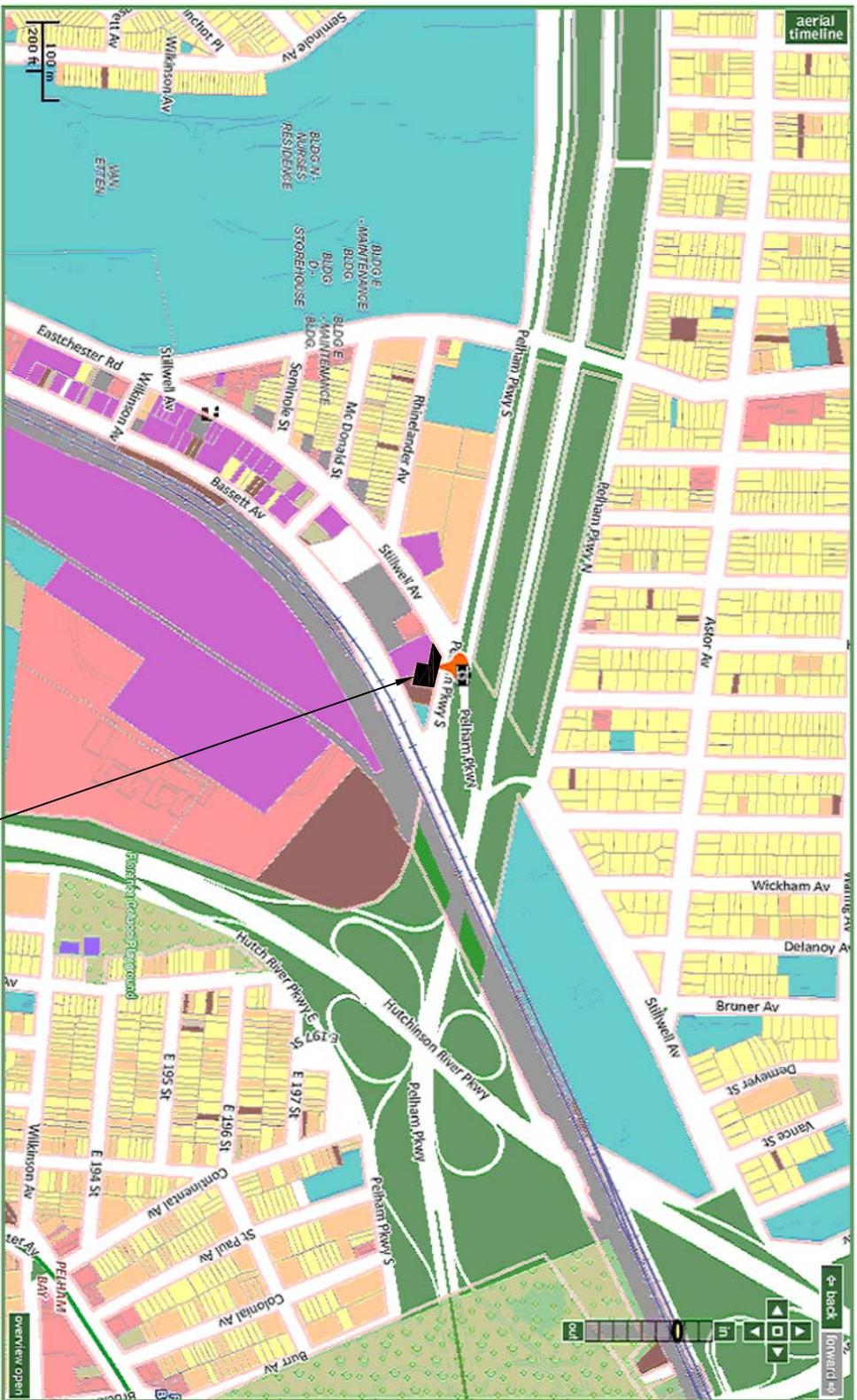
- **Public Notice announcing the start of remediation**

Public notice in the form of a fact sheet is sent to all parties listed on the Project Contact List announcing the start of remediation.

- **Public Notice announcing the completion of remediation and designation of Institutional and Engineering Controls**

Public notice in the form of a fact sheet is sent to all parties listed on the Project Contact List announcing the completion of remediation and providing a list of all Institutional and/or Engineering Controls implemented for the Site.

FIGURE 1
SITE LOCATION AND SURROUNDING LAND USAGE MAP INDICATED ON
A USGS TOPOGRAPHICAL MAP



Site Location

Location Report (7)

Legend

Turn map layers on & off by clicking in the check layer label

- Transit, Roads, Reference Features
- Parks, Playgrounds, & Open Space
- Environmental Stewardship
- Environmental Characteristics
- Environmental Impact/Cleanup
- Land Use
 - Block/Lot Boundaries
 - Building footprints in gray
- Land Use
 - All Land use categories
 - 1 & 2 Family Residential
 - Multi-family Residential
 - Mixed Use
 - Commercial
 - Open space & outdoor recreation
 - Institutions
 - Industrial
 - Parking
 - Transportation / Utilities
 - Vacant Lots
- Social Services, Education, Housing
- Population Characteristics
- Historical Land Use
- Water & Wetlands
- Boundaries
- Transparency Control

Show All Hide All



HYDRO TECH ENVIRONMENTAL CORP.

MAIN OFFICE: 2171 JERICO TURNPIKE, SUITE 345
COMMACK, NEW YORK 11725
T (631)462-5866 F (631)462-5877
www.hydrotechenvironmental.com

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

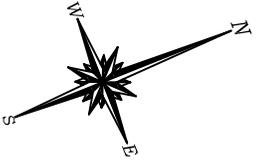
1600 Pelham Pkwy South
Bronx, NY.

Drawn By:	C.Q.
Reviewed By:	M.R.
Approved By:	M.S.
Date:	11/20/10
Scale:	AS NOTED

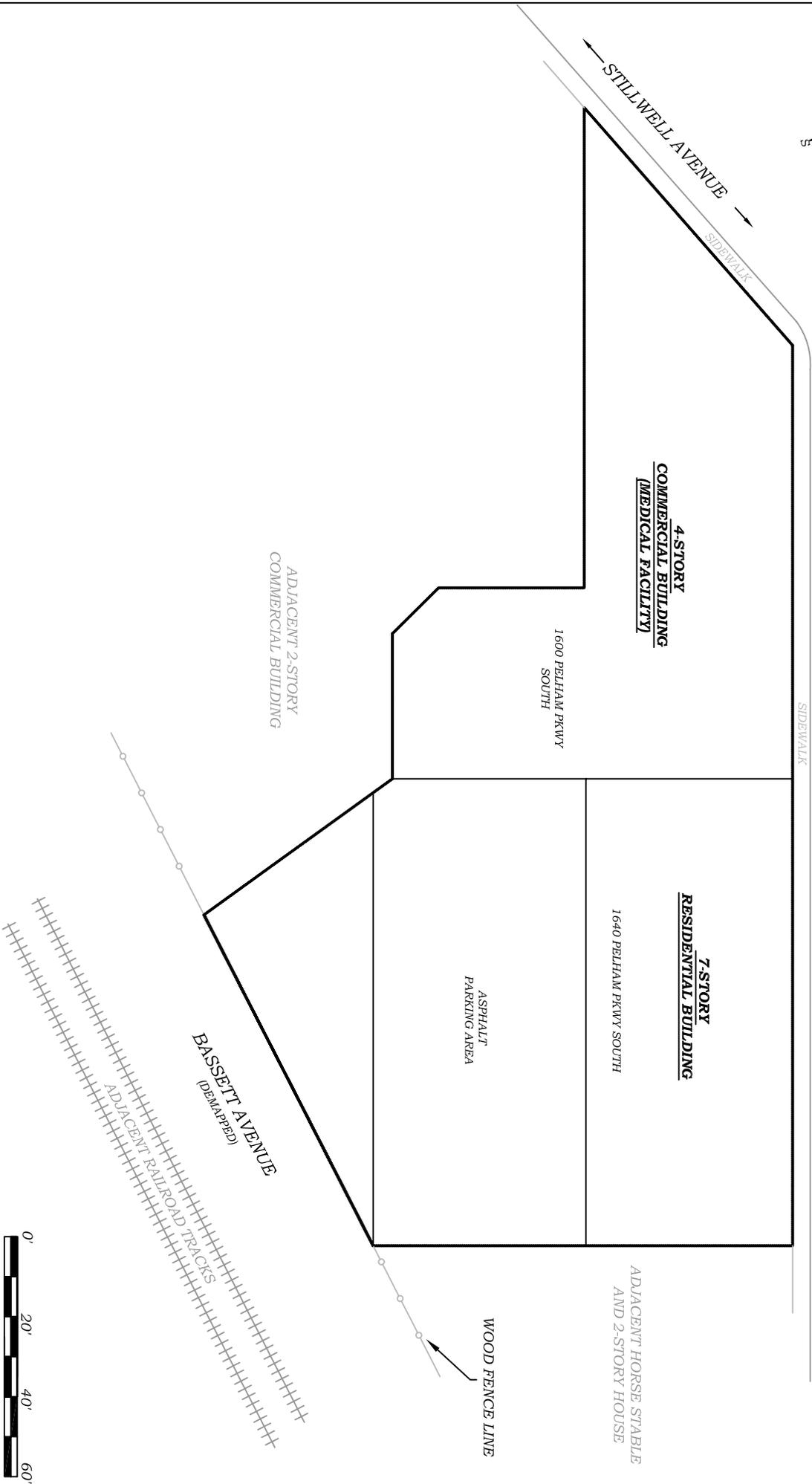
TITLE:

FIGURE 1: Site Location and Surrounding Land Usage Map Indicated on a USGS Topographical Map

FIGURE 2
SITE BOUNDARY AND PROPOSED SITE DEVELOPMENT MAP



→ PELHAM PARKWAY SOUTH →



TITLE:

FIGURE 2: Site Boundary and Proposed Site Development Map

Drawn By:	C.Q.
Reviewed By:	M.R.
Approved By:	M.S.
Date:	11/20/10
Scale:	AS NOTED

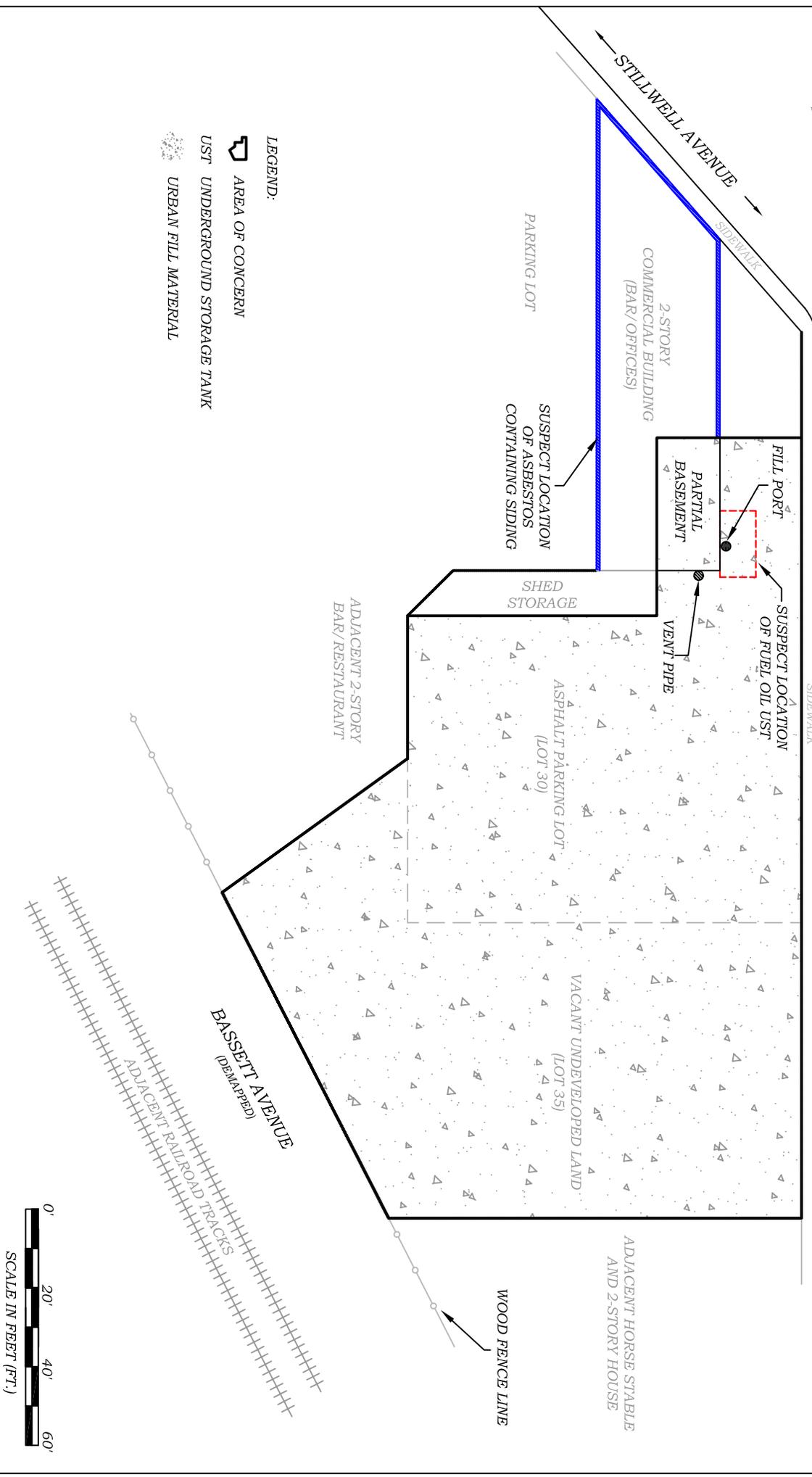
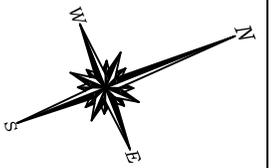
1600 Pelham Pkwy South
Bronx, NY.



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)636-0900 F (718)636-0900
 www.hydrotechenvironmental.com

FIGURE 3

**COMPOSITE MAP OF HISTORICAL FEATURES AND AREAS OF CONCERN
IDENTIFIED BY PHASE I/PHASE II AND REMEDIAL INVESTIGATIONS REPORTS**



LEGEND:

-  AREA OF CONCERN
-  UST UNDERGROUND STORAGE TANK
-  URBAN FILL MATERIAL

HYDRO TECH ENVIRONMENTAL CORP.



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

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

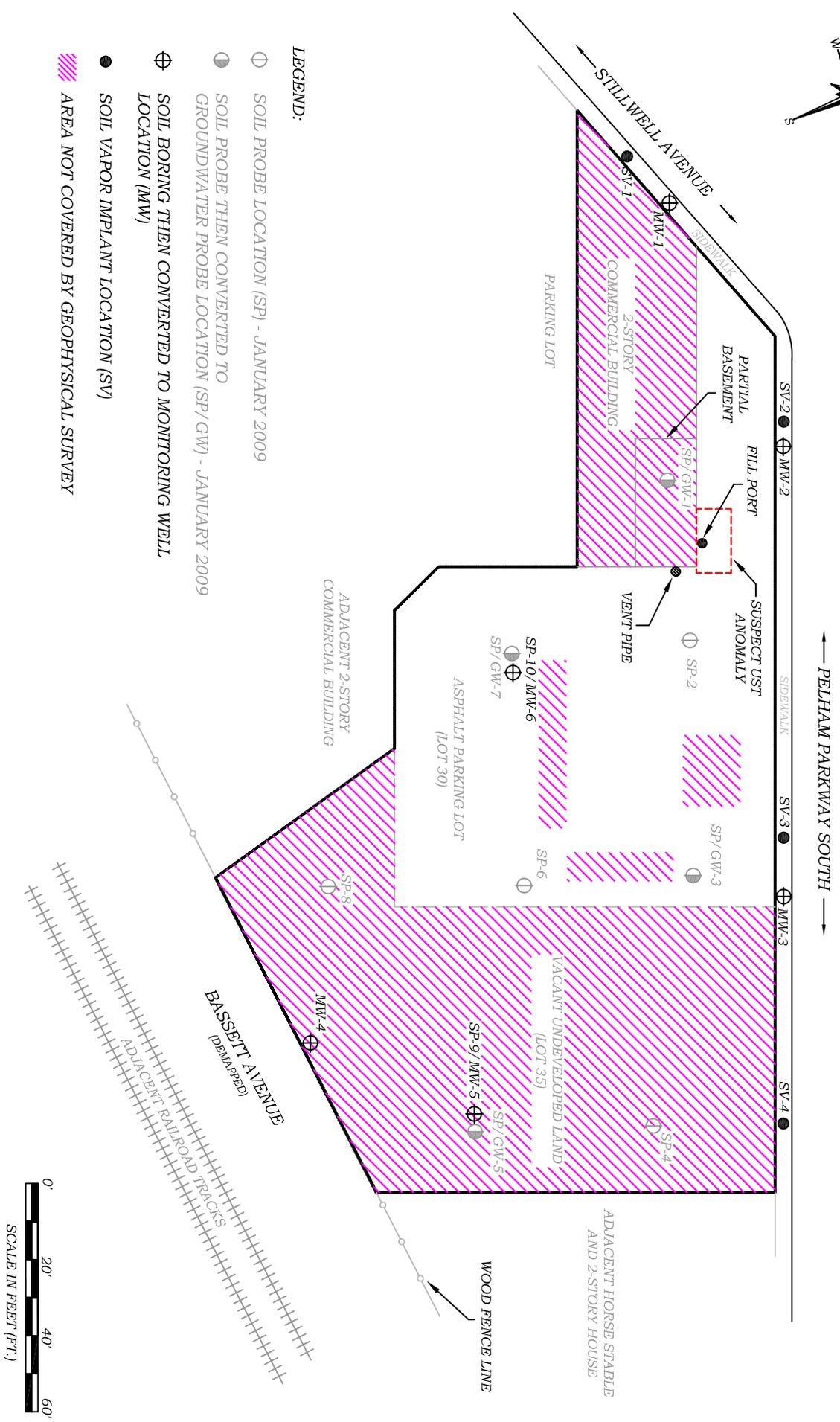
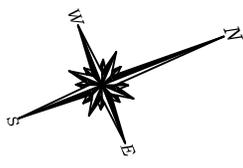
1600 Pelham Pkwy South
 Bronx, NY.

