WHITE PLAINS COURTYARD APARTMENTS
2040 WHITE PLAINS ROAD
BRONX, NEW YORK

Site Management Plan
Revision 1

NYSDEC BCP Number: C203031

Prepared for:
Metro Management I, LLC
930 Broadway
Woodmere, New York 11598

Prepared by:
P.W. GROSSER CONSULTING INC.
630 Johnson Avenue, Suite 7
Bohemia, New York 11716-2618
631.589.6353

DECEMBER 18, 2007

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

LIST OF ACRONYMS

Acronym	Definition
AWQS	Ambient Water Quality Standards
BCA	Brownfield Cleanup Agreement
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
FER	Final Engineering Report
BCP	Brownfield Cleanup Program
RAWP	Remedial Action Work Plan
HDPE	High Density Polyethylene
IRM	Interim Remedial Measure
IPT	Island Pump and Tank
NYC	New York City
NYCDEP	New York City Department of Environmental Protection
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PS	Public School
PVC	Polyvinyl Chloride
PWGC	P.W. Grosser Consulting
RAO	Remedial Action Objectives
RI	Remedial Investigation
RSCOs	Recommended Site Cleanup Objectives
SAIC	Science Applications International Corporation
SCG	Standards, Criteria, and Guidelines
SVOCs	Semi-Volatile Organic Compounds
TPH	Total Petroleum Hydrocarbons
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds

1.0 INTRODUCTION AND DESCRIPTON OF REMEDIAL PROGRAM

This document is required for fulfillment of Remedial Action at the property located on 2040 White Plains Road in Bronx, New York (the "Site") under the New York State (NYS) Brownfield Cleanup Program (BCP) administered by the New York State Department of Environmental Conservation (NYSDEC). The Site was remediated in accordance with the Brownfield Cleanup Agreement (BCA) # C203031.

1.1 General Background

Metro Management I, LLC (Metro) entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) in May 9, 2005 (Site No. C203031) to investigate and remediate a 29,200 square-foot (approximately 0.6 acre) property located on 2040 White Plains Road in Bronx, New York (the "Site"). A residential apartment complex, with first floor retail space and associated grounds is proposed for the property. Additional details are documented in the Brownfield Cleanup Program (BCP) application, dated December 2004.

1.1.2 Purpose

The remedial actions performed under the Interim Remedial Measures (IRM) and Remedial Action Work Plan (RAWP) were designed for the site protection of human health and the environment to standards consistent with the contemplated end use. The proposed redevelopment plan and end use includes a residential apartment complex, with the first floor consisting of retail space, and open air parking facilities. No basement or sub-slab structures are part of the redevelopment plans.

This site management plan has been prepared to detail recommended operation and maintenance and sampling activities to be conducted at the site to ensure that the sub-slab depressurization system and vapor barrier continue to operate as intended.

1.2 Site Background

1.2.1 Site Location and Description

The Site is located in a residential area in the Borough of the Bronx, New York and is identified as Block 4284, Lot 5 on the New York City Tax Map; see **Figure 1**. The Site is situated on an approximately 0.6 acre area bounded by Brady Avenue to the north, Bronxdale Avenue to the south, multi-family apartment buildings to the east, and White Plains Road to the west (see **Figure 2**). The boundary map included in the BCA as required by Environmental Conservation Law (ECL) Title 14 Section 27-1419 is included in **Appendix A**. The 0.6 acre property is fully described in **Appendix A**- Metes and Bounds.

The property is zoned Residential R7 with a commercial C2-1 overlay. R7 is a medium density residential district, typically characterized by 14-story buildings with low lot coverage. C2 districts are intended to serve both the immediate area around the property and a wider area within the neighborhood. Commercial uses within the classification are limited to the first one or two floors of the building. C2-1 districts are mapped as an overlay to the residential district. A commercial overlay is a small section of a residential district, usually the first and second floors of buildings fronting major avenues which are zoned for retail and service stores.

This SMP was prepared by P.W. Grosser Consulting, Inc., on behalf of Metro Management I, LLC (Metro) in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation and the guidelines provided by NYSDEC. This SMP addresses the means for implementation of Institutional Controls (ICs) and Engineering Controls (ECs).

1.2.2 Site History and Surrounding Property

Prior to the purchase by Metro, the property had been in continual service as a gasoline service station for approximately fifty years. Previous environmental investigations identified petroleum impacted soil and groundwater beneath the site. Due to the historic use of the property and the confirmed presence of gasoline-related contaminants in soil, groundwater and soil gas, the site was formally accepted into New York State's Brownfield Clean-up Program (BCP) on May 9, 2005 (Site No. C203031).

The surrounding land use includes a commercial retail/office building and a multi-family apartment building to the north, multi-family apartment buildings and to the east, a commercial retail/office building and a mixed use commercial/residential building to the south and an active Mobil service station to the west.

Properties adjacent to the site are listed below. Contact information for the identified owners, as listed in the New York City (NYC) tax rolls (as of September 2004), are as follows:

Properties to the North

- Property ID: Block 4287 Lot 5
  Current Use: Commercial Retail and Office Buildings
  Address: 2070 White Plains Road
  Property Owner: Violet Camac
  100 Maiden Lane
  New York, NY 10038

- Property ID: Block 4287 Lot 1
  Current Use: Multi-Family Residential Apartments

Address: 2081 Cruger Avenue
Property Owner: Monserrate Gonzalez
2355 Prospect Avenue, Apt 3C
Bronx, NY 10458

Properties to the East

- Property ID: Block 4284 Lot 20
  Current Use: Multi-Family Residential Apartments
  Address: 2055 Cruger Avenue
  Property Owner: Ed-Bob Management
  East Lake Road
  Yonkers, NY 10704

- Property ID: Block 4284 Lot 1
  Current Use: Multi-level Residential Apartments
  Address: 2039 Cruger Avenue
  Property Owner: 2039 Realty, LLC.
  PO Box 630434
  Little Neck, NY 11363

Properties to the South

- Property ID: Block 4257 Lot 35
  Current Use: Commercial and Office Buildings
  Address: 2028 White Plains Road
  Property Owner: 2028 White Plains Road Corp
  2028 White Plains Road
  Bronx, NY 10467

- Property ID: Block 4257 Lot 40
  Current Use: Mixed Use Commercial/Residential Building
  Address: 2009 Cruger Avenue
  Property Owner: Peter and Sons Realty, LLC
  3062 Bainbridge Avenue
  Bronx, NY 10467

Properties to the West

- Property ID: Block 4283 Lot 1
  Current Use: Transportation and Utility (Mobil Service Station)
  Address: 2090 Bronxdale Avenue
  Property Owner: Mobil Oil Corporation

Apartment buildings located east or downgradient of the Site are considered sensitive receptors.

The following location has & will serve as a repository for public access to documents generated under the BCP program:

New York Public Library
Allerton Branch
2740 Barnes Avenue
Bronx, New York 10467
Telephone: (718) 881-4240

1.2.3 Geological Conditions

The bedrock below the site, known as the Manhattan Schist, is overlain by deposits of poorly permeable glacial till. This glacial till consists primarily of sandy silt with weathered bedrock fragments. The soil borings performed describe the subsurface material as silty sands with rock fragments and severely weathered bedrock. The depth to competent bedrock, as determined by refusal of the augers, split-core sampler and/or Geoprobe, ranged from 6 feet below surface in boring B-14 to greater than 18 feet in boring B-5 (MW-4).

Ground water at the site exists at approximately 10-15 feet below land surface placing the water table within the till and weathered bedrock zone at most of the locations. The groundwater surface occurs within the competent bedrock at location B-9 (MW-5), and is very close to the bedrock surface at locations B-10 (MW-6) and B-12 (MW-8). Depth to water measurements was taken by PWGC on several occasions. A groundwater elevation map, based on the April 28, 2005 depth to water measurements. Based on the figure, groundwater flow in the central portion of the site is generally to the east changing to the southeast near the southeastern corner of the property, see **Figure 3**. The groundwater flow patterns and direction may be influenced locally by leaking drainage structures, zones of higher or lower permeability and the bedrock surface.

1.3 Description of Remedcial Investigation Findings

Several investigations were performed at the site prior to acceptance into the BCP as follows:

- Limited Phase II Site Investigation, 2040 White Plains Road, Bronx, New York, EnviroTrac, Ltd., 1998
- Subsurface Investigation Report, Shell Service Station, 2040 White Plains Road, Bronx, New York, Phoenix Environmental Technology, Inc. July 2004
- Phase I Environmental Site Assessment, 2040 White Plains Road, Bronx, New York, PWGC, December 2004.

A brief summary of each of the previous investigations is provided in the following sections.

1.3.1 Limited Phase II Site Investigation – Envirotrac, 1998

A limited Phase II Site Investigation was performed at the site in 1998 by EnviroTrac, Ltd, under contract to Motiva Enterprises (Motiva). The investigation included the installation of three groundwater monitoring wells, one in the vicinity of the former waste oil tank, one in the general vicinity of the gasoline USTs and a third near the southwest corner of the property. Initial sample results from the three monitoring wells, indicated that total BTEX compounds and MTBE were present at concentrations significantly above groundwater standards (total BTEX: 1,881 ug/L, MTBE: 2,280 ug/L). The results were reported to the NYSDEC, which responded by assigning spill file number 98-08824 to the site.

Following discussions with the NYSDEC Project Manager, Motiva implemented a quarterly sampling and analysis program to monitor conditions at the site. The program continued for approximately 2 years, during which a general declining trend was observed in VOC concentrations. In August 2000, Motiva requested closure of the spill file. After review, the NYSDEC responded by closing the spill file in November 2000.

1.3.2 Subsurface Investigation Report – Phoenix Environmental, 2004

In July 2004, Phoenix Environmental Technology, Inc. (Phoenix), under contract to Motiva, collected groundwater samples at the site to establish a baseline for VOCs in groundwater in preparation for divestment of the property. The focus of the sampling program was to determine if there had been a change in groundwater quality at the 3 locations monitored by EnviroTrac from 1998 to 2000. To complete this task, Phoenix used temporary probe equipment to collect groundwater samples from the three previously abandoned monitoring well locations. The results of the samples indicated that the concentrations of BTEX and MTBE had decreased since the final sampling event performed by Envirotrac in August 2000.

1.3.3 Phase I Environmental Site Assessment – PWGC, 2004

A Phase I ESA was completed by PWGC, and documented in a report dated December 21, 2004. The ESA revealed that the property had been in continual service as a gas station since at least 1956 and, prior to that, was used as an open air car lot from at least 1949. At the time of the site inspection, the site consisted of a one-story masonry building, two dispenser islands with a canopy and a paved parking lot. The station, which was owned and operated by Motiva, had been closed for several months at the time of the site inspection.

The records search performed for the ESA identified two NYSDEC petroleum spill files associated with the property, and one unregistered storage tank which had been

previously removed. The site is listed on the Petroleum Bulk Storage (PBS) database under the name "Whitestone Shell". The registry (PBS No. 2-190780) lists five storage tanks at the site including:

- three 4,000 gallon gasoline underground storage tanks (USTs);
- one 550 gallon fuel oil UST, and;
- one 250 gallon above ground storage tank (AST) used for waste oil

The PBS record indicates that the tanks were installed in 1971, and are listed as "in-service".

The ESA noted that the site is listed on the NYSPILLS database. The database indicated that there were two spills associated with the site. The first spill (98-08824), which was opened as a result of a limited subsurface investigation performed in 1998, was closed in November 2000. The second spill (98-02162) was opened as a result of impacted soil identified during the removal of a waste oil UST in 1995. The tank was not previously registered with the NYSDEC, and this spill file remains open.

The site inspection performed as part of the ESA identified the storage of batteries and drums containing oily rags and used oil filters, around the building's exterior. The building interior was not accessible for inspection, leaving the possibility of floor drains and hydraulic lift equipment as a potential concern.

The Phase I ESA Report recommended the following actions:

- register the waste oil UST removed in 1995 and excavate impacted soils to close the open Spill File (98-02162).
- perform a geophysical survey to determine if additional USTs are present at the site.
- remove and properly dispose of debris observed during the site inspection including used automobile batteries and drums containing oily rags and oil filters.
- inspect the building for floor drains and hydraulic lifts. If floor drains are identified it is recommended that the discharge location of these structures be identified. If it is determined that they discharge directly to the subsurface, it is recommended that the floor drains be sampled in order to determine if improper discharges have impacted the subsurface. If the building contains hydraulic lifts, they should be properly removed.

1.4 Summary of Remedical Investigation Report

The Remedial Investigation (RI) was conducted between January 18, 2005 and August 29, 2005. The Remedial Investigation Report was submitted to the NYSDEC in October 2005. The field work portion was performed in accordance with the protocols and methods as established by the New York State Department of Environmental

Conservation (DEC) in Draft DER-10 Technical Guidance for Site Investigation and Remediation (12/25/02). Supplemental field work was also performed at the site in January, June and July of 2006 as part of the IRM performance monitoring program.

1.4.1 Identification of Source Areas

The geophysical survey identified several suspect areas at the site; however, the results of the soil sampling program indicate that the primary source of residual VOC contamination is in the former waste oil tank area, north of the building. With the exception of acetone in one of the hydraulic lift borings (HL-N), this was the only location in which VOCs were reported above NYSDEC RSCOs.

According to the boring log for B-11/MW-7, the vertical position of impact was at the 12 to 14 foot interval, just above the bedrock surface.

1.4.2 Groundwater Impacts

Impacted groundwater was encountered in four, apparently separate, areas of the property corresponding to an area beneath the service station building, the former waste oil tank area north of the building, the suspect UST area along White Plains Road and the suspect dispenser area along Bronxdale Avenue. Of these, the most significant area of impact was beneath the service station building and in the vicinity of the former waste oil tank. BTEX and total VOC concentrations exceeded 10,000 µg/L in these areas. This was consistent with significant levels of residual soil contamination, documented at the B11/MW7 location. The VOC ratios were similar throughout the site and were generally representative of an older release.

