REMEDIAL INVESTIGATION REPORT
FORMER CHARLTON CLEANERS FACILITY
FOREST AVENUE SHOPPERS TOWN
BOROUGH OF STATEN ISLAND
CITY OF NEW YORK

Prepared For:

KIOP Forest Avenue, LP
Philips Forest Associates, LP

December 2005
Revised: April 2006
Revised: June 2006

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INDEX NUMBER W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

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 for the investigation of soil, ground-water and soil gas contamination. KFA is an innocent owner volunteer associated with NYSDEC Voluntary Cleanup Program (VCP) Index Number W3-0891-01-06. The onsite activities followed the NYSDEC approved "Investigation Work Plan, KIOP Forest Avenue, L.P., Former Charlton Cleaners, Forest Avenue Shoppers Town, Staten Island, New York, Revised: September 2003" (Work Plan). The Work Plan was prepared based on the previous subsurface investigations conducted in September and October of 2000 at the former Charlton Cleaners (the Site), a dry-cleaning operation which was located in the existing Michaels Store, which is a part of the Forest Avenue Shoppers Town (FAST). The FAST shopping center consists of one-strip mall which comprises approximately 25 retail businesses and 3 buildings. This area is illustrated on the Site Area Map shown on figure 1. The former location of the Charlton Cleaners located at 24 Barrett Avenue occupied 2,040 ft^2 (square feet) of the existing Michaels store.

The investigation was conducted within the FAST shopping center which is located between Forest Avenue to the south, Barrett Avenue to the northeast and Decker Avenue to the northwest and includes the former Charlton Cleaners. A Site Survey Map showing the area of the LBG remedial investigation is shown on figure 2.

2.0 SITE HISTORY AND BACKGROUND

Based on Sanborn map review by Apex Environmental, Inc., the Site was used as a golf range until 1951 prior to the development of the shopping center. Charlton Cleaners

occupied a space in one of the buildings which is presently Michaels Craft Store prior to 1994, when it was moved to the present location. No information was provided regarding the initial occupancy date of the former Charlton Cleaners. Philips Forest Associates, LP acquired the FAST shopping center in 1997 and sold it to KIOP Forest Ave., LP in December 2000.

Charlton Cleaners utilized perchloroethylene (PCE) in the dry cleaning process during their operation at the listed site. No spills or releases were reported or documented at the Charlton Cleaners.

A site investigation conducted in 1994 by Apex Environmental, Inc. included the collection and analysis of ground-water samples from 4 monitor wells located in the vicinity of the former Charlton Cleaners. The laboratory analytical reports indicated a concentration of 5 ug/l (micrograms per liter) of PCE in one monitor well, which was at the NYSDEC ground-water standard. Re-sampling of these wells in 1996 did not find any PCE or other contaminants above the NYSDEC GA standards.

An additional investigation conducted in 1996 by Dvirka and Bartilucci in the vicinity of the former Charlton Cleaners found PCE and several decay products such as trichloroethylene (TCE), 1,2,dichloroethylene and vinyl chloride in ground-water samples collected from soil borings. The concentration of PCE in these ground-water samples ranged from 2 ug/l to 27,000 ug/l.

A subsurface investigation was conducted by LBG in 2000 in the vicinity of the current and former Charlton Cleaners in September-November 2000. This investigation consisted of the drilling of 23 geoprobe borings (GP-1 – GP-23), two hand auger soil samples (HA-1 and HA-2) and eight (8) monitor wells; four shallow (MW-5S, MW-6S, MW-7S, MW-8S) and four deep (MW-5D, MW-6D, MW-7D, MW-8D). Additionally, ground-water samples were collected from four previously installed monitor wells, MW-1, MW-2, MW-3 and MW-4. Soil and ground-water samples were collected from each sampling location. The geoprobe locations and hand auger locations are shown on figure 3. The monitor wells locations are shown on figure 4. This investigation identified PCE, TCE and vinyl chloride in soil and ground-water collected from soil borings and monitor wells. Table 1 presents the volatile organic compound (VOC) concentrations detected in the soil samples collected from the

geoprobe soil borings and hand auger locations. PCE concentrations in ground-water were the highest in the deep monitor wells installed downgradient and sidegradient to the listed Site. Table 2 presents the VOC concentrations detected in the ground-water samples collected from the geoprobe soil borings and hand augers locations. Table 3 presents the VOC concentrations detected in the ground-water samples collected from the monitor well locations.

3.0 REMEDIAL INVESTIGATION OBJECTIVE

The objective of the RI was to identify the source(s) and the horizontal and vertical extent of chlorinated hydrocarbons and/or other hydrocarbon compounds in soil, ground-water and soil gas and to evaluate remedial measures, if necessary. The investigation consisted of the following field activities:

1. Additional site background investigation
   - review of New York City agency files;
   - interviews of people knowledgeable of the Site; and,
   - qualitative exposure assessment.
2. Installation of additional monitor wells
   - installation of 23 additional ground-water monitoring wells;
   - collection of soil samples from various depths, field screening and laboratory analysis;
   - site geology;
   - development of the newly installed monitor wells; and,
   - disposal of drill cuttings and purge water.
3. Ground-water monitoring program
   - monitor well survey (horizontal and top of casing);
   - ground-water level measurements; and,
   - collection and analysis of ground-water samples from onsite monitor wells using the Low-Flow sampling method;

4. Exterior soil gas sampling
   - collection of soil gas samples from the vadose zone in selected locations; and,
   - analysis of the soil gas for volatile organic compounds (VOCs).
5. Michaels basement subsurface investigation
   - collection and analysis of soil, ground-water and soil gas samples from select locations beneath the basement sub-slab.
6. Outdoor and indoor ambient air quality sampling
   - outdoor ambient air sample;
   - Coconuts indoor air sampling;
   - Michaels indoor air sampling; and,
   - additional observed basement conditions.
7. Data evaluation
   - onsite geology and hydrogeology;
   - soil quality;
   - ground-water quality;
   - soil gas quality; and,
   - ambient air quality.
8. Preparation of RIR. The report will include the following:
   - detailed descriptions of field activities;
   - site maps showing utility locations, well locations, ground-water contours, contamination concentrations, etc.;
   - data summary tables;
   - monitor well geologic logs;
   - laboratory data;
   - results of the investigation.

4.0 ADDITIONAL SITE BACKGROUND INVESTIGATION

4.1 City Agency File Review

LBG visited the city agencies in Staten Island, New York in order to further investigate the history of the Site. In the Borough Hall, LBG obtained information from all of the agencies there, including the department of buildings, the water department, the bureau of sewers and the county clerk.

The records on file at the department of buildings included property information sheets for the lots within the FAST. Included in these property information sheets are building violations, certificates of occupancy (or lack thereof), complaints and permits. All information for the Former Charlton Cleaners and additional lots in the FAST is for current occupants.

The water department only had information on the public drinking water-supply system. The representatives stated that information pertaining to water-supply pipes, storm-water pipes and sanitary sewer pipes is located at the Bureau of Sewers.

The Bureau of Sewers maintained maps showing the layout and construction of potable water pipes, storm-water sewer pipes and sanitary sewer pipes. The potable water distribution map was generated by the New York City Department of Environmental Protection (NYCDEP) Bureau of Water and Sewers. Upon review of these municipal archives, copies were made of the maps. The locations of the pipes as well as a former stream bed for Palmers Run identified on the potable water distribution map were all transcribed onto a common site map. A utility location map showing the locations and recognized flow directions of identified utilities and the former stream bed for Palmers Run is shown on figure 3. No detailed historical or present sewer and/or utility plans for the Michaels building were available during the file review. Based on the identified locations of utilities shown on figure 3, the locations of the additional and existing monitor wells presented in the Work Plan will sufficiently cover the potential source areas from sewer pipes and connections.

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. This review consisted of going through microfiche files held by the County Clerk's Office. 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 given.

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. Sanborn maps, originally created to aid insurance underwriters in assessing the potential for fire risk, also contain information on a structure's use and the location of any fuel and chemical storage areas on a site. A search of the fire insurance maps showed that there was/is coverage for the Site spanning from 1917 to 1966. From 1917 to 1950 the FAST is mostly undeveloped with residential dwellings on the southeast and northwest ends. By 1937 the residential development to the north increased considerably. The 1962 Sanborn shows the Former Charlton Cleaners (not by name) in the northeast corner of what is currently the Michaels building. This is consistent with the location presented in the Work Plan. 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 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 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. The copies of the Sanborn maps are included in Appendix I on the attached CD.

An additional resource used in an attempt to identify all past occupants of the Site and surrounding properties was a city directories search. The city directories were compiled by EDR. According to the city directories search, the Site was not listed in any of the source material. There were, however, several adjacent properties listed. Of the adjacent properties, Paul Miller Dry Cleaners was listed at 1465 Forest Avenue (approximately 300 feet southwest of the Site) from 1960 until 1995. The location of the former Paul Miller Dry Cleaners is shown as Item 30 on figure 1. There was also a Jennifer Dry Cleaners listed at 1458 Forest Avenue (south side Forest Avenue). No additional dry cleaners were found in the vicinity of the Site. Copies of the city directories reviewed for the Site are included in Appendix II on the attached CD.

4.2 Interviews and Attempt to Contact Owner of the Former Charlton Cleaners

In an attempt to compile a more complete history of the Site, several people were interviewed or attempted to be interviewed.

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 cleaners location. He then provided LBG with a contact number (the only one he had) for the operator/owner of the Former Charlton Cleaners, Mr. John Lee. When this number was called, the person who answered stated that Mr. John Lee was not available. All subsequent attempts ended with the same result.

On April 29, 2005 two men, who were adjacent property owners and residents, arrived onsite to observe drilling operations. These men, Mr. Jack Scalici and Mr. Stewart Walden provided information of the Site history. They stated that the Former Charlton Cleaners was historically owned and operated by Mr. Ted Spiro and Mr. Finkelstein. Approximately around 1970, the ownership switched and the new operator was Mr. Marautzi. This information 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.

On September 15, 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. All of these materials were reported to be in good condition. No additional potentially hazardous materials are stored in the basement area.

5.0 EXPOSURE ASSESSMENT

As part of the investigation of the Site, an exposure assessment was performed. An exposure assessment is an evaluation of the potential exposures to humans and the environment from the production, distribution, use, disposal and recycle of a chemical substance. An exposure assessment is just as important as hazard identification in determining risk from a chemical substance, because risk is a function of both hazard and exposure.

There are four considerations in an exposure assessment:

- likelihood of exposure;
- route of exposure;
- magnitude of exposure; and,
- population exposed.

Likelihood of exposure refers to the probability that contact between the substance and a human or environmental receptor will occur, given the product application. To determine likelihood, it is important to identify the potential ways in which contact may occur and the routes of exposure. *Routes of exposure* include inhalation, ingestion and skin absorption. Inhalation is often the most common route followed by skin absorption and ingestion. *Magnitude of exposure* refers to the level, or dose, of exposure. In addition to assessing the amount (volume or concentration) of exposure, it is also important to determine the duration, or length of time, of exposure. Exposure assessment is not complete without identifying the *population exposed*. Exposure can generally be grouped into three categories: workplace exposure, consumer use and environmentally-mediated exposure.

These four considerations were evaluated with respect to the Site and the findings are summarized below.

The likelihood of exposure on the Site is high for the environment. Based on previous investigations performed on the Site, chlorinated solvents were reported to be present in the subsurface (soil, ground water and soil gas). As such, LBG has undergone the task of delineating the zone of contamination to determine the contaminant concentrations in the subsurface in the soil, ground water as well as the soil gas. Pending completion of the contamination delineation, LBG will determine if additional actions are warranted. Any additional investigations or remediation efforts will be contingent upon the location and concentrations of contamination throughout the Site.

The likelihood of human exposure at the Site is low. The contamination beneath the Site is the result of previous activities on the Site. The workplace activities at the Michaels store do not include the manufacturing, formulating, and/or commercial use of the contaminants and thereby are not involved in directly handling any of said contaminants. As such, the possible contamination exposure on Site is considered an environmentally-mediated exposure, whereby exposure is the result of a product finding its way into food, water or air supplies. The physical location of the contamination is

in the subsurface, beneath the Site. The area of the Site is completely paved and covered with buildings. As such, the likelihood of humans being exposed through ingestion and/or dermal contact is minimal.

Exposure to ground water is not expected because the area is served by public water. A GeoCheck physical source summary of the Site was utilized to evaluate onsite and surrounding ground-water use. No public water-supply wells are located within a one-mile radius of the Site. There are, however, eight United States Geologic Survey (USGS) Federal Wells located within a one-mile search radius. A copy of the GeoCheck report listing the water-supply well location information is included in Appendix III on the attached CD.

For workers at the Site, the environmentally-mediated exposure route is through the air. The possibility of being exposed to the inhalation hazard presents itself in the form of soil gas intrusion through the concrete slab in the basement of the Michaels building. Estimating exposures from these sources requires knowledge of the environmental fate of the substance and information on human intake. Alternatively, direct measurement of contaminant concentrations may be made. The latter approach has been taken by LBG. In order to determine the extent of this possible source of exposure, LBG performed both soil gas sampling and ambient/indoor air quality sampling. Methodology and results of this sampling are further explained in the sections below.

6.0 FIELD INVESTIGATION

6.1 Installation of Additional Ground-Water Monitor Wells

Prior to any ground invasive activities, a utility mark-out was ordered to locate any potential subsurface utilities which may obstruct the installation of the new monitor wells. After the completion of the utility mark-out, on April 14-28, 2005, the locations of the additional ground-water monitor wells were cleared to a depth of 5-6 ft bg (feet below grade). A sample location map illustrating the locations of the previously installed and newly installed monitor wells is included as figure 4. Some of the

clearing activities were performed concurrent with the drilling activities being performed on previously cleared locations.

On April 20, 2005 the drilling activities began onsite. An LBG hydrogeologist supervised the installation of 23 ground-water monitor wells distributed between 10 "Well Cluster" locations in the FAST. Additionally, during all ground-invasive activities, there was an LBG Health and Safety Officer onsite performing air monitoring. This air monitoring consisted of measuring real-time levels of VOCs and particulates upwind of the work zone, at the work zone and downwind of the work zone. The air monitoring logs are included in Appendix IV on the attached CD. The drilling activities were monitored according to the Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) which were included with the LBG Work Plan. The HASP, which includes the CAMP, is included in Appendix V on the attached CD.

The sample location map showing the LBG investigation area in detail is shown on figure 4. The "Well Clusters" where additional wells were installed were designated MW-2, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12 and MW-13. Soil borings were drilled and monitor wells were installed using a hollow-stem auger drilling rig operated by Summit Drilling Company, Inc. of Bound Brook, New Jersey (Summit). Individual borings were completed for the installation of each monitor well. The sampling protocol consisted of continuous soil sampling to 35 ft bg and at 5-foot intervals below 35 feet using a split-spoon soil sampler within the deepest well of the "Well Cluster". All soil samples collected were screened in the field for the presence of VOCs and the two soil samples exhibiting the highest PID concentrations were submitted to the laboratory for analysis. Due to the close proximity of the monitor wells in each "Well Cluster" (~5 to 10 feet laterally), no soil sampling was required for subsequent monitor wells installed in each "Well Cluster". For these wells, soil cuttings were observed and recorded on the geologic logs in addition to well construction details and the wells were set at their respective depths.

During drilling activities for the monitor wells, all drill cuttings generated were drummed and stored onsite pending disposal.

All of the installed monitor wells were constructed of 2-inch diameter PVC. The shallow "A" wells were constructed of 15 feet of screen set from 5-20 ft bg and 5 feet of riser (0-5 ft bg). The intermediate "B" wells were constructed of 10 feet of screen set from 40-50 ft bg and 40 feet of riser (0-40 ft bg). The screen depth of 40-50 ft bg for the intermediate "B" wells was based on the continuous soil samples collected during the monitor well installation activities. No silt/clay to sand transition was encountered at or around 35 ft bg. As such, the initial screen interval of 40-50 ft bg as was proposed in the Work Plan was used for the intermediate "B" wells. The intermediate "C" wells were constructed of 10 feet of screen set from 60-70 ft bg and 60 feet of riser (0-60 ft bg). The deep "D" wells were constructed of 10 feet of screen set from 80-90 ft bg and 80 feet of riser (0-80 ft bg). In addition to the screen and riser lengths listed above, all of the installed wells were constructed with a two-foot solid PVC sump. These sumps extended from 20-22 ft bg for "A" wells, 50-52 ft bg for "B" wells, 70-72 ft bg for "C" wells and 90-92 ft bg for "D" wells. The annular space surrounding the screen for each monitor well was filled with No. 2 grade filter sand to form a sand pack from the bottom of the sump to three feet above the well screen. A 2-foot bentonite cap was installed above the sand pack and the remainder of the boring was backfilled with grout. After allowing the grout to settle overnight, wells were completed with locking caps and a flush-mount manhole set in a concrete pad. The positions of the well screens for each monitor well are summarized on table 1. Table 1 also shows the screen settings of monitor wells installed during previous investigations (MW-1, MW-2A, MW-3, MW-4, MW-5A, MW-5B, MW-6A, MW-6B, MW-7A, MW-7B, MW-8A and MW-8B). Well construction details are presented in the geologic logs which are included in Appendix VI on the attached CD.