Drawn By:	CQ
Reviewed By:	MR
Approved By:	MS
Date:	11/20/10
Scale:	AS NOTED

TITLE:

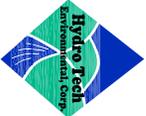
FIGURE 3: Composite Map of Historical Features and Areas of Concern identified by Phase I/Phase II and Remedial Investigation Reports

FIGURE 4
GEOPHYSICAL LOCATIONS AND/OR ANOMALIES AND LOCATIONS OF
SOIL BORINGS, WELLS AND IMPLANTS



LEGEND:

- SOIL PROBE LOCATION (SP) - JANUARY 2009
- SOIL PROBE THEN CONVERTED TO GROUNDWATER PROBE LOCATION (SP/GW) - JANUARY 2009
- ⊕ SOIL BORING THEN CONVERTED TO MONITORING WELL LOCATION (MW)
- SOIL VAPOR IMPLANT LOCATION (SV)
- ▨ AREA NOT COVERED BY GEOPHYSICAL SURVEY



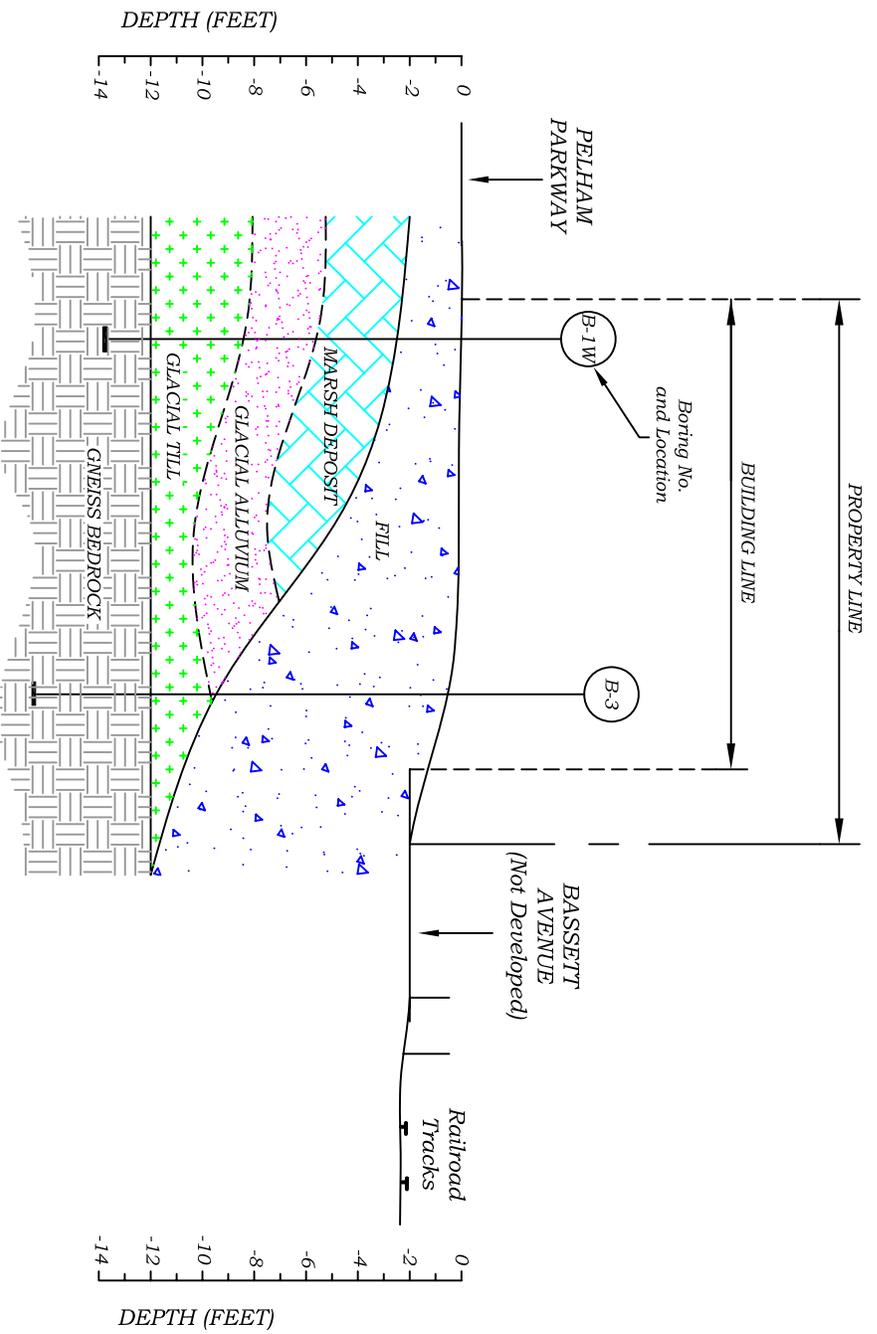
HYDRO TECH ENVIRONMENTAL CORP.
 MAIN OFFICE: 2171 JERICO TURNPIKE, SUITE 345
 COMMACK, NEW YORK 11725
 T (631)462-5866 F (631)462-5877
 www.hydrotechenvironmental.com

NYC OFFICE: 15 OCEAN AVENUE, 2nd Floor
 BROOKLYN, NEW YORK 11225
 T (718)656-0800 F (718)656-0900

1600 Pelham Pkwy South
 Bronx, NY

Drawn By:	C.O.	TITLE:	
Reviewed By:	M.R.	FIGURE 4: Geophysical Locations and/or Anomalies and Location of Soil Borings, Wells and Implants	
Approved By:	M.S.		
Date:	11/20/10		
Scale:	AS NOTED		

FIGURE 5
GEOLOGICAL CROSS-SECTIONS



LEGEND:

- FILL *Mixture of Sand, Silt, and Gravel with miscellaneous debris (NYCBC Class 7)*
- MARSH DEPOSIT *Soft compressible organic Clayey Silt and Peat, loose Sand (NYCBC Class 6)*
- GLACIAL ALLUVIUM *Medium dense Silty Sands and Clayey Silts (NYCBC Class 3b and 5b)*
- GLACIAL TILL *Sand and Gravel (NYCBC Class 3a)*
- GNEISS BEDROCK *Hard to Medium hard rock, slightly to moderately weathered, widely to closely jointed (NYCBC Class 1a & 1b)*

NOTES:
 ~ ~ DASHED WHERE INFERRED



HYDRO TECH ENVIRONMENTAL CORP.
 MAIN OFFICE: 2171 JERICO TURNPIKE, SUITE 345
 COMMACK, NEW YORK 11725
 T (631)462-5866 F (631)462-5877
 www.hydrotechenvironmental.com

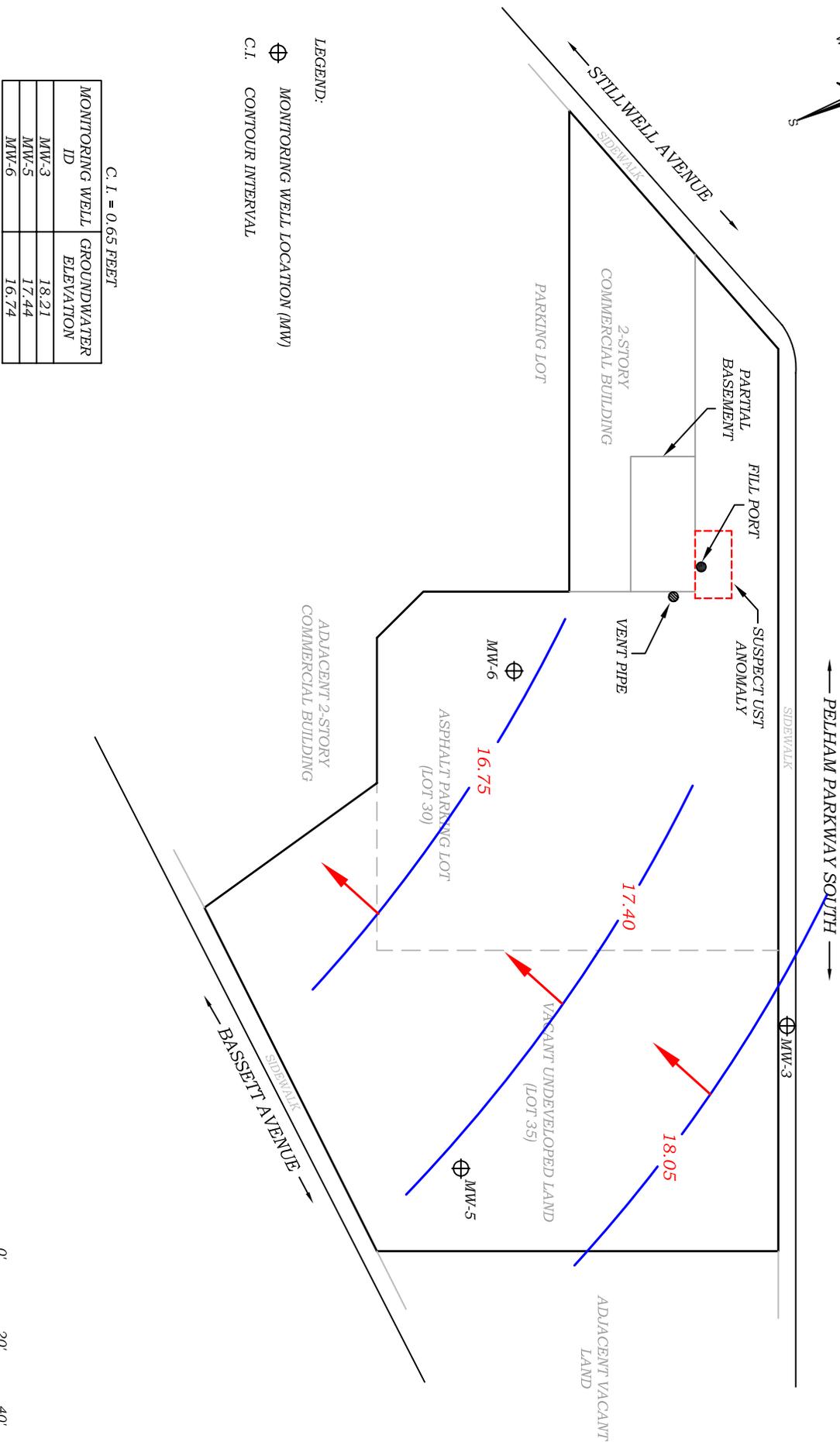
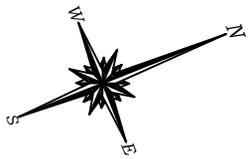
NYC OFFICE: 15 OCEAN AVENUE, 2nd Floor
 BROOKLYN, NEW YORK 11225
 T (718)636-0800 F (718)636-0900

1600 Pelham Pkwy South
 Bronx, NY.

Drawn By:	CQ	TITLE:
Reviewed By:	M.R.	
Approved By:	M.S.	
Date:	11/19/10	
Scale:	AS NOTED	

FIGURE 5: Geological Cross-Sections

FIGURE 6
GROUNDWATER LEVEL CONTOURS



- LEGEND:
- ⊕ MONITORING WELL LOCATION (MW)
 - C.I. CONTOUR INTERVAL

C. I. = 0.65 FEET

MONITORING WELL ID	GROUNDWATER ELEVATION
MW-3	18.21
MW-5	17.44
MW-6	16.74



HYDRO TECH ENVIRONMENTAL CORP.
 MAIN OFFICE: 2171 JERICO TURNPIKE, SUITE 345
 COMMACK, NEW YORK 11725
 T (631)462-5866 F (631)462-5877
 www.hydrotechenvironmental.com

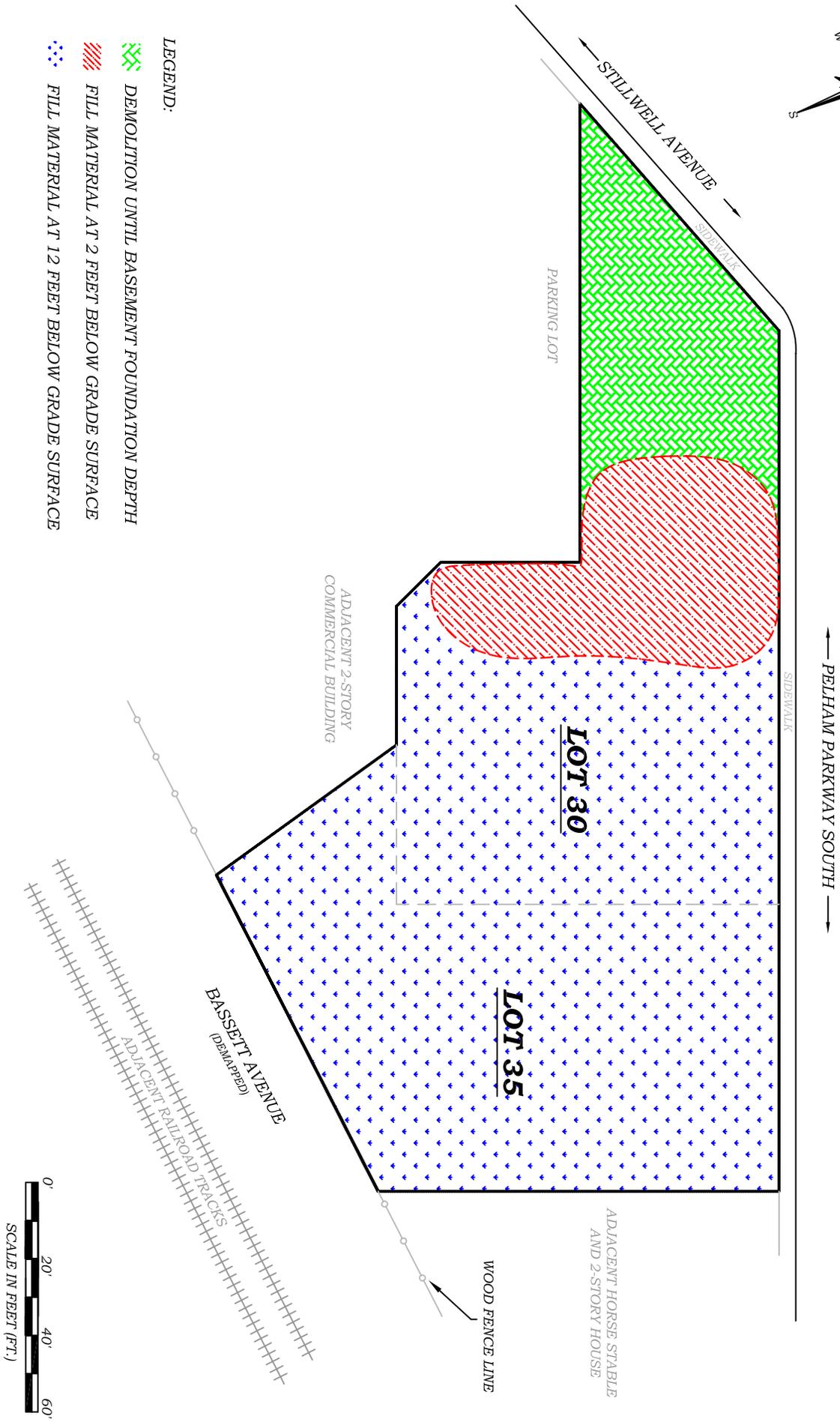
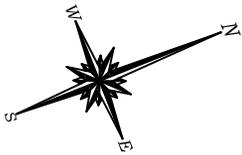
N.Y.C. OFFICE: 15 OCEAN AVENUE, 2nd Floor
 BROOKLYN, NEW YORK 11225
 T (718)636-0800 F (718)636-0900

1600 Pelham Pkwy South
 Bronx, NY.

Drawn By:	C.Q.
Reviewed By:	M.R.
Approved By:	M.S.
Date:	11/20/10
Scale:	AS NOTED

TITLE: **FIGURE 6: GROUNDWATER LEVEL CONTOURS**

FIGURE 7
HISTORICAL FILL MAP



LEGEND:

-  DEMOLITION UNTIL BASEMENT FOUNDATION DEPTH
-  FILL MATERIAL AT 2 FEET BELOW GRADE SURFACE
-  FILL MATERIAL AT 12 FEET BELOW GRADE SURFACE




HYDRO TECH ENVIRONMENTAL CORP.

