REMEDIAL INVESTIGATION REPORT
FORMER CHARLTON CLEANERS FACILITY
FOREST AVENUE SHOPPERS TOWN
BOROUGH OF STATEN ISLAND
CITY OF NEW YORK
NYSDEC VCP SITE NO. V-00252-2,
INDEX NO. W3-0891-01-06

Prepared For:

KIOP Forest Avenue, LP

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EXECUTIVE SUMMARY

The location formerly occupied by Charlton Cleaners (a retail dry-cleaning facility) in the Forest Avenue Shoppers Town (FAST), Staten Island, New York (the "Site") has been the subject of several environmental investigations. These investigations have revealed the presence of chlorinated solvents in soil and groundwater beneath the Site and indoor air within one Site building, the origins of which are presumed to be releases from the former Charlton Cleaners and offsite Paul Miller Cleaners. The Site has been entered into the New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Program (VCP) and both the Charlton and Paul Miller sites are listed as Class 2 Inactive Hazardous Waste sites on the New York State Registry.

The former Charlton Cleaners facility occupied a 2,000 ft^2 (square foot) space in the northeast corner of the 17,500 ft^2 Michaels building from approximately 1966 to approximately 1989. The Michaels building is located on the east side of the FAST, a shopping center comprised of approximately 25 retail businesses in 5 separate buildings. The FAST is surrounded by commercial retail properties to the west, south and east and residential properties (single family homes) to the north.

Geologic formations beneath the Site consist of fine sand and silt and cobbles from grade to approximately 15 ft bg (feet below grade) at which point a zone of difficult drilling is encountered and interpreted to be a cobble zone. Beneath this zone exists fine to coarse sand with silt and gravel extending to at least 95 feet deep onsite and 130 feet deep offsite. Neither distinct unconsolidated confining layers nor bedrock were encountered in any investigation soil borings. Groundwater depth averages approximately 6 ft bg and flows beneath the Site toward the north and northeast.

The primary contaminants detected at the Site are tetrachloroethene and its breakdown compounds. Groundwater containing dissolved contaminants exceeding the applicable guidance criteria extends from the southwest corner of the FAST near the former Paul Miller Cleaners site to the east property boundary and beneath the adjacent commercial property, a distance of approximately 975 feet. The groundwater contaminants attenuate to levels below guidance criteria at approximately 90 feet depth onsite and between 50 and 100 feet offsite. The lateral limit of dissolved contaminants is less at depth compared to shallow groundwater.

Soil containing contaminants exceeding applicable guidance criteria are limited to the areas beneath the Michaels building and beneath the drive immediately north of the building. Although these samples were collected from near or below the water table, comparison of the analysis of soil and groundwater samples from the same locations appears to indicate that the reported concentrations are indicative of sorbed phase contamination (see Section 6.2.2).

Contaminants have volatilized from soil and groundwater and have entered the vapor phase in soil. Sub-slab vapor beneath the Michaels and T-Mobile buildings contains the primary Site contaminants although no compound-specific guidance criteria exist for soil vapor. Analysis of indoor air samples indicates that the Michaels building contains impacted air but the T-Mobile building does not. Air in the Michaels basement exceeds New York State Department of Health (NYSDOH) guidance criteria for tetrachloroethene and trichloroethene. Air in the Michaels retail space has not exceeded criteria during the monitoring period. Comparison of the indoor air and sub-slab vapor concentrations for 7 individual compounds using the NYSDOH decision matrices concluded that mitigation was recommended in the Michaels building and no further action was recommended in the T-Mobile building. An investigation of soil-vapor quality beneath the residential area north of the Site (Cornell Street) has indicated that while there were several volatile compounds identified in the samples, the only significant detection of a Site contaminant was in one soil vapor sample collected on Barrett Avenue, 70 feet from the nearest home.

The exposure assessment concluded that potential onsite human receptors include employees and patrons of businesses where vapor intrusion may have occurred and construction workers performing ground-intrusive activities. The only completed exposure pathway to have been documented is for employees and patrons of the Michaels store. Offsite potential recep-

tors include employees and patrons of businesses in the shopping mall east of the Site (based on groundwater quality distribution), residents on the south end of Cornell Street and construction workers performing ground-intrusive activities.

The Remedial Investigations performed to date have accomplished the investigative goals including: delineating the nature and extent of contamination in Site environmental media, characterizing the surface and subsurface including geology and hydrogeology, identifying contaminant sources, pathways and fate and evaluated the potential threat to public health. Based on the findings, the Site investigative phase is complete and the Site is eligible to enter the remedial selection/design/action phases.

1.0 INTRODUCTION

The following Remedial Investigation Report (RIR) was completed on behalf of KIOP Forest Avenue, L.P. (KFA) by Leggette, Brashears & Graham, Inc. (LBG) in accordance with the New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH) requirements. This RIR is the culmination of multiple investigative and interim remedial efforts which have been performed both on the Site and offsite since 2000. Each phase of investigation and remediation (interim) have been presented to the Department with associated work plans. The work plans were approved either as a whole or in parts, and the results of the investigations have been submitted to the Department at the conclusion of each phase.

This RIR will summarize environmental investigation activities performed on and near the Site including environmental remedial sampling (soil, groundwater, soil vapor, indoor air, etc.), monitoring well installation, soil boring, soil excavation, and Interim Remedial Measures (IRMs). This RIR will indicate that the Volunteer has met its obligations for Site characterization and the delineation of contaminants to a degree sufficient to move the Site forward into a remedy selection phase including a Feasibility Study (FS) and Remedial Action Work Plan (RAWP).

KFA is an innocent owner volunteer which entered into the NYSDEC Voluntary Cleanup Program (VCP) on February 20, 2002. The former Charlton Cleaners (the "Site") was an approximately 2,000 square foot portion of the Rock-Landau Building in the Forest

Avenue Shoppers Town (FAST) shopping center and present location of the Michaels craft store. The Site is assigned VCP Site No. V-00252-2, Index No. W3-0891-01-06. In 1997 the Site was listed in the New York State Registry of Inactive Hazardous Waste Disposal Sites as a Class "2" Site, Registry Site Code 243019.

The goals of the Remedial Investigation include but are not limited to:

- delineation of the aerial and vertical extent of the contamination in all Site media and determination of the nature of same;
- characterization of the surface and subsurface of the Site, including topography, surface drainage, stratigraphy and depth to groundwater;
- identification of the sources of contamination, the migration pathways and actual or potential receptors of contaminants;
- evaluation of the actual or potential threats to public health and the environment; and,
- production of data of sufficient quantity and quality to support the necessity for, and extent of remediation and to support the evaluation of proposed alternatives.

2.0 SITE DESCRIPTION

The FAST is a shopping center comprised of approximately 25 retail businesses in 5 separate buildings. The FAST is located at 40 deg 37' 30" north latitude and 74 deg 8' 13" west longitude and is identified on the County of Richmond Tax Map as Section 5 Block 1053 Lots 130, 133, 138, 166, 176, 179, 189 and 200. Figure 1 shows the FAST location on a portion of the "Arthur Kills" United States Geological Survey (USGS) 7.5-minute topographic quadrangle. The FAST building plan is shown on the figure 2 Site Area Map. The FAST shopping center is located between Forest Avenue to the south, Barrett Avenue to the northeast and Decker Avenue to the northwest. The Site lies at an elevation of approximately 30 feet above mean sea level and is relatively flat. Site and surrounding topography slopes very gradually downward toward the north and northeast (figure 1).

The former Charlton Cleaners facility, a dry-cleaning business, was located in what was historically known as the Rock-Landau Building, situated in the southeast corner of the

FAST and having an address of 24 Barrett Avenue. The former Charlton Cleaners lease space occupied approximately 2,000 square feet of the approximately 17,500 square foot Rock-Landau Building. The Rock-Landau Building was a multi-tenant retail space until the redevelopment and occupation by a single tenant. The date of this redevelopment is unknown. The Michaels craft store occupied the building in approximately 1995. For the sake of consistency with prior reports, the Rock-Landau Building will be referred to as the Michaels building in this document.

The 17,500 square foot Michaels building is primarily constructed as a slab on grade but has a 4,150 square foot basement beneath its eastern portion, parallel to Barrett Avenue (figure 3). Records indicate that the former Charlton Cleaners leasehold space was above the north end of this basement. Access to the basement from within the building is via a stairwell in the southeast corner of the building and from outside via a stairwell at the north end. The basement is primarily one large open space used for storage of retail stock for the Michaels store. Two small equipment rooms and the exterior stairwell are separated from the main basement by a block masonry fire wall and steel fire door. The eastern equipment room contains electrical panels, gas and water valves and meters and a large sump pit in the floor. The western equipment room contains several wall-mounted electrical panels.

The FAST is used for retail and commercial business and its "Contemplated Use" as described in the VCP agreement is: "Restricted Commercial; excluding day care, child care and medical care uses". The Site is almost entirely either paved with asphalt or overlain by one and two story buildings. The buildings are either constructed as slab-on-grade or are underlain by partial or full sub-grade basements.

2.1 Site History

Based on Sanborn Map review, prior to the development of the FAST property as a shopping mall in 1951, the property was a golf range. After Site development, the location of the former Charlton Cleaners was the northeast corner of the Rock-Landau Building which was once a multi-tenant building but is now occupied by one tenant (Michaels craft store). The Charlton Cleaners facility operated at the FAST from approximately 1966 to approximately 1989.

The county clerk's office maintains files pertaining to property deeds, historical records and property ownership information (property titles). An attempt was made to determine if other dry cleaner facilities operated on the Site from 1951 to 1966; the earliest property transfer identified was in 1968. A summary of the property transfers is listed below:

Grantor	Grantee	Date
Jack F. Fielding F/K/A Jack Finkelstein	A B Madison Avenue Corp.	April 5, 1968
Frederick W. Peterson	A B Madison Avenue Corp.	July 29, 1970
A.B. Madison Avenue Corp.	Forest Avenue Shopping Assoc.	November 23, 1983
Forest Ave. Shopping Assoc.	Philips Forest Associates, LP	January 27, 1988
Philips Forest Associates, LP	KIOP Forest Avenue, LP	February 21, 2001

After a thorough review of the Richmond County Clerk files, no property transfers before 1968 were found. Additionally, collateral assignments of leases and rents were reviewed to determine if dry cleaners were operating on the Site. Of all the documents reviewed, the only reference to a dry cleaners on the Site was a 1986 Rent Roll listing Charlton Cleaners leasing an area of 2,040 square feet. No additional information was available.

To develop a more complete historical profile of the Site, LBG requested a search of fire insurance maps from Environmental Data Resources (EDR), Inc. of Milford, Connecticut Sanborn map database. There is coverage for the Site spanning from 1917 to 1966 (Appendix I on the attached CD). From 1917 to 1950 the FAST is mostly undeveloped with residential dwellings on the southeast and northwest ends. On the 1917, 1937 and 1950 Sanborn maps a surface water stream referred to as Palmer's Run crosses the future FAST property from south to northeast and continues to the east of Barrett Avenue. The 1917 map also shows a small tributary to the Palmer's Run which joins the main stream just west of the location for the future Michaels building. By the 1962 map, the shopping mall has been constructed and the Palmer's Run is no longer evident. The NYC Sewer Department plans indicate that the stream has been "channelized" by redirecting it through a 9 foot by 5 foot concrete culvert beneath the ground. The property may have been subject to the importation of artificial fill in

order to elevate the grade surface at about the same time that the Palmer's Run was routed into a subsurface culvert.

By 1937 the residential development to the north increased considerably. The 1962 Sanborn shows a dry cleaner in the northeast corner of what is currently the Michaels building. The 1962 map also shows the Staten Island Plaza Shopping Center. Within the Shopping Center there is a Dry Cleaning and Pressing Company to the west-southwest of the Former Charlton Cleaners location (at the location of the former Paul Miller Cleaners) and a paint store on the north-northwestern portion of the main shopping plaza. By 1977, the dry cleaner in the Former Charlton Cleaners location is no longer listed and the Site is just identified as commercial space. The Dry Cleaning and Pressing Company (Paul Miller) to the west-southwest of the Former Charlton Cleaners location remains on the map. The name of the Shopping Center has changed to the FAST. From 1977 to 1996, no significant change is evident from the Sanborn maps.

There is a current FAST tenant named Charlton Cleaners which occupies a lease space in the building north of the Michaels building. Based on an interview, the current Charlton Cleaners owners have no relation to the historic Charlton Cleaners. The current Charlton Cleaners reportedly does not use chlorinated solvents in their onsite operation but rather a "wet cleaning" technology.

2.2 Site Interviews

Several people were interviewed in an attempt to compile a more complete history of the Site. On April 15, 2005, the operator of the current Charlton Cleaners was interviewed about the Site. He stated that he was not familiar with the Site prior to his role in operating the new location. He then provided LBG with a contact number for the operator/owner of the former Charlton Cleaners, Mr. John Lee. The person who answered at this number stated that Mr. John Lee was not available. All subsequent attempts had the same result.

Mr. Jack Scalici and Mr. Stewart Waldman, two adjacent property owners arrived on-site in 2005 to observe drilling operations. They provided information of the Site history and stated that the Former Charlton Cleaners was owned and operated by Mr. Ted Spiro and Mr. Finkelstein. In approximately 1970, the ownership changed to Mr. Marautzi. This in-

formation correlates well with the property transfer information obtained at the county clerk's office. This information also correlates with past site use and occupancy, however the city directory indicates that this facility operated until at least 1995.

In 2005, the manager of the Michaels store provided LBG with a list of any potentially hazardous materials stored in the basement of the Michaels store. This list included three (3) six-pack cases of 3-ounce canned spray paint and two (2) six-pack cases of 11-ounce canned spray paint. No additional potentially hazardous materials are stored in the basement area. It should be noted however that the Michaels business sells a variety of products including paints, markers, glues, artificial plants and flowers, rubber and plastic items. Many of these items have the potential to off-gas volatile compounds into the building air. These compounds may be a component of the material (e.g., rubber or plastic) or part of the manufacturing process (e.g., mold release compound) and thus are not a listed ingredient.

2.3 Utilities

The Site is served by private and public sanitary and storm water sewers and a municipal potable water supply maintained by the New York City Department of Environmental Protection (NYCDEP). Electricity and natural gas is subsurface. On the eastern portion of the FAST, the subsurface utilities enter and exit the Site from Barrett Avenue. A 12-inch sanitary sewer exists under the drive between Michaels and the T-Mobile building. It flows west to east then south under the west side of Barrett Avenue to the junction with a larger trunk line beneath Forest Avenue. The sanitary sewer appears to service the Michaels building and possibly the T-Mobile building as well. It is identified as being a "private sewer" on the NYC sewer plans for the area.

The former Palmer's Run streambed, described in the "Site History" section above, exists now as a subsurface concrete box-section culvert running west to east across the Site and exits the Site between the T-Mobile building and the Site building to the north. It is believed that Site surface water catch basins discharge into this culvert.

A utility location map showing the locations and recognized flow directions of identified utilities and the former stream bed for Palmer's Run is shown on figure 4. No detailed

historic utility plans for the Michaels building or the FAST were found during the file review. There is no record of any dry wells or septic systems at the Site.

Due to the high water table, the Michaels building basement contains 3 sump pits. Two are located at the north end of the basement and one at the south end. Each is between 2 and 4 feet deep and contains an automatic pump. The discharge water is pumped to the building sanitary line which is presumed to flow to the sanitary sewer between the Michaels and T-Mobile buildings.

2.4 Surrounding Properties

The parcels surrounding the FAST to a radius of 1,000 feet are a mixture of commercial properties and single-family residences. Along Forest Avenue to the south of the FAST are commercial parcels of a retail nature: strip malls, a real estate office, a dental office, delis, nail salon, etc. Farther to the south are single-family homes. To the west of the FAST along Decker Avenue are mostly single-family homes. A Hess gasoline filling station once stood at the current location of a Walgreens drug store, a parcel adjacent to the FAST. To the north, northwest and northeast of the FAST along Decker and Barrett Avenues and Cornell Street are single-family homes. To the east of the FAST and the Michaels building, across Barrett Avenue is another large shopping mall called the Pathmark Mall, a site walk of which revealed one active dry-cleaning facility. Other than the residences to the west, north and northeast of the FAST, there are no known sensitive receptors (schools, day care, hospitals, parks, nursing homes) within 1,000 feet of the Site.

To the southeast, the FAST does not extend all the way to the intersection of Forest and Barrett Avenues. There is a small strip mall called the North Fork Plaza on a parcel contiguous with the FAST parcel at this intersection. Immediately west of this strip mall is a liquor store, a Kentucky Fried Chicken restaurant, Boston Market restaurant and another bank.

The current location and building for the Boston Market restaurant (1465 Forest Avenue) is the former location of the Paul Miller dry cleaning facility. The Paul Miller facility has its own environmental issues and has an investigative history dating back as far as Charlton Cleaners. The Paul Miller parcel is on the New York State Registry of Inactive Hazardous Waste Disposal Sites as a Class "2" Site, Registry Site Code 243018. It has been the subject

of a recent subsurface investigation (summer 2009) conducted by the NYSDEC. The Paul Miller facility appears in the city directory from 1966 to 1995. The site of the former Paul Miller facility is approximately 325 feet southwest of the former Charlton Cleaners location. The city registry (Appendix II on the attached CD) also lists a Jennifer Dry Cleaners at 1458 Forest Avenue.

2.5 Surface Waters, Wells

Based on review of the USGS 7.5-minute topographic quadrangle, the nearest surface water body to the Site appears to be Brooks Pond, 0.8 miles to the east. The north shore of Staten Island and the Kill Van Kull strait, separating Staten Island from Bayonne, New Jersey, is approximately 1.1 miles north of the Site. The former course of the Palmer's Run stream (shown on the 1917-1950 Sanborn Maps) does not appear on current topographic maps or satellite images.

A review of the U. S. Fish and Wildlife Service National Wetlands Inventory Map indicates that there are no listed wetlands within one mile of the Site. Based on review of the EDR Geocheck report (Appendix III on the attached CD), there are no NYS or Federal public water supply wells within a 1-mile radius of the Site. There are 9 "wells" listed on the USGS database within a 1-mile radius of the Site (primarily to the northeast). Three of these 9 "wells" including the only one within 1/2-mile of the Site are listed as "test hole, not completed as a well". The remaining 6 "wells" are listed as "single well, other than collector or Ranney type". USGS wells are typically exploratory in nature and are not used for supply purposes after completion. The EDR report includes a search of the USGS National Water Inventory System, the EPA Public Water Systems database and the NYSDOH, New York Public Water Wells database.

3.0 INVESTIGATIVE HISTORY

The earliest available record of an environmental investigation at the Site is a 1994 report from Apex Environmental (Apex). The investigation included sampling and analysis of groundwater from 4 preexisting monitoring wells surrounding the Rock-Landau (Michaels)

building. The date or purpose for the installation of these wells is not discussed in any reports. The areas of the Apex investigation included:

- Carlton Cleaners (Charlton Cleaners) in the Rock-Landau Building;
- Paul Miller Cleaners bordering the FAST to the south;
- Hess Station bordering the FAST to the west;
- JC Penney Company, a tenant in the northwest portion of the FAST; and,
- McCrory Store, a tenant in the western portion of the FAST.

In February 1996, Foster Wheeler Environmental Corporation, working on behalf of Amerada Hess Corporation, conducted an investigation on the FAST property adjacent to the Hess site. LBG is not in possession of a report detailing the investigation results and directs the reader to the NYSDEC Case Manager for Spill No. 94-07152.

EEA, Inc. working on behalf of the owner of the Paul Miller facility, conducted an environmental investigation in August 1996. The investigation consisted of the drilling and installation of 5 groundwater monitor wells (2 on the Paul Miller site and 3 on the FAST). Groundwater from the 5 recently installed wells and 2 pre-existing Charlton Cleaners wells were sampled. EEA, Inc. did not collect laboratory soil samples during monitoring well installation.

In October 1996, Dvirka and Bartilucci (D&B), on behalf of the NYSDEC, conducted an environmental investigation of the former Carlton (Charlton) Cleaners facility. D&B collected 20 soil samples and 10 groundwater samples.

Between June and July 2000, Lawler, Matusky & Skelly (LMS), on behalf of the NYSDEC, conducted an investigation of the Paul Miller site. The investigation consisted of the drilling, installation and sampling of 7 piezometers on the Paul Miller site, and the sampling of 3 pre-existing monitor wells (one of which was on the FAST property).

The tabulated laboratory data and figures showing the sampling locations for these investigations are included in an LBG report entitled "Data Consolidation Report" submitted to the NYSDEC case manager on April 15, 2008 and included as Appendix IV on the attached CD.

LBG involvement with the Site began in the fall of 2000 with a subsurface investigation surrounding the Michaels building. This investigation including drilling 25 soil borings, and the installation and sampling of 8 groundwater monitoring wells. Results are discussed herein and in the LBG report entitled "Remedial Subsurface Investigation, Forest Avenue Shoppers Town, Former Charlton Cleaners Facility, Forest Avenue, Staten Island, New York" and submitted to the NYSDEC in March 2002.

Based on the 2000 results, LBG expanded the investigation in the spring of 2005 by installing an additional 23 monitoring wells in clusters of 4, screened at 4 different depth intervals: A-wells screened from 5-20 feet below grade (ft bg), B-wells 40 to 50 ft bg, C-wells 60 to 70 ft bg and D-wells 80-90 ft bg. Ground water was sampled from all new and pre-existing wells. Additional environmental media were sampled including soil vapor and outdoor air exterior to the Michaels building; soil, groundwater and vapor beneath the Michaels basement slab and indoor air within the Michaels building.

In 2006-2007 the first of two Interim Remedial Measures to reduce indoor air volatile organic compound (VOC) concentrations in the Michaels building was approved and completed at the Site and included: 1) the installation of a vapor barrier on the floor of the Michaels building basement; 2) the installation of lids with vapor seals on 3 basement sump pits; and, 3) the installation and pilot testing of horizontal vapor extraction wells north of the Michaels building.

In June 2007 a Remedial Action Selection Report was submitted to the NYSDEC in accordance with the VCP. During a January 2008 meeting, the Department indicated that additional investigative work was required including: 1) investigating the sub-slab vapor beneath the slab-on-grade portion of the Michaels building; 2) the soil vapor offsite and to the north of the Site (downgradient); 3) the groundwater offsite and to the north of the Site; and, 4) the groundwater south of the Michaels building between the former Charlton Cleaners and the former Paul Miller Cleaners locations. A Supplemental Remedial Investigation Work Plan was submitted in March 2008 and went through several phases of comment and revision before approval.

In July 2008, LBG supervised the installation of 20 wells in the parking lot south of the Michaels building. Based on the groundwater elevations the area was determined to be hy-

drologically upgradient of the former Charlton Cleaners and downgradient of the former Paul Miller cleaners. The groundwater contained dissolved chlorinated solvents which are believed to have migrated from the Paul Miller property.

In August 2008, 9 permanent sub-slab vapor sampling points were installed in the floor of the Michaels building. A vapor sample was collected from each boring for laboratory analysis. The results are summarized in the Winter 2008-2009 Air Quality Monitoring Report.

In May 2009, LBG investigated the soil vapor quality along Cornell Street (a residential neighborhood) to the north of the Site. Eight temporary soil vapor sample probes were installed and vapor was collected for laboratory analysis. Results were summarized in a July 2009 LBG letter report.

A second IRM was implemented in September 2009 and involved excavation of impacted soil from beneath the basement floor of the Michaels building, and ventilation of the basement sump pits. This was performed in order to remediate material suspected to be impacting groundwater quality as well as to improve Michaels building indoor air quality. Eleven tons of soil were removed from the vicinity of the large basement sump pit. The activities are summarized in the November 2009 Interim Remedial Measures Report.

Offsite downgradient monitoring well clusters were installed in a neighboring parking lot and residential street in July and August 2010. Their installation and sampling results are summarized later in this report. Figure 5 shows the locations of all Site monitoring wells.

Regular groundwater monitoring and sample analysis has been performed since the summer of 2006, first on a quarterly schedule then on a 9-month basis beginning in October 2008. Indoor air sampling within the Michaels building began in September 2005 and is now performed on a biannual schedule. All monitoring has been communicated in the form of Monitoring Reports submitted to the NYSDEC and NYSDOH, 1 to 2 months after sampling.

4.0 HYDROGEOLOGIC SETTING, WELL CONSTRUCTION

The topography of the site area is generally level and slopes slightly to the south-southeast. As determined through soil borings and excavations, the shallow sediments beneath the Site consist primarily of fine to medium sand with varying amounts of silt and gravel/cobble. At most drilling locations, a zone of difficult drilling, presumed to be a cobble

layer, was encountered at between 5 and 20 ft bg (feet below grade). There is little or no recovery in split-spoon samples from this zone and drilling refusal was met at several locations. Below this cobble zone sediments consist of a fine to coarse sand with trace silt and gravel. Although there is subtle variability in the dominant grain size with depth and between locations, no confining layers were identified in any of the borings during monitor well installation activities which extend to approximately 95 ft bg onsite and 130 ft bg offsite. No bedrock was encountered. Geologic logs are included in Appendix V on the attached CD. A conceptual geologic cross section is shown on figures 6 and 7.

The Site is monitored with a total of 36 individual 2-inch groundwater monitor wells and 4 upgradient cluster wells each comprised of 5 separate well points. Additionally, offsite downgradient groundwater is monitored with 5 multi-well clusters. The first Site wells were constructed as "water-table" monitor wells with the screened interval typically 10 to 15 feet in length and intersecting the water table. Beginning in 2000 and again in 2005 and 2008, wells with screened intervals below the water table were installed. The wells were grouped together in clusters of 2, 4 or 5 members so that at a particular Site location, groundwater quality may be evaluated at various depths below the water table. Wells in clusters are identified by the cluster number followed by a letter indicating the depth of the screened interval. For example, the MW-6 cluster consists of 4 wells (MW-6A, MW-6B, MW-6C and MW-6D). For monitor well clusters MW-2 and MW-5 through MW-13, the "A" designated wells are screened from 5 to 20 ft bg, while B, C and D wells are screened from 40 to 50, 60 to 70 and 80 to 90 ft bg, respectively. Monitor well clusters MW-14 through MW-17 were installed in the Michaels parking lot in the summer of 2008. Screened zones for these wells are: A, 4-14 ft bg; B, 20-30 ft bg; C, 40-50 ft bg; D, 60-70 ft bg and E, 80-90 ft bg. Monitoring well clusters MW-18 through MW-22 were installed offsite and downgradient in July/August 2010. Screened zones for these wells are: A, 4-14 ft bg; B, 30-40 ft bg; C, 60-70 ft bg; D, 90-100 ft bg and E, 120-130 ft bg. Monitoring well clusters MW-18 through MW-22 were installed offsite and downgradient in July-August 2010. The well screen depth for A wells is 4-14 ft bg; for B wells, 30-40 ft bg; C wells, 60-70 ft bg; D wells, 90-100 ft bg and E wells, 120-130 ft bg. Construction details for all Site wells are summarized on table 1. No light non-aqueous-phase liquid (LNAPL) or dense non-aqueous-phase liquid (DNAPL) has been measured in any of the Site's monitor wells.

Water-level measurements collected from monitor wells indicate the depth of the saturated zone averages approximately 6 ft bg but has been as deep as 9.5 ft bg and as shallow as 2.5 ft bg. Groundwater elevation contour maps calculated using the top of casing elevations indicate that the general groundwater flow direction beneath the Site is to the north and northeast. Groundwater elevation contour maps for April 2010 and August 2010 are shown on figures 8 and 9. Note that these maps contour the water table surface and as such depict the direction of groundwater flow in the shallow saturated zone. Groundwater flow at depth is evaluated by mapping the potentiometric surface elevation as determined by water-level measurements in wells screened below the water table. Figures 10, 11 and 12 depict the potentiometric surface contours for 40, 60 and 80 ft bg depths (April 2010). The groundwater flow directions at depth are north and northeast, correlating with the shallow flow direction. The water-table gradient shows some variability both across the Site and through time. Gradients varied between 0.001 ft/ft and 0.009 ft/ft through the 2006-2007 monitoring period. More recent measurements indicate a gradient ranging between 0.008 ft/ft and 0.02 ft/ft.

The vertical component to groundwater flow was evaluated and discussed in a letter report dated September 4, 2008 (Appendix VI on the attached CD). In it, groundwater elevation data was reviewed for 8 monitoring dates between 2006 and 2008. Elevations for individual members of a given well cluster (e.g., MW-6 cluster) were tabulated and compared. If a shallow screen well had a higher water elevation compared to a deep screen well, this was interpreted as an indication of downward groundwater flow. Conversely, if the shallow well contained water at a lower elevation than a deep well of the same cluster, this was interpreted as an indication of upward groundwater flow.

General conclusions of the report are as follows: on any given date, the Site exhibited both downward and upward flow components between well pairs. The overall average magnitudes for the various dates ranged between 0.08 foot and 0.22 foot. Also, flow between most well pairs did not remain consistent from one date to the next. More well pairs had a tendency toward upward flow than downward flow. Slightly more than half of all measurements between the A and B zones and the B and C zones exhibited an upward flow component. There was an approximately equal tendency for upward or downward flow between the C and

D zones. There does not appear to be a dominant or Site-wide downward flow gradient. Any vertical flow is much lower in magnitude compared to lateral (horizontal) flow.

The saturated zone is approximately at the elevation of the Michaels basement slab. This has been confirmed through leveling surveys, an excavation in the Michaels basement, measurement of the level of water in the basement sump pits and observations of vapor sampling points which penetrate the floor slab. Groundwater directly below the basement slab would prevent the effective operation of any sub-slab depressurization system.

5.0 STANDARDS, CRITERIA AND GUIDANCE

The criteria to which laboratory analytical results are to be compared are described in DER-10 Section 7.4. Applicable standards and criteria include the following:

- 6 NYCRR Part 375 – Inactive Hazardous Waste Disposal Sites
- 6 NYCRR Parts 700-706 – Water Quality Standards

Guidance documents applicable to site characterization and remedial investigations include:

- DER-10 – Technical Guidance for Site Investigation and Remediation (Final, May 3, 2010)
- Commissioner's Policy/Soil Cleanup Guidance (Draft, November 4, 2009)
- TAGM 4048 – Interim Remedial Measures – Procedures
- TOGS 1.1.1 – Ambient Water Quality Standards & Guidance Values and Groundwater Effluent Limitations
- NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York

Soil analysis results will be compared to Soil Cleanup Objectives (SCOs) described in 6 NYCRR Part 375-6.8(a) "Unrestricted Use" to establish a baseline for comparison purposes for contaminants that have not impacted groundwater, and to Part 375-6.8(b) "Protection of Groundwater" for those compounds which have been detected in groundwater as well as soil.

Both SCO criteria will be included in the tables summarizing soil quality. The criteria will be referred to in this report as "Part 375 SCOs".

Groundwater analysis results will be compared to 6 NYCRR Parts 703 Groundwater Quality Standards and Guidance Values (GWQS & GV) and Groundwater Effluent limitations as described in the Division of Water Technical and Operational Guidance Series 1.1.1, June 1998 (TOGS 1.1.1). This report will refer to these Standards and Guidance Values as "GWQS".

Indoor air analytical results will be compared to NYSDOH Indoor Air Guideline values. Actions will be evaluated using the NYSDOH Decision Matrices and comparison to background VOCs datasets.

6.0 NATURE AND EXTENT OF CONTAMINATION

The remedial investigations performed at the Site have been ongoing since 1984 with the involvement of LBG beginning in 2000. The Site characterization is the product of several rounds of subsurface investigation, several interim remedial measures, and periodic sampling and monitoring.

The Site investigations have revealed contamination in several environmental media. These media are groundwater, soil, soil vapor (including sub-slab vapor) and indoor air. The summary of detected contamination in this section will be organized by media type. A discussion of the exceedances of applicable Standards, Criteria and Guidance (SCGs) will follow the general summary. From this, the areas of concern (AOCs) of the Site for different media will be defined.

The primary types of contaminants found in various media at the Site are VOCs. Further, due to the nature of the chemicals used in the onsite dry cleaning facility (Charlton Cleaners) and the adjacent offsite facility (Paul Miller Cleaners), the majority of VOCs detected are chlorinated solvents or chlorinated volatile organic compounds (CVOCs). The primary contaminants of concern (COCs) in groundwater surrounding the Michaels building are tetrachloroethene (aka PCE, tetrachloroethylene, perchloroethene or perc) and its breakdown products trichloroethene (aka TCE or trichloroethylene), cis-1,2-dichloroethene (DCE) and vinyl chloride (VC).

Additionally, petroleum related VOCs have occasionally been detected in Site groundwater samples. At the north portion of the Site near the MW-10 well cluster, petroleum contamination in groundwater is thought to be related to a nearby 10,000-gallon fuel oil underground storage tank (UST) which supplies one of the FAST leasehold spaces. In other portions of the Site, the detections of minor petroleum constituents in groundwater is not attributable to a specific Site use but rather is possibly the result of undocumented surface spills from automobiles, etc. Finally, other contaminants including acetone, 4-isopropyltoluene and 2-butanone have been detected in the MW-1 groundwater samples. These compounds are not known to be related to the Site COCs. Their occurrences were isolated and are not considered significant.

6.1 Groundwater

Groundwater has been sampled throughout the Site investigative history dating to 1994. The means of sampling has been primarily through the use of permanent monitoring wells or temporary wells installed with direct push (Geoprobe) technology. Four monitoring wells existed at the Site prior to 1994. LBG installed 8 additional wells in 2000, 23 additional wells in 2005, 20 upgradient wells in 2008 and 25 offsite wells in 2010. Refer to tables 2, 3 and 4 during the following discussion. They summarize groundwater quality data from the 2000 investigation to the present. Table 2 summarize laboratory results for groundwater samples collected from Geoprobe borings and hand-auger borings in 2000. Table 3 summarizes groundwater collected from hand-auger borings in 2005.

The 2000 and 2005 hand auger and geoprobe sample locations are shown on figures 13 and 14. Table 4 is a record of historic groundwater quality from monitoring wells. Locations of all permanent monitoring wells are shown on figure 5. For sampling results collected prior to 2000, refer to the Data Consolidation Report in Appendix IV on the attached CD.

6.1.1 Groundwater Surrounding the Michaels Building

For the purposes of this report, the area surrounding the Michaels building is defined as 40 feet away from the building walls on the east, south and west sides and 150 feet from the building on the north side (figure 15). Groundwater quality in this area is monitored by the

original 4 monitoring wells (MW-1, MW-2A, MW-3 and MW-4) as well as well clusters MW-5, MW-6, MW-7 and MW-8 (A, B, C and D members).

Results of the most recent sampling events (April and August 2010) indicate that the ranking of the COCs based on detected concentrations from most to least abundant is PCE, DCE, VC and TCE. This likely varies to some degree from one event to another.

Ranked in order of decreasing overall contaminant concentrations, the groundwater at the locations of the MW-6, MW-5, MW-7 and MW-8 clusters are the most impacted of all Site wells. This is as expected considering their locations downgradient of the former Charlton Cleaners location. CVOC concentrations at these locations appear to be dependent on depth below the water table and vary considerably from one sampling event to another. The vertical distribution patterns will be discussed later. Generally, PCE concentrations in the MW-6 cluster (A, B, C and D) range between 1,000 and 10,000 ug/l (micrograms per liter). The highest PCE concentration ever detected Site-wide was 14,000 ug/l detected in the July 2005 MW-6B groundwater sample. PCE in the MW-5 cluster (A, B, C and D) is approximately one order of magnitude less than the MW-6 area with PCE ranging between 100 and 3,000 ug/l in MW-5A and MW-5B and 10 to 100 ug/l in MW-5C and MW-5D. In the vicinity of the MW-7 cluster (A, B, C and D), the shallow component, MW-7A contains PCE at concentrations in the 1,000 to 5,000 ug/l range. The deeper intervals of the MW-7 cluster (B, C and D) contain substantially less of all COCs with PCE ranging from 0 to 30 ug/l. Compared to the MW-7 cluster, PCE and its breakdown products in the MW-8 cluster are 2 to 4 times less in concentration.