The selection of the "Well Cluster" locations was based on the locations of previously installed monitor wells as well as the need for horizontal delineation of

dissolved-phase contamination. All of the monitor wells proposed in the Work Plan were installed.

6.1.1 Development of Newly Installed Monitor Wells

On June 20 and 21, 2005, LBG developed the newly installed monitor wells. A minimum of five standing volumes of water was evacuated from each well using a centrifugal pump in conjunction with a check valve and a reciprocating pump. The wells were surged throughout the screened intervals and the purged ground water was monitored until the turbidity was at or below 50 NTU (nephelometric turbidity units). The ground water was evacuated from the monitor wells into 55–gallon drums and then transferred to two 550-gallon tanks and temporarily staged at the Site for later disposal.

6.1.2 Disposal of Drill Cuttings and Purge Water

A total of sixty-five (65) 55-gallon drums of drill cuttings were generated during the clearing and installation activities associated with the 23 newly installed monitor wells. These drums were removed from the site by American Environmental Assessment Corp. (American) [US EPA ID Number NYR00044412] following required waste characterization. The drill cuttings were disposed of as non-hazardous soil based on the laboratory analysis. The soil was disposed of at General Environmental located at 9 Garrison in Wyandach, New York. The United States Environmental Protection Agency (USEPA) ID Number for the disposal facility is NYD98182223. Copies of the disposal manifests for the drill cuttings are included in Appendix VII on the attached CD.

A total of 1,035 gallons of ground water was evacuated from the 23 newly installed monitor wells as part of the well development. This purge water was removed from the Site by American following required waste characterization. This purge water was disposed of at Clean Water located at

3249 Richmond Terrace in Staten Island, New York. The USEPA ID Number for the disposal facility is NY0000968545. A copy of the disposal manifest for the well development purge water is included in Appendix VII on the attached CD.

6.2 Ground-Water Monitoring Program

6.2.1 Monitor Well Survey

LBG conducted a survey of the existing and newly installed monitor wells in August and September 2005. The relative elevation of each monitor well in each well nest was surveyed with respect to a Site benchmark established near the Michaels property. The elevations of all wells in the LBG investigation area are determined relative to this benchmark.

The base map (figure 2) used to generate all subsequent figures for the Site is adapted from a land title survey provided by KIMCO Realty. The horizontal position of each well on the sample location map included as figure 4 is based on field measurements of distances from major site features such as building termination points and roads. Table 1 summarizes the top-of-casing elevations for each monitor well. A certified top-of-casing survey is included in Appendix VIII on the attached CD.

6.2.2 Ground-Water Level Measurements

Fluid levels in all new and pre-existing monitor wells were measured on August 1, 2005. The levels were measured to an accuracy of ±0.01 foot using an electronic water-level meter. The depth to water and the top-of-casing elevation of each well was used to calculate the corrected ground-water elevation at each point in the well network. The water depths and calculated ground-water elevations are summarized on table 1. The corrected ground-water elevations were used to construct a ground-water elevation contour map and to determine the direction of ground-water flow. This map is shown on figure 5.

6.2.3 Low-Flow Ground-Water Sampling

On August 1-5, 2005, ground-water samples were collected from 33 onsite and offsite monitor wells. Two wells, MW-13A and MW-13B were not included in the ground-water sampling program. These two monitor wells were installed offsite on an adjacent property lot. Following the installation of these wells, the owner of the property, Mr. Jack Scalici indicated that he did not want the wells sampled. As such, these wells were removed from the ground-water monitoring program. LBG will request access from the owner of the property, Mr. Scalici to collect ground-water samples from these wells.

Prior to sampling, the wells were opened and allowed to equilibrate. After approximately 30 minutes, the water levels were recorded on field sheets. The total depths were previously recorded following the well development activities. Copies of the field sheets for both the well development and the low-flow sampling activities are included in Appendix IX on the attached CD. After the water-level measurements were recorded, ground-water samples were collected from the 33 onsite and offsite monitor wells using the Low-Flow sampling method (EPA Low-Flow Ground-Water Sampling Procedures, April 1996). The Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures are included in Appendix X on the attached CD. The ground water was evacuated from the wells using a low-flow peristaltic pump fitted with dedicated polyethylene tubing. The tubing intake was set at approximately 10 ft bg for the "A" wells, 45 ft bg for the "B" wells, 65 ft bg for the "C" wells and 85 ft bg for the "D" wells. For each well, ground water was purged for approximately 5 minutes prior to measuring any parameters, in order to minimize turbidity. Onsite field parameters were continually monitored by a Horiba U-22XD multi-parameter water-quality monitoring system. Measurements for pH, conductivity, turbidity, dissolved oxygen (DO), temperature and oxygen reduction potential (ORP) were obtained simultaneously as the ground water was pumped through a flow-through cell at a rate of

100-500 ml/min (milliliters per minute). All field parameters were recorded at three-minute intervals until all parameters reached stabilization for three consecutive intervals. Stabilization requirements are recorded on individual low-flow sampling logs for each monitor well and are included in Appendix IX on the attached CD. Upon reaching stabilization of all parameters, the effluent end of the polyethylene tubing running from the pump was disconnected from the flow-through cell and the ground-water samples were collected in laboratory-prepared sample containers. After sampling each well the dedicated polyethylene tubing was disposed of and the flow-through cell was decontaminated with Alconox and water.

All of the samples were stored on ice in a cooler to maintain a constant temperature until delivery to the laboratory under chain-of-custody procedures. The ground-water samples were then delivered to AMRO for analysis of VOCs by EPA Method 8260 under chain-of-custody procedures.

6.3 Exterior Soil Gas Sampling

On June 8 and 16, 2005, LBG conducted a soil gas survey onsite to the north of the Michaels building. This survey was performed in an effort to determine if the onsite contamination includes elevated levels of VOCs in the soil gas. These samples were collected using a soil gas sampling kit with dedicated polyethylene tubing. The soil-gas investigation was completed in the vicinity of the Michaels Store and the Coconuts building. The purpose of the investigation is to determine whether soil gas containing VOCs exists adjacent to the Michaels building and the Coconuts building.

The soil-gas sampling locations are shown on figure 4. In order to collect each soil-gas sample a hollow, 0.75-inch diameter stainless steel probe was driven into the soil approximately one foot, which is consistent with the depth of concrete slabs that the buildings rest on. The exceptions to this were the two soil-gas sampling locations, SG-2 and SG-5, directly adjacent to the portion of the Michael's building with a basement. For these two locations, the stainless steel probe was driven down to a depth

of 5 ft bg. This depth was established because the depth to water in this area is approximately 6 ft bg. The probe consists of a retractable screened point with a nipple attachment. One-quarter-inch polyethylene tubing connects to the nipple and feeds through the hollow tubing. Upon reaching the desired depth, the probe was advanced an additional 3-6 inches and then the steel probe was pulled up to the surface exposing the screen. The penetration point at grade was then sealed using inert clay to avoid drawing any ambient air into the boring. For each sample location, at least one volume of soil gas was evacuated from the borehole using dedicated polyethylene and Tygon tubing and a peristaltic pump prior to sampling. A minimum of a 1 liter soil gas sample was collected using a 1 or 6 liter capacity Summa canister fitted with a regulator set to allow a flow rate of 0.1 l/min (liter per minute) and submitted to Lancaster Laboratories under chain-of-custody procedures for analysis of VOCs by EPA Method TO-15.

Following the completion of the soil gas sampling, each sample location borehole was backfilled with clean sand and capped with an asphalt patch.

6.4 Michaels Basement Subsurface Investigation

Historical information indicates that the Former Charlton Cleaners Facility was located and operated out of the northern part of the basement of the current Michaels building. After an extensive historical records review, verification of an exact historical location could not be obtained. However results of previous ground-water sampling analysis, the location of observed ground-water contamination is consistent with the historical location being in the northern part of the Michaels basement. Based on this information, additional sampling was performed in this area. This additional sampling consisted of soil sampling, ground-water sampling and soil gas sampling. The sampling procedures are described below.

6.4.1 Michaels Basement Sub-Slab Soil Sampling

On June 7, 2005, LBG collected soil samples from six hand auger locations, HA-1 to HA-6, from the northern end of the Michaels basement beneath the concrete slab on grade. The hand auger sample locations are shown on figure 4. The concrete slab was penetrated using a hammer drill to enable access to the subsurface with a hand auger. A soil sample was collected at each hand auger boring from immediately beneath the concrete slab (~0.5 ft bg) to approximately 3.5 ft bg. Due to the presence of cobble and boulders in the soil, hand augers could not be advanced further than approximately 3 ft bg. For each sample location, the soil from 0.5-3.5 ft bg (or refusal) was composited and samples were collected in laboratory-prepared sample containers.

All of the samples were stored on ice in a cooler to maintain a constant temperature until delivery to the laboratory under chain-of-custody procedures. The soil samples were then delivered to Toxikon Laboratories, Inc. (Toxikon) for analysis of VOCs by EPA Method 8260 under chain-of-custody procedures.

6.4.2 Michaels Basement Sub-Slab Ground-Water Sampling

On June 7, 2005, after the collection of soil samples, LBG personnel collected ground-water samples from six hand auger locations, HA-1 to HA-6, in the northern end of the Michaels basement. The hand auger sample locations are shown on figure 4. Depth to ground water in the hand augers ranged from grade (flowing out of the boring) in HA-3 and HA-4 to approximately 2 ft bg in HA-6. Ground-water samples were collected from each hand auger location using a steel screened sampling probe. The probe consists of a retractable screened point with a nipple attachment. One-quarter-inch polyethylene tubing connects to the nipple and feeds through the hollow tubing. The probe was advanced into the ground-water table and then the steel probe was pulled up to the surface exposing the screen. A ground-water sample was then collected in laboratory-prepared sample containers using a peristaltic pump.

All of the ground-water samples were stored on ice in a cooler to maintain a constant temperature until delivery to the laboratory under chain-of-custody procedures. The ground-water samples were then delivered to Toxikon for analysis of VOCs by EPA Method 8260 under chain-of-custody procedures.

After the collection of the ground-water samples, the hand auger locations were sealed with hydraulic cement to eliminate any preferential pathways into the subsurface and to allow the cement to dry irrespective of the high water table.

6.4.3 Michaels Basement Sub-Slab Soil Gas Sampling

On June 16, 2005, LBG collected soil gas samples from the northern end of the Michaels basement. These samples, SG-9, SG-10, SG-11 and SG-12 were collected from the same locations as hand auger locations HA-1, HA-2, HA-5 and HA-6, respectively. To further delineate the soil gas VOC concentrations beneath the basement slab, four additional soil gas samples, SG-13, SG-14, SG-15 and SG-16, were collected on September 14, 2005. The soil gas sample locations are shown on figure 4.

The soil gas samples were collected using the same sampling procedure as used for the Exterior Soil Gas Sampling of locations SG-1 to SG-8. These soil gas samples were collected from immediately beneath the slab as there is a shallow ground-water table in the basement area. For each sample location, at least one volume of soil gas was evacuated from the borehole using dedicated polyethylene and Tygon tubing and a peristaltic pump prior to sampling. A minimum of a 1 liter soil gas sample was collected using a 1 or 6 liter capacity Summa canister fitted with a regulator set to allow a flow rate of 0.1 l/min and submitted to Lancaster Laboratories under chain-of-custody procedures for analysis of VOCs by EPA Method TO-15.

After the collection of the soil gas samples, the hand auger locations were sealed with hydraulic cement to eliminate any preferential pathways into

the subsurface and to allow the cement to dry irrespective of the high water table.

6.5 Outdoor and Indoor Ambient Air Quality Sampling

6.5.1 Outdoor Ambient Air Sampling

On June 3, 2005, LBG personnel collected an outdoor ambient air sample at the Site. The sample was collected from adjacent to the Michaels building. The sample location is shown on figure 4.

The outdoor ambient air sample was collected using a 6 liter capacity summa canister fitted with a dedicated flow regulator calibrated to collect an air sample over an eight-hour sampling period. After the eight-hour sampling period, the summa canister was sealed and submitted to Lancaster Laboratories under chain-of-custody procedures for analysis of VOCs by EPA Method TO-15.

6.5.2 Coconuts Indoor Air Sampling

On June 3, 2005, LBG personnel collected an indoor air sample in the Coconuts building adjacent to the Michaels building. The sample location is shown on figure 4.

The indoor air sample was collected using a 6 liter capacity summa canister fitted with a dedicated flow regulator calibrated to collect an air sample over an eight-hour sampling period. After the eight-hour sampling period, the summa canister was sealed and submitted to Lancaster Laboratories under chain-of-custody procedures for analysis of VOCs by EPA Method TO-15.

The sampling procedure and laboratory analysis of VOCs by EPA Method TO-15 was completed in accordance with the approved Investigation Work Plan (revised September 2003).

6.5.3 Michaels Indoor Air Sampling (First Round)

On June 3, 2005, LBG personnel collected an indoor air sample at the Site. The sample was collected in the doorway separating the equipment room from the main area of the basement of the Michaels building. The sample location is shown on figure 4.

The indoor air sample was collected using a 6 liter capacity summa canister fitted with a dedicated flow regulator calibrated to collect an air sample over an eight-hour sampling period. After the eight-hour sampling period, the summa canister was sealed and submitted to Lancaster Laboratories under chain-of-custody procedures for analysis of VOCs by EPA Method TO-15. (See Section 6.5.2)

6.5.4 Additional Observed Basement Conditions

On June 7, 2005, while collecting the soil and ground-water samples from HA-1 to HA-6, Michaels had a contractor onsite performing maintenance on the sprinkler system. As part of his activities he was flushing the entire water piping system of the building. After he flushed the pipes, all of the water was discharged into a sump located in the equipment room adjacent to HA-1. When the water was discharging into the sump, a moderate hydrocarbon odor was observed. LBG personnel screened the ambient air in the equipment room with a PID and observed a concentration of 4.3 ppm (parts per million). The inside of the sump was then screened with a PID and a concentration of 70.0 ppm was observed.

On August 31, 2005, a site visit was performed and was attended by the NYSDEC, NYSDOH, LBG and the property manager for KIMCO Realty. During this site visit the soil surrounding the sump was screened with a PID and a concentration of 88.2 ppm was observed. Additionally, a soil sample was collected from a crack on the floor along the partition wall. This soil sample was screened with a PID and a concentration of 73.2 ppm was observed. The

sump was measured and it had a total depth of 5 feet and the water was 33-inches below grade. The NYSDEC and NYSDOH requested that the cracks and holes in the concrete in the basement be sealed as that is a likely contributor to indoor air quality contamination. The NYSDEC and NYSDOH also requested that an additional and more extensive indoor air sampling round be performed.

6.5.5 Michaels Indoor Air Sampling (Round 2)

On September 9, 2005, LBG personnel conducted a second indoor air sampling round in the Michaels building, as per the request of the NYSDEC and the NYSDOH made during the site visit on August 31, 2005. This sampling round consisted of collecting indoor air samples from 4 locations throughout the Michaels building. The 4 sample locations were: the equipment room in the basement, the main area of the basement, the loading dock area on the first floor and the main store area on the first floor. The door connecting the basement equipment room with the main area of the basement was kept closed (its standard status) during the sampling to determine if the contamination is isolated to the equipment area and not the remainder of the basement.

The indoor air samples were collected using 6 liter capacity summa canisters fitted with dedicated flow regulators each calibrated to collect an air sample over an eight-hour sampling period. After the eight-hour sampling period, the summa canisters were sealed and submitted to Lancaster Laboratories under chain-of-custody procedures for analysis of VOCs by EPA Method TO-15. (See Section 6.5.2)

6.5.6 Michaels Indoor Air Sampling (Round 3)

On October 19, 2005, LBG personnel conducted a third indoor air sampling round in the Michaels building. This was conducted after the basement equipment room floor and partition wall were sealed with concrete and

epoxy. This sampling round consisted of collecting indoor air samples from the same 4 locations throughout the Michaels building as in the second round of indoor air sampling.

The indoor air samples were collected using 6 liter capacity summa canisters fitted with dedicated flow regulators each calibrated to collect an air sample over an eight-hour sampling period. After the eight-hour sampling period, the summa canisters were sealed and submitted to Lancaster Laboratories under chain-of-custody procedures for analysis of VOCs by EPA Method TO-15. (See Section 6.5.2)

7.0 QUALITY ASSURANCE AND QUALITY CONTROL (QA/QC) PLAN

QA/QC procedures were utilized throughout the project to ensure reliable data. Toxikon, a NYSDOH - Environmental Laboratory Approval Program (ELAP), No. 10778 certified laboratory; AMRO Environmental Laboratories Corporation (AMRO), a NYSDOH – ELAP, No. 11278 certified laboratory; and, Lancaster Laboratories, a NYSDOH - ELAP, No. PA00009 certified laboratory performed all analyses. Analytical methods used included Contract Laboratory Protocol methodologies. All analytical results are reported with Category B deliverables. Data Usability Summary Reports (DUSRs) were prepared for all the Category B deliverables analytical results by Lori A. Beyer of L.A.B. Validation Corporation located in East Northpoint, New York. Copies of the Category B deliverables packages and DUSRs are included in Appendix XI and Appendix XII, respectively on the attached CD.