MAIN OFFICE: 2171 JERICO TURNPIKE, SUITE 345
COMMACK, NEW YORK 11725
T (631)462-5866 F (631)462-5877
www.hydrotechenvironmental.com

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

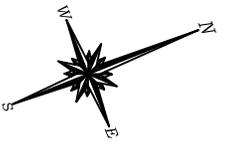
1600 Pelham Pkwy South
Bronx, NY.

Drawn By:	CQ
Reviewed By:	MR
Approved By:	MS
Date:	11/20/10
Scale:	AS NOTED

TITLE:

FIGURE 7: HISTORICAL FILL MAP

FIGURE 8A
SOIL SAMPLING LOCATIONS AND EXCEEDENCES OF STANDARDS,
CRITERIA AND GUIDANCE FOR VOCs



SP-2	0' - 2'
DEPTH	ND
VOCs	ND
SP-2	10' - 12'
DEPTH	μg/Kg
VOC	USSCO
Acetone	56
Total VOCs	404
	NS

SP-3	0' - 2'	10' - 12'
DEPTH	ND	ND
VOCs	ND	ND

SP-4	0' - 2'	10' - 12'
DEPTH	ND	ND
VOCs	ND	ND

SP-1	0' - 2'	2' - 4'
DEPTH	ND	ND
VOCs	ND	ND

SP-10	0' - 2'	8' - 10'
DEPTH	ND	ND
VOCs	ND	ND

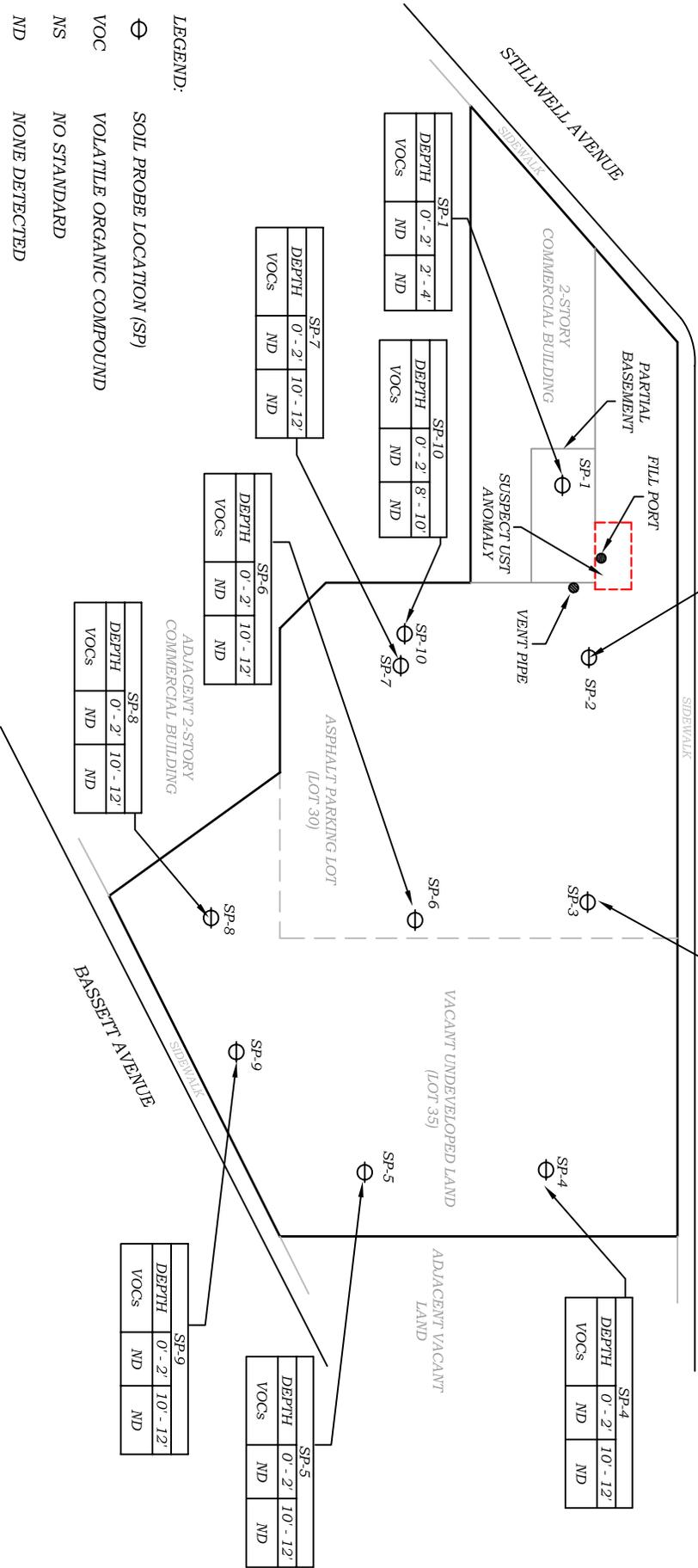
SP-7	0' - 2'	10' - 12'
DEPTH	ND	ND
VOCs	ND	ND

SP-6	0' - 2'	10' - 12'
DEPTH	ND	ND
VOCs	ND	ND

SP-8	0' - 2'	10' - 12'
DEPTH	ND	ND
VOCs	ND	ND

SP-5	0' - 2'	10' - 12'
DEPTH	ND	ND
VOCs	ND	ND

SP-9	0' - 2'	10' - 12'
DEPTH	ND	ND
VOCs	ND	ND



- LEGEND:**
- ⊕ SOIL PROBE LOCATION (SP)
 - ⊕ VOLATILE ORGANIC COMPOUND
 - NS NO STANDARD
 - ND NONE DETECTED
 - USSCO UNRESTRICTED USE SOIL CLEANUP OBJECTIVES
 - μg/Kg MICROGRAMS PER KILOGRAM
 - SHADED VALUES EXCEED USSCO



HYDRO TECH ENVIRONMENTAL CORP.

MAIN OFFICE: 2171 JERICO TURNPIKE, SUITE 345
COMMACK, NEW YORK 11725
T (631)462-5866 F (631)462-5877
www.hydrotechenvironmental.com

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

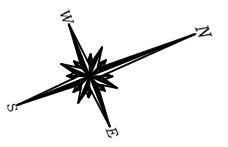
1600 Pelham Pkwy South
Bronx, NY

Drawn By:	CQ	TITLE:
Reviewed By:	M.R.	
Approved By:	M.S.	
Date:	11/20/10	
Scale:	AS NOTED	

FIGURE 8A: Soil Sampling Locations and Exceedances of Standards, Criteria and Guidance for VOCs

FIGURE 8B

**SOIL SAMPLING LOCATIONS AND EXCEEDENCES OF STANDARDS,
CRITERIA AND GUIDANCE FOR SVOCs**



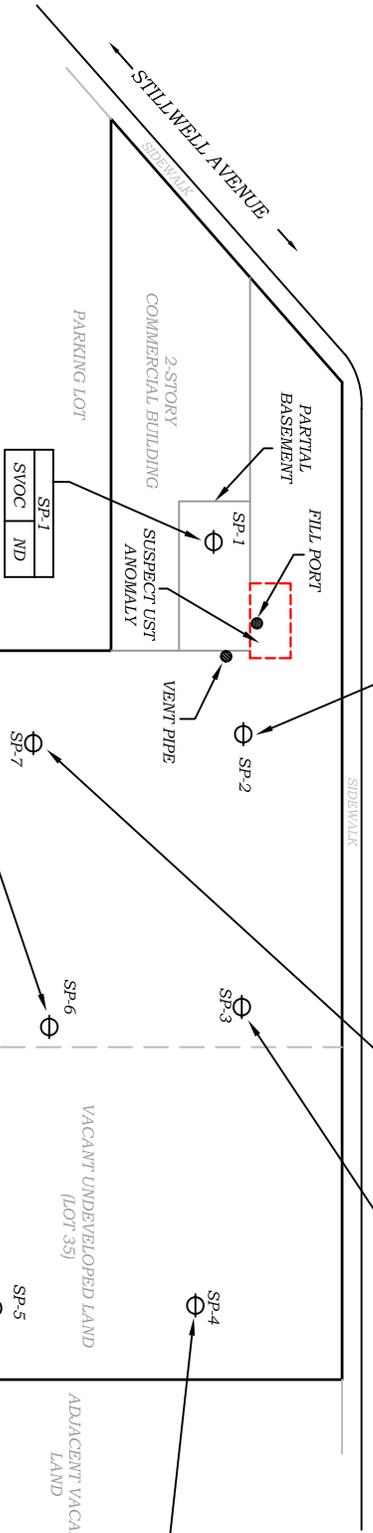
← PELHAM PARKWAY SOUTH →

DEPTH	0' - 2'	
SVOCS		ND

DEPTH	0' - 2'	
SVOCS		ND
Chrysene	1,300	1,000
Benzo (b) Fluoranthene	3,600	1,000
Benzo (k) Fluoranthene	1,100	800
Benzo (a) Pyrene	2,100	1,000
Indeno (1,2,3-cd) Pyrene	990	500
Total SVOCS	13,370	NS

DEPTH	0' - 2'	
SVOCS		UUSCO
Chrysene	1,100	1,000
Benzo (b) Fluoranthene	1,400	1,000
Benzo (a) Pyrene	1,100	1,000
Indeno (1,2,3-cd) Pyrene	780	500
Total SVOCS	12,650	NS

DEPTH	10' - 12'	
SVOCS		UUSCO
Benzo (a) Anthracene	1,800	1,000
Chrysene	1,800	1,000
Benzo (b) Fluoranthene	1,900	1,000
Benzo (a) Pyrene	1,600	1,000
Indeno (1,2,3-cd) Pyrene	1,100	500
Total SVOCS	21,060	NS



DEPTH	0' - 2'	
SVOCS		ND

DEPTH	0' - 2'	
SVOCS		ND

DEPTH	0' - 2'	
SVOCS		ND

DEPTH	0' - 2'	
SVOCS		ND

DEPTH	0' - 2'	
SVOCS		ND

DEPTH	0' - 2'	
SVOCS		ND

DEPTH	0' - 2'	
SVOCS		UUSCO
Benzo (a) Anthracene	9,000	1,000
Chrysene	7,700	1,000
Benzo (b) Fluoranthene	8,400	1,000
Benzo (k) Fluoranthene	3,000	800
Benzo (a) Pyrene	3,000	1,000
Indeno (1,2,3-cd) Pyrene	3,000	500
Dibenz (a,h) Anthracene	1,000	330
Total SVOCS	93,930	NS

DEPTH	10' - 12'	
SVOCS		UUSCO
Benzo (a) Anthracene	1,800	1,000
Chrysene	1,800	1,000
Benzo (b) Fluoranthene	1,900	1,000
Benzo (k) Fluoranthene	820	800
Benzo (a) Pyrene	1,600	1,000
Indeno (1,2,3-cd) Pyrene	1,100	500
Total SVOCS	21,060	NS

DEPTH	0' - 2'	
SVOCS		UUSCO
Benzo (a) Anthracene	19,000	1,000
Chrysene	14,000	1,000
Benzo (b) Fluoranthene	16,000	1,000
Benzo (k) Fluoranthene	6,000	800
Benzo (a) Pyrene	14,000	1,000
Indeno (1,2,3-cd) Pyrene	6,100	500
Dibenz (a,h) Anthracene	2,400	330
Total SVOCS	195,260	NS

DEPTH	0' - 2'	
SVOCS		UUSCO
Benzo (a) Anthracene	6,600	1,000
Chrysene	6,100	1,000
Benzo (b) Fluoranthene	7,100	1,000
Benzo (k) Fluoranthene	2,300	800
Benzo (a) Pyrene	3,600	1,000
Indeno (1,2,3-cd) Pyrene	2,400	500
Total SVOCS	75,800	NS

LEGEND:

- ⊕ SOIL PROBE LOCATION (SP)
- ⊖ SEMI VOLATILE ORGANIC COMPOUND
- NS NO STANDARD
- ND NONE DETECTED
- UUSCO UNRESTRICTED USE SOIL CLEANUP OBJECTIVES
- μg/Kg MICROGRAMS PER KILOGRAM
- SHADED VALUES EXCEED UUSCO



HYDRO TECH ENVIRONMENTAL CORP.
 MAIN OFFICE: 2171 BERGHO TURNPIKE, SUITE 345
 COMMACK, NEW YORK 11725
 T (631) 462-5866 F (631) 462-5877
 www.hydrotechenvironmental.com

NYC OFFICE: 15 OCEAN AVENUE, 2nd Floor
 BROOKLYN, NEW YORK 11225
 T (718) 636-4800 F (718) 636-0900

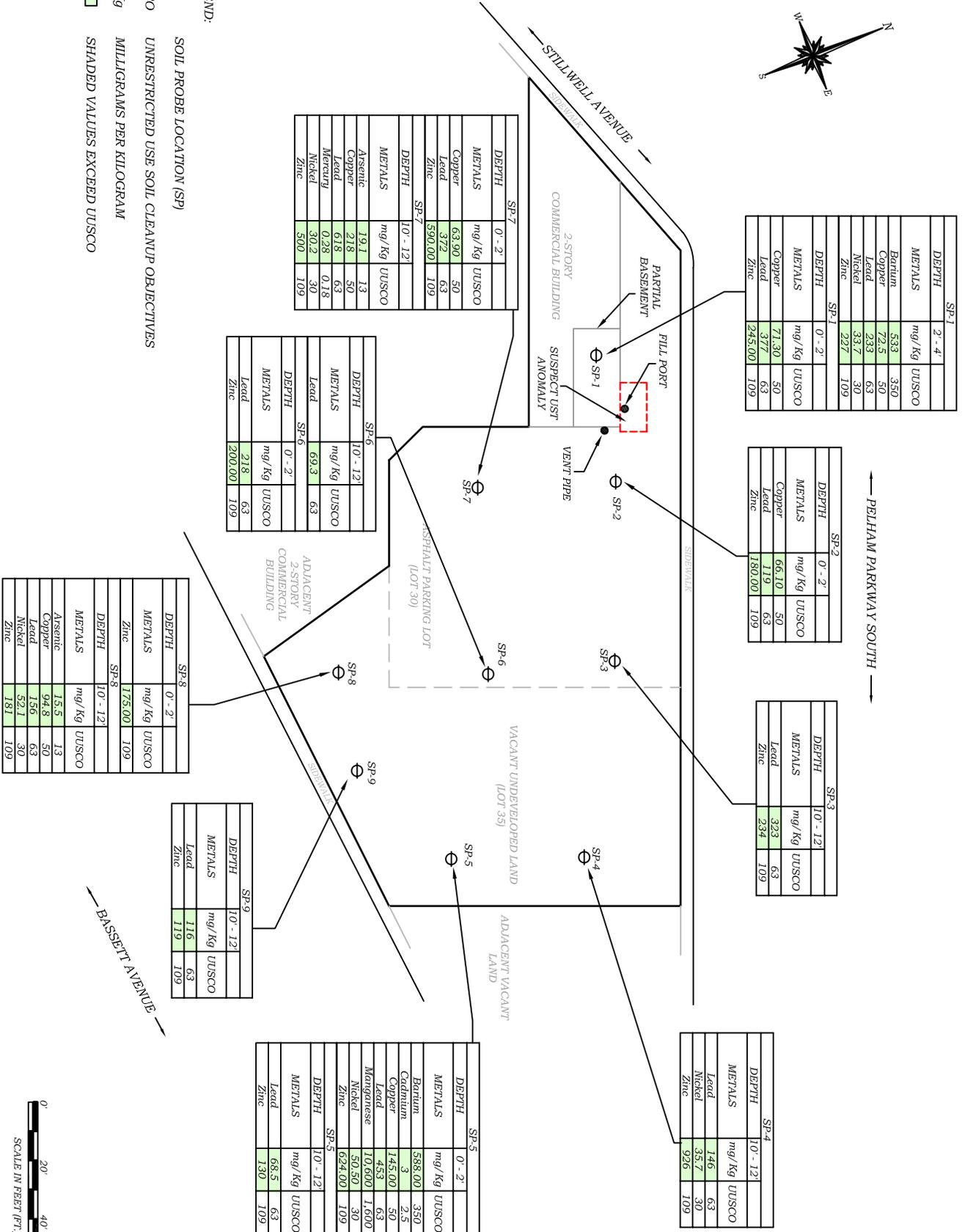
1600 Pelham Pkwy South
 Bronx, NY

Drawn By: C.Q.
 Reviewed By: M.R.
 Approved By: M.S.
 Date: 01/07/10
 Scale: AS NOTED

FIGURE 8B: Soil Sampling Locations and Exceedences of Standards, Criteria and Guidance for SVOCS

FIGURE 8C

**SOIL SAMPLING LOCATIONS AND EXCEEDENCES OF STANDARDS,
CRITERIA AND GUIDANCE FOR METALS**



LEGEND:

⊕ SOIL PROBE LOCATION (SP)

⊖ UNRESTRICTED USE SOIL CLEANUP OBJECTIVES

mg/Kg MILLIGRAMS PER KILOGRAM

SHADED VALUES EXCEED UUSCO



HYDRO TECH ENVIRONMENTAL CORP.