Based on the groundwater flow direction and the VOC concentrations in adjacent downgradient monitoring points, there did not appear to be significant plume migration from the suspect former UST and dispenser areas. Groundwater impact north of the service station building and beneath the building may be associated with the former waste oil UST area, since VOCs were not detected above NYSDEC RSCOs in soil borings installed within the building.

1.4.3 Soil-Gas Impacts

Total VOC concentrations detected in soil-gas samples were fairly consistent throughout the site, ranging from a low of 1,354 $\mu g/m^3$ in sample SG-1 to a high of 3,439 $\mu g/L^3$ in sample SG-2. VOC concentrations do not appear to correlate with groundwater impact areas.

1.5 Description of Interim Remedial Actions

Several Interim Remedial Measures were implemented at the site concurrently with the Remedial Investigation. The purpose of the IRMs was to address the primary source areas of contamination and substantially reduce the threat of potential exposures, while the process of developing a comprehensive remedial plan for the site proceeds.

IRMs were implemented at the site in several stages and documented as follows:

- Hydraulic Lift removal, 2040 White Plains Road, Bronx, New York, Phoenix, 2004.
- Interim Remedial Measure Work Plan (*UST Closure*) for 2040 White Plains Road, Bronx, New York, PWGC, June, 2005.
- Interim Remedial Measure Report (*UST Closure*), 2040 White Plains Road, Bronx, New York, SAIC, October 2005.
- Interim Remedial Measure for Hot Spot Reduction (*Chemical Oxidant Injections*), 2040 White Plains Road, Bronx, New York, PWGC, October, 2005.
- Amendment Letter for Interim Remedial Measure for Hot Spot Reduction (*Chemical Oxidant Injections*), 2040 White Plains Road, Bronx, New York, PWGC, December, 2005.
- Remedial Work Plan, 2040 White Plains Road, Bronx, New York, PWGC, December 15, 2006.

A summary of the IRMs performed is provided in the following sections.

1.5.1 Hydraulic Lift Removal

Two hydraulic lifts were removed from within the existing building by Phoenix in December 2004. Confirmatory endpoint samples were collected from beneath each lift and analyzed for the presence of semi-volatile organic compounds (SVOCs) and total petroleum hydrocarbons (TPH). Analytical results identified several SVOCs in excess of NYSDEC Recommended Site Cleanup Objectives (RSCOs).

1.5.2 Interim Remedial Measure (UST Removal)

In July 2005, Science Applications International Corporation (SAIC) and Island Pump and Tank (IPT), under contract to Motiva, implemented an Interim Remedial Measure at the property. The IRM was implemented in accordance with the approved IRM Work Plan (PWGC, 5/05) and consisted of the removal of three gasoline USTs, one fuel-oil UST and all associated piping. During implementation of the IRM, impacted soil was encountered and removed from the former waste-oil UST area just north of the service

station building. Affected soil in the waste-oil UST area was excavated to the bedrock surface. During the course of the gasoline UST removal and excavation of the former waste-oil UST area, approximately 227 tons of petroleum impacted soil were removed from the site and disposed of at a permitted facility under SAIC supervision.

Following the removal of the USTs, associated piping and impacted soil, nineteen confirmatory endpoint samples were collected. Two samples were collected from each sidewall and the bottom of the UST excavation, one from beneath each of the four former dispenser locations and five from beneath the piping. Although one or more SVOCs were detected at concentrations exceeding NYSDEC RSCOs in each of the nineteen endpoint samples collected, the site-wide distribution of the compounds and concentrations detected is consistent with that of "historic or urban" fill material, encountered throughout the five Boroughs. VOCs were detected at concentrations exceeding NYSDEC RSCOs in a single sample, PIPE-5, collected from beneath the piping along the western property boundary. During removal of the piping, a small amount of fuel remaining in the pipe was spilled in the vicinity of the PIPE-5 sample location. Soil was excavated to bedrock and two additional endpoint samples were collected. No VOC impact was detected in the additional endpoint samples.

Following the removal of impacted soil from the former waste-oil UST area, a total of five endpoint samples were collected, one from each of the four sidewalls and the bottom of the excavation. SVOCs were detected above NYSDEC RSCOs in each of the endpoint samples. However, the Site-wide distribution of the compounds and the concentrations detected are consistent with that of "historic or urban" fill materials, encountered throughout the five Boroughs, and is not representative of petroleum related impact from the site.

Four test pits were installed in former suspect UST and dispenser areas. No petroleum impacted soil was encountered in the test pits, and a total of five soil samples were collected. One sample was collected from the bottom of Test Pits 1, 2 and 3 and two were collected from Test Pit 4. Although SVOCs were detected at concentrations above the NYSDEC RSCOs in the test pit samples, the site-wide distribution of the compounds and concentrations detected were consistent with that of "historic or urban" fill materials, encountered throughout the five Boroughs, and is not representative of petroleum impact.

The Interim Remedial Measure was successful in removing impacted soil from the identified source areas, as demonstrated by the verification (endpoint) sampling program. The NYSDEC has determined that subsurface soil at the site meets the unrestricted soil cleanup objectives, as established in 6NYCRR 375-6. Therefore, remedial action objectives for soil have been met. The full closure report prepared by SAIC is documented in the Remedial Investigation Report (PWGC, 10/06). See **Figure 4** for excavation areas and end point sample locations.

1.5.3 Interim Remedial Measure (Chemical Oxidation)

In October, 2005, PWGC prepared an Interim Remedial Measure to address VOCs in groundwater at selected locations on the property (Interim Remedial Measure for Hot Spot Reduction, PWGC, 10/05). The NYSDEC formally approved the IRM in a letter dated December 20, 2005. The IRM specified the use of an activated chemical oxidant (sodium persulfate) to significantly reduce on-site concentrations of VOC contaminants in groundwater. The initial phase of the program was performed in January 2006 and included the injection of oxidant solution at 21 locations throughout the former waste oil tank area and station building area with Geoprobe® equipment. A secondary injection was performed in February - March 2006 which included the same locations as the initial event plus 11 locations installed into bedrock in the vicinity of suspect dispenser areas located along White Plains Road and Bronxdale Avenue. Follow-up injections of 10 and 7 points respectively, were performed in July and September 2006 in the primary hot spot areas. Locations of these chemical oxidations are shown in **Figures 5 and 6**.

Groundwater quality was monitored by sampling on-site and off-site monitoring wells. The chemical oxidation program has been successful in achieving significant reductions in on-site VOC concentrations. VOC concentrations in the vicinity of the former waste oil tank area were reduced from 28,878 ug/L in January 2006 to 53 ug/L in June 2006. VOC concentrations within the former service station building area were reduced from 145,832 ug/L in January 2006 to 4,398 ug/L in September 2006. Off-site concentrations show a general decline during implementation of the IRM with an average total reduction of VOCs from 8,843 ug/L to 6,086 ug/L. It must be noted that groundwater flow across the Site and from on-Site to off-Site is expected to be severely limited by the construction of the foundation for a mixed-use (commercial retail/residential building) which extends below the water table and, with the exception of an 80 foot section in the south east corner of the site, extends to the bedrock surface. In addition, construction of the new building over the northern half of the site eliminates surface recharge through this formerly unpaved area. **Table 1-1** shows results of groundwater sampling events from August 2005 through March 2007.

1.6 Description of Approved Remedial Actions Performed

Unless otherwise stated, the Site was remediated in accordance with the scope of work presented in the NYSDEC-approved the IRM Work Plan For Hotspot Reduction dated October 2005, the IRM Work Plan dated June 2005, and the Remedial Work Plan dated December 15, 2006.

Prior to the remedial actions, interim remedial actions were performed and include the removal of three gasoline USTs and the removal of two hydraulic lifts from within the existing building, and the chemical oxidant injection for Hot Spot Reduction; see section

4.0 for further detail. The UST and hydraulic lift removal Interim Remedial Measures were successful in removing petroleum contaminated soil, and with the exception of the site-wide distribution of common urban fill parameters, the unrestricted soil cleanup objectives, as established in Draft 6NYCRR 375-6, were met.

The Remedial Action performed for the site consisted of continual spot injections of a chemical oxidant solution in the vicinity of the former service station building footprint, and the installation of a vapor barrier and sub-slab venting system beneath the retail portion of the new mixed-use building's foundation as a preventative measure. Chemical oxidant injection was successful in reducing the VOCs remaining in the former high concentration areas, and thereby accelerated the restoration of impacted groundwater through natural attenuation processes. The vapor barrier and sub-slab venting system for the retail portion of the building was designed as a preventative measure to prevent the potential infiltration of VOCs through the building's concrete slab foundation.

1.6.1 Chemical Oxidant Injection

To continue to reduce the mass of dissolved BTEX and VOCs in groundwater beneath the site and prevent off-site contaminant migration, a chemical oxidant solution (sodium persulfate) was injected into the groundwater beneath and north of the existing on-site building.

Approximately 17 semi-permanent, 1-inch diameter PVC, injection points were installed in the parking garage area in and around the footprint of the former service station building. Injection points are illustrated in **Figure 7**. Each injection well was constructed with 10 feet of 0.020 slotted well screen and completed to a total depth of 20 ft below grade or bedrock. A standard No. 2 morie filter pack was placed in the borehole around the well to a minimum of 2 feet above the screened section. The borehole was then grouted with a cement-bentonite slurry to grade.

Sodium persulfate and a chelated iron activator were delivered to the Site as a dry powder and mixed with water to produce a sodium persulfate solution. The activated sodium persulfate solution was prepared by mixing 9 lbs of FeEDTA powder to each 55 lb bag of sodium persulfate powder and approximately 38 gallons of water to produce a 20 % sodium persulfate solution. The activated sodium persulfate solution was injected into the 17 semi-permanent PVC injection points at a concentration of approximately 20 percent.

During remediation, periodic groundwater sampling was performed to monitor the progress of the chemical oxidant treatment program. Samples were collected from temporary wells TW2, TW5, and from proposed temporary well TW6, and from long term monitoring wells PWG2, PWG3 and PWG4 (**Figure 8**), two weeks following the

initial injection application. Samples were submitted to a NYSDOH certified laboratory for analysis of VOCs, persulfate and Fe^{2+}. In general, the concentration of total BTEX and total VOCs compounds decreased as the chemical oxidant treatment program progressed.

Following the completion of the chemical oxidant treatment program, groundwater quality was monitored at the six off-site monitoring well locations (PW1-PW6) as shown in **Figure 8**. Groundwater samples were collected on a quarterly basis and submitted for analysis of VOCs, for a minimum of four quarters to monitor overall improvements to groundwater quality. Results are shown in **Table 1-1.**

1.6.2 Sub-Slab Depressurization System/Vapor Barrier

To significantly reduce the potential for vapor intrusion, a vapor barrier and sub-slab depressurization piping were installed as a preventative measure beneath the foundation of the retail section of the building which covers approximately two-thirds of the property. The remaining third of the building footprint is dedicated as parking garage with open air ventilation.

1.6.2.1 Sub-Slab Depressurization System

A sub-slab depressurization system was specified for this site as a precautionary measure and installed prior to completion of the slab within the retail section of the building. The sub-slab depressurization system consists of four separate rings of 4-inch HDPE corrugated smooth interior pipe in a geotextile fabric. Installation was performed by laying the piping in the specified configuration over a compacted sub-base. Gravel was then placed around and over the pipe to bring the level to final grade. A 30 mil HDPE vapor barrier was then placed over the gravel before pouring the slab.

The two northern piping loops are connected and exhaust piping to the roof was completed with an Infiltec high-flow, in-line fan model HS3000. The two southern piping loops have independent exhaust piping to the roof completed with an Infiltec Radonway high-flow, in-line fan model RP265.

A PWGC field inspector under the direct supervision of a professional engineer, inspected the sub-slab piping at several critical stages before during and after the installation was completed to assure compliance with design specifications. Final testing of the sub-slab depressurization system's performance was conducted by PWGC on May 24, 2007.

To ensure the sub-slab depressurization system was operating proficiently, sub-slab vapor probes were installed. The sub-slab vapor probes are constructed with polyethylene tubing. Porous backfill material was added to cover about one inch of the probe tip and

the vapor probe sealed to the surface with permagum grout. Negative sub-slab pressure was confirmed utilizing a handheld manometer and confirmed using a smoke test in accordance with New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006).

1.6.2.2 Vapor Barrier

The vapor barrier extends throughout the area occupied by the commercial section of the new mixed-use building at the site. A PWGC field inspector under the direct supervision of a professional engineer inspected the vapor barrier at several critical stages before, during and after the installation was completed, to assure compliance with design specifications. The vapor barrier was installed beneath the base of the foundation, and consists of 30 mil high density polyethylene (HDPE) sheeting. The entire building was underlain by an HDPE vapor barrier with the exception of the parking garage which is continuously vented to the outside through large open areas in the east, west and south walls. Specifications of the vapor barrier are attached as **Figure 11**.

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1. Introduction

2.1.1 General

Unless otherwise stated, the Site was remediated in accordance with the scope of work presented in the NYSDEC-approved the IRM Work Plan For Hotspot Reduction dated October 2005, the IRM Work Plan dated June 2005, and the Remedial Work Plan dated December 15, 2006.

Interim remedial actions and remedial actions performed include the removal of three gasoline USTs and the removal of two hydraulic lifts from within the existing building, and the chemical oxidant injection for Hot Spot Reduction continual spot injections of a chemical oxidant solution in the vicinity of the former service station building footprint, and the installation of a vapor barrier and sub-slab venting system beneath the retail portion of the new mixed-use building's foundation as a preventative measure.

Since residual contamination exists beneath the Site, Engineering Controls and Institutional Controls (EC/ICs) are required to protect human health and the environment. This Engineering and Institutional Control Plan describes the procedures for the implementation and management of all EC/ICs at the Site.