The PCE breakdown products TCE, DCE and VC are found most prominently in Wells MW-5A, MW-7A and MW-8A where they range from 10 to 2,000 ug/l. The MW-6A samples typically contain between 10 and 40 ug/l of the breakdown products.

The shallow Wells MW-1, MW-3 and MW-4, located on the perimeter of the Michaels building, have on occasion contained Site COCs, primarily PCE. Rarely have COC concentrations in these wells been greater than 50 ug/l. These well positions are sidegradient to the average groundwater flow direction (figure 8) and thus little contamination has migrated to these locations. Monitor Well MW-2A has contained groundwater with PCE concentrations ranging between 12 and 360 ug/l, similar to the MW-1, MW-3 and MW-4 perimeter wells.

MW-2A however has not contained detectable levels of PCE breakdown products. Figure 16 shows isoconcentration contours for total VOCs detected in shallow monitoring wells (April 2010).

6.1.2 Onsite, Downgradient Groundwater Quality

Onsite groundwater quality at distances greater than 150 feet from the Michaels building is monitored by well clusters MW-9 and MW-10 (figure 5, table 4). At the position of MW-9A, COC concentrations, when detected, typically range between 3 and 40 ug/l with breakdown products commonly in greater proportion compared to PCE. At 380 feet, the MW-10 location is the farthest onsite, downgradient monitoring point. Groundwater from the shallow MW-10A well has contained PCE on 3 dates at levels not exceeding 85 ug/l. No breakdown products have been detected at this location. The MW-10A samples often contain low levels of petroleum contaminants (naphthalene, trimethylbenzene, etc.) thought to be related to a nearby fuel oil UST.

6.1.3 Offsite, Downgradient Groundwater Quality

Prior to 2010, the offsite downgradient groundwater sampling was limited to one shallow Geoprobe sample (GP-12) collected in 2000. The sample was collected from the east side of Barrett Avenue across from the Michaels Building. Concentrations of COCs were similar to those detected in the onsite Well MW-6A, 100 feet to the southwest.

Fieldwork for the 2010 offsite groundwater investigation was begun in July and August with the installation of 5 multi-level monitoring well clusters designed to allow sampling of groundwater at discrete intervals from the top of the saturated zone to 130 ft bg. The wells were installed and sampled in accordance with a workplan approved by the NYSDEC. Three well clusters were installed in the parking lot of the Pathmark Mall shopping center on the east side of Barrett Avenue and 2 clusters were drilled on the east side of Cornell Street to the north (figure 5).

Groundwater was sampled from the newly installed offsite wells between August 18 and August 20, 2010. The results of laboratory analysis for VOCs are summarized on table 5. The MW-18 well contained groundwater with the greatest dissolved VOC concentrations. The

contaminants were the same as the primary COCs onsite and included in order of prominence: PCE, DCE, TCE, VC, trans-1,2-dichloroethene and 1,1-dichloroethene. The shallow member of the MW-18 cluster (MW-18A) contained the greatest concentrations, those concentrations decrease with depth to the point that MW-18E (120-130 ft bg) contained no detectable compounds. While the PCE concentration of 15,000 ug/l in the MW-18A groundwater sample is comparable to levels seen historically in onsite Well MW-6B (table 4), the total CVOC concentration detected in the MW-18A sample (23,272 ug/l) is the highest of any Charlton monitor well sample. This detection is 1 to 2 orders of magnitude less than the highest concentration samples collected from Paul Miller monitoring wells (3,500,700 ug/l in MW-12S, 161,065 ug/l in MW-14S).

Offsite well cluster MW-20 contained the next highest levels of contaminants. Total VOCs in MW-20A were 990 ug/l. These contaminants also attenuate with depth to less than 3 ug/l by 60 ft bg. Based on groundwater elevation data, this well is the farthest downgradient from the Site (450 feet from the former Charlton location). Although closer to the Site than MW-20, MW-19 contains much lower CVOC concentrations. It appears to be located on the north edge of the plume. The wells along Cornell Street (MW-21 and MW-22) do not contain any Site contaminants at any depth. This supports the absence of Site contaminants in the soil vapor samples collected beneath Cornell Street in 2009 (Section 6.3.6).

6.1.4 Upgradient of the Michaels Building

Based on one round of groundwater sampling performed on the upgradient well clusters (MW-14, MW-15, MW-16 and MW-17 clusters, figure 5) in July 2008, the groundwater beneath the parking lot between the former Charlton Cleaners and the former Paul Miller Cleaners is impacted with a dry cleaning chemical (PCE) and a similar suite of breakdown products (TCE and DCE) as those found in the vicinity of the Michaels building (table 4). Directions of groundwater flow were calculated for that date and based on these patterns, the area between the 2 former dry cleaners is hydrologically downgradient of the former Paul Miller Cleaners site and upgradient and sidegradient of the former Charlton Cleaners Site. This data indicates that groundwater contamination found beneath this portion of the FAST is

the result of those contaminants migrating there from an offsite source, namely the Paul Miller Cleaners site.

Contaminant levels in groundwater upgradient (southwest) of the Michaels building are on par with those detected downgradient of Michaels. PCE concentrations in shallow wells located upgradient of Michaels ranged between 29 and 840 ug/l. TCE and DCE was present in most samples at between 2 and 40 ug/l. There was no vinyl chloride detected in any of the upgradient wells on this date.

Prior to the July 2008 installation of the MW-15 through MW-17 clusters, monitoring Wells MW-13A and B served as the upgradient monitoring points for the Michaels building. There have been no detected Site COCs in groundwater samples from these wells. It is apparent based on the July 2008 groundwater contour maps (figures 8 and 9) that the MW-13 position is both upgradient of the former Charlton Cleaners and sidegradient of the former Paul Miller cleaners, thus the lack of contamination.

6.1.5 Vertical Contaminant Distribution

The Site COCs are DNAPLs in their free phase state (they have a specific gravity greater than 1.0) and in a dissolved phase. As a result, they tend to sink under the influence of gravity through the saturated zone until encountering a zone of relatively lower permeability such as an aquiclude or aquitard. Thus, chlorinated solvent contamination migrates from the point of release both laterally through groundwater migration and vertically under the force of gravity.

As discussed in Section 4.0, the Site monitoring wells north of the Michaels building are screened to sample groundwater from 4 distinct intervals or depths below grade and are referred to as the A, B, C and D intervals (screened from 5-20, 40-50, 60-70 and 80-90 ft bg, respectively). As groundwater quality summary table 4 shows, Site COCs are most prevalent in the A and B intervals at locations downgradient of the Michaels building. At the location of the MW-7, MW-8 and MW-9 clusters, the A interval contains the greatest levels of total VOCs. By comparison, at the locations of clusters 2, 5 and 6, the B intervals contain greater levels of VOCs than the A intervals. It is notable that the shallowest A intervals at each cluster

location tend to contain the majority of PCE breakdown products (see table 4, data for MW-5A, MW-6A, MW-7A, MW-8A and MW-9A).

The total VOC concentrations decrease by one to two orders of magnitude in the C and D depth intervals in comparison to the A and B intervals. Thus, a vertical contaminant gradient has been documented. The decrease in VOC concentrations with depth is evidence of the absence of a sinking DNAPL source. No free-phase DNAPL has ever been measured in the Site monitoring wells. Figures 17, 18 and 19 show isoconcentration contours for total VOCs detected in intermediate and deep monitoring wells in April 2010.

The Site monitoring wells south of the Michaels building (MW-14, MW-15, MW-16 and MW-17) are screened at 5 separate depth intervals. The MW-16 cluster appears to exhibit a pattern similar to wells north of Michaels with maximum contaminants occurring at between 20 and 50 ft bg. However, the other well clusters in this part of the Site have fairly consistent PCE concentrations from the water table to 90 ft bg. Additionally, TCE and DCE are detected throughout the depth range and are not restricted to the shallower zones. There is an absence of vinyl chloride in these samples. This may be attributable to a difference in source, age, duration of spill, differences in permeability, etc.

6.1.6 SCG Exceedances and Delineation

The Site contaminants found to exceed the applicable NYS GWQS are PCE, TCE, DCE and VC. These Standards are 5 ug/l for PCE, TCE and DCE and 2 ug/l for VC. The dissolved phase plume exceeding these standards extends laterally from beneath the Michaels building in a downgradient direction (generally north and northeast). The dissolved plume at the positions of the MW-9 and MW-10 clusters only occasionally exceeds the GWQS, therefore these points mark the plume limits to the northwest. The plume is defined onsite to the north and northeast as extending to the property boundary which runs parallel to Barrett Avenue. Based on the groundwater data from MW-3 and MW-4 the plume does not extend significantly to the east of the Michaels building.

Defining the plume boundary to the south and west of the Michaels building is complicated by the presence of another chlorinated solvent plume emanating from the Paul Miller site and migrating on to the FAST. Groundwater elevation contour maps and

potentiometric surface contour maps (figures 8-12) illustrate this position. The location at which the two plumes mingle and become one is not obvious but is likely to be in the vicinity of the MW-5 cluster.

Figures 20A and 20B illustrate the approximate dissolved CVOC plume boundaries which were generated using several data sets including: 1) Paul Miller wells sampled October 2008 and summarized in the Camp, Dresser & McKee report dated September 2009; 2) Charlton Wells MW-14 through MW-17 sampled July 2008; 3) Charlton Wells MW-18 through MW-22 sampled August 2010; and, 4) the 3-year average CVOC concentrations (2008-2010) for Charlton Wells MW-1 through MW-13. The figures depict total CVOC concentrations as defined by PCE+TCE+DCE+VC. These are the primary contaminants and the inclusion of other minor compounds would not substantially alter the figures. The colors depict total CVOC concentrations on a logarithmic scale with each color representing a 10-fold increase or decrease in dissolved CVOCs concentration.

The Paul Miller plume extends from the southwest side of the former Paul Miller location toward the northeast. The commingled plumes exist beneath the Michaels and T-Mobile buildings and extend across Barrett Avenue and beneath the northern Pathmark Mall parking lot. Total plume length from the former Paul Miller to the distal end is at least 975 feet with the plume originating at the former Charlton Cleaners location extending at least 570 feet. The plume is 300-450 feet wide on the eastern side of the FAST. Plume width near Paul Miller is not fully defined by the existing well network there.

Vertical delineation of the plume is accomplished by noting that the MW-7D, MW-8D and MW-9D samples rarely contain COCs exceeding GWQS. At deep locations MW-6D, MW-11D and MW-12D where GWQS are more often exceeded, an obvious vertical contaminant concentration gradient exists. In general, the total VOC levels are shown to decrease between shallow and deep groundwater samples at these locations. There is little reason not to expect this decreasing trend not to continue below the 90 ft bg depth. Thus the plume extends to a depth of approximately 80-90 ft bg in the vicinity of the Michaels and T-Mobile buildings.

With the exception of the MW-18 cluster, the deeper samples from the C, D and E-members of the offsite wells (screened 60 to 130 ft bg) are either non-detect for the primary

Site contaminants or contain less than 3 ug/l chlorinated solvents (table 5), therefore offsite vertical delineation is accomplished. Figure 20B illustrates the approximate dissolved CVOC plume boundaries for groundwater of intermediate depth (wells screened 60-70 ft bg). The AOC based on groundwater quality exceeding SCGs is broadly depicted on figures 20A and 20B and extends in depth to approximately 80-90 ft bg near the eastern FAST boundary, 90-100 ft bg west of the Pathmark Mall and 30-40 ft bg north of the Pathmark Mall. The AOC of the Paul Miller plume is not delineated vertically near and northeast of the former Paul Miller facility. This is based on Paul Miller groundwater quality data from October 2008 where groundwater from deep monitoring well samples MW-15D and MW-13D (screened 60 to 70 ft bg) contain PCE at concentrations exceeding the GWQS. Deep groundwater quality to the north, northwest and south of Paul Miller was not determined. The deep well intervals of KIOP well clusters MW-14 and MW-16 (northeast of Paul Miller and screened 60 to 90 ft bg) also contain groundwater with chlorinated solvents in excess of GWQS.

6.2 Soil

Soil quality has been evaluated during various phases of Site investigation. Most sampling has been accomplished using direct-push sampling (Geoprobe) or split-spoon sampling during monitoring well installations. Additionally, soil has been collected from below the Michaels basement floor with hand augers and during excavation.

Contaminants of concern detected in soil samples are the same as those detected in groundwater: PCE, TCE, DCE and VC. Isolated low level occurrences of other VOCs, not attributable to dry cleaner chemicals are documented. These include acetone, toluene, xylenes and methylene chloride.

6.2.1 Soil Adjacent to the Michaels Building

Soil outside the Michaels building was first investigated in 1994 and 1996 by Apex and D&B respectively. Tables 6A and 6B and figure 21 show results and sample locations. While several COCs were detected in soil samples collected from beneath the road north of the Michaels store, only the Apex sample "RL-01" contained DCE at a level greater than the Part 375 SCO of 250 ug/kg (micrograms per kilogram) (detected at 1,200 ug/kg).

LBG more thoroughly investigated the Site beginning in 2000 when 23 Geoprobe borings were completed and 8 monitoring wells were installed. Analysis results for these samples are summarized on tables 7 and 8 and locations are shown on figure 22. Many of these soil samples were collected at or below that static groundwater level. The sample depth is typically the zone of greatest photoionization detector (PID) response. Several of the soil samples collected in 2000 contained COCs (primarily PCE and DCE) at elevated levels. These samples were collected between the Michaels and T-Mobile (formerly Coconuts and FYE) buildings. Because these samples were saturated with groundwater (collected below the water table), the COCs detected were likely transported there by impacted groundwater. The only sample from outside the Michaels building to contain CVOCs above Part 375 SCOs was GP-21, collected from 12 to 13 ft bg immediately outside the north basement wall (figure 13). The GP-21 sample contained DCE at 450 ug/kg.

In 2005 LBG expanded the Site investigation by installing 23 additional monitoring wells. Eighteen soil samples were collected during the drilling of 10 of these wells. The laboratory results for these 2005 soil samples are summarized on table 9 and the locations are shown on figure 23. While some petroleum related VOCs were detected at the locations of the MW-2, MW-5, MW-9, MW-10 and MW-11 clusters, the only significant detection of chlorinated COCs were in the MW-6D samples (collected from 10 to 17 ft bg). This sample contained between 120,000 and 200,000 ug/kg of PCE. These 2 soil samples were the only 2005 samples to exceed any Part 375 SCOs and were collected from below the water table.

6.2.2 Soil Beneath the Michaels Building

Soil was sampled from beneath the basement floor of the Michaels building in 2000 (2 samples) and again in 2005 (6 samples). The samples were collected from approximately 1-3 feet below the floor and from the northern portion of the basement. This is below where the former cleaners reportedly operated. The static groundwater level is very close to the basement floor slab elevation and varies by time and location. According to the 2005 RIR, groundwater flowed out of the holes made for the HA-3 and HA-4 samples and was approximately 2 feet below the floor surface at the location of HA-6 (see figure 24). The 2000

and 2005 soil samples are composites of the vertical interval from just below the floor slab to approximately 3 feet below the slab and thus were at least partially saturated with groundwater.

Several of the 2000 and 2005 basement samples contained the primary Site COCs (PCE, TCE, DCE, VC) in concentrations ranging from approximately 20 to 1,000 ug/kg. Only one sample, HA-1 (2000) contained each of the 4 primary Site contaminants at levels exceeding Part 375 SCOs. Table 10 summarizes laboratory and figure 24 shows locations.

In September 2009, LBG implemented an IRM in the Michaels basement which included the excavation of 11 tons of soil from the vicinity of the large sump pit in the equipment room. Soil sampling results from pre-excavation test pits indicated the presence of PCE, DCE and VC at levels above the Part 375 SCOs as well as other VOCs below the SCOs (table 11). After excavation, the endpoint samples (table 12) did not contain any VOCs above Part 375 SCOs although Site COCs were still present in the concentration range of 10 to 450 ug/kg (figure 25).

Due to the fact that sub basement soil samples were partially saturated with groundwater, it is likely that the laboratory reported contaminant concentrations reflect a combination of contaminants adhered to soil and dissolved in groundwater within the soil sample containers. The relative partitioning into these 2 phases (sorbed and dissolved) is dependent on several factors, including the solubility and organic carbon partitioning coefficient of the contaminant, and the soil characteristics. Direct comparison between the soil and groundwater samples collected from beneath the basement slab may be useful. PCE concentrations for these samples are summarized below:

Sample ID	PCE in Soil (ug/kg)	PCE in Groundwater (ug/l)
HA-1 (2000)	5,000	3,300
HA-2 (2000)	45	200
HA-1 (2005)	ND	1,040
HA-2 (2005)	945	22,800
HA-3 (2009)	266	6,500
HA-4 (2009)	ND	11
HA-5 (2009	ND	214
HA-6 (2009	ND	39

With the exception of the HA-1 (2000) samples, the PCE concentrations in soil were only 1 to 23 percent what they were in groundwater. If the groundwater contained in the soil sample jars had significantly skewed the laboratory results, one would expect the soil results above to be more similar to the groundwater results. Therefore we may conclude that the reported contaminant concentrations in these soil samples collected from at and below the water table are indicative of the sorbed phase with minor influence from the dissolved phase. The sorbed contamination was most likely transported there by impacted groundwater rather than being an indication of "source" material.

6.2.3 Soil North and Northwest of the Michaels Building

The investigation of soil quality at locations away from the Michaels building was conducted in 2000 with 3 Geoprobe borings (GP-11, GP-12 and GP-13; figure 22) drilled off-site on the east side of Barrett Avenue, approximately 100 feet from the former cleaner location. In 2005, onsite well clusters MW-7, MW-8, MW-9 and MW-10 (figure 23) were drilled at which time soil was sampled for lab analysis.

Soil from GP-11, GP-12 and GP-13 (2000) was collected from between 8 and 15 ft bg (table 7) and soil in borings MW-7D, MW-8D, MW-9B, MW-9C and MW-10D was collected from between 5 and 31 ft bg (2005, table 9). Minor concentrations of PCE and DCE were detected, well below the Part 375 SCOs. The samples were from below the water table and likely represent contamination transported by groundwater and subsequently adhered to soil. Minor concentrations of petroleum-related contaminants (trimethylbenzene, naphthalene) were detected in the MW-9B sample, likely due to the fact that the wells are located in a parking lot and were impacted by vehicle contaminants.

With the exception of samples from the MW-6 well cluster and Geoprobe sample GP-21, no soil collected exterior to the Michaels building contained Site COCs in exceedance of the Part 375 SCOs. This would indicate that soil considered to be a source of groundwater contamination exists only beneath the northeast corner of the Michaels building (former Charlton Cleaners location) and approximately 30 feet north of this area (vicinity of the MW-6 and GP-21 samples). All soil exceeding Part 375 SCOs was sampled from at or below the water table.

6.3 Subsurface Vapor Quality, Indoor Air Quality

The NYSDOH describes 4 types of samples that are collected to investigate the soil vapor intrusion pathway: 1) subsurface vapor samples; 2) crawl space air samples; 3) indoor air samples; and, 4) outdoor air samples. The subsurface vapor samples are further divided into soil vapor samples (collected not beneath the foundation of slab of a building) and sub-slab vapor (collected immediately beneath the foundation or slab of a building). The sampling results will be grouped and discussed by location with respect to the Michaels building. Several IRMs have been implemented to mitigate VOCs present in the Michaels indoor air. These will be discussed in a separate subsection below.

6.3.1 Michaels Building, Sub-Slab Vapor

The vapor intrusion pathway was first investigated at the Site during the June 2005 LBG investigation. This phase of the investigation consisted of the installation and sampling of 8 temporary sub-slab vapor points beneath the Michaels basement floor slab and collecting outdoor air and indoor air samples. Sub-slab vapor samples are identified as SG-9 through SG-16 on figure 26. Analysis results are shown on table 13.

The most prominent VOCs detected in the 2005 sub-slab vapor samples were the primary Site COCs (PCE, TCE, DCE and VC). Sub-slab PCE concentrations ranged between 120 and 30,000 ug/m^3 (micrograms per cubic meter). The highest levels were detected beneath the basement equipment room and the central portion of the basement. Other prominent VOCs are petroleum related and include toluene and xylenes.

In December 2006 and subsequent to the installation of a vapor barrier and new concrete floor in the Michaels basement (see IRM discussion below), sub-slab vapor was sampled from two of the 6 permanent sampling ports which were installed in the new floor. Several of the other ports expressed water upon opening due to the proximity of the water table beneath the floor. Sample port locations are shown on figure 26 and the analysis results are summarized on table 13. The results for the MSS-1 sample have individual COC concentrations between 1 and 20 times higher than the highest levels detected in June 2005. PCE was detected at this location at a concentration of 610,000 ug/m^3. The MSS-4 sample contained significantly less VOCs, on par with the lowest levels detected in June 2005. This

indicates that the greatest concentration of VOCs in soil vapor beneath the basement floor is at its north end and that significant vapors do not extend south of the midline of the basement.

In August 2008, 9 permanent sub-slab vapor sampling ports were installed through the portion of the Michaels floor slab not underlain by the basement (identified MSS-7 through MSS-15). Locations are shown on figure 27 and sampling results are summarized on table 14. Analysis results indicate that the primary contaminant is PCE which was detected at concentrations ranging between 12 and 41,000 ug/m^3. The greatest concentrations were detected in MSS-7, MSS-8 and MSS-10 in the northeast portion of the retail space. These sample locations are closest in proximity to the former cleaner location. In general, the concentrations of PCE are similar to those detected beneath the basement floor in June 2005. However, breakdown compounds TCE, DCE and VC are not as prevalent below the retail slab as they are below the basement floor.

6.3.2 Michaels Building, Indoor Air

Indoor air was first sampled from the Michaels building on 3 dates in 2005. Laboratory results indicate that indoor air contains the same compounds as found in the sub-slab samples. Also, the ranking of compounds in order of relative concentrations was similar with PCE, DCE and TCE being the most prevalent. The greatest total VOC levels and individual compound concentrations are found in the air within the equipment room in the basement followed by the main basement area, the upstairs loading dock (top of the stairs leading to the basement) and the main retail space.

The Michaels building indoor air has been sampled on a regular basis since 2005 and is currently on a 6-month sampling schedule (heating and cooling seasons). Periodic monitoring reports have been submitted to the NYSDEC and NYSDOH. The building has been sampled at 4 locations, 2 in the basement and 2 upstairs from 2005 until 2008 (figure 28). Beginning in March 2009 a fifth location was added in the northeast corner of the retail space because of elevated sub-slab vapor concentrations detected there in 2008. Table 15 summarizes the historical record of indoor air samples collected in the Michaels building.

The concentration of each individual contaminant (PCE, TCE, etc.) was added together for each sampling date (2005 to 2010) and ranked from greatest to least abundant (table 16).

The relative ranking of chlorinated solvents differs between the basement and upstairs samples. In the basement (main basement and equipment room) PCE, DCE, TCE and VC are ranked 1st, 2nd, 9th and 16th based on abundance. Acetone, toluene, chlorodifluoromethane (a refrigerant), xylenes, pentane and 2-butanone were all more abundant than TCE and VC. By contrast, in the upstairs space (loading dock and 2 retail space locations), PCE, DCE, TCE and VC are ranked 2nd, 5th, 25th and 32nd. Acetone is more abundant than PCE upstairs and there are 22 non-COC compounds more abundant than TCE. While the primary Site COCs are present in the Michaels indoor air, there are many compounds, not attributable to the former dry cleaner, which are of similar or greater prominence. It is presumed that these other VOCs enter the store through several mechanisms including: vapor intrusion from soil gas, offgassing from cleaning products, offgassing from building materials and the retail products themselves, as well as entering the building from outside air through the doors and the heating, ventilation and air conditioning (HVAC) system.

The distribution of COCs within the indoor air of the Michaels building appears to support the hypothesis that chlorinated compounds are entering the building through the basement. The basement does not have a ventilation system and the air is relatively stagnant. CVOCs in the basement air likely reach equilibrium with sub-slab vapor. Air migrates from the basement (with the equipment room having the highest impact) up the stairwell (subsequently impacting the upstairs loading dock area) and into the main store area (retail space). The COCs become more dilute along this path as outside air, supplied by the rooftop HVAC units, is mixed with it. A chimney effect may produce this flow pattern. It is possible that the COCs detected beneath the slab-on-grade portion of the building are infiltrating into the retail space as well.

6.3.3 Michaels Building Indoor Air SCG Exceedances

The NYSDOH in their 2006 guidance document, provide several means of evaluating the results of indoor-air, sub-slab and soil-vapor sampling and analysis and how these parameters relate to current and potential soil vapor intrusion. Air and vapor concentrations are to be evaluated in context with the nature and extent of contamination in all media, the factors affecting vapor migration, background levels of VOCs in air, relevant standards, criteria and guidance values and past, current and future land use.

The first evaluation method is by direct comparison of select individual compound concentrations in breathing air (indoor or outdoor) to GVs derived on the basis of toxicity and exposure assessments. There are no GVs applicable to subsurface vapor. The GVs are based on the assumption of a lifetime of continuous exposure to the compound in question. Based on the recognized COCs at the Site, the GVs for methylene chloride (60 ug/m^3), TCE (5 ug/m^3) and PCE (100 ug/m^3) are applicable.

Review of the laboratory data for all indoor air samples indicates that PCE and TCE concentrations in the basement air exceed their respective GVs on between 50 and 77 percent of the sample dates. The upstairs loading dock air sample has contained PCE and TCE exceeding the GVs on between 22 and 44 percent of the sample dates. The PCE and TCE concentrations in the Michaels retail space have never been greater than the respective GVs. The methylene chloride GV has not been exceeded in any locations on any dates (table 15).

As the second evaluation method, the NYSDOH has developed a pair of decision matrices to provide guidance about actions that could be taken to address current and potential exposures related to soil vapor intrusion. The matrices are used to compare sub-slab vapor and indoor air concentrations at a given location and take into account the attenuation factor (the ratio of indoor air to sub-slab vapor concentrations). Use of the decision matrices will produce recommended actions which include: *1) No further action; 2) Take reasonable and practical actions to identify sources and reduce exposure; 3) Monitor; 4) Mitigate; or, 5) Monitor/Mitigate*.

Three locations inside the Michaels building and one location in the T-Mobile building were evaluated using the DOH matrices. Table 17 summarizes the vapor and air concentrations and matrix conclusions for the 4 evaluated locations. The particular sampling dates were chosen because both indoor air and sub-slab vapor were collected simultaneously.

The first location on table 17 is the main retail area of the Michaels building. On August 15, 2008, 9 sub-slab vapor samples were collected from beneath the slab-on-grade part of the building (see Section 6.3.1) and an indoor air sample was collected simultaneously. The 9 sub-slab samples exhibited a large range of compound concentrations, therefore, the top 3 compound concentrations were averaged for application to the DOH matrices. As table 17 shows the matrix decisions were "Mitigate" based on the PCE concentrations, "Monitor" or

compound concentrations were averaged for application to the DOH matrices. As table 17 shows the matrix decisions were "Mitigate" based on the PCE concentrations, "Monitor" or "Monitor/Mitigate" based on the carbon tetrachloride, and TCE concentrations and "No Further Action" for the other compounds,

The second 2 locations evaluated are the main basement area and the basement equipment room of the Michaels building. Sub-slab samples were collected through permanent sample ports MSS-1 and MSS-4 (Section 6.3.1) and ambient indoor air was sampled in both areas on the same date. As table 17 summarizes, the matrices conclusions for TCE and PCE in the main basement space was "mitigate" while TCE, VC, PCE and DEC all resulted in "Mitigate" for the equipment room samples

Finally, all 7 matrix compounds evaluated for the T-Mobile building results in the conclusion "No Further Action".

To generalize the above evaluation, we can conclude the following:

- The evaluation of Michaels building air and vapor samples using the NYSDOH decision matrices results in the recommendation of "Mitigate" based on the compound PCE (as well as others in the basement).
- The evaluation of T-Mobil building air and vapor samples results in the recommendation of "No Further Action" for all 7 matrices compounds.
- Several mitigation measures have been performed in the Michaels building (see Section 6.3.4).

6.3.4 IRMs and Other Tasks to Mitigate Indoor Air

The first IRM designed to mitigate vapor intrusion in the Michaels building was completed in September and October 2006. It consisted of the installation of a 0.040-inch (40 mil) thick sealed high density polyethylene vapor barrier across the entire basement floor. This liner was attached to the walls with foam seals and stainless steel batten strips. A four-inch thick concrete slab was poured over the liner. Steel lids with gaskets were installed on the 3 sump pits which penetrate the basement floor. The indoor air concentrations for the primary COCs are generally 20-50 percent lower subsequent to liner installation. However, PCE and

In conjunction with the liner installation, six permanent sub-slab vapor monitoring points (MSS-1 through MSS-6) were installed through the basement floor along the north-south center line. Upon opening the sampling ports in December 2006, it was determined that several ports were not able to be sampled for vapor because of the high water table, just below the basement floor. Several ports expressed groundwater apparently under pressure while others did not yield vapor when vacuum was applied. Vapor was sampled from ports MSS-1 and MSS-4 as well as FYESS-1 (in the floor slab of the adjacent FYE store, now T-Mobile) in December 2006. The results are summarized on table 13. The MSS-1 sample collected from near the large sump pit in the equipment room contained the greatest concentrations of COCs with 610,000 ug/m^3 of PCE, 22,000 ug/m^3 of TCE and 15,000 ug/m^3 of DCE. The MSS-4 sample contained these compounds at approximately 3 orders of magnitude lower levels. Contaminant levels beneath the FYE store floor slab were negligible.

An HVAC testing and balancing contractor inspected the building in March 2007. The purpose was to determine if the building HVAC system was exacerbating the indoor air quality issue by promoting vapor infiltration. The contractor's report indicated that: 1) there was no basement ventilation; 2) that several of the HVAC rooftop units (RTUs) were non operational or maladjusted; and, 3) that the building had a slight negative pressure inside due to "stack effect". Soon after this inspection the RTUs were made fully operational. A copy of the contractor report was attached to the June 2007 Groundwater Monitoring Report. The RTUs have been inspected by KIOP hired contractors on at least 2 additional dates. The RTUs are reportedly maintained by a contractor for Michaels Stores under the lease agreement.

The second IRM was implemented in September 2009 and included: 1) excavation of 11 tons of soil from beneath the northern basement floor of the Michaels building; 2) the modification of the large sump pit to admit groundwater from its surroundings; 3) the installation of an activated carbon filter on the effluent streams of the two north sumps; and, 4) the installation of a ventilation fan and carbon filter to exhaust air from within the two north sumps. Details of the IRM are in the November 4, 2009 LBG report (revised January 21, 2010). The primary purpose of the second IRM was to remove soil thought to be a source of VOCs in sub-slab vapor and to reduce the potential for sub-slab vapor.

6.3.5 FYE/T-Mobile Building

One permanent sub-slab vapor monitoring point was installed in the floor of the T-Mobile building (occupied by FYE at that time) directly north of the Michaels building. The T-Mobile building is constructed as slab-on-grade with no basement. The T-Mobile monitoring point was sampled twice. Laboratory results are summarized on table 13. The concentrations of COCs in sub-slab vapor beneath the T-Mobile building are negligible and include PCE measured at 7.3 ug/m^3 and TCE and DEC non-detect. This indicates that Site contaminants have not accumulated in the sub-slab vapor beneath the T-Mobile building to a significant extent.

The indoor air within the T-Mobile building was sampled from one location on 4 dates (table 15). On one date (August 2008) TCE was detected at 7.2 ug/m^3 which exceeded the NYSDOH Guidance Value of 5 ug/m^3. However, this concentration was reported as an estimated value by the laboratory and on the other 3 sample dates TCE was at or close to non-detect. PCE concentrations within T-Mobile were never detected at greater than 10 percent of the Guidance Value.

6.3.6 Offsite Soil Vapor

At the request of the NYSDEC, the offsite soil vapor north of the Site in the vicinity of the nearest residential properties was investigated in April 2009. A full description of the investigation and results are summarized in a July 13, 2009 letter report. LBG supervised the installation of 8 temporary soil vapor sampling ports on Cornell Street and Barrett Avenue (SVP-1 through SVP-8, figure 29). The sampling points were drilled to a depth comparable to the foundations of nearby residences. One soil vapor sample was collected from each point in accordance with the 2006 NYSDOH Guidance for Evaluating Soil Vapor Intrusion. Figure 29 shows the soil vapor sampling locations and laboratory results for the COCs (PCE+TCE+DCE+VC). The results of laboratory analysis are summarized on table 18.

Between 0 and 14 individual volatile compounds were detected in each sample. The only significant detection of a contaminant associated with the Site was in sample SVP-8 where PCE was detected at a concentration of 130 ug/m^3. This sample location was on Barrett Avenue approximately 445 feet north-northwest of the former Charlton Cleaners and

approximately 70 feet southwest of the nearest residence (figure 29). The conclusion of the investigation is that the soil vapor closest to the homes on Cornell Street did not contain notable concentrations of Site contaminants and that there are apparently other unknown sources which have resulted in VOCs in the soil vapor.

6.3.7 Offsite Indoor Air

At the request of the NYSDEC and NYSDOH, a workplan was submitted to investigate sub-slab vapor and indoor air quality within the buildings directly south of the Michaels building. These buildings comprise an adjacent strip mall not part of the FAST. The workplan was approved in February 2010. However, the offsite property owner has denied access to the site to perform the investigation.

7.0 ONSITE/OFFSITE QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

The exposure pathway or means by which an individual may be exposed to a Site contaminant consists of 5 elements: 1) a *contaminant source* either the point of release to the environment or the contaminated environmental medium; 2) a *contaminant release and transport mechanism* which carries the contaminant from the source to points where people may be exposed; 3) a *point of exposure* where actual or potential human contact may occur; 4) a *route of exposure* or manner in which the contaminant actually enters or contacts the body; and, 5) a *receptor population* who are or may be exposed to contaminants. The exposure pathway is considered to be complete when all 5 elements are documented. A potential exposure pathway exists when any of the 5 elements is not documented.

Based on the nature of the COCs found in the Site environmental media (chlorinated solvents) and the known past uses of the Site (a commercial dry cleaner), the contaminant source is presumed to be the release of solvents to the subsurface. The exact mechanism and location of the release(s) is unknown. Through the transport mechanisms described below, the soil, groundwater and soil vapor beneath the Site and indoor air of the Michaels building has become impacted by the COCs.

The contaminant transport mechanisms at the Site include: 1) the lateral and vertical migration of contaminants along the path of groundwater flow; 2) the volatilization of solvents from soil and groundwater into soil vapor; and, 3) the migration of soil vapor under the influence of subsurface pressure gradients.

The point of exposure and route of exposure is somewhat dependent upon the particular receptor population in question. The receptor population is based both on the present use of the Site and on planned future use as communicated by the Site owners (present use and future use is as a commercial property). The first two potential receptors are an employee or patron of any of the Site businesses. These receptors may be considered together as the only difference between the two is the duration of exposure (the employee would have greater exposure duration). The only contaminated media to which an employee or patron might be exposed is indoor or outdoor air. There is no potential for an employee to be exposed to contaminated soil or soil vapor (the Site is paved) nor to contaminated groundwater (which is approximately 8 to 9 feet below grade). The outdoor air exposure point can be eliminated from consideration due to the absence of COCs in the analysis of outdoor air samples collected in June 2005. The point of exposure of an employee or patron would therefore be inside the Michaels building. The route of exposure for an employee or patron would be by inhalation of indoor air.

A third potential receptor at the Site is a construction worker performing ground-intrusive activities. In the case of this receptor, there is potential to be exposed to soil vapor, soil and/or groundwater impacted by the COCs. The point of exposure to contaminated soil would be in the immediate vicinity of the Michaels building based on the distribution discussed in the previous section (Soil Quality). Similarly, the point of exposure to contaminated groundwater would pertain to activities which result in excavation below approximately 8 ft bg and only in the areas described in the section describing groundwater quality. The routes of exposure for a construction worker would be by inhalation of soil vapor or soil particulates, ingestion of soil particulates or groundwater or dermal contact with soil or groundwater.

