Site Investigation Report

West 19th Street Development Site
New York, New York

June 2003

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BLASLAND, BOUCK & LEE, INC.
engineers & scientists

REPORT

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Phase II Site Investigation Report

Introduction

This report presents the results of the second phase of site investigation conducted at the West 19th Street Development Site. The site located in Block 690, Lot 12 between West 18th and West 19th Streets and 10th and 11th Avenues in the Borough of Manhattan, New York City (Figures 1 and 2). The development site is one parcel of numerous parcels that comprise the West 18th Street Gas Works Site, which is currently under a Voluntary Agreement (VCA) between the New York State Department of Environmental Conservation (NYSDEC) and the Consolidated Edison Company of New York, Inc. effective August 25, 2002. The development site is the subject of a VCA between NYSDEC and West 19th Street Development, LLC, effective March 13, 2003. Currently the site is occupied by a three-story brick building that is used as a mid- to long-term truck-parking garage.

Historic fire insurance and city ward maps (Sanborn Fire Insurance maps (Sanborns) from 1895, 1904, 1921, 1950, 1969, 1975, 1979, 1980, 1983, 1985, 1987, 1988, and 1991 through 1997 and City Ward maps from 1885 and 1902) have shown that the site was used as a storage area for the Manhattan Gas Company Works/the Consolidated Gas Company Works (a manufactured gas plant (MGP) referred to in this report at the Manhattan/Consolidated MGP) between 1895 and 1921, followed by use as a wagon yard and auto garage to its present use as a truck parking garage. Three 1,000 gallon underground storage tanks (USTs) associated with the auto garage were noted on the 1969 through 1996 Sanborn maps.

Historically surrounding the site were gas holders associated with the Manhattan/Consolidated, a marble works, a biscuit factory, and various auto/motor freight/truck services to the north; gas holders, a coal yard, and a pipe yard associated with the Consolidated (Manhattan) Gas Company Works, a filling station, a spring water company, a wagon yard, an auto repair shop, and an auto garage to the east; a retort house, a purifying house, and other facilities (e.g. laboratory, condensers, scrubbers) associated with the Manhattan/Consolidated MGP, a doll factory, a packing box factory, an electric power company, and an auto parking lot to the south; and kilns associated with a pottery factory to the west. The Manhattan/ Consolidated gas companies are predecessor companies to the Consolidated Edison Company of New York, Inc.

The first phase of site investigation consisted of a limited field and laboratory investigation. The Phase II site investigation consisted of performing more extensive field and laboratory investigations and evaluating the field and laboratory results. An overview of the preliminary site investigation followed by a detailed description of the Phase II site investigation activities and results are presented in this report.

Preliminary Site Investigation

The preliminary site investigation was performed in October 2002 to assess whether MGP and/or petroleum-related constituents were present in soil and groundwater at concentrations that would require remediation. The preliminary site investigation included a regulatory record review and the collection of eight soil samples and four groundwater samples from eight soil borings at the site (Figure 3). The regulatory record review indicated that five 550-gallon tanks containing unleaded gasoline were closed and removed from the site in January 1992. In addition, two petroleum spill numbers may exist for the site (Block 690, Lot 12).

The eight soil borings ranged in depth from 12 to 20 feet below the concrete floor surface of the parking garage. Subsurface soils observed included urban fill to a depth of approximately 4 feet followed by gravelly sands with

some silt to depths ranging from approximately 8 to 12 feet. Below 12 feet, the silt content of the sands increased, and a clayey silt layer was observed at boring B-6 from 12 to 16 feet in depth. This clayey silt layer was not observed in the other soil borings; however, poor sample recovery limited boring penetration depths. Saturated soils (groundwater) were encountered in the borings at depths between 7 and 8 feet. Non-aqueous phase liquids (NAPLs) were not observed in any of the borings. Odors ranging from slight to strong were observed at all borings at depths ranging between 2 and 12 feet. Elevated PID readings were typically observed in each boring between depths of 6 and 10 feet.