2.1.2 Purpose

The purpose of this Plan is to provide:

- A description of EC/ICs on the Site;
- The basic operation and intended role of each implemented EC/IC;
- A description of the features that should be evaluated during each semi-annual inspection and compliance certification period; and
- A description of plans and procedures to be followed for implementation of EC/ICs.

2.2 ENGINEERING CONTROL COMPONENTS

2.2.1 Engineering Control Systems

2.2.1.1 Sub-Slab Vapor Barrier

A vapor barrier was installed as a preventative measure and extends throughout the area occupied by the commercial section of the new building constructed at the site. The vapor barrier consists of a black high-density polyethylene (HDPE) film, 30 mil thick sheet material.

The sub-slab vapor barrier is to be maintained and patched as needed should any penetrations occur. If any significant penetrations through the slab are needed for future construction, care will be taken to minimize damage to the vapor barrier so that an adequate patch can be installed following completion of construction activities. Repairs of the vapor barrier will be observed and documented by a licensed professional engineer or a field inspector under the direct supervision of a licensed professional engineer.

2.2.1.2 Sub-Slab Depressurization System and Sub-Slab Vapor Sampling

The sub-slab depressurization system consists of four separate rings of 4-inch HDPE corrugated smooth interior pipe in a geotextile fabric was installed. The two northern piping loops are connected and exhaust piping to the roof was completed with an Infiltec high-flow, in-line fan model HS3000. The two southern piping loops have independent exhaust piping to the roof completed with an Infiltec Radonway high-flow, in-line fan model RP265. Detailed specifications of the sub-slab depressurization system are shown in **Figures 9, 10, and 11**.

The sub-slab depressurization system will continue to be operated as a preventive measure for a period of five (5) years since significant reduction in VOCs has already occurred and endpoint samples are clean. NYSDEC Track 1 standards have been achieved for soil and the most recent groundwater sampling indicates a significant reduction in total VOC concentrations.

Sub-slab soil gas samples will be collected from the four existing sub-slab sample ports (S1 through S4) in accordance with the monitoring plan (section 3.0).

Following receipt of the sample results, a letter report documenting the field activities and sample results will be prepared and submitted to the NYSDEC and NYSDOH.

2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems

2.2.2.1 Sub-slab Depressurization System

It is anticipated that the sub-slab depressurization system will continue to be operated as a preventive measure for a period of five (5) years since significant reduction in VOCs has already occurred and endpoint samples are clean. The active SSD system will not be discontinued without written approval by NYSDEC and NYSDOH. A proposal to discontinue the active SSD system may be submitted by the property owner based on confirmatory data that justifies such request. Systems will remain in place and operational until permission to discontinue use is granted in writing by NYSDEC and NYSDOH.

2.3 INSTITUTIONAL CONTROLS COMPONENTS

2.3.1 Institutional Controls

A series of Institutional Controls required under a RAWP are to: (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to residual contamination by controlling disturbances of the subsurface contamination; and, (3) restrict the use of the Site to current uses. Adherence to these Institutional Controls on the Site (Controlled Property) is required under the Environmental Easement and will be implemented under this Site Management Plan. These Institutional Controls are:

- Compliance with the Environmental Easement by the Grantor and the Grantor's successors and assigns with all elements of this SMP;
- A soil vapor mitigation system consisting of a sub-slab depressurization system must be inspected, certified, operated and maintained as required in this SMP;
- Ground water and soil vapor monitoring must be performed as defined in this SMP; and
- Engineering Controls may not be discontinued without an amendment or the extinguishment of this Environmental Easement.

Institutional Controls in the form of Site restrictions are required by the Environmental Easement which is being prepared for this Site. Site restrictions include:

- The use of the groundwater underlying the Controlled Property is prohibited without treatment rendering it safe for intended purpose;
- Grantor agrees to submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the

right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow. This [time period] statement must be certified by an expert that the NYSDEC finds acceptable.

2.4 INSPECTIONS AND NOTIFICATIONS

2.4.1 Inspections

Following any repair of the vapor barrier, a letter report documenting construction activities and vapor barrier repair will be prepared and submitted to the NYSDEC. In addition, the condition of the first floor slab will be inspected and documented on a semi-annual basis and documented in the Semi-Annual Inspection Checklist located in **Appendix B.**

A semi-annual inspection of the sub-slab depressurization system will be performed by a licensed professional engineer or a field inspector under the direct supervision of a licensed professional engineer, to ensure that the system is operating properly (i.e.; fan, alarms, blower, etc). Should the system require maintenance, a follow up inspection will be conducted to confirm that the work was completed and the system is operating properly. The condition of the sub-slab depressurization system will be inspected and documented on a semi-annual basis and documented in the Semi-Annual Inspection Checklist located in **Appendix B.**

Following receipt of the soil gas and groundwater sample results, a letter report documenting the field activities and sample results will be prepared and submitted to the NYSDEC and NYSDOH. Soil gas and groundwater samples will be collected on a semi-annual basis as long as the system is operational unless otherwise decided upon with the NYSDEC and NYSDOH.

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the Site will be conducted to verify the effectiveness of the EC/ICs implemented at the Site by a qualified environmental professional as determined by NYSDEC.

2.4.2 Notifications

Following receipt of the soil gas and groundwater sample results, a letter report documenting the sampling event will be prepared and submitted to the NYSDEC and NYSDOH. The letter report will include the site location, sample locations and laboratory sample results.

2.4.2.2 Non-routine Notifications

Non-routine notifications are to be submitted by the property owner(s) to the NYSDEC on an as-needed basis for the following reasons:

- No site use change shall be proposed until DEC concurs that Track 1 cleanup has been accomplished for groundwater and soil vapor.
- 10-day advance notice of any proposed ground-intrusive activities.
- Notice within 48-hours of any damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other Engineering Controls and likewise any action taken to mitigate the damage or defect.
- Notice within 48-hours of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the Site, including a summary of action taken and the impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

3.0 MONITORING PLAN

3.1 Introduction

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the implemented ECs in reducing or mitigating groundwater contamination at the Site. ECs at the Site include a vapor barrier and sub-slab depressurization system. This Monitoring Plan is subject to revision by NYSDEC.

3.1.2 Purpose

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of groundwater and soil vapor;
- Evaluating Site information periodically to confirm that the remedy continues to be effective as per the design;
- Preparing the necessary reports for the various monitoring activities;
- Assessing compliance with NYSDEC groundwater standards; and
- Assessing achievement of the remedial performance criteria.

To adequately address these issues, this Monitoring Plan provides information on:

- Sampling locations, protocol, and frequency;
- Information on monitoring systems;
- Analytical sampling program requirements;
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitor well decommissioning procedures; and
- Semi-Annual inspection and certification.

Groundwater samples will be collected from the existing on-site and off site monitoring well network, monitoring wells TW-2 and PWG 1 – PWG 6, (see **Figure 7**) on a semi-annual basis. In the event TW-2, the only current existing well on-site, becomes dry or cannot be sampled for other reasons, additional onsite well(s) for groundwater sampling will be installed at

that time. Sampling will be conducted in accordance with the previously approved Remedial Investigation Work plan. Groundwater samples will be analyzed for VOCs by EPA method 8260.

Following receipt of the groundwater sample results, a letter report documenting the field activities and sample results will be prepared and submitted to the NYSDEC. Groundwater samples will be collected on a semi-annual basis during the operation of the sub-slab depressurization system unless otherwise decided upon with the NYSDEC and the NYSDOH.

Sub-slab soil gas samples will be collected from the four existing sub-slab sample ports (S1 through S4) on a semi-annual basis. Sampling will be conducted in accordance with NYSDOH protocol for sub-slab vapor sampling. Samples will be analyzed for VOCs by method EPA TO15. Sub-slab soil gas samples will be collected on a semi-annual basis during the operation of the sub-slab depressurization system unless otherwise decided upon with the NYSDEC and the NYSDOH.

3.2 Engineering Control System Monitoring

Performance monitoring will be conducted to verify the effectiveness of the sub-slab venting system. Performance monitoring will consist of sub-slab pressure readings or a visual smoke test to demonstrate negative pressure beneath the slab. Readings will be collected concurrently with the soil gas vapor sampling.

3.3 Groundwater Monitoring Program

The existing network of monitoring wells is designed to monitor both up-gradient and down-gradient groundwater conditions at the Site.

3.3.1 Groundwater Well Construction

Existing monitoring wells and any potential future monitoring wells will be constructed following the same procedure. The monitoring well installation procedure to be used is described below.

Monitoring wells will be installed using hollow-stem auger drilling methods, see **Appendix C**. Monitoring wells will be constructed of two or four-inch diameter, schedule 40 PVC casing and 0.020 inch slot PVC well screen. The wells will be constructed with 10 feet of screen and riser to grade unless precluded by hydrogeologic conditions. The screens will be set 4 feet above the water table, and six to ten feet below the water table for monitoring wells installed in the future. A gravel pack of No. 2 Morie sand will be placed in the annulus around the screen, up to five feet above the top of the screen. A two-foot sand layer will be installed above the gravel pack followed by a two-foot bentonite seal. Above the bentonite layer, the annulus around the well will be filled

with a cement/bentonite grout to four feet below grade. The wells will be set flush to grade with a protective locking manhole and the riser fitted with a water tight cap.

Monitoring wells will be developed by over-pumping and/or surging to restore the hydraulic properties of the aquifer. The development of each well will continue until the turbidity is less than or equal to 50 Nephelometric Turbidity Units (NTUs), and when pH, temperature, and conductivity measurements stabilize. Stabilization is considered achieved when three consecutive readings within five percent of each other are collected. Portable field instruments will be used to collect measurements. If turbidity cannot be reduced to 50 NTUs, but all other parameters stabilize, the well will be considered developed. If any well is observed to contain floating product, removal activities will be conducted.

New monitoring wells will be surveyed so that groundwater elevations can be calculated. Surveying will be performed to a known elevation at the site. Water level measurements will be obtained and converted into groundwater elevation data to construct groundwater contour maps and determine flow direction. Well casing elevations will be reported to 0.01 foot accuracy and will be reported relative to Mean Sea Level (MSL). The measuring point on the well casing will be marked. A groundwater monitoring well construction log will be completed for each installed well, see **Appendix C**.

3.3.2 Monitoring Schedule

Existing on-site and offsite wells will be sampled on a semi-annual basis. The sampling frequency may be modified by NYSDEC. The SMP will be modified to reflect changes in sampling plans approved by NYSDEC.

Deliverables for the groundwater-monitoring program are specified below.

3.3.3 Sampling Event Protocol

The depth to bottom and depth to water measurements will be collected at monitoring wells on-site and off-site. Water level measurements will be obtained with an electronic water level probe relative to the marked measuring point. Measurements will be recorded in a dedicated bound project field notebook along with the time collected. Measuring equipment will be decontaminated between wells using a laboratory-grade detergent and water solution and tap water rinse.

Water level and depth to bottom measurements will be used to calculate the purge volume for each well. Three to five casing well volumes will be removed from each well prior to the collection of samples. The wells will be purged by using a submersible pump or dedicated disposable high-density polyethylene bailer.

Field readings will be collected for pH, temperature and conductivity, initially and for

each well volume. Field readings will be collected and recorded from the purge water for pH conductivity and temperature. The wells will be purged by use of a submersible pump at a flow rate not to exceed five gallons per minute (gpm). Non-disposable equipment will be properly decontaminated.

The groundwater sample will be collected with a dedicated, disposable high-density polyethylene bailer suspended by a polypropylene cord. The samples will be poured directly from the bailer into laboratory-supplied containers. The samples will be submitted to a New York State Department of Health (NYSDOH) approved analytical laboratory for analysis as previously specified.

Well sampling activities will be recorded in a field book. Other observations (e.g., well integrity, etc.) will also be noted and a groundwater sampling log will be completed, see **Appendix D** for Groundwater Sampling Log.

3.4 Well Replacement/Repairs and Decommissioning

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance. Well decommissioning, for the purpose of replacement, should be reported to NYSDEC prior to performance. Well decommissioning without replacement must receive prior approval by NYSDEC. Well abandonment will be performed in accordance with NYSDEC's "Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC and NYSDOH.

3.5 Site-Wide Inspection

A Site-wide inspection will be performed on a regular schedule at a minimum of twice a year for a period of five (5) years unless otherwise directed by the NYSDEC. The Site-wide inspection will be performed during the semi-annual sampling. During these inspections, an inspection form will be completed, see **Appendix B**. The form will include but is not be limited to:

- Compliance with the Environmental Easement;
- An evaluation of the condition and continued effectiveness of ECs; and
- General Site conditions at the time of the inspection.

3.6 Monitoring Quality Assurance/Quality Control

The fundamental QA objective with respect to accuracy, precision, and sensitivity of analysis for laboratory analytical data is to achieve the QC acceptance of the analytical protocol. The accuracy, precision and completeness requirements will be addressed by the laboratory for all data generated.

Collected samples will be appropriately packaged, placed in coolers and shipped via overnight courier or delivered directly to the analytical laboratory by field personnel. Samples will be containerized in appropriate laboratory provided glassware and shipped in plastic coolers. Samples will be preserved through the use of ice or "cold-paks" to maintain a temperature of 4°C.

If dedicated disposable materials are used to collect groundwater samples (polyethylene tubing, dedicated samplers), field equipment (rinsate) blanks will not be part of the QA/QC program. Trip blanks will accompany samples each time they are transported to the laboratory.

The analytical results from the the second semi-annual sampling round of each year will be reported with Category B deliverables as defined in NYSDEC Analytical Services Protocol. The data will be validated and a data usability summary report (DUSR) will be prepared and submitted for NYSDEC review.

3.7 Monitoring Reporting Requirements

Forms and any other information generated during regular monitoring events and inspections will be kept on file. Forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the semi-annual Site Management Report, as specified in the Reporting Plan of the SMP.

Monitoring results will be reported to NYSDEC on semi-annual basis in the Site Management Report. A letter will be prepared for submission subsequent to each sampling event. The letter report will include, at a minimum:

- Date of event;
- Personnel conducting sampling;
- Description of the activities performed;
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc);
- Copies of all field forms completed (e.g., well sampling logs, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (also to be submitted electronically in the NYSDEC-identified format);
- A copy of the laboratory certification;

- Any observations, conclusions, or recommendations; and
- A determination as to subsurface conditions have changed since the last reporting event.