Offsite potential receptors include employees and patrons of businesses in buildings adjacent to the Michaels building such as the North Fork Plaza (south of the Michaels building) and commercial stores (some vacant) on Barrett Avenue. Whether there is indoor air contamination in these offsite buildings has not been investigated due to denial of access.

Other offsite potential receptors include construction workers involved with ground intrusive activities along Barrett Avenue and in the parking lot of the Pathmark Mall. Contaminated environmental media to which these construction workers may be exposed are groundwater and soil vapor. The point of exposure to contaminated groundwater would pertain to ground-intrusive activities resulting in excavation to below approximately 8 ft bg. The routes of exposure for a construction worker would be by inhalation of soil vapor, ingestion of groundwater or dermal contact with groundwater.

Finally, most of the homes along Cornell Street are not underlain by contaminated groundwater, soil or soil vapor and therefore the residents are not potential offsite receptors. The exception is the extreme southern end of the street where groundwater quality data (table 5, figure 20A) indicates that the homes may have shallow groundwater contamination beneath them. The soil vapor survey performed in the vicinity of the Cornell Street residences in April 2009 concluded that no significant levels of COCs were detected in these samples however.

Contaminated environmental media to which residents in the southern homes on Cornell Street may be exposed are soil vapor and indoor air. The point of exposure for a resident would be through contact with contaminated indoor air which had intruded into the structure from soil vapor and/or sub-slab vapor. The route of exposure for a resident would be by inhalation of indoor air.

There is no known groundwater extraction point (potable, commercial, irrigation, etc.) which is a potential receptor of groundwater from the Site. There is also no known surface water receptor to which the groundwater from the Site may discharge.

8.0 FISH AND WILDLIFE RESOURCES IMPACT ANALYSIS (FWRIA)

DER-10 Section 3.10.1 (b) states the following criteria under which no FWRIA is needed:

1) *the remediation is directed toward a specific discharge or spill event that does not adversely impact fish and wildlife resources;*

2) *the AOCs at the site consist solely of an underground storage tank(s) or an underground tank system;*

3) *the site is a point source of contamination to the groundwater (i.e., dry cleaner or gas station) which will be prevented from discharging to surface water, and there is no widespread soil contamination or habitat of an endangered, threatened or special concern species present; or,*

4) *there are no ecological resources present on or in the vicinity of the site, determined pursuant to paragraph (c)1 below (e.g., an urban site which is not proximate to a surface-water body, wetland or other ecologically significant area).*

In part, paragraph (c)1 reads as follows: *Identify all fish and wildlife resources based upon knowledge of the site and a search of NYSDEC records and/or other sources. If no resources are identified on the site, adjacent to or downgradient from the site...no further work on the FWRIA is required.*

The Site meets criteria (1), (3) and (4) above. There are no listed wetlands within 1 mile of the Site and no surface-water bodies within 0.8 mile of the Site. The nearest surface-water body is Brooks Pond 0.8 mile east of the Site which is not in the downgradient direction. A search of the NYSDEC website did not identify any fish or wildlife resources near the Site. Therefore, a FWRIA is not required at this Site

9.0 DATA USABILITY

Quality Assurance/Quality Control (QA/QC) procedures were utilized throughout the project to ensure reliable data. Analytical results of the 2005 Remedial Investigation, 2009 IRM soil endpoint samples and 2010 offsite groundwater investigation were reported with analytical services protocol (ASP) Category B deliverables packages. Other analyses such as for quarterly groundwater and indoor air samples were reported with Category A data packages in accordance with DER-10 Section 2.2, Subdivision (a), Paragraph 2. Data Usability Summary Reports (DUSRs) were prepared for the 2005 Category B deliverables analytical results. The DUSR for the 2009 IRM and 2010 offsite groundwater investigation are still in preparation. Copies of the Category A and B deliverables packages and DUSRs are included in Appendix VII on the attached CD.

Based upon Site history and environmental sampling, the primary contaminants are chlorinated VOCs. Accordingly, soil, groundwater, soil gas and ambient air samples were analyzed for VOCs by EPA Methods 8260 and TO-15. Specific compounds in indoor air samples were analyzed using Selected Ion Monitoring (SIM) to lower the detection limit to a level acceptable to the NYSDOH. Sampling methods, sample preservation requirements and sampling handling times were conducted in accordance with NYSDEC and United States Environmental Protection Agency (USEPA) standard operating procedures and industry standards. All samples collected were maintained under chain-of-custody procedures until delivery to the analyzing laboratory. The table below summarizes the sampling standards.

SUMMARY OF SAMPLE HANDLING AND PRESERVATION

Sample Type	Media	Compound Group	Analytical Method	Holding Time	Preservation
Monitor Wells (newly installed) Geoprobe Soil Borings	Soil	VOCs VOCs	EPA Method 8260 EPA Method 8270	< 2 Weeks	ICE
Excavation Endpoint Soil Samples	Soil	VOCs, SVOCs, PBCs, Pesticides, Metals	8260, 8270, 8082, 8081A, 6010B, 7471A	< 2 Weeks	ICE
Monitor Wells (existing and newly installed), Geoprobe Temporary Wells	Groundwater	VOCs	EPA Method 8260	< 2 Weeks	ICE
Sub-Slab Soil Vapor Points Soil Vapor Points Indoor/Outdoor Ambient Air	Air	VOCs	EPA Method TO-15, SUMA canister (SIM on select compounds)	NA	Avoid extreme heat

10.0 CONTAMINANT FATE AND TRANSPORT

In general, the fate and transport of any contaminant depends, among other factors upon the physical and chemical properties of the contaminant, the geologic and hydrogeologic characteristics of the subsurface to which it is released and the quantity and duration of release.

The physical and chemical properties of chlorinated solvents include a specific gravity generally greater than 1 (in free phase), relatively low aqueous solubility, low vapor pressure and a propensity to adsorb to soil and organic matter.

Chlorinated solvents released to the environment will remain a DNAPL, adsorb to soil, dissolve in groundwater and volatilize to soil vapor to an extent governed by the properties of the particular solvent and the subsurface characteristics. DNAPL will migrate in non-aqueous, aqueous and vapor phases through the subsurface. Non-aqueous DNAPL will migrate downward under gravity through the unsaturated and saturated zones, until confining or semi-confining layers are encountered. A portion of the DNAPL will dissolve into groundwater and enter the aqueous phase where groundwater flow will transport it laterally from the release point. Solvents will volatilize from both DNAPL and from solvents dissolved in groundwater, entering the vapor phase in the soil gas. Solvents in soil gas will migrate under the influence of subsurface pressure gradients and chemical diffusion between concentration gradients. Chlorinated solvents will degrade chemically and biologically from molecules of higher chlorination to lower (e.g., PCE degrades to TCE, cis-1,2-DCE and VC).

In the specific case of the former Charlton Cleaners Site, the solvents are presumed to have entered the subsurface either beneath the northeast corner of the Michaels building through a floor drain, floor cracks, dry well, the basement sump pit or some other means, or beneath the driveway between the Michaels and T-Mobile buildings. This premise is based on the distribution of contaminants in soil, groundwater and soil vapor. The lack of any vadose zone soil samples containing significant chlorinated solvent levels may indicate that the point of release was at or below the water table. As the basement floor and exterior sanitary sewer are at this level, this is feasible.

The lack of any detection of free-phase DNAPL in soil samples or in monitor wells could be an indication that solvents were released in an aqueous phase. DNAPL however can be difficult to detect and has a tendency to accumulate in small globules and tendrils.

The released solvent has dissolved into Site groundwater and has traveled laterally and vertically creating a plume approximately 90-100 feet thick near the Michaels building and extending at least 570 feet to the northeast and beneath the Pathmark Mall parking lot (figure 20A). The plume concentration attenuates with depth to levels less than 10 ug/l below

100 ft bg at MW-18 and below 40 ft bg at the other offsite well locations. It is possible that the shallow portion of the groundwater plume is influenced by a preferential pathway along the course of the buried stream culvert. This culvert runs roughly west to east across the FAST from Forest Avenue, then under Barrett Avenue and beneath the north Pathmark Mall parking lot (figure 4).

Solvents have also volatilized into soil vapor beneath the Michaels building and the driveway north of it. Chlorinated solvents in soil vapor have infiltrated the Michaels building, impacting indoor air. Soil vapor does not appear to have impacted the indoor air of the adjacent T-Mobile building.

The offsite soil vapor investigation indicates that only one sampling point on Barrett Avenue contained a chlorinated solvent indicating the potential that the solvent volatilized from contaminated groundwater and entered the vapor phase. Investigation indicates that this has not occurred beneath Cornell Street.

The presence of PCE degradation products such as TCE, DCE and VC indicates that biological and/or abiotic dechlorination is occurring. It is difficult to quantify the magnitude of degradation due to differences in the physical characteristics (density, solubility, volatility, etc.) of individual compounds. However, the fact that the degradation compounds are most prevalent in the shallow monitoring wells like MW-5A, MW-6A, MW-7A, MW-8A and MW-9A (see table 4), may indicate that breakdown is occurring under aerobic conditions, likely due to aerobic bacteria.

As impacted groundwater migrates north from the Michaels building under the influence of natural groundwater flow, the chlorinated solvent concentrations decreased through the processes of dilution, dispersion and diffusion.

11.0 CONCLUSIONS

The Remedial Investigations performed to date have accomplished the investigative goals. The subsurface geology and hydrogeology have been documented. The nature and extent of groundwater, soil and vapor contamination have been defined onsite. The nature and extent of offsite vapor and groundwater contamination have been investigated and although

complete delineation has not been achieved, sufficient offsite delineation has been completed to allow the Volunteer to proceed to a remedial design/action phase.

Based on the findings, the Site investigative phase is complete and the Site is eligible to enter the remedial selection/design/action phases. The goals of the remedy selection process are to remediate the Site, if necessary to cleanup levels sufficient to allow for the contemplated use of the Site. Remedial alternatives will be developed to address contamination found in groundwater beneath the Site and indoor air within Site building(s). On Site soil contamination was found to be limited in extent. Treatment of soil vapor in the vicinity of the Michaels building via soil vapor extraction and treatment of sub-slab vapor under the Michaels basement via sub-slab depressurization were found not to be feasible due to Site conditions (low permeability soils and high water table beneath the Michaels basement).

Remedy selection will be evaluated and recommended in the form of a Feasibility Study (FS) based on the Site listing on the Inactive Hazardous Waste Registry. The FS will additionally meet the less stringent VCP requirements of a Remedial Action Selection Report. Remedial Action Objectives (RAOs) will be evaluated based on the following criteria: overall protection of public health and the environment, compliance with SCGs, long-term and short-term effectiveness, reduction of toxicity, mobility or volume, implementability, cost and community acceptance.

Following NYSDEC acceptance of the FS, the Department will prepare a Proposed Remedial Action Plan (PRAP) and will thereafter prepare a Record of Decision (ROD) identifying the selected remedies and including a summary of responses to public comments. A Remedial Action Workplan (RAW) will then be submitted for review and approval. The approved Remedial Action will be implemented at the Site and a Remedial Action Report and Operation, Maintenance and Monitoring (OM&M) report will be prepared and submitted.

LEGGETTE, BRASHEARS & GRAHAM, INC.

Paul Woodell

Paul Woodell
Associate

Reviewed By:

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Senior Vice President

dmd
November 1, 2010
Revised: March 10, 2011
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TABLES

TABLE 1

FORMER CHARLTON CLEANER FACILITY
VCP INDEX NO. W308910106
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

Summary of Well Construction
and Water Level Measurements
August 18, 2010

Well ID	Total Depth (feet)	Screen		TOC [1] Elevation (ft) [2]	Depth to Water (ft btoc) [3]	Corrected Ground Water Elevation (ft)
		Diameter (inch)	Setting (ft bg)			
MW-1	11.58	2.00	5 to 20	100.36	6.76	93.60
MW-2A	12.65	2.00	5 to 20	100.10	5.95	94.15
MW-2B	52.10	2.00	40 to 50	100.05	6.72	93.33
MW-3	15.34	2.00	5 to 20	100.64	7.58	93.06
MW-4	13.04	2.00	5 to 20	100.83	7.66	93.17
MW-5A	17.88	2.00	5 to 20	100.26	7.06	93.20
MW-5B	49.40	2.00	40 to 50	100.12	6.88	93.24
MW-5C	71.85	2.00	60 to 70	99.90	6.64	93.26
MW-5D	91.72	2.00	80 to 90	100.08	6.82	93.26
MW-6A	13.38	2.00	5 to 20	100.02	7.05	92.97
MW-6B	49.74	2.00	40 to 50	99.94	6.88	93.06
MW-6C	71.25	2.00	60 to 70	99.99	6.85	93.14
MW-6D	90.38	2.00	80 to 90	100.11	7.05	93.06
MW-7A	17.74	2.00	5 to 20	99.82	6.81	93.01
MW-7B	49.18	2.00	40 to 50	99.85	6.75	93.10
MW-7C	71.74	2.00	60 to 70	99.86	6.71	93.15
MW-7D	91.95	2.00	80 to 90	100.00	6.91	93.09
MW-8A	17.90	2.00	5 to 20	100.29	7.15	93.14
MW-8B	49.21	2.00	40 to 50	100.70	7.52	93.18
MW-8C	72.11	2.00	60 to 70	100.58	7.22	93.36
MW-8D	92.40	2.00	80 to 90	100.50	7.28	93.22
MW-9A	14.69	2.00	5 to 20	100.63	7.01	93.62
MW-9B	51.67	2.00	40 to 50	100.76	7.53	93.23
MW-9C	71.80	2.00	60 to 70	100.34	7.10	93.24
MW-9D	88.86	2.00	80 to 90	100.85	7.63	93.22
MW-10A	22.00	2.00	5 to 20	104.24	11.58	92.66
MW-10B	51.76	2.00	40 to 50	103.71	10.79	92.92
MW-10C	72.28	2.00	60 to 70	103.78	10.84	92.94
MW-10D	92.10	2.00	80 to 90	103.60	10.71	92.89
MW-11C	72.00	2.00	60 to 70	99.55	6.55	93.00
MW-11D	92.20	2.00	80 to 90	99.30	6.26	93.04
MW-12C	71.00	2.00	60 to 70	99.91	6.85	93.06
MW-12D	92.50	2.00	80 to 90	99.95	6.90	93.05
MW-13A	22.34	2.00	5 to 20	106.47	11.92	94.55
MW-13B	51.60	2.00	40 to 50	106.83	11.85	94.98
GESMW-4	12.00	2.00	NR	101.27	6.09	95.18

Well ID	Total Depth (feet)	Screen		TOC [1] Elevation (ft) [2]	Depth to Water (ft btoc) [3]	Corrected Ground Water Elevation (ft)
		Diameter (inch)	Setting (ft bg)			
MW-14A	13.30	1.00	4 to 14	100.58	6.57	94.01
MW-14B	20.60	1.00	20 to 30	100.59	6.92	93.67
MW-14C	47.70	1.00	40 to 50	100.58	7.16	93.42
MW-14D	68.60	1.00	60 to 70	100.59	7.16	93.43
MW-14E	84.82	1.00	80 to 90	100.58	7.10	93.48
MW-15A	10.01	1.00	4 to 14	100.28	6.85	93.43
MW-15B	25.60	1.00	20 to 30	100.28	6.92	93.36
MW-15C	48.20	1.00	40 to 50	100.29	6.99	93.30
MW-15D	68.00	1.00	60 to 70	100.28	6.95	93.33
MW-15E	85.90	1.00	80 to 90	100.27	6.93	93.34
MW-16A	10.15	1.00	4 to 14	100.60	6.79	93.81
MW-16B	26.01	1.00	20 to 30	100.63	6.80	93.83
MW-16C	48.05	1.00	40 to 50	100.63	7.29	93.34
MW-16D	68.50	1.00	60 to 70	100.62	7.26	93.36
MW-16E	87.51	1.00	80 to 90	100.62	7.28	93.34
MW-17A	10.05	1.00	4 to 14	100.14	6.52	93.62
MW-17B	23.40	1.00	23 to 30	100.16	6.65	93.51
MW-17C	47.18	1.00	40 to 50	100.14	6.80	93.34
MW-17D	68.45	1.00	60 to 70	100.14	6.78	93.36
MW-17E	88.40	1.00	80 to 90	100.12	6.75	93.37
MW-18A	13.65	1.00	4-14	97.51	5.04	92.47
MW-18B	40.50	1.00	30-40	97.44	4.54	92.9
MW-18C	69.15	1.00	60-70	97.69	4.78	92.91
MW-18D	99.25	1.00	90-100	97.66	4.77	92.89
MW-18E	129.10	1.00	120-130	97.61	4.7	92.91
MW-19A	13.50	1.00	4-14	100.63	7.36	93.27
MW-19B	39.00	1.00	30-40	100.66	7.9	92.76
MW-19C	70.35	1.00	60-70	100.67	7.95	92.72
MW-19D	100.00	1.00	90-100	100.39	7.65	92.74
MW-19E	130.12	1.00	120-130	100.55	7.81	92.74
MW-20A	14.10	1.00	4-14	102.15	9.61	92.54
MW-20B	40.20	1.00	30-40	102.13	9.67	92.46
MW-20C	69.85	1.00	60-70	102.15	9.7	92.45
MW-20D	99.20	1.00	90-100	102.19	9.68	92.51
MW-20E	130.30	1.00	120-130	102.25	9.73	92.52
MW-21A	13.80	1.00	4-14	107.26	13.3	93.96
MW-21B	39.64	1.00	30-40	107.26	14.55	92.71
MW-21C	69.10	1.00	60-70	107.43	14.89	92.54
MW-21D	98.85	1.00	90-100	107.35	14.74	92.61
MW-21E	129.65	1.00	120-130	107.18	14.52	92.66
MW-22A	15.85	1.00	4-14	106.76	13.54	93.22
MW-22B	39.80	1.00	30-40	107.1	14.49	92.61
MW-22C	68.85	1.00	60-70	106.95	14.4	92.55
MW-22D	98.50	1.00	90-100	107.15	14.64	92.51
MW-22E	128.80	1.00	120-130	106.96	14.43	92.53

1) - Top of Casing
2) - Feet above Site vertical datum
3) - Feet below top of casing

NR - Not Recorded
NM - Not Measured

TABLE 2

FORMER CHARLTON CLEANER FACILITY
VCP INDEX NO. W308910106
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

Summary of Geoprobe & Hand Auger Groundwater Samples, VOCs
Collected September 2000
(all concentrations in micrograms per liter [ug/l])

Sample ID	Tetrachloroethylene	Trichloroethylene	1,1-Dichloroethylene	cis-1,2-Dichloroethylene	Vinyl Chloride
GP-1	<1.0	<1.0	<1.0	<1.0	<1.0
GP-2	<1.0	<1.0	<1.0	<1.0	<1.0
GP-3	<1.0	<1.0	<1.0	12	20.0
GP-4	<1.0	<1.0	<1.0	2	<1.0
GP-6	340	430	28.0	910	3,300
GP-12	3,200	110	2.0	350	2.0
GP-14	32.0	2.0	<1.0	18	4.0
GP-15	3.0	<1.0	<1.0	25	28.0
GP-16	3.0	<1.0	<1.0	72	83.0
GP-17	220	230	17.0	4500	7,100
GP-19	1,100	530	20.0	4100	1,200
GP-20	2,400	130	5.0	350	4.0
GP-22	81.0	6.0	<1.0	26	6.0
HA-1	3,300	530	<10.0	670	<10.0
HA-2	200	21.0	<1.0	30	<1.0
TOGS 1.1.1[1)]	**5.0**	**5.0**	**5.0**	**5.0**	**2.0**

1) - New York State Ground Water Quality Standards and Guidance Values
(Div. of Water Technical and Operational Guidance Series 1.1.1)

340 Exceeds TOGS

TABLE 3

FORMER CHARLTON CLEANER FACILITY
VCP INDEX NO. W308910106
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

Hand Auger Locations
Summary of Volatile Organic Compounds Detected in Groundwater
Collected June 2005
(all concentrations in micrograms per liter [ug/l])

Sample Location	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	Vinyl Chloride
HA-1	1,040	ND [2)]	ND	ND
HA-2	22,800	ND	ND	ND
HA-3	6,500	1,320	2,310	916
HA-4	11.1	ND	10.5	ND
HA-5	214	32.9	36.7	ND
HA-6	38.8	ND	ND	ND
TOGS 1.1.1 [3)]	5	5	5	2

1) - Micrograms per liter
2) - Not detected
3) - New York State Ground Water Quality Standards and Guidance Values
(Div. of Water Technical and Operational Guidance Series 1.1.1)
1,040 xceeds NYSGWQS&GV

TABLE 4

FORMER CHARLTON CLEANER FACILITY
VOLUNTARY CLEANUP PROGRAM INDEX # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

Groundwater Monitor Wells
Summary of Select Volatile Organic Compounds Detected in Ground-Water

Sample Identification	Sample Date	Compound (ug/l) [1]								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	Vinyl Chloride	4-isopropyltoluene	Acetone	cis-1,2-Dichloroethylene	1,1-Dichloroethene	2-Butanone (MEK)
MW-1	Nov-00	<1.0	<1.0	ND [3]	<1.0	ND	ND	<1.0	ND	ND
	Jul-05	1	ND	ND	ND	ND	**81**	ND	ND	ND
	Aug-06	**53**	ND	ND	ND	**120**	28	ND	ND	ND
	Dec-06	**12**	<2.0	<2.0	<2.0	2.4	**25,000**	<2.0	<1.0	<10.0
	Mar-07	**60**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	**130**
	Jul-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	<2.0	<2.0	<2.0	<2.0	<2.0	11	<2.0	<1.0	<10.0
	Jan-08	well paved over								
	Oct-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	<2.0	<2.0	<2.0	<2.0	<2.0	16	<2.0	<1.0	<10.0
MW-2A	Nov-00	<1.0	<1.0	ND	<1.0	ND	ND	<1.0	ND	ND
	Jul-05	**36**	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	**79**	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	**12**	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Mar-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	<2.0	<2.0	<2.0	<2.0	<2.0	14	<2.0	<1.0	<10.0
	Oct-07	**360**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	**21**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	**76**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-08	<2.0	<2.0	<2.0	<2.0	<2.0	20	<2.0	<1.0	<10.0
	Jul-09	<2.0	<2.0	<2.0	<2.0	<2.0	10	<2.0	<1.0	<10.0
	Apr-10	**26**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-2B	Jul-05	**2,200**	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	**1,500**	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	**480**	<20	<20	<20	<20	<100	<20	<10	<100.0
	Mar-07	**440**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	**360**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	**6,300**	<20	<20	<20	<20	<100	<20	<10	<100
	Jan-08	**450**	<20	<20	<20	<20	<100	<20	<10	<100
	Apr-08	**400**	<20.0	<20.0	<20.0	<20.0	<100.0	<20.0	<10.0	<100.0
	Jul-08	**9.0**	<2.0	<2.0	<2.0	<2.0	21	<2.0	<1.0	<10.0
	Oct-08	**970**	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Jul-09	**290**	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Apr-10	**130**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-3	Nov-00	<1.0	<1.0	---	<1.0	---	---	<1.0	---	---
	Jul-05	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Mar-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	<2.0	<2.0	<2.0	<2.0	<2.0	11	<2.0	<1.0	<10.0
	Oct-07	**51**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	**12**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	2.1	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	**44**	**6.3**	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-08	**9.2**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-4	Nov-00	<1.0	<1.0	---	<1.0	---	---	<1.0	---	---
	Jul-05	17	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	17	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Mar-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	**31**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	**29**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	**64**	**11**	<2.0	<2.0	<2.0	<10.0	**5.8**	<1.0	<10.0
	Oct-08	3.6	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-5A	Nov-00	**12**	**7**	ND	**500**	ND	ND	**60**	ND	ND
	Jul-05	**30**	**13**	ND	ND	ND	ND	ND	ND	ND
	Aug-06	**36**	**15**	ND	**68**	ND	ND	**130**	ND	ND
	Dec-06	**70**	<2.0	<2.0	<2.0	<2.0	<10	2.1	<1.0	<10.0
	Mar-07	**190**	**5.8**	<2.0	**24**	<2.0	<10.0	**58**	<1.0	<10.0
	Jul-07	**260**	**9.2**	<2.0	**30**	<2.0	<10.0	**75**	<1.0	<10.0
	Oct-07	**130**	3.9	<2.0	**11**	<2.0	<10.0	**26**	<1.0	<10.0
	Jan-08	**170**	**42**	<2.0	**56**	<2.0	<10.0	**270**	<1.0	<10.0
	Apr-08	**400**	**220**	<20.0	**540**	<20.0	<100.0	**2,300**	<10.0	<100.0
	Jul-08	**430**	**270**	<20.0	**550**	<20.0	<100.0	**2,000**	<10.0	<100.0
	Oct-08	**250**	**140**	<20.0	**300**	<20.0	<100.0	**1,500**	<10.0	<100.0
	Jul-09	**90**	**28**	<2.0	**69**	<2.0	<10.0	**240**	<2.0	<10.0
	Apr-10	**32**	<2.0	<2.0	<2.0	<2.0	<10.0	**6.1**	<1.0	<10.0
MW-5B	Nov-00	**3,300**	<1.0	<1.0	**3,300**	<1.0	<1.0	<1.0	<1.0	<10.0
	Jul-05	**2,300**	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	**3,600**	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	**450**	<20	<20	<20	<20	<100	<20	<10	<100.0
	Mar-07	**2,300**	<20.0	<20.0	<20.0	<20.0	<100.0	<20.0	<10.0	<100.0
	Jul-07	**1,900**	<20.0	<20.0	<20.0	<20.0	<100.0	<20.0	<10.0	<100.0
	Oct-07	**870**	<20.0	<20.0	<20.0	<20.0	<100.0	<20.0	<10.0	<100.0
	Jan-08	**1,200**	<20.0	<20.0	<20.0	<20.0	<100.0	<20.0	<10.0	<100.0
	Apr-08	**55**	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Jul-08	**38**	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Oct-08	**32**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	**33**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	**210**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-5C	Jul-05	**16**	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	**38**	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	**11**	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Mar-07	**11**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	**100**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	**58**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	**6.1**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	2.2	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Jul-08	4.9	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Oct-08	**6.5**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	**8.4**	<2.0	<2.0	<2.0	<2.0	<10.0	2.8	<1.0	<10.0
	Apr-10	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-5D	Jul-05	**260**	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	**36**	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	**10**	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Mar-07	**12**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	**130**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	**80**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	3.9	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	2.9	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	2.8	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-08	**5.8**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	**5.8**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	**5.1**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
TOGS 1.1.1 [4]		5	5	5	2	5	50	5	5	50

Sample Identification	Sample Date	Compound (ug/l) [1]								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	Vinyl Chloride	4-isopropyltoluene	Acetone	cis-1,2-Dichloroethylene	1,1-Dichloroethene	2-Butanone (MEK)
MW-6A	Nov-00	**2,600**	**61**	ND	**960**	ND	ND	**930**	ND	ND
	Jul-05	**160**	**22**	ND	1.7	ND	ND	ND	ND	ND
	Aug-06	**310**	2.4	ND	ND	ND	ND	**6.1**	ND	ND
	Dec-06	**810**	<20	<20	<20	<20	<100	**42**	<10	<100.0
	Mar-07	**290**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	**2,300**	**45**	<2.0	**3.7**	<2.0	<10.0	**35**	<1.0	<10.0
	Oct-07	**420**	**39**	<2.0	<2.0	<2.0	<10.0	**37**	<1.0	<10.0
	Jan-08	**600**	**6.5**	<2.0	**7.1**	<2.0	<10.0	**28**	<1.0	<10.0
	Apr-08	**2,700**	<20	<20	<20	<20	<100	**25**	<10	<100
	Jul-08	**580**	<20	<20	<20	<20	<100	<20	<10	<100
	Oct-08	**73**	<20.0	<20.0	<20.0	<20.0	<100.0	<20.0	<10.0	<100.0
	Jul-09	2.3	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	**1,300**	**18**	<2.0	**3.2**	<2.0	<10.0	**97**	<1.0	<10.0
MW-6B	Nov-00	**6,200**	3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10.0
	Jul-05	**14,000**	2	ND	ND	ND	ND	ND	ND	ND
	Aug-06	**12,000**	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	**240**	<20	<20	<20	<20	<100	<20	<10	<100.0
	Mar-07	**5,500**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	**3,700**	3.7	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	**3,300**	<40	<40	<40	<40	<200	<40	<20	<200
	Jan-08	**9,100**	4.3	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	**13,000**	<200	<200	<200	<200	<1000	<200	<100	<1000
	Jul-08	**2,600**	<200	<200	<200	<200	<1000	<200	<100	<1000
	Oct-08	**3,000**	<20.0	<20.0	<20.0	<20.0	<100.0	<20.0	<10.0	<100.0
	Jul-09	**3,400**	<20.0	<20.0	<20.0	<20.0	<100.0	<20.0	<10.0	<100.0
	Apr-10	**12,000**	<40	<40	<40	<40	<200	<40	<20	<200
MW-6C	Jul-05	**110**	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	**3,900**	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	**110**	**35**	<2.0	<2.0	<2.0	<10	**77**	<1.0	<10.0
	Mar-07	**100**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	**210**	**23**	<2.0	<2.0	<2.0	<10.0	**48**	<1.0	<10.0
	Oct-07	**87**	**25**	<2.0	<2.0	<2.0	<10.0	**45**	<1.0	<10.0
	Jan-08	**250**	**10**	<2.0	<2.0	<2.0	<10.0	**13**	<1.0	<10.0
	Apr-08	**76**	**5.8**	<2.0	<2.0	<2.0	<10.0	**15**	<1.0	<10.0
	Jul-08	**120**	**16**	<2.0	<2.0	<2.0	<10.0	**110**	<1.0	<10.0
	Oct-08	**4,700**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	**120**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	**15**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-6D	Jul-05	**30**	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	**12**	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	**26**	<2.0	<2.0	<2.0	<2.0	<10	**13**	<1.0	<10.0
	Mar-07	**9**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	**95**	<2.0	<2.0	<2.0	<2.0	<10.0	3.1	<1.0	<10.0
	Oct-07	**7.9**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	**200**	2.5	<2.0	<2.0	<2.0	<10.0	**6**	<1.0	<10.0
	Apr-08	**48**	**11**	<2.0	**7.4**	<2.0	<10.0	**120**	<1.0	<10.0
	Jul-08	**280**	**20**	<2.0	**3.1**	<2.0	<10.0	**530**	2.6	<10.0
	Oct-08	**5,300**	**45**	<20.0	<20.0	<20.0	<100	**230**	<10.0	<100
	Jul-09	**15**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	**7.5**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-7A	Nov-00	**1,500**	**81**	ND	**2,700**	ND	ND	**1,800**	ND	ND
	Jul-05	**4,300**	**93**	ND	**43**	ND	ND	**400**	1.4	ND
	Aug-06	**3,600**	**83**	ND	**82**	ND	ND	**480**	ND	ND
	Dec-06	**4,200**	**88**	<20	**86**	<20	<100	**480**	<10	<100
	Mar-07	**4,700**	**74**	<40.0	<40.0	<40.0	<200	**320**	<20.0	<200
	Jul-07	**5,600**	**61**	<4.0	**4.6**	<2.0	<10.0	**240**	<2.0	<10.0
	Oct-07	**5,000**	**93**	<40	<40	<20	<100	**390**	<20	<100
	Jan-08	**4,100**	**93**	<2.0	**68**	<2.0	<10.0	**480**	<1.0	<10.0
	Apr-08	**3,200**	**61**	<40	**46**	<40	<200	**360**	<20	<200
	Jul-08	**1,100**	**260**	<40	**70**	<40	<200	**630**	<20	<200
	Oct-08	**880**	**110**	<20.0	**54**	<20.0	<100	**620**	<10.0	<100
	Jul-09	**2,100**	**91**	<20.0	**150**	<20.0	<100	**1,100**	<10.0	<100
	Apr-10	**820**	**30**	<20	<20	<20	<100	**240**	<10	<100
MW-7B	Nov-00	**17**	ND	ND	**5**	ND	ND	2	ND	ND
	Jul-05	**31**	ND	ND	ND	ND	ND	0.61	ND	ND
	Aug-06	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	2.6	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Mar-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	4.6	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	**22**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	**24**	**6.8**	<2.0	**2.2**	<2.0	<10.0	**10**	<1.0	<10.0
	Oct-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	4.5	<2.0	<2.0	<2.0	<2.0	<10.0	2.3	<1.0	<10.0
	Apr-10	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-7C	Jul-05	**17**	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	**9.1**	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Mar-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	**5.2**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	2.4	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	**24**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	**30**	**11**	<2.0	**2.2**	<2.0	<10.0	**16**	<1.0	<10.0
	Oct-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-7D	Jul-05	0.75	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	**13**	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Mar-07	3	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	4.2	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	3.6	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	**39**	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	**28**	**13**	<2.0	**3.6**	<2.0	<10.0	**25**	<1.0	<10.0
	Oct-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
TOGS 1.1.1 [4]		5	5	5	2	5	50	5	5	50

1) - Micrograms per liter
2) - Methyl Tert Butyl Ether
3) - Not detected
4) - New York State Ground Water Quality Standards and Guidance Values
(Div. of Water Technical and Operational Guidance Series 1.1.1)
5) - Not Available

81 Exceeds TOGS

Compounds in Blue are the primary Contaminants of Concern

TABLE 4 (cont.)