Based on past sampling completed on the Site, the primary contaminants are PCE and TCE. Accordingly, soil, ground water, soil gas and ambient air samples were analyzed for VOCs. Both soil and ground water were analyzed by EPA Method 8260. Soil gas and ambient air samples were analyzed by EPA Method TO-15. Sampling methods, sample preservation requirements, sampling handling times and decontamination procedures for field equipment were conducted in accordance with NYSDEC and USEPA standard operating procedures and industry standards. The table below summarizes the sampling standards.

SUMMARY OF SAMPLE HANDLING AND PRESERVATION

Sample Collection Area	Media	Analytical Method	Holding Time	Preservation
Monitor Wells (newly installed), and basement hand auger locations (HA-1 to HA-6)	Soil	EPA Method 8260	< 2 Weeks	ICE
Monitor Wells (previously installed and newly installed), and basement hand auger locations (HA-1 to HA-6)	Ground-Water	EPA Method 8260	< 2 Weeks	ICE
Soil gas samples from beneath Michaels basement slab, ambient indoor air sampling locations and outdoor ambient air sample	Air	EPA Method TO-15	NA	Avoid extreme heat

8.0 DATA EVALUATION

8.1 Onsite Geology and Hydrogeology

The topography of the site area is generally level with a slight gradient to the south-southeast. Geologic logs for the monitor wells are attached in Appendix VI on the attached CD. As described in the logs, the shallow sediments beneath the Site consist primarily of fine to medium sand with varying amounts of silt and gravel/cobble. There were several cobble layers encountered between 5 and 20 ft bg throughout the Site. The deeper sediments beneath the Site were consistently a fine to coarse sand with trace silt and gravel. No confining layers or bedrock was encountered in any of the drilling locations during monitor well installation activities.

During drilling activities, ground water was encountered approximately 5-7 ft bg across the Site. Water-level measurements were collected from the monitor wells on August 1, 2005 and are presented on table 1. The corrected ground-water elevation calculated based on August 1, 2005 measurements were used to construct a ground-water elevation contour map and to determine the direction of ground-water flow and the hydraulic gradient beneath the Site.

Figure 5 shows that the general ground-water flow direction beneath the Site is to the north beneath the Michaels building and throughout the rest of the Site. The

horizontal hydraulic gradient ranges between 0.0019 ft/ft in the area of MW-9 "Well Cluster" and 0.0014 ft/ft beneath the Michaels building.

8.2 Soil Quality

8.2.1 Newly Installed Ground-Water Monitor Wells

Results of laboratory analysis of the soil samples collected from the newly installed monitor wells indicate that several VOCs were detected above the Method Detection Limit (MDL). These compounds were PCE, TCE, ethylbenzene, total xylenes, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 4-isopropyltoluene, naphthalene, acetone, 2-butanone, n-butylbenzene, 2-chloroethyl vinyl ether and sec-butylbenzene. Concentrations of all detected compounds were below Technical and Administrative Guidance Memorandum (TAGM) 4046 Recommended Soil Cleanup Objectives (RSCO) with the exception of PCE. PCE exceeded the TAGM RSCO concentration of 1,400 ug/kg (micrograms per kilogram) in the two samples collected from MW-6D. These concentrations were 200,000 ug/kg for MW-6D (10-12 ft bg) and 120,000 ug/kg for MW-6D (15-17 ft bg). Monitor Well MW-6D is located adjacent to the northeast corner of the Michaels building (the location of the Former Charlton Cleaners). The presence of the highest PCE concentration in MW-6D is consistent with the source area being the location of the Former Charlton Cleaners. Monitor well soil quality is summarized on table 2 and a copy of the full laboratory report is included in Appendix XI on the attached CD.

8.2.2 Michaels Basement Hand Auger Locations

Results of laboratory analysis of the soil samples collected from hand auger locations HA-1 to HA-6 indicate that several VOCs were detected above the MDL. These compounds were PCE, TCE, cis-1,2-dichloroethene and acetone. None of the detected compounds exceeded their respective TAGM

RSCOs. The highest concentrations of PCE, TCE and cis-1,2-dichloroethene were in HA-2 and HA-3 located on the northern perimeter of the basement. Based on site constraints, soil samples could not be collected from deeper that 2-3 ft bg. Considering the PCE concentrations detected in the MW-6D samples, higher levels of contamination are expected in these locations at greater depth. Hand auger soil quality is summarized on table 3 and a copy of the full laboratory report is included in Appendix XI on the attached CD.

8.3 Ground-Water Quality

8.3.1 Ground-Water Monitor Wells

Ground-water samples were collected from all of the existing monitor wells located throughout the Site with the exception of MW-13 and MW-13B located offsite of the area. As previously indicated, access to collect ground-water samples from these two wells is required from the owner of the adjacent property. The ground-water quality results for the monitor wells are summarized on table 4 and the sampling locations are presented on figure 4.

VOCs are the primary concern at the Site and they were detected in several samples above ground-water quality standards per 6NYCRR Part 703.5 and the NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) (1.1.1). The most prevalent compound, PCE, was detected above the water-quality standard of 5 ug/l in 20 of the 33 ground-water samples collected. The PCE concentrations ranged from non-detect (several sample locations) to 14,000 ug/l (MW-6B). Additional VOCs detected above TOGS ground-water quality standards include TCE, vinyl chloride, acetone, cis-1,2-dichloroethene, 1,2,4-trimethylbenzene, sec-butylbenzene, ethylbenzene, total xylenes, isopropylbenzene, naphthalene and n-propylbenzene. The detected VOC concentrations are shown on table 4.

In order to determine whether the dissolved solvent contamination in the vicinity of the Former Charlton Cleaners is partially the result of another

source, the ground-water analysis is evaluated based on discreet sampling intervals. Considering the physical properties of the onsite contaminant PCE, a liquid that is denser than ground water, the contaminant will pass through the unsaturated zone of the subsurface and continue through the ground-water table. Contamination will follow the hydraulic gradient of the site. The "Well Cluster" locations have been utilized to delineate both the horizontal and vertical extent of the dissolved-phase contamination in the ground water beneath the Site.

The ground-water from the shallow "A" monitor wells (screen set from 5 to 20 ft bg) was collected from approximately 10 ft bg. Figure 6 illustrates the horizontal delineation of dissolved-phase PCE within the "A" monitor well ground-water sampling interval. The highest concentration of PCE in the "A" well group (4,000 ug/l) was detected in MW-7A located to the north of the Coconuts building. The second highest PCE concentration (1,700 ug/l) was detected in MW-8A. PCE concentrations surrounding the Michaels building range from non-detect (MW-3) to 160 ug/l (MW-6A). Considering the hydraulic gradient, which is to the north, the higher concentrations at shallow depth occurring further from the Site indicates that there is no active source of additional contaminants. However, considering the historical presence of another dry cleaner to the west of the Site and the presence of PCE above TOGS ground-water quality standard upgradient at MW-2A, part of the PCE contamination could potentially have originated from an upgradient source.

The ground water from the intermediate "B" monitor wells (screen set from 40 to 50 ft bg) was collected from approximately 45 ft bg. Figure 7 illustrates the horizontal delineation of dissolved-phase PCE within the "B" monitor well ground-water sampling interval. The highest concentration of PCE in the "B" well group (14,000 ug/l) was detected in MW-6B located to the north of the Michaels basement. Additionally, PCE was detected at concentrations of 2,300 ug/l and 2,200 ug/l in MW-5B and MW-2B, respectively. PCE

concentrations in Monitor Wells MW-7B, MW-8B, MW-9B and MW-10B range from non-detect (MW-9B and MW-10B) to 31 ug/l (MW-7B). The location of the highest PCE concentrations suggests that the source area was located to the south-southwest. This data indicates that the Former Charlton Cleaners may be a source area. However, the concentration of 2,200 ug/l of PCE detected in MW-2B suggests the presence of an upgradient source.

The ground water from the intermediate "C" monitor wells (screen set from 60 to 70 ft bg) was collected from approximately 65 ft bg. Figure 8 illustrates the horizontal delineation of dissolved-phase PCE within the "C" monitor well ground-water sampling interval. The highest concentration of PCE in the "C" well group (8,200 ug/l) was detected in MW-12C located to the north of the Michaels basement. PCE concentrations in monitor wells MW-5C, MW-6C, MW-7C, MW-8C, MW-9C, MW-10C and MW-11C range from non-detect (MW-9C and MW-10C) to 110 ug/l (MW-6C). The location of the highest PCE concentrations suggests that the source area was located to the south-southwest. This data indicates that the Former Charlton Cleaners may be a source area.

The ground water from the deep "D" monitor wells (screen set from 80 to 90 ft bg) was collected from approximately 85 ft bg. Figure 9 illustrates the horizontal delineation of dissolved-phase PCE within the "D" monitor well ground-water sampling interval. The highest concentration of PCE in the "D" well group (260 ug/l) was detected in MW-5D located to the north of the Michaels building. PCE concentrations in Monitor Wells MW-6D, MW-7D, MW-8D, MW-9D, MW-10D, MW-11D and MW-12D range from non-detect (MW-9D and MW-10D) to 54 ug/l (MW-12D). The location of the highest PCE concentrations suggests that the source area was located to the south-southwest. This data indicates that the PCE contamination could have originated from the Former Charlton Cleaners (via the sanitary sewer line adjacent to MW-5 "Well Cluster" or from the basement area).

Based on the review of the PCE concentrations within the "Well Cluster" locations, the contamination is highest in the "B" monitor well ground-water sampling interval. A diagram illustrating the vertical delineation of dissolved-phase PCE within the "Well Cluster" locations is shown on figure 10. In general, PCE concentrations in the deep "D" monitor wells are lower than the PCE concentrations in the intermediate "B" monitor wells. However, the dissolved-phase PCE was not delineated to non-detect or regulatory standards in any of the "Well Cluster" locations immediately north of the Michaels building.

The low to non-detect concentrations of PCE reported in the ground-water samples collected from the MW-9 "Well Cluster" suggest that the storm sewer culvert and former stream bed for Palmers Run bisecting the Site are not acting as preferential pathways for contaminant transport. The location of this "Well Cluster" is crossgradient of the former Charlton Cleaners.

A copy of the full laboratory report for the monitor well ground-water quality is included in Appendix XI on the attached CD.

8.3.2 Michaels Basement Hand Auger Locations

Ground-water samples were collected from the 6 hand auger locations (HA-1 to HA-6) in the basement of the Michaels building. The ground-water quality results for the hand auger sample locations are summarized on table 5. The highest concentration of PCE in the hand auger locations (22,800 ug/l) was detected in HA-2, located along the northern perimeter of the Michaels basement. Figure 11 illustrates the horizontal delineation of dissolved-phase PCE in the ground-water directly beneath the basement slab. A comparison of the highest PCE concentration beneath the basement slab (22,800 in HA-2) with the highest PCE concentration detected in the ground-water monitor wells (14,000 in MW-6B) suggests the Former Charlton Cleaners may be a source area. A copy of the full laboratory report for the basement hand auger ground-water quality is included in Appendix XI on the attached CD.

8.4 Soil Gas Quality

Soil gas samples collected from the Site (exterior soil gas samples and soil gas samples collected from the basement of the Michaels building) were analyzed for VOCs by USEPA Method TO-15. The soil gas sampling locations are shown on figure 4. The laboratory results for the exterior and basement soil gas samples are summarized below:

8.4.1 Exterior Soil Gas Sampling Locations (SG-1 to SG-8)

Soil gas samples were collected from 8 exterior locations on June 8 and 16, 2005. Laboratory analyses of the soil gas samples collected from each location are presented on table 6. The highest detected VOC concentrations were of PCE and its decay products TCE, cis-1,2-Dichloroethene and vinyl chloride. This is consistent with contaminants detected during past ground-water sampling rounds. The highest concentrations of these VOCs were detected along the northeast perimeter of the Michaels building. This data suggest the Former Charlton Cleaners may be a source area. The soil gas concentrations for the primary Site contaminant (PCE) are illustrated on figure 12. Copies of the full laboratory reports for the soil gas samples are included in Appendix XI on the attached CD.

8.4.2 Michaels Basement Soil Gas Sampling Locations (SG-9 to SG-16)

Soil gas samples were collected from 4 locations, SG-9 to SG-12, in the basement of the Michaels building on June 14 and 16, 2005. Laboratory analyses of the soil gas samples collected from each location are presented on table 6. Similar to the exterior soil gas samples, the highest detected VOC concentrations were of PCE and its decay products TCE, cis-1,2-Dichloroethene and vinyl chloride. This is consistent with contaminants detected in past ground-water sampling rounds. The highest concentrations of these VOCs were

detected in the northeast corner of the Michaels building in SG-9. This data suggests the Former Charlton Cleaners may be a source area.

Subsequent soil gas sampling was performed in the southern portion of the basement to characterize the lateral extent of the soil gas contamination beneath the concrete slab. On September 14, 2005, soil gas samples were collected from 4 additional locations, SG-13 to SG-16, in the basement of the Michaels building. Laboratory analyses of the soil gas samples collected from each location are presented on table 6. Similar to the exterior and prior basement soil gas samples, the highest detected VOC concentrations were of PCE and its decay products TCE, cis-1,2-Dichloroethene and vinyl chloride. This is consistent with contaminants detected in past ground-water sampling rounds. The highest concentrations of these VOCs were detected in the eastern edge in the center of the Michaels building in SG-13 (30,000 ug/m^3 [micrograms per cubic meter]). This data suggests a source area is the basement of the Michaels store; however, this sample location is south of the presumed source area.

The soil gas concentrations for the primary Site contaminant (PCE) are illustrated on figure 12. A copy of the full laboratory report is included in Appendix XI on the attached CD.

8.5 Ambient Air Quality

8.5.1 Outdoor Ambient Air Quality

An ambient air sample was collected from adjacent to the Michaels store on June 3, 2005. The sampling location is shown on figure 4. Laboratory analyses of the ambient air sample collected from this location are presented on table 7. A copy of the full laboratory report is included in Appendix XI on the attached CD.

8.5.2 Coconuts Indoor Air Quality

An indoor air quality sample was collected from inside of the Coconuts video store adjacent to the Michaels store on June 3, 2005. The sampling location is shown on figure 4. Laboratory analyses of the ambient air sample collected from this location are presented on table 7. A copy of the full laboratory report is included in Appendix XI on the attached CD.

8.5.3 Michael's Indoor Air Quality

8.5.3.1 Initial Sampling Round

On June 3, 2005, an initial indoor air quality sample was collected from inside of the basement of the Michaels store. The sampling location is shown on figure 4. Laboratory analyses of the ambient air sample collected from this location are presented on table 7. A copy of the full laboratory report is included in Appendix XI on the attached CD.

8.5.3.2 Second Sampling Round

As a result of the August 31, 2005 site visit, additional indoor air quality sampling was requested by the NYSDEC and NYSDOH. These samples were collected from four additional locations to determine the extent of the PCE and TCE throughout the building and to try to isolate any possible source area. The locations of the four additional samples collected on September 9, 2005. These sample locations; the basement equipment room, the basement main area, the first floor loading dock and the first floor store area, are shown on figure 4. Laboratory analyses of the ambient air samples collected from these locations are presented on table 8. PCE was detected at concentrations exceeding its NYSDOH air guidance value of 100 ug/m^3 in three of the sampling areas, the basement equipment room (2,600 ug/m^3), the basement main

area (1,200 ug/m^3) and the first floor loading dock (320 ug/m^3). TCE was detected at concentrations of 5 ug/m^3 in two of the sampling areas, the basement equipment room (34 ug/m^3) and the basement main area (20 ug/m^3). A copy of the full laboratory report is included in Appendix XI on the attached CD.

8.5.3.3 Basement Slab Sealing Activities

During the August 31, 2005 site visit, the condition of the concrete slab in the basement equipment room was observed to be cracked and in some locations the soil exposed. Some of the exposed soil was screened in the field and discovered to have a PID concentration of 73.2 to 88.2 ppm. Based on these observations and considering the exceedance in the NYSDOH air guidance values was highest in the equipment room, it was likely that the exposed soil and poor condition of the slab is a pathway for soil gas from beneath the slab to enter the basement. LBG contracted American Environmental Assessment Corp. to seal the broken concrete and exposed soil in the basement of the Michaels building. On October 1, 2005, American sealed the concrete in the equipment room and along the dividing wall with a concrete layer and epoxy coating. Additionally, the sump in the equipment room was sealed with a steel plate over the open top.

8.5.3.4 Third Sampling Round (Post Sealing)

On October 16, 2005, two and a half weeks after the sealing of the basement equipment room slab and sump, a third (confirmation) indoor air quality sampling round was performed in the Michaels building. This follow-up sampling round consisted of collecting four indoor air quality samples from sample locations used during the September 9, 2005 sample round. Laboratory analyses of the

confirmation indoor air quality sample collected from these locations are presented on table 9. PCE was detected at 100 ug/m^3 in two of the sampling areas, the basement equipment room (1,700 ug/m^3) and the basement main area (1,600 ug/m^3). TCE was detected at concentrations of 5 ug/m^3 in two of the sampling areas, the basement equipment room (19 ug/m^3) and the basement main area (23 ug/m^3). Based on these results, despite the sealing of the basement equipment room, the subsurface contamination onsite continues to negatively impact the indoor air quality in the basement of the Michaels building. A copy of the full laboratory report is included in Appendix XI on the attached CD.