Data will be reported in hard copy or digital format as determined by NYSDEC.

3.8 Certifications

Site inspections and sampling activities will take place as outlined above. Frequency of inspection is subject to change by NYSDEC. Inspection certification for all ICs and ECs will be submitted to NYSDEC on a calendar year basis and must be submitted by March 1 of the following year. A qualified environmental professional, as determined by NYSDEC, will perform inspection and certification. Further information on the certification requirements are outlined in the Reporting Plan of the SMP.

4.0 OPERATION AND MAINTENANCE PLAN

4.1 Introduction

The Operation and Maintenance Plan describes the measures necessary to operate and maintain the sub-slab vapor depressurization system, concrete slab and vapor barrier for the Site.

4.2 Engineering Control System Operation and Maintenance

The sub-slab vapor barrier which consists of 30 mil high density polyethylene (HDPE) sheeting is to be maintained and patched as needed should any penetrations occur. If any significant penetrations through the slab are needed for future construction, care will be taken to minimize damage to the vapor barrier so that an adequate patch can be installed following completion of construction activities. Repairs of the vapor barrier will be observed and documented by a licensed professional engineer or a field inspector under the direct supervision of a licensed professional engineer. The concrete pad should be maintained to prevent cracks and other integrity damages. The pad will be inspected semi-annually. In the event there is damage or construction on or near the pad will occur the, the owner and/or owner's representative and the environmental consultant (P.W. Grosser Consulting) will be notified to properly evaluate and repair if required.

The sub-slab vapor depressurization system is currently self operating on a 24/7 basis. An alarm is present on the sub-slab depressurization system to visually and audibly alert that the fan has stopped operating. The fan should only cease should there be a power outage or blockage in the pipelines. In the event the system failure alarm goes off the owner or owner's representative and the environmental consultant (P.W. Grosser Consulting) will be contacted for evaluation and repairs.

4.3 Groundwater Monitoring Well Maintenance

If biofouling or silt accumulation has occurred in the on-Site and/or off-Site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced (as per the Monitoring Plan), if an event renders the wells unusable. In addition, mw caps and cover will be replaced and repaired

4.4 Maintenance Reporting Requirements

Maintenance reports and any other information generated during regular operations at the Site will be kept on-file on-Site. All reports, forms, and other relevant information generated will be available upon request to the NYSDEC and submitted as part of the semi-annual Site Management Report, as specified in the Section 5 of this SMP.

4.4.1 Routine Maintenance Reports

A checklist (see **Appendix B**) will be completed during each routine maintenance event which is scheduled to be on an semi-annual basis. Checklists/forms will include, but not be limited to the following information:

- Date;
- Name, company, and position of person(s) conducting maintenance activities;
- Maintenance activities conducted;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).

4.4.2 Non-Routine Maintenance Reports

During each non-routine maintenance event, a form will be completed which will include, but not be limited to, the following information:

- Date;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Presence of leaks;
- Date of leak repair;
- Other repairs or adjustments made to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and,
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

4.5 Contingency Plan

Emergencies may include fire or explosion, environmental release, or serious weather conditions. There is one alarm on the sub-slab depressurization system to visually and audibly alert that the fan has stopped. The fans should only cease should there be a power outage or blockage. In the event the system failure alarm goes off the owner or owner's

representative and the environmental consultant (P.W. Grosser Consutling) will be contacted for repairs.

4.5.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. These emergency contact lists must be maintained in an easily accessible location at the Site.

Directions to Hospital from Site:

1. Proceed north on White Plains Road to Allerton Avenue.

2. Make a left (west) on Allerton Avenue and follow to Beth Abraham Hospital (612 Allerton Ave.).

Total distance: Approx. 1.14 miles

Hospital Address:

Beth Abraham Hospital

612 Allerton Ave.

Bronx, New York

(718) 519-0152

4.5.2 Response Procedures

4.5.2.1 Emergency Contacts/Notification System

The only potential for exposure is soil gas vapors containing low level VOCs. In the event of alarm or system outage please contact the owner or P.W. Grosser Consulting, see **Table 4-1**, to evaluate and repair as necessary the engineering controls. No emergency response related to existing environmental conditions is warranted; therefore, no excavation or contingency plan is needed at this time.

5.0 SITE MANAGEMENT REPORTING PLAN

5.1 Introduction

A semi-annual Site Management Report will be submitted to NYSDEC following the 60 days after the reporting period. The Site Management Report will be prepared in accordance with NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation requirements. This Site Management Reporting Plan and its requirements are subject to revision by NYSDEC.

This report will include the following:

- Identification of all required EC/ICs for the Site;
- An evaluation of the Engineering and Institutional Control Plan and the Monitoring Plan for adequacy in meeting remedial goals;
- Assessment of the continued effectiveness of all Institutional and Engineering Controls for the Site;
- Certification of the EC/ICs;
- Results of the required periodic Site Inspections; and
- All deliverables generated during the reporting period, as specified in Section 2 EC/IC Plan, Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan.

The Site Management Reporting Plan is subject to NYSDEC revision.

5.2 Certification of Engineering and Institutional Controls

Information of EC/ICs can be found in the Engineering and Institutional Control Plan portion of the SMP. Inspection of the EC/ICs will occur at a frequency described in Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan. After the last inspection of the reporting period, a [qualified environmental professional; Professional Engineer licensed to practice in New York State] will sign and certify the document. The document will certify that:

- On-Site ECs/ICs are unchanged from the previous certification;
- They remain in-place and effective;
- The systems are performing as designed;

- Nothing has occurred that would impair the ability of the controls to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any operation and maintenance plan for such controls;
- Access is available to the Site by NYSDEC and NYSDOH to evaluate continued maintenance of such controls; and
- Site usage is compliant with the environmental easement.

The signed certification will be included in the Semi-Annual Site Management Report (see Section 5.3).

5.3 Site Inspections

5.3.1 Inspection Frequency

Inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan of this SMP. At a minimum, a Site-wide inspection will be conducted:

- Semi-Annual;
- When a breakdown of the treatment systems has occurred; and
- Whenever a significant modification to the building or foundation occurs that may affect the ECs.

5.3.2 Inspection Forms, Sampling Data, and Maintenance Reports

Inspections and monitoring events will be recorded on the appropriate forms for their respective system (refer to **Appendix B**).

Applicable inspection forms and other records (including sampling data of any media at the Site and system maintenance reports) generated for the Site during the calendar year will be included in the Site Management Report.

5.3.3 Evaluation of Records and Reporting

The results of the inspection and Site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items,

- The Site remedy continues to be protective of public health and the environment and is performing as designed in the RAWP and FER.

5.4 Site Management Report

The Site Management Report will be submitted semi-annually 60 days after the reporting period or by March 1 and September 1st of the calendar year. Other activities such as groundwater and soil vapor monitoring reports will be submitted on a semi-annual basis as well with those results also incorporated into the Semi-Annual Site Management Report. The report will include:

- EC/IC certification;
- All applicable inspection forms and other records generated for the Site during the reporting period;
- Cumulative data summary tables and/or graphical representations of contaminants of concern by media [groundwater, soil vapor], which include a listing of all compounds analyzed along with the applicable standards, with all exceedances highlighted;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables required for all points sampled during the calendar year (also to be submitted electronically in the NYSDEC-specified format);
- A performance summary for all treatment systems at the Site during the calendar year, including information such as:
    - The number of days the system was run for the reporting period;
    - A description of breakdowns and/or repairs along with an explanation for any significant downtime;
    - A summary of the performance and/or effectiveness monitoring;
    - Comments, conclusions, and recommendations based on data evaluation; and
    - Description of the resolution of performance problems.
- A Site evaluation, which will address the following:
    - The compliance of the remedy with the requirements of the Site-specific RAWP and FER;
    - The performance and effectiveness of the remedy;
    - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
    - Any new conclusions or observations regarding Site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored; and

- Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan.

- A figure showing sampling and well locations, and significant analytical values at sampling locations; and
- Comments, conclusions, and recommendations, based on an evaluation of the information included in the report, regarding EC/ICs at the Site.

The Site Management Report will be submitted, in hard-copy format, to the Region 2 NYSDEC offices, located at 41-40 21st Street, Long Island City, New York, and the NYSDOH, located at 547 River Street, Troy, NY 12180. Electronic formats will also be submitted to NYSDEC and NYSDOH.

TABLES

TABLE 1-1
Site Management Plan
2040 White Plains Road, Bronx, New York
Groundwater Volatile Organic Compound Concentrations

Groundwater Samples

Targeted Compound	NYSDEC Ambient Water Quaity Standards (ug/L) [a]	TW2						TW3				TW4			TW-5	
		HL-N						MW7*								
		8/26/05	01/17/2006	3/9/06	4/19/06	6/12/06	9/28/06	2/23/05	01/17/2006	3/9/06	6/12/06	3/9/06	4/20/06	6/12/06	3/9/06	2/28/06
1,1,1-Trichloroethane	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1	1.0 U	1.0 U	1.0 U	1.0 U	**2.1**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4,5-Tetramethylbenzene	5	1.0 U	**27**	**86**	**100**	**98**	**81**	**200**	**65**	1.0 U	1.0 U	**46**	1.0 U	1.0 U	**46**	1.0 U
1,2,4-Trichlorobenzene	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trimethylbenzene	5	**5,000**	**73**	**1,300**	**730**	**1,000**	**700**	**2,300**	**120**	**8.6**	**5.3**	**120**	1.0 U	1.0 U	**180**	1.0 U
1,2-Dibromoethane	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	0.6	1.0 U	**6**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3,5-Trimethylbenzene	5	**5,000**	**14**	**350**	**200**	**330**	**170**	**2,300**	**23**	1.0 U	**1.2**	**32**	1.0 U	1.0 U	**52**	1.0 U
2-Butanone	NS	1.0 U	**170**	**93**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**86**	1.0 U
4-Isopropyltoluene	5	1.0 U	**21**	**36**	**28**	**45**	**39**	**530**	**25**	**2.9**	1.0 U	**11**	1.0 U	1.0 U	1.0 U	1.0 U
4-Methyl-2-pentanone	NS	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	50	1.0 U	**680**	**590**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**170**	1.0 U	1.0 U	1.0 U	1.0 U	**190**	**72**
Acrolein	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acrylonitrile	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	1	1.0 U	**2.6**	**18**	1.0 U	**3**	**5**	**42**	1.0 U	**1.2**	1.0 U	1.0 U	1.0 U	1.0 U	**8.6**	1.0 U
Bromobenzene	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromochloromethane	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	60	1.0 U	**6.8**	**4.2**	1.0 U	1.0 U	**14.0**	1.0 U	1.0 U	**4.2**	1.0 U	1.0 U	1.0 U	1.0 U	**2.9**	1.0 U
Chlorobenzene	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	5	1.0 U	**180**	**4.4**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**5.3**	1.0 U	**7.8**
Chloromethane	NS	1.0 U	**430**	**16**	1.0 U	1.0 U	**13.0**	1.0 U	1.0 U	**22**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**19**
cis-1,2-Dichloroethene	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**2.0**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	0.04	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethanol	NS	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	5	**29,000**	**240**	**1,600**	**110**	**1,100**	**840**	**9,700**	**25**	**22**	**4.7**	**68**	1.0 U	1.0 U	**540**	1.0 U
Freon-114	NS	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Hexachlorobutadiene	0.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl acetate	NS	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropylbenzene	5	**1,800**	**46**	**110**	**24**	**120**	**120**	**350**	**16**	**5.4**	1.0 U	**21**	1.0 U	1.0 U	**68**	1.0 U
m,p-Xylene	10	**60,000**	**160**	**2,900**	**490**	**1,500**	**960**	**7,400**	**48**	**23**	**6.5**	**70**	1.0 U	1.0 U	**240**	1.0 U
Methyl tert-butyl ether	10	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**2.4**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**23**	1.0 U
Methylene chloride	5	1.0 U	40 B	13 B	**10**	**6.4**	**5.2** B	1.0 U	41 B	12 B	**6.7**	**13** B	1.0 U	**6.8** B	**9.7** B	**6.8** B
Naphthalene	10	**2,500**	**12**	**190**	**110**	**160**	1.0 U	**480**	**13**	**16**	**13**	**10**	1.0 U	1.0 U	**39**	1.0 U
n-Butyl acetate	NS	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
n-Butylbenzene	5	1.0 U	**19**	1.0 U	**18**	**82**	**56**	**190**	**30**	**4.5**	1.0 U	**19**	1.0 U	1.0 U	1.0 U	1.0 U
n-Propyl acetate	NS	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
n-Propylbenzene	5	**4,400**	**130**	**230**	**72**	**250**	**210**	**680**	**45**	**15**	1.0 U	**58**	1.0 U	1.0 U	**91**	1.0 U
o-Xylene	5	**22,000**	**76**	**770**	**230**	**690**	**540**	**56**	**40**	**8.5**	**2.4**	**3.7**	1.0 U	1.0 U	**9.1**	1.0 U
p-Diethylbenzene	NS	**130**	**41**	**230**	200.0	**140**	**87**	**770**	**83**	**9.7**	1.0 U	**49**	1.0 U	1.0 U	**30**	1.0 U
p-Ethyltoluene	NS	**5,000**	**200**	**780**	470.0	**800**	**450**	**3,800**	**110**	**26**	**3.5**	**66**	1.0 U	1.0 U	**94**	1.0 U
sec-Butylbenzene	5	1.0 U	**15**	**13**	**16**	**710**	**20**	**69**	**16**	**2.6**	**3.7**	**23**	1.0 U	1.0 U	**12**	1.0 U
Styrene	5	1.0 U	1.0 U	**1.2**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
t-Butyl alcoho	NS	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
tert-Butylbenzene	5	1.0 U	1.0 U	1.0 U	1.0 U	**130**	**130**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5	1.0 U	**8.9**	**7.1**	1.0 U	**6.6**	**4.2**	**7.7**	**5.4**	**2.5**	**4.2**	**2.1**	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	5	**11,000**	**52**	**450**	1.0 U	**160**	**81**	1.0 U	**3.1**	1.0 U	**1**	**3.6**	1.0 U	1.0 U	**7.5**	1.0 U
trans-1,2-Dichloroethene	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	0.04	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5	1.0 U	1.0 U	1.0 U	1.0 U	**1.1**	**2.9**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl acetate	NS	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total BTEX Compounds	NS	122,001	531	5,738	832	3,453	2,426	17,199	117	56	16	146	ND	5	805	5
Total Volatile Organic Compounds	NS	145,830	2,704	9,064	2,810	7,335	4,533	28,679	668	154	53	610	ND	12	1,412	16

Notes:
NA No standard available
(a) NYSDEC June 1998 Ambient Water Quality Standards and Guidance Values for Groundwater Class GA and April 2000 Addendum.
Bold text indicates analyte detected above laboratory method detection limit
Shaded text indictes concentration exceeds applicable standard and/or guidance value
U Indicates that analyte was undetected by laboratory.
Do to the extensive list of compounds analyzed for, only those compounds that were detected for in one or more samples are shown on the above table.