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

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

www.hydrotechenvironmental.com

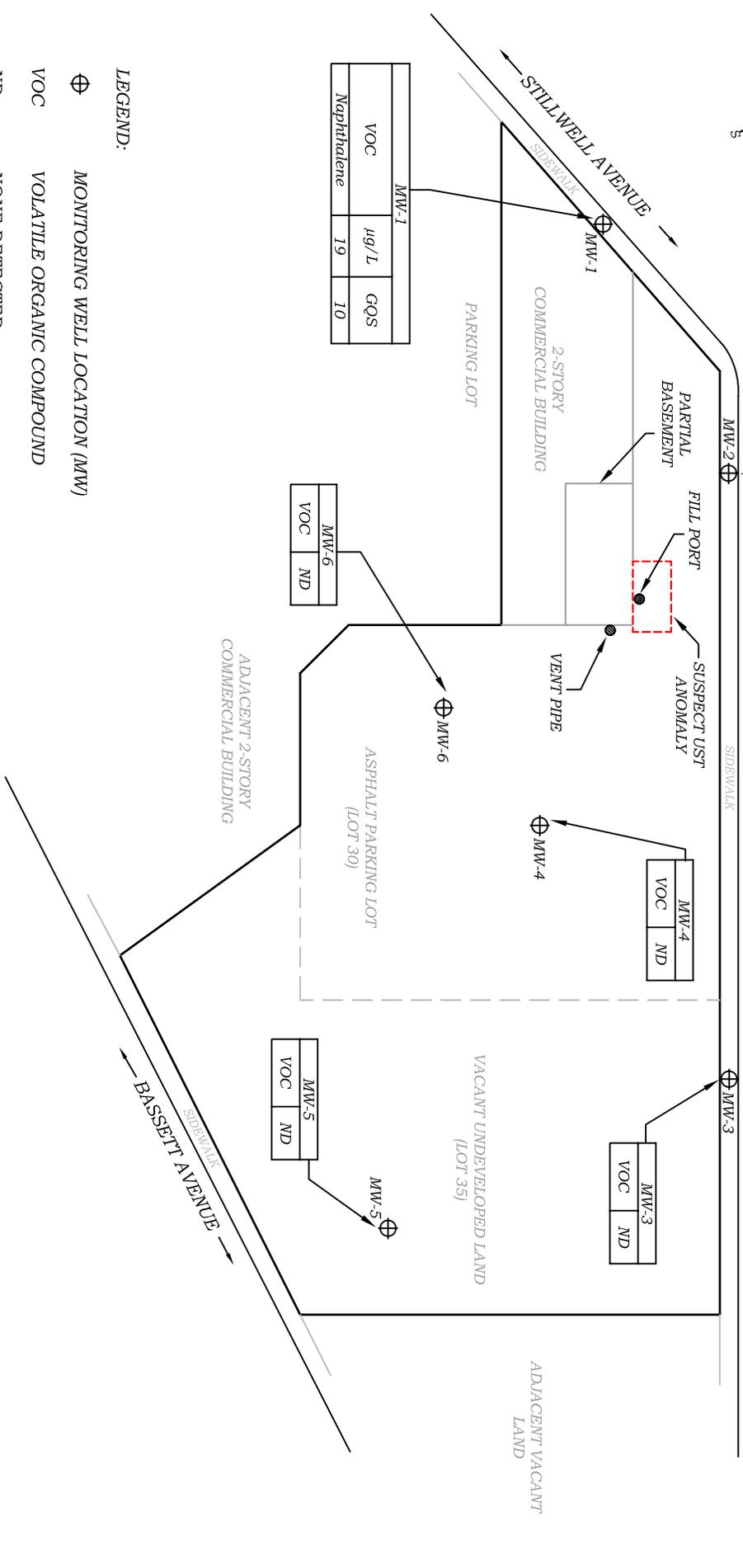
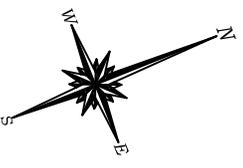
1600 Pelham Pkwy South
Bronx, NY.

Drawn By: CQ
Reviewed By: M.R.
Approved By: M.S.
Date: 01/07/10
Scale: AS NOTED

FIGURE 8C: Soil Sampling Locations and Exceedences of Standards, Criteria and Guidance for METALS

FIGURE 9A

**GROUNDWATER SAMPLING LOCATIONS AND EXCEEDENCES OF
STANDARDS, CRITERIA AND GUIDANCE FOR VOC 6NYCRR PART 703.5**



MW-1	VOC	µg/L	GQS
	Naphthalene	19	10

MW-6	VOC	ND
------	-----	----

MW-4	VOC	ND
------	-----	----

MW-3	VOC	ND
------	-----	----

MW-5	VOC	ND
------	-----	----

MW-2	VOC	ND
------	-----	----

LEGEND:

- ⊕ MONITORING WELL LOCATION (MW)
- VOC VOLATILE ORGANIC COMPOUND
- ND NONE DETECTED
- µg/L MICROGRAMS PER LITER
- GQS GROUNDWATER QUALITY STANDARDS



HYDRO TECH ENVIRONMENTAL CORP.

MAIN OFFICE:
2171 JERICO TURNPIKE, SUITE 345
COMMACK, NEW YORK 11725
T (631)462-5866 F (631)462-5877
www.hydrotechenvironmental.com

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

1600 Pelham Pkwy South
Bronx, NY.

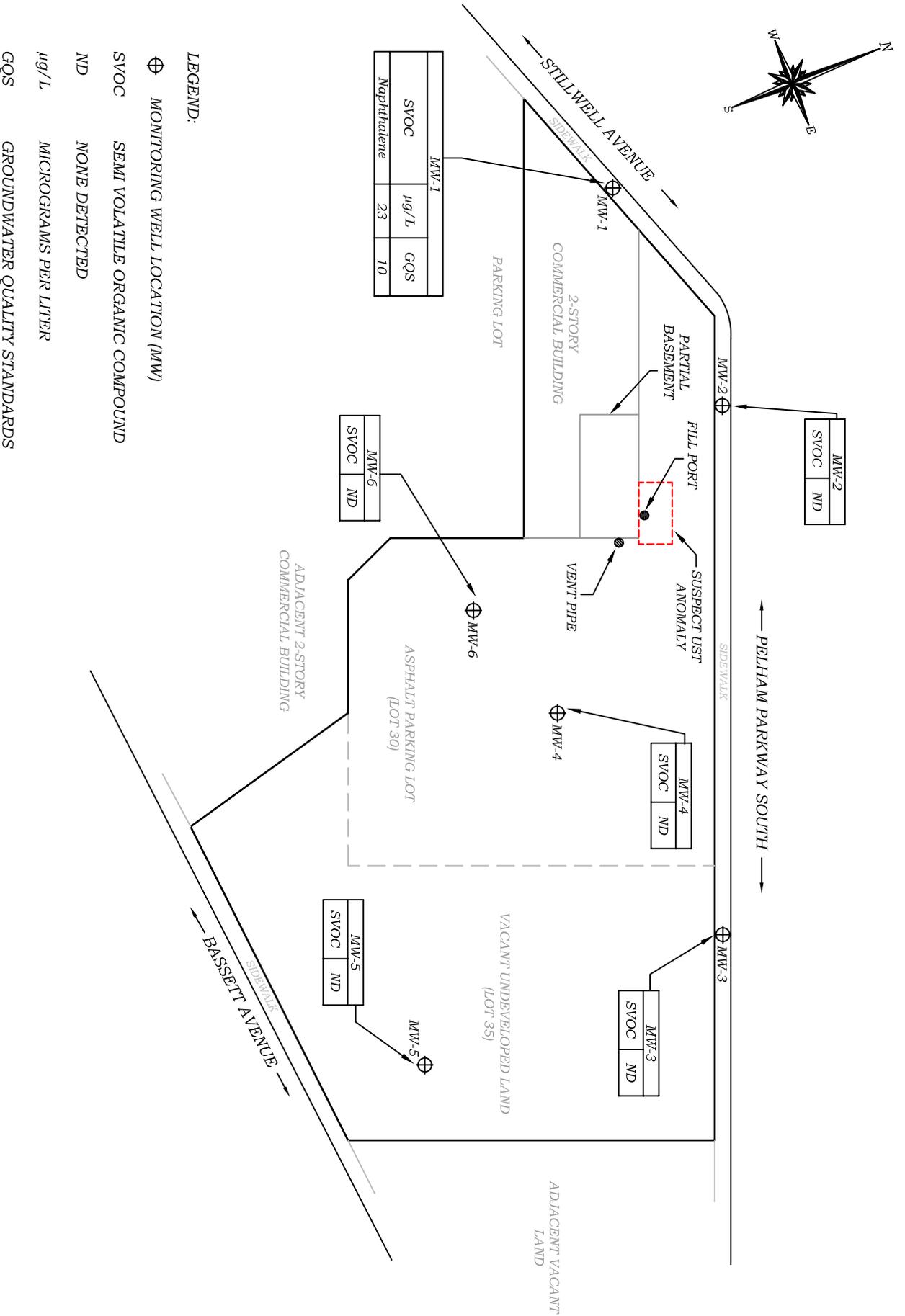
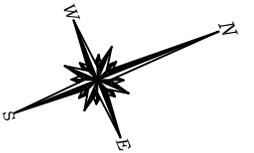
Drawn By:	CQ
Reviewed By:	M.R.
Approved By:	M.S.
Date:	11/20/10
Scale:	AS NOTED

TITLE:

FIGURE 9A: Groundwater Sampling Locations and Exceeding of Standards, Criteria and Guidance for VOCs 6NYCRR Part 703.5

FIGURE 9B

**GROUNDWATER SAMPLING LOCATIONS AND EXCEEDENCES OF
STANDARDS, CRITERIA AND GUIDANCE FOR SVOCs 6NYCRR PART 703.5**



LEGEND:

- ⊕ MONITORING WELL LOCATION (MW)
- ⊕ SEMI VOLATILE ORGANIC COMPOUND
- ⊕ NONE DETECTED
- µg/L MICROGRAMS PER LITER
- GQS GROUNDWATER QUALITY STANDARDS



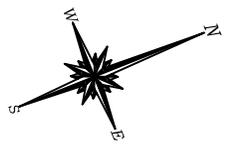
HYDRO TECH ENVIRONMENTAL CORP.
 MAIN OFFICE: 2171 JERICO TURNPIKE, SUITE 345
 COMMACK, NEW YORK 11725
 T (631) 462-5866 F (631) 462-5877
 www.hydrotechenvironmental.com

N.Y. OFFICE: 15 OCEAN AVENUE, 2nd Floor
 BROOKLYN, NEW YORK 11225
 T (718) 636-0800 F (718) 638-0900

Drawn By:	C.Q.
Reviewed By:	M.R.
Approved By:	M.S.
Date:	01/07/10
Scale:	AS NOTED

TITLE:
FIGURE 9B: Groundwater Sampling Locations and Exceeding of Standards, Criteria and Guidance for SVOCs 6NYCRR Part 703.5

FIGURE 9C
GROUNDWATER SAMPLING LOCATIONS AND EXCEEDENCES OF
STANDARDS, CRITERIA AND GUIDANCE FOR METALS 6NYCRR PART 703.5



MW-2	
METALS (filtered)	mg/L
Aluminum	2.05
Iron	27.9
Manganese	2.64
Sodium	139
GQS	
METALS (unfiltered)	mg/L
Aluminum	65.2
Cobalt	0.031
Iron	90.8
Manganese	3.82
Sodium	148
Zinc	0.288

MW-3	
METALS (filtered)	mg/L
Aluminum	0.1
Iron	6.6
Manganese	2.45
Sodium	206
GQS	
METALS (unfiltered)	mg/L
Aluminum	27.5
Chromium	0.053
Cobalt	0.015
Iron	43.5
Manganese	2.99
Sodium	213
Zinc	0.142

MW-4	
METALS (filtered)	mg/L
Barium	1.42
Manganese	0.397
Sodium	152
GQS	
METALS (unfiltered)	mg/L
Aluminum	4.70
Barium	1.75
Iron	18.5
Manganese	0.716
Sodium	148

MW-6	
METALS (filtered)	mg/L
Aluminum	1.38
Iron	1.41
Manganese	0.704
Sodium	88.7
GQS	
METALS (unfiltered)	mg/L
Aluminum	66.8
Chromium	0.138
Cobalt	0.029
Iron	67.9
Manganese	1.67
Sodium	88.0
Zinc	0.305

MW-5	
METALS (filtered)	mg/L
Aluminum	3.10
Iron	2.53
Manganese	0.445
GQS	
METALS (unfiltered)	mg/L
Aluminum	32.2
Chromium	0.088
Cobalt	0.024
Copper	0.400
Iron	44.0
Lead	0.700
Manganese	1.47
Zinc	1.07

LEGEND:
 ⊕ MONITORING WELL LOCATION (MW)
 mg/L MILLIGRAMS PER LITER
 GQS GROUNDWATER QUALITY STANDARDS



HYDRO TECH ENVIRONMENTAL CORP.
 MAIN OFFICE: 2171 JERICO TURNPIKE, SUITE 345
 COMMACK, NEW YORK 11725
 T (631)462-5866 F (631)462-5877
 www.hydrotechenvironmental.com
 NYC OFFICE: 15 OCEAN AVENUE, 2nd Floor
 BROOKLYN, NEW YORK 11225
 T (718)636-0800 F (718)636-0900

1600 Pelham Parkway South
 Bronx, NY

Drawn By:	CQ
Reviewed By: <td>M.R.</td>	M.R.
Approved By:	M.S.
Date:	11/20/10
Scale:	AS NOTED

TITLE:

FIGURE 9C: Groundwater Sampling Locations and Exceeding of Standards, Criteria and Guidance for METALS 6NYCRR Part 703.5



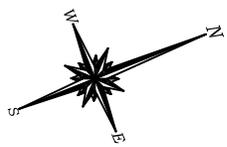
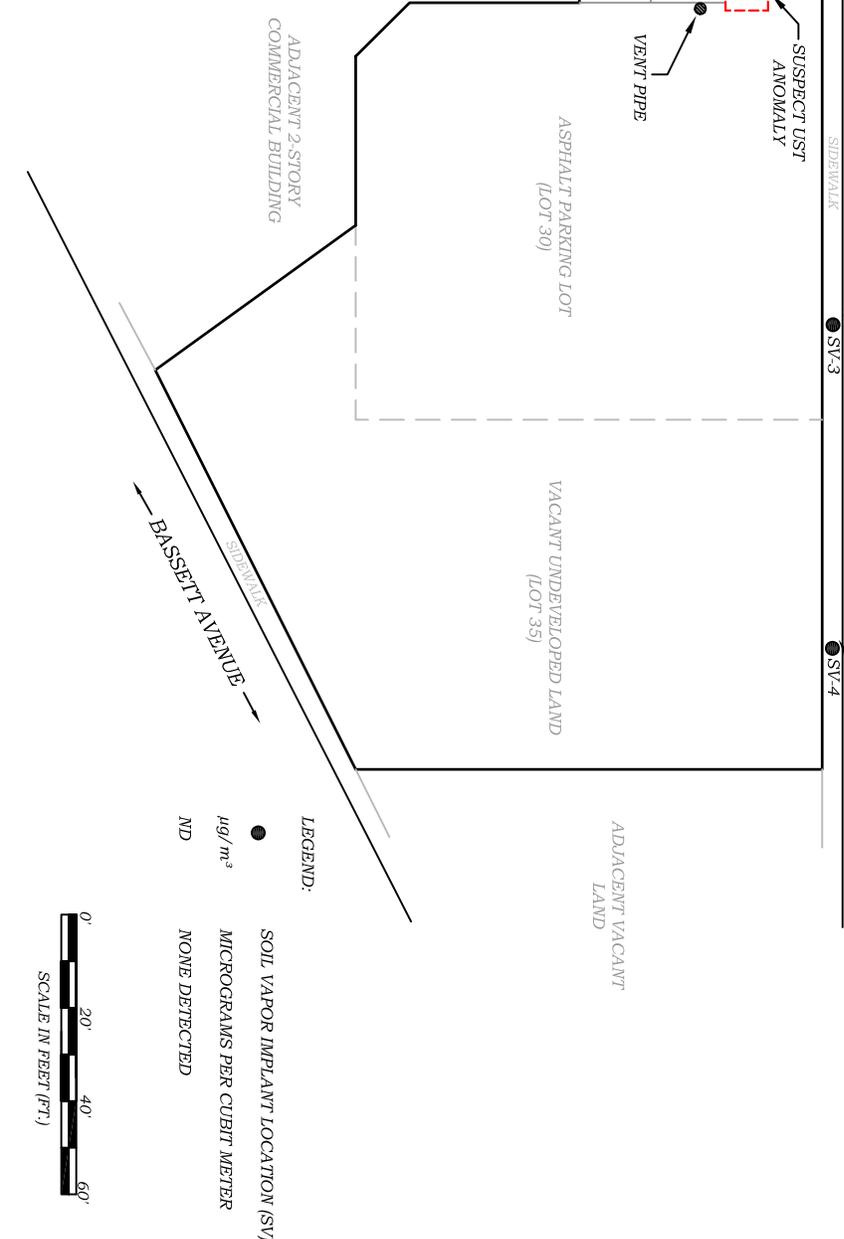
FIGURE 10
SOIL VAPOR SAMPLING LOCATIONS