9.0 CONCLUSIONS

1. Potential exposure related to the subsurface contamination are low for humans, however, there is a documented impact on the environment.

2. The contamination beneath the Site which requires soil remediation, which may consist primarily of removal of PCE and its decay products from the soil.

3. The ground-water flow direction beneath the Site is to the north. The cluster well data indicates that all the ground-water zones are interconnected.

4. PCE was the only compound detected above TAGM recommended clean up guidelines in the soil samples collected from the MW-6 cluster location. This is indicative of the MW-6 "Well Cluster" area as being near a source area.

5. VOCs were detected in the ground water above water-quality standards. PCE was the primary VOC detected above standards. The highest concentration was detected in Monitor Well MW-6B. Similar with the soil contamination, this is indicative of the MW-6 "Well Cluster" area as being near the source area. The dissolved phase PCE plume extends from the Former Charlton Cleaners location in the direction of ground-water flow to the north.

6. After the basement equipment room was sealed, the PCE and TCE concentrations in the basement equipment room and the basement main area indoor air samples decreased slightly.

10.0 RECOMMENDATIONS

The subsurface investigation indicated the presence of contamination in the saturated zone of the subsurface, soil gas in the unsaturated zone soils and dissolved phase volatile organics in ground water. In order to remediate the Site, soil gas removal and ground-water remediation would be focused along the northern perimeter of the Michaels building.

In order to control and remove the vapor from the Michaels store basement, implementation of the following remedial alternatives should be considered:

1. Additional indoor air sampling will be conducted in Michaels Store and Coconuts. In accordance to the March 29, 2006 meeting between NYSDEC, NYSDOH (conference call) and LBG, any new indoor air samples will be analyzed by EPA Method TO-15 in Selected Ion Monitoring (SIM) mode.
2. Installation of a vapor barrier above the basement concrete floor and installation of an additional concrete floor. The vapor barrier would consist of a 40 mil spray-on liner applied to the floor and walls of the basement. The sealant would act as a barrier to the migration of vapor from below.
3. Installation of a network of horizontal soil vapor extraction pipes around the northeast perimeter of the Michaels building. The vapor extraction piping would be connected to a high capacity blower located outside of the building in a completely secured area or in the basement of the building. Vapors collected by the soil vapor extraction system would be treated, if necessary, using granular activated carbon.
4. A remedial work plan should be prepared in order to implement the above recommendations.

5. In addition to the proposed onsite remedial actions, an additional subsurface investigation is recommended in the vicinity of the former Paul Miller Dry Cleaners. This investigation would be used to determine the potential source of contamination from this area.
6. A limited Feasibility Study is recommended consisting of an evaluation of several ground-water remedial technologies applicable to the existing subsurface conditions.

LEGGETTE, BRASHEARS & GRAHAM, INC.

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Reviewed By:

Dan C. Buzea, CPG
Vice President

dmd
December 19, 2005
Revised: April 28, 2006
Revised: June 14, 2006
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TABLES

TABLE 1

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) - 2000
Volatile Organic Compounds

Well Identification	Date	Sample Depth (ft bg)[1/]	Tetrachloroethylene (ug/kg)[2/]	Trichloroethylene (ug/kg)	Vinyl Chloride (ug/kg)	cis-1,2-Dichloroethylene (ug/kg)	1,2,4-Trimethylbenzene (ug/kg)	1,3,5-Trimethylbenzene (ug/kg)	Ethylbenzene (ug/kg)	Isopropyl-benzene (ug/kg)	sec-Butylbenzene (ug/kg)	Naphthalene (ug/kg)	Toluene (ug/kg)	Xylenes (ug/kg)
GP-1	9/11/2000	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	9/11/2000	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	9/11/2000	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	9/12/2000	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	9/12/2000	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	9/12/2000	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	9/12/2000	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	9/12/2000	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	9/12/2000	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	9/13/2000	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	9/13/2000	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	9/13/2000	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	9/13/2000	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	9/13/2000	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	9/13/2000	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	9/13/2000	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	9/14/2000	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	9/14/2000	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	9/14/2000	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	9/14/2000	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	9/14/2000	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	9/14/2000	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	9/14/2000	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	9/26/2000	1.0[3/]	5,000	860	250	390	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0

1/ - Feet below grade
2/ - Micrograms per kilogram
3/ - Feet below basement floor

TABLE 2

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 Ground-Water Quality (Geoprobe and Hand Augers) - 2000
Volatile Organic Compounds

Sample ID	Tetrachloroethylene (ug/l)[1/]	Trichloroethylene (ug/l)	1,1-Dichloroethylene (ug/l)	cis-1,2-Dichloroethylene (ug/l)	Vinyl Chloride (ug/l)
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
NYSGQS[2/]	**5.0**	**5.0**	**5.0**	**5.0**	**2.0**

1/ - Micrograms per liter
2/ - New York State Ground Water Quality Standards

TABLE 3

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 Ground-Water Quality (Monitor Wells) - 2000
Volatile Organic Compounds

Well Identification	Tetrachloroethylene (ug/l)[1/]	Trichloroethylene (ug/l)	1,1-Dichloroethane (ug/l)	cis-1,2-Dichloroethylene (ug/l)	Vinyl Chloride (ug/l)
MW-1	<1.0	<1.0	<1.0	<1.0	<1.0
MW-2	<1.0	<1.0	<1.0	<1.0	<1.0
MW-3	<1.0	<1.0	<1.0	<1.0	<1.0
MW-4	<1.0	<1.0	<1.0	<1.0	<1.0
MW-5S	12.0	7.0	2.0	6.0	500
MW-5D	3,300	<1.0	<1.0	<1.0	3,300
MW-6S	2,600	61.0	5.0	930	960
MW-6D	6,200	3	<1.0	<1.0	<1.0
MW-7S	1,500	81.0	6.0	1,800	2,700
MW-7D	17.0	<1.0	<1.0	2.0	5.0
MW-8S	120	11.0	<1.0	74.0	37.0
MW-8D	26.0	1.0	<1.0	3.0	<1.0
NYSGQS[2/]	**5.0**	**5.0**	**5.0**	**5.0**	**2.0**

1/ - Micrograms per Liter
2/ - New York State Ground Water Quality Standards

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

MONITOR WELLS
Water Level Measurements
August 1-5, 2005

Well ID	Total Depth (feet)	Screen		TOC [1] Elevation (ft msl) [2]	Depth to Water (ft btoc) [3]	Corrected Ground Water Elevation (ft msl)
		Diameter (inch)	Setting (ft bg)			
MW-1	11.58	2.00	5.00 to 20.00	100.36	4.84	95.52
MW-2A	12.65	2.00	5.00 to 20.00	100.10	5.63	94.47
MW-2B	52.10	2.00	40.00 to 50.00	100.05	5.76	94.29
MW-3	15.34	2.00	5.00 to 20.00	100.64	6.56	94.08
MW-4	13.04	2.00	5.00 to 20.00	100.83	6.72	94.11
MW-5A	17.88	2.00	5.00 to 20.00	100.26	6.08	94.18
MW-5B	49.40	2.00	40.00 to 50.00	100.12	5.90	94.22
MW-5C	71.85	2.00	60.00 to 70.00	99.90	5.70	94.20
MW-5D	91.72	2.00	80.00 to 90.00	100.08	5.87	94.21
MW-6A	13.38	2.00	5.00 to 20.00	100.02	5.98	94.04
MW-6B	49.74	2.00	40.00 to 50.00	99.94	5.89	94.05
MW-6C	71.25	2.00	60.00 to 70.00	99.99	5.91	94.08
MW-6D	90.38	2.00	80.00 to 90.00	100.11	6.05	94.06
MW-7A	17.74	2.00	5.00 to 20.00	99.82	5.87	93.95
MW-7B	49.18	2.00	40.00 to 50.00	99.85	5.80	94.05
MW-7C	71.74	2.00	60.00 to 70.00	99.86	5.80	94.06
MW-7D	91.95	2.00	80.00 to 90.00	100.00	5.96	94.04
MW-8A	17.90	2.00	5.00 to 20.00	100.29	6.37	93.92
MW-8B	49.21	2.00	40.00 to 50.00	100.70	6.56	94.14
MW-8C	72.11	2.00	60.00 to 70.00	100.58	6.44	94.14
MW-8D	92.40	2.00	80.00 to 90.00	100.50	6.35	94.15
MW-9A	14.69	2.00	5.00 to 20.00	100.63	6.54	94.09
MW-9B	51.67	2.00	40.00 to 50.00	100.76	6.57	94.19
MW-9C	71.80	2.00	60.00 to 70.00	100.34	6.15	94.19
MW-9D	88.86	2.00	80.00 to 90.00	100.85	6.68	94.17
MW-10A	22.00	2.00	5.00 to 20.00	104.24	10.39	93.85
MW-10B	51.76	2.00	40.00 to 50.00	103.71	9.84	93.87
MW-10C	72.28	2.00	60.00 to 70.00	103.78	9.90	93.88
MW-10D	92.10	2.00	80.00 to 90.00	103.60	9.72	93.88
MW-11C	72.00	2.00	60.00 to 70.00	99.55	5.59	93.96
MW-11D	92.20	2.00	80.00 to 90.00	99.30	5.30	94.00
MW-12C	71.00	2.00	60.00 to 70.00	99.91	5.84	94.07
MW-12D	92.50	2.00	80.00 to 90.00	99.95	5.90	94.05

1) - Top of Casing
2) - Feet above mean sea level
3) - Feet below top of casing
NR - Not Recorded
Note: MW-13A and MW-13B could not be accessed

TABLE 5

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 Sample
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
NYSDEC [4] TAGM [5] Recommended Soil Cleanup Objective		1,400	700	5,500	1,200	10,000	N/A	N/A	13,000	200	N/A	N/A	N/A	N/A

1) - Feet below grade
2) - Micrograms per kilogram
3) - Not Detected
4) - New York State Department of Environmental Conservation
5) - Technical and Administrative Guidance Memorandum (HWR-94-4046, January 24, 1994)
6) - Not available
Note - Samples analyzed by EPA Method 8260 NYSDEC ASP category B deliverables
Results verified by a Data Usability Summary Report

TABLE 6

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

Hand Augers Locations
Summary of Volatile Organic Compounds Detected in Soil Sample
June 2005

Sample Location	Sample Depth (ft bg) [1]	Concentration (ug/kg) [2]				
		Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	Acetone	Vinyl Chloride
HA-1	2 to 3	ND [3]	ND	ND	13.3	ND
HA-2	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
NYSDEC [4] TAGM [5] Recommended Soil Cleanup Objective		1,400	700	300	200	200

1) - Feet below grade
2) - Micrograms per kilogram
3) - Not Detected
4) - New York State Department of Environmental Conservation
5) - Technical and Administrative Guidance Memorandum (HWR-94-4046, January 24, 1994)
Note - Samples analyzed by EPA Method 8260 NYSDEC ASP category B deliverables
Results verified by a Data Usability Summary Report

TABLE 7

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

Groundwater Monitor Wells
Summary of Volatile Organic Compounds Detected in Groundwater
July & August 2005

Well Identification	Concentration (ug/l) [1]																				
	Tetrachloroethene	Trichloroethene	1,1,1-Trichloroethane	Vinyl Chloride	Benzene	Ethylbenzene	Total Xylenes	Isopropylbenzene	Naphthalene	n-Propylbenzene	4-isopropyltoluene	Acetone	MTBE [2]	sec-butylbenzene	cis-1,2-Dichloroethylene	trans-1,2-Dichloroethylene	Tetrahydrofuran	1,1-Dichloroethene	Methylene Chloride	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Carbon Disulfide
MW-1	1.0 J	ND [3]	ND	ND	ND	ND	ND	ND	ND	ND	ND	81	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2A	36	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2 J	ND	ND	ND	ND	ND	ND	ND	ND	0.95 J
MW-2B	2,200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-4	17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-5A	30	13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2 J	ND	ND	ND	8.9 J	ND	ND	ND	ND	ND
MW-5B	2,300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-5C	16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-5D	260	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-6A	160	22	ND	1.7 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11	ND	ND	0.61 J	ND	ND	ND	ND
MW-6B	14,000	2.0 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-6C	110	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-6D	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7A	4,300	93	ND	43	ND	ND	ND	ND	ND	ND	ND	ND	2.0	ND	400	1.5 J	ND	1.4	ND	ND	ND	ND
MW-7B	31	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.61 J	ND	ND	ND	0.54 J	ND	ND	ND
MW-7C	17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7D	0.75 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-8A	1,700	51	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.4	ND	200	0.61 J	ND	0.91 J	ND	ND	ND	ND
MW-8B	7.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-8C	4.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-8D	3.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-9A	0.8 J	ND	ND	0.98 J	ND	ND	ND	ND	ND	ND	ND	3.0 J	2.8	ND	1.6 J	ND	ND	ND	ND	0.54 J	0.77 J	ND
MW-9B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-9C	ND	ND	1.5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-9D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-10A	ND	ND	ND	ND	0.61 J	30	8.42 J	13	140	15	0.9 J	ND	0.6 J	7.1	ND	ND	ND	ND	ND	20	4.4	ND
MW-10B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.51 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-10C	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.53 J	ND	ND	ND
MW-10D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.76 J	ND	ND	ND
MW-11C	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.77 J	ND	ND	ND
MW-11D	17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-12C	8,200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-12D	54	0.74 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.75 J	ND	ND	ND	ND	ND	ND	ND
TOGS GWQS [4]	5	5	5	2	1	5	5	5	10	5	5	50	10	5	5	5	NA [5]	5	5	5	5	NA

1) - Micrograms per liter
2) - Methyl Tert Butyl Ether
3) - Not detected
4) - Technical & Operational Guidance Series Ground Water Quality Standards
5) - Not Available
Notes : Samples analyzed by EPA Method 8260 NYSDEC ASP category B deliverables

Results verified by a Data Usability Summary Report

TABLE 8

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

Hand Auger Locations
Summary of Volatile Organic Compounds Detected in Groundwater
June 2005

Sample Location	Concentration (ug/L) [1]			
	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
NYSDEC [3]'TOGS GWQS [4]	5	5	5	2

1) - Micrograms per liter
2) - Not detected
3) - New York State Department of Environmental Conservation
4) - Technical & Operational Guidance Series Ground Water Quality Standards
Note - Samples analyzed by EPA Method 8260 NYSDEC ASP category B deliverables
Results verified by a Data Usability Summary Report