TABLE 1-1
Site Management Plan
2040 White Plains Road, Bronx, New York
Groundwater Volatile Organic Compound Concentrations

Groundwater Samples

Targeted Compound	NYSDEC Ambient Water Quaity Standards (ug/L) [a]	PWG-01 P1	PWG-02 P2		PWG-03 P3				PWG-04 P4					PWG-05 P5				PWG-06		
		7/28/06	7/28/06	9/29/06	7/28/06	9/28/06	12/21/06	3/5/07	01/16/2006	7/28/06	9/28/06	12/21/06	3/5/07	01/16/2006	7/28/06	9/28/06	3/5/07	01/16/2006	9/28/06	3/5/07
1,1,1-Trichloroethane	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	5	**2.2**	**4.8**	2.0 U	**1.8**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**5.0**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4,5-Tetramethylbenzene	5	**51**	**150**	**97**	**92**	**210**	**34**	**18**	**43**	**61**	**42**	**100**	**8.1**	**120**	**20**	**150**	1.0 U	**250**	**120**	**15**
1,2,4-Trichlorobenzene	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trimethylbenzene	5	**350**	**1700**	**950**	**1700**	**1300**	**420**	**180**	**660**	**610**	**410**	**1800**	**3.6**	**720**	**180**	**1400**	**10**	**360**	**120**	**4.3**
1,2-Dibromoethane	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	0.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3,5-Trimethylbenzene	5	**33**	**480**	**63**	**400**	**510**	**430**	**29**	**200**	**670**	**77**	**1800**	**2.3**	**87**	**20**	**440**	1.0 U	**110**	**29**	**9.1**
2-Butanone	NS	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**63**	1.0 U	1.0 U	1.0 U	1.0 U
4-Isopropyltoluene	5	**28**	**48**	**41**	**45**	**36**	**11**	**3.5**	**15**	**12**	**9.8**	**31**	**2.6**	**46**	**3.6**	**43**	1.0 U	**410**	**21**	**4.0**
4-Methyl-2-pentanone	NS	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**23**	1.0 U	**11** U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	50	1.0 U	1.0 U	1.0 U	1.0 U	**53**	**120**	**140**	1.0 U	1.0 U	**49**	**71**	**300**	**170**	1.0 U	**140**	**24**	1.0 U	1.0 U	**380** U
Acrolein	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acrylonitrile	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	1	**7.6**	**8.1**	1.0 U	**16**	**72**	**6.8**	**6.8**	**14**	**20**	**6**	**10**	1.0 U	**10**	1.0 U	**4.7**	1.0 U	**12**	**2.8**	1.0 U
Bromobenzene	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromochloromethane	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**37**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	60	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**7.3**	1.0 U	1.0 U	**3.8**	1.0 U	1.0 U	**1.8**	1.0 U	**4.3**	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**12.0**	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	7	**5.3**	1.0 U	1.0 U	1.0 U	1.0 U	**1.9**	1.0 U	1.0 U	1.0 U	1.0 U	**2.1**	**2.1**	1.0 U	1.0 U	**1.2**	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	NS	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**120.0** U	1.0 U	1.0 U	1.0 U	1.0 U	**18**	1.0 U	1.0 U	**9.8**	1.0 U	1.0 U	**5.2**	1.0 U
cis-1,2-Dichloroethene	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**3.6**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	0.04	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethanol	NS	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	5	**300**	**3,700**	**16**	**4,900**	**2,300**	**670**	**430**	**730**	**2,000**	**650**	**4,700**	**3.1**	**1,100**	**160**	**2,000**	**3.6**	**520**	**230**	**13**
Freon-114	NS	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Hexachlorobutadiene	0.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropyl acetate	NS	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Isopropylbenzene	5	**100**	**290**	**20**	**180**	**240**	**60**	**27**	**95**	**92**	**65**	**280**	**24**	**220**	**18**	**300**	1.0 U	**400**	**87**	**6.2**
m,p-Xylene	10	**95**	**4,000**	**69**	**3,100**	**4,400**	**610**	**150**	**1,700**	**960**	**460**	**1,400**	**2.7**	**1,500**	**150**	**3,900**	**3.9**	**700**	**100**	2.6
Methyl tert-butyl ether	10	1.0 U	1.0 U	**63**	**5.4**	1.0 U	**1.3**	1.0 U	**8**	**2.2**	1.0 U	1.0 U	1.0 U	**4.3**	**25**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	5	1.0 U	1.0 U	**9.3** B	1.0 U	**4.9**	**6.3** B	1.0 U	**36** B	1.0 U	**5.0** B	**7.2** B	1.0 U	34 B	1.0 U	**5.1** B	1.0 U	**30** B	**5.5** B	1.0 U
Naphthalene	10	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**56**	**140**	1.0 U	1.0 U	1.0 U	**13**	**200**	1.0 U	1.0 U	1.0 U	**76**	1.0 U	1.0 U
n-Butyl acetate	NS	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
n-Butylbenzene	5	**51**	**140**	**58**	**85**	**120**	**24**	1.0 U	1.0 U	**46**	**36**	**93**	1.0 U	**74**	**11**	**140**	1.0 U	**510**	**36**	**36**
n-Propyl acetate	NS	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
n-Propylbenzene	5	**110**	**490**	**11**	**290**	**380**	**110**	**52**	**170**	**160**	**110**	**470**	**4.3**	**340**	**27**	**430**	1.0 U	**88**	**70**	3.9
o-Xylene	5	**35**	**590**	**71**	**60**	**730**	**120**	**5.8**	**600**	**190**	**200**	**6.2**	1.0 U	**500**	**23**	**1,200**	**3.4**	**270**	**44**	1.0 U
p-Diethylbenzene	NS	**33**	**220**	**110**	**140**	**200**	**35**	**20**	**85**	**47**	**42**	**180**	**2.6**	**90**	**15**	**200**	**5.4**	**170**	**31**	**2.1**
p-Ethyltoluene	NS	**190**	**1100**	**590**	**1200**	**1100**	**230**	**64**	**580**	**320**	**180**	**640**	**23**	**770**	**98**	**1000**	1.0 U	**410**	**130**	**6**
sec-Butylbenzene	5	**28**	**31**	**680**	**710**	1.0 U	**9.6**	1.0 U	**12**	**15**	**12**	**29**	1.0 U	**27**	**120**	1.0 U	1.0 U	**270**	**25**	**25**
Styrene	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**4**	**3.5**	**3.5**
t-Butyl alcoho	NS	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
tert-Butylbenzene	5	**38**	**180**	**110**	**120**	1.0 U	**43**	**18**	1.0 U	**71**	1.0 U	**110**	1.0 U	1.0 U	**19**	1.0 U	1.0 U	**3**	**3**	1.0 U
Tetrachloroethene	5	**15**	**7.6**	1.0 U	**1.7**	**1.5**	**1.1**	1.0 U	1.0 U	1.0 U	1.8	2.0	1.0 U	**6.2**	1.0 U	**4.8**	**2.7**	**31**	**11**	2.6
Toluene	5	**8**	**130**	1.0 U	**170**	**780**	**15**	1.0 U	**1,800**	**38**	**8.7**	**75**	1.0 U	**220**	**3.8**	**220**	1.0 U	**52**	**7.9**	1.0 U
trans-1,2-Dichloroethene	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	0.04	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5	**1.7**	**1.9**	1.0 U	**1.8**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**0.97**	1.0 U	**4.4**	1.0 U	**1.9**	1.0 U	**3.5**	**2**	1.0 U
Trichlorofluoromethane	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl acetate	NS	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total BTEX Compounds	NS	446	8,428	158	8,246	8,282	1,422	594	4,844	3,208	1,325	6,191	9	3,330	338	7,325	13	1,554	385	19
Total Volatile Organic Compounds	NS	1,482	13,271	2,949	13,217	12,433	2,953	1,361	6,844	5,312	2,361	11,810	409	6,237	893	11,665	53	4,647	1,078	498

Notes:
NA No standard available
(a) NYSDEC June 1998 Ambient Water Quality Standards an
Bold text indicates analyte detected above laboratory method c
Shaded text indictes concentration exceeds applicable standar
U Indicates that analyte was undetected by laboratory.
Do to the extensive list of compounds analyzed for, only those

Table 3-1
Site Management Plan
2040 White Plains Road, Bronx, New York
Monitoring Frequency

Monitoring Program	Frequency*	Matrix	Analysis
Monitoring Wells	Semi-Annual	Groundwater	VOCs by EPA method 8260
Sub-slab depressurization system	Semi-Annual	Soil Gas	VOCs by method EPA TO15

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH

Table 4-1
Site Management Plan
2040 White Plains Road, Bronx, New York
Emergency Telephone Numbers

Contact	Firm or Agency	Telephone Number
Police		911
Environmental Professional	Kris Almskog	(631) 589-6353
Metro Management I, LLC	Owner's Representative	(516) 374-3336
Fire		911
Hospital	Beth Abraham Hospital	(718) 519-0152
Ambulance		911
NYSDEC Site Contact	Rui Feng NYSDEC	(718) 482-4977
NYSDOH	Christopher Doroski	(518) 402-7860 1-800-458-1158(ext.2-7860)
Poison Control Center		(800) 962-1253
Chemtrec		(800) 424-9300

FIGURES

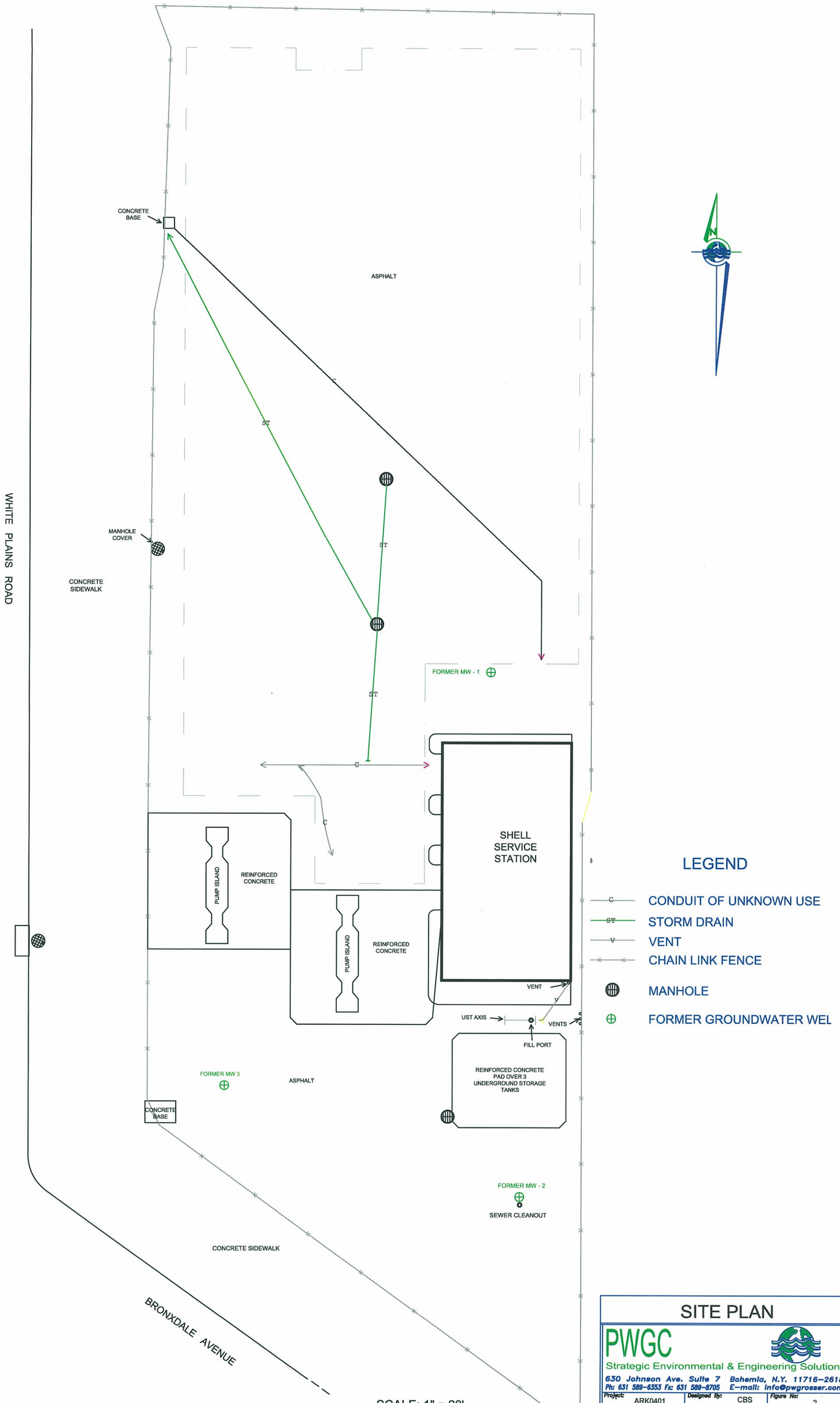
SCALE: 1"= 1500'