VOLATILE TO-15 LIST	SV-3 µg/m ³
4-Ethyltoluene	13.4
sec-Butylbenzene	ND
Ethanol	90.3
Acetone	97.0
Propene	44.6
Chloroform	ND
2-Butanone	55.2
Carbon Disulfide	ND
Benzene	21.9
Toluene	193
Tetrachloroethene	ND
Hexane	65.1
n-Heptane	36.2
Ethylbenzene	52.0
n-Butylbenzene	3.72
o-Xylene	61.8
m + p-Xylene	207
Cyclohexane	11.5
4-Isopropyltoluene	ND
Isopropylbenzene	3.24
1,3,5-Trimethylbenzene	23.9
1,2,4-Trimethylbenzene	58.4

VOLATILE TO-15 LIST	SV-4 µg/m ³
4-Ethyltoluene	23.7
sec-Butylbenzene	ND
Ethanol	35.0
Acetone	69.5
Propene	75.4
Chloroform	ND
2-Butanone	11.5
Carbon Disulfide	2.50
Benzene	61.1
Toluene	729
Tetrachloroethene	ND
Hexane	123
n-Heptane	130
Ethylbenzene	164
n-Butylbenzene	3.10
o-Xylene	180
m + p-Xylene	580
Cyclohexane	24.1
4-Isopropyltoluene	ND
Isopropylbenzene	9.50
1,3,5-Trimethylbenzene	44.8
1,2,4-Trimethylbenzene	89.2

VOLATILE TO-15 LIST	SV-1 µg/m ³
4-Ethyltoluene	154
sec-Butylbenzene	15.6
Ethanol	20.4
Acetone	22.8
Propene	30.4
Chloroform	ND
2-Butanone	ND
Carbon Disulfide	ND
Benzene	52.8
Toluene	969
Tetrachloroethene	11.2
Hexane	183
n-Heptane	307
Ethylbenzene	470
n-Butylbenzene	ND
o-Xylene	1,020
m + p-Xylene	1,840
Cyclohexane	146
4-Isopropyltoluene	11.2
Isopropylbenzene	106
1,3,5-Trimethylbenzene	154
1,2,4-Trimethylbenzene	268

VOLATILE TO-15 LIST	SV-2 µg/m ³
4-Ethyltoluene	35.2
sec-Butylbenzene	ND
Ethanol	43.2
Acetone	54.0
Propene	200
Chloroform	8.20
2-Butanone	19.2
Carbon Disulfide	23.8
Benzene	31.4
Toluene	804
Tetrachloroethene	ND
Hexane	231
n-Heptane	176
Ethylbenzene	253
n-Butylbenzene	10.2
o-Xylene	322
m + p-Xylene	983
Cyclohexane	25.2
4-Isopropyltoluene	ND
Isopropylbenzene	17.8
1,3,5-Trimethylbenzene	89.4
1,2,4-Trimethylbenzene	216



HYDRO TECH ENVIRONMENTAL CORP.

MAIN OFFICE:
2171 BERGHO TURNPIKE, SUITE 345
COMMACK, NEW YORK 11725
T (631)462-5866 F (631)462-5877
www.hydrotechenvironmental.com

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

1600 Pelham Pkwy South
Bronx, NY.

Drawn By:	CQ	TITLE:
Reviewed By:	MR	
Approved By:	MS	
Date:	11/20/10	
Scale:	AS NOTED	

FIGURE 10: Soil Vapor Sampling Locations

TABLE 1
FATE AND MANAGEMENT OF INVESTIGATION DERIVED WASTE

TABLE 1

Fate and Management of Investigation Derived Waste

Media	Quantity	Disposal Facility	Location
Soil/fill cuttings (grossly contaminated)	10 gallon drum	To be defined during Site remediation	
Soil/grossly contaminated)	3,000 tons	Soil Safe Inc.	Logan Township, NJ
Extracted groundwater	55 gallon drum	To be defined during Site remediation	
General Trash			

TABLE 2
CHARACTERIZATION OF SOIL SAMPLES

Table 2
Characterization of Soil Samples
1600 Pelham Parkway, Bronx, NY

Soil Probe	Sampling Depths (ft)	PID Reading (ppm)	Soil Characterization
SP-1	0-2'	0.0	Concrete, brown medium grained silty sand with fill material. No odor
	2'-4'	0.0	S.A.B.
SP-2	0-2'	0.0	Asphalt, brown fine grained silty sand with fill materials. No odor
	2'-4'	0.0	S.A.B.
	4'-6'	0.0	S.A.B.
	6'-8'	0.0	S.A.B.
	8'-10'	0.0	S.A.B.
	10'-12'	0.0	Black fine grained silty sand with organic matter. No odor
SP-3	0-2'	0.0	Asphalt, brown fine grained clayey sand with fill material. No odor
	2'-4'	0.0	Brown fine grained clayey sand with fill material. No odor
	4'-6'	0.0	S.A.B.
	6'-8'	0.0	Brown fine grained silty sand with fill material. No odor
	8'-10'	0.0	S.A.B.
	10'-12'	0.0	S.A.B.
SP-4	0-2'	0.0	Brown fine grained clayey sand with fill material. No odor
	2'-4'	0.0	S.A.B.
	4'-6'	0.0	S.A.B.
	6'-8'	0.0	S.A.B.
	8'-10'	0.0	S.A.B.
	10'-12'	0.0	S.A.B.

ft...feet

ppm...part per million

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

**Table 2 (Cont.)
 Characterization of Soil Samples
 1600 Pelham Parkway, Bronx, NY**

Soil Probe	Sampling Depths (ft)	PID Reading (ppm)	Soil Characterization
SP-5	0-2'	0.0	Organic matter. No odor
	2'-4'	0.0	S.A.B.
	4'-6'	0.0	S.A.B.
	6'-8'	0.0	S.A.B.
	8'-10'	0.0	Organic matter with fill material. No odor
	10'-12'	0.0	S.A.B.
SP-6	0-2'	0.0	Asphalt, brown fine grained silty sand with fill materials. No odor
	2'-4'	0.0	S.A.B.
	4'-6'	0.0	S.A.B.
	6'-8'	0.0	Brown medium grained sand with pebbles. No odor
	8'-10'	0.0	Black organic matter. Sewer odor
	10'-12'	0.0	S.A.B.
SP-7	0-2'	0.0	Asphalt, brown fine grained silty sand with fill material. No odor
	2'-4'	0.0	S.A.B.
	4'-6'	0.0	S.A.B.
	8'-10'	0.0	S.A.B.
	10'-12'	0.0	Black fine grained silty sand with organic matter. No odor
SP-8	0-2'	0.0	Organic matter. No odor
	2'-4'	0.0	Organic matter with fill material. No odor
	4'-6'	0.0	Brown fine grained silty sand with fill material. No odor
	6'-8'	0.0	S.A.B.
	8'-10'	0.0	S.A.B.
	10'-12'	0.0	S.A.B.
SP-9	0-2'	0.0	Brown sand. No odor
	2'-4'	0.0	Brown to dark brown sand, brick fragments. No odor
	4'-6'	0.0	Brick, brown clayey sand. No odor
	6'-8'	0.0	Brown clayey sand, stones. No odor
	8'-10'	0.0	Brown clayey sand. No odor
	10'-12'	0.0	S.A.B.
SP-10	0-2'	0.0	Asphalt, brown clayey sand. No odor
	2'-4'	0.0	Brown to dark brown clayey sand, wood and brick fragments. No odor
	4'-6'	0.0	Brown clayey sand. No odor
	6'-8'	0.0	Gray clayey sand. No odor
	8'-10'	0.0	Brown clayey sand. No odor
	10'-12'	0.0	Brown clayey wet sand. No odor

ft...feet

ppm...part per million

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

TABLE 3
CONSTRUCTION DETAILS FOR SOIL BORINGS AND MONITORING
WELLS

TABLE 3**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	1/14/2009	4 ft	1 ½-inch	basement	n/a	Steel	Grid 2E
Soil Boring	SP-2	1/14/2009	12 ft	1 ½-inch	surface	n/a	Steel	Grid 2G
Soil Boring	SP-3	1/13/2009	12 ft	1 ½-inch	surface	n/a	Steel	Grid 2J
Soil Boring	SP-4	1/13/2009	12 ft	1 ½-inch	surface	n/a	Steel	Grid 2N
Soil Boring	SP-5	1/13/2009	12 ft	1 ½-inch	surface	n/a	Steel	Grid 4N
Soil Boring	SP-6	1/14/2009	12 ft	1 ½-inch	surface	n/a	Steel	Grid 4J
Soil Boring	SP-7	1/14/2009	12 ft	1 ½-inch	surface	n/a	Steel	Grid 4H
Soil Boring	SP-8	1/13/2009	12 ft	1 ½-inch	surface	n/a	Steel	Grid 6J
Soil Boring	SP-9	11/2/2009	12.5 ft	1 ½-inch	surface	n/a	Steel	Grid 4M
Soil Boring	SP-10	11/2/2009	10 ft	1 ½-inch	surface	n/a	Steel	Grid 4H

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	11/6/2009	12.5 ft	1 in	sidewalk	Riser = 1.5ft Screen = 11ft	Manhole cover	Sidewalk of Stillwell Avenue
Monitor Wells	MW-2	11/6/2009	20 ft	1 in	sidewalk	Riser = 5ft Screen = 15 ft	Manhole cover	Sidewalk of Pelham Pkwy S
Monitor Wells	MW-3	11/6/2009	19 ft	1 in	sidewalk	Riser = 4 ft Screen = 15 ft	Manhole cover	Sidewalk of Pelham Pkwy S
Monitor Wells	MW-4	11/2/2009	14.5 ft	1 in	surface	Riser = 3.5 ft Screen = 11 ft	PVC stick up 2 ft	Grid 7M
Monitor Wells	MW-5	11/2/2009	14.5 ft	1 in	surface	Riser = 3.5 ft Screen = 11 ft	PVC stick up 2 ft	Grid 4M
Monitor Wells	MW-6	11/2/2009	17 ft	1 in	surface	Riser = 3ft Screen = 14ft	PVC stick up 2 ft	Grid 4H

TABLE 4
GROUNDWATER LEVEL DATA

Table 4
Groundwater Level Data
1600 Pelham Parkway, Bronx, NY

Monitoring Well (MW)	Nov-09				
	Depth to Water(Feet)	shot	Benchmark	casing el	Groundwater Elevation (Feet)
MW-1	Dry	-	-	-	-
MW-2	11.17	3.32	30	26.68	15.51
MW-3	8.49	3.30	30	26.7	18.21
MW-4	8.37	7.32	30	22.68	14.31
MW-5	10.09	2.47	30	27.53	17.44
MW-6	6.29	6.97	30	23.03	16.74

TABLE 5
SAMPLE COLLECTION DATA: SOIL/GROUNDWATER/SOIL VAPOR

Table 5
Sample Collection Data- Soil, Groundwater, Soil Vapor
1600 Pelham Parkway, Bronx, NY

Matrix	Number of Samples	Analytical Parameters Measured	Analytical Methods Used
Soil	20	VOCs	EPA 8260
		SVOCs	EPA 8270
		Pesticides	EPA 8081
		PCBs	EPA 8082
		Metals	EPA 6010
Groundwater	5	VOCs	EPA 8260
		SVOCs	EPA 8270
		Pesticides	EPA 8081
		PCBs	EPA 8082
		Metals	EPA 6010
Soil Vapor	4	VOCs	EPA TO 15

TABLE 6
SITE SPECIFIC STANDARDS, CRITERIA AND GUIDANCE

375-6.8

Soil cleanup objective tables.

(a) Unrestricted use soil cleanup objectives.

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

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

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

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

Contaminant	CAS Number	Unrestricted Use
p-Cresol ^f	106-44-5	0.33 ^b
Pentachlorophenol	87-86-5	0.8 ^b
Phenanthrene ^f	85-01-8	100
Phenol	108-95-2	0.33 ^b
Pyrene ^f	129-00-0	100
Volatile organic compounds		
1,1,1-Trichloroethane ^f	71-55-6	0.68
1,1-Dichloroethane ^f	75-34-3	0.27
1,1-Dichloroethene ^f	75-35-4	0.33
1,2-Dichlorobenzene ^f	95-50-1	1.1
1,2-Dichloroethane	107-06-2	0.02 ^c
cis -1,2-Dichloroethene ^f	156-59-2	0.25
trans-1,2-Dichloroethene ^f	156-60-5	0.19
1,3-Dichlorobenzene ^f	541-73-1	2.4
1,4-Dichlorobenzene	106-46-7	1.8
1,4-Dioxane	123-91-1	0.1 ^b
Acetone	67-64-1	0.05
Benzene	71-43-2	0.06
n-Butylbenzene ^f	104-51-8	12
Carbon tetrachloride ^f	56-23-5	0.76
Chlorobenzene	108-90-7	1.1
Chloroform	67-66-3	0.37
Ethylbenzene ^f	100-41-4	1
Hexachlorobenzene ^f	118-74-1	0.33 ^b
Methyl ethyl ketone	78-93-3	0.12
Methyl tert-butyl ether ^f	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 ^f	103-65-1	3.9
sec-Butylbenzene ^f	135-98-8	11
tert-Butylbenzene ^f	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 ^f	95-63-6	3.6
1,3,5-Trimethylbenzene ^f	108-67-8	8.4
Vinyl chloride ^f	75-01-4	0.02
Xylene (mixed)	1330-20-7	0.26

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

Footnotes

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

^b 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.

^c 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.

^d SCO is the sum of endosulfan I, endosulfan II and endosulfan sulfate.

^e 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.

^f 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		
Metals							
Arsenic	7440-38-2	16 ^f	16 ^f	16 ^f	16 ^f	13 ^f	16 ^f
Barium	7440-39-3	350 ^f	400	400	10,000 ^d	433	820
Beryllium	7440-41-7	14	72	590	2,700	10	47
Cadmium	7440-43-9	2.5 ^f	4.3	9.3	60	4	7.5
Chromium, hexavalent ^h	18540-29-9	22	110	400	800	1 ^e	19
Chromium, trivalent ^h	16065-83-1	36	180	1,500	6,800	41	NS
Copper	7440-50-8	270	270	270	10,000 ^d	50	1,720
Total Cyanide ^h		27	27	27	10,000 ^d	NS	40
Lead	7439-92-1	400	400	1,000	3,900	63 ^f	450
Manganese	7439-96-5	2,000 ^f	2,000 ^f	10,000 ^d	10,000 ^d	1600 ^f	2,000 ^f
Total Mercury		0.81 ^j	0.81 ^j	2.8 ^j	5.7 ^j	0.18 ^f	0.73
Nickel	7440-02-0	140	310	310	10,000 ^d	30	130
Selenium	7782-49-2	36	180	1,500	6,800	3.9 ^f	4 ^f
Silver	7440-22-4	36	180	1,500	6,800	2	8.3
Zinc	7440-66-6	2200	10,000 ^d	10,000 ^d	10,000 ^d	109 ^f	2,480
PCBs/Pesticides							
2,4,5-TP Acid (Silvex)	93-72-1	58	100 ^a	500 ^b	1,000 ^c	NS	3.8
4,4'-DDE	72-55-9	1.8	8.9	62	120	0.0033 ^e	17
4,4'-DDT	50-29-3	1.7	7.9	47	94	0.0033 ^e	136
4,4'-DDD	72-54-8	2.6	13	92	180	0.0033 ^e	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 ^g	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 ^a	100 ^a	500 ^b	1,000 ^c	0.04 ^g	0.25
Dibenzofuran	132-64-9	14	59	350	1,000 ^c	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 ⁱ	24 ⁱ	200 ⁱ	920 ⁱ	NS	102
Endosulfan II	33213-65-9	4.8 ⁱ	24 ⁱ	200 ⁱ	920 ⁱ	NS	102
Endosulfan sulfate	1031-07-8	4.8 ⁱ	24 ⁱ	200 ⁱ	920 ⁱ	NS	1,000 ^c
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
Semivolatiles							
Acenaphthene	83-32-9	100 ^a	100 ^a	500 ^b	1,000 ^c	20	98
Acenaphthylene	208-96-8	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	107
Anthracene	120-12-7	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	1,000 ^c
Benz(a)anthracene	56-55-3	1 ^f	1 ^f	5.6	11	NS	1 ^f
Benzo(a)pyrene	50-32-8	1 ^f	1 ^f	1 ^f	1.1	2.6	22
Benzo(b)fluoranthene	205-99-2	1 ^f	1 ^f	5.6	11	NS	1.7
Benzo(g,h,i)perylene	191-24-2	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	1,000 ^c
Benzo(k)fluoranthene	207-08-9	1	3.9	56	110	NS	1.7
Chrysene	218-01-9	1 ^f	3.9	56	110	NS	1 ^f
Dibenz(a,h)anthracene	53-70-3	0.33 ^e	0.33 ^e	0.56	1.1	NS	1,000 ^c
Fluoranthene	206-44-0	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	1,000 ^c
Fluorene	86-73-7	100 ^a	100 ^a	500 ^b	1,000 ^c	30	386
Indeno(1,2,3-cd)pyrene	193-39-5	0.5 ^f	0.5 ^f	5.6	11	NS	8.2
m-Cresol	108-39-4	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	0.33 ^e
Naphthalene	91-20-3	100 ^a	100 ^a	500 ^b	1,000 ^c	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 ^a	100 ^a	500 ^b	1,000 ^c	NS	0.33 ^e
p-Cresol	106-44-5	34	100 ^a	500 ^b	1,000 ^c	NS	0.33 ^e
Pentachlorophenol	87-86-5	2.4	6.7	6.7	55	0.8 ^e	0.8 ^e
Phenanthrene	85-01-8	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	1,000 ^c
Phenol	108-95-2	100 ^a	100 ^a	500 ^b	1,000 ^c	30	0.33 ^e
Pyrene	129-00-0	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	1,000 ^c
Volatiles							
1,1,1-Trichloroethane	71-55-6	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	0.68
1,1-Dichloroethane	75-34-3	19	26	240	480	NS	0.27
1,1-Dichloroethene	75-35-4	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	0.33
1,2-Dichlorobenzene	95-50-1	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	1.1
1,2-Dichloroethane	107-06-2	2.3	3.1	30	60	10	0.02 ^f
cis-1,2-Dichloroethene	156-59-2	59	100 ^a	500 ^b	1,000 ^c	NS	0.25
trans-1,2-Dichloroethene	156-60-5	100 ^a	100 ^a	500 ^b	1,000 ^c	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 ^e	0.1 ^e
Acetone	67-64-1	100 ^a	100 ^b	500 ^b	1,000 ^c	2.2	0.05
Benzene	71-43-2	2.9	4.8	44	89	70	0.06
Butylbenzene	104-51-8	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	12
Carbon tetrachloride	56-23-5	1.4	2.4	22	44	NS	0.76
Chlorobenzene	108-90-7	100 ^a	100 ^a	500 ^b	1,000 ^c	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 ^e	1.2	6	12	NS	3.2
Methyl ethyl ketone	78-93-3	100 ^a	100 ^a	500 ^b	1,000 ^c	100 ^a	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 ^a	500 ^b	1,000 ^c	NS	0.93
Methylene chloride	75-09-2	51	100 ^a	500 ^b	1,000 ^c	12	0.05
n-Propylbenzene	103-65-1	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	3.9
sec-Butylbenzene	135-98-8	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	11
tert-Butylbenzene	98-06-6	100 ^a	100 ^a	500 ^b	1,000 ^c	NS	5.9
Tetrachloroethene	127-18-4	5.5	19	150	300	2	1.3
Toluene	108-88-3	100 ^a	100 ^a	500 ^b	1,000 ^c	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 ^a	100 ^a	500 ^b	1,000 ^c	0.26	1.6

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

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

Footnotes

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

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

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

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

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

^f 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.