TABLE 9

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

Summary of Soil Gas Samples - EPA Method TO-15

Samples Collected June 8 & 16, 2005

Compound	Concentration (ug/m^3)															
	SG-1	SG-2	SG-3	SG-4	SG-5	SG-6	SG-7	SG-8	SG-9	SG-10	SG-11	SG-12	SG-13	SG-14	SG-15	SG-16
Dichlorodifluoromethane	3.0 J	< 49	4.0 J	3.0 J	3.0 J	3.0 J	3.0 J	6	< 49	< 5.0	< 25	8	180	84 J	130	ND
Freon 114	ND	< 69	ND	ND	ND	ND	ND	5.0 J	< 69	< 7.0	< 35	< 7.0	ND	ND	ND	ND
Chloromethane	1.0 J	< 20	4	3	1.0 J	2	1.0 J	2	< 20	< 2.0	< 10	< 2.0	150	ND	8.0 J	ND
Vinyl Chloride	72	< 25	ND	29	2,000	ND	0.70 J	2.0 J	32	720	< 13	79	1,500	240	21 J	480
Bromomethane	ND	< 38	ND	ND	ND	ND	ND	3.0 J	< 38	< 4.0	< 19	< 4.0	ND	ND	ND	ND
Chloroethane	ND	< 26	ND	ND	ND	ND	ND	6	< 26	< 3.0	< 13	< 3.0	ND	ND	ND	ND
Trichlorofluoromethane	2.0 J	< 56	3.0 J	5.0 J	2.0 J	2.0 J	2.0 J	7	< 56	< 6.0	< 28	< 6.0	ND	ND	ND	ND
1,1-Dichloroethene	72	< 39	81	23	67	9	12	17	< 39	12	< 20	5	140	48 J	ND	ND
Freon 113	ND	< 76	ND	ND	ND	ND	ND	7.0 J	< 76	< 8.0	< 38	< 8.0	ND	ND	ND	ND
3-Chloropropene	ND	< 31	ND	ND	ND	ND	ND	ND	< 31	< 3.0	< 16	< 3.0	ND	ND	ND	ND
Methylene Chloride	81	1,800	96	38	35	22	15	18	68	4	760	20	ND	ND	ND	ND
1,1-Dichloroethane	89	< 40	120	55	60	35	15	25	< 40	< 4.0	< 20	< 4.0	ND	ND	ND	ND
cis-1,2-Dichloroethene	120	320	120	56	7,600	31	22	24	600	2,500	920	440	3,600	1,300	36 J	110
Chloroform	2.0 J	< 48	4.0 J	3.0 J	1.0 J	3.0 J	3.0 J	39	< 48	< 5.0	< 24	< 5.0	ND	ND	ND	29 J
1,1,1-Trichloroethane	120	< 54	170	74	79	47	21	37	< 54	< 5.0	< 27	< 5.0	20 J	ND	ND	ND
Carbon Tetrachloride	ND	< 62	ND	ND	ND	ND	ND	5.0 J	< 62	< 6.0	< 31	< 6.0	ND	ND	ND	ND
1,2-Dichloroethane	83	< 40	130	66	69	46	16	36	< 40	5	< 20	7	ND	ND	13 J	ND
Benzene	70	< 32	74	90	87	94	27	44	< 32	8	< 16	14	48	160	ND	ND
Trichloroethene	120	4,400	160	81	780	44	47	38	350	720	690	470	7,900	2,000	42 J	34 J
1,2-Dichloropropane	ND	< 46	ND	ND	ND	ND	ND	ND	< 46	< 5.0	< 23	< 5.0	ND	ND	ND	ND
cis-1,3-Dichloropropene	ND	< 45	ND	ND	ND	ND	ND	4.0 J	< 45	< 5.0	< 22	< 5.0	ND	ND	ND	ND
Toluene	360	120	430	490	270	370	220	800	120	79	130	100	24 J	380	110	20 J
trans-1,3-Dichloropropene	ND	< 45	ND	ND	ND	ND	ND	5	< 45	< 5.0	< 22	< 5.0	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	< 54	ND	ND	ND	ND	ND	ND	< 54	< 5.0	< 27	< 5.0	ND	ND	ND	ND
Tetrachloroethene	420	19,000	230	140	890	79	2,100	68	12,000	8,700	7,600	1,400	30,000	10,000	1,000	120 J
1,2-Dibromoethane	230	< 76	400	180	210	120	66	92	< 76	< 8.0	< 38	< 8.0	ND	ND	ND	ND
Chlorobenzene	100	< 46	180	87	100	56	29	48	< 46	< 5.0	< 23	< 5.0	ND	ND	ND	ND
Ethylbenzene	78	< 43	56	68	42	50	42	74	< 43	14	< 22	20	ND	48 J	17 J	ND
m/p-Xylene	260	91	190	220	150	170	160	220	72	44	63	72	34 J	160 J	39 J	ND
o-Xylene	44	< 43	38	48	44	49	29	40	< 43	15	< 22	21	15 J	46 J	15 J	ND
Styrene	5	< 43	38	6	5	5	4	19	< 43	< 4.0	< 21	< 4.0	ND	ND	12 J	ND
1,1,2,2-Tetrachloroethane	ND	< 68	ND	ND	ND	ND	ND	ND	< 68	< 7.0	< 34	< 7.0	ND	ND	ND	ND
4-Ethyltoluene	12	< 49	16	16	ND	12	16	13	< 49	9	< 25	12	ND	ND	ND	ND
1,3,5-Trimethylbenzene	6	< 49	15	16	5	5	9	14	< 49	< 5.0	< 25	6	ND	ND	ND	ND
1,2,4-Trimethylbenzene	21	< 49	36	76	14	18	27	27	< 49	13	< 25	19	ND	52 J	12 J	ND
1,3-Dichlorobenzene	ND	< 60	13	ND	ND	ND	4.0 J	12	< 60	< 6.0	< 30	< 6.0	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	< 60	32	ND	ND	ND	5.0 J	27	< 60	< 6.0	< 30	< 6.0	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	< 60	15	ND	ND	ND	5.0 J	13	< 60	< 6.0	< 30	< 6.0	ND	ND	ND	ND
1,2,4-Trichlorobenzene	ND	< 74	59	ND	ND	ND	70	140	< 74	< 7.0	< 37	< 7.0	ND	ND	ND	ND

ug/m3 - micrograms per cubic meter
ppbv - parts per billion vapor
ND - Not Detected
J - indicates an estimated value
N/A - Not Available
Results verified by a Data Usability Summary Report

TABLE 10

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

Summary of Outdoor Ambient and Indoor Air Quality Samples - EPA Method TO-15
Samples Collected June 3, 2005

Compound	Concentration (ug/m^3)			NYSDOH Air Guidance Value
	Outdoor Ambient Air	Michael's Indoor Air	Coconuts Indoor Air	ug/m^3
Dichlorodifluoromethane	4	4.0 J	3.0 J	NE
Freon 114	ND	ND	ND	NE
Chloromethane	ND	ND	ND	NE
Vinyl Chloride	ND	21	ND	NE
Bromomethane	ND	ND	ND	NE
Chloroethane	ND	ND	ND	NE
Trichlorofluoromethane	2.0 J	2.0 J	8	NE
1,1-Dichloroethene	ND	0.9 J	ND	NE
Freon 113	ND	ND	ND	NE
3-Chloropropene	ND	ND	ND	NE
Methylene Chloride	ND	4	ND	60
1,1-Dichloroethane	ND	ND	ND	NE
cis-1,2-Dichloroethene	ND	230	ND	NE
Chloroform	ND	ND	ND	NE
1,1,1-Trichloroethane	ND	ND	ND	NE
Carbon Tetrachloride	ND	ND	ND	NE
1,2-Dichloroethane	ND	4	ND	NE
Benzene	2.0 J	2.0 J	1.0 J	NE
Trichloroethene	ND	42	ND	5
1,2-Dichloropropane	ND	ND	ND	NE
cis-1,3-Dichloropropene	ND	ND	ND	NE
Toluene	6	67	7	NE
trans-1,3-Dichloropropene	ND	ND	ND	NE
1,1,2-Trichloroethane	ND	ND	ND	NE
Tetrachloroethene	2.0 J	4,000	1.0 J	100
1,2-Dibromoethane	ND	ND	ND	NE
Chlorobenzene	ND	ND	ND	NE
Ethylbenzene	2.0 J	19	33	NE
m/p-Xylene	5	33	110	NE
o-Xylene	2.0 J	14	42	NE
Styrene	ND	6	2.0 J	NE
1,1,2,2-Tetrachloroethane	ND	ND	ND	NE
4-Ethyltoluene	1.0 J	5	2.0 J	NE
1,3,5-Trimethylbenzene	ND	3.0 J	ND	NE
1,2,4-Trimethylbenzene	2.0 J	12	2.0 J	NE
1,3-Dichlorobenzene	ND	ND	ND	NE
1,4-Dichlorobenzene	ND	ND	ND	NE
1,2-Dichlorobenzene	ND	ND	ND	NE
1,2,4-Trichlorobenzene	ND	ND	ND	NE

NYSDOH - New York State Department of Health
NE - Not Established
ug/m3 - micrograms per cubic meter
ppbv - parts per billion vapor
ND - Not Detected
J - indicates an estimated value
N/A - Not Available
Results verified by a Data Usability Summary Report

TABLE 11

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

Summary of Additional Indoor Air Quality Samples - EPA Method TO-15
Collected from the Michael's Store
Samples Collected September 9, 2005

Compound	Concentration (ug/m^3)				NYSDOH Air Guidance Value
	1st Floor Store Area	1st Floor Loading Dock	Basement Main Area	Basement Equipment Room	ug/m^3
Dichlorodifluoromethane	5	3	3	3	NE
Freon 114	ND	4	7	4	NE
Chloromethane	3	1	2	1	NE
Vinyl Chloride	ND	2	2	17	NE
Bromomethane	ND	ND	ND	ND	NE
Chloroethane	ND	ND	ND	ND	NE
Trichlorofluoromethane	2	1	1	1	NE
1,1-Dichloroethene	ND	ND	ND	ND	NE
Freon 113	ND	ND	ND	ND	NE
3-Chloropropene	ND	ND	ND	ND	NE
Methylene Chloride	3	ND	2	ND	60
1,1-Dichloroethane	ND	ND	ND	ND	NE
cis-1,2-Dichloroethene	7	22	120	190 *	NE
Chloroform	ND	ND	ND	ND	NE
1,1,1-Trichloroethane	ND	ND	ND	ND	NE
Carbon Tetrachloride	ND	ND	ND	ND	NE
1,2-Dichloroethane	8	6	21	13	NE
Benzene	3	1	3	2	NE
Trichloroethene	2	4	20	34	5
1,2-Dichloropropane	ND	ND	ND	ND	NE
cis-1,3-Dichloropropene	ND	ND	ND	ND	NE
Toluene	66	49	92	33	NE
trans-1,3-Dichloropropene	ND	ND	ND	ND	NE
1,1,2-Trichloroethane	ND	ND	ND	ND	NE
Tetrachloroethene	90	320 *	1,200	2,600 *	100
1,2-Dibromoethane	ND	ND	ND	ND	NE
Chlorobenzene	ND	ND	ND	ND	NE
Ethylbenzene	12	8	14	8	NE
m/p-Xylene	28	18	30	16	NE
o-Xylene	9	6	11	6	NE
Styrene	7	6	16	8	NE
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	NE
4-Ethyltoluene	5	4	5	3	NE
1,3,5-Trimethylbenzene	2	2	3	1	NE
1,2,4-Trimethylbenzene	8	8	11	5	NE
1,3-Dichlorobenzene	ND	ND	ND	ND	NE
1,4-Dichlorobenzene	ND	ND	ND	ND	NE
1,2-Dichlorobenzene	ND	ND	ND	ND	NE
1,2,4-Trichlorobenzene	ND	ND	ND	ND	NE

NYSDOH - New York State Department of Health
NE - Not Established
ug/m3 - micrograms per cubic meter
ppbv - parts per billion vapor
ND - Not Detected
J - indicates an estimated value
N/A - Not Available
Results verified by a Data Usability Summary Report
* - Indicates that this concentration was corrected by the laboratory

TABLE 12

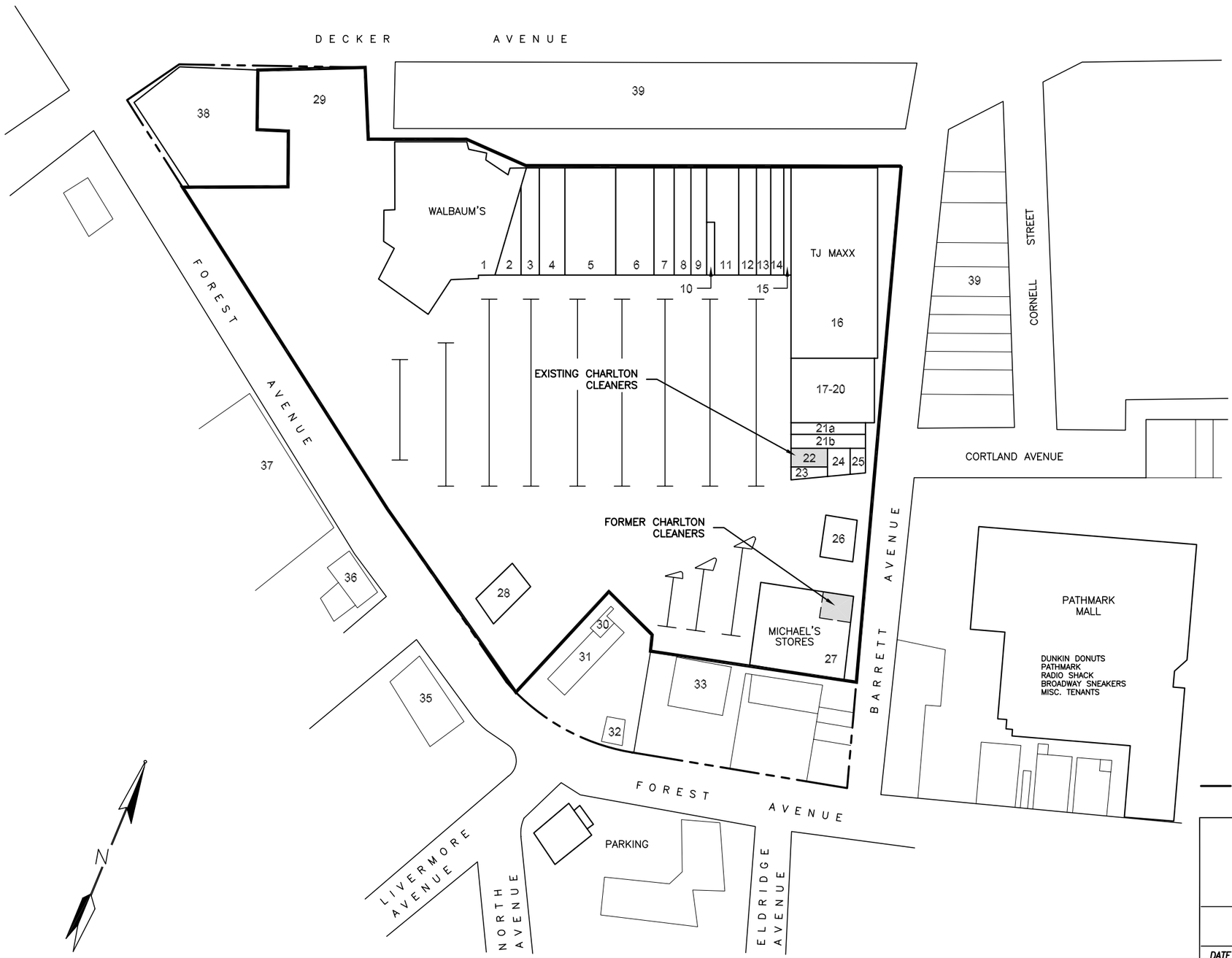
VOLUNTARY CLEANUP PROGRAM INDEX # W3-0891-01-06
KIMCO REALTY CORPORATION
FOREST AVENUE SHOPPING CENTER
STATEN ISLAND, NEW YORK

Summary of Additional Indoor Air Quality Samples - EPA Method TO-15
Collected from the Michael's Store - After Sealing of Basement Equipment Room Slab
Samples Collected October 19, 2005

Compound	Concentration (ug/m^3)				NYSDOH Air Guidance Value
	1st Floor Store Area	1st Floor Loading Dock	Basement Main Area	Basement Equipment Room	ug/m^3
Dichlorodifluoromethane	6	4.0 J	11	4.0 J	NE
Freon 114	ND	ND	ND	ND	NE
Chloromethane	2.0 J	ND	4.0 J	2.0 J	NE
Vinyl Chloride	0.80 J	ND	21	17	NE
Bromomethane	ND	ND	3.0 J	ND	NE
Chloroethane	ND	ND	ND	0.70 J	NE
Trichlorofluoromethane	2.0 J	2.0 J	3.0 J	ND	NE
1,1-Dichloroethene	ND	ND	ND	ND	NE
Freon 113	ND	ND	ND	ND	NE
3-Chloropropene	ND	ND	ND	ND	NE
Methylene Chloride	3.0 J	5	5.0 J	2.0 J	60
1,1-Dichloroethane	ND	ND	ND	ND	NE
cis-1,2-Dichloroethene	6	3.0 J	170	190	NE
Chloroform	ND	ND	ND	ND	NE
1,1,1-Trichloroethane	ND	ND	ND	ND	NE
Carbon Tetrachloride	ND	ND	ND	ND	NE
1,2-Dichloroethane	4.0 J	1.0 J	15	5	NE
Benzene	4	2.0 J	8	4	NE
Trichloroethene	ND	ND	23	19	5
1,2-Dichloropropane	ND	ND	ND	ND	NE
cis-1,3-Dichloropropene	ND	ND	ND	ND	NE
Toluene	45	24	160	44	NE
trans-1,3-Dichloropropene	ND	ND	ND	ND	NE
1,1,2-Trichloroethane	ND	ND	ND	ND	NE
Tetrachloroethene	74	32	1,600	1,700	100
1,2-Dibromoethane	ND	ND	ND	ND	NE
Chlorobenzene	ND	ND	ND	ND	NE
Ethylbenzene	10	5	27	8	NE
m/p-Xylene	23	13	69	38	NE
o-Xylene	8	4.0 J	24	12	NE
Styrene	6	3.0 J	24	6	NE
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	NE
4-Ethyltoluene	4.0 J	3.0 J	14	3.0 J	NE
1,3,5-Trimethylbenzene	4.0 J	2.0 J	9.0 J	3.0 J	NE
1,2,4-Trimethylbenzene	7	3.0 J	20	6	NE
1,3-Dichlorobenzene	ND	ND	ND	ND	NE
1,4-Dichlorobenzene	ND	ND	ND	ND	NE
1,2-Dichlorobenzene	ND	ND	ND	ND	NE
1,2,4-Trichlorobenzene	ND	ND	ND	ND	NE

NYSDOH - New York State Department of Health
NE - Not Established
ug/m3 - micrograms per cubic meter
ppbv - parts per billion vapor
ND - Not Detected
J - indicates an estimated value
N/A - Not Available
Results verified by a Data Usability Summary Report

FIGURES



LEGEND

1	WALBAUM'S
2	RAINBOW SHOPS
3	MODERN WOMAN
4	LECHTERS
5	PARTY CITY
6	CVS
7	JORDAN'S CARDS
8	DRESS BARN
9	EMPIRE SZECHUAN
10	NAIL SALON
11	BUY RITE LIQUORS
12	DANICE $10 STORES
13	ONE PRICE CLOTHING
14	PAYLESS SHOES
15	VICTORY CAMERA
16	TJ MAXX
17-20	HOME TOWN BUFFET
21a	PIZZA STORE
21b	PETLAND DISCOUNTS
22	CHARLTON CLEANERS
23	SPECS FOR LESS
24	G.J.'S UNISEX
25	PLAZA DELI
26	RECORD TOWN
27	MICHAEL'S STORES
28	NORTHFIELD BANK
29	POTENTIAL DEVELOPMENT SITE
	SITE BOUNDARY

30	FORMER PAUL MILLER DRY CLEANING FACILITY
31	BOSTON MARKET
32	KFC
33	COLOR TILE
34	MISCELLANEOUS
35	WEST COAST VIDEO
36	BANK
37	RICKELS HOME CENTER
38	MISCELLANEOUS
39	RESIDENTIAL

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

AREA MAP

DATE	REVISED

PREPARED BY:
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Professional Ground-Water and Environmental Engineering Services
110 Corporate Park Drive
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White Plains, NY 10604
(914) 694-5711

DRAWN:	MRV	CHECKED:	JW	DATE:	03/28/02	FIGURE:	1

DECKER AVENUE

SMITH AVENUE

HAGMAN AVENUE

BARRETTE AVENUE

FOREST AVENUE

GASOLINE SERVICE STATION (HESS CORP.)