J:\Projects A-D\Ark- Arker Companies\0401\CAD\Vicinity Map.dwg

PWGC
Strategic Environmental & Engineering Solutions
630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
Fx 631 589-4393 Fx 631 589-5705 E-mail: info@pwgrower.com

SITE LOCATION MAP
2040 WHITE PLAINS ROAD
BRONX, NY

Project	ARK0401
Designed by	ZY
Approved by	PWG
Drawn by	TC\TEB
Figure No	1
Date	05/03/05

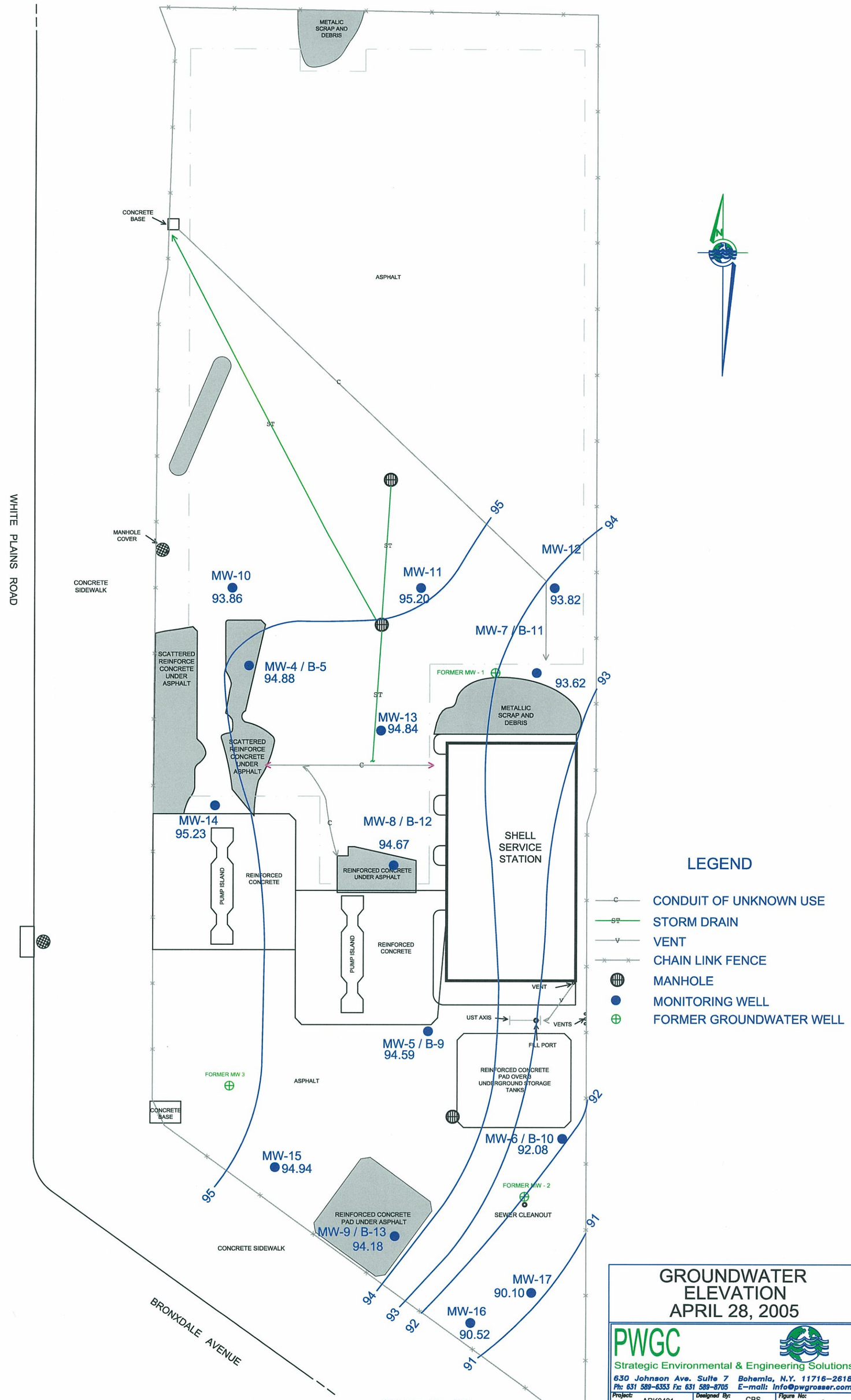


SITE PLAN

PWGC
Strategic Environmental & Engineering Solutions
630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
Ph: 631 589-6353 Fx: 631 589-8705 E-mail: info@pwgrosser.com

Project:	Designed By:	Figure No:
ARK0401	CBS	2
CADD Operator: TEB/MR	Approved By: PWG	Date: 07/11/07

J:\Projects A-D\Ark - Arker Companies\0401 CAD\FIG_2_SITEPLAN.dwg

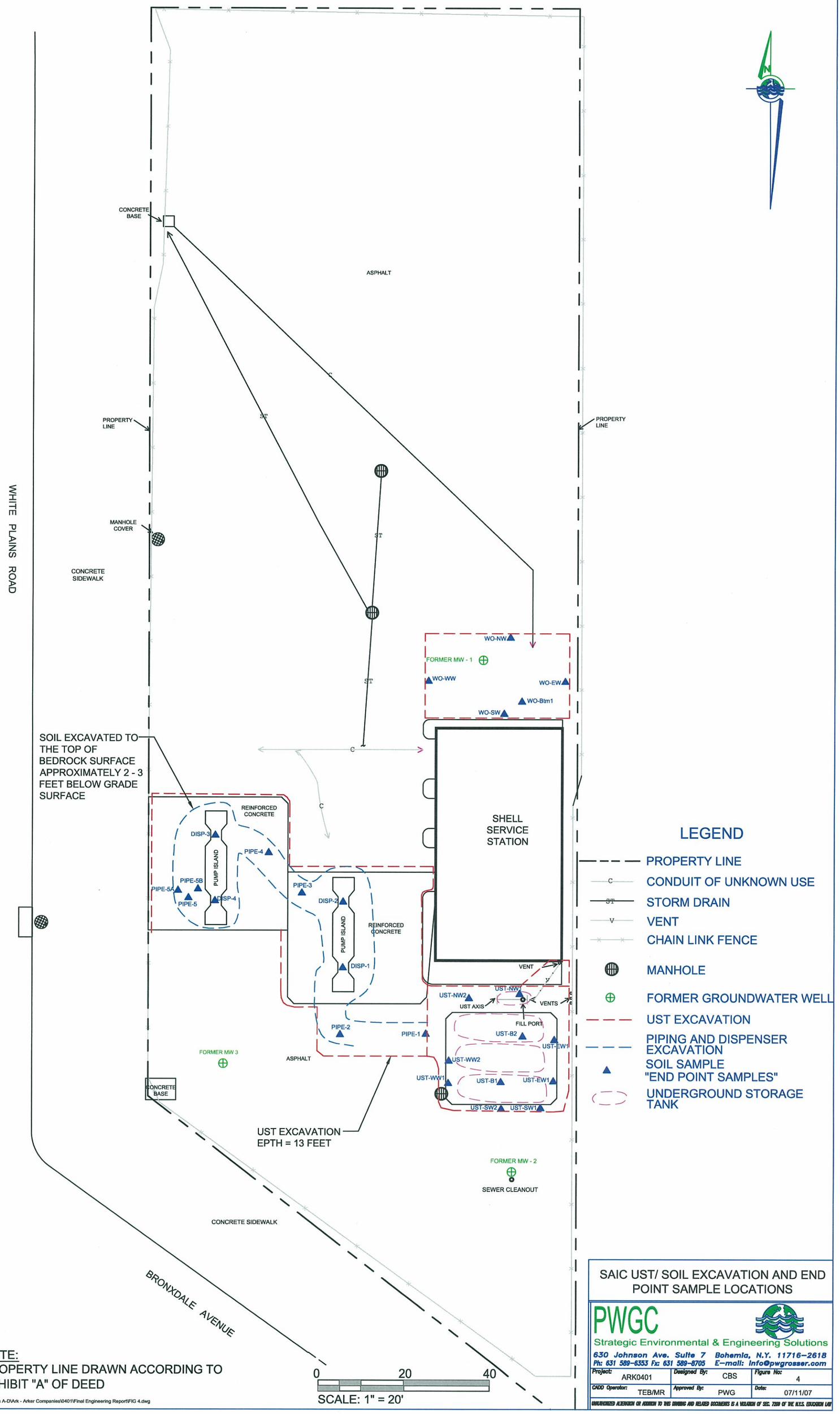


GROUNDWATER ELEVATION APRIL 28, 2005

PWGC
Strategic Environmental & Engineering Solutions
630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
Ph: 631 589-6353 Fx: 631 589-8705 E-mail: info@pwgrosser.com

Project:	Designed By:	Figure No:
ARK0401	CBS	3
CADD Operator:	Approved By:	Date:
TEB/MR	PWG	07/11/07

J:\Projects A-D\Ark - Arker Companies\0401\Final Engineering Report\CAD\FIG3.dwg



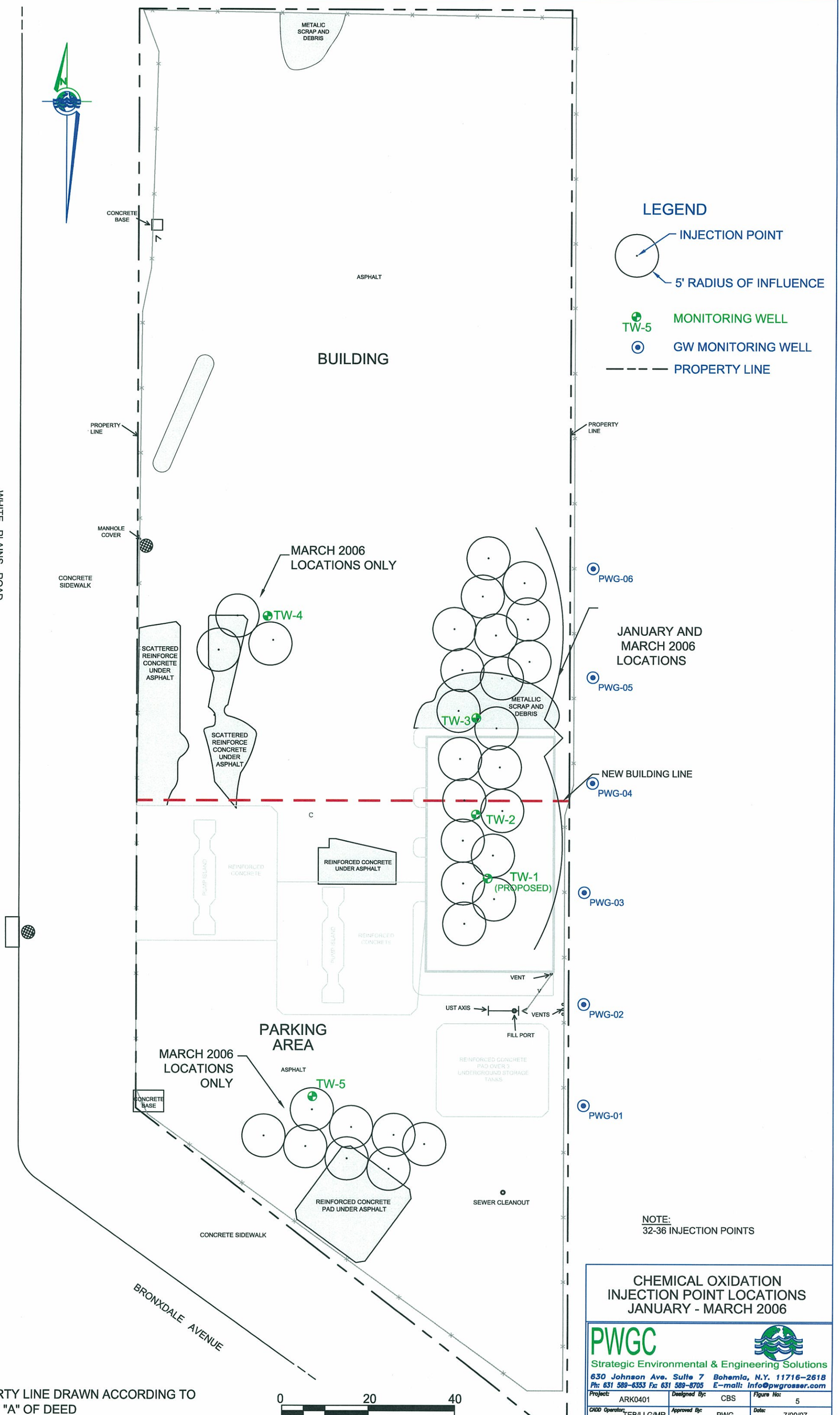
NOTE:
PROPERTY LINE DRAWN ACCORDING TO EXHIBIT "A" OF DEED

J:\Projects A-D\Ark - Arker Companies\0401\Final Engineering Report\FIG 4.dwg

SAIC UST/ SOIL EXCAVATION AND END POINT SAMPLE LOCATIONS

PWGC
Strategic Environmental & Engineering Solutions
630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
Ph: 631 589-6353 Fx: 631 589-8705 E-mail: Info@pwgrosser.com