^g This SCO is derived from data on mixed isomers of BHC.

^h 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.

ⁱ This SCO is for the sum of endosulfan I, endosulfan II, and endosulfan sulfate.

^j 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(Ws), H(FC), A(C), A(A), W, E(Ws), E(Fs), 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 (CAS No.)	WATER CLASSES	STANDARD (ug/L)	TYPE	BASIS CODE
------------------------	---------------	--------------------	------	---------------

Acenaphthene (83-32-9)	A, A-S, AA, AA-S	20	E(WS)	U
Acetaldehyde (75-07-0)	A, A-S, AA, AA-S	8	H(WS)	A
	GA	8	H(WS)	A
Acrolein (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 (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 (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 (15972-60-8)	A, A-S, AA, AA-S	0.5	H(WS)	A
	GA	0.5	H(WS)	A
Aldicarb (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 (116-06-3; 16752-77-5)	GA	0.35*	H(WS)	F
Remark: * Applies to the sum of these substances.				
Aldrin (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 (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 (68391-01-5)	A, A-S, AA, AA-S, B, C	*	A(C)	
Remark: * Refer to standards for "Quaternary ammonium compounds."				
Allyl chloride (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 (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 (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 (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)." ** Refer to standards for "Phenols, total unchlorinated."				
3-Aminotoluene (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 (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 (7664-41-7; CAS No. Not Applicable)	A, A-S, AA, AA-S	2,000*	H(W/S)	H 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 ₃ + NH ₄ ⁺ as N. ** Un-ionized ammonia as NH ₃ ; 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. *** Applies to un-ionized ammonia as NH ₃				

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 (62-53-3)	A, A-S, AA, AA-S GA	5 *	H(W) H(W)	I J
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
Antimony (CAS No. Not Applicable)	A, A-S, AA, AA-S GA	3 3	H(W) H(W)	B B
Arsenic (CAS No. Not Applicable)	A, A-S, AA, AA-S GA A, A-S, AA, AA-S, B, C A, A-S, AA, AA-S, B, C, D SA, SB, SC SD	50 25 150* 340* 63* 120*	H(W) H(W) A(C) A(A) A(C) A(A)	G F
Remark: * Dissolved arsenic form.				
Asbestos (CAS No. Not Applicable)	A, A-S, AA, AA-S GA	* *	H(W) H(W)	G G
Remark: * 7,000,000 fibers (longer than 10 um)/L				
Atrazine (1912-24-9)	GA	7.5	H(W)	F
Azinphosmethyl (86-50-0)	GA A, A-S, AA, AA-S, B, C SA, SB, SC	4.4 0.005* 0.01	H(W) A(C) 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 (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 (CAS No. Not Applicable)	A, A-S, AA, AA-S GA	1,000 1,000	H(W) H(W)	G F
Benefin (1861-40-1)	GA	35	H(W)	F
Benzene	A, A-S, AA, AA-S GA	1 1	H(W) H(W)	A A

(71-43-2)	A, A-S, AA, AA-S, B, C, D SA, SB, SC, I, SD	10 10	H(FC) H(FC)	A A
Benzidine (92-87-5)	GA A, A-S, AA, AA-S, B, C D	* 0.1** 0.1**	H(WS) A(C) A(A)	J
Remarks: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance. ** 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 (50-32-8)	GA	ND	H(WS)	F
Beryllium (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. ** 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. Aquatic Type standards apply to acid-soluble form.				
1,1'-Biphenyl (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 (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 (111-44-4)	GA	1.0	H(WS)	F
Bis(chloromethyl)ether (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 (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 (117-81-7)	A, A-S, AA, AA-S GA A, A-S, AA, AA-S, B, C	5 5 0.6	H(WS) H(WS) A(C)	A A
Boron (CAS No. Not Applicable)	GA A, A-S, AA, AA-S, B, C SA, SB, SC	1,000 10,000 1,000	H(WS) A(C) 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. Aquatic Type standards apply to acid-soluble form.				
Bromacil (314-40-9)	GA	4.4	H(WS)	F
Bromobenzene (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 (74-97-5)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I J
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
Bromomethane (74-83-9)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I J
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
Butachlor (23184-66-9)	GA	3.5	H(WS)	F
cis-2-Butenal (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 (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 (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 (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 (2008-41-5)	GA	50	H(WS)	J
n-Butylbenzene (104-51-8)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I J
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
sec-Butylbenzene (135-98-8)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I J
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
tert-Butylbenzene (98-06-6)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I J
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
Cadmium (CAS No. Not Applicable)	A, A-S, AA, AA-S GA A, A-S, AA, AA-S, B, C A, A-S, AA, AA-S, B, C, D SA, SB, SC, I SD	5 5 * ** 7.7 21	H(WS) H(WS) A(C) A(A) A(C) A(A)	B,G B,G
Remarks: * (0.85) exp(0.7852 [ln (ppm hardness)] - 2.715) ** (0.85) exp(1.128 [ln (ppm hardness)] - 3.6867)				

Aquatic Type standards apply to dissolved form.				
Captan (133-06-2)	GA	18	H(WS)	F
Carbaryl (63-25-2)	GA	29	H(WS)	F
Carbofuran (1563-66-2)	A, A-S, AA, AA-S A, A-S, AA, AA-S, B, C D	15 1.0* 10*	H(WS) A(C) 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 (75-15-0)	A, A-S, AA, AA-S	60	H(WS)	B
	GA	60	H(WS)	B
Carbon tetrachloride (56-23-5)	GA	5	H(WS)	F
Carboxin (5234-68-4)	GA	50	H(WS)	J
Chloramben (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 (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 (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	2×10^{-5}	H(FC)	A
	SA, SB, SC, I, SD	2×10^{-5}	H(FC)	A
Chloride (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 (CAS No. Not applicable)	A, A-S, AA, AA-S	7×10^{-7} *	H(WS)	A
	GA	7×10^{-7} *	H(WS)	A
	A, A-S, AA, AA-S, B, C, D	6×10^{-10} *	H(FC)	A
	SA, SB, SC, I, SD	6×10^{-10} *	H(FC)	A
	A, A-S, AA, AA-S, B, C, D	3.1×10^{-9} **	W	
	SA, SB, SC, I, SD	3.1×10^{-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 (CAS No. Not Applicable)	A, A-S, AA, AA-S, B, C D SA, SB, SC, I SD	5 19 7.5 13	A(C) A(A) A(C) A(A)	
2-Chloroaniline (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 (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 (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 (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 (98-56-6)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I J
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
1-Chlorobutane (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 (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 (67-66-3)	A, A-S, AA, AA-S GA	7 7	H(WS) H(WS)	A A
Chloromethyl methyl ether (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 (91-58-7)	A, A-S, AA, AA-S	10	E(WS)	U
2-Chloronitrobenzene (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 (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 (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 (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 (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 (95-49-8)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I J
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
3-Chlorotoluene (108-41-8)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I J
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
4-Chlorotoluene (106-43-4)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (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 (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 (460-35-5)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I J
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
Chromium (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 ** (0.316) exp(0.819 [ln (ppm hardness)]) + 3.7256 Aquatic Type standards apply to dissolved form and do not include hexavalent chromium.				
Chromium (hexavalent) (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. ** Applies to acid-soluble form.				
Cobalt (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. Aquatic Type standards apply to acid-soluble form.				
Copper (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 ** (0.96) exp(0.9422 [ln (ppm hardness)]) - 1.7 *** Standard is 3.4 ug/L except in New York/New Jersey harbor where it is 5.6 ug/L. **** Standard is 4.8 ug/L except in New York/New Jersey harbor where it is 7.9 ug/L. Aquatic Type standards apply to dissolved form.				
Cyanide (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 ⁻ expressed as CN.				
Cyanogen bromide (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 (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 (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 (72-54-8)	A, A-S, AA, AA-S GA A, A-S, AA, AA-S, B, C, D SA, SB, SC, I, SD A, A-S, AA, AA-S, B, C, D SA, SB, SC, I, SD	0.3 0.3 8×10^{-5} 8×10^{-5} * *	H(WS) H(WS) H(FC) H(FC) W W	A A A A
Remark: * See standard for p,p'-DDT.				
p,p'-DDE (72-55-9)	A, A-S, AA, AA-S GA A, A-S, AA, AA-S, B, C, D SA, SB, SC, I, SD A, A-S, AA, AA-S, B, C, D SA, SB, SC, I, SD	0.2 0.2 7×10^{-6} 7×10^{-6} * *	H(WS) H(WS) H(FC) H(FC) W W	A A A A
Remark: * See standard for p,p'-DDT.				
p,p'-DDT (50-29-3)	A, A-S, AA, AA-S GA A, A-S, AA, AA-S, B, C, D SA, SB, SC, I, SD A, A-S, AA, AA-S, B, C, D SA, SB, SC, I, SD	0.2 0.2 1×10^{-5} 1×10^{-5} $1.1 \times 10^{-5+}$ $1.1 \times 10^{-5+}$	H(WS) H(WS) H(FC) H(FC) W W	A A A A
Remark: * Applies to the sum of p,p'-DDD, p,p'-DDE and p,p'-DDT.				
Dechlorane Plus (13560-89-9)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I J
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
Demeton (8065-48-3; 298-03-3; 126-75-0)	A, A-S, AA, AA-S, B, C SA, SB, SC	0.1* 0.1	A(C) 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. Standards apply to the sum of these substances.				
Diazinon (333-41-5)	GA A, A-S, AA, AA-S, B, C	0.7 0.08*	H(WS) 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 (583-53-9)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (108-36-1)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (106-37-6)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (96-12-8)	A, A-S, AA, AA-S GA	0.04 0.04	H(WS) H(WS)	A A
Dibromodichloromethane (594-18-3)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I J
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
Dibromomethane (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 (84-74-2)	GA	50	H(WS)	J
Dicamba (1918-00-9)	GA	0.44	H(WS)	F
Dichlorobenzenes (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. ** Applies to the sum of 1,2-, 1,3- and 1,4-dichlorobenzene. 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. *** Applies to 1,3-dichlorobenzene only. **** Applies to 1,4-dichlorobenzene only.				
3,3'-Dichlorobenzidine (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 (328-84-7)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (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 (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 (75-34-3)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (107-06-2)	A, A-S, AA, AA-S GA	0.6 0.6	H(WS) H(WS)	A A	
1,1-Dichloroethene (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 (156-59-2)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (156-60-5)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I J	
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.					
Dichlorofluoromethane (75-43-4)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (120-83-2)	A, A-S, AA, AA-S GA A, A-S, AA, AA-S, B, C, D	0.3* ** ***	E(WS) E(WS) E(FS)	U	
Remarks: * Also see standards for "Phenolic compounds (total phenols)." ** Refer to standards for "Phenolic compounds (total phenols)." *** Refer to standards for "Phenols, total chlorinated."					
2,4-Dichlorophenoxyacetic acid (94-75-7)	A, A-S, AA, AA-S GA	50 50	H(WS) H(WS)	G G	
1,1-Dichloropropane (78-99-9)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (78-87-5)	A, A-S, AA, AA-S GA	1 1	H(WS) H(WS)	A A	
1,3-Dichloropropane (142-28-9)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (542-75-6)	A, A-S, AA, AA-S GA	0.4* 0.4*	H(WS) H(WS)	A 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 (32768-54-0)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (95-73-8)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (19398-61-9)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (118-69-4)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (95-75-0)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (25186-47-4)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I J
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
Dieldrin (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	6×10^{-7}	H(FC)	A
	SA, SB, SC, I, SD	6×10^{-7}	H(FC)	A
	A, A-S, AA, AA-S, B, C	0.056	A(C)	
	A, A-S, AA, AA-S, B, C, D	0.24	A(A)	
Di(2-ethylhexyl)adipate (103-23-1)	A, A-S, AA, AA-S GA	20 20	H(WS) H(WS)	A A
1,2-Difluoro-1,1,2,2-tetrachloroethane (76-12-0)	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.				
1,2-Diisopropylbenzene (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 (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 (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 (121-69-7)	A, A-S, AA, AA-S GA	1 1	H(WS) H(WS)	A A
2,3-Dimethylaniline (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 (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 (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 (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 (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 (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 (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 (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 (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 (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 (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 (1861-32-1)	GA	50	H(WS)	J	
1,3-Dinitrobenzene (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 (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 (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 (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 (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 (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 (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 (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 (957-51-7)	GA	50	H(WS)	J
Diphenylamine (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 (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 (2764-72-9)	A, A-S, AA, AA-S GA	20* 20*	H(WS) H(WS)	B B
Remark: * Applies to the concentration of diquat ion whether free or as an undissociated salt.				
Disulfoton (298-04-4)	GA	*	H(WS)	
Remark: * Refer to standards for "Phorate and Disulfoton."				
Dyphylline (479-18-5)	A, A-S, AA, AA-S	50	H(WS)	B
Endosulfan (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 (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 (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 (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 (100-41-4)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I J
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
Ethylene dibromide (106-93-4)	A, A-S, AA, AA-S GA	6×10^{-4} 6×10^{-4}	H(WS) H(WS)	A A
Ethylenethiourea (96-45-7)	GA	ND	H(WS)	F

Ferbam (14484-64-1)	GA	4.2	H(WS)	F
Fluometuron (2164-17-2)	GA	50	H(WS)	J
Fluoride (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) ** (0.1) exp(0.907 [ln (ppm hardness)] + 7.394) 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 (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 (133-07-3)	GA	50	H(WS)	J
Formaldehyde (50-00-0)	A, A-S, AA, AA-S	8	H(WS)	A
	GA	8	H(WS)	A
Gross alpha radiation (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 (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 (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	2×10^{-4}	H(FC)	A
	SA, SB, SC, I, SD	2×10^{-4}	H(FC)	A
Heptachlor epoxide (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	3×10^{-4}	H(FC)	A
	SA, SB, SC, I, SD	3×10^{-4}	H(FC)	A
Hexachlorobenzene (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	3×10^{-5}	H(FC)	A
	SA, SB, SC, I, SD	3×10^{-5}	H(FC)	A
Hexachlorobutadiene (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 (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 A, A-S, AA, AA-S, B, C, D SA, SB, SC, I, SD	0.04 0.007 0.007	H(WS) H(FC) H(FC)	A A A
delta-Hexachlorocyclohexane (319-86-8)	A, A-S, AA, AA-S GA A, A-S, AA, AA-S, B, C, D SA, SB, SC, I, SD	0.04 0.04 0.008 0.008	H(WS) H(WS) H(FC) H(FC)	A A A A
epsilon-Hexachlorocyclohexane (6108-10-7)	A, A-S, AA, AA-S GA A, A-S, AA, AA-S, B, C, D SA, SB, SC, I, SD	0.04 0.04 0.008 0.008	H(WS) H(WS) H(FC) H(FC)	A A A A
gamma-Hexachlorocyclohexane (58-89-9)	A, A-S, AA, AA-S GA A, A-S, AA, AA-S, B, C, D SA, SB, SC, I, SD A, A-S, AA, AA-S, B, C, D	0.05 0.05 0.008 0.008 0.95	H(WS) H(WS) H(FC) H(FC) A(A)	A A A A A
Hexachlorocyclopentadiene (77-47-4)	GA A, A-S, AA, AA-S, B, C D SA, SB, SC SD A, A-S, AA, AA-S	* 0.45** 4.5** 0.07 0.7 1.0	H(WS) A(C) A(A) A(C) A(A) E	J U
Remarks: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
** 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.				
Hexachloroethane (67-72-1)	A, A-S, AA, AA-S GA A, A-S, AA, AA-S, B, C, D SA, SB, SC, I, SD	5 * 0.6 0.6	H(WS) H(WS) H(FC) H(FC)	A, I J A A
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
Hexachlorophene (70-30-4)	GA A, A-S, AA, AA-S GA A, A-S, AA, AA-S, B, C, D	* ** ** ***	H(WS) E(WS) E(WS) E(FS)	J
Remarks: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
** Refer to standards for "Phenolic compounds (total phenols)."				
*** Refer to standards for "Phenols, total chlorinated."				
Hexachloropropene (1888-71-7)	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.				
Hexazinone (51235-04-2)	GA	50	H(WS)	J
Hydrazine (302-01-2)	A, A-S, AA, AA-S, B, C D	* **	A(C) A(A)	
Remarks: * 5 ug/L at less than 50 ppm hardness and 10 ug/L at greater than or equal to 50 ppm hardness.				
** 50 ug/L at less than 50 ppm hardness and 100 ug/L at greater than or equal to 50 ppm hardness.				
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.				
Hydrogen sulfide (7783-06-4)	A, A-S, AA, AA-S, B, C SA, SB, SC	2.0* 2.0	A(C) 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.				
Aquatic Type standards apply to undissociated form.				