The soil and groundwater samples were analyzed for target compound list (TCL) volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). The VOCs detected in the soil and groundwater are indicative of MGP by-product tar and petroleum. The highest benzene, ethylbenzene, toluene, and xylenes (BTEX) concentrations were detected primarily in the soil and groundwater samples from the borings in the southern central portion of the site (borings B-1, B-3, and B-4). The SVOCs detected in the soil and groundwater (phenolic compounds and polycyclic aromatic hydrocarbons [PAHs]) are indicative of MGP by-product tar. The highest concentrations of PAHs were detected in the same soil and groundwater samples as the highest concentrations of BTEX (borings B-1, B-3, and B-4). In addition, relatively higher concentrations of PAHs were observed at B-2 in the southeastern corner of the site.

One or more BTEX constituent concentrations exceeded the NYSDEC TAGM 4046 guidance values for soil (soil guidance values) at borings B-1, B-3, B-4, and/or B-6. Total VOCs greater than the 10 mg/kg soil guidance values were detected at borings B-1 and B-3. One or more BTEX constituent concentrations exceeded the NYSDEC TOGS 1.1.1 criteria for groundwater (groundwater criteria) in the samples collected at borings B-1, B-3, B-4, and/or B-6. The concentrations of individual PAHs exceeded the soil guidance values for soil in borings B-1, B-2, B-3, B-4, and B-8, while the concentrations of phenolic compounds only exceeded the soil guidance values for soil in boring B-2. Total SVOCs (primarily PAHs) greater than the 500-mg/kg soil guidance value were detected at boring B-2, while total carcinogenic PAHs (cPAHs) greater than the 10 mg/kg proposed soil guidance value were detected at borings B-1, B-2, B-3, and B-4. For groundwater, the concentrations of phenolic compounds exceeded their respective groundwater criteria in the samples collected from borings B-1 and B-3; and the concentrations of individual PAHs exceeded their respective groundwater criteria in the samples collected from borings B-1, B-3, B-4, and B-6.

Additional information regarding the preliminary site investigation is provided in the Preliminary Site Investigation Report (BBL, November 2002).

Based on the preliminary site investigation, soil and ground water impacts by BTEX, PAHs, and/or phenolic compounds would require consideration, management, and remediation prior to or in conjunction with site development.

Phase II Site Investigation Description

The Phase II site investigation was implemented to provide additional information regarding the extent of the soil and groundwater impacts. The primary objectives of this investigation at the West 19th Street Development Site were to:

- Delineate the horizontal and vertical extent of BTEX and PAH impacted soils; and
- Delineate the horizontal extent of BTEX, phenolic compounds, and PAHs in groundwater.

Secondary objectives for the investigation at the site were to:

- Determine the extent of the clayey silt layer;
- Provide additional information to further confirm that NAPLs are not present;
- Assess the presence of other constituents not included in the preliminary investigation (i.e., target analyte list (TAL) metals, and TCL polychlorinated biphenyls (PCBs)/pesticides);
- Evaluate the direction of groundwater flow;
- Evaluate hydrogeologic properties; and
- Collect preliminary soil disposal characterization data.

Twelve test borings (B-9 through B-20) were completed at the site to delineate the horizontal and vertical extent of impacted soils observed during the preliminary site investigation, to delineate the presence of the clayey silt unit, and to confirm initial observations that NAPLs are not present at the site. Three additional test borings (A-1, A-2, and A-3) were completed to assess the extent of deeper contamination observed at boring B-18. Four groundwater-monitoring wells (MW-10, MW-13, MW-14, and MW-19) were installed at boring locations B-10, B-13, B-14, and B-19 to assess impacts to shallow groundwater, to determine the direction of groundwater flow, and to determine hydrogeologic properties of the groundwater flow system beneath the site. The locations of the Phase II soil borings and monitoring wells are shown on Figure 3.

BBL supervised the installation of soil borings B-9 through B-20 from March 4 through March 12, 2003 and on March 17 and 18, 2003. Test borings A-1 through A-3 were completed on March 19, 2003. The soil borings ranged in depth from 12 to 50 feet below the concrete floor surface of the parking garage. Prior to the installation of the soil borings, the drilling subcontractor notified public utilities of the investigation, and Consolidated Edison and the City of New York delineated the underground utilities.

The four groundwater-monitoring wells were installed on March 11 (MW-13), March 13 (MW-14), and March 14, 2003 (MW-10 and MW-19). The monitoring wells were installed to depths of approximately 17 to 18 feet below the floor of the parking garage. Table 1 presents the total depths of each soil boring, soil sampling depth intervals, and monitoring well construction information.