ONE STORY BRICK BUILDING

ONE STORY COMMERCIAL BUILDING

AREA OF LBG INVESTIGATION

EXISTING CHARLTON CLEANERS

COCONUTS

LOCATION OF FORMER CHARLTON CLEANERS

BASEMENT

MICHAELS STORE

MASONRY BUILDINGS

PARKING LOT

CONCRETE CULVERT

1 STORY MASONRY BUILDING

HISTORICAL PAUL MILLER CLEANERS

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

SITE SURVEY MAP

PREPARED BY:
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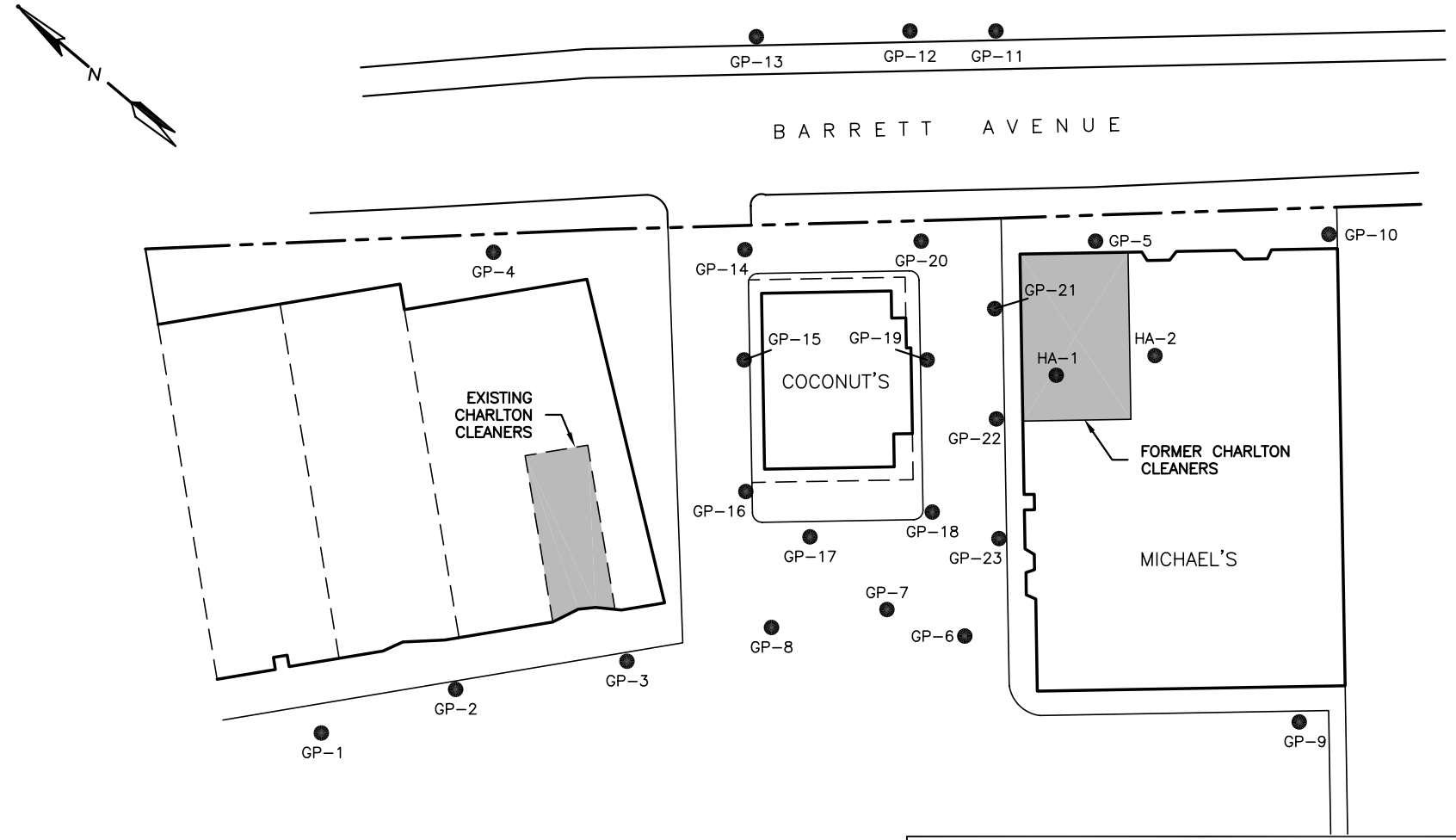
FILE: CHARLTON\FIG2	DRAWN BY: JAM	CHECKED BY: SG	DATE: 11/07/05
			FIGURE: 2



LEGEND

PROPERTY BOUNDARY

GP-1 GEOPROBE LOCATION

HA-1 HAND AUGER LOCATION

0 60

SCALE IN FEET

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

GEOPROBE AND HAND AUGER LOCATION MAP – 2000

DATE	REVISED

PREPARED BY:

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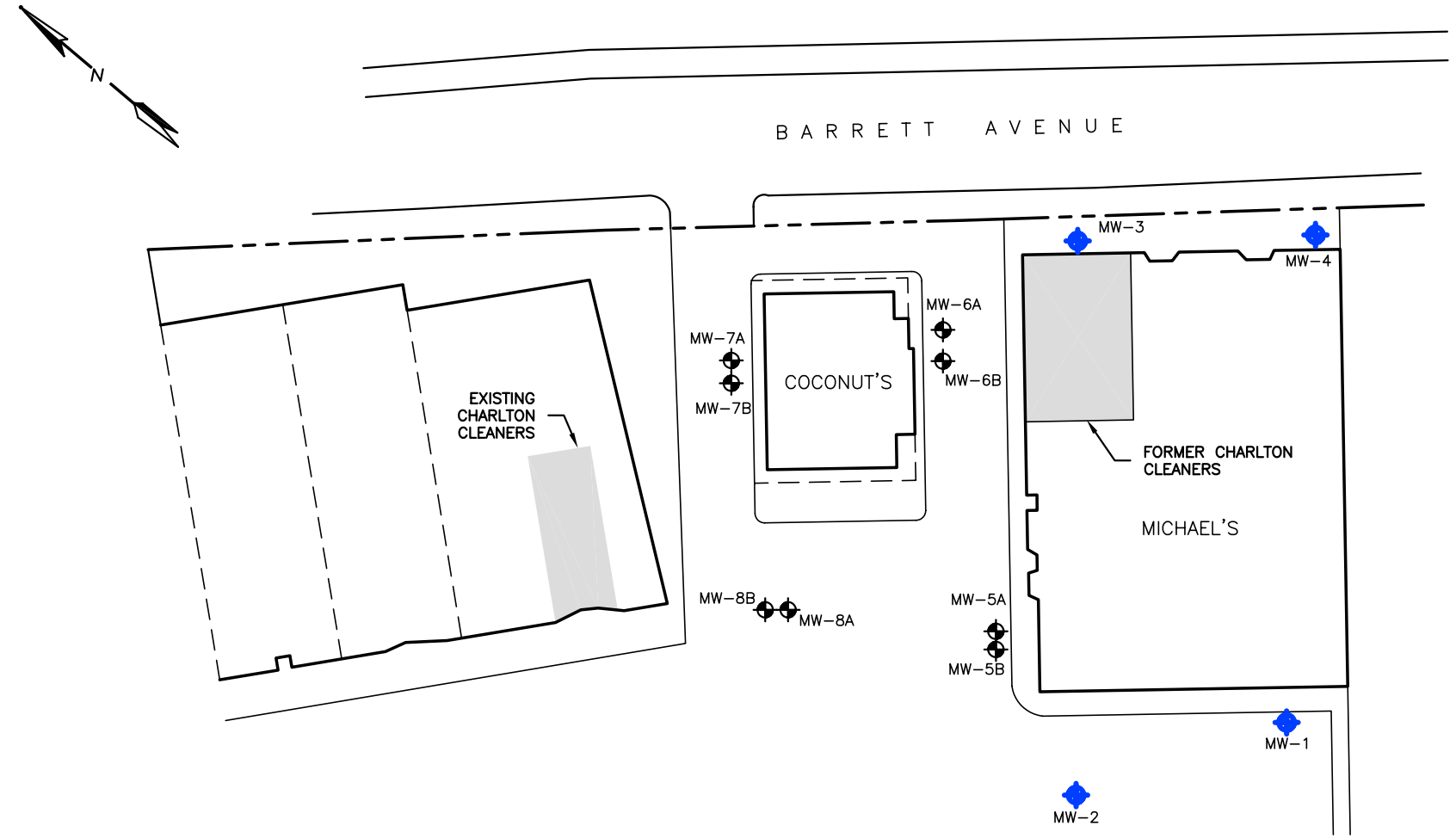

FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

MONITOR WELL LOCATION MAP – 2000

LEGEND

PROPERTY BOUNDARY

MW–2 PREVIOUSLY EXISTING MONITOR WELL LOCATION

MW–5A LBG INSTALLED MONITOR WELL LOCATION

0 60

SCALE IN FEET

DATE	REVISED

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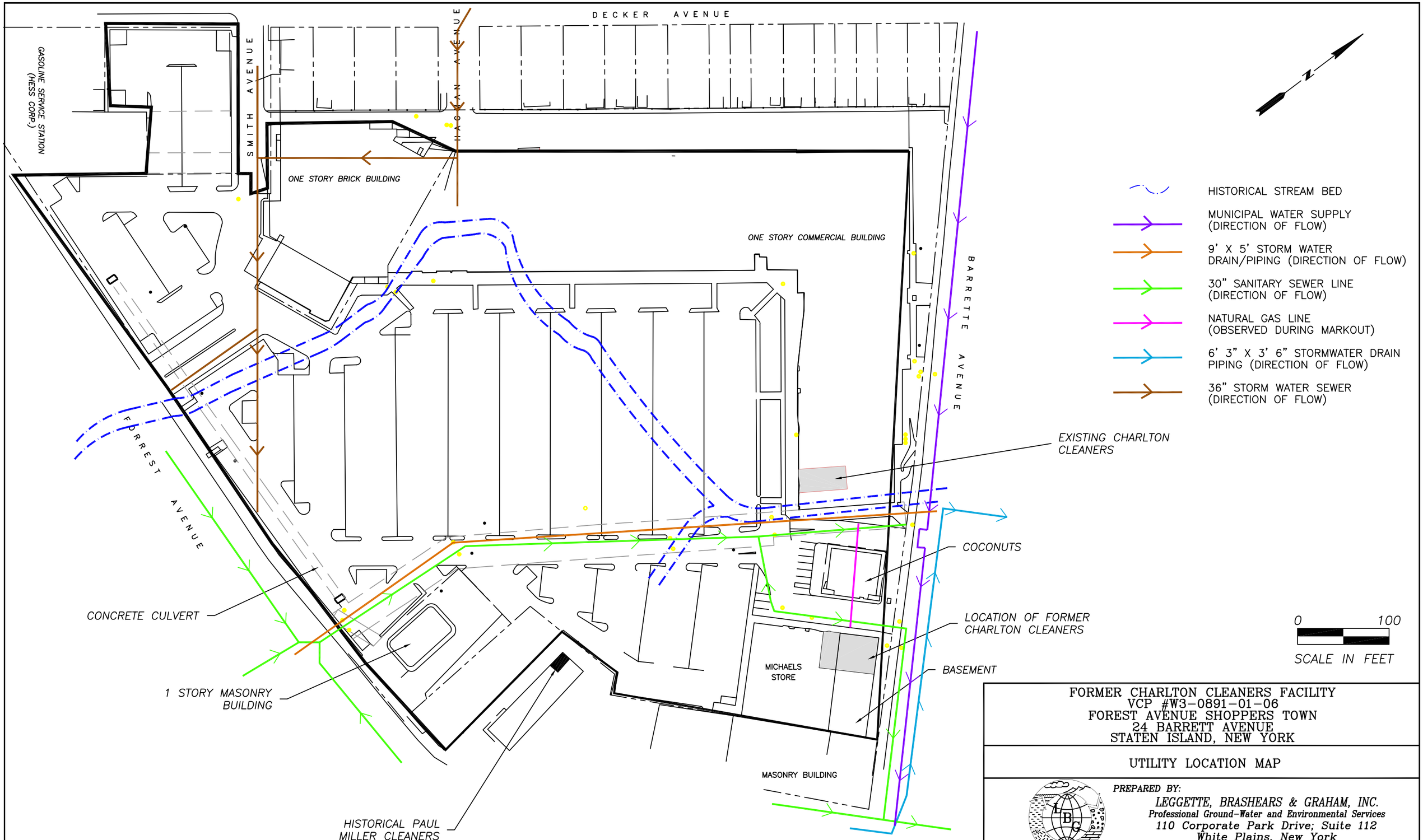
DRAWN:	TLC	CHECKED:	JW	DATE:	5/3/02	FIGURE:	4



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: 5

LEGEND

MONITOR WELL LOCATION – Installed Prior to 2000

MONITOR WELL LOCATION – Installed by LBG in 2000

MONITOR WELL LOCATION – Installed by LBG in 2005

COMBINED SOIL, GROUND-WATER AND SOIL GAS SAMPLING LOCATION

COMBINED SOIL AND GROUND-WATER SAMPLING LOCATION

SOIL GAS SAMPLING LOCATION

INDOOR/AMBIENT AIR QUALITY SAMPLE LOCATION

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

GROUND-WATER MONITOR WELL/
SAMPLE LOCATION MAP

DATE	REVISED

PREPARED BY:
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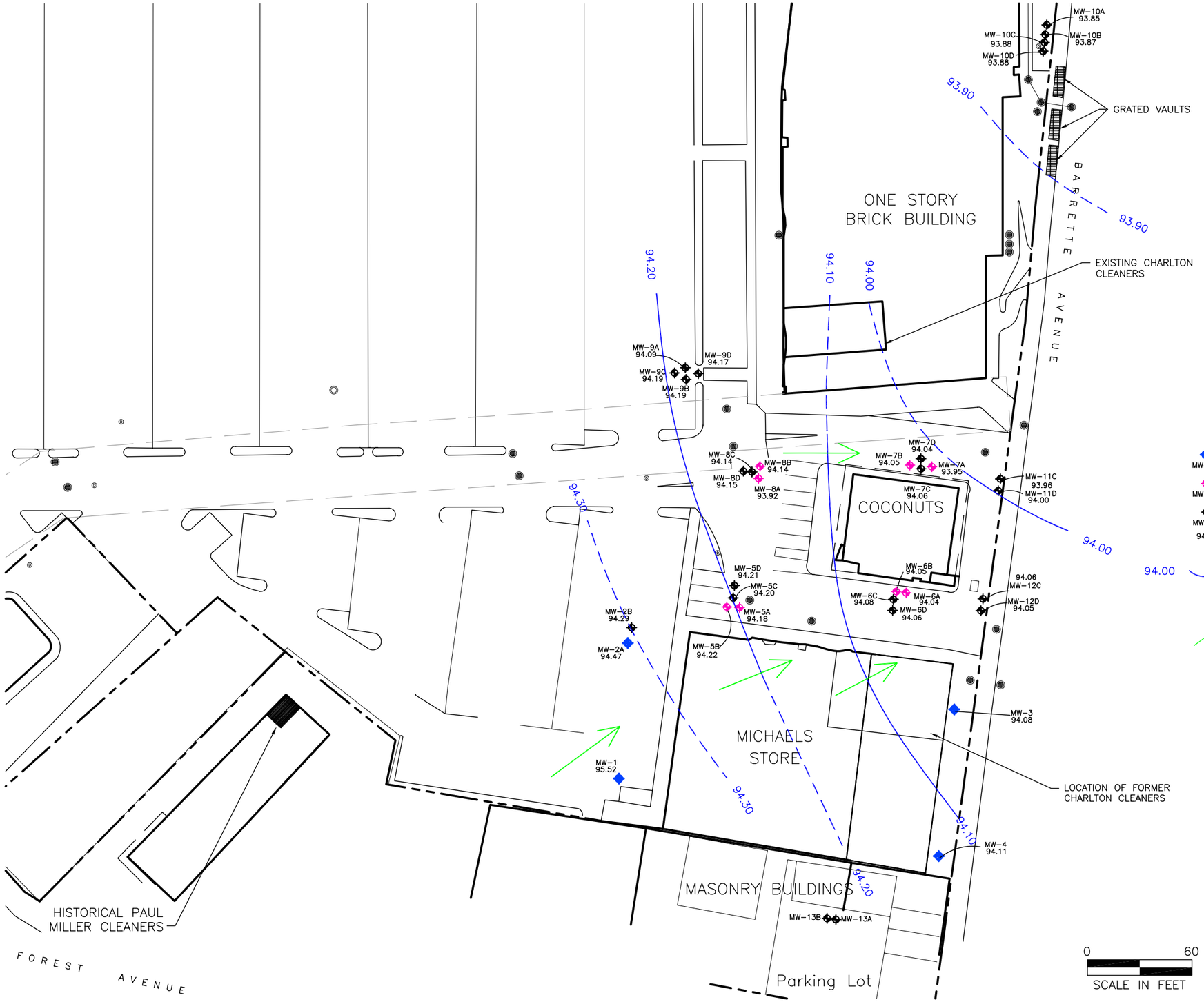
DRAWN:	JM	CHECKED:	SG	DATE:	11/9/05	FIGURE:	6