Hydroquinone (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 (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 (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 (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 (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 (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 (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 (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 (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 (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) (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) (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. Standards apply to the sum of these substances.					
Kepone (143-50-0)	GA	ND	H(WS)	F	
Lead (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) ** {1.46203 - [ln (hardness) (0.145712)]} exp (1.273 [ln (hardness)] - 1.052) Aquatic Type standards apply to dissolved form.					
Linear alkyl benzene sulfonates (LAS) (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. * 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 (CAS No. Not Applicable)	A, A-S, AA, AA-S	35,000	H(WS)	B	
Malathion (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 (8018-01-7)	GA	1.8	H(WS)	F	
Maneb (12427-38-2)	GA	1.8	H(WS)	F	
Manganese (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 (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	7×10^{-4} *	H(FC)	B	
	SA, SB, SC, I, SD	7×10^{-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 (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 (16752-77-5)	GA	*	H(WS)	
Remark: * Refer to standard for "Aldicarb and Methomyl."				
Methoxychlor (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 (100-61-8)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I J
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
Methyl chloride (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 (94-74-6)	GA	0.44	H(WS)	F
4,4'-Methylene-bis-(2-chloroaniline) (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 (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 (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 (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 (75-09-2)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I J
	A, A-S, AA, AA-S, B, C, D SA,SB, SC, I, SD	200 200	H(FC) H(FC)	A A
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
Methyl iodide (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 (80-62-6)	GA	50	H(WS)	J
Methyl parathion	GA A, A-S, AA, AA-S, B, C	* *	H(WS) A(C)	

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

Nitrate (expressed as N) (CAS No. Not Applicable)	A, A-S, AA, AA-S GA	10,000* 10,000*	H(WS) H(WS)	G G
Remark: * Also see standards for "Nitrate and Nitrite."				
Nitrate and Nitrite (expressed as N) (CAS No. Not Applicable)	A, A-S, AA, AA-S GA	10,000* 10,000*	H(WS) H(WS)	G G
Remark: * Applies to the sum of these substances; also see individual standards for "Nitrate" and "Nitrite."				
Nitrotriacetic acid (CAS No. Not Applicable)	A, A-S, AA, AA-S GA A, A-S, AA, AA-S, B, C	3* 3* 5,000**	H(WS) H(WS) A(C)	A A
Remarks: * Includes related forms that convert to nitrotriacetic acid upon acidification to a pH of 2.3 or less. ** Applies to nitrotriacetate. ** 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) (CAS No. Not Applicable)	A, A-S, AA, AA-S GA A, A-S, AA, AA-S, B, C	1,000* 1,000* **	H(WS) H(WS) A(C)	G G
Remarks: * Also see standards for "Nitrate and Nitrite." ** Standard is 100 ug/L except 20 ug/L for trout waters (T or TS). ** 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 (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 (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 (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 (98-95-3)	A, A-S, AA, AA-S GA A, A-S, AA, AA-S	0.4 0.4 30	H(WS) H(WS) E(WS)	A A U
2-Nitrotoluene (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 (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 (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 (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 (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 ⁻⁶	H(FC)	B	
	SA, SB, SC, I, SD	6 x 10 ⁻⁶	H(FC)	B	
Oxamyl (23135-22-0)	GA	50	H(WS)	J	
Paraquat (4685-14-7)	GA	3.0	H(WS)	F	
Parathion (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 (56-38-2; 298-00-0)	GA A, A-S, AA, AA-S, B, C	1.5* 0.008**	H(WS) A(C)	F	
Remarks: * Applies to the sum of these substances. ** 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 (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 (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 (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 (82-68-8)	GA	ND	H(WS)	F	
Pentachlorophenol (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] ** exp [1.005 (pH) - 4.869] *** Refer to standards for "Phenolic compounds (total phenols)." **** Refer to standards for "Phenols, total chlorinated."					
Phenol (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 (total phenols) (CAS No. Not Applicable)	A, A-S, AA, AA-S GA	1* 1*	E(WS) E(WS)	U U
Remark: * Applies to the sum of these substances.				
Phenols, total chlorinated (CAS No. Not Applicable)	A, A-S, AA, AA-S GA A, A-S, AA, AA-S, B, C, D	* * 1.0**	E(WS) E(WS) E(FS)	V
Remarks: * Refer to standards for "Phenolic compounds (total phenols)."				
** Applies to the sum of these substances.				
Phenols, total unchlorinated (CAS No. Not Applicable)	A, A-S, AA, AA-S GA A, A-S, AA, AA-S, B, C, D	* * 5.0**	E(WS) E(WS) E(FS)	V
Remarks: * Refer to standards for "Phenolic compounds (total phenols)."				
** Applies to the sum of these substances.				
1,2-Phenylenediamine (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 (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 (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 (101-84-8)	A, A-S, AA, AA-S	10	E(WS)	U
Phenyldiazine (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 (637-50-3)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (766-90-5)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (873-66-5)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (298-02-2; 298-04-4)	GA	ND*	H(WS)	F
Remark: * Applies to sum of these substances.				
Picloram (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 (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 (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 ⁻⁶ *	H(FC)	A
	SA, SB, SC, I, SD	1 x 10 ⁻⁶ *	H(FC)	A
	A, A-S, AA, AA-S, B, C, D	1.2 x 10 ⁻⁴ *	W	
	SA, SB, SC, I, SD	1.2 x 10 ⁻⁴ *	W	
Remark: * Applies to the sum of these substances.				
Principal organic contaminant (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 (1610-18-0)	GA	50	H(WS)	J
Propachlor (1918-16-7)	GA	35	H(WS)	F
Propanil (709-98-8)	GA	7.0	H(WS)	F
Propazine (139-40-2)	GA	16	H(WS)	F
Propham (122-42-9)	GA	50	H(WS)	J
n-Propylbenzene (103-65-1)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (including dimethyl benzylammonium chloride &	A, A-S, AA, AA-S, B, C	10*	A(C)	

dimethylethyl benzyl ammonium chloride (CAS No. Not Applicable)					
Remarks: * 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.					
Radium 226 (CAS No. Not Applicable)	A, AA GA	* *	H(WS) H(WS)	H H	
Remark: * 3 picocuries per liter; also see standards for "Radium 226 and Radium 228."					
Radium 226 and Radium 228 (CAS No. Not Applicable)	A, A-S, AA, AA-S GA	* *	H(WS) H(WS)	G G	
Remark: * 5 picocuries per liter; Applies to the sum of these substances.					
Radium 228 (CAS No. Not Applicable)	A, A-S, AA, AA-S GA	* *	H(WS) H(WS)		
Remark: * Refer to standards for "Radium 226 and Radium 228."					
Selenium (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 (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. ** $\exp(1.72 [\ln (\text{ppm hardness})] - 6.52)$. Standards for D and SD Classes apply to acid-soluble form. 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 (122-34-9)	A, A-S, AA, AA-S	0.5	H(WS)	A	
	GA	0.5	H(WS)	A	
Sodium (CAS No. Not Applicable)	GA	20,000	H(WS)	H	
Strontium 90 (CAS No. Not Applicable)	A, A-S, AA, AA-S	*	H(WS)	G	
Remarks: * 8 picocuries per liter. 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 (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 (CAS No. Not Applicable)	A, A-S, AA, AA-S	250,000	H(WS)	G	
	GA	250,000	H(WS)	F	

Sulfite (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 (34014-18-1)	GA	50	H(WS)	J
Terbacil (5902-51-2)	GA	50	H(WS)	J
Tetrachlorobenzenes (634-66-2; 634-90-2; 95-94-3; 12408-10-5)	GA A, A-S, AA, AA-S	* 10**	H(WS) E(WS)	J 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. ** Applies to the sum of 1,2,3,4-, 1,2,3,5- and 1,2,4,5-tetrachlorobenzene.				
1,1,1,2-Tetrachloroethane (630-20-6)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (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 (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 (2136-79-0)	GA	50	H(WS)	J
alpha, alpha, alpha, 4-Tetrachlorotoluene (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 (CAS No. Not Applicable)	A, A-S, AA, AA-S, B, C D	8* 20	A(C) 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. Aquatic Type standards apply to acid-soluble form.				
Theophylline (58-55-9)	A, A-S, AA, AA-S	40	H(WS)	B
Thiram (137-26-8)	GA	1.8	H(WS)	F
Toluene (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 (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 (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 (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 (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 (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 ⁻⁶	H(FC)	A
	SA, SB, SC, I, SD	6 x 10 ⁻⁶	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 (615-54-3)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (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 (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. ** Applies to the sum of 1,2,3-, 1,2,4- and 1,3,5-trichlorobenzene. 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 (71-55-6)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (79-00-5)	A, A-S, AA, AA-S GA	1 1	H(WS) H(WS)	A A
Trichloroethene (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 (75-69-4)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (93-76-5)	GA	35	H(WS)	F
2,4,5-Trichlorophenoxypropionic acid (93-72-1)	A, A-S, AA, AA-S GA	10 0.26	H(WS) H(WS)	G F
1,1,2-Trichloropropane (598-77-6)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (96-18-4)	A, A-S, AA, AA-S GA	0.04 0.04	H(WS) H(WS)	A A
cis-1,2,3-Trichloropropene (13116-57-9)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (13116-58-0)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (94-99-5)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (2014-83-7)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (102-47-6)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (88-66-4)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (13940-94-8)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (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 (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 (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 (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 (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 (354-58-5)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (76-13-1)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I J
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
Trifluralin (1582-09-8)	GA	35	H(WS)	F
1,2,3-Trimethylbenzene (526-73-8)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (95-63-6)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (108-67-8)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (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 (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 (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 (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 (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 (115-86-6)	A, A-S, AA, AA-S, B, C D	4* 40*	A(C) 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 (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 (Cas No. Not Applicable)	GA	5,000	H(WS)	H	
Vanadium (CAS No. Not Applicable)	A, A-S, AA, AA-S, B, C D	14* 190*	A(C) 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. Aquatic Type standards apply to acid-soluble form.					
Vinyl chloride (75-01-4)	GA	2	H(WS)	G	
1,2-Xylene (95-47-6)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (108-38-3)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I 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 (106-42-3)	A, A-S, AA, AA-S GA	5 *	H(WS) H(WS)	I J
Remark: * The principal organic contaminant standard for groundwater of 5 ug/L (described elsewhere in this Table) applies to this substance.				
Zinc (CAS No. Not Applicable)	A, A-S, AA, AA-S, B, C A, A-S, AA, AA-S, B, C, D SA, SB, SC, I SD	* ** 66 95	A(C) A(A) A(C) A(A)	
Remarks: Aquatic Type standards apply to dissolved form. * $\exp(0.85 [\ln(\text{ppm hardness})] + 0.50)$ ** $0.978 \exp(0.8473 [\ln(\text{ppm hardness})] + 0.884)$				
Zineb (12122-67-7)	GA	1.8	H(WS)	F
Ziram (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
SOIL ANALYTICAL DATA

Table 7A
SHALLOW Soil Samples Organic Analytical Results
1600 Pelham Parkway, Bronx, NY

Sample Identification	SP-1	SP-2	SP-3	SP-4	SP-5	SP-6	SP-7	SP-8	SP-9	SP-10	Unrestricted Use Soil Cleanup Objectives (6 NYC RR Pt.375-6.8)
Sample Depth	0'-2'	0'-2'	0'-2'	0'-2'	0'-2'	0'-2'	0'-2'	0'-2'	0'-2'	0'-2'	
Sample Date	1/14/2009	1/14/2009	1/13/2009	1/13/2009	1/13/2009	1/14/2009	1/14/2009	1/13/2009	11/2/2009	11/2/2009	
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Volatile Organic Compounds											
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	6.8	ND	ND	ND	ND	3,600
Total VOCs	ND	ND	ND	ND	ND	6.8	ND	ND	ND	ND	NS
Semi-Volatile Organic Compounds											
Naphthalene	ND	ND	ND	510	ND	ND	ND	ND	1,700	ND	12,000
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	960	ND	NS
Acenaphthylene	ND	ND	ND	520	ND	ND	ND	ND	ND	ND	100,000
Acenaphthene	ND	ND	ND	1,600	ND	ND	ND	ND	3,000	ND	20,000
Dibenzofuran	ND	ND	ND	1,600	ND	ND	ND	ND	2,300	ND	NS
Diethyl Phthalate	ND	ND	ND	ND	ND	420	ND	ND	ND	ND	NS
Fluorene	ND	ND	ND	2,600	ND	ND	ND	ND	4,900	ND	30,000
Phenanthrene	370	ND	960	14,000	5,000	560	460	ND	34,000	750	100,000
Anthracene	ND	ND	ND	4,200	1,900	ND	ND	ND	10,000	ND	100,000
Fluoranthene	630	700	2,400	16,000	10,000	950	960	ND	31,000	1,200	100,000
Pyrene	480	590	2,000	11,000	9,600	760	960	ND	23,000	1,000	100,000
Benzo (a) Anthracene	380	420	1,000	9,000	6,600	550	900	ND	19,000	670	1,000
Chrysene	380	420	1,100	7,700	6,100	570	1,300	ND	14,000	590	1,000
bis (2-Ethyl Hexyl) Phthalate	ND	ND	610	ND	12,000	ND	ND	ND	ND	ND	NS
D-n-n-octyl Phthalate	ND	ND	ND	ND	5,000	ND	ND	ND	ND	440	NS
Benzo (b) Fluoranthene	580	590	1,400	8,400	7,100	840	3,600	ND	16,000	790	1,000
Benzo (k) Fluoranthene	ND	ND	420	3,000	2,300	ND	1,100	ND	6,000	ND	800
Benzo (a) Pyrene	380	420	1,100	7,000	5,600	560	2,100	ND	14,000	600	1,000
Indeno (1,2,3-cd) Pyrene	ND	ND	780	3,000	2,400	ND	990	ND	6,100	ND	500
Dibenzo (a,h) Anthracene	ND	ND	ND	1,000	ND	ND	ND	ND	2,400	ND	330
Benzo (g,h,i) Perylene	ND	ND	880	2,800	2,200	ND	1,000	ND	6,900	ND	100,000
Total SVOCs	3,200	3,140	12,650	93,930	75,800	5,210	13,370	ND	195,260	6,040	NS
Pesticides											
p,p-DDE	ND	ND	ND	ND	ND	ND	84	ND	ND	ND	3.3
Chlordane (alpha)	ND	ND	ND	ND	ND	ND	780	ND	ND	ND	94
PCBs											
ND											

NS...No Standard

ND...Not Detected

Shaded values represent concentration exceeding the Unrestricted Use Soil Clean up Objectives

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

Table 7B
DEEP Soil Samples Organic Analytical Results
1600 Pelham Parkway, Bronx, NY