Soil Boring and Monitoring Well Installation

Drilling was completed by Aquifer Drilling and Testing, Inc. (ADT) from New Hyde Park, NY using a hollow-stem auger drilling rig. Soil samples were obtained by using a split spoon steel sampler. Soils generated during drilling were containerized in 55-gallon steel drums for subsequent off-site disposal. Drilling and sampling equipment were cleaned using Alconox and water prior to initiating the boring activities, in between each boring, and at the completion of all boring activities.

As in the preliminary site investigation, material indicative of urban fill (black/brown silty sand with subangular gravel, and some wood and brick debris) was typically encountered from just below the concrete floor slab to depths ranging between 4 and 8 feet. The urban fill appears to extend deeper toward the 19th Street side of the site, where wood debris and ash-like material were encountered as deep as 30 feet. Tan to black, loose, gravelly sands and sandy gravels with some silt were observed from below the fill layer to depths of 8 to 12 feet. These sands and gravels may also represent anthropogenic fill. Saturated soils (groundwater) were encountered in the borings at depths between 6 to 8 feet. Light brown to gray/black sands with varying amounts of silt and gravel are present between the overlying fill described above and a fine-grained unit described below.

Black, organic, clayey silts with some sand and large wood fragments were present in all Phase II borings, except at borings B-18 and A-3. This clayey silt unit was observed at depths ranging from 11 to 17.8 feet on the

18th Street side of the site and at depths ranging from 24 to 27.6 feet on the 19th Street side of the site. The thickness of the clayey silt unit increases from west to east. Figures 4 and 5 respectively show the depth to the top of the clayey silt unit and the thickness of the clayey silt unit. The upper several feet of the clayey silt unit contained low moisture contents that gradually increased with depth. In the four of the five deeper borings (B-10, B-13, B-14, and B-16, but not B-19), the clayey silt unit was fully penetrated and silty sands and sandy gravels were encountered below the clayey silt.

Odors ranging from slight to strong were observed at most borings. Odors ranged between 5 to 11 feet and 16 to 28 feet in depth with a break in the observed odors typically between 11 to 16 feet in depth. Photoionization detector (PID) readings were similar to the odor patterns observed. Relatively elevated PID readings (>50 ppm PID units) were observed up to depths of approximately 13.5 feet, followed by a break in the PID readings. Relatively elevated PID readings were also observed deeper starting at depths of 15 to 21 feet. Possible NAPLs were observed in borings B-10 (6 to10 feet), B-18 (23.5 to 26 feet), B-19 (26 feet), A-1 (23 feet), A-2 (22 to 24 feet), and A-3 (26 feet). Boring logs are provided in Appendix A.

Ash-like material (ALM) and NAPLs were observed in boring B-18 at a depth of 23 to 24 feet. To further evaluate this ALM and NAPLs, three additional borings (A-1 through A-3) were drilled around the B-18 area at distances between 20 and 30 feet from the B-18 location (Figure 3). Borings A-1 through A-3 were continuously sampled starting at a depth of 20 feet. Boring A-1 extended to 27 feet, A-2 to 26 feet, and A-3 to 31 feet. ALM and NAPL were observed in boring A-1 at a depth between 23 and 24 feet, in boring A-2 between 22 and 24 feet, and in boring A-3 between 25.5 and 27.5 feet. The ALM and NAPL were observed near the surface of the clayey silt unit at borings A-1 and A-2. The clayey silt unit was not encountered at borings A-3 and B-18.

Where the soil borings penetrated the clayey silt unit, the boring was backfilled with neat cement grout to above the top of the clayey silt surface or to the underside of the concrete surface slab. The concrete slab was repaired with redi-mix concrete. Soil borings that were not filled to the surface with neat cement grout were backfilled with soil cuttings from that interval of that boring.

Groundwater monitoring wells were installed in independent borings next to soil borings B-10, B-13, B-14, and B-19. Therefore, these monitoring wells were designated MW-10, MW-13, MW-14, and MW-19. The wells were installed as water table wells with the upper part of the screened interval above the field observed groundwater surface. The wells were constructed of 2-inch diameter, schedule 40 PVC. Each well has a one-foot sump at the bottom, 10 feet of 0.10 slotted casing, and a riser casing to the surface. A #1 sand filter pack was used around the slotted casing. The wells were completed with flush mounted well boxes.