LEGEND

MW-2A — MONITOR WELL LOCATION – Installed Prior to 2000

MW-5A — MONITOR WELL LOCATION – Installed by LBG in 2000

MW-5D
94.21 — MONITOR WELL LOCATION – Installed by LBG in 2005
GROUND–WATER ELEVATION CONTOUR

94.00 — GROUND–WATER ELEVATION CONTOUR
(DASHED WHERE INFERRED)

DIRECTION OF GROUND–WATER FLOW

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

GROUND–WATER ELEVATION CONTOUR MAP
AUGUST 1, 2005

DATE	REVISED

PREPARED BY:
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Professional Ground-Water and Environmental Engineering Services
110 Corporate Park Drive
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White Plains, NY 10604
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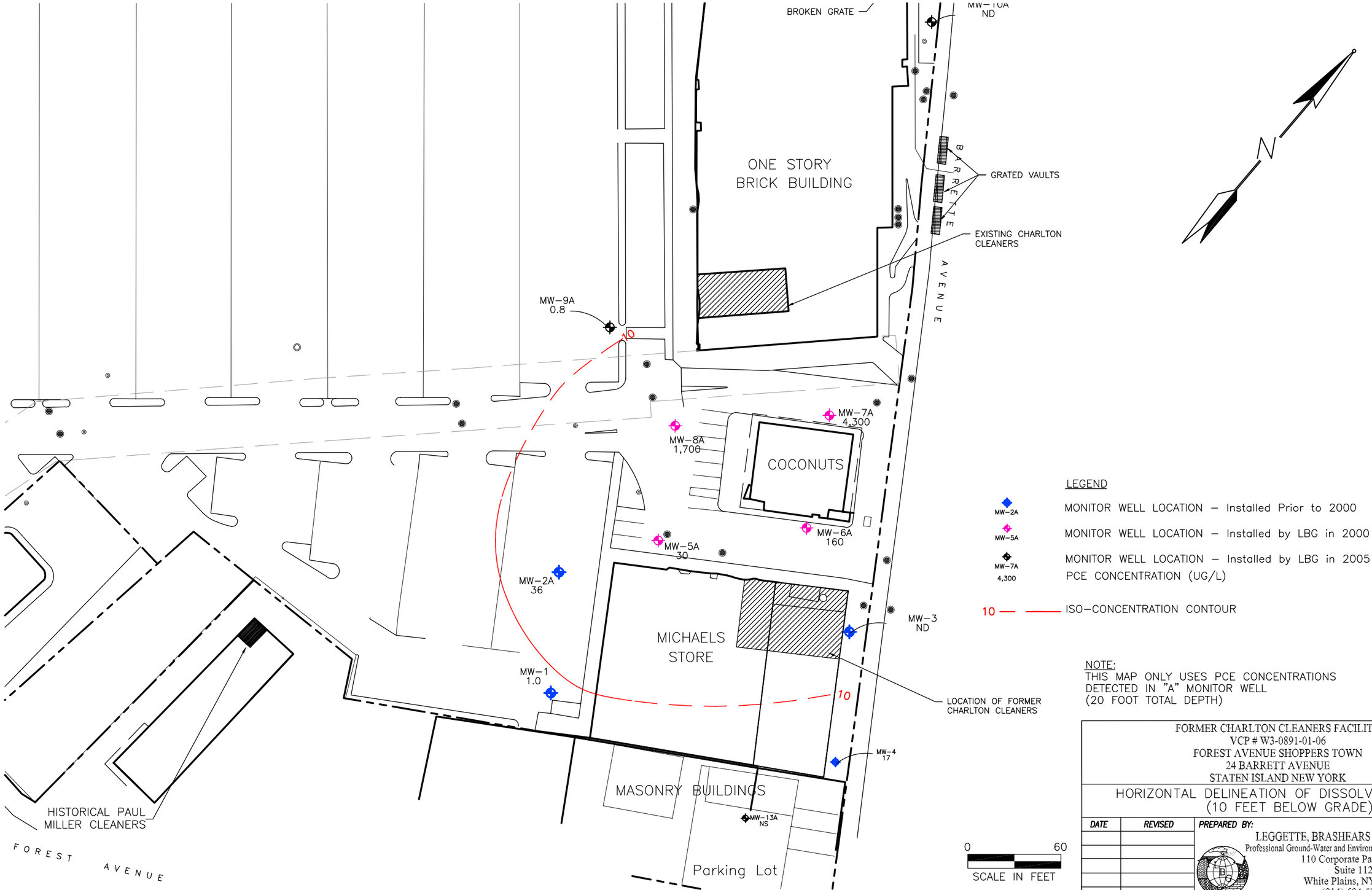
DRAWN:	JM	CHECKED:	SG	DATE:	11/9/05	FIGURE:	7



LEGEND

MW-2A — MONITOR WELL LOCATION – Installed Prior to 2000

MW-5A — MONITOR WELL LOCATION – Installed by LBG in 2000

MW-7A 4,300 — MONITOR WELL LOCATION – Installed by LBG in 2005
PCE CONCENTRATION (UG/L)

10 — ISO-CONCENTRATION CONTOUR

NOTE:
THIS MAP ONLY USES PCE CONCENTRATIONS DETECTED IN "A" MONITOR WELL (20 FOOT TOTAL DEPTH)

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

HORIZONTAL DELINEATION OF DISSOLVED-PHASE PCE
(10 FEET BELOW GRADE)

DATE	REVISED

PREPARED BY:
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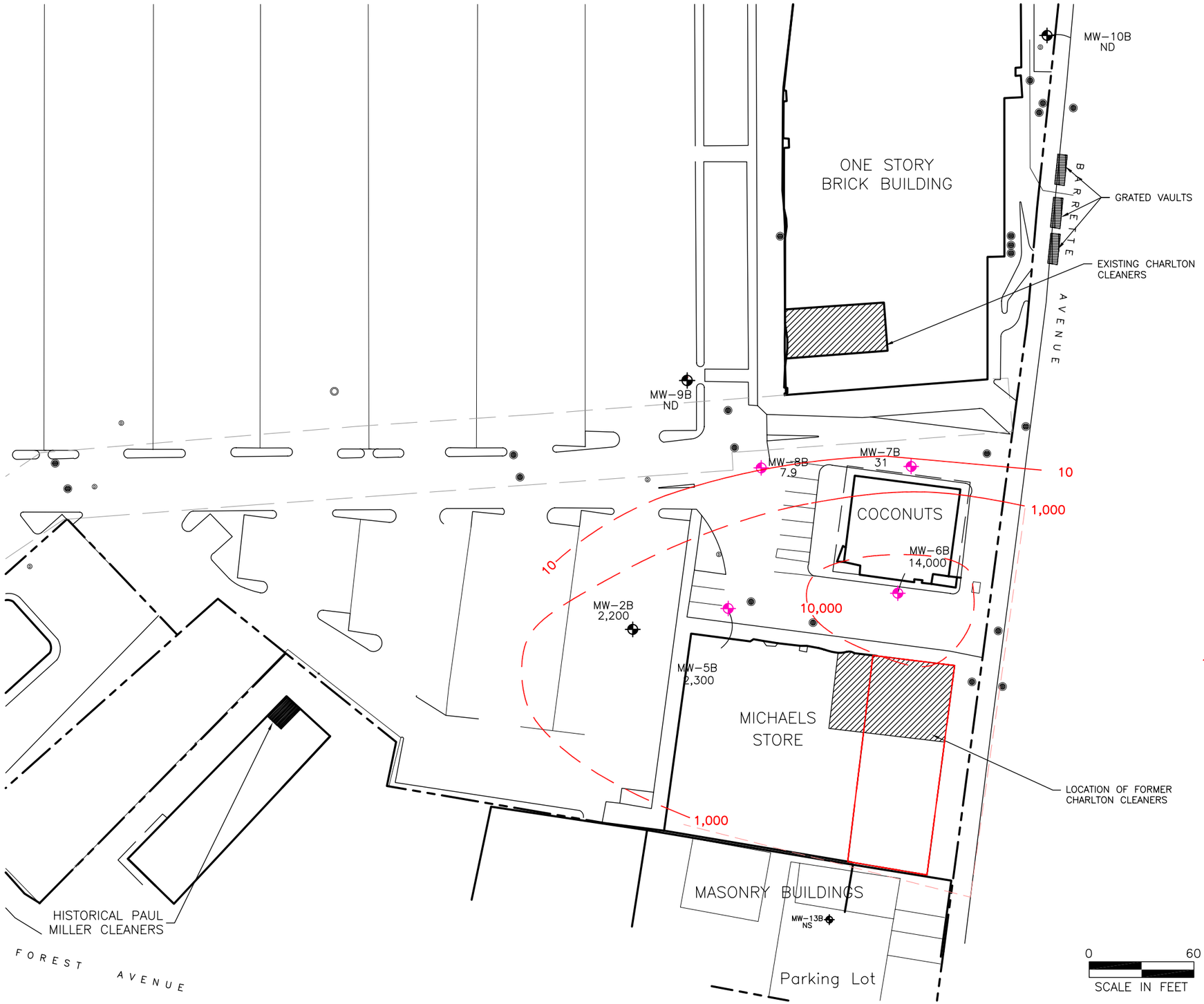
Suite 112
White Plains, NY 10604
(914) 694-5711

DRAWN:	CP	CHECKED:	SG	DATE:	11/7/05	FIGURE:	8



LEGEND

MW-5B 2,300 — MONITOR WELL LOCATION – Installed by LBG in 2000
PCE CONCENTRATION (UG/L)

MW-9B — MONITOR WELL LOCATION – Installed by LBG in 2005

10 — ISO-CONCENTRATION CONTOUR

NOTE:
THIS MAP ONLY USES PCE CONCENTRATIONS DETECTED IN "B" MONITOR WELL (50 FOOT TOTAL DEPTH)

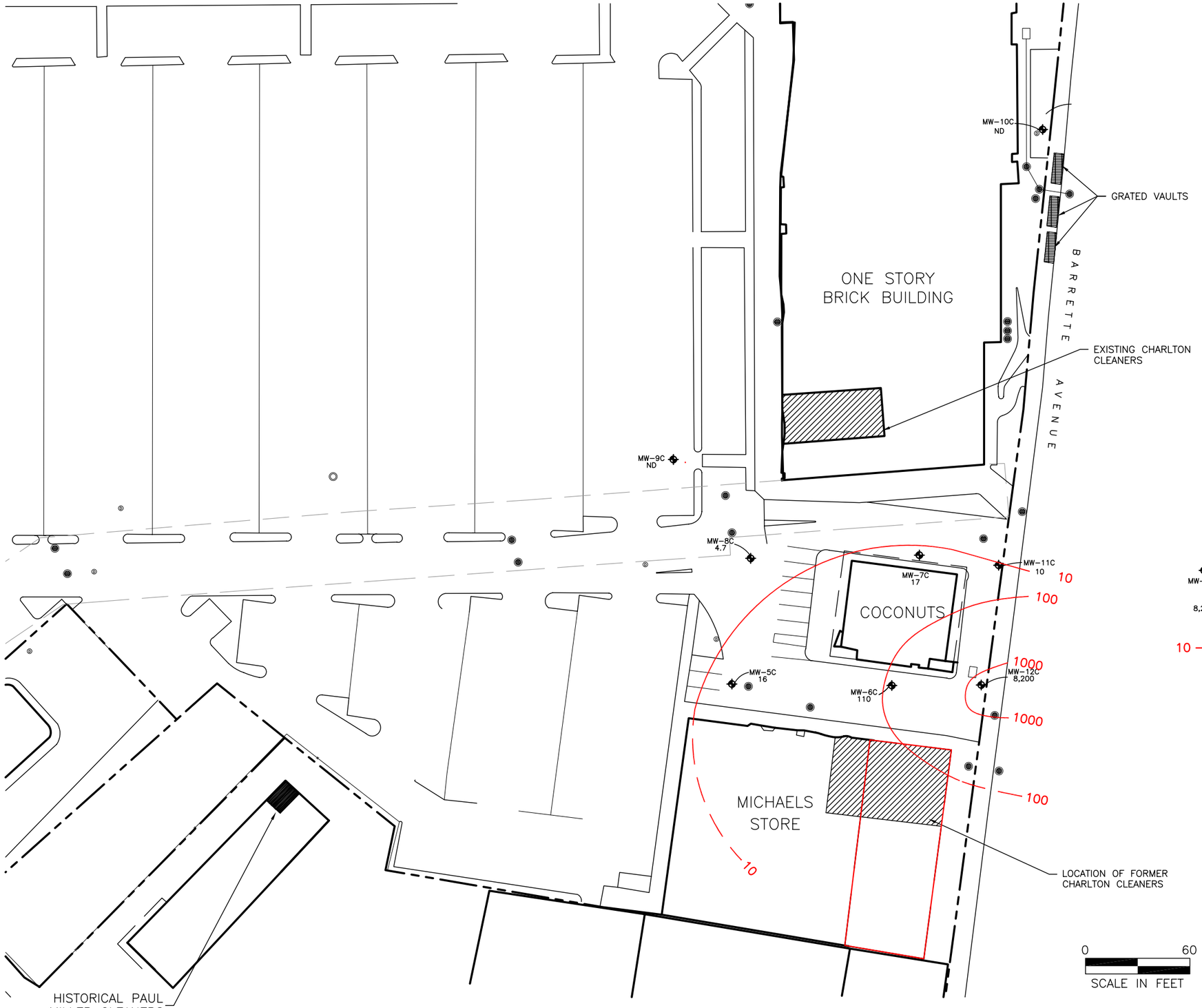
FORMER CHARLTON CLEANERS FACILITY
VCP # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

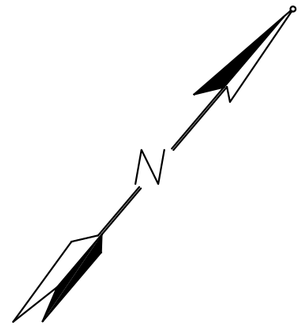
HORIZONTAL DELINEATION OF DISSOLVED-PHASE PCE
(45 FEET BELOW GRADE)

DATE	REVISED

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

DRAWN:	CP	CHECKED:	SG	DATE:	10/26/05	FIGURE:	9





LEGEND

MW-12C — MONITOR WELL LOCATION – Installed by LBG in 2005

8,200 — PCE CONCENTRATION (UG/L)

10 — ISO-CONCENTRATION CONTOUR

NOTE:
THIS MAP ONLY USES PCE CONCENTRATIONS DETECTED IN "C" MONITOR WELL (70 FOOT TOTAL DEPTH)

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

HORIZONTAL DELINEATION OF DISSOLVED-PHASE PCE (65 FEET BELOW GRADE)