FORMER CHARLTON CLEANER FACILITY
VOLUNTARY CLEANUP PROGRAM INDEX # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

Groundwater Monitor Wells
Summary of Select Volatile Organic Compounds Detected in Ground-Water

Sample Identification	Sample Date	Compound (ug/l) [1]								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	Vinyl Chloride	4-isopropyltoluene	Acetone	cis-1,2-Dichloroethylene	1,1-Dichloroethene	2-Butanone (MEK)
MW-8A	Nov-00	120	11	ND	37	ND	ND	74	ND	ND
	Jul-05	1,700	51	ND	ND	ND	ND	200	0.91	ND
	Aug-06	940	30	ND	ND	ND	ND	120	ND	ND
	Dec-06	890	27	<20	<20	<20	<100	110	<10	<100.0
	Mar-07	1,200	36	<20.0	<20.0	<20.0	<100.0	140	<10.0	<100.0
	Jul-07	1,400	36	<20.0	<20.0	<20.0	<100.0	140	<10.0	<100.0
	Oct-07	950	32	<20.0	<20.0	<20.0	<100.0	120	<10.0	<100.0
	Jan-08	740	29	<20.0	<20.0	<20.0	<100.0	91	<10.0	<100.0
	Apr-08	550	<20.0	<20.0	<20.0	<20.0	<100.0	83	<10.0	<100.0
	Jul-08	160	13	<2.0	<2.0	<2.0	11	48	<1.0	<10.0
	Oct-08	460	42	<2.0	9.4	<2.0	<10.0	120	<1.0	<10.0
	Jul-09	170	8.0	<2.0	<2.0	<2.0	<10.0	30	<1.0	<10.0
	Apr-10	210	15	<2.0	<2.0	<2.0	<10.0	91	<1.0	<10.0
MW-8B	Nov-00	26	1	ND	ND	ND	ND	3	ND	ND
	Jul-05	7.9	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	28	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	50	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Mar-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	<2.0	<2.0	<2.0	<2.0	<2.0	21	<2.0	<1.0	<10.0
	Oct-08	10	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-8C	Jul-05	4.7	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	37	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	ND
	Mar-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-08	4.4	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-8D	Jul-05	3.7	ND	ND	ND	ND	ND	ND	ND	<10.0
	Aug-06	45	ND	ND	ND	ND	ND	22	ND	<10.0
	Dec-06	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Mar-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	<2.0	<2.0	<2.0	<2.0	<2.0	11	<2.0	<1.0	<10.0
	Oct-08	10	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-9A	Jul-05	0.8	ND	ND	0.98	ND	3	1.6	ND	NM
	Aug-06	8	ND	ND	18	ND	ND	ND	ND	NM
	Dec-06	6.1	<2.0	<2.0	24	<2.0	<10	44	<1.0	NM
	Mar-07	<2.0	<2.0	<2.0	24	<2.0	<10.0	41	<1.0	<10.0
	Jul-07	<2.0	<2.0	<2.0	17	<2.0	<10.0	26	<1.0	<10.0
	Oct-07	96	<2.0	<2.0	7.8	<2.0	<10.0	7.4	<1.0	<10.0
	Jan-08	<2.0	<2.0	<2.0	13	<20.	<10.0	25	<1.0	<10.0
	Apr-08	<2.0	<2.0	<2.0	3.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-08	2.3	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	<2.0	<2.0	<2.0	4.7	<2.0	<10.0	13	<1.0	<10.0
	Apr-10	<2.0	<2.0	<2.0	13	<2.0	<10.0	38	<1.0	<10.0
MW-9B	Jul-05	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	3.1	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	6.4	<2.0	<2.0	<2.0	<2.0	<10	2.8	<1.0	<10.0
	Mar-07	<2.0	<2.0	2.4	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	<2.0	<2.0	2.4	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	79	<2.0	2.2	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	<2.0	<2.0	2.6	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	<2.0	<2.0	2.6	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	<2.0	<2.0	2.3	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-9C	Jul-05	ND	ND	1.5	ND	ND	ND	ND	ND	ND
	Aug-06	4.1	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	5.6	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Mar-07	<2.0	<2.0	2.2	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	<2.0	<2.0	3.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	110	2.2	3.6	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	<2.0	<2.0	2.6	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	<2.0	<2.0	2.3	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	<2.0	<2.0	2.5	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-9D	Jul-05	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	5.5	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	10	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Mar-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	57	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	<2.0	<2.0	2.6	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-10A	Jul-05	ND	ND	ND	ND	0.9	ND	ND	ND	ND
	Aug-06	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Mar-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	<20.0	<20.0	<20.0	<20.0	<20.0	<100.0	<20.0	<10.0	<100.0
	Oct-07	25	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	13	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	85	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-10B	Jul-05	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Mar-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Oct-07	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Jan-08	12	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Oct-08	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Jul-09	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	NS	NS	NS	NS	NS	NS	NS	NS	NS
TOGS 1.1.1 [4]		5	5	5	2	5	50	5	5	50

Sample Identification	Sample Date	Compound (ug/l) [1]								
		Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	Vinyl Chloride	4-isopropyltoluene	Acetone	cis-1,2-Dichloroethylene	1,1-Dichloroethene	2-Butanone (MEK)
MW-10C	Jul-05	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Mar-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Oct-07	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Jan-08	15	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Oct-08	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Jul-09	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-10D	Jul-05	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Mar-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Oct-07	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Jan-08	20	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Oct-08	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Jul-09	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-11C	Jul-05	10	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	7.3	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Mar-07	95	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	89	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	9.5	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	26	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	3.2	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	93	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-08	5.3	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	2	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-11D	Jul-05	17	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	20	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	49	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Mar-07	140	2.2	<2.0	<2.0	<2.0	<10.0	2.6	<1.0	<10.0
	Jul-07	130	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	16	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	44	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	10	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	81	<2.0	<2.0	<2.0	<2.0	15	<2.0	<1.0	<10.0
	Oct-08	4.4	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-09	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-12C	Jul-05	8,200	ND	ND	ND	ND	ND	ND	ND	ND
	Aug-06	250	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	1,600	3.1	<2.0	<2.0	<2.0	<10	9.7	<1.0	<10.0
	Mar-07	1,100	<20.0	<20.0	<20.0	<20.0	<100.0	<20.0	<10.0	<100.0
	Jul-07	1,100	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	70	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	650	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	41	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	500	2.0	<2.0	<2.0	<2.0	<10.0	3.1	<1.0	<10.0
	Oct-08	180	<20.0	<20.0	<20.0	<20.0	<100.0	<20.0	<10.0	<100.0
	Jul-09	41	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	300	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-12D	Jul-05	54	0.74	ND	ND	ND	ND	0.75	ND	ND
	Aug-06	160	ND	ND	ND	ND	ND	9.6	ND	ND
	Dec-06	32	<20	<20	<20	<20	<100	14	<10	<100.0
	Mar-07	110	<2.0	<2.0	<2.0	<2.0	<10.0	15	<1.0	<10.0
	Jul-07	250	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	24	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jan-08	23	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	16	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-08	130	<2.0	<2.0	<2.0	<2.0	<10.0	2.2	<1.0	<10.0
	Oct-08	25	<2.0	<2.0	<2.0	<2.0	<10.0	2.4	<1.0	<10.0
	Jul-09	32	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	16	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-13A	Aug-06	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Mar-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Oct-07	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Jan-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Jul-08	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Oct-08	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Jul-09	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-13B	Aug-06	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Dec-06	<2.0	<2.0	<2.0	<2.0	<2.0	<10	<2.0	<1.0	<10.0
	Mar-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Jul-07	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Oct-07	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Jan-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-08	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Jul-08	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Oct-08	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Jul-09	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	NS	NS	NS	NS	NS	NS	NS	NS	NS
GES MW-4	Aug-06	ND	ND	ND	7.6	ND	ND	4.4	ND	ND
	Dec-06	23	<2.0	<2.0	4.4	<2.0	<10	2.7	<1.0	<10.0
	Mar-07	<2.0	<2.0	<2.0	6.2	<2.0	<10.0	4.1	<1.0	<10.0
	Jul-07	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Oct-07	<2.0	<2.0	<2.0	15	<2.0	<10.0	6.8	<1.0	<10.0
	Jan-08	<2.0	<2.0	<2.0	5.4	<2.0	<10.0	5.1	<1.0	<10.0
	Apr-08	33	<2.0	<2.0	6.6	<2.0	<10.0	6.9	<1.0	<10.0
	Jul-08	<2.0	<2.0	<2.0	4.8	<2.0	<10.0	8.9	<1.0	<10.0
	Oct-08	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	9.5	<1.0	<10.0
	Jul-09	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
	Apr-10	<2.0	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-14A	Jul-08	190	2.8	<2.0	<2.0	<2.0	<10.0	9.9	<1.0	<10.0
MW-14B		330	5.6	<2.0	<2.0	<2.0	<10.0	28	<1.0	<10.0
MW-14C		370	6.8	<2.0	<2.0	<2.0	<10.0	21	<1.0	<10.0
MW-14D		450	2.6	<2.0	<2.0	<2.0	<10.0	9.6	<1.0	<10.0
MW-14E		200	2.9	<2.0	<2.0	<2.0	<10.0	8.6	<1.0	<10.0
MW-15A	Jul-08	29	<2.0	<2.0	<2.0	<2.0	<10.0	11	<1.0	<10.0
MW-15B		35	2.5	<2.0	<2.0	<2.0	<10.0	19	<1.0	<10.0
MW-15C		43	2.8	<2.0	<2.0	<2.0	<10.0	22	<1.0	<10.0
MW-15D		36	<2.0	<2.0	<2.0	<2.0	<10.0	7.7	<1.0	<10.0
MW-15E		2.5	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-16A	Jul-08	840	4.7	<2.0	<2.0	<2.0	<10.0	4.7	<1.0	<10.0
MW-16B		3,400	15	<2.0	<2.0	<2.0	<10.0	22	<1.0	<10.0
MW-16C		6,200	20	<2.0	<2.0	<2.0	<10.0	35	<1.0	<10.0
MW-16D		170	<2.0	<2.0	<2.0	<2.0	<10.0	2.4	<1.0	<10.0
MW-16E		56	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
MW-17A	Jul-08	210	<20	<20	<20	<20	<100	41	<10	<100
MW-17B		350	<20	<20	<20	<20	<100	<20	<10	<100
MW-17C		330	7.1	<2.0	<2.0	<2.0	<10.0	49	<1.0	<10.0
MW-17D		340	4.7	<2.0	<2.0	<2.0	<10.0	36	<1.0	<10.0
MW-17E		290	<2.0	<2.0	<2.0	<2.0	<10.0	<2.0	<1.0	<10.0
TOGS 1.1.1 [4]		5	5	5	2	5	50	5	5	50

1) - Micrograms per liter
2) - Methyl Tert Butyl Ether
3) - Not detected
4) - New York State Ground Water Quality Standards and Guidance Values (Div. of Water Technical and Operational Guidance Series 1.1.1)
5) - Not Available
81 Exceeds TOGS
Compounds in Blue are the primary Contaminants of Concern

TABLE 5

FORMER CHARLTON CLEANER FACILITY
VOLUNTARY CLEANUP PROGRAM INDEX # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

Offsite Groundwater Monitor Wells
Summary of Deyected Volatile Organic Compounds in Ground-Water
Samples Collected August 18-20, 2010

Compound	MW-18					MW-19					MW-20					MW-21					MW-22					TOGS 1.1.1 [2]
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	
	4-14 [1]	30-40	60-70	90-100	120-130	4-14	30-40	60-70	90-100	120-130	4-14	30-40	60-70	90-100	120-130	4-14	30-40	60-70	90-100	120-130	4-14	30-40	60-70	90-100	120-130	
Vinyl chloride	**34**	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	**2**
Acetone	<100	<10	<10	<10	<10	**20**	<10	<10	<10	<10	<10	<10	<10	<10	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	**50**
1,1-Dichloroethene	**12**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	**5**
trans-1,2-Dichloroethene	**26**	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	**5**
1,1-Dichloroethane	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	**4.6**	**5**
cis-1,2-Dichloroethene	**5900**	<2	<2	<2	<2	<2	<2	<2	<2	<2	**5.1**	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	**5**
Chloroform	<20	**9.9**	<2	<2	<2	**11**	**4.8**	<2	<2	<2	**2**	**6.6**	<2	**7.3**	<2	<20	**11**	**2.3**	<2	<2	<2	**5.9**	**2.3**	<2	<2	**7**
Trichloroethene	**2300**	**3.3**	<2	**2.5**	<2	<2	<2	<2	<2	<2	**13**	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	**5**
Tetrachloroethene	**15000**	**1100**	**27**	**60**	<2	<2	**3.8**	<2	<2	<2	**970**	**66**	**2.6**	**2.1**	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	**5**

All concentrations expressed in micrograms per liter (ug/l)

1) Screen setting, feet below grade

2) - New York State Ground Water Quality Standards and Guidance Values
(Div. of Water Technical and Operational Guidance Series 1.1.1)

TABLE 6A

FORMER CHARLTON CLEANER FACILITY
VCP INDEX NO. W308910106
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

Apex Soil Samples from Temporary Points, Various Locations in FAST
Summary of Volatile Organic Compounds
1994

Sample Identification	Depth (ft bg)	Concentration (ug/kg)									
		trans-1,2-Dichloroethene	cis-1,2-Dichloroethene	Trichloroethene	Tetrachloroethene	MTBE	Benzene	Toluene	Ethylbenzene	m&p Xylenes	o Xylenes
RL-01	12	3	1200	36	290	ND	ND	ND	ND	3	ND
RL-02	12	ND	ND	ND	ND	ND	ND	ND	ND	8	ND
PM-09-12	12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PM-10-12	12	ND	ND	ND	ND	ND	ND	ND	ND	2	ND
PM-11-12	12	ND	ND	ND	ND	ND	ND	ND	ND	3	ND
PM-12-10	10	ND	38	ND	ND	ND	ND	ND	ND	ND	ND
Hess-01	14	ND	ND	ND	ND	ND	30	19	120	220	9
Hess-02	12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hess-03	12	ND	ND	ND	ND	ND	ND	2	ND	4	4
Hess-05	12	ND	ND	ND	ND	ND	ND	140	ND	77	34
Hess-06	12	ND	ND	ND	ND	ND	ND	62	450	520	5
Hess-06	19	ND	ND	ND	ND	ND	140	16	12	14	7
Hess-07	12	ND	ND	ND	ND	ND	190	170	620	1,600	750
Hess-08	12	ND	ND	ND	ND	ND	ND	ND	ND	2	ND
Hess-09	12	ND	ND	ND	ND	ND	ND	ND	ND	1	ND
Hess-10	12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hess-11	12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hess-12	12	ND	ND	ND	ND	ND	1,250	3,900	2,500	6,700	4,100
Hess-13	12	ND	ND	ND	ND	ND	ND	ND	ND	2	ND
Hess-14	12	ND	ND	ND	ND	ND	ND	ND	ND	9	4
Hess-15	12	ND	ND	ND	ND	ND	ND	ND	ND	3	ND
Hess-16	10	ND	ND	ND	ND	ND	ND	ND	ND	3	ND
Hess-17	12	ND	ND	ND	ND	ND	ND	ND	ND	1	ND
JCP-01	14	ND	ND	ND	ND	ND	150	19	300	140	180
McUST-01	12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
McUST-02	12	ND	ND	ND	ND	ND	ND	4	ND	ND	ND
Part 375, Unrestricted Use		190	250	470	1,300	930	60	700	1,000	260 (mixed)	
Part 375, Restricted Use, Protection of Groundwater		190	250	470	1,300	930	60	700	1,000	1,600 (mixed)	

(ug/kg) = Micrograms per kilogram
MTBE = Methyl Tert Butyl Ether
ND = Not Detected
NR = Not Reported
New York State Codes, Rules and Regulations, Chapter IV, Part 375: Environmental Remediation Programs, Subpart 375-6: Remedial Program Soil Cleanup Objectives, Dec. 14, 2006
140 Exceeds Part 375

TABLE 6B

FORMER CHARLTON CLEANER FACILITY
VCP INDEX NO. W308910106
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

Dvirka & Bartilucci Soil Samples from Charlton Cleaners Vicinity
Summary of Volatile Organic Compounds
1996

Sample Identification	Depth (ftbg)	Concentration (ug/kg)								
		Tetrachloroethene	Trichloroethene	Vinyl Chloride	Ethylbenzene	Total Xylenes	Acetone	cis-1,2-Dichloroethene	Methylene Chloride	2-Butanone
GP-1	0-2	ND	ND	ND	ND	ND	38	ND	ND	ND
GP-1	2-4	22	ND	ND	ND	ND	ND	ND	ND	ND
GP-1	4-6	14	ND	ND	ND	ND	6	ND	4	ND
GP-2	0-2	25	ND	ND	ND	ND	18	ND	ND	ND
GP-2	2-4	38	ND	ND	ND	ND	14	ND	ND	ND
GP-2	4-6	20	4	ND	ND	ND	10	9	6	ND
GP-3	0-2	6	ND	ND	ND	ND	38	6	ND	ND
GP-3	2-4	ND	ND	ND	ND	ND	32	7	4	7
GP-3	4-6	5	ND	ND	ND	ND	22	9	4	ND
GP-4	0-2	ND	ND	ND	ND	ND	43	ND	ND	11
GP-4	2-4	ND	ND	ND	ND	ND	47	ND	5	4
GP-4	4-6	ND	ND	ND	ND	ND	42	ND	6	6
GP-4	6-8	ND	ND	ND	ND	ND	31	ND	5	ND
GP-5	0-2	6	ND	ND	ND	ND	69	ND	6	19
GP-5	2-4	ND	ND	ND	ND	ND	41	ND	NR	9
GP-5	4-6	ND	ND	ND	ND	ND	53	ND	4	9
GP-5	6-8	ND	ND	ND	ND	ND	70	ND	NR	ND
GP-6	0-2	14	ND	ND	ND	ND	6	ND	4	ND
GP-6	2-4	ND	ND	ND	ND	ND	5	ND	4	ND
GP-6	4-6	12	ND	ND	ND	ND	4	ND	6	ND
Part 375, Unrestricted Use		1,300	470	20	1,000	260 (mixed)	50	250	50	120
Part 375, Restricted Use, Protection of Groundwater		1,300	470	20	1,000	1,600 (mixed)	50	250	50	120

(ug/kg) = Micrograms per kilogram
MTBE = Methyl Tert Butyl Ether
ND = Not Detected
NR = Not Reported
New York State Codes, Rules and Regulations, Chapter IV, Part 375: Environmental Remediation Programs, Subpart 375-6: Remedial Program Soil Cleanup Objectives, Dec. 14, 2006
69 Exceeds Part 375

TABLE 7

FORMER CHARLTON CLEANER FACILITY
VOLUNTARY CLEANUP PROGRAM INDEX # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

Summary of Soil Quality (Geoprobe & Hand Auger) - Sept. 12-26, 2000
Volatile Organic Compounds

Sample Identification	Sample Depth (ft bg)[1/]	Concentration (ug/kg)[2/]										
		Tetrachloroethylene	Trichloroethylene	Vinyl Chloride	cis-1,2-Dichloroethylene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Ethylbenzene	Isopropyl-benzene	sec-Butylbenzene	Naphthalene	Toluene	Xylenes
GP-1	16-16.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GP-2	12-15.8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GP-3	0-4	<5.0	<5.0	<5.0	64	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GP-4	12-13	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GP-5	4-8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GP-6	4-8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	6.0	<5.0
GP-7	8-12	83.0	13.0	7.0	130	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	8.0	5.0
GP-8	8-11.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GP-9	8-11	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GP-10	8-12	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GP-11	8-12	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GP-12	12-15	140	<5.0	<5.0	6	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GP-13	12-15	13.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GP-14	4-8	<5.0	<5.0	<5.0	<5.0	34.0	12.0	22.0	6.0	24.0	670	7.0	89.0
GP-15	8-12	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GP-16	8-12	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GP-17	12-15	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GP-18	8-12	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GP-19	8-12	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GP-20	16-18.5	18.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GP-21	12-13	96.0	55.0	<5.0	450	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GP-22	16-20	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
GP-23	8-11	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
HA-1	1.0[3/]	5,000	860	250	390	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
HA-2	4-5[3/]	45	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Part 375, Unrestricted Use [4/]		**1,300**	**470**	**20**	**250**	**3,600**	**8,400**	**1,000**	**NL**	**11,000**	**12,000**	**700**	**260 (mixed)**
Part 375, Restricted Use, Protection of Groundwater [4/]		**1,300**	**470**	**20**	**250**	**3,600**	**8,400**	**1,000**	**NL**	**11,000**	**12,000**	**700**	**1,600 (mixed)**

1/ - Feet below grade

2/ - Micrograms per kilogram

3/ - Feet below basement floor

4/ - New York State Codes, Rules and Regulations, Chapter IV, Part 375: Environmental Remediation Programs, Subpart 375-6 Remedial Program Soil Cleanup Objectives, Dec. 14, 2006

450 Exceeds Part 375

TABLE 8

FORMER CHARLTON CLEANER FACILITY
VOLUNTARY CLEANUP PROGRAM INDEX # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

Summary of Soil Quality (Monitor Well Installations) - October 2000
Volatile Organic Compounds

Sample Identification	Sample Depth (ft bg)[1/]	Concentration (ug/kg)[2/]											
		Tetrachloroethylene	Trichloroethylene	Vinyl Chloride	cis-1,2-Dichloroethylene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Ethylbenzene	Isopropyl-benzene	sec-Butylbenzene	Naphthalene	Toluene	Xylenes
MW-5D	35-37	130	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-6D	35-37	380	< 5.0	< 50	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-7D	20-22	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-8D	12-Oct	20	< 5.0	< 5.0	14	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Part 375, Unrestricted Use [4/]		**1,300**	**470**	**20**	**250**	**3,600**	**8,400**	**1,000**	**NL**	**11,000**	**12,000**	**700**	**260 (mixed)**
Part 375, Restricted Use, Protection of Groundwater [4/]		**1,300**	**470**	**20**	**250**	**3,600**	**8,400**	**1,000**	**NL**	**11,000**	**12,000**	**700**	**1,600 (mixed)**

1/ - Feet below grade

2/ - Micrograms per kilogram

3/ - Feet below basement floor

4/ - New York State Codes, Rules and Regulations, Chapter IV, Part 375: Environmental Remediation Programs, Subpart 375-6: Remedial Program Soil Cleanup Objectives, Dec. 14, 2006

TABLE 9

VOLUNTARY CLEANUP PROGRAM INDEX # W3-0891-01-06
KIMCO REALTY CORPORATION
FOREST AVENUE SHOPPING CENTER
STATEN ISLAND, NEW YORK

Monitor Wells
Summary of Volatile Organic Compounds Detected in Soil Samples
May 2005

Sample Location	Sample Depth (ft bg) [1]	Concentration (ug/kg) [2]												
		Tetrachloroethene	Trichloroethene	Ethylbenzene	Total Xylenes	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	4-Isopropyltoluene	Naphthalene	Acetone	2-Butanone	n-Butylbenzene	2-Chloroethyl vinyl ether	sec-Butylbenzene
MW-2B	0 to 5	ND [3]	ND	ND	14.2	127	38.4	ND	61.2	ND	ND	14.3	22.1	ND
	43 to 45	18.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-5D	0 to 5	16.4	ND	ND	15.1	180	69.6	15.8	83.2	ND	ND	ND	ND	ND
	38 to 40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-6D	10 to 12	200,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	15 to 17	120,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7D	29 to 31	91.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	33 to 35	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-8D	5 to 7	19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7 to 9	14.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-9B	5 to 7	ND	ND	ND	ND	26.8	ND	ND	47.2	19.1	ND	ND	ND	ND
MW-9C	5 to 7	ND	ND	ND	ND	136	45.2	ND	50.1	64.7	18.1	15.1	ND	ND
MW-10D	15 to 17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	187	ND	286
	17 to 19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-11D	0 to 5	ND	ND	ND	59.9	360	161	37.2	216	ND	ND	ND	ND	ND
	30 to 32	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-12D	0 to 5	26.8	ND	ND	ND	ND	77.2	ND	ND	ND	ND	ND	ND	ND
	25 to 27	50.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Part 375, Unrestricted Use [4]		**1,300**	**470**	**1,000**	**260 (mixed)**	**3,600**	**8,400**	**NL [5]**	**12,000**	**50**	**120**	**12,000**	**NL**	**11,000**
Part 375, Restricted Use, Protection of Groundwater [4]		**1,300**	**470**	**1,000**	**1,600 (mixed)**	**3,600**	**8,400**	**NL [5]**	**12,000**	**50**	**120**	**12,000**	**NL**	**11,000**

1) - Feet below grade
2) - Micrograms per kilogram
3) - Not Detected
4) - New York State Codes, Rules and Regulations, Chapter IV, Part 375: Environmental Remediation Programs, Subpart 375-6 Remedial Program Soil Cleanup Objectives, Dec. 14, 2006
5) - Not Listed

200,000 Exceeds Part 375

TABLE 10

FORMER CHARLTON CLEANERS FACILITY
VOLUNTARY CLEANUP PROGRAM INDEX # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
STATEN ISLAND, NEW YORK

Hand Augers Locations
Summary of Volatile Organic Compounds Detected in Soil Samples
Collected From Beneath Michaels Basement Floor Slab
September 2000 & June 2005

Sample Location	Sample Depth (ft bg) [1]	Concentration (ug/kg) [2]				
		Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	Acetone	Vinyl Chloride
HA-1 (2000)	1	5,000	860	390	NA	250
HA-2 (2000)	4 to 5	45	< 5.0	< 5.0	NA	< 5.0
HA-1 (2005)	2 to 3	ND [3]	ND	ND	13.3	ND
HA-2 (2005)	2 to 3	945	23.5	55.4	ND	ND
HA-3	2 to 3	266	20.5	25.8	ND	ND
HA-4	2 to 3	ND	ND	ND	ND	ND
HA-5	2 to 3	ND	ND	ND	ND	ND
HA-6	2 to 3	ND	ND	ND	ND	ND
Part 375, Unrestricted Use [4]		**1,300**	**470**	**250**	**50**	**20**
Part 375, Restricted Use, Protection of Groundwater [4]		**1,300**	**470**	**250**	**50**	**20**

1) - Feet below grade
2) - Micrograms per kilogram
3) - Not Detected
4) - New York State Codes, Rules and Regulations, Chapter IV, Part 375: Environmental Remediation Programs, Subpart 375-6 Remedial Program Soil Cleanup Objectives, Dec. 14, 2006

5,000 ceeds Part 375

TABLE 11

FORMER CHARLTON CLEANER FACILITY
VOLUNTARY CLEANUP PROGRAM INDEX # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

Summary of Analysis Results for Preliminary Soil Samples
Volatile Organic Compounds by EPA Method 8260
Samples Collected September 11, 2009

Sample Location	Depth below floor (feet)	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene	Vinyl chloride	Dichlorodifluoromethane	Chloromethane	Chloroethane	Trichlorofluoromethane	Acetone	1,1-Dichloroethene	Carbon disulfide	Methylene chloride	Methyl tert-butyl ether	trans-1,2-Dichloroethene	1,1-Dichloroethane	2-Butanone	Chloroform	1,1,1-Trichloroethane	Carbon tetrachloride	1,2-Dichloroethane	Benzene	Toluene	1,1,2-Trichloroethane	Chlorobenzene	Ethylbenzene	m,p-Xylene	o-Xylene	1,3,5-Trimethylbenzene	1,2,4-Trimethylbenzene	Naphthalene
B-1	2	**23** [1]	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	6	**120**	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
B-2	2	**62**	<5.0	**11**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	6	**370**	**23**	**440**	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
B-3	2	**300**	**110**	**310**	**42**	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
	6	**2,600**	**90**	**980**	**64**	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
B-4	2	**240**	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
	6	**12**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Part 375, Unrestricted Use [2]		**1,300**	**470**	**250**	**20**	**NL [3]**	**NL**	**NL**	**NL**	**50**	**330**	**NL**	**50**	**930**	**190**	**270**	**120**	**370**	**680**	**760**	**20**	**60**	**700**	**NL**	**1,100**	**1,000**	**260 (mixed)**			**8,400**	**3,600**	**12,000**
Part 375, Restricted Use, Protection of Groundwater [2]		**1,300**	**470**	**250**	**20**	**NL [3]**	**NL**	**NL**	**NL**	**50**	**330**	**NL**	**50**	**930**	**190**	**270**	**120**	**370**	**680**	**760**	**20**	**60**	**700**	**NL**	**1,100**	**1,000**	**1,600 (mixed)**			**8,400**	**3,600**	**12,000**

1) Concentrations in **BOLD** are detections greater than the laboratory detection limit (LDL)
2) New York State Codes, Rules and Regulations, Chapter IV, Part 375: Environmental Remediation Programs, Subpart 375-6: Remedial Program Soil Cleanup Objectives, Dec. 14, 2006
3) Not Listed
440 Exceeds Part 375

TABLE 12

FORMER CHARLTON CLEANER FACILITY
VOLUNTARY CLEANUP PROGRAM INDEX # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

Summary of Analysis Results for Excavation Endpoint Soil Samples
Volatile Organic Compounds by EPA Method 8260
Samples Collected September 17, 18 & 21, 2009

Sample Location	Depth below floor (feet)	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene	Vinyl chloride	Dichlorodifluoromethane	Chloromethane	Chloroethane	Trichlorofluoromethane	Acetone	1,1-Dichloroethene	Carbon disulfide	Methylene chloride	Methyl tert-butyl ether	trans-1,2-Dichloroethene	1,1-Dichloroethane	2-Butanone	Chloroform	1,1,1-Trichloroethane	Carbon tetrachloride	1,2-Dichloroethane	Benzene	Toluene	1,1,2-Trichloroethane	Chlorobenzene	Ethylbenzene	m,p-Xylene	o-Xylene	1,3,5-Trimethylbenzene	1,2,4-Trimethylbenzene	Naphthalene
S-1	3	**220** [1]	**27**	**140**	**9 J** [2]	< 12	< 12	< 12	< 12	< 12	< 12	< 12	**18 JB** [3]	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	**6 J**	**19**	**5 J**	< 12	< 12	< 12
S-2	3	**47**	< 12	**4 J**	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	**16 JB**	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12
S-3	3	**66**	< 12	**8 J**	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	**18 JB**	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12
S-4	3	**450**	**9 J**	**90**	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	**15 JB**	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12
S-5	3	**42**	< 12	**5 J**	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	**17 JB**	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12
S-6	3	**40**	< 12	**26**	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	**17 JB**	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12
S-7	3	**170**	**10 J**	**20**	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	**16 JB**	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	**8 J**	**21**	**6 J**	< 12	< 12	**3 JB**
Bottom-1	7	**190**	**3 J**	**22**	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	**16 JB**	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12
Bottom-2	6	**420**	**25**	**240**	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	**16 JB**	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12
Bottom of Sump	6	**240**	**13**	**87**	**9 J**	< 12	< 12	< 12	< 12	< 12	< 12	< 12	**16 JB**	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	< 12	**5 J**	**12**	**4 J**	< 12	< 12	< 12
Part 375, Restricted Use Commerical, Protection of Groundwater [4]		**1,300**	**470**	**250**	**20**	**NL** [5]	**NL**	**NL**	**NL**	**50**	**330**	**NL**	**50**	**930**	**190**	**270**	**120**	**370**	**680**	**760**	**20**	**60**	**700**	**NL**	**1,100**	**1,000**	**260 (mixed)**			**8,400**	**3,600**	**12,000**

1) Concentrations in **BOLD** are detections greater than the laboratory detection limit (LDL)
2) Concentrations with J qualifiers are estimated values
3) Concentrations with B qualifiers were detected in associated method blank
4) New York State Codes, Rules and Regulations, Chapter IV, Part 375: Environmental Remediation Programs, Subpart 375-6: Remedial Program Soil Cleanup Objectives, Dec. 14, 2006
5) - Not Listed

TABLE 13

FORMER CHARLTON CLEANERS FACILITY
VOLUNTARY CLEANUP PROGRAM INDEX # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
STATEN ISLAND, NEW YORK

Summary of Soil Gas Samples - EPA Method TO-15
(all concentrations in micrograms per cubic meter [ug/m^3])

Compound	SG-9	SG-10	SG-11	SG-12	SG-13	SG-14	SG-15	SG-16	MSS-1 (permanent sample port)	MSS-4 (permanent sample port)	FYESS-1 (permanent sample port)	
	June 14, 2005				September 14, 2005				December 14, 2006		October 25, 2006	December 14, 2006
1,1,1-Trichloroethane	ND	ND	ND	ND	20 J	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	< 68	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	12	ND	5	140	48 J	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	ND	13	ND	19	ND	52 J	12 J	ND	2,200 J	ND	2.6 J	1.4 J
1,2-Dibromoethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	<20	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	5	ND	7	ND	ND	13 J	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	ND	ND	ND	6	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3-Chloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Ethyltoluene	ND	9	ND	12	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	8	ND	14	48	160	ND	ND	1,400 J	< 13	ND	ND
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	29 J	ND	ND	4.3 J	3.6 J
Chloromethane	ND	ND	ND	ND	150	ND	8.0 J	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	600	2,500	920	440	3,600	1,300	36 J	110	15,000	19 J	ND	ND
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ND	ND	ND	8	180	84 J	130	ND	ND	ND	2.6 J	2.8 J
Ethylbenzene	ND	14	ND	20	ND	48 J	17 J	ND	2,000 J	< 17	ND	ND
Freon 113	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 114	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m/p-Xylene	72	44	63	72	34 J	160 J	39 J	ND	5,000 J	30 J	2.4 J	2.0 J
Methylene Chloride	68	4	760	20	ND	ND	ND	ND	20,000	83	ND	ND
o-Xylene	ND	15	ND	21	15 J	46 J	15 J	ND	1,700 J	< 17	1.1 J	ND
Styrene	ND	ND	ND	ND	ND	ND	12 J	ND	ND	ND	ND	ND
Tetrachloroethene	12,000	8,700	7,600	1,400	30,000	10,000	1,000	120 J	610,000	470	6.7 J	7.3
Toluene	120	79	130	100	24 J	380	110	20 J	31,000	130	20. J	1.5 J
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	350	720	690	470	7,900	2,000	42 J	34 J	22,000	< 21	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.0 J	2.4 J
Vinyl Chloride	32	720	ND	79	1,500	240	21 J	480	1,700 J	ND	ND	ND

ug/m3 - micrograms per cubic meter
ND - Not Detected
J - indicates an estimated value
Note: There are no NYS Standards or Guidance Values for Soil Vapor

TABLE 14

FORMER CHARLTON CLEANER FACILITY
VOLUNTARY CLEANUP PROGRAM INDEX # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

Summary of Subslab Air Samples - Collected August 15, 2008 - EPA Method TO-15
(All concentrations expressed in micrograms per cubic meter)

Compound	MICHAELS SUB-SLAB VAPOR SAMPLES (Slab-on-grade portion of building)								
	MSS-7	MSS-8	MSS-9	MSS-10	MSS-11	MSS-12	MSS-13	MSS-14	MSS-15
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	1.2 J	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	8.5 J	15 J	ND	27	23	11	22
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	ND	ND	1.8 J	ND	ND	4.9	9.6	4.1 J	5.9
1,2-Dibromoethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	1.4 J	12	ND	ND
1,2-Dichloroethane	ND	ND	3.9 J	ND	ND	0.95 J	1.8 J	11	3.0 J
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	ND	ND	ND	ND	ND	1.9 J	5.9	1.9 J	2.2 J
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND	8.6	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	4.8 J	14	3.3 J	3.8 J
2-Butanone	ND	ND	13	20 J	99	12	17	13	19
2-Hexanone	ND	ND	6.5 J	ND	30 J	2.2 J	ND	ND	ND
3-Chloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Ethyltoluene	ND	ND	ND	ND	ND	ND	5.3	ND	ND
4-Methly-2-Pentanone	ND	ND	3.6 J	ND	ND	2.9 J	2.2 J	2.2 J	6.0 J
Acetone	59 J	45 J	43.0	64	480	38	57	120	62
Benzene	ND	ND	6.1	ND	ND	3.3	2.6 J	ND	2.8 J
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND	2.2 J	3.3 J	3.2 J	1.3 J
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	0.94 J	ND	ND
Chlorodifluoromethane	49 J	120	50.0	34 J	10 J	63	60	100	61
Chloroethane	ND	ND	ND	ND	ND	5.9	ND	ND	ND
Chloroform	ND	ND	2.5 J	ND	ND	3.7 J	3.4 J	1.2 J	2.5 J
Chloromethane	ND	ND	3.1	ND	ND	ND	ND	1.4 J	0.85 J
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	1.5 J
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cumene	ND	ND	ND	ND	ND	1.9 J	3.5 J	2.6 J	1.9 J
Dichlorodifluoromethane	ND	ND	1.8 J	ND	ND	3.1 J	3.0 J	4.1 J	3.1 J
Ethylbenzene	ND	ND	5.2 J	8.9 J	ND	8.9	12	8.6	11
Freon 113	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 114	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptane	ND	ND	7.1	22 J	ND	3.8 J	4.6	3.4 J	5.5
Hexachloroethane	ND	ND	ND	ND	ND	ND	15	ND	ND
Hexane	ND	ND	13	ND	ND	3.7	2.3 J	2.7 J	2.2 J
Isooctane	ND	ND	10	ND	ND	ND	1.1 J	ND	1.6 J
m/p-Xylene	18 J	34 J	15.0	32 J	15 J	39	41	24	48
Methylene Chloride	ND	ND	4.0 J	ND	4.7 J	0.96 J	2.3 J	9.5	1.6 J
Octane	24 J	61 J	25	49	19 J	46	47	31	54
o-Xylene	ND	ND	5.5 J	ND	6.1 J	12	12	6.4	18
Pentane	ND	16 J	36	ND	6.6 J	20	8.7	6.5	2.6 J
Propene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ND	ND	2.0 J	ND	ND	5.4	6.8	8.1	5.3
Tetrachloroethene	41,000	7,500	49	8,600	300	270	22	12	22
Toluene	87	45 J	54	49	66	36	62	47	51
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	480	130	3.4 J	ND	ND	4.8 J	5.0 J	3.6 J	5.4
Trichlorofluoromethane	ND	ND	ND	ND	ND	1.6 J	2.1 J	2.1 J	1.7 J
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND

NL - Not Listed
ND - Not Detected
NE - Not Established
J - indicates an estimated value
SIM - Selected Ion Monitoring

TABLE 15

FORMER CHARLTON CLEANER FACILITY
VOLUNTARY CLEANUP PROGRAM INDEX # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

Historic Summary of Indoor Air Quality Samples - EPA Method TO-15
(All concentrations expressed in micrograms per cubic meter)