The wells were developed after installation by pumping at a rate of approximately one gallon per minute (gpm) for 30 minutes. Soil cuttings and well development water generated during well installation activities were containerized in 55-gallon steel drums for subsequent off-site disposal.

Soil Sampling

Continuous soil samples were collected from borings B-9 through B-20 for observation of soil types, presence of visible wastes (e.g. NAPLs, staining) and for field screening with a PID for the presence of volatile organic vapors. Fifty-two soil samples were collected, from intervals above the water table; from intervals with elevated PID readings, odors, NAPLs, and/or staining; and from intervals above and within the clayey silt layer. Soil samples were identified, handled, packaged, and shipped to the analytical laboratory using the chain-of custody procedures.

All soil samples were analyzed by Accutest Laboratories of Dayton, NJ (NYS Certification #10983) for TCL VOCs by United States Environmental Protection Agency (USEPA) Method 8260 and TCL SVOCs by USEPA Method 8270. The uppermost soil samples collected from soil borings B-9 through B-20 were also analyzed by Accutest for PCBs and pesticides by USEPA Method 8080, and TAL metals by USEPA Method Series 6000/7000/9000.

The laboratory procedures were performed in accordance with NYSDEC Analytical Services Protocol (ASP) methods, quality assurance/quality control (QA/QC) requirements, and Category B reporting deliverables. Laboratory data validation was performed using the NYSDEC data usability review format. Data Usability Summary Reports (DUSRs) are presented in Appendix B. The complete analytical data packages are not provided in this report and are available upon request.

Groundwater Sampling

Groundwater samples were collected from the four monitoring wells (MW-10, MW-13, MW-14, and MW-19) on March 18, 2003. Prior to sampling the wells, water levels were gauged and the wells were checked for the presence of dense and/or light NAPL. Dense and/or light NAPLs were not observed in any of the groundwater monitoring wells.

Each of the wells was purged of 1 to 2 well volumes (one well volume equals approximately 1.7 gallons) using a peristaltic pump. The purge rates ranged from 125 milliliters per minute (mL/min) to 150 mL/min. The purge water was containerized in a 55-gallon drum for subsequent off-site disposal. The wells did not go dry during purging, and groundwater drawdown in each well did not exceed 6 inches.

During purging, field parameters were monitored. Water levels were periodically measured and groundwater was analyzed in the field for temperature, pH, specific conductivity, turbidity, dissolved oxygen (DO), oxygen reduction potential (ORP), and color. A summary of groundwater sampling field data is presented in Table 2. Groundwater sampling logs are presented in Appendix C.

Groundwater samples were identified, handled, packaged, and shipped to the analytical laboratory using the chain-of custody procedures. Accutest analyzed the groundwater samples for TCL VOCs and TCL SVOCs using USEPA Methods 8260 and 8270, respectively. The laboratory procedures were performed in accordance with NYSDEC ASP methods, QA/QC requirements, and Category B reporting deliverables. Laboratory data validation was performed using the NYSDEC data usability review format. DUSRs are presented in Appendix D. The complete analytical data packages are not provided in this report and are available upon request.

Hydraulic Conductivity Testing

In-situ hydraulic conductivity testing was performed at each well using the slug method of water displacement. These tests consist of creating an "instantaneous" water level change in the well and monitoring the recovery of the water level to static. The water level was changed by introducing a "slug", or solid cylinder, below the water level to displace a known volume of water. Two types of hydraulic conductivity testing can be performed on a monitoring well: a falling head test (or "slug in") and a rising head test (or "slug out"). The falling head test is not appropriate for water table wells, so the rising head test was performed at each monitoring well.

The field data from the "slug" tests were evaluated using both the Hvorslev and Bouwer Rice methods for unconfmed aquifers to estimate the hydraulic conductivity in the vicinity of the wells. Estimated hydraulic conductivity ranged from 8.49×10^{-5} centimeters per second (cm/sec) to 6.41×10^{-4} cm/sec. These values are typical of well-graded silty sands with gravel, a soil type similar to that observed beneath the site during the

investigation (see boring logs for wells in Appendix A). The data plots for the "slug" test evaluations are presented in Appendix E.