Sample Identification	SP-1	SP-2	SP-3	SP-4	SP-5	SP-6	SP-7	SP-8	SP-9	SP-10	Unrestricted Use Soil Cleanup Objectives (6 NYC RR Pt.375-6.8)
Sample Depth	2'-4'	10'-12'	10'-12'	10'-12'	10'-12'	10'-12'	10'-12'	10'-12'	10'-12 1/2'	8'-10'	
Sample Date	1/14/2009	1/14/2009	1/13/2009	1/13/2009	1/13/2009	1/14/2009	1/14/2009	1/14/2009	11/2/2009	11/2/2009	
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Units	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	
Volatile Organic Compounds											
Acetone	ND	56	ND	ND	ND	ND	ND	ND	ND	ND	50
1,3,5-Trimethylbenzene	ND	32	ND	ND	ND	ND	ND	ND	ND	ND	8,400
1,2,4-Trimethylbenzene	ND	150	ND	ND	ND	ND	ND	ND	ND	ND	3,600
sec-Butylbenzene	ND	34	ND	ND	ND	ND	ND	ND	ND	ND	11,000
2-Isopropyltoluene	ND	16	ND	ND	ND	ND	ND	ND	ND	ND	NS
4-Isopropyltoluene	ND	81	ND	12	ND	ND	ND	ND	ND	ND	NS
n-Butylbenzene	ND	13	ND	ND	ND	ND	ND	ND	ND	ND	12,000
Naphthalene	ND	22	ND	ND	ND	ND	ND	ND	42	ND	NS
Total VOCs	ND	404	ND	12	ND	ND	ND	ND	42	ND	NS
Semi-Volatile Organic Compounds											
Diethyl Phthalate	ND	ND	ND	ND	ND	690	ND	ND	ND	ND	NS
Fluorene	ND	ND	430	750	ND	ND	ND	ND	ND	ND	30,000
Phenanthrene	ND	ND	2,600	3,200	ND	ND	420	ND	ND	ND	100,000
Anthracene	ND	ND	660	1,200	ND	ND	ND	ND	ND	ND	100,000
Fluoranthene	ND	1,100	3,600	3,800	ND	680	880	ND	ND	ND	100,000
Pyrene	ND	1,800	3,200	3,000	ND	ND	820	ND	ND	ND	100,000
Benzo (a) Anthracene	ND	550	1,800	2,100	ND	ND	410	ND	ND	ND	1,000
Chrysene	ND	660	1,800	1,900	ND	ND	480	ND	ND	ND	1,000
bis (2-Ethyl Hexyl) Phthalate	ND	ND	410	ND	ND	ND	ND	ND	ND	ND	NS
Benzo (b) Fluoranthene	ND	520	1,900	2,100	ND	ND	620	ND	ND	ND	1,000
Benzo (k) Fluoranthene	ND	ND	760	820	ND	ND	ND	ND	ND	ND	800
Benzo (a) Pyrene	ND	430	1,600	1,800	ND	ND	430	ND	ND	ND	1,000
Indeno (1,2,3-cd) Pyrene	ND	ND	1,100	800	ND	ND	ND	ND	ND	ND	500
Benzo (g,h,i) Perylene	ND	ND	1,200	740	ND	ND	ND	ND	ND	ND	100,000
Total SVOCs	ND	5,060	21,060	22,210	ND	1,370	4,060	ND	ND	ND	NS
Pesticides											
Chlordane (alpha)	ND	ND	ND	ND	ND	ND	ND	88	ND	ND	94
PCBs											
	ND										

NS...No Standard

ND...Not Detected

Shaded values represent concentration exceeding the Unrestricted Use Soil Clean up Objectives

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

Table 7C
SHALLOW Soil Samples Inorganic Analytical Results
1600 Pelham Parkway, Bronx, NY

Sample Identification	SP-1	SP-2	SP-3	SP-4	SP-5	SP-6	SP-7	SP-8	SP-9	SP-10	Unrestricted Use Soil Cleanup Objectives (6 NYC RR Pt.375-6.8)
Sample Depth	0'-2'	0'-2'	0'-2'	0'-2'	0'-2'	0'-2'	0'-2'	0'-2'	0'-2'	0'-2'	
Sample Date	1/14/2009	1/14/2009	1/13/2009	1/13/2009	1/13/2009	1/14/2009	1/14/2009	1/14/2009	11/2/2009	11/2/2009	
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Aluminum	10,800	7,180	14,400	9,950	19,600	13,200	13,400	2,230	10,200	15,300	NS
Antimony	4.90	ND	4.40	ND	ND	ND	5.10	ND	ND	ND	NS
Arsenic	2.70	4.60	2.10	2.80	9	4.40	9.40	ND	ND	4.10	13
Barium	286.00	242.00	134.00	58.40	588.00	156.00	285.00	122.00	56.60	133.00	350
Beryllium	0.50	0.34	0.50	0.48	ND	0.50	0.51	ND	0.34	0.56	7.2
Cadmium	0.44	0.56	ND	ND	3	0.44	1.45	ND	ND	0.74	2.5
Calcium	16,800	31,800	16,500	2,180	76,900	3,420	8,750	110,000	1,780	8,390	NS
Chromium Hexavalent	26.30	20.20	31.60	29.40	54.10	32.10	31.80	8.10	24.70	32.90	1
Chromium Trivalent											30
Cobalt	11.70	6.78	15.80	8.57	30.30	10.70	12.10	2.90	8.72	11.10	NS
Copper	71.30	66.10	28.80	20.00	145.00	44.50	63.90	44.70	20.90	39.70	50
Iron	21,600	15,400	24,100	15,900	46,300	22,000	24,900	6,900	19,000	26,000	NS
Lead	377	119	15.30	7.46	453	218	372	14.00	7.57	128	63
Magnesium	4,350	4,270	5,870	2,430	16,600	4,050	3,860	5,680	2,640	5,810	NS
Manganese	294	236	523	197	10,600	364	489	467	333	405	1600
Mercury	0.51	ND	ND	ND	0.65	0.18	0.33	ND	ND	0.13	0.18
Nickel	20.40	14.30	26.80	14.50	50.50	23.90	20.40	7.60	15.90	26.00	30
Potassium	4,990	1,550	4,770	1,380	10,700	2,380	1,700	1,110	1,700	2,730	NS
Silver	0.44	ND	ND	0.42	1.90	ND	0.79	ND	ND	ND	2
Sodium	165	175	194	118	630	18	186	220	239	225	NS
Thallium	ND	ND	ND	ND	16	ND	ND	ND	ND	ND	NS
Vanadium	30.10	28.20	42.70	36.80	79.30	52.40	42.80	7.60	30.00	54.20	NS
Zinc	245.00	180.00	69.90	28.60	624.00	200.00	590.00	175.00	30.60	192.00	109

ND...not detected

mg/kg...milligrams per kilogram

SB...Site Background

Shaded values represent concentrations exceeding Unrestricted Use Soil Clean up Objectives

NS...no standard

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

Table 7D
DEEP Soil Samples Inorganic Analytical Results
1600 Pelham Parkway, Bronx, NY

Sample Identification	SP-1	SP-2	SP-3	SP-4	SP-5	SP-6	SP-7	SP-8	SP-9	SP-10	Unrestricted Use Soil Cleanup Objectives (6 NYC RR Pt.375-6.8)
Sample Depth	2'-4'	10'-12'	10'-12'	10'-12'	10'-12'	10'-12'	10'-12'	10'-12'	10'-12 1/2'	8'-10'	
Sample Date	1/14/2009	1/14/2009	1/13/2009	1/13/2009	1/13/2009	1/14/2009	1/14/2009	1/14/2009	11/2/2009	11/2/2009	
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Aluminum	16,700	14,200	13,000	9,400	6,230	17,200	9,340	11,800	13,800	8,050	NS
Antimony	6.2	4.4	7.5	ND	ND	ND	13.7	9.7	ND	ND	NS
Arsenic	ND	3.8	7.5	3.4	3.6	7	19.1	15.5	1.7	1	13
Barium	533	67.4	197	164	81.9	128	198	152	96.3	68.7	350
Beryllium	0.68	0.59	0.58	0.4	ND	0.64	0.33	ND	0.43	ND	7.2
Cadmium	ND	ND	0.69	ND	ND	ND	ND	ND	0.59	ND	2.5
Calcium	6,920	2,220	8,020	3,030	21,000	5,440	5,190	4,760	14,300	3,080	NS
Chromium Hexavalent	48.8	39.7	38	42.3	21	36.1	81.1	49.9	26.5	24	1
Chromium Trivalent											30
Cobalt	20.6	12.6	11.4	8.95	4.68	11.7	12.8	7.58	8.76	7.16	NS
Copper	72.5	24.8	44.8	36.7	30.4	44.3	218	94.8	25.6	20.2	50
Iron	32,000	23,200	25,700	16,100	34,400	28,700	88,700	40,600	21,600	14,500	NS
Lead	233	25.4	323	146	68.5	69.3	618	156	116	63	63
Magnesium	7,890	3,160	3,380	3,680	3,910	6,190	3,950	4,210	3,450	4,270	NS
Manganese	459	232	786	129	244	287	599	209	226	217	1600
Mercury	ND	ND	0.14	0.16	ND	ND	0.28	ND	ND	ND	0.18
Nickel	33.7	19.6	22.6	35.7	11.1	23.6	30.2	52.1	16.1	18.5	30
Potassium	9,780	1,240	1,700	1,590	3,740	4,420	2,120	4,160	1,170	1,640	NS
Silver	0.75	ND	ND	0.96	ND	ND	1.01	ND	ND	ND	2
Sodium	145	150	151	48.5	2630	1180	26.9	3730	133	212	NS
Thallium	ND	ND	ND	ND	35.7	ND	ND	ND	ND	ND	NS
Vanadium	53.1	49.4	44.8	31	ND	53	43.7	154	53.8	30	NS
Zinc	227	39.8	234	926	130	106	500	181	119	78.2	109

ND...not detected

mg/kg...milligrams per kilogram

SB...Site Background

Shaded values represent concentration exceeding Eastern USA Background

NS...no standard

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

TABLE 8
RANKED DATA TABLES FOR SOIL SAMPLES

Table 8**Ranked Data Table for Organic Compounds in Deep Soil
1600 Pelham Parkway, Bronx, NY**

Sample Identification	SP-2	SP-4
Sample Depth	10'-12'	10'-12'
Acetone (ug/kg)	56	ND

Sample Identification	SP-2	SP-4
Sample Depth	10'-12'	10'-12'
4-Isopropyltoluene (ug/kg)	81	12

Sample Identification	SP-2	SP-4
Sample Depth	10'-12'	10'-12'
1,2,4-Trimethylbenzene	150	ND

Sample Identification	SP-2	SP-4
Sample Depth	10'-12'	10'-12'
Total VOCs (ug/kg)	404	12

Sample Identification	SP-4	SP-3	SP-2
Sample Depth	10'-12'	10'-12'	10'-12'
Benzo (b) Fluoranthene (ug/kg)	2,100	1,900	520

Sample Identification	SP-4	SP-3	SP-2
Sample Depth	10'-12'	10'-12'	10'-12'
Benzo (a) Anthracene (ug/kg)	2,100	1,800	550

Sample Identification	SP-4	SP-3	SP-6
Sample Depth	10'-12'	10'-12'	10'-12'
Total SVOCs (ug/kg)	22,210	21,060	1,370

Table 8 (Cont.)

**Ranked Data Table for Inorganic Compounds in Deep Soil
1600 Pelham Parkway, Bronx, NY**

Sample Identification	SP-7	SP-8	SP-10
Sample Depth	10'-12'	10'-12'	8'-10'
Arsenic (mg/Kg)	19.1	15.5	1

Sample Identification	SP-7	SP-8	SP-1	SP-10
Sample Depth	10'-12'	10'-12'	2'-4'	8'-10'
Copper (mg/Kg)	218	94.8	72.5	20.2

Sample Identification	SP-1	SP-2	SP-3	SP-9	SP-10	SP-5
Sample Depth	2'-4'	10'-12'	10'-12'	10'-12 1/2'	8'-10'	10'-12'
Total Chromium (mg/Kg)	48.8	39.7	38	26.5	24	21

Sample Identification	SP-7	SP-3	SP-1	SP-4	SP-9	SP-2
Sample Depth	10'-12'	10'-12'	2'-4'	10'-12'	10'-12 1/2'	10'-12'
Lead (mg/Kg)	618	323	233	146	116	25.4

Sample Identification	SP-7	SP-4	SP-3
Sample Depth	10'-12'	10'-12'	10'-12'
Mercury (mg/Kg)	0.28	0.16	0.14

Sample Identification	SP-7	SP-6	SP-7	SP-5	SP-4	SP-3
Sample Depth	8'-10'	6'-8'	8'-10'	8'-10'	8'-10'	6'-8'
Nickel (mg/Kg)	52.1	35.7	30.2	22.6	19.6	11.1

TABLE 9
GROUNDWATER EXCEEDING STANDARDS

Table 9A
Summary Table of Groundwater Organic Analytical Data
1600 Pelham Parkway, Bronx, New York

Sample Identification	1	2	3	2	3	6NYCRR Part 703.5 Groundwater Quality Standard
Boring Number	MW-2	MW-3	MW-4	MW-5	MW-6	
Sample Date	11/6/2009	11/6/2009	11/2/2009	11/2/2009	11/2/2009	
Sample Matrix	Water	Water	Water	Water	Water	
Units	ug/L	ug/L	ug/L	ug/L	ug/L	
Volatile Organic Compounds						
Naphthalene	19	ND	ND	ND	ND	10
MtBE	ND	1.5	ND	ND	ND	NS
Semivolatile Organic Compounds						
Naphthalene	23	ND	ND	ND	ND	10
Pesticides						
ND						
PCBs						
ND						

MW-1 was dry during sampling.

NS...Not Stated

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 9B
Summary Table of Groundwater Inorganic Analytical Data
1600 Pelham Parkway, Bronx, New York

Sample Identification	1	2	3	4	5	6	7	8	9	10	6NYCRR Part 703.5 Groundwater Quality Standard mg/L
Boring Number	MW-2	MW-2	MW-3	MW-3	MW-4	MW-4	MW-5	MW-5	MW-6	MW-6	
Sample Date	11/6/2009	11/6/2009	11/6/2009	11/6/2009	11/2/2009	11/2/2009	11/2/2009	11/2/2009	11/2/2009	11/2/2009	
Sample Matrix	Water Metals(Filtered)	Water Metals (Unfiltered)	Water Metals (Filtered)	Water Metals(Unfiltered)	Water Metals (Filtered)	Water Metals(Unfiltered)	Water Metals (Filtered)	Water Metals (Unfiltered)	Water Metals (Filtered)	Water Metals (Unfiltered)	
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
Aluminum	2.05	65.2	0.1	27.5	ND	4.70	3.10	33.2	1.38	66.8	0.1
Arsenic	0.004	0.022	ND	0.008	ND	0.006	0.005	0.032	ND	0.022	0.34
Barium	0.205	0.5	0.185	0.393	1.42	1.75	0.082	0.705	0.162	0.552	1
Cadmium	ND	0.002	ND	ND	ND	ND	ND	0.003	ND	0.001	0.021
Calcium	88	61.1	94.1	82.9	103	98.7	56.2	107	134	100	NS
Chromium	0.004	0.147	ND	0.053	ND	0.014	0.006	0.088	0.002	0.138	0.05
Cobalt	ND	0.031	ND	0.015	ND	0.003	0.002	0.024	ND	0.029	0.005
Copper	0.003	0.171	ND	0.101	ND	0.014	0.030	0.400	0.002	0.126	0.2
Iron	27.9	90.8	6.6	43.5	0.185	18.8	2.58	44.0	1.41	67.9	0.3
Lead	ND	0.119	ND	0.069	ND	0.047	0.035	0.700	ND	0.122	0.204
Magnesium	19.3	26.2	21.3	25.3	28.8	28.2	4.11	11.6	13.4	24.0	35
Manganese	2.64	3.82	2.46	2.99	0.597	0.716	0.445	1.47	0.704	1.67	0.3
Nickel	0.003	0.081	0.001	0.04	0.003	0.009	0.006	0.061	0.003	0.075	0.1
Potassium	21.4	35.5	11.2	17.4	113	108	5.9	10.3	10.7	26.4	NS
Sodium	139	148	208	213	152	148	11.1	11.6	88.7	88.0	20
Vanadium	0.013	0.141	ND	0.055	0.005	0.016	0.012	0.105	0.009	0.137	0.19
Zinc	0.007	0.288	0.003	0.142	0.003	0.068	0.057	1.07	0.009	0.305	0.095

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 STANDARDS

Table 10
Summary of Soil Vapor Analytical Data
1600 Pelham Parkway, Bronx, New York

Number	1	2	3	4
Sample Identification	SV-1	SV-2	SV-3	SV-4
Sample Date	11/6/2009	11/6/2009	11/6/2009	11/6/2009
Sample Matrix	Soil vapor	Soil vapor	Soil vapor	Soil vapor
Units	ug/m ³	ug/m ³	ug/m ³	ug/m ³
Volatiles TO-15 List				
4-Ethyltoluene	154	55.2	13.4	23.7
sec-Butylbenzene	15.6	ND	ND	ND
Ethanol	20.4	43.2	90.3	35.0
Acetone	22.8	54.0	97.0	69.5
Propene	30.4	200	44.6	75.4
Chloroform	ND	8.20	ND	ND
2-Butanone	ND	19.2	55.2	11.5
Carbon Disulfide	ND	23.8	ND	2.50
Benzene	52.8	51.4	21.9	61.1
Toluene	969	804	193	729
Tetrachloroethene	11.2	ND	ND	ND
Hexane	183	231	65.1	123
n-Heptane	307	176	36.2	130
Ethylbenzene	470	253	52.0	164
n-Butylbenzene	ND	10.2	3.72	3.10
o-Xylene	1020	322	61.8	180
m + p-Xylene	1840	983	207	580
Cyclohexane	146	25.2	11.5	24.1
4-Isopropyltoluene	11.2	ND	ND	ND
Isopropylbenzene	106	17.8	3.24	9.50
1,3,5 Trimethylbenzene	154	89.4	23.9	44.8
1,2,4-Trimethylbenzene	268	216	58.4	89.2

ND...Not Detected

All values listed in this table, represent concentrations exceeding their respective laboratory method detection limits