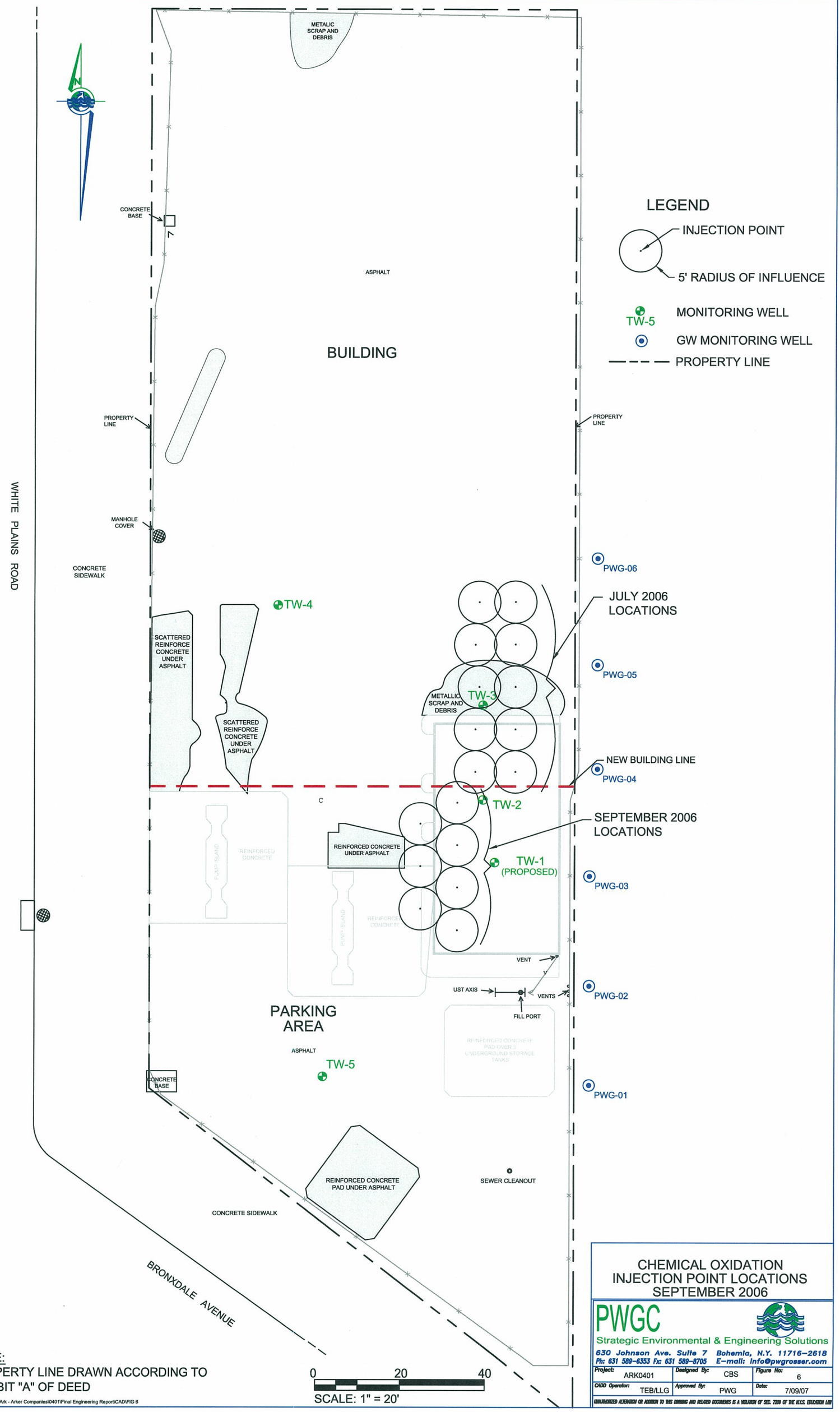
Project:	ARK0401	Designed By:	CBS	Figure No:	4
CADD Operator:	TEB/MR	Approved By:	PWG	Date:	07/11/07



CHEMICAL OXIDATION INJECTION POINT LOCATIONS JANUARY - MARCH 2006

PWGC
Strategic Environmental & Engineering Solutions
630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
Ph: 631 589-6353 Fx: 631 589-8705 E-mail: info@pwgrosser.com

Project:	Designed By:	Figure No:
ARK0401	CBS	5
CADD Operator: TEB/LLG/MR	Approved By: PWG	Date: 7/09/07



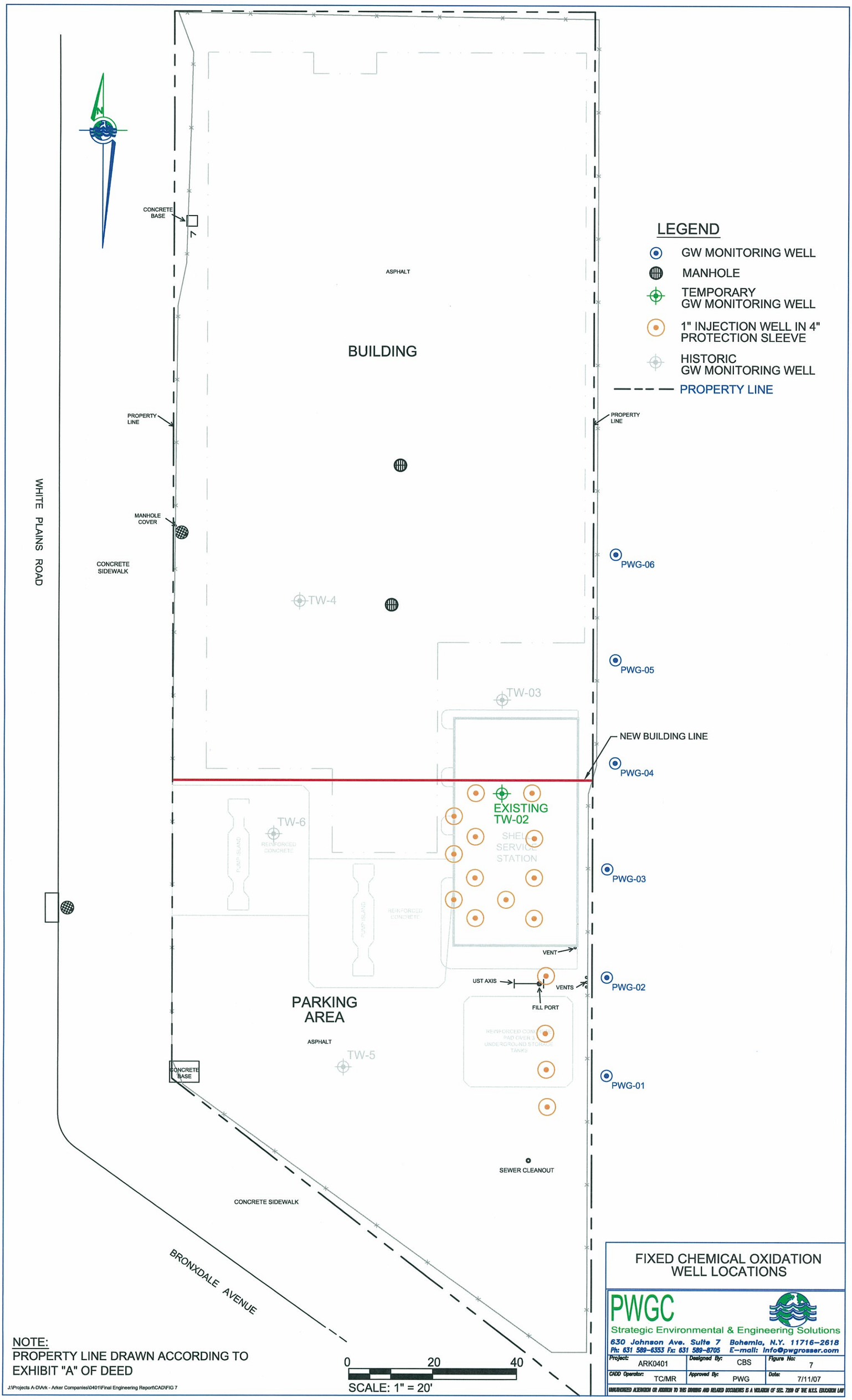
NOTE:
PROPERTY LINE DRAWN ACCORDING TO EXHIBIT "A" OF DEED

J:\Projects A-D\Ark - Arker Companies\0401\Final Engineering Report\CAD\FIG 6

CHEMICAL OXIDATION INJECTION POINT LOCATIONS SEPTEMBER 2006

PWGC
Strategic Environmental & Engineering Solutions
630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
Ph: 631 589-6353 Fx: 631 589-8705 E-mail: info@pwgrosser.com

Project:	ARK0401	Designed By:	CBS	Figure No:	6
CADD Operator:	TEB/LLG	Approved By:	PWG	Date:	7/09/07



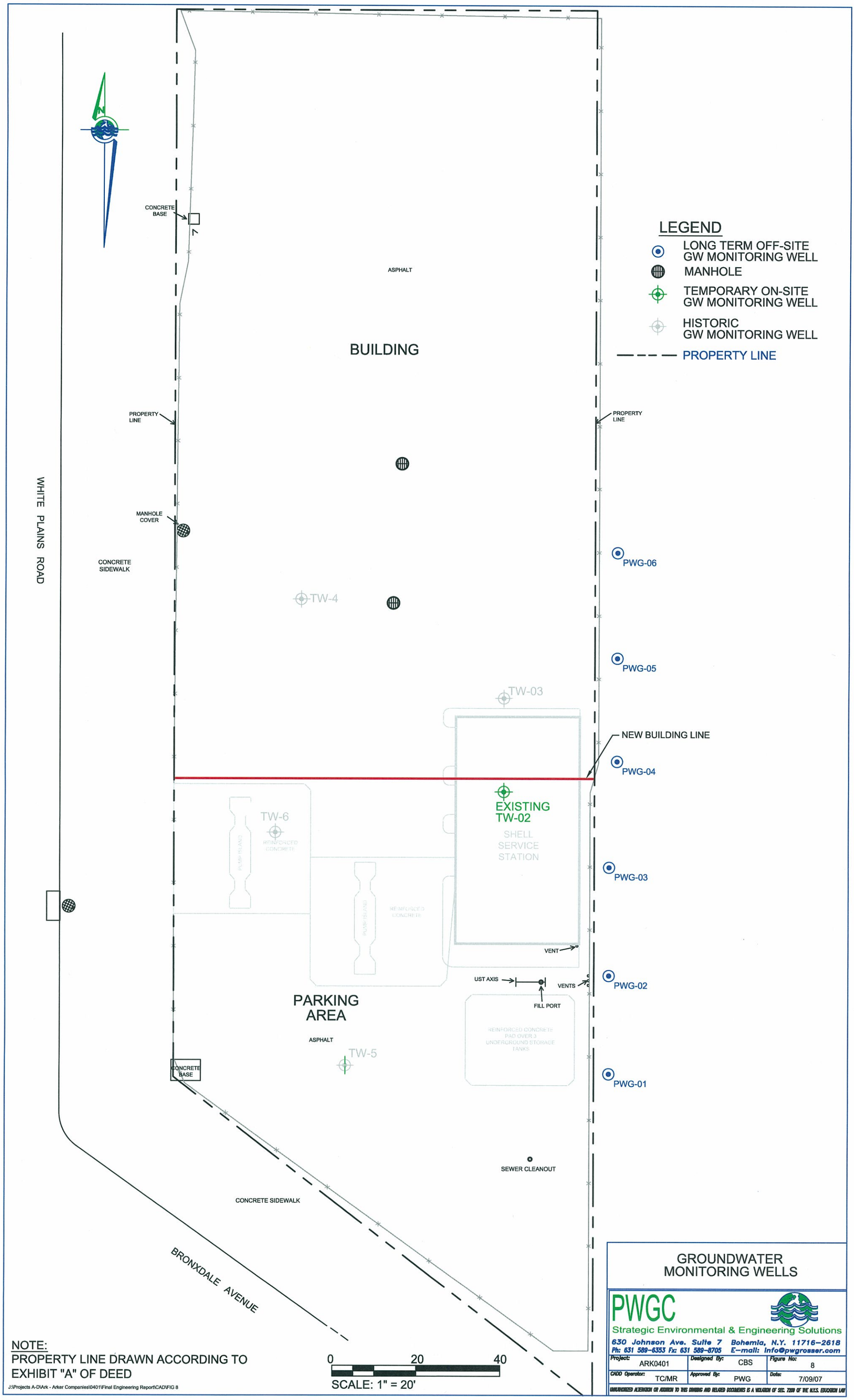
NOTE:
PROPERTY LINE DRAWN ACCORDING TO EXHIBIT "A" OF DEED

J:\Projects A-D\Ark - Arker Companies\0401\Final Engineering Report\CAD\FIG 7

FIXED CHEMICAL OXIDATION WELL LOCATIONS

PWGC
Strategic Environmental & Engineering Solutions
630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716–2618
Ph: 631 589–6353 Fx: 631 589–6705 E–mail: Info@pwgrosser.com

Project:	Designed By:	Figure No:
ARK0401	CBS	7
CADD Operator: TC/MR	Approved By: PWG	Date: 7/11/07



NOTE:
PROPERTY LINE DRAWN ACCORDING TO EXHIBIT "A" OF DEED

J:\Projects A-D\Ark - Arker Companies\0401\Final Engineering Report\CAD\FIG 8

GROUNDWATER MONITORING WELLS

PWGC
Strategic Environmental & Engineering Solutions
630 Johnson Ave. Suite 7 Bohemia, N.Y. 11716-2618
Ph: 631 589-6353 Fx: 631 589-8705 E-mail: info@pwgrosser.com

Project:	Designed By:	Figure No:
ARK0401	CBS	8
CADD Operator: TC/MR	Approved By: PWG	Date: 7/09/07

APPENDIX A

EXHIBIT "A"

TRACT # 3
WIC # 231-0981-1903
TAX PARCEL # 10-15-4284-5

All that certain tract or parcel of land situated in the city of Bronx, county of BRONX, state of NEW YORK, with a physical address of 2040 White Plains Rd, and more particularly described as follows:

BEGINNING at the corner formed by the intersection of the southerly side of Brady Avenue with the easterly side of White Plains Road, as said streets are legally opened; running thence easterly along the southerly side of Brady Avenue, 100 feet; thence southerly and parallel with the easterly side of White Plains Road, 331.20 feet to the northerly side of Bronxdale Avenue, as legally opened; thence northwesterly along the northerly side of Bronxdale Avenue 127.01 feet to the easterly side of White Plains Road; and thence northerly along the easterly side of White Plains Road, 252.91 feet to the point or place of BEGINNING.