Compound	Michaels Basement Equipment Room												Michaels Main Basement												NYSDOH Air Guidance Value	Building Assessment and Survey Evaluation - 90th Percentile, EPA 2001
	9-Sep-05	19-Oct-05	25-Oct-06	14-Dec-06	28-Jun-07	16-Aug-07	23-Aug-07	31-Aug-07	4-Oct-07	15-Aug-08	17-Mar-09	26-Aug-09	10-Mar-10	3-Jun-05	9-Sep-05	19-Oct-05	25-Oct-06	14-Dec-06	28-Jun-07	16-Aug-07	23-Aug-07	31-Aug-07	4-Oct-07	15-Aug-08	17-Mar-09	26-Aug-09	10-Mar-10		
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	---	---	---	---	ND	<1.4	<2.8	<7	ND	ND	ND	ND	ND	ND	---	---	---	---	ND	<0.89	<5.18	<4.9	NE	20.6
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	---	---	---	---	ND	<1.8	<2.7	<8.9	ND	ND	ND	ND	ND	ND	---	---	---	---	ND	<1.1	<6.53	<6.1	NE	NL
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	---	---	---	---	ND	<1.4	<2.6	<7	ND	ND	ND	ND	ND	ND	---	---	---	---	ND	<0.89	<5.18	<4.9	NE	NL
1,1-Dichloroethane	ND	ND	ND	ND	ND	---	---	---	---	ND	<1.0	<2.5	<5.2	ND	ND	ND	ND	ND	ND	---	---	---	---	ND	<0.66	<3.85	<3.6	NE	<0.7
1,1-Dichloroethene	ND	ND	ND	ND	ND	---	---	---	---	0.102 J SIM	<1.0	<2.4	<5.1	0.9	ND	ND	ND	ND	ND	---	---	---	---	0.0689 J SIM	<0.65	<3.78	<3.5	NE	<1.4
1,2,4-Trichlorobenzene	ND	ND	ND	ND	ND	---	---	---	---	ND	<9.5	<2.3	<9.6	ND	ND	ND	ND	ND	ND	---	---	---	---	ND	<6.1	<6.08	<6.6	NE	<6.8
1,2,4-Trimethylbenzene	5	6	2.0 J	ND	36.0	---	---	---	---	5.8 J	<1.2	5.5	<6.4	12	11	20	3.4 J	3.4 J	6	---	---	---	---	5.0	1.8	7	<4.4	NE	9.5
1,2-Dibromoethane	ND	ND	ND	ND	ND	---	---	---	---	ND	<2.0	<2.1	---	ND	ND	ND	ND	ND	ND	---	---	---	---	ND	<1.3	<7.31	---	NE	<1.5
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	---	---	---	---	5.1 J	<1.5	<2.0	<7.8	ND	ND	ND	1.2 J	ND	ND	---	---	---	---	ND	<0.99	<5.72	<5.4	NE	<1.2
1,2-Dichloroethane	13	5	ND	ND	ND	---	---	---	---	26	<1.0	29	2.6	4	21	15	1.4 J	ND	1.9 J	---	---	---	---	46	0.72	37	8.3	NE	<0.9
1,2-Dichloropropane	ND	ND	ND	ND	ND	---	---	---	---	ND	<1.2	<2.2	<6	ND	ND	ND	ND	ND	ND	---	---	---	---	1.1 J	<0.76	<4.39	<4.1	NE	<1.6
1,3,5-Trimethylbenzene	1	3	1.0 J	ND	11.0	---	---	---	---	ND	<1.2	<2.3	<6.4	3	3	9	1.8 J	1.5 J	2.2 J	---	---	---	---	2.2 J	<0.81	<4.68	<4.4	NE	3.7
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	---	---	---	---	3.7 J	<1.5	<2.4	<7.8	ND	ND	ND	ND	ND	ND	---	---	---	---	ND	<0.99	<5.72	<5.4	NE	<2.4
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	---	---	---	---	5.0 J	<1.5	<2.5	<7.8	ND	ND	ND	ND	ND	1.4 J	---	---	---	---	ND	<0.99	<5.72	<5.4	NE	5.5
2-Butanone	ND	ND	8.8	45 J	77	---	---	---	---	36	4.5	14	11	ND	ND	ND	4.7 J	31	22	---	---	---	---	20	4.9	16	13	NE	12
2-Hexanone	ND	ND	ND	ND	9.3	---	---	---	---	ND	<5.2	<2.7	<11	ND	ND	ND	ND	ND	4.3 J	---	---	---	---	ND	<3.4	NA	<7.3	NE	NL
3-Chloropropene	ND	ND	ND	ND	ND	---	---	---	---	ND	NA	<2.8	<4	ND	ND	ND	ND	ND	ND	---	---	---	---	ND	NA	NA	<2.8	NE	NL
4-Ethyltoluene	3	3	1.4 J	ND	38.0	---	---	---	---	ND	<1.2	<2.9	---	5	5	14	2.3 J	3.0 J	6.3	---	---	---	---	1.5 J	1.3	<4.68	---	NE	3.6
4-Methly-2-Pentanone	ND	ND	ND	ND	4.3 J	---	---	---	---	ND	<1.0	<2.10	---	ND	ND	ND	ND	ND	2.6 J	---	---	---	---	2.9 J	1.0	<3.89	---	NE	6.0
Acetone	ND	ND	84.0	64	210	---	---	---	---	230	51	<2.11	45	ND	ND	ND	54.0	79	260	---	---	---	---	270	93	<2.26	<2.1	NE	98.9
Benzene	2	4	1.8 J	ND	34.0	---	---	---	---	2.2 J	1.5	<2.12	<4.1	2	3	8	2.2 J	2.6 J	2.4 J	---	---	---	---	2.3 J	1.4	<3.03	2.5	NE	9.4
Bromomethane	ND	ND	ND	ND	ND	---	---	---	---	ND	<0.99	<2.13	<5	ND	ND	3	ND	ND	ND	---	---	---	---	ND	<0.64	<3.68	<3.5	NE	<1.7
Carbon Disulfide	ND	ND	ND	ND	1.0 J	---	---	---	---	ND	<4.0	<2.14	<4	ND	ND	ND	3.5	ND	2.0 J	---	---	---	---	ND	<2.6	<2.95	<2.8	NE	4.2
Carbon Tetrachloride	ND	ND	ND	ND	ND	---	---	---	---	0.547 SIM	0.53	<2.15	<8.1	ND	ND	ND	ND	ND	ND	---	---	---	---	ND, 0.622 SIM	0.52	<5.98	<5.6	NE	<1.3
Chlorobenzene	ND	ND	ND	ND	ND	---	---	---	---	ND	<1.2	<2.16	<5.9	ND	ND	ND	ND	ND	ND	---	---	---	---	ND	<0.76	<4.38	<4.1	NE	<0.9
Chlorodifluoromethane	ND	ND	17.0	180	52	---	---	---	---	97	NA	<2.17	---	ND	ND	ND	28.0	97	27	---	---	---	---	150	NA	<7.63	---	NE	NL
Chloroethane	ND	0.7	ND	ND	ND	---	---	---	---	ND	<0.68	<2.18	<3.4	ND	ND	ND	ND	ND	ND	---	---	---	---	ND	<0.43	<2.51	<2.4	NE	<1.1
Chloroform	ND	ND	ND	ND	ND	---	---	---	---	ND	<1.2	<2.19	<6.3	ND	ND	ND	ND	ND	ND	---	---	---	---	ND	<0.80	21	<4.4	NE	1.1
Chloromethane	1	2	ND	ND	1.2 J	---	---	---	---	1.6 J	1.7	<2.20	<2.7	ND	2	4	ND	1.3 J	1.3 J	---	---	---	---	1.4 J	1.6	<1.96	<1.8	NE	3.7
cis-1,2-Dichloroethene	190	190	43.0	71	24	7.4	<0.20	6.6	1.7	18, 23.1 SIM	170	85	91	230	120	170	7.5	25	ND	<0.20	<0.20	<0.20	<0.20	4.3, 5.70 SIM	97	<3.78	44	NE	<1.9
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	---	---	---	---	ND	<1.2	<2.22	<5.9	ND	ND	ND	ND	ND	ND	---	---	---	---	ND	<0.74	<4.32	<4.1	NE	<2.3
Cumene	ND	ND	ND	ND	ND	---	---	---	---	ND	<1.2	<2.23	---	ND	ND	ND	ND	3.9 J	ND	---	---	---	---	4.6 J	<0.81	NA	---	NE	NL
Dichlorodifluoromethane	3	4	3.2 J	ND	2.9 J	---	---	---	---	3.5 J	NA	<2.24	---	4	3	11	4.1 J	3.7 J	2.7 J	---	---	---	---	ND	NA	<4.69	---	NE	16.5
Ethylbenzene	8	8	3.6 J	ND	48.0	---	---	---	---	7.5 J	1.1	11	4.7	19	14	27	5.4	7.6	8.7	---	---	---	---	12	1.8	13	6.8	NE	5.7
Freon 113	ND	ND	ND	ND	ND	---	---	---	---	ND	<2.0	<2.26	---	ND	ND	ND	ND	ND	ND	---	---	---	---	ND	<1.2	<7.29	---	NE	NL
Freon 114	4	ND	ND	25 J	6.4 J	---	---	---	---	ND	<1.8	<2.27	---	ND	7	ND	ND	18	17	---	---	---	---	ND	<1.1	NA	---	NE	NL
Heptane	ND	ND	2.5 J	20 J	45	---	---	---	---	4.0 J	1.3	5	<5.3	ND	ND	ND	3.3 J	3.8 J	8.4	---	---	---	---	5.6	2.0	6.2	3.2	NE	NL
Hexane	ND	ND	1.4 J	29 J	110	---	---	---	---	4.5 J	1.3	<2.29	---	ND	ND	ND	ND	2.7 J	27	---	---	---	---	5.2	1.3	3.9	3.3	NE	NL
Isooctane	ND	ND	ND	18 J	30	---	---	---	---	ND	NA	<2.30	---	ND	ND	ND		1.2 J	2.6 J	---	---	---	---	1.3 J	NA	NA	---	NE	NL
m/p-Xylene	16	38	9.5	ND	130.0	1.2	0.21	5.6	3.0	13	2.4	25	13	33	30	69	14.0	8.8	20	1.7	0.59	2.2	2.5	17	3.5	31	15	NE	22.2
Methylene Chloride	ND	2	1.3 J	ND	11.0	---	---	---	---	8.0 J	<1.8	<2.32	<4.5	4	2	5	ND	1.8 J	3.7	---	---	---	---	12	1.2	<3.31	2.4	**60**	10.0
Octane	ND	ND	ND	ND	16.0	---	---	---	---	3.6 J	NA	<2.33	---	ND	ND	ND	ND	1.2 J	3.7 J	---	---	---	---	6.0	NA	NA	---	NE	4.5
o-Xylene	6	12	3.4 J	ND	43.0	0.45	<0.20	2.5	0.86	5.4 J	<1.1	7.5	4.5	14	11	24	5.4	3.0 J	7.8	0.57	0.28	0.78	0.9	5.9	1.3	8.8	4.7	NE	7.9
Pentane	ND	ND	4.5	22 J	140	---	---	---	---	19	NA	<2.35	---	ND	ND	ND	4.7	8.7	19	---	---	---	---	24	NA	NA	---	NE	NL
Propene	ND	ND	ND	ND	ND	---	---	---	---	ND	NA	<2.36	<4.4	ND	ND	ND	ND	ND	ND	---	---	---	---	ND	NA	<1.63	<3.1	NE	NL
Styrene	8	6	1.4 J	ND	ND	---	---	---	---	7.6 J	<1.1	18	<5.5	6	16	24	3.3 J	2.5 J	15	---	---	---	---	17	1.7	23	3.5	NE	1.9
Tetrachloroethene	**2,600**	**1,700**	**1,200**	**1,600**	**750**	55	<0.20	48	18	**200, 201 SIM**	**450**	**580**	**720**	**4,000**	**1,200**	**1,600**	**150**	**660**	55	1.4	0.74	1.5	0.63	68, 68.0 SIM	**310**	**170**	**510**	**100**	15.9
Toluene	33	44	9.9	ND	310	4.5	20	11	12	51	8.0	42	16	67	92	160	14.0	20	71	6.3	6.6	12	9.4	73	12	58	38	NE	43
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	---	---	---	---	ND	<1.2	<2.40	<5.9	ND	ND	ND	ND	ND	ND	---	---	---	---	ND	<0.74	<5.52	<4.1	NE	<1.3
Trichloroethene	**34**	**19**	**11**	**24 J, 55.9 SIM**	**6.6**	0.7	<0.20	**17**	0.62	**5.3 J**, 2.47 SIM	**16**	**14**	**11**	**42**	**20**	**23**	2.7 J	**7.4, 7.52 SIM**	1.6 J	<0.20	<0.20	**14**	0.31	1.8 J, 0.936 SIM	**9.7**	<5.11	**6.5**	**5**	4.2
Trichlorofluoromethane	1	ND	1.7 J	ND	9.7	---	---	---	---	ND	NA	<2.42	<7.3	2	1	3	2.1 J	1.5 J	1.3 J	---	---	---	---	2.2 J	NA	<5.35	<5	NE	18.1
Vinyl Chloride	17	17	3.2	14.3 SIM	ND	---	---	---	---	ND	16	7.3	3.8	21	2	21	0.74 J	2.3 SIM	ND	---	---	---	---	ND, <0.0230 SIM	8.7	<2.43	<2.3	NE	<1.9

NYSDOH - New York State Department of Health
NE - Not Established
ug/m3 - micrograms per cubic meter
ND - Not Detected
NL - Not Listed

J - indicates an estimated value
SIM - Selected Ion Monitoring
NA - Not Analyzed
2,600 exceeds the NYSDOH indoor-air guidance values

TABLE 15, cont.

FORMER CHARLTON CLEANER FACILITY
VOLUNTARY CLEANUP PROGRAM INDEX # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

Historic Summary of Indoor Air Quality Samples - EPA Method TO-15
(All concentrations expressed in micrograms per cubic meter)

Compound	Michaels Upstairs Loading Dock									Michaels Main Store Area									Michaels Main Store, NE Corner			F.Y.E.Store Area				NYSDOH Air Guidance Value	Building Assessment and Survey Evaluation - 90th Percentile, EPA 2001
	9-Sep-05	19-Oct-05	25-Oct-06	14-Dec-06	28-Jun-07	15-Aug-08	17-Mar-09	26-Aug-09	10-Mar-10	9-Sep-05	19-Oct-05	25-Oct-06	14-Dec-06	28-Jun-07	15-Aug-08	17-Mar-09	26-Aug-09	10-Mar-01	17-Mar-09	26-Aug-09	10-Mar-01	3-Jun-05	25-Oct-06	14-Dec-06	15-Aug-08		
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	<0.88	<4.9	<5.4	ND	ND	ND	ND	ND	ND	<0.88	<4.76	<5.1	<0.88	<5.48	<4.9	ND	ND	ND	ND	NE	20.6
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	<1.1	<4.9	<6.8	ND	ND	ND	ND	ND	ND	<1.1	<4.76	<6.5	<1.1	<5.48	<6.1	ND	ND	ND	ND	NE	NL
1,1,2-Trichloroethane	ND	ND	ND	ND	6.1	ND	<0.88	<6.18	<5.4	ND	ND	ND	ND	ND	ND,	<0.88	<6	<5.1	<0.88	<6.91	<4.9	ND	ND	ND	ND	NE	NL
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	<0.65	<3.65	<4	ND	ND	ND	ND	ND	ND	<0.65	<3.54	<3.8	<0.65	<4.08	<3.6	ND	ND	ND	ND	NE	<0.7
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	<0.64	<3.58	<3.9	ND	ND	ND	ND	ND	ND	<0.64	<3.47	<3.7	<0.64	<4	<3.5	ND	ND	ND	ND	NE	<1.4
1,2,4-Trichlorobenzene	ND	ND	ND	ND	18	ND	<6.0	<5.75	<7.3	ND	ND	ND	ND	ND	ND	<6.0	<5.59	<7	<6.0	<6.43	<6.6	ND	ND	ND	ND	NE	<6.8
1,2,4-Trimethylbenzene	8	3	ND	3.0 J	32	4.8 J	3.0	6.5	<4.9	8	7	1.9 J	7.9	5.6	4.4 J	5.2	6	<4.6	5.3	<4.95	<4.4	2	ND	ND	ND	NE	9.5
1,2-Dibromoethane	ND	ND	ND	ND	ND	ND	<1.2	<6.92	---	ND	ND	ND	ND	ND	ND	<1.2	<6.73	---	<1.2	<7.74	---	ND	ND	ND	ND	NE	<1.5
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND	<0.97	<5.42	<5.9	ND	ND	ND	ND	ND	ND	<0.97	<5.26	<5.7	<0.97	<6.06	<5.4	ND	ND	ND	ND	NE	<1.2
1,2-Dichloroethane	6	1	ND	1.3 J	1.2 J	36	1.2	31	5.1	8	4	ND	1.2 J	1.9 J	35	2.0	33	5.5	2.0	<4.08	5.3	ND	ND	ND	ND	NE	<0.9
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	<0.74	<4.16	<4.6	ND	ND	ND	ND	ND	ND	<0.74	<4.04	<4.3	<0.74	<4.65	<4.1	ND	ND	ND	ND	NE	<1.6
1,3,5-Trimethylbenzene	2	2	1.4 J	1.1 J	ND	20. J	0.84	<4.43	<4.9	2	4	2.2 J	3.2 J	1.8 J	2.1 J	1.5	<4.3	<4.6	1.5	<4.95	<4.4	ND	ND	ND	ND	NE	3.7
1,3-Dichlorobenzene	ND	ND	ND	ND	21	ND	<0.97	<5.42	<5.9	ND	ND	ND	ND	ND	ND	<0.97	<5.26	<5.7	<0.97	<6.06	<5.4	ND	ND	ND	ND	NE	<2.4
1,4-Dichlorobenzene	ND	ND	ND	ND	25	1.2 J	5.9	<5.42	<5.9	ND	ND	ND	ND	1.9 J	ND	7.2	<5.26	<5.7	7.4	<6.06	<5.4	ND	ND	ND	ND	NE	5.5
2-Butanone	ND	ND	2.4 J	22	9.1	17	<3.3	11	13	ND	ND	4.0 J	52	22	21	<3.3	15	14	<3.3	3.9	13	ND	ND	2.5 J	3.9 J	NE	12
2-Hexanone	ND	ND	ND	3.5 J	ND	ND	10	NA	<8.1	ND	ND	ND	ND	6.2 J	2.3 J	18	NA	<7.7	14	NA	<7.3	ND	ND	ND	ND	NE	NL
3-Chloropropene	ND	ND	ND	ND	ND	ND	2.0	NA	<3.1	ND	ND	ND	ND	ND	ND	3.5	NA	<2.9	3.5	NA	<2.8	ND	ND	ND	ND	NE	NL
4-Ethyltoluene	4	3	1.6 J	2.2 J	ND	ND	1.4	<4.43	---	5	4	2.5 J	1.5 J	5.2	1.6 J	2.0	<4.3	---	1.5	<4.95	---	2	ND	ND	ND	NE	3.6
4-Methly-2-Pentanone	ND	ND	ND	3.2 J	4.8 J	2.1 J	170	<3.68	---	ND	ND	ND	2.4 J	2.5 J	2.4 J	270	<3.58	---	220	<4.12	---	ND	ND	ND	ND	NE	6.0
Acetone	ND	ND	49.0	140	99	280	<0.83	<2.14	<2.3	ND	ND	170.0	150	160	290	<0.83	<2.08	<2.2	<0.83	<2.4	<2.1	ND	16.0	14	28	NE	98.9
Benzene	1	2	0.96 J	2.4 J	1.5 J	ND	1.6	<2.87	2.3	3	4	1.1 J	2.5 J	1.6 J	ND	1.6	<2.79	<3	1.6	<3.21	2.6	1	ND	1.9 J	ND	NE	9.4
Bromomethane	ND	ND	ND	ND	ND	ND	<0.62	<3.49	<3.8	ND	ND	ND	ND	ND	ND	<0.62	<3.39	<3.7	<0.62	<3.9	<3.5	ND	ND	ND	ND	NE	<1.7
Carbon Disulfide	ND	ND	ND	ND	25.0	ND	<2.5	<2.8	<3.1	ND	ND	ND	ND	ND	ND	<2.5	<2.72	<2.9	<2.5	<3.13	<2.8	ND	ND	ND	ND	NE	4.2
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND, 0.628 SIM	0.52	<5.66	<6.2	ND	ND	ND	ND	ND	0.674, 0.674 SIM	0.49	<5.5	<5.9	0.52	<6.34	<5.6	ND	ND	ND	0.592, 0.592 SIM	NE	<1.3
Chlorobenzene	ND	ND	ND	ND	1.2 J	ND	<0.74	<4.14	<4.5	ND	ND	ND	ND	ND	ND	<0.74	<4.02	<4.3	<0.74	<4.63	<4.1	ND	ND	ND	ND	NE	<0.9
Chlorodifluoromethane	ND	ND	35.0	57	25	160	NA	NA	---	ND	ND	34.0	56	23	170	NA	NA	---	NA	NA	---	ND	24.0	11	3.7 J	NE	NL
Chloroethane	ND	ND	ND	ND	ND	ND	<0.42	<2.37	<2.6	ND	ND	ND	ND	ND	ND	<0.42	<2.3	<2.5	<0.42	<2.65	<2.3	ND	ND	ND	ND	NE	<1.1
Chloroform	ND	ND	ND	ND	ND	ND	<0.79	<4.39	<4.8	ND	ND	ND	ND	ND	ND	<0.79	<4.27	<4.6	<0.79	<4.91	<4.3	ND	ND	ND	ND	NE	1.1
Chloromethane	1.0	ND	ND	1.2 J	1.6 J	1.2 J	2.0	<1.86	<2	3	ND	ND	ND	1.3 J	ND	3.0	<1.81	<1.9	2.6	<2.08	<1.8	ND	1.3 J	ND	1.5 J	NE	3.7
cis-1,2-Dichloroethene	22	3	ND	4.7	ND	1.4 J, 3.02 SIM	47	10	14	7	6	ND	3.7 J	ND	1.75, 1.75 SIM	16	<3.47	5.7	15	300	5.9	ND	ND	ND	ND	NE	<1.9
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	<0.73	<4.09	<4.5	ND	ND	ND	ND	ND	ND	<0.73	<3.97	<4.3	<0.73	<4.57	<4	ND	ND	ND	ND	NE	<2.3
Cumene	ND	ND	ND	1.6 J	ND	4.0 J	<0.79	NA	---	ND	ND	ND	2.0 J	ND	ND	<0.79	NA	---	<0.79	NA	---	ND	ND	ND	ND	NE	NL
Dichlorodifluoromethane	3	4	3.7 J	3.4 J	2.8 J	4.0 J	NA	<4.44	---	5	6	3.9 J	3.3 J	2.4 J	4.5 J	NA	<4.32	---	NA	<4.97	---	3	3.2 J	2.6 J	2.7 J	NE	16.5
Ethylbenzene	8	5	2.6 J	4.2 J	5.6	9.5	3.0	11	6.9	12	10	2.9 J	3.7 J	4.5	9.8	4.7	13	6	4.7	<4.38	9.4	33	1.1 J	ND	ND	NE	5.7
Freon 113	ND	ND	ND	ND	ND	ND	<1.2	<6.9	---	ND	ND	ND	ND	ND	ND	<1.2	<6.71	---	<1.2	<7.72	---	ND	ND	ND	ND	NE	NL
Freon 114	4	ND	ND	11	3.6 J	ND	<1.1	NA	---	ND	ND	ND	11	4.8 J	ND	<1.1	NA	---	<1.1	NA	---	ND	ND	ND	ND	NE	NL
Heptane	ND	ND	2.9 J	4.1 J	6	6.8	6.0	6.2	4.2	ND	ND	4.7	6.4	4.3	7.5	8.5	6.7	3.9	8.2	<4.12	3.8	ND	ND	1.4 J	ND	NE	NL
Hexane	ND	ND	1.1 J	2.7 J	25	5.4	2.0	4.7	3.2	ND	ND	1.3 J	2.5 J	11	5.1	2.3	5.4	2.6	2.2	<3.54	2.8	ND	0.74 J	1.9 J	1.7 J	NE	NL
Isooctane	ND	ND	ND	1.5 J	1.6 J	1.1 J	NA	NA	---	ND	ND	ND	ND	1.3 J	1.3 J	NA	NA	---	NA	NA	---	ND	ND	ND	ND	NE	NL
m/p-Xylene	18	13	6.2	7.6	16	14	5.2	25	16	28	23	6.6	8.5	8.9	13	8.0	32	13	8.0	<4.38	18	110	3.2 J	1.8 J	2.1 J	NE	22.2
Methylene Chloride	ND	5	1.1 J	1.5 J	2.4 J	12	1.8	<3.13	3.6	3	3	1.8 J	1.9 J	4.2	16	2.5	<3.04	2.8	2.1	<3.5	5.5	ND	1.3 J	4.3	ND	**60**	10.0
Octane	ND	ND	ND	2.1 J	3.0 J	5.6	NA	NA	---	ND	ND	ND	2.3 J	3.1 J	6.0	NA	NA	---	NA	NA	---	ND	ND	ND	ND	NE	4.5
o-Xylene	6	4	1.8 J	2.7 J	6.1	4.7	2.1	8.4	4.5	9	8	2.0 J	2.9 J	3.5 J	4.4	3.0	9.7	4.4	3.2	<4.38	7.7	42	1.3 J	ND	ND	NE	7.9
Pentane	ND	ND	3.2	8.1	8.2	20	NA	NA	---	ND	ND	3.5	7.7	10	20	NA	NA	---	NA	NA	---	ND	1.3 J	7.1	3.0 J	NE	NL
Propene	ND	ND	55	22	ND	ND	NA	<1.54	<3.4	ND	ND	ND	ND	ND	ND	NA	<1.5	<3.2	NA	<1.72	<3.1	ND	ND	3.5	ND	NE	NL
Styrene	6	3	1.4 J	2.2 J	11	14	1.9	14	2.4	7	6	ND	2.8 J	8.6	14	2.3	13	<4	2.4	<4.3	17	2	ND	ND	ND	NE	1.9
Tetrachloroethene	**320**	32	17.0	**120**	28	26, 35.8 SIM	**170**	90	**160**	90	74	6.0 J	90	2.3 J	19, 24.5 SIM	68	30	81	66	<6.83	80	1	10.0	.8 J, 2.65 SI	0.909, 0.909 SIM	**100**	15.9
Toluene	49	24	14.0	30	31	66	25	54	41	66	45	17.0	35	34	69	38	57	48	35	<3.8	49	7	5.8	4.1	6.3 J	NE	43
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	<0.73	<3.24	<4.5	ND	ND	ND	ND	ND	ND	<0.73	<3.15	<4.3	<0.73	<3.62	<3.5	ND	ND	ND	ND	NE	<1.3
Trichloroethene	4	ND	ND	.5 J, 2.15 SI	**6.8**	1.2 J, 0.588 SIM	**5.1**	<4.83	<5.3	2		ND	1.77 SIM	ND	0.469, 0.469 SIM	1.9	<4.7	<5.1	1.9	<5.41	<4.8	ND	ND	0.215 J	7.2 J	**5**	4.2
Trichlorofluoromethane	1	2	1.7 J	1.6 J	1.3 J	1.2 J	NA	<5.06	<5.5	2	2	1.8 J	1.3 J	1.2 J	1.3 J	NA	<4.92	<5.3	NA	<5.66	<5	8	3.4 J	2.3 J	ND	NE	18.1
Vinyl Chloride	2	ND	ND	0.435 SIM	ND	ND, <0.0230 SIM	4.1	<2.3	<2.5	ND	0.8	ND	0.358 SIM	ND	ND, <0.0230 SIM	1.8	<2.24	<2.4	1.4	<2.57	<2.3	ND	ND	ND	ND, <0.0230 SIM	NE	<1.9

NYSDOH - New York State Department of Health
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ug/m3 - micrograms per cubic meter
ND - Not Detected
NL - Not Listed

J - indicates an estimated value
SIM - Selected Ion Monitoring
NA - Not Analyzed
4,000 exceeds the NYSDOH indoor-air guidance values

TABLE 16

FORMER CHARLTON CLEANERS FACILITY
VOLUNTARY CLEANUP PROGRAM INDEX # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
STATEN ISLAND, NEW YORK

VOCs in Michaels Building Indoor Air
Individual Compounds Summed for Every Sampling Date and Ranked in Order of Decreasing Total Concentration
(all concnetrations in micrograms per cubic meter [ug/m3])

Indoor Locations (Basement)			Indoor Locations (Main Floor)		
Ranking	**Compound**	**Total Conc. For all Dates: Equipment Room + Main Basement**	**Ranking**	**Compound**	**Total Conc. For all Dates: Loading Dock + Retail Space**
1	Tetrachloroethene	9,271	1	Acetone	1,338
2	cis-1,2-Dichloroethene	709.7	2	Tetrachloroethene	1,212
3	Acetone	633	3	Toluene	729
4	Toluene	553.4	4	Chlorodifluoromethane	560
5	Chlorodifluoromethane	346	5	cis-1,2-Dichloroethene	378.3
6	m/p-Xylene	254.51	6	m/p-Xylene	266.8
7	Pentane	163.5	7	2-Butanone	213
8	2-Butanone	146.8	8	1,2-Dichloroethane	169.9
9	Trichloroethene	113.92	9	Styrene	116
10	Hexane	110	10	Ethylbenzene	110.7
11	Ethylbenzene	79.7	11	1,2,4-Trimethylbenzene	84
12	o-Xylene	76.81	12	Pentane	80.7
13	1,2-Dichloroethane	75.6	13	Propene	77
14	1,2,4-Trimethylbenzene	52.5	14	o-Xylene	76.9
15	Heptane	50	15	Hexane	65.2
16	Vinyl Chloride	48.3	16	Heptane	60.5
17	4-Ethyltoluene	44	17	Methylene Chloride	55.1
18	Benzene	40	18	Freon 114	26
19	Styrene	32	19	1,4-Dichlorobenzene	25
20	Isooctane	30	20	Carbon Disulfide	25
21	Octane	16	21	4-Ethyltoluene	21.2
22	1,3,5-Trimethylbenzene	15	22	1,3-Dichlorobenzene	21
23	Methylene Chloride	13	23	1,2,4-Trichlorobenzene	18
24	Trichlorofluoromethane	10.7	24	Dichlorodifluoromethane	18
25	2-Hexanone	9.3	25	Trichloroethene	16.6
26	Dichlorodifluoromethane	7	26	Benzene	14.9
27	Freon 114	4	27	Octane	11.6
28	Chloromethane	3	28	1,3,5-Trimethylbenzene	10
29	Chloroethane	0.7	29	Trichlorofluoromethane	7
---	1,1,1-Trichloroethane	0	30	1,1,2-Trichloroethane	6.1
---	1,1,2,2-Tetrachloroethane	0	31	Chloromethane	4
---	1,1,2-Trichloroethane	0	32	Vinyl Chloride	2.8
---	1,1-Dichloroethane	0	---	1,1,1-Trichloroethane	0
---	1,1-Dichloroethene	0	---	1,1,2,2-Tetrachloroethane	0
---	1,2,4-Trichlorobenzene	0	---	1,1-Dichloroethane	0
---	1,2-Dibromoethane	0	---	1,1-Dichloroethene	0
---	1,2-Dichlorobenzene	0	---	1,2-Dibromoethane	0
---	1,2-Dichloropropane	0	---	1,2-Dichlorobenzene	0
---	1,3-Dichlorobenzene	0	---	1,2-Dichloropropane	0
---	1,4-Dichlorobenzene	0	---	2-Hexanone	0
---	3-Chloropropene	0	---	3-Chloropropene	0
---	4-Methly-2-Pentanone	0	---	4-Methly-2-Pentanone	0
---	Bromomethane	0	---	Bromomethane	0
---	Carbon Disulfide	0	---	Carbon Tetrachloride	0
---	Carbon Tetrachloride	0	---	Chlorobenzene	0
---	Chlorobenzene	0	---	Chloroethane	0
---	Chloroform	0	---	Chloroform	0
---	cis-1,3-Dichloropropene	0	---	cis-1,3-Dichloropropene	0
---	Cumene	0	---	Cumene	0
---	Freon 113	0	---	Freon 113	0
---	Propene	0	---	Isooctane	0
---	trans-1,3-Dichloropropene	0	---	trans-1,3-Dichloropropene	0

Compounds highlighted in blue are primary contaminants of concern (COC)

TABLE 17

FORMER CHARLTON CLEANERS FACILITY
VOLUNTARY CLEANUP PROGRAM INDEX # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

Soil Vapor and Indoor Air Analysis Results
Evaluated Using the NYSDOH Decision Matrices 1 & 2
"Guidance for Evaluating Soil Vapor Intrusion in the State of New York", October 2009

NYSDOH Decision Matrix	Compound	Michaels Main Store Retail Area		Michaels Main Basement Area		Michaels Basement Equipment Room		T-Mobile Building (formerly FYE)	
		sample date August 15, 2008		sample date December 14, 2006		sample date December 14, 2006		sample date December 14, 2006	
		Sub-slab Vapor	Indoor Air	Sub-slab Vapor	Indoor Air	Sub-slab Vapor	Indoor Air	Sub-slab Vapor	Indoor Air
		Average of 3 highest concnetrations detected for the particular compound	Indoor air sample "Main Store Area"	Sub-slab vapor sample "MSS-1"	Indoor air sample "Main Basement"	Sub-slab vapor sample "MSS-4"	Indoor air sample "Basement Equipment Room"	Sub-slab vapor sample "FYESS-1"	Indoor air sample "FYE Store Area"
Matrix 1	Carbon Tetrachloride	<25	0.674	<25	<1.3	<2,500	<13	<1.3	<1.3
		Matrix 1 Conclusion: MONITOR		Matrix 1 Conclusion: MONITOR		Conclusion indeterminate due to high Sub-slab detection limit		Matrix 1 Conclusion: NO FURTHER ACTION	
	Trichloroethene	205	0.5	<21	7.5	22,000	56	<1.1	0.215 J
		Matrix 1 Conclusion: MONITOR/MITIGATE		Matrix 1 Conclusion: MITIGATE		Matrix 1 Conclusion: MITIGATE		Matrix 1 Conclusion: NO FURTHER ACTION	
	Vinyl Chloride	<10	<0.023	<10	2.3	1,700	14.3	<0.51	<0.023
		Matrix 1 Conclusion: NO FURTHER ACTION		Matrix 1 Conclusion: MONITOR		Matrix 1 Conclusion: MITIGATE		Matrix 1 Conclusion: NO FURTHER ACTION	
Matrix 2	Tetrachloroethene	19,000	24.5	470	660	610,000	1,600	7.3	2.65
		Matrix 2 Conclusion: MITIGATE		Matrix 2 Conclusion: MITIGATE		Matrix 2 Conclusion: MITIGATE		Matrix 2 Conclusion: NO FURTHER ACTION	
	1,1,1-Trichloroethane	1.2	<0.109	<22	<1.1	<2,200	<11	<1.1	<1.1
		Matrix 2 Conclusion: NO FURTHER ACTION		Matrix 2 Conclusion: NO FURTHER ACTION		Conclusion indeterminate due to high Sub-slab detection limit		Matrix 2 Conclusion: NO FURTHER ACTION	
	1,1-Dichloroethene	<16	<0.0238	<16	<0.79	<1,600	<7.9	<0.79	<0.79
		Matrix 2 Conclusion: NO FURTHER ACTION		Matrix 2 Conclusion: NO FURTHER ACTION		Conclusion indeterminate due to high Sub-slab detection limit		Matrix 2 Conclusion: NO FURTHER ACTION	
	cis-1,2-Dichloroethene	1.5	1.75	19	25	15,000	71	<0.79	<0.79
		Matrix 2 Conclusion: NO FURTHER ACTION		Matrix 2 Conclusion: Take action to ID source(s) and reduce exposures		Matrix 2 Conclusion: MITIGATE		Matrix 2 Conclusion: NO FURTHER ACTION	