DATE	REVISED

PREPARED BY:
LEGGETTE, BRASHEARS & GRAHAM, INC.
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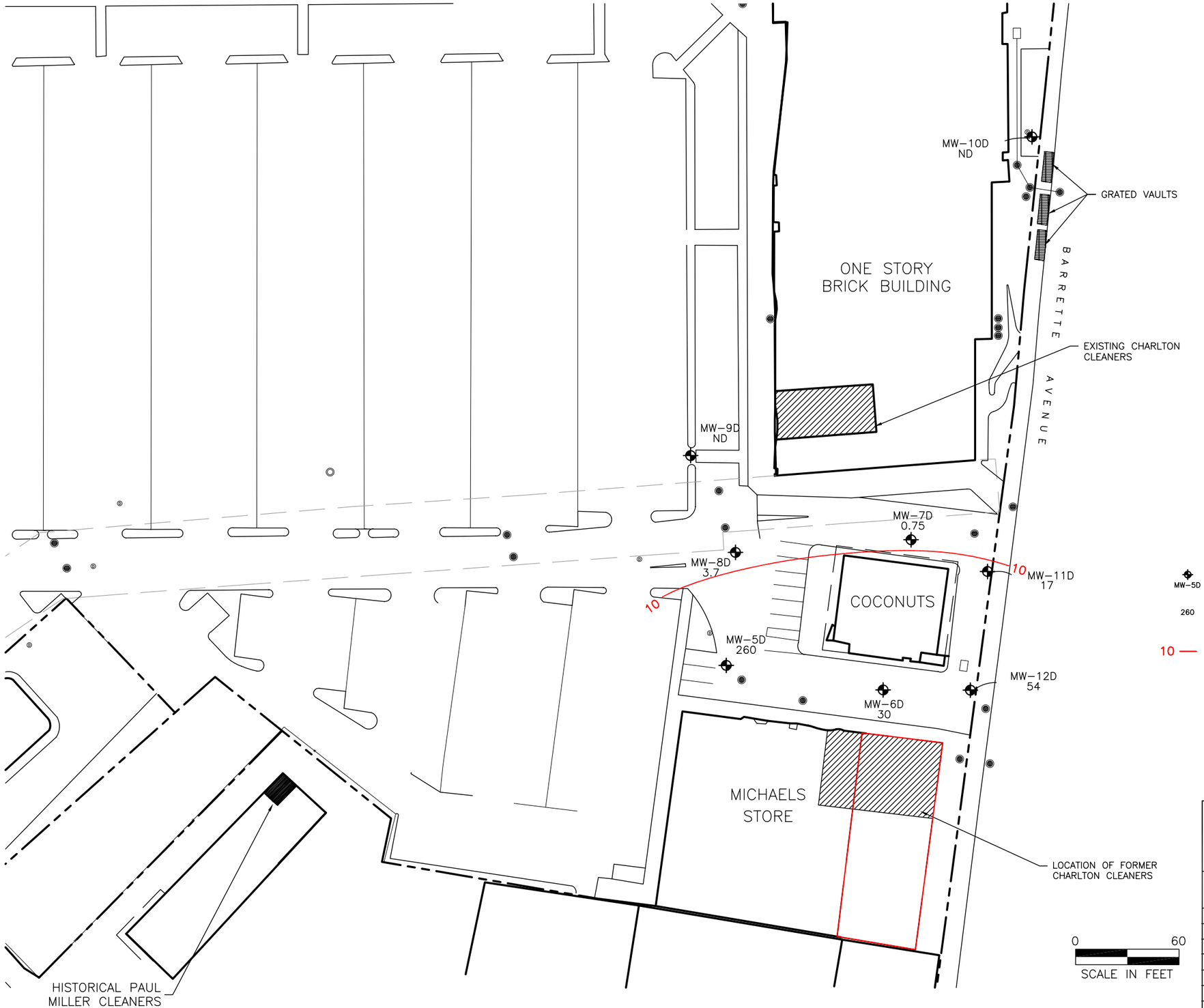
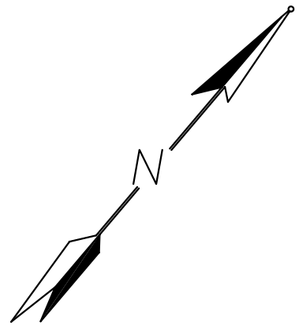
DRAWN:	CP	CHECKED:	SG	DATE:	10/26/05	FIGURE:	10





LEGEND

MW–5D — MONITOR WELL LOCATION – Installed by LBG in 2005

260 — PCE CONCENTRATION (UG/L)

10 — ISO–CONCENTRATION CONTOUR

NOTE:
THIS MAP ONLY USES PCE CONCENTRATIONS DETECTED IN "D" MONITOR WELL (90 FOOT TOTAL DEPTH)

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

HORIZONTAL DELINEATION OF DISSOLVED–PHASE PCE (85 FEET BELOW GRADE)

DATE	REVISED

PREPARED BY:
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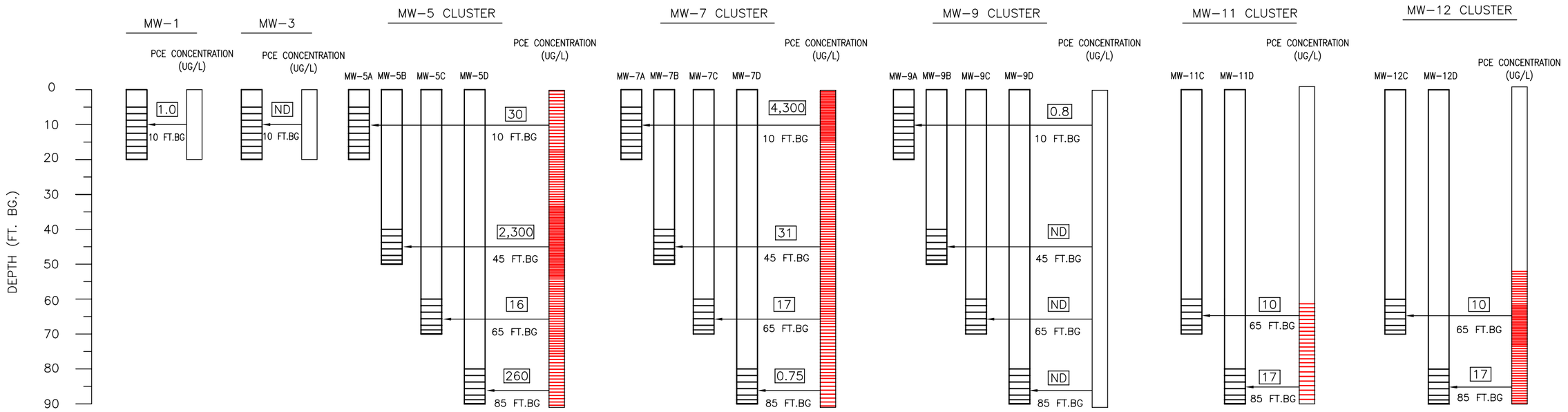
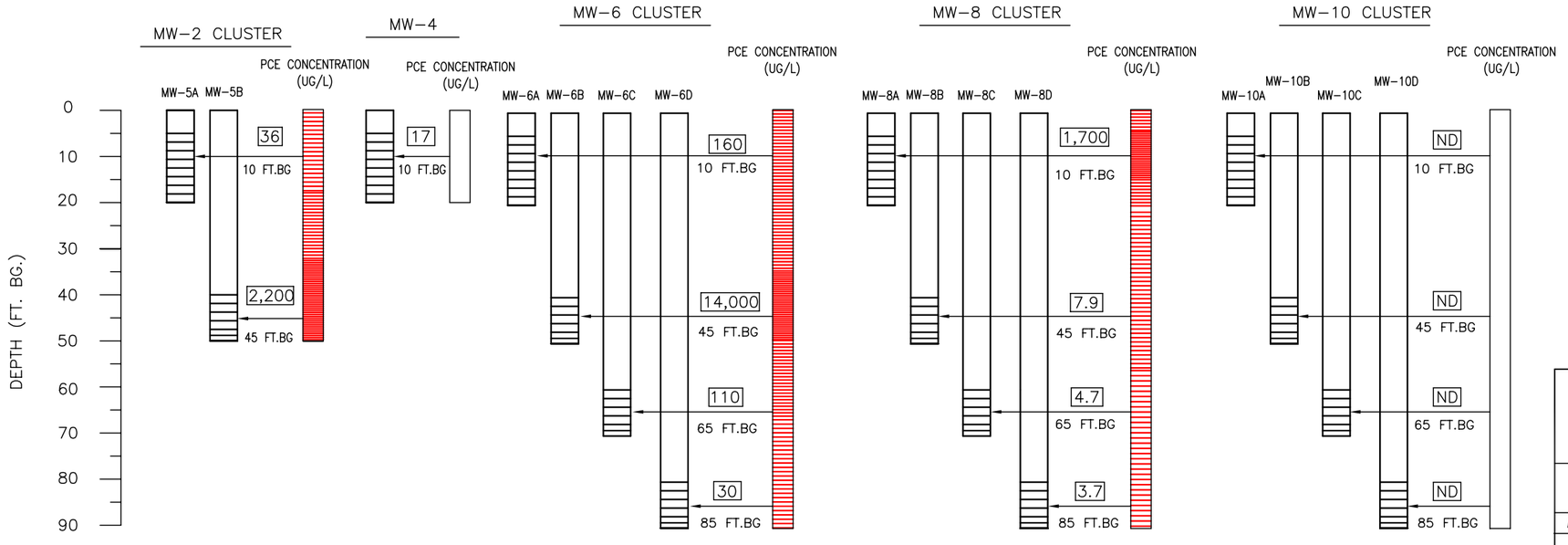
(914) 694-5711

DRAWN:	CP	CHECKED:	SG	DATE:	10/26/05	FIGURE:	11





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

VERTICAL DELINEATION OF DISSOLVED-PHASE PCE

DATE	REVISED

PREPARED BY:

LEGGETTE, BRASHEARS & GRAHAM, INC.
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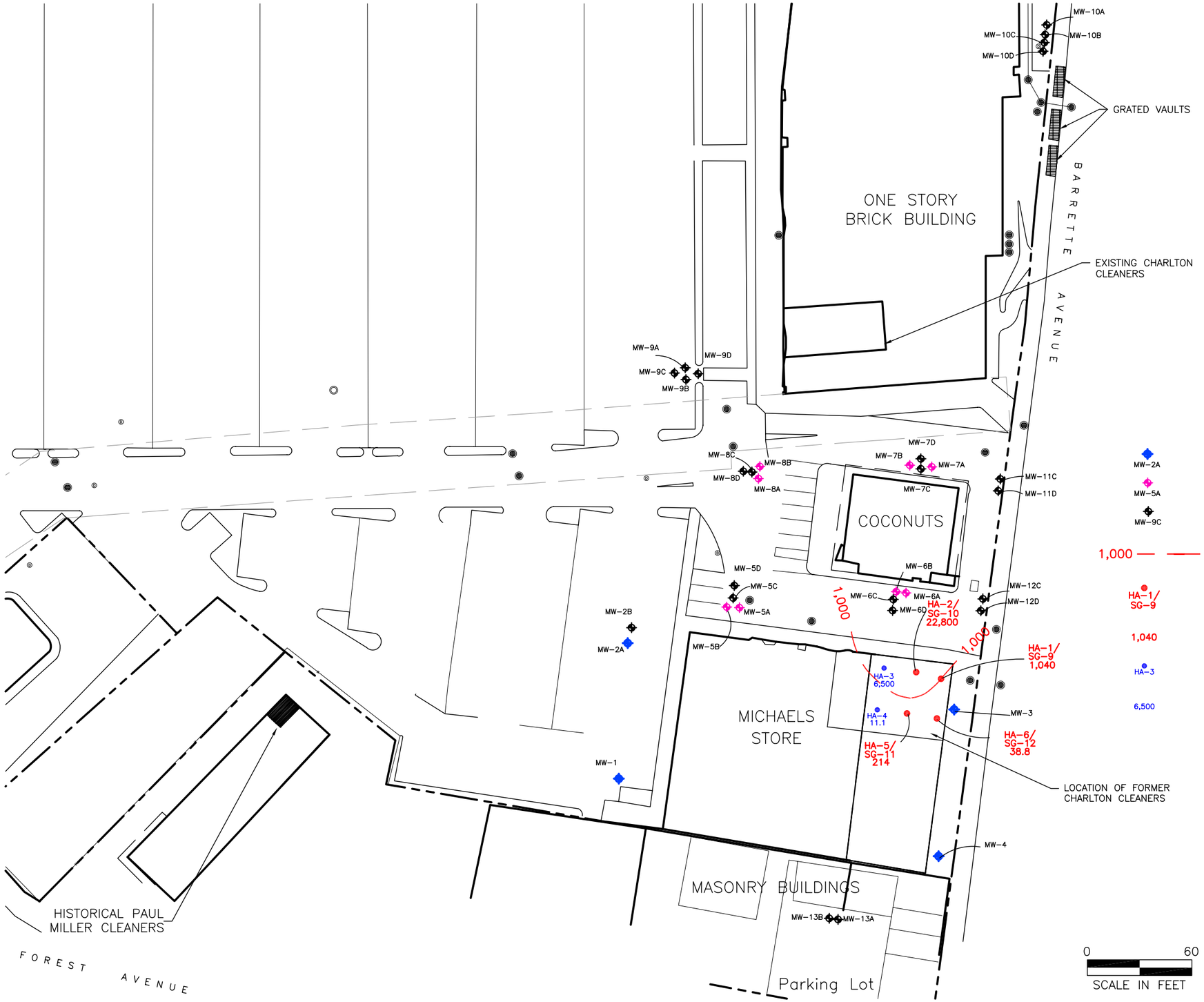

LEGEND

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
1,000	ISO-CONCENTRATION CONTOUR (DASHED WHERE INFERRED)
HA-1/ SG-9	COMBINED SOIL, GROUND-WATER AND SOIL GAS SAMPLING LOCATION
1,040	GROUND-WATER PCE CONCENTRATION (UG/L)
HA-3	COMBINED SOIL AND GROUND-WATER SAMPLING LOCATION
6,500	GROUND-WATER PCE CONCENTRATION (UG/L)

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

HORIZONTAL DELINEATION OF DISSOLVED-PHASE PCE BENEATH MICHAEL'S BASEMENT SLAB

DATE	REVISED

PREPARED BY:
LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Ground-Water and Environmental Engineering Services
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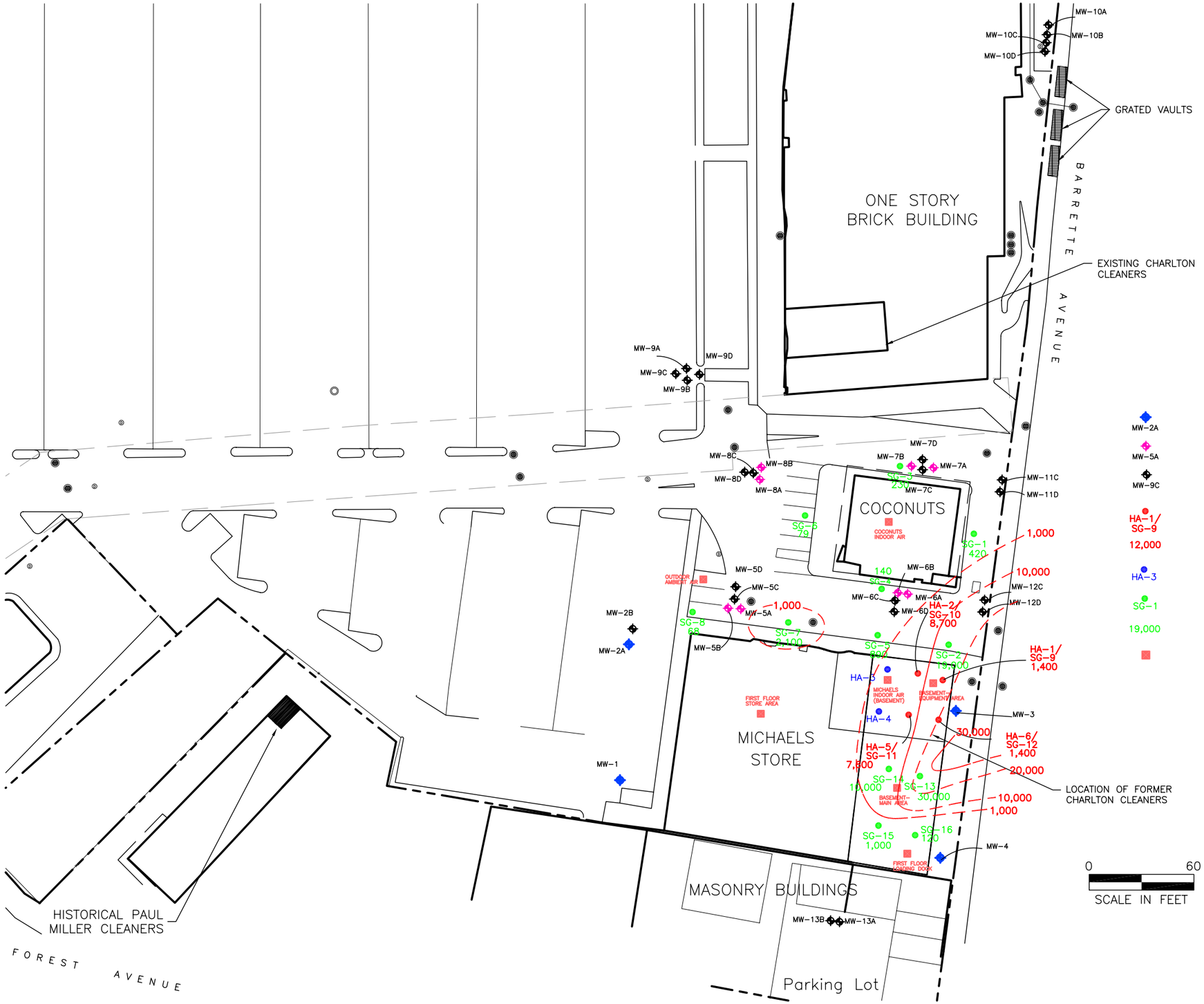
DRAWN:	CP	CHECKED:	SG	DATE:	10/26/05	FIGURE:	13



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
HA-1/ SG-9	COMBINED SOIL, GROUND-WATER AND SOIL GAS SAMPLING LOCATION
12,000	SOIL GAS PCE CONCENTRATION (ug/m3)
HA-3	COMBINED SOIL AND GROUND-WATER SAMPLING LOCATION
SG-1	SOIL GAS SAMPLING LOCATION
19,000	PCE CONCENTRATION (ug/m3)
	INDOOR/AMBIENT AIR QUALITY SAMPLE LOCATION

FORMER CHARLTON CLEANERS FACILITY
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FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND NEW YORK

SOIL GAS PCE
CONCENTRATIONS

DATE	REVISED

PREPARED BY:
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APPENDIX I THROUGH XII
(see attached CD)