APPENDIX B

Semi-Annual Inspection Checklist

WHITE PLAINS COURTYARD APARTMENTS

2040 WHITE PLAINS ROAD

BRONX, NEW YORK

NYSDEC BCP Number: C203031

Date/time: _____

Inspector (name/organization): _____

Detail the condition of the first floor concrete slab, make note of any significant penetrations through the concrete slab: _____

_____

_____

_____

Detail the condition of sub-slab depressurization system, including, above grade piping, three blowers, and three pressure alarms: _____

_____

_____

_____

Are any repairs and/or maintenance needed at this time? If so, conduct another inspection following repairs.

_____

_____

_____

_____

Name Signature Date

APPENDIX C

Monitoring wells will be installed using hollow-stem auger drilling methods. Monitoring wells will be constructed of two or four-inch diameter, schedule 40 PVC casing and 0.020 inch slot PVC well screen. The wells will be constructed with 10 feet of screen and riser to grade unless precluded by hydrogeologic conditions. The screen will be set with three to five feet in the water table. A gravel pack of No. 2 Morie sand will be placed in the annulus around the screen, up to five feet above the top of the screen. A two-foot sand layer will be installed above the gravel pack followed by a two-foot bentonite seal. Above the bentonite layer, the annulus around the well will be filled with a cement/bentonite grout to four feet below grade. The wells will be set flush to grade with a protective locking manhole and the riser fitted with a water tight cap.

Monitoring wells will be developed by over-pumping and/or surging to restore the hydraulic properties of the aquifer. The development of each well will continue until the turbidity is less than or equal to 50 Nephelometric Turbidity Units (NTUs), and when pH, temperature, and conductivity measurements stabilize. Stabilization is considered achieved when three consecutive readings within five percent of each other are collected. Portable field instruments will be used to collect measurements. If turbidity cannot be reduced to 50 NTUs, but all other

parameters stabilize, the well will be considered developed. Any well containing floating product, will not be developed.

The new monitoring wells will be surveyed so that groundwater elevations can be calculated. Surveying will be performed to a known elevation at the site. Water level measurements will be obtained and converted into groundwater elevation data to construct groundwater contour maps and determine flow direction. Well casing elevations will be reported to 0.01 foot accuracy and will be reported relative to Mean Sea Level (MSL). The measuring point on the well casing will be marked.

3.1.2 Groundwater Sampling

The depth to bottom and depth to water measurements will be collected at each monitoring well. Water level measurements will be obtained with an electronic water level probe relative to the marked measuring point. Measurements will be recorded in a dedicated bound project field notebook along with the time collected. Measuring equipment will be decontaminated between wells using a laboratory-grade detergent and water solution and tap water rinse.

If floating product is detected during the collection of water level measurements, product thickness will be measured with an interface

probe. A groundwater sample will not be collected from any well containing floating product.

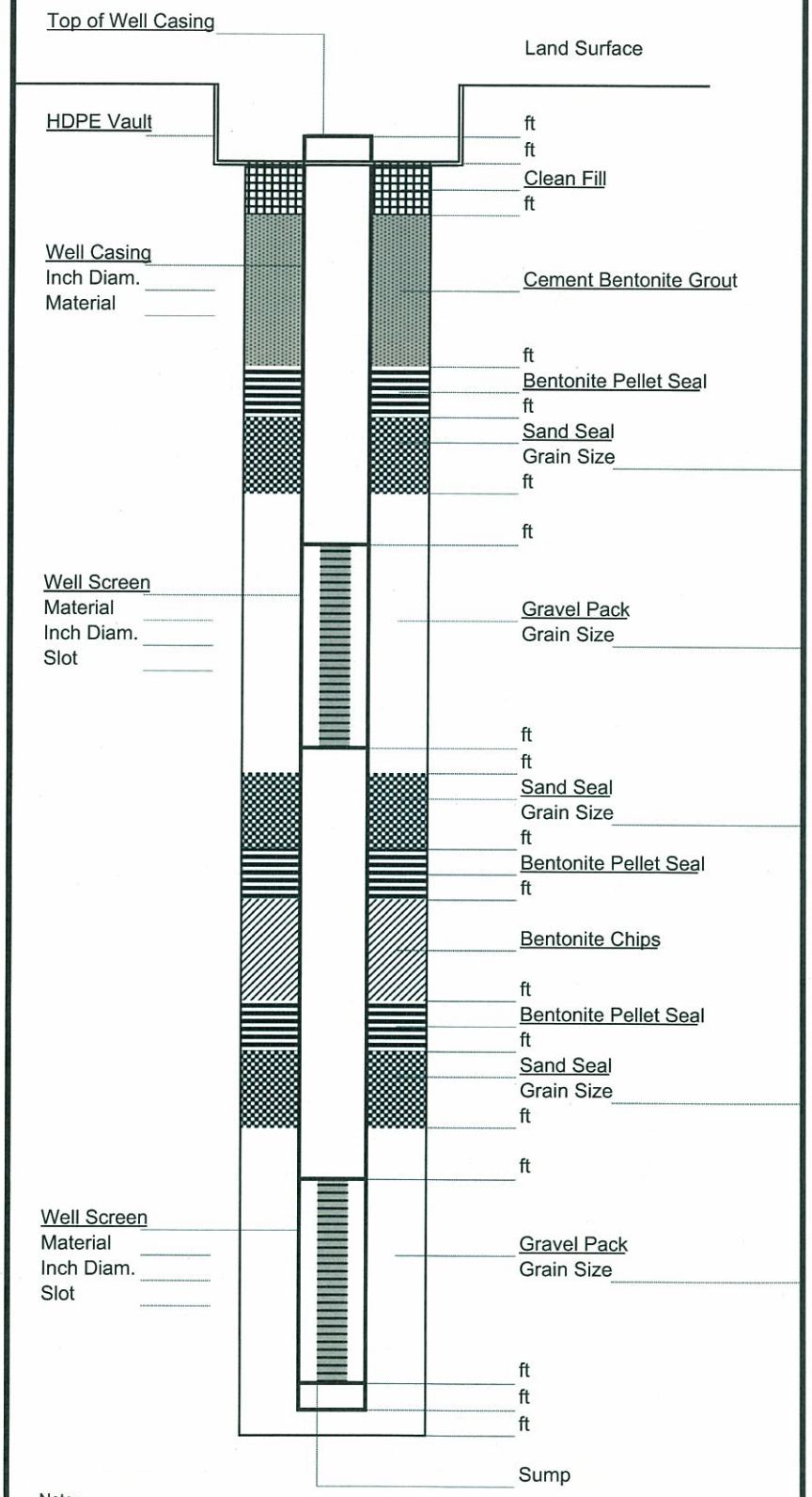
Water level and depth to bottom measurements will be used to calculate the purge volume for each well. Three to five casing well volumes will be removed from each well prior to the collection of samples. The wells will be purged by using a submersible pump or dedicated disposable high-density polyethylene bailer.

Field readings will be collected for pH, temperature and conductivity, initially and for each well volume. Field readings will be collected and recorded from the purge water for pH conductivity and temperature. The wells will be purged by use of a submersible pump at a flow rate not to exceed five gallons per minute (gpm). Non-disposable equipment will be properly decontaminated.

The groundwater sample will be collected with a dedicated, disposable high-density polyethylene bailer suspended by a polypropylene cord. The samples will be poured directly from the bailer into laboratory-supplied containers. The samples will be submitted to a New York State Department of Health Services (NYSDOH) approved analytical laboratory for analysis as previously specified.

GROUNDWATER REMEDIATION WELL

CONSTRUCTION LOG



Note:
All Depths in Feet
Below or Above
Land Surface

Well No. _____

NYSDEC Permit No. _____

Project _____

Surveyor _____

Land Surface Elevation _____

Measuring Point Elevation _____

BNL Northing _____

BNL Easting _____

Installation Date _____

Drilling Contractor _____

Drilling Method _____

Drilling Fluid _____

Development Technique (s) and Date (s) _____

Fluid Loss During Drilling _____ Gallons

Water Removed During Development _____

Static Depth to Water _____

Pumping Depth to Water _____

Pumping Duration _____

Yield _____ GPM _____ Date

Specific Capacity _____ GPM/Ft

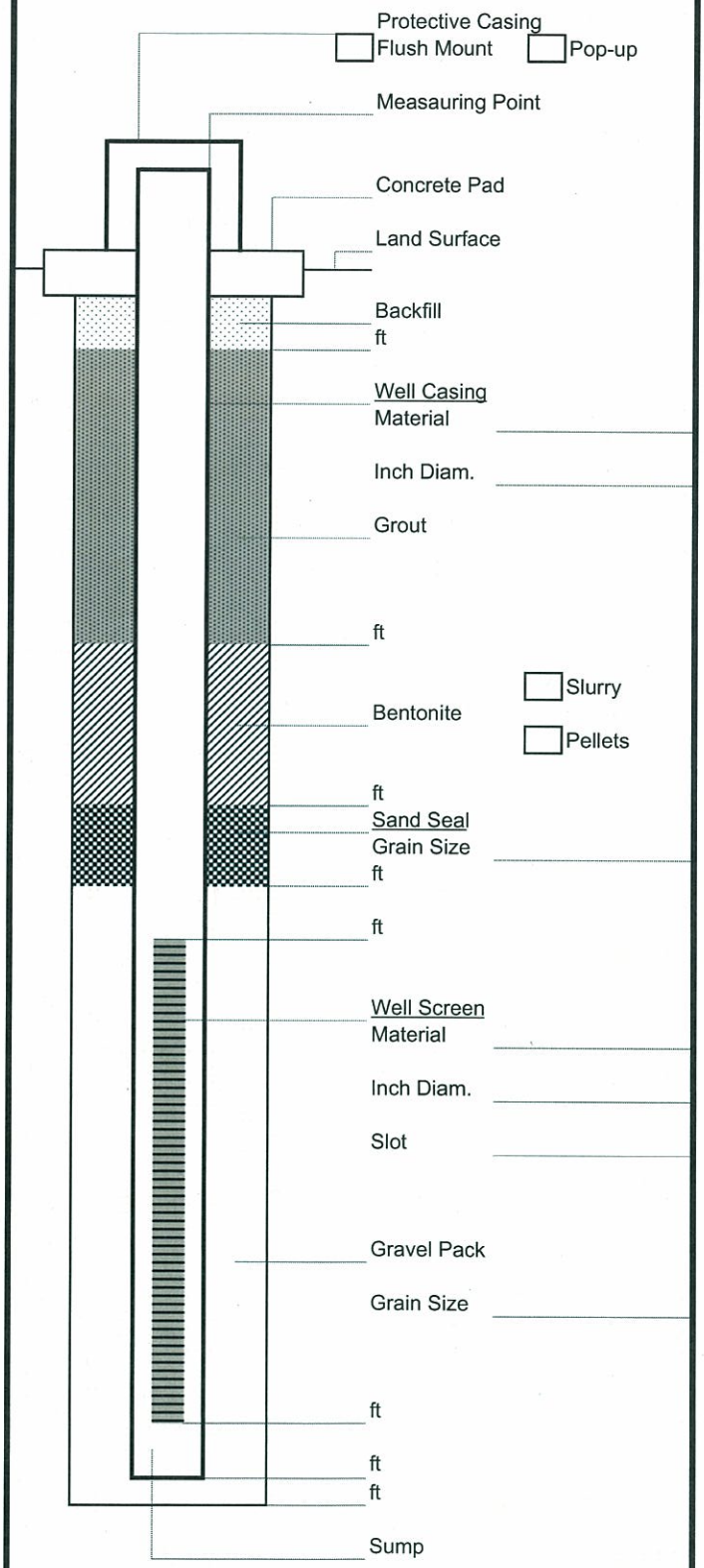
Well Purpose _____

Hydrogeologist _____

Company Name _____

GROUNDWATER MONITORING WELL

CONSTRUCTION LOG



Note: Drawing is not to scale.
Depths are given in feet below land surface.

Well No. _____

NYSDEC Permit No. _____

Project _____

Surveyor _____

Land Surface Elevation _____

Measuring Point Elevation _____

BNL Northing _____

BNL Easting _____

Installation Date _____

Drilling Contractor _____

Drilling Method _____

Drilling Fluid _____

Development Technique (s) and Date (s) _____

Fluid Loss During Drilling _____ Gallons

Water Removed During Development _____

Static Depth to Water _____

Pumping Depth to Water _____

Pumping Duration _____

Yield _____ GPM DATE

Specific Capacity _____ GPM/Ft

Well Purpose _____

Hydrogeologist _____

Company Name _____

Notes _____

APPENDIX D

GROUNDWATER PURGING/SAMPLING SHEET

Project No. _____ Client Study/Protocol No.: _____

Sampling Event: _____ Field Reps. (Initials): _____

Date: _____ Well Number/ID: _____

PURGING INFORMATION

DTW (Depth to Water): _____ FT

BTW (Depth to bottom from measuring point): _____ FT

CF (Conversion factor: 2" well=0.163; 4" well=0.653): _____ GAL/FT

WVOL (Water Volume = [BTW-DTW]*CF): _____ GAL

Pumping Rate: _____ GPM

RECORDINGS

Purge Start Time: _____ Purge End Time: _____

Actual Vol. Purged: _____gal Did well go dry? Y N

	Purge Vol. (bail #/pump time)	pH (std units)	Conductivity (u/cm)	Tempurature (°C)
Initial				
Midway				
Final				
Sample				

Sample Collection Time: _____ Sample Vol.: _____

Replicate (1)/Sample No.: _____ Sample Vol.: _____

Replicate (2)/Sample No.: _____

Comments:

Recorded by:_____ Date:_____