1 - Subslab vapor and indoor air sample concentrations expressed in micrograms per cubic meter (ug/m^3)

TABLE 18

FORMER CHARLTON CLEANER FACILITY
VOLUNTARY CLEANUP PROGRAM INDEX # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

Summary of Soil Vapor Samples Downgradient of the Former Charlton Cleaners
Collected May 27-28, 2009 - VOCs by EPA Method TO-15
(All concentrations expressed in micrograms per cubic meter)

Compound	SVP-1	SVP-2	SVP-3	SVP-4	SVP-5	SVP-6	SVP-7	SVP-8
1,1,1- Trichloroethane	<25.2	5.0 J	<10.1	<5.07	<9.64	<25.2	<5.01	<24.9
1,1,2- Trichloroethane	<25.2	<5.32	<10.1	<5.07	<9.64	<25.2	<5.01	<24.9
1,1,2,2- Tetrachloroethane	<31.8	<6.7	<12.7	<6.39	<12.1	<31.8	<6.32	<31.4
1,1-Dichloroethane	<18.7	<3.96	<7.52	<3.77	<7.17	<18.7	<3.73	<18.5
1,1-Dichloroethylene	<18.4	<3.88	<7.37	<3.7	<7.03	<18.4	<3.66	<18.2
1,2- Dichlorobenzene	<27.8	<5.88	<11.2	<5.6	<10.6	<27.8	<5.54	<27.5
1,2- Dichloropropane	<21.4	<4.51	<8.58	<4.3	42	<21.4	<4.25	<21.1
1,2,4- Trimethylbenzene	<22.8	<4.8	13	<4.58	<8.7	<22.8	18	<22.5
1,2-Dibromomethane	<35.6	<7.51	<14.3	<7.16	<13.6	<35.6	<7.08	<35.2
1,2-Dichloroethane	<18.7	<3.96	<7.52	<3.77	<7.17	<18.7	<3.73	<18.5
1,3- Dichlorobenzene	<27.8	<5.88	<11.2	<5.6	<10.6	<27.8	<5.54	<27.5
1,3- Dichloropropylene	<21	<4.44	<8.43	<4.23	<8.04	<21	<4.18	<20.8
1,3,5- Trimethylbenzene	<22.8	<4.8	5.5 J	<4.58	<8.7	<22.8	5.5	<22.5
1,3-Butadiene	<10.2	<2.15	<4.09	<2.05	<3.9	<10.2	<2.03	<10.1
1,4- Dichlorobenzene	<27.8	<5.88	<11.2	<5.6	<10.6	<27.8	<5.54	<27.5
1,4-Dioxane	<16.7	<3.51	<6.68	<3.35	<6.37	<16.7	<3.31	<16.5
2,2,4-Trimethylpentane	<21.7	<4.57	<8.69	<4.36	<8.28	<21.7	<4.31	<21.4
4- methyl 2- pentanone	<18.9	<3.99	<7.59	<3.81	<7.24	<18.9	<3.76	<18.7
4-Ethyl toluene	<22.8	<4.8	12	<4.58	5.0 J	<22.8	13	<22.5
Acetone	<11	<2.32	<4.42	<2.21	<4.21	<11	<2.19	<10.9
Allyl Chloride	<14.5	<3.05	<5.8	<2.91	<5.53	<14.5	<2.88	<14.3
Benzene	<14.7	11	11	4.2	9.8	<14.7	2.6 J	12 J
Bromodichloromethane	<31	<6.55	<12.4	<6.24	<11.9	<31	<6.17	<30.7
Bromoform	<47.9	<10.1	<19.2	<9.63	<18.3	<47.9	<9.52	<47.3
Bromomethane	<17.9	<3.78	<7.19	<3.61	<6.86	<17.9	<3.57	<17.7
Carbon Disulfide	<14.4	8.9	<5.77	7.9	7.6	<14.4	<2.86	<14.2
Carbon Tetrachloride	<29.1	<6.14	<11.7	<5.86	<11.1	<29.1	<5.79	<28.8
Chlorobenzene	<21.3	<4.49	<8.54	<4.28	<8.14	<21.3	<4.24	<21.1
Chlorodibromomethane	<37.1	<7.83	<14.9	<7.47	<14.2	<37.1	<7.38	<36.7
Chloroethane	<12.2	<2.57	<4.89	<2.45	<4.66	<12.2	<2.43	<12.1
Chloroform	<22.6	3.0 J	43	6.0	<8.63	35	3.5 J	<22.3
Chloromethane	<9.56	<2.02	<3.83	<1.92	<3.65	<9.56	<1.9	<9.45
cis- 1,2,- Dichloroethylene	<18.4	<3.88	<7.37	<3.7	<7.03	<18.4	<3.66	<18.2
Cyclohexane	<15.9	<3.36	<6.39	<3.2	<6.09	<15.9	<3.17	<15.8
Dibromochloromethane	<39.4	<8.31	<15.8	<7.92	<15.1	<39.4	<7.84	<39
Dichlorobromomethane	<28.8	<6.07	<11.5	<5.78	<11	<28.8	<5.72	<28.4
Dichlorodifluoromethane	<22.8	<4.82	<9.16	<4.59	<8.73	<22.8	<4.54	<22.6
Ethyl acetate	<17	<3.59	<6.83	<3.42	<6.51	<17	<3.38	<16.8
Ethyl benzene	<20.1	<4.24	12	<4.04	5.3 J	<20.1	5.7	<19.9
Freon 113	<35.5	<7.49	<14.2	<7.14	<13.6	<35.5	<7.06	<35.1
Isopropanol	<11.4	<2.4	<4.56	<2.29	<4.35	<11.4	<2.26	<11.2
Isopropylbenzene	<22.8	<4.8	<9.12	<4.58	<8.7	<22.8	<4.52	<22.5
MEK	<13.7	4.5	230	11	11	<13.7	51	13 J
Methyl butyl ketone (2-hexanone)	<18.9	<3.99	<7.59	<3.81	<7.24	<18.9	<3.76	<18.7
Methylene Chloride	<16.1	<3.4	<6.46	<3.24	15 B	<16.1	<3.2	<15.9
MIBK	<18.9	<3.99	<7.59	<3.81	6.7 J	<18.9	<3.76	<18.7
MTBE	<16.7	<3.51	<6.68	<3.35	<6.37	<16.7	<3.31	<16.5
n-Heptane	<18.9	3.7 J	9.6	<3.81	14	<18.9	2.5 J	12 J
n-Hexane	<16.3	4.3	5.4 J	<3.28	30	<16.3	1.8 J	27
o-xylene	<20.1	<4.24	14	<4.04	6.2 J	<20.1	7.5	<19.9
p- & m- xylenes	<20.1	<4.24	49	<4.04	18	<20.1	27	13 J
Propylene	<7.92	<1.67	<3.18	<1.59	<3.03	<7.92	<1.57	<7.83
Styrene	<19.7	<4.17	<7.92	<3.97	<7.55	<19.7	<3.93	<19.5
t-1,2-Dichloroethylene	<18.4	<3.88	<7.37	<3.7	<7.03	<18.4	<3.66	<18.2
Tetrachloroethylene	<31.4	<6.62	<12.6	3.5 J	<12	<31.4	<6.24	130
Tetrahydrofuran	<13.7	<2.88	160	8.1	<5.22	<13.7	39	<13.5
Toluene	<17.5	6.9	88	5.0	5.5 J	<17.5	31	37
Trichloroethylene	<24.8	3.8 J	<9.96	<5	<9.5	<24.8	<4.94	<24.6
Trichlorofluoromethane	<26	<5.49	<10.4	<5.23	17 B	<26	<5.18	<25.7
Vinyl acetate	<16.3	<3.44	<6.53	<3.28	<6.23	<16.3	<3.24	<16.1
Vinyl Bromide	<20.2	<4.26	<8.1	<4.06	<7.73	<20.2	<4.02	<20
Vinyl chloride	<11.8	<2.5	<4.75	<2.38	<4.52	<11.8	<2.35	<11.7
Total VOCs Concentration	0	35.6	641.6	42.2	132.4	35	197.7	194
Number of VOCs detected above RL	0	9	12	7	14	1	13	7

J indicates an estimated value. Applies to a compound whose result is less than the reporting limit but whose mass spectral data meet identification criteria.

B indictaes that the analyte was aslo found in the associated batch method blank. Indicates possible/probableblank contamination.

RL - Reporting Limit

Compounds highlighted in blue are primary Site contaminants of concern (COC)

FIGURES

SOURCE: USGS TOPOGRAPHIC QUADRANGLES ELIZABETH AND ARTHUR KILL, NEW YORK–NEW JERSEY (PHOTOREVISED 1981).

0 2000
SCALE IN FEET

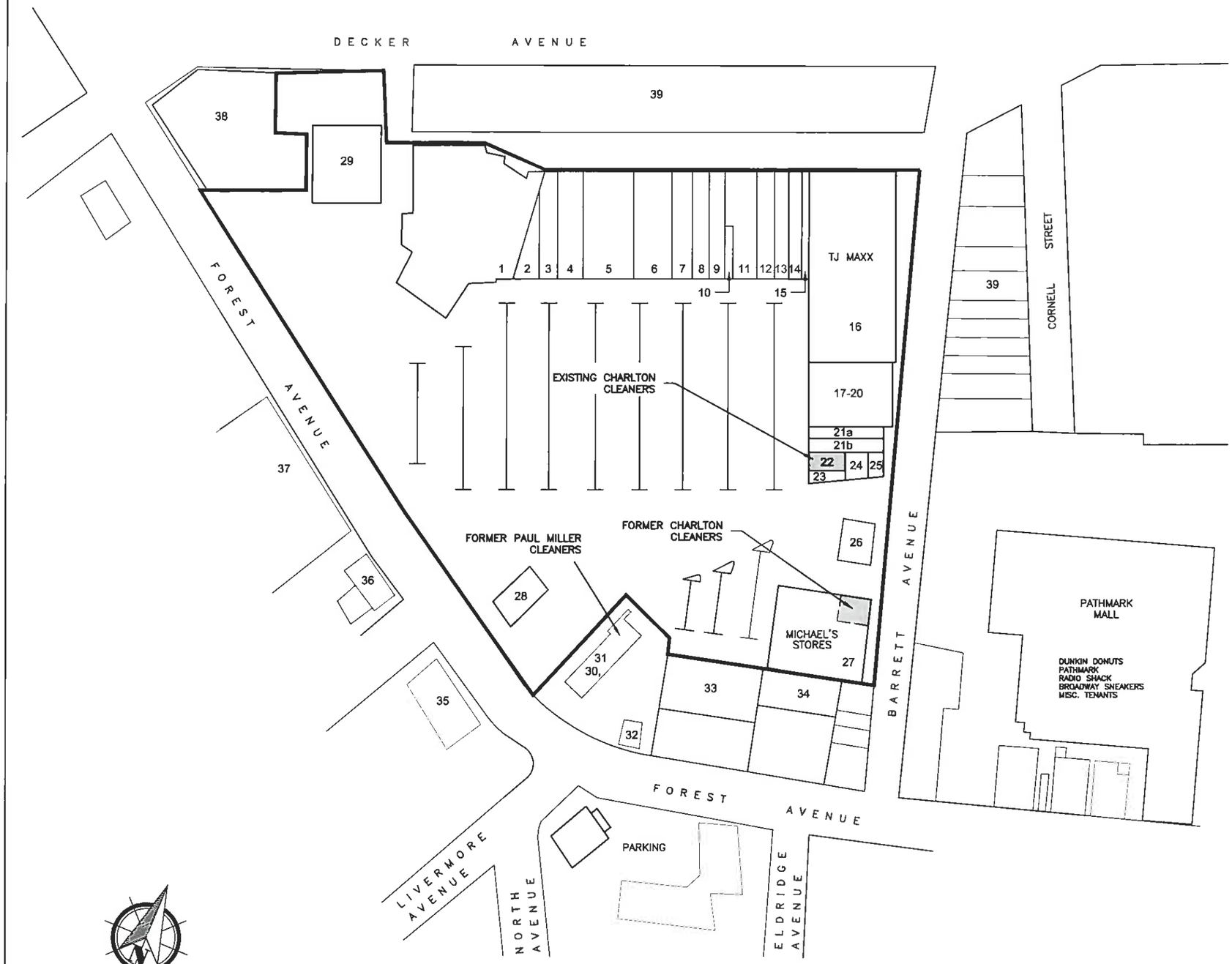
FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

SITE LOCATION MAP

DATE	REVISED

PREPARED BY:
LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
110 Corporate Park Drive
Suite 112
White Plains, NY 10604
(914) 694-5711

DRAWN:	RAC	CHECKED:	PW	DATE:	09/14/10	FIGURE:	1



NOT TO SCALE

	LEGEND		
1	VACANT	24	G.J.'S UNISEX
2	RAINBOW APPAREL	25	PLAZA DELI
3	VACANT	26	FYE
4	LOT STORES	27	MICHAEL'S STORES
5	PARTY CITY	28	NORTHFIELD BANK
6	VACANT	29	CVS
7	KID'S PLACE	30	FORMER PAUL MILLER DRY CLEANING FACILITY
8	ROCKAWAY BEDDING	31	BOSTON MARKET
9	EMPIRE SZECHUAN	32	KFC
10	TOP NAILS	33	LIQUOR STORE
11	PAY HALF	34	MISCELLANEOUS
12	DANICE $10 STORES	35	WEST COAST VIDEO
13	D&G STORES	36	BANK
14	PAYLESS SHOES	37	RICKELS HOME CENTER
15	SNEAKER ZONE	38	FORMER HESS GASOLINE STATION
16	TJ MAXX	39	RESIDENTIAL
17-20	HOME TOWN BUFFET		SITE BOUNDARY
21a	PIZZA STORE		
21b	PETLAND DISCOUNTS		
22	CHARLTON CLEANERS		
23	SPECS FOR LESS		

FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

FOREST AVENUE SHOPPERS TOWN SITE PLAN

DATE	REVISED

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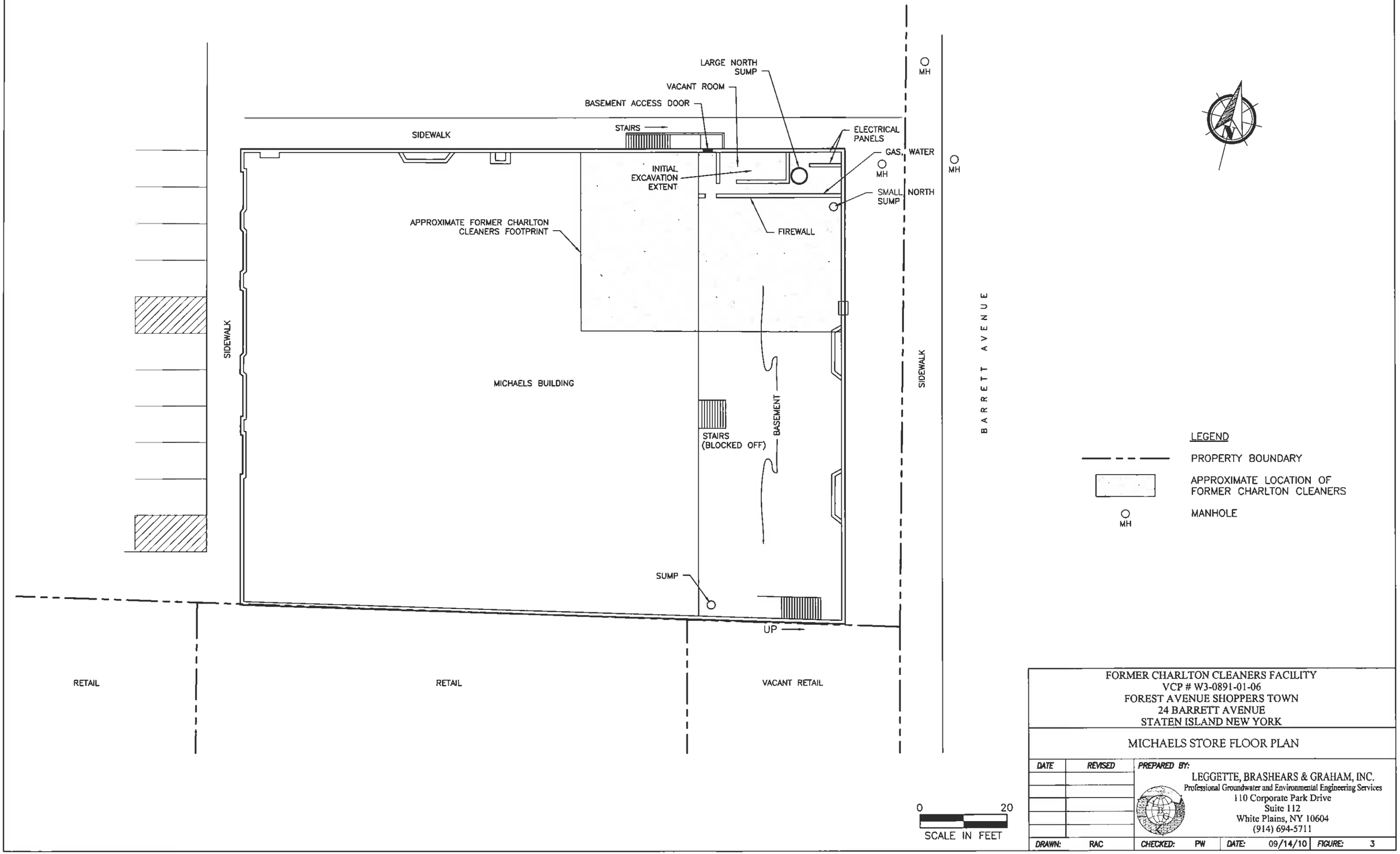

FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

MICHAELS STORE FLOOR PLAN

DATE	REVISED

PREPARED BY:

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DECKER AVENUE

SMITH AVENUE

HOYT AVENUE

GASOLINE SERVICE STATION (HESS CORP.)

ONE STORY BRICK BUILDING

ONE STORY COMMERCIAL BUILDING

BARRETTE AVENUE

FORREST AVENUE

EXISTING CHARLTON CLEANERS

COCONUTS

LOCATION OF FORMER CHARLTON CLEANERS

BASEMENT

CONCRETE CULVERT

1 STORY MASONRY BUILDING

MICHAELS STORE

MASONRY BUILDING

HISTORICAL PAUL MILLER CLEANERS

HISTORICAL STREAM BED

MUNICIPAL WATER SUPPLY (DIRECTION OF FLOW)

9' X 5' STORM WATER DRAIN/PIPING (DIRECTION OF FLOW)

30" SANITARY SEWER LINE (DIRECTION OF FLOW)

NATURAL GAS LINE (OBSERVED DURING MARKOUT)

6' 3" X 3' 6" STORMWATER DRAIN PIPING (DIRECTION OF FLOW)

36" STORM WATER SEWER (DIRECTION OF FLOW)

0 100

SCALE IN FEET

FORMER CHARLTON CLEANERS FACILITY
VCP #W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

UTILITY LOCATION MAP

PREPARED BY:
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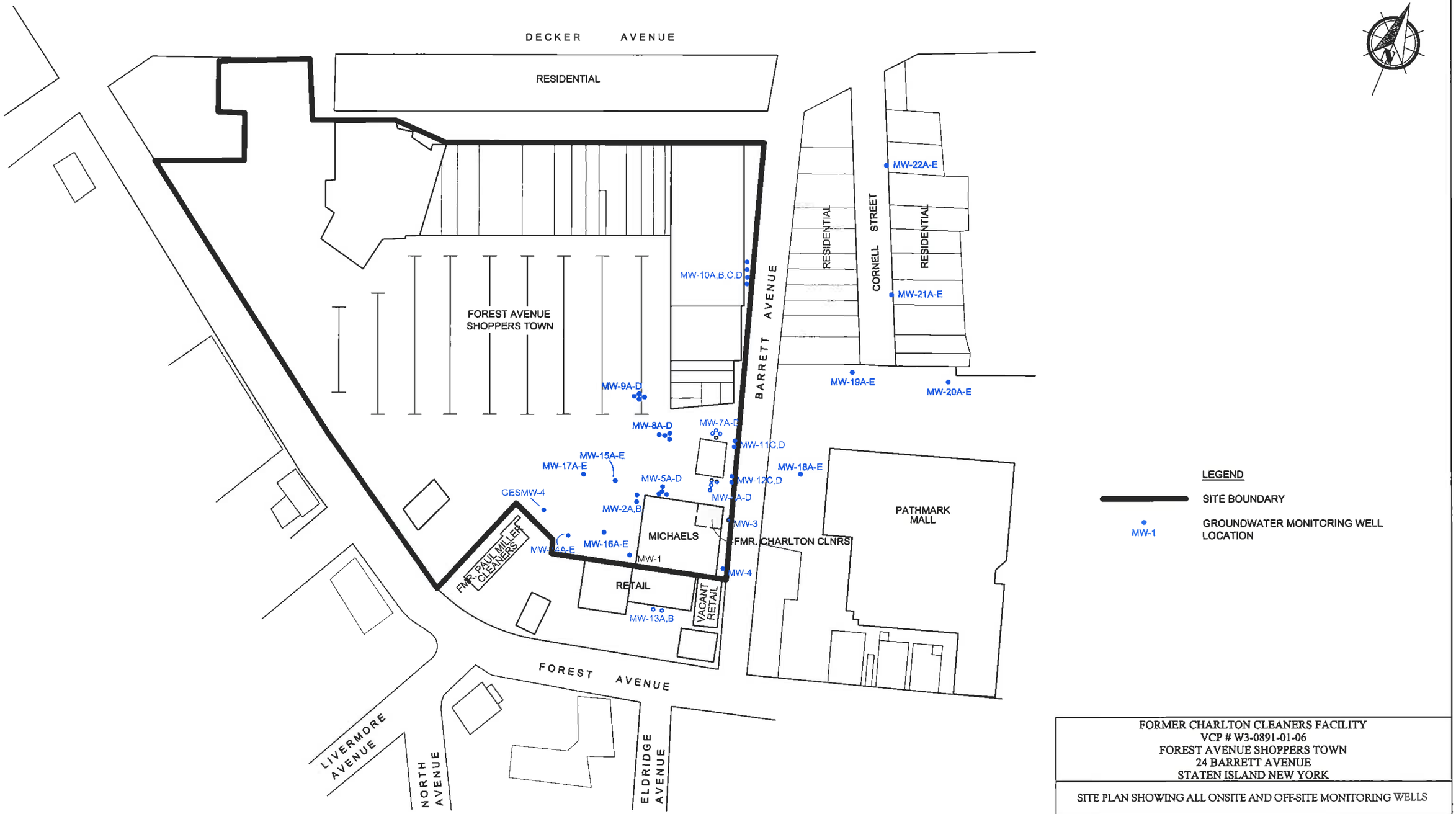
FILE: CHARLTON\FIG3	DRAWN BY: JAM	CHECKED BY: SG	DATE: 11/07/05
			FIGURE: 4



FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

SITE PLAN SHOWING ALL ONSITE AND OFF-SITE MONITORING WELLS

DATE	REVISED

PREPARED BY:
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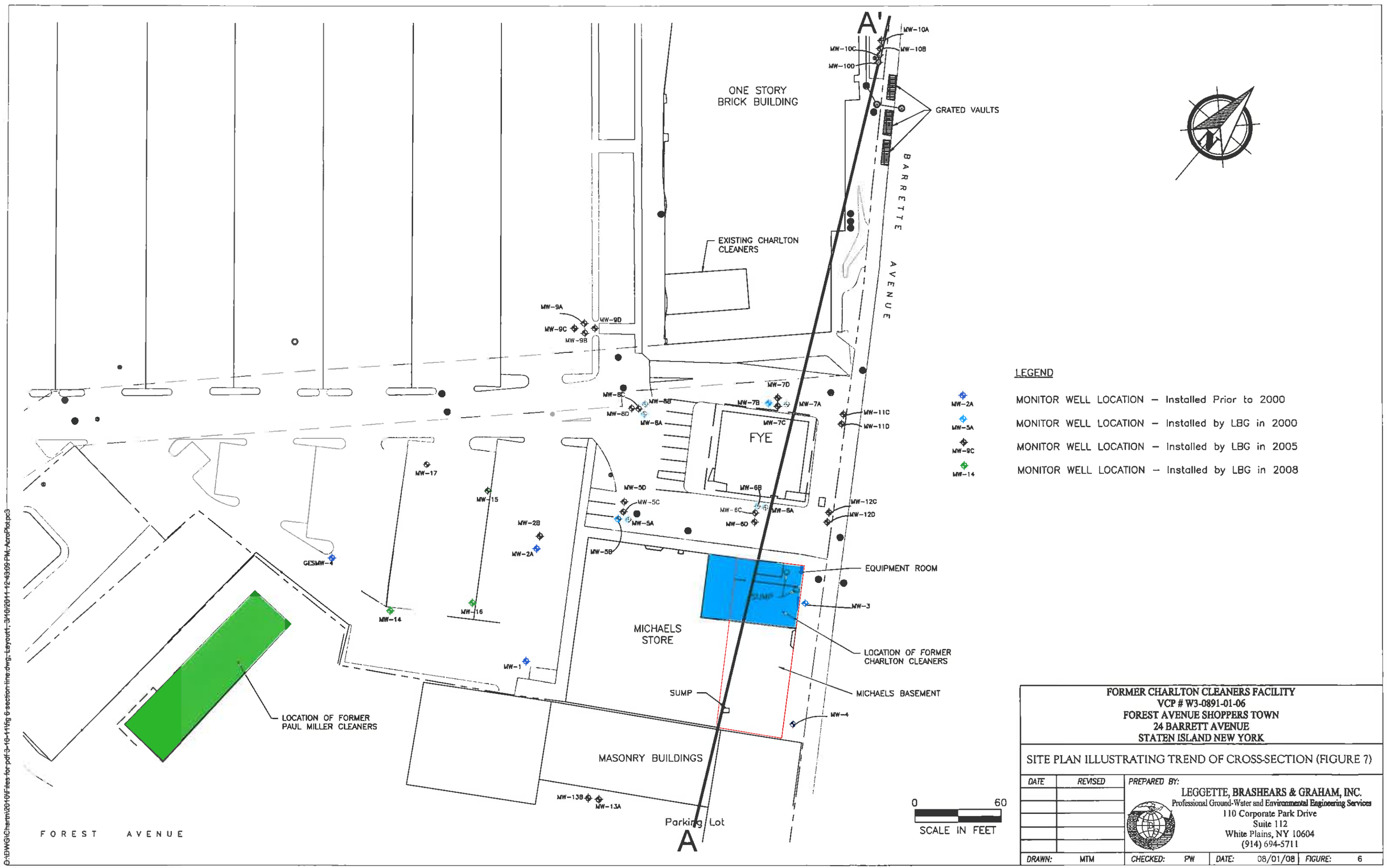

FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

SITE PLAN ILLUSTRATING TREND OF CROSS-SECTION (FIGURE 7)

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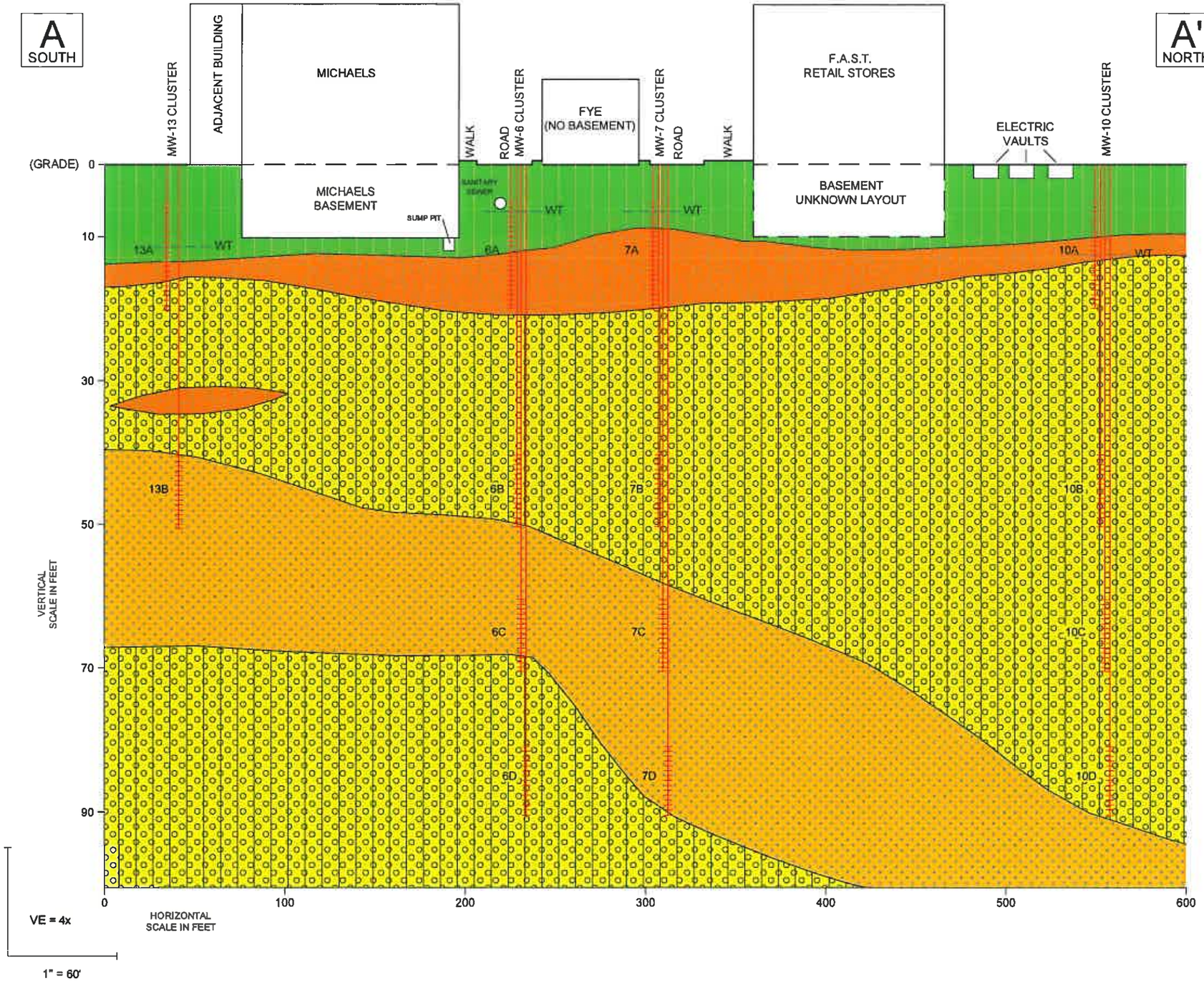

KEY

- SILIT AND FINE SAND
- PRESUMED COBBLE LAYER, HEAVY DRILLING, NO SAMPLE RECOVERY, HIGH BLOW COUNT
- SAND, FINE TO MEDIUM AND SILT
- SAND, FINE TO COARSE, TRACE TO SOME SILT

NOTE: FIGURE DOES NOT ILLUSTRATE LAND SURFACE CHANGE ACROSS CROSS-SECTION.

FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

SIMPLIFIED GEOLOGIC CROSS-SECTION

DATE	REVISED

PREPARED BY:
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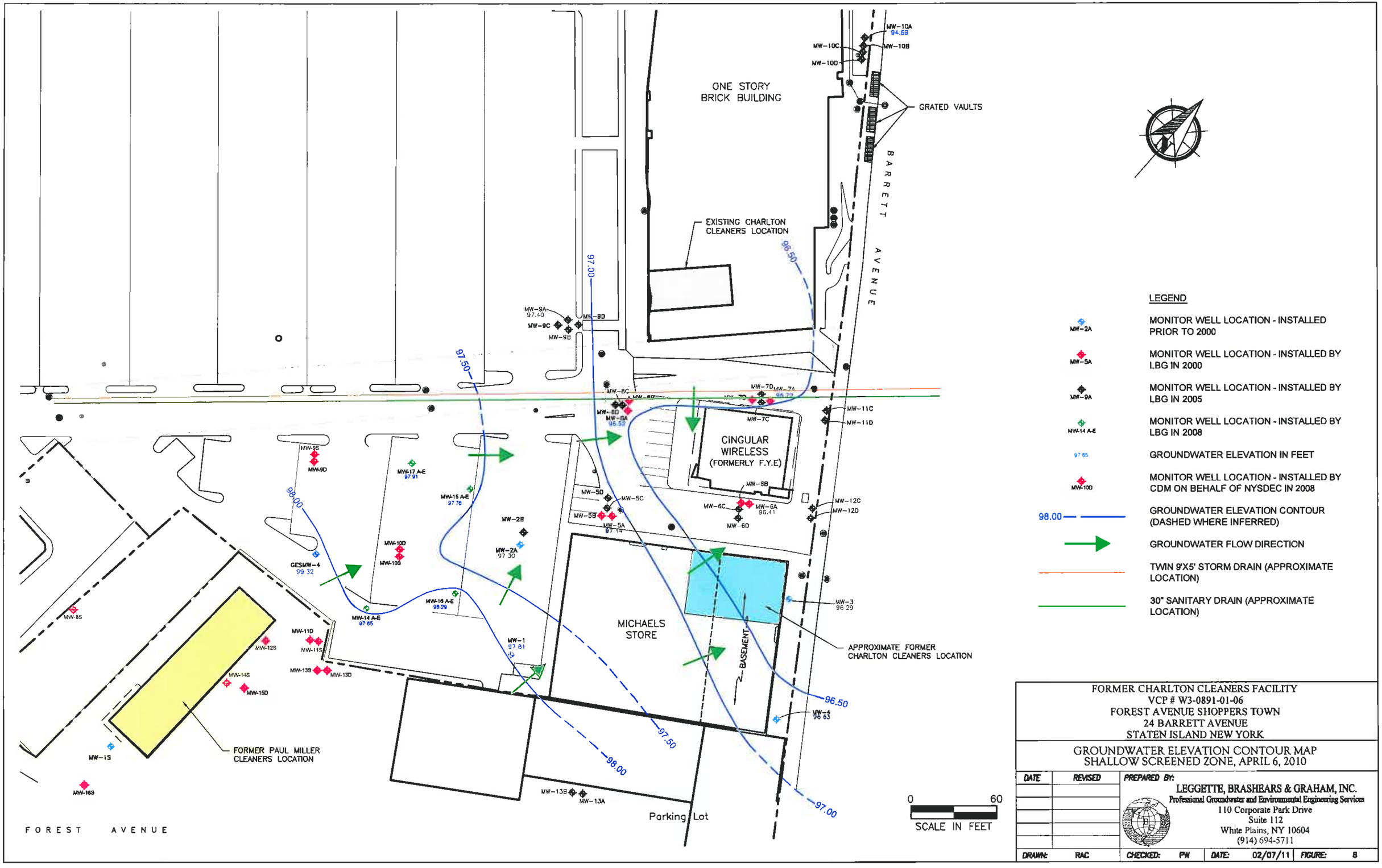

FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

GROUNDWATER ELEVATION CONTOUR MAP
SHALLOW SCREENED ZONE, APRIL 6, 2010

DATE	REVISED

PREPARED BY:
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DRAWN:	RAC	CHECKED:	PW	DATE:	02/07/11	FIGURE:	8

O:\DWG\Charlin\2010\fig 8 GW contour map Apr 2010.dwg, Layout1, 2/7/2011 10:03:11 AM, AcroPlot.pc3

FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

GROUNDWATER ELEVATION CONTOUR MAP
SHALLOW GROUNDWATER AUGUST 18, 2010

DATE	REVISED

PREPARED BY:

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
110 Corporate Park Drive
Suite 112
White Plains, NY 10604
(914) 694-5711

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ONE STORY
BRICK BUILDING

EXISTING CHARLTON
CLEANERS LOCATION

GRATED VAULTS

BARRETT AVENUE

MW-10A
MW-10C
MW-10B
97.12
MW-10D

MW-9A
MW-9D
MW-9C
MW-9B
97.52

MW-8C
MW-8B
97.48
MW-8D
MW-8A

MW-7B
97.23
MW-7D
MW-7A
MW-7C

MW-11C
MW-11D

CINGULAR
WIRELESS
(FORMERLY F.Y.E)

MW-6B
97.36

MW-5D
MW-5C
MW-5B
97.54
MW-5A

MW-6C
MW-6A
MW-6D

MW-12C
MW-12D

97.50

MW-3

MW-9S
MW-9C

MW-17 A-E
97.73

MW-16 A-E
97.69

MW-2B
97.64
MW-2A

MW-10D
MW-10S

GCSMW-4

MW-18 A-E
97.77

MW-14 A-E
97.24

MW-6S

MW-11D
MW-11S

MW-12S

MW-13S
MW-13D

MW-14S
MW-15D

MW-1S

MW-16S

FORMER PAUL MILLER
CLEANERS LOCATION

MW-1

MICHAELS
STORE

98.00

BASEMENT

APPROXIMATE FORMER
CHARLTON CLEANERS LOCATION

MW-4

MW-13B
MW-13A

Parking Lot

FOREST AVENUE

0 60
SCALE IN FEET

LEGEND

- MW-2A — MONITOR WELL LOCATION – INSTALLED PRIOR TO 2000
- MW-5B — MONITOR WELL LOCATION – INSTALLED BY LBG IN 2000
- MW-9B — MONITOR WELL LOCATION – INSTALLED BY LBG IN 2005
- MW-14 A-E — MONITOR WELL LOCATION – INSTALLED BY LBG IN 2008
- 97.24 — GROUNDWATER ELEVATION IN FEET
- MW-10D — MONITOR WELL LOCATION – INSTALLED BY CDM ON BEHALF OF NYSDEC IN 2008
- 98.00 — GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION

FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

POTENTIOMETRIC SURFACE CONTOUR MAP
WELLS SCREENED 40' TO 50' BG, APRIL 6, 2010

DATE	REVISED

PREPARED BY:
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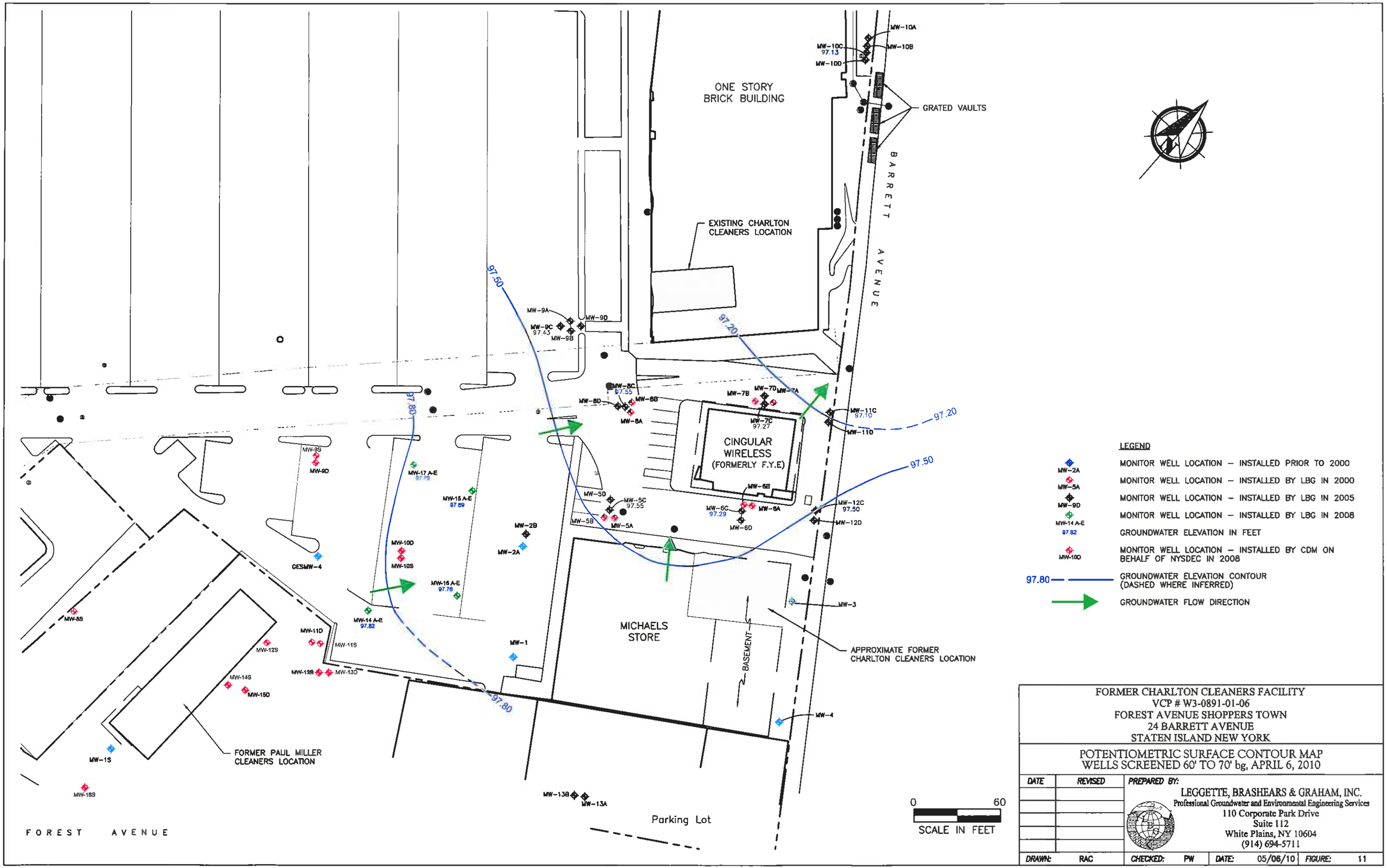

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POTENTIOMETRIC SURFACE CONTOUR MAP
WELLS SCREENED 60' TO 70' bg, APRIL 6, 2010

DATE	REVISED

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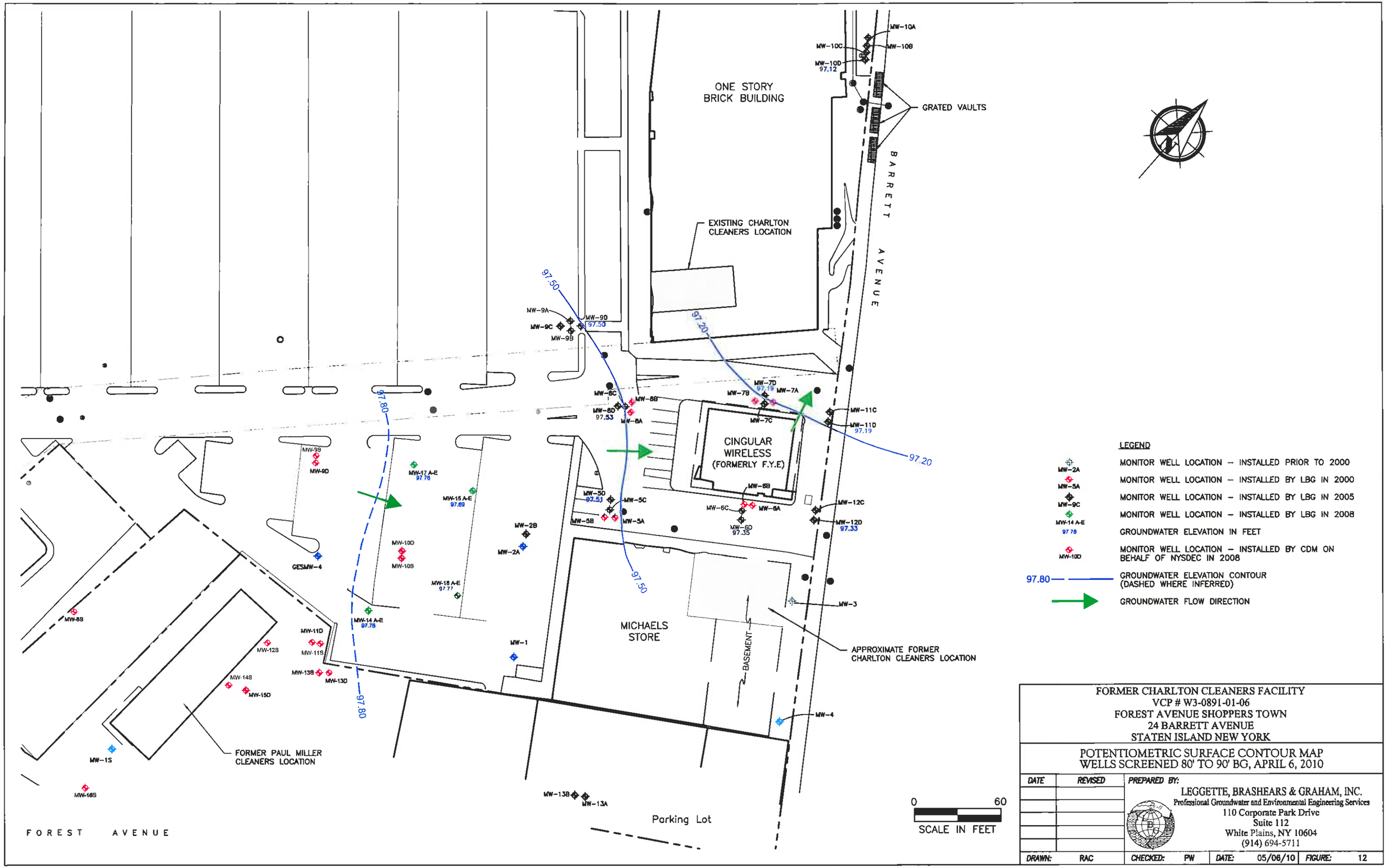

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FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

POTENTIOMETRIC SURFACE CONTOUR MAP
WELLS SCREENED 80' TO 90' BG, APRIL 6, 2010

DATE	REVISED

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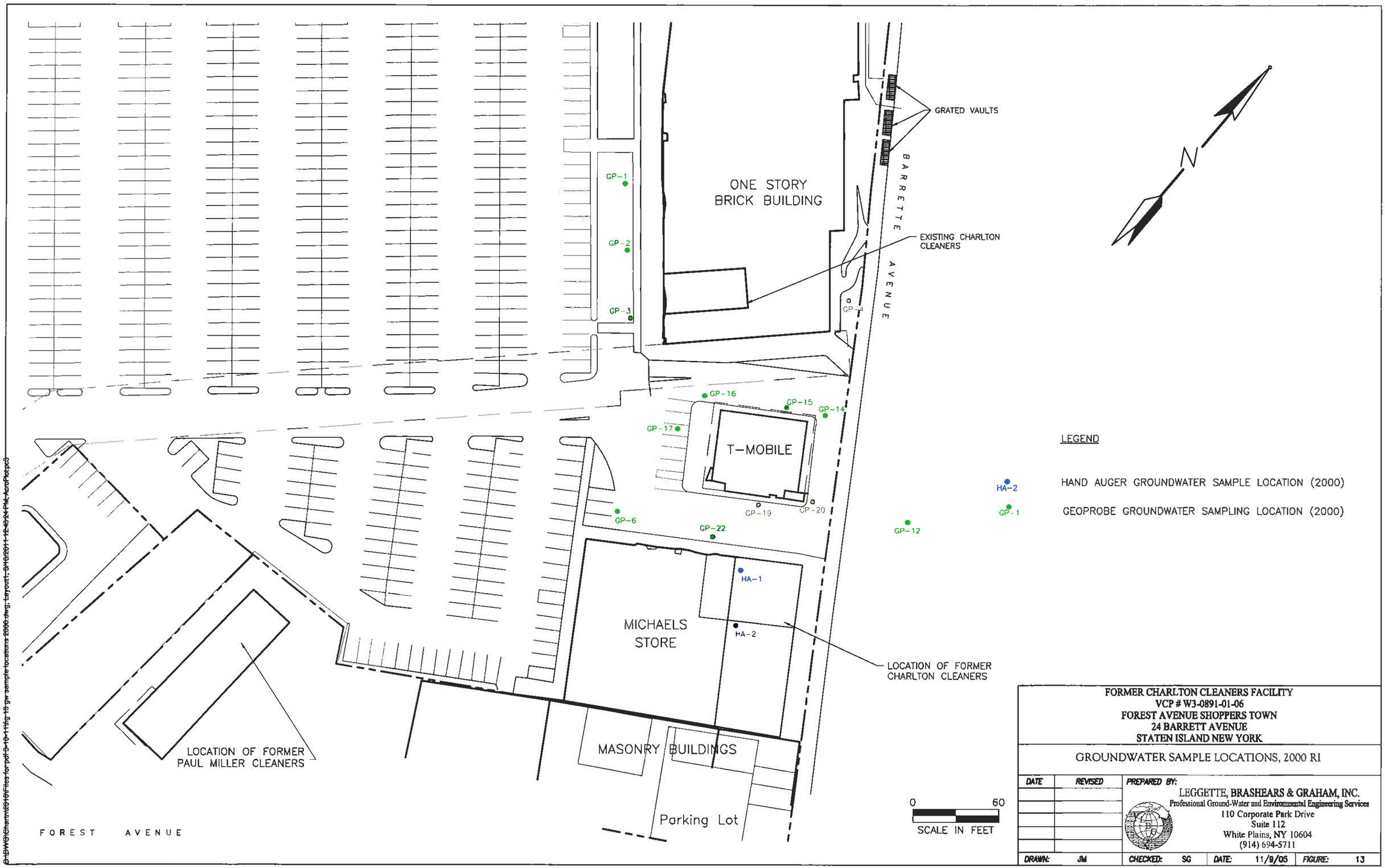

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FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
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GROUNDWATER SAMPLE LOCATIONS, 2000 RI

DATE	REVISED

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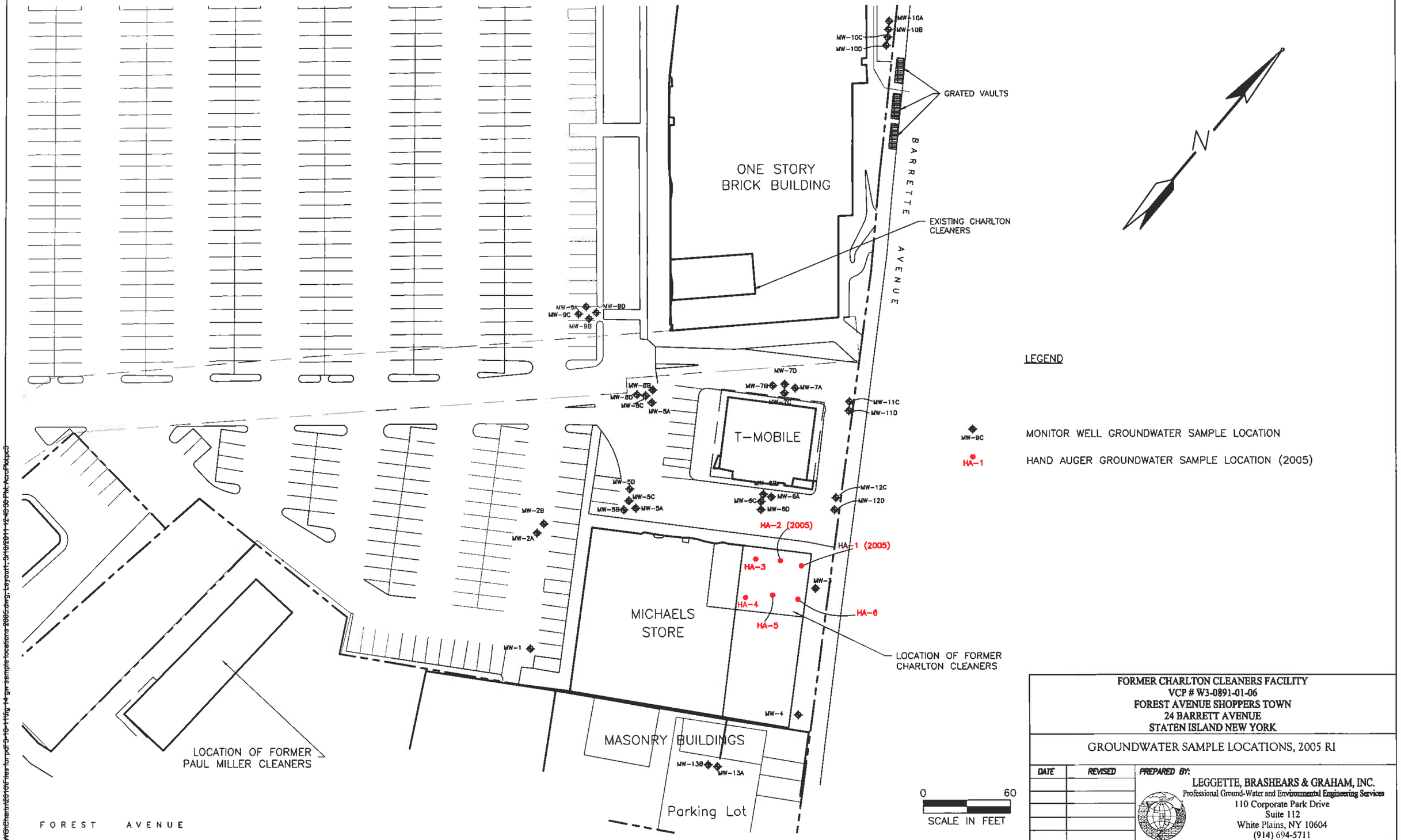
DRAWN:	JM	CHECKED:	SG	DATE:	11/9/05	FIGURE:	13



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FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

GROUNDWATER SAMPLE LOCATIONS, 2005 RI

DATE	REVISED

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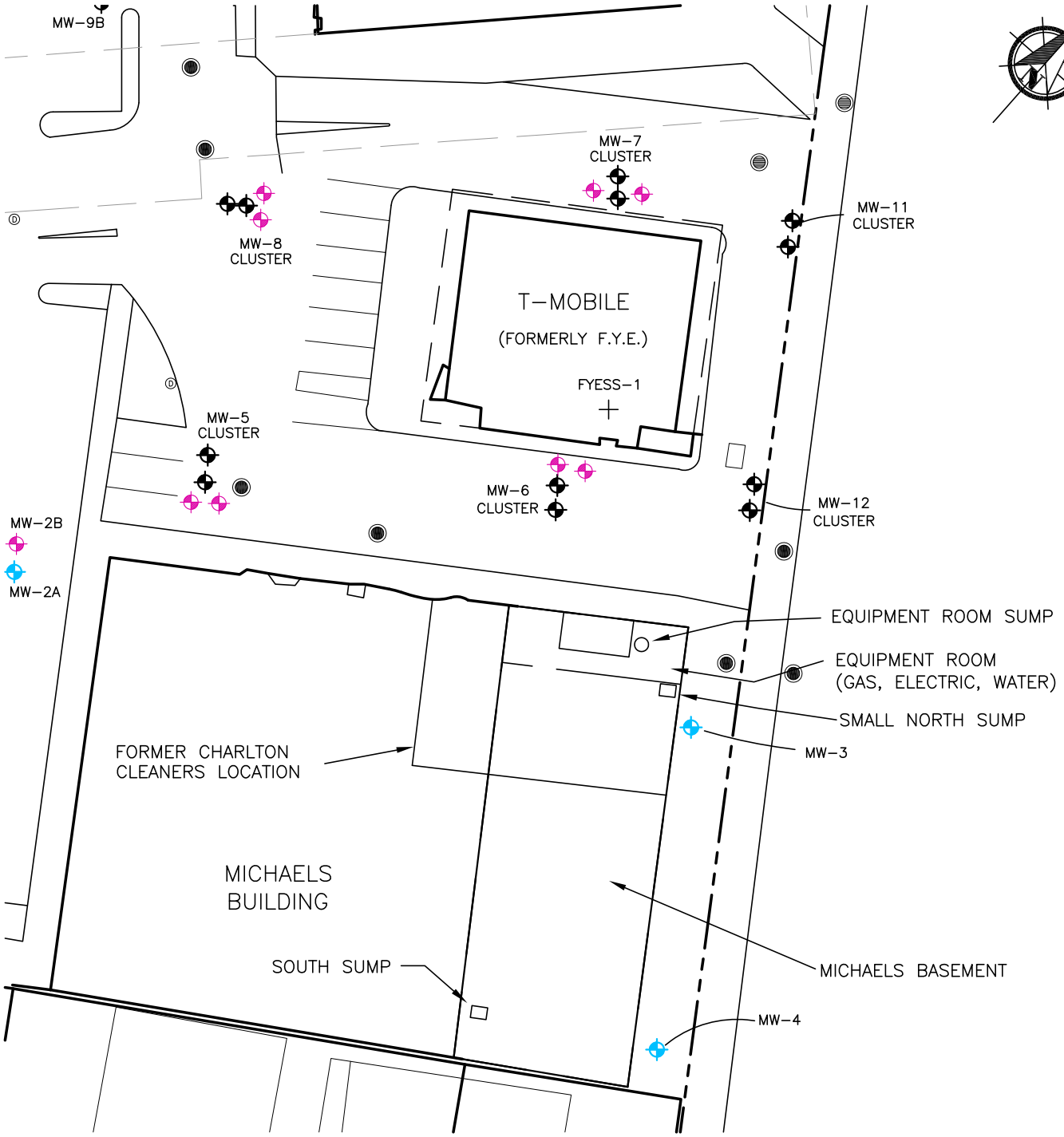
DRAWN:	JM	CHECKED:	SG	DATE:	11/9/05	FIGURE:	14



LEGEND

MW-3 — MONITOR WELL LOCATION– Installed Prior to 2000

MW-6B — MONITOR WELL LOCATION– Installed by LBG in 2000

MW-6C — MONITOR WELL LOCATION– Installed by LBG in 2005

0 40

SCALE IN FEET

FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

MONITOR WELLS NEAR MICHAELS BUILDING

DATE	REVISED

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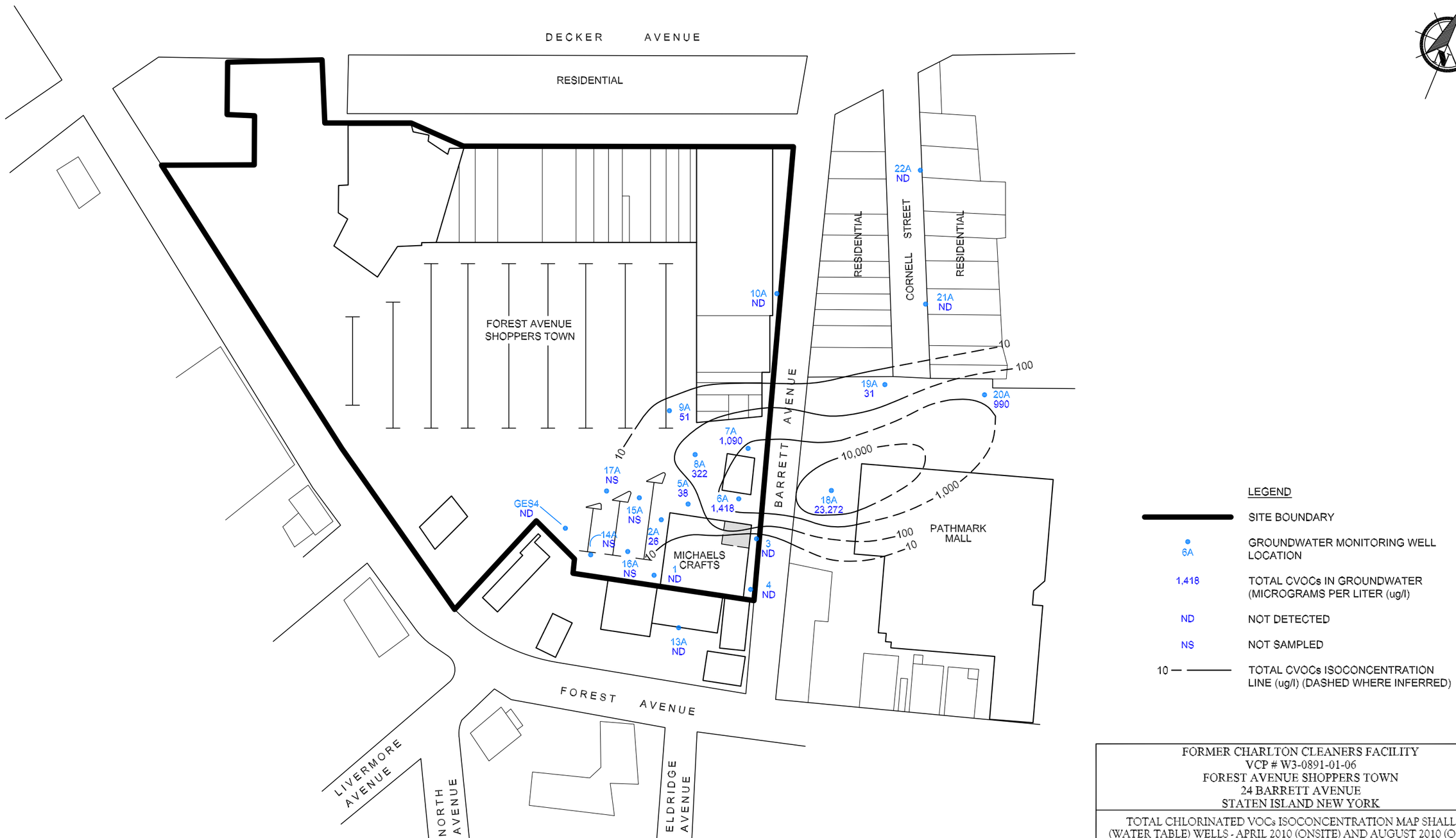

LEGEND

- SITE BOUNDARY
- 6A — GROUNDWATER MONITORING WELL LOCATION
- 1,418 — TOTAL CVOCs IN GROUNDWATER (MICROGRAMS PER LITER (ug/l)
- ND — NOT DETECTED
- NS — NOT SAMPLED
- 10 — TOTAL CVOCs ISOCONCENTRATION LINE (ug/l) (DASHED WHERE INFERRED)

0 150

APPROXIMATE SCALE IN FEET

FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

TOTAL CHLORINATED VOCs ISOCONCENTRATION MAP SHALLOW (WATER TABLE) WELLS - APRIL 2010 (ONSITE) AND AUGUST 2010 (OFFSITE)

DATE	REVISED

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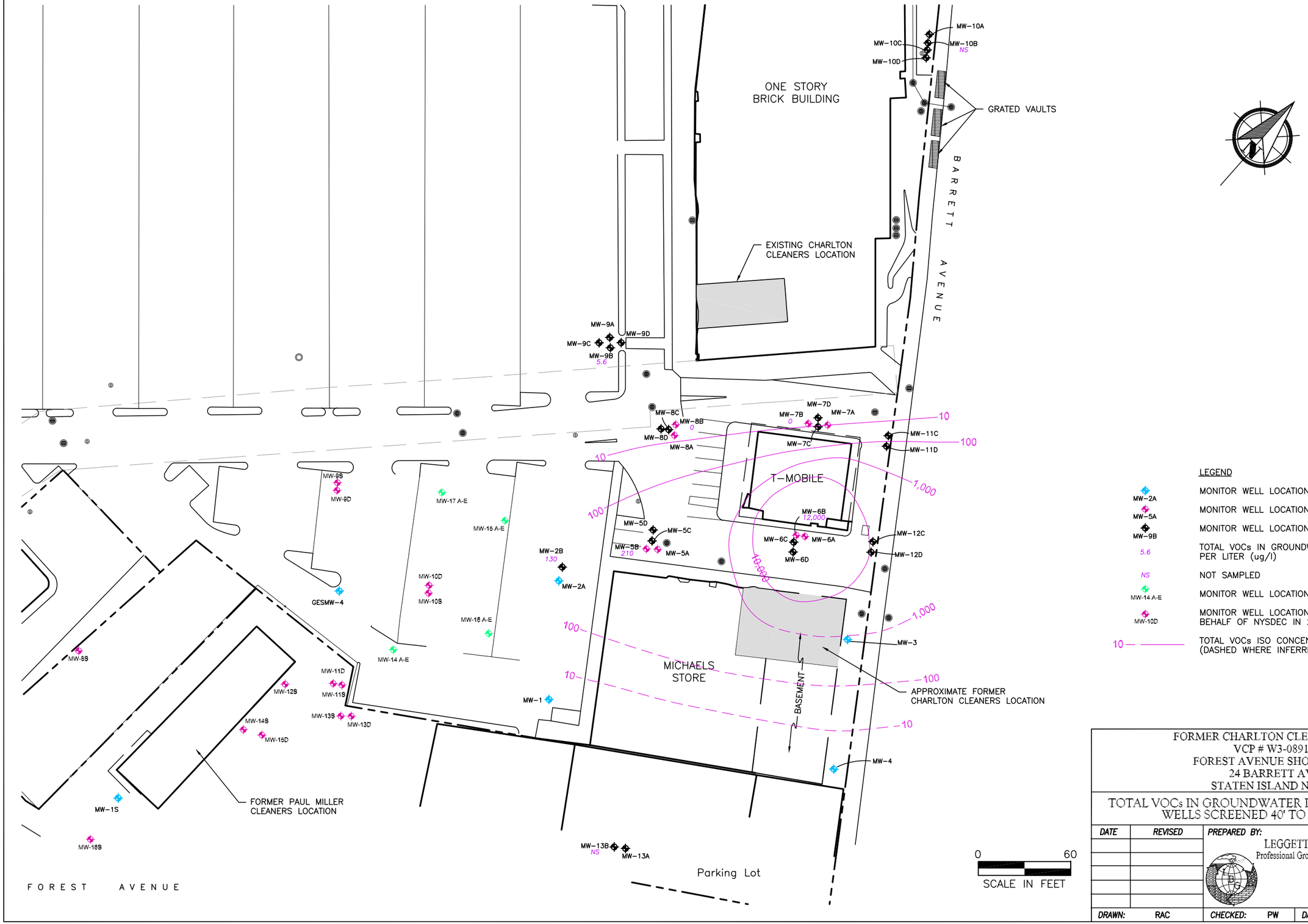

LEGEND

- MW-2A — MONITOR WELL LOCATION – INSTALLED PRIOR TO 2000
- MW-5A — MONITOR WELL LOCATION – INSTALLED BY LBG IN 2000
- MW-9B — MONITOR WELL LOCATION – INSTALLED BY LBG IN 2005
- 5.6 — TOTAL VOCs IN GROUNDWATER, MICROGRAMS PER LITER (ug/l)
- NS — NOT SAMPLED
- MW-14 A-E — MONITOR WELL LOCATION – INSTALLED BY LBG IN 2008
- MW-10D — MONITOR WELL LOCATION – INSTALLED BY CDM ON BEHALF OF NYSDEC IN 2008
- 10 — TOTAL VOCs ISO CONCENTRATION LINE (ug/l) (DASHED WHERE INFERRED)

FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

TOTAL VOCs IN GROUNDWATER ISO CONCENTRATION MAP
WELLS SCREENED 40' TO 50' BG, APRIL 2010

DATE	REVISED

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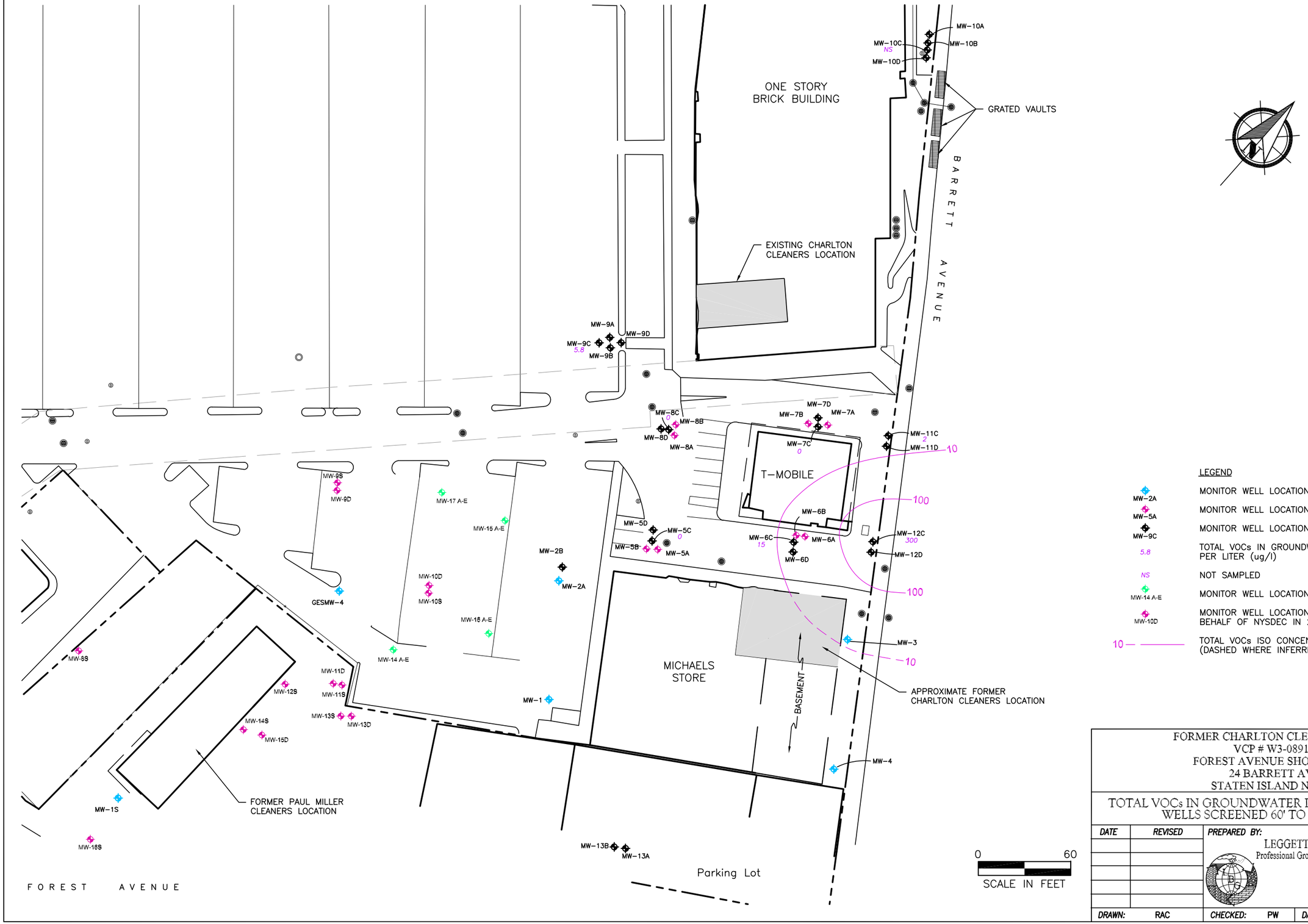

LEGEND

MW-2A	MONITOR WELL LOCATION – INSTALLED PRIOR TO 2000
MW-5A	MONITOR WELL LOCATION – INSTALLED BY LBG IN 2000
MW-9C	MONITOR WELL LOCATION – INSTALLED BY LBG IN 2005
5.8	TOTAL VOCs IN GROUNDWATER, MICROGRAMS PER LITER (ug/l)
NS	NOT SAMPLED
MW-14 A-E	MONITOR WELL LOCATION – INSTALLED BY LBG IN 2008
MW-10D	MONITOR WELL LOCATION – INSTALLED BY CDM ON BEHALF OF NYSDEC IN 2008
10	TOTAL VOCs ISO CONCENTRATION LINE (ug/l) (DASHED WHERE INFERRED)

FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

TOTAL VOCs IN GROUNDWATER ISO CONCENTRATION MAP
WELLS SCREENED 60' TO 70' BG, APRIL 2010

DATE	REVISED

PREPARED BY:
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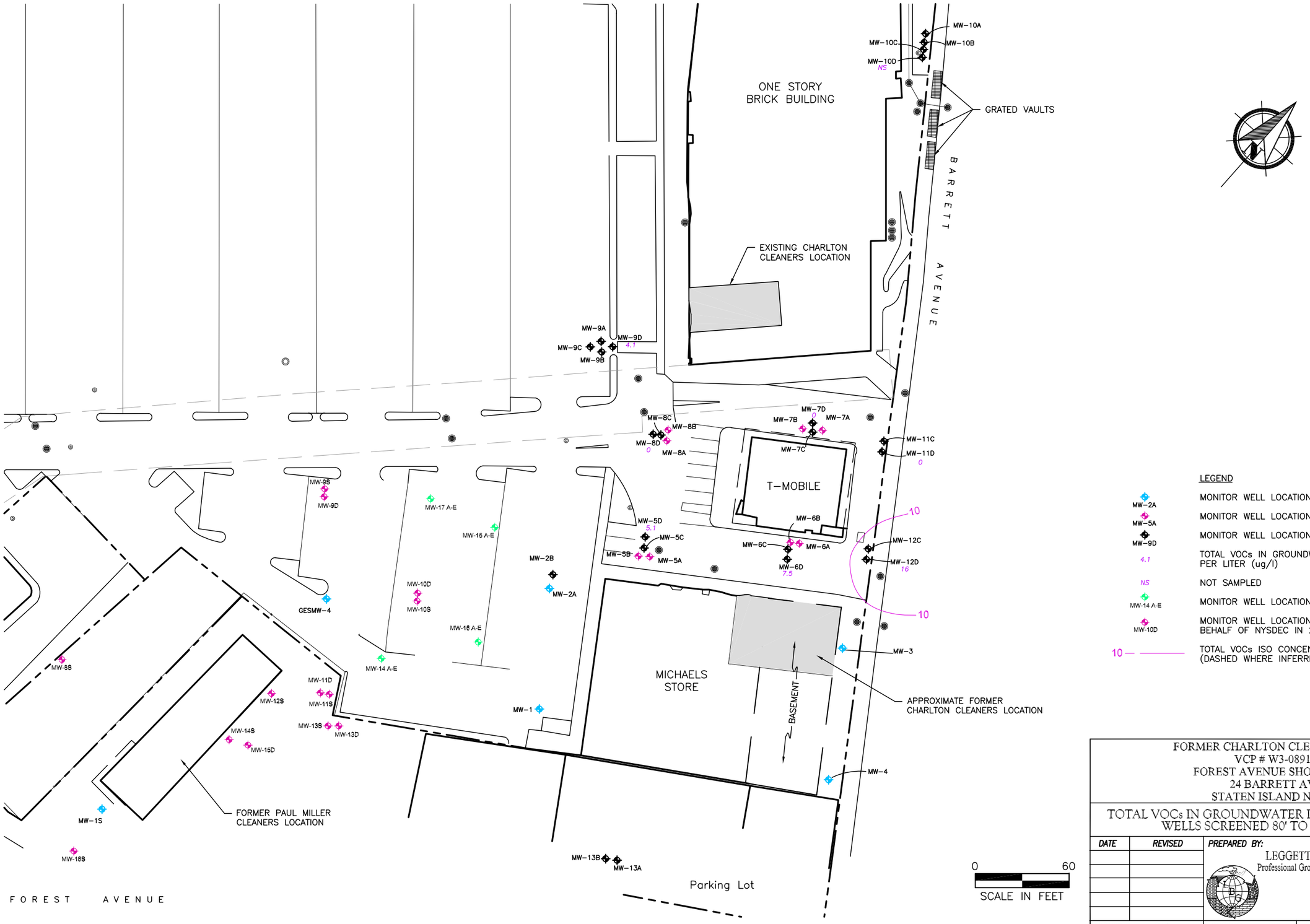

LEGEND

MW-2A	MONITOR WELL LOCATION – INSTALLED PRIOR TO 2000
MW-5A	MONITOR WELL LOCATION – INSTALLED BY LBG IN 2000
MW-9D	MONITOR WELL LOCATION – INSTALLED BY LBG IN 2005
4.1	TOTAL VOCs IN GROUNDWATER, MICROGRAMS PER LITER (ug/l)
NS	NOT SAMPLED
MW-14 A-E	MONITOR WELL LOCATION – INSTALLED BY LBG IN 2008
MW-10D	MONITOR WELL LOCATION – INSTALLED BY CDM ON BEHALF OF NYSDEC IN 2008
10	TOTAL VOCs ISO CONCENTRATION LINE (ug/l) (DASHED WHERE INFERRED)

FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

TOTAL VOCs IN GROUNDWATER ISO CONCENTRATION MAP
WELLS SCREENED 80' TO 90' BG, APRIL 2010

DATE	REVISED

PREPARED BY:
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LEGEND

- SITE BOUNDARY
- INDIVIDUAL WELL - CHARLTON CLEANERS INVESTIGATION
- MULTILEVEL CLUSTER WELL - CHARLTON CLEANERS INVESTIGATION
- INDIVIDUAL WELL - PAUL MILLER INVESTIGATION
- TWIN 9'X5' STORM DRAIN (APPROXIMATE LOCATION)
- 30" SANITARY DRAIN (APPROXIMATE LOCATION)

TOTAL CVOC (CHLORINATED VOLATILE ORGANIC COMPOUNDS) CONCENTRATIONS (MICROGRAMS PER LITER)

- > 1,000,000
- > 100,000 - 1,000,000
- > 10,000 - 100,000
- > 1,000 - 10,000
- > 100 -1,000
- > 10 - 100

NOTES:

1. CVOC CONCENTRATIONS = PCE+TCE+DCE+VC IN MICROGRAMS PER LITER.
2. CVOC CONCENTRATIONS FOR CHARLTON WELLS MW-1 THROUGH MW-13 ARE AVERAGED OVER THE 3 MOST RECENT SAMPLING EVENTS.
3. CVOC CONCENTRATIONS FOR CHARLTON WELLS MW-14 THROUGH MW-17 - JULY 1, 2008.
4. CVOC CONCENTRATIONS FOR CHARLTON WELLS MW-18 THROUGH MW-22 - AUGUST 18-20, 2010.
5. CVOC CONCENTRATIONS FOR PAUL MILLER WELLS MW-1 THROUGH MW-16 - OCTOBER 13-15, 2008.

0 150

APPROXIMATE SCALE IN FEET

FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

APPROXIMATE DISSOLVED CVOC PLUME BOUNDARIES, SHALLOW GROUNDWATER

DATE	REVISED

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O:\DWG\Charm\2010\fig 20A shallow plume.dwg, Layout1, 2/7/2011 10:03:17 AM, AcroPlot.pc3

LEGEND

- SITE BOUNDARY
- INDIVIDUAL WELL - CHARLTON CLEANERS INVESTIGATION
- MULTILEVEL CLUSTER WELL - CHARLTON CLEANERS INVESTIGATION
- INDIVIDUAL WELL - PAUL MILLER INVESTIGATION
- TWIN 9'X5' STORM DRAIN (APPROXIMATE LOCATION)
- 30" SANITARY DRAIN (APPROXIMATE LOCATION)

TOTAL CVOC (CHLORINATED VOLATILE ORGANIC COMPOUNDS) CONCENTRATIONS (MICROGRAMS PER LITER)

- > 1,000 - 10,000
- > 100 -1,000
- > 10 - 100

NOTES:

1. CVOC CONCENTRATIONS = PCE+TCE+DCE+VC IN MICROGRAMS PER LITER.
2. CVOC CONCENTRATIONS FOR CHARLTON WELLS MW-1 THROUGH MW-13 ARE AVERAGED OVER 2008-2010 MONITORING PERIOD.
3. CVOC CONCENTRATIONS FOR CHARLTON WELLS MW-14 THROUGH MW-17 - JULY 1, 2008.
4. CVOC CONCENTRATIONS FOR CHARLTON WELLS MW-18 THROUGH MW-22 - AUGUST 18-20, 2010.
5. CVOC CONCENTRATIONS FOR PAUL MILLER WELLS MW-1 THROUGH MW-16 - OCTOBER 13-15, 2008.

0 150

APPROXIMATE SCALE IN FEET

FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

APPROXIMATE DISSOLVED CVOC PLUME BOUNDARIES INTERMEDIATE DEPTH GROUNDWATER, 60-70 FEET BELOW GRADE

DATE	REVISED

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LEGEND

SITE BOUNDARY

APEX SOIL SAMPLES, 1994

HESS-01 HESS VICINITY SOIL SAMPLES

PM-01 PAUL MILLER VICINITY SOIL SAMPLES

RL-01 CHARLTON VICINITY SOIL SAMPLES

MCUST-01 FUEL OIL UST VICINITY SOIL SAMPLES

DVIRKA & BARTILUCCI SOIL SAMPLES, 1996

GP-1 CHARLTON VICINITY SOIL SAMPLES

NOT TO SCALE

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APEX, D&B SOIL SAMPLE LOCATIONS, 1994, 1996

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SOIL SAMPLE LOCATIONS MAP, 2000 REMEDIAL INVESTIGATION

DATE	REVISED

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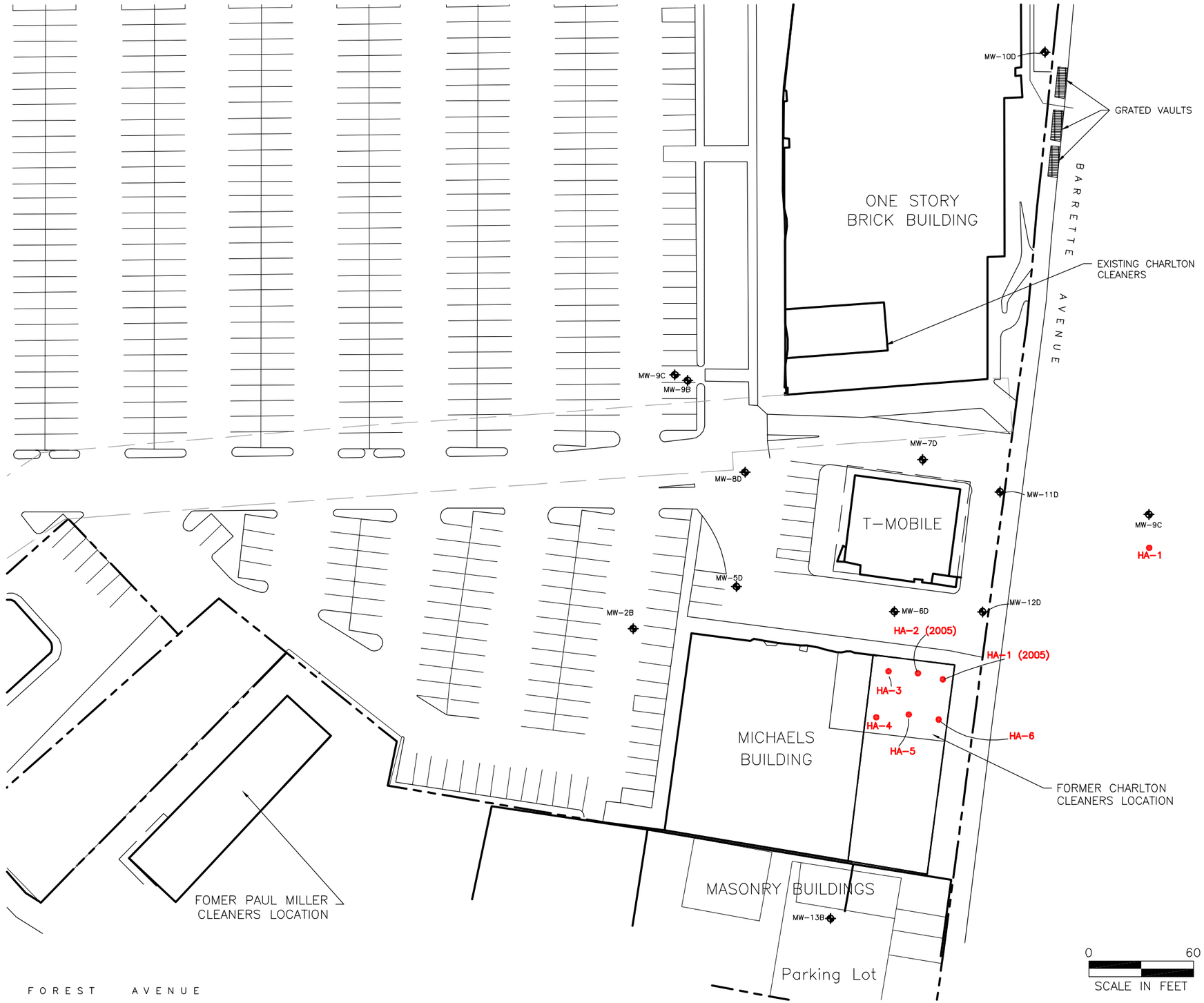

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FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

SOIL SAMPLE LOCATIONS MAP, 2005 REMEDIAL INVESTIGATION

DATE	REVISED

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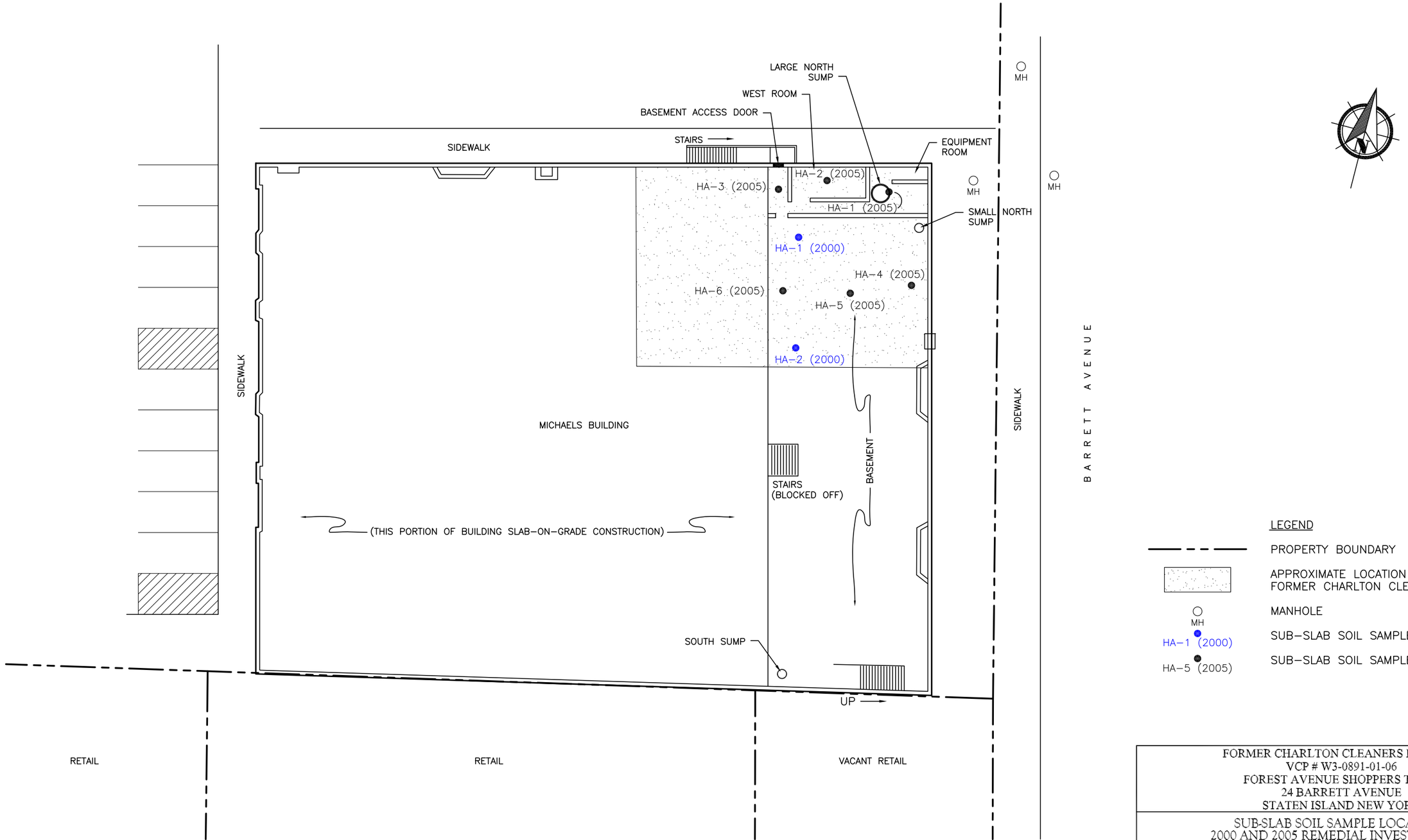

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SUB-SLAB SOIL SAMPLE LOCATIONS
2000 AND 2005 REMEDIAL INVESTIGATIONS

DATE	REVISED

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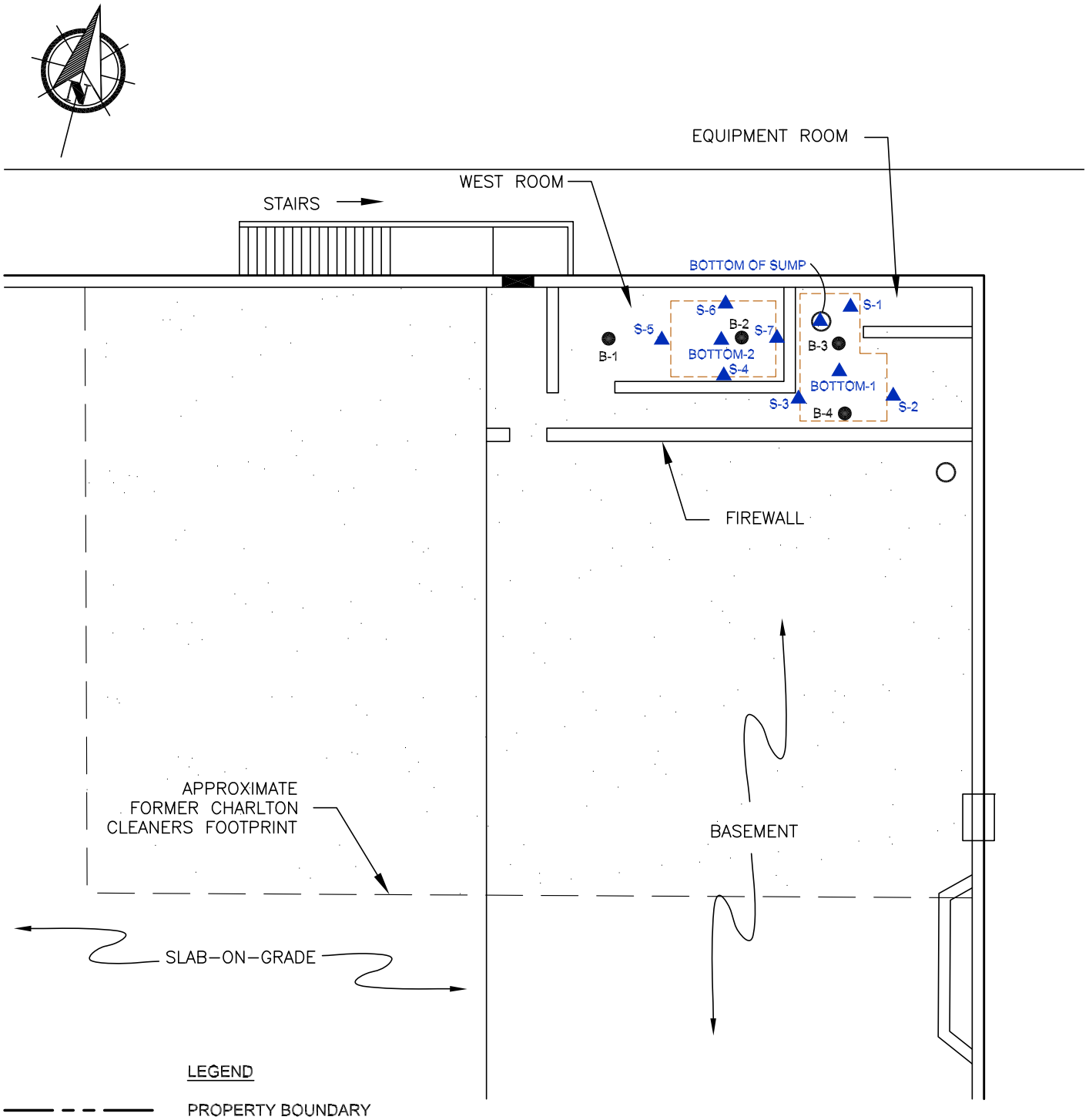

LEGEND

PROPERTY BOUNDARY

APPROXIMATE LOCATION OF FORMER CHARLTON CLEANERS

SUMP PIT

LIMIT OF IRM EXCAVATION

S-1 EXCAVATION ENDPOINT SOIL SAMPLE

B-1 PRELIMINARY BORING AND SOIL SAMPLE LOCATION

0 10

SCALE IN FEET

FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

IRM: PRE-SAMPLING, EXCAVATION LIMITS AND ENDPOINT SOIL SAMPLE LOCATIONS, SEPTEMBER, 2009

DATE	REVISED

PREPARED BY:

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0 20

SCALE IN FEET

LEGEND

PROPERTY BOUNDARY

APPROXIMATE LOCATION OF FORMER CHARLTON CLEANERS

MH — MANHOLE

SG-9 — SUB-SLAB SOIL VAPOR SAMPLE (COLLECTED JUNE & SEPTEMBER 2005)

MSS-2 — PERMANENT SUB-SLAB SOIL VAPOR SAMPLE PORT (SAMPLED DECEMBER 2006)

SB-10	
8,700	TETRACHLOROETHENE CONCENTRATION
720	TRICHLOROETHENE CONCENTRATION
2,500	CIS-1,2-DICHLOROETHENE CONCENTRATION
720	VINYL CHLORIDE CONCENTRATION

SAMPLE ID

ND — NOT DETECTED

NOTE:
SAMPLE ANALYSIS RESULTS (MICROGRAMS PER CUBIC METER)

FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

SUB-SLAB VAPOR SAMPLE LOCATIONS

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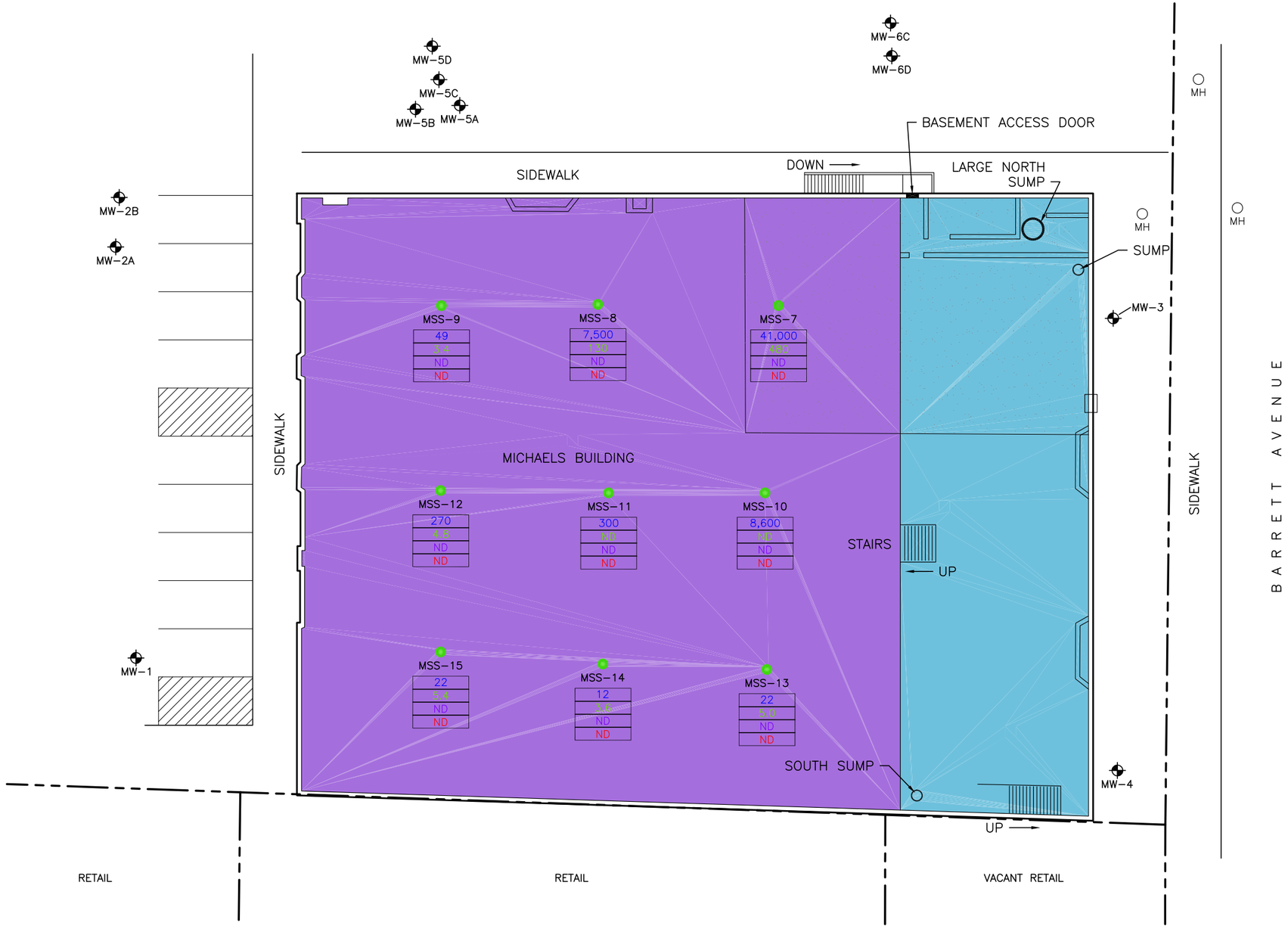
		Professional Groundwater and Environmental Engineering Services			
		110 Corporate Park Drive, Suite 112, White Plains, NY 10604			
		(914) 694-5711			
DRAWN: RAC		CHECKED: PW	DATE: 09/15/10	FIGURE: 26	



LEGEND

41,000 / 480 / ND / ND	TETRACHLOROETHENE CONCENTRATION TRICHLOROETHENE CONCENTRATION CIS-1,2-DICHLOROETHENE CONCENTRATION VINYL CHLORIDE CONCENTRATION
MW-1	MONITORING WELL LOCATION
MSS-7	SUB-SLAB VAPOR SAMPLE LOCATION
	PROPERTY BOUNDARY
	PORTION OF MICHAELS BUILDING CONSTRUCTED AS SLAB-ON-GRADE
	PORTION OF MICHAELS BUILDING UNDERLAIN BY BASEMENT
	APPROXIMATE LOCATION OF FORMER CHARLTON CLEANERS
MH	MANHOLE

NOTE: ALL CONCENTRATIONS IN MICROGRAMS PER CUBIC METER.

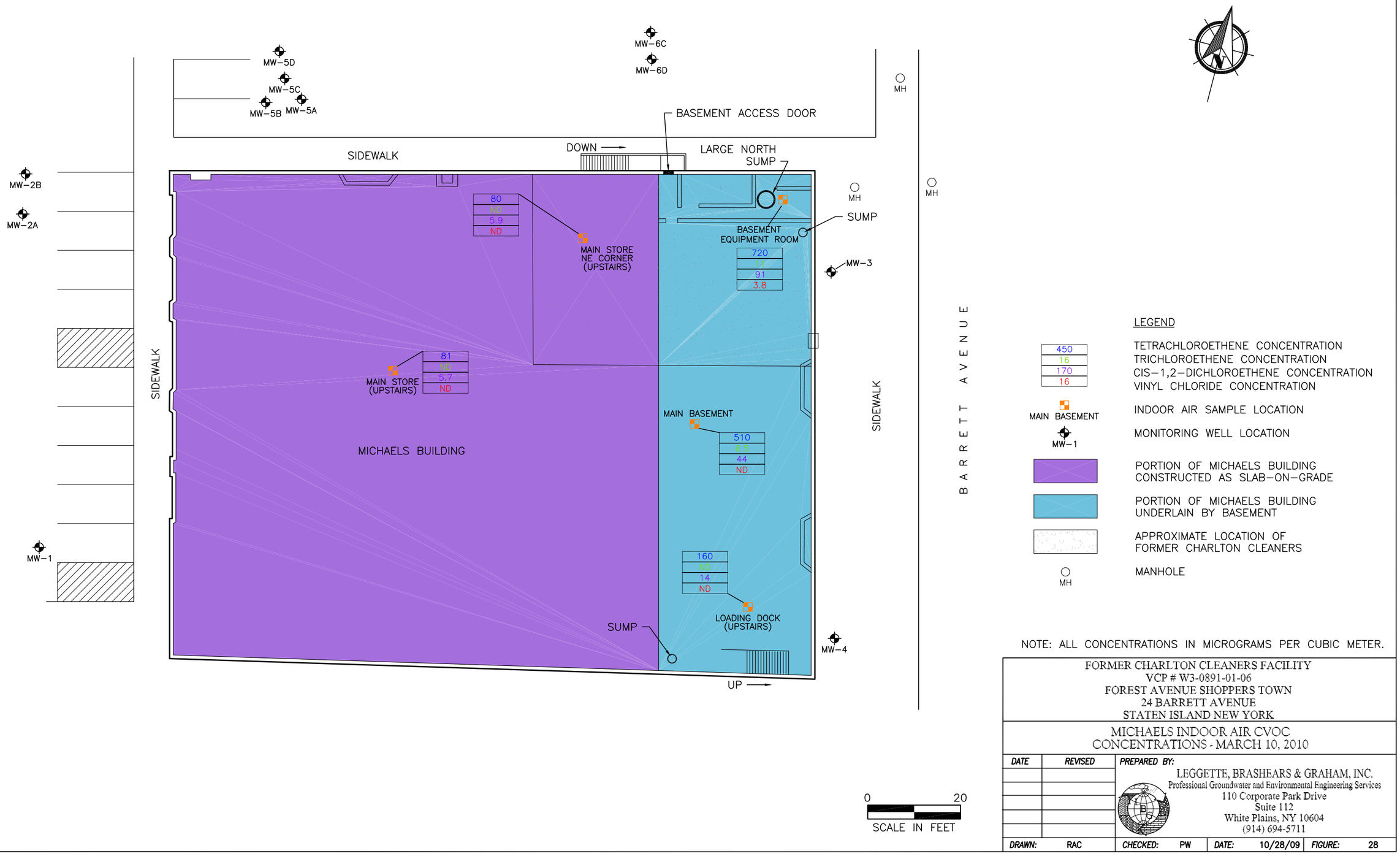
FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

MICHAELS INDOOR AIR AND SUB-SLAB VAPOR CVOC CONCENTRATIONS - AUGUST 15, 2008

DATE	REVISED

PREPARED BY:
LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
110 Corporate Park Drive
Suite 112
White Plains, NY 10604
(914) 694-5711

DRAWN:	RAC	CHECKED:	PW	DATE:	09/14/10	FIGURE:	27



LEGEND

450 / 16 / 170 / 16 — TETRACHLOROETHENE CONCENTRATION / TRICHLOROETHENE CONCENTRATION / CIS-1,2-DICHLOROETHENE CONCENTRATION / VINYL CHLORIDE CONCENTRATION

MAIN BASEMENT — INDOOR AIR SAMPLE LOCATION

MW-1 — MONITORING WELL LOCATION

PORTION OF MICHAELS BUILDING CONSTRUCTED AS SLAB-ON-GRADE

PORTION OF MICHAELS BUILDING UNDERLAIN BY BASEMENT

APPROXIMATE LOCATION OF FORMER CHARLTON CLEANERS

MH — MANHOLE

NOTE: ALL CONCENTRATIONS IN MICROGRAMS PER CUBIC METER.

FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

MICHAELS INDOOR AIR CVOC CONCENTRATIONS - MARCH 10, 2010

DATE	REVISED

PREPARED BY:
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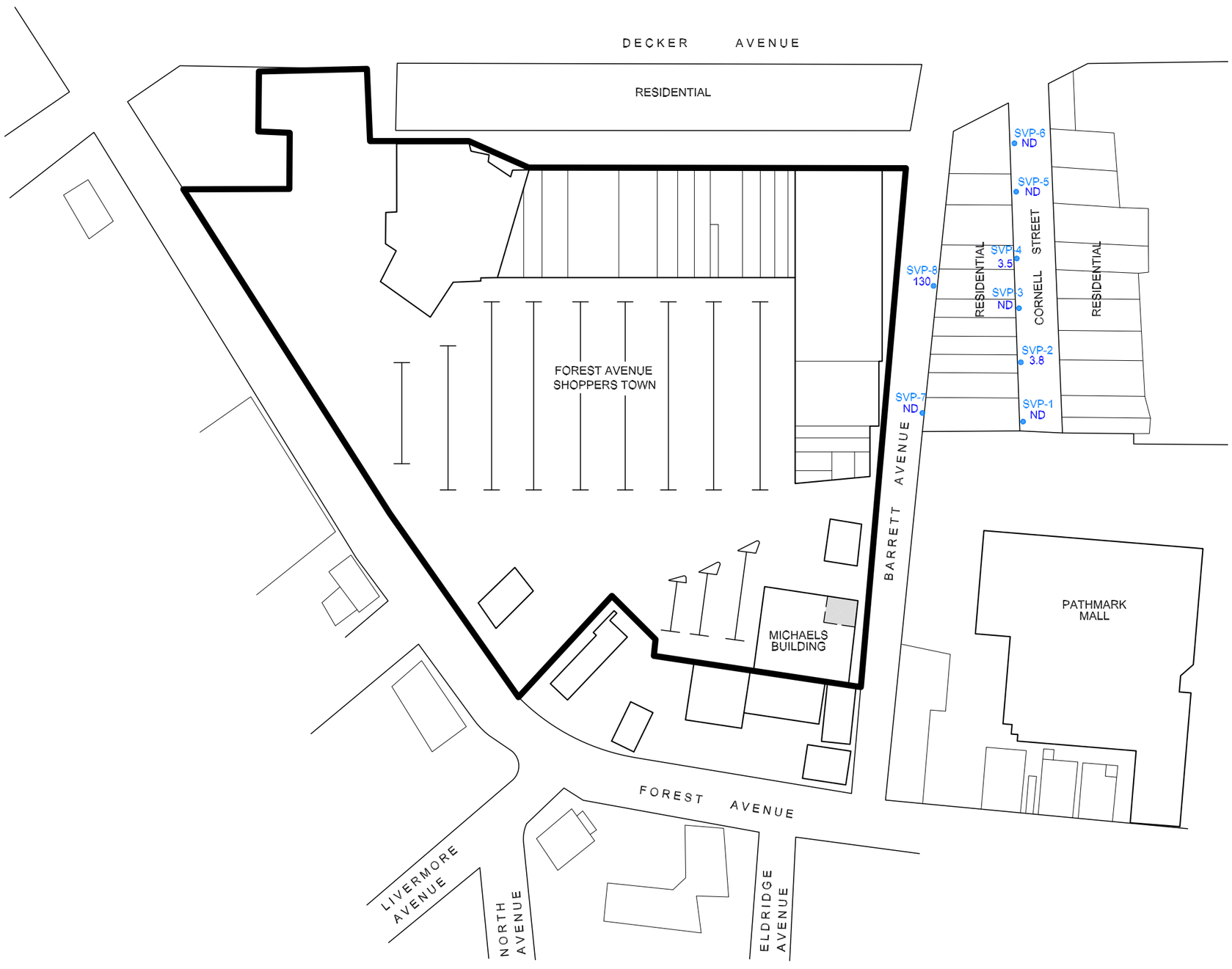
(914) 694-5711

DRAWN:	RAC	CHECKED:	PW	DATE:	10/28/09	FIGURE:	28



LEGEND

SITE BOUNDARY

SVP-2 — SOIL VAPOR SAMPLE LOCATION

3.8 — TOTAL CHLORINATED VOCs IN SOIL VAPOR (MICROGRAMS PER CUBIC METER, ug/m3)

0 150

APPROXIMATE SCALE IN FEET

FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

OFFSITE SOIL VAPOR SAMPLING LOCATIONS
MAY 27-28, 2009

DATE	REVISED
2/3/11	PAW

PREPARED BY:
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DRAWN:	MRV	CHECKED:	PW	DATE:	09/09/10	FIGURE:	29