Prior to the tests, when the wells were monitored for the presence of dense or light NAPL, each monitoring well was found to contain a tar-like dense NAPL. The tar-like material thinly coated the interface probe sporadically; therefore, an accurate depth to or thickness of the tar-like material could not be recorded. Because of these observations, the wells were monitored for the presence of NAPLs again on May 23, 2003. A tar-like dense NAPL (DNAPL), measuring 0.44 feet in thickness, was observed only at MW-10.

Phase II Site Investigation Results

The analytical results from soil and groundwater samples collected during the Phase II site investigation (Tables 3 through 5) were evaluated with respect to the types of potential source materials (i.e. MGP and petroleum) and compared to existing New York State criteria and guidelines. Impacted soils were detected from the near surface to a depth of approximately 31 feet. Plots of BTEX, phenols/PAH, and metal soil analytical data by depth intervals are presented on Figures 6 through 16. Groundwater contamination appears to extend across the entire site. In addition, a tar-like NAPL appears to extend across the site based on well observations during the in-situ hydraulic conductivity testing. However, measurable NAPL was only observed at well MW-10 during additional monitoring that occurred after the conductivity testing. Plots of BTEX and phenols/PAH groundwater analytical data are presented on Figures 17 and 18.

Soil

In shallow soils above 14 feet, BTEX concentrations above TAGM soil guidance values (10 mg/kg total VOCs) were detected primarily in the soil samples collected from depths of 6.5 to 8 feet in the southern portion of the site at borings B-10 and B-12 and between depths of 11.5 to 12 feet at boring B-11 (Figures 6 and 9). At intermediate depths of 16 to 17 feet, concentrations of total BTEX above soil guidance values were detected at borings B-14 and B-16 in the central part of the site (Figure 11). At deeper intermediate depths of up to 22 feet, concentrations of total BTEX above soil guidance values were detected at B-15 in the central part of the site and at B-20 in the northeast corner of the site (Figure 13). In the northern part of the site, BTEX concentrations above soil guidance values were detected at deeper depths between 23.5 and 28 feet at borings B-16, B-18, B-20, and A-1 through A-3 (Figure 13). Individual benzene concentrations were above the soil guidance value of 0.08 mg/kg in all samples where benzene was detected. Benzene concentrations in soil greater than 10 mg/kg were detected in at least one sample from borings B-10, B-12, B-14 through B-16, B-18, B-20, A-1, and A-3 (Table 3). The highest benzene and total BTEX concentrations, 725 mg/kg and 3,781 mg/kg, respectively, were detected at boring B-20 (northeast corner of site) in the sample collected from 26.5 to 27 feet (Figure 13). Samples collected beneath the clayey silt unit at depths between 49 and 50 feet did not contain BTEX (Figure 15).

In shallow soils above 14 feet, total PAH concentrations above the soil guidance values (500 mg/kg total SVOCs) were detected primarily in the soil samples collected from depths of 4 to 8 feet and 11 to 12 feet in the southern portion of the site at borings B-9, B-10, B-11, B-12, and B-14. In addition, total cPAH concentrations in shallow soils were detected above soil guidance values (10 mg/kg) at all site borings except B-17 and B-20 in the samples collected between 4.5 and 14 feet. Similar to BTEX concentration patterns at intermediate depths of 16 to 17 feet, concentrations of total PAHs above soil guidance values were detected at borings B-14 and B-16 in the central part of the site. At deeper intermediate depths of up to 22 feet, concentrations of total PAHs above soil guidance values were detected at B-15 in the central part of the site and at B-20 in the northeast corner of the site (Figure 14).In the northern part of the site, total PAH concentrations above soil guidance values were detected at deeper depths between 23.5 and 28 feet at borings B-16, B-18, B-20, A-1 , and A-3.

Total cPAHs were detected above proposed soil guidance values at the same locations where total PAHs were detected above soil guidance values and at B-13. The highest total PAH and total cPAH concentrations, 7,065 mg/kg and 772 mg/kg, respectively, were detected at Boring B-20 (northeast corner of site) in the sample collected from 26.5 to 27 feet. Samples collected beneath the clayey silt unit at depths between 49 and 50 feet did not contain PAHs (borings B-13, B-14, and B-19 or contained minimal concentrations (less than 10 ppm total PAHs and less than 1 mg/kg total cPAHs (boring B-16)). One or more individual PAHs were detected at concentrations above soil guidance values in most samples except the deep samples obtained from 49 to 50 feet at B-13, B-14, and B-19; the three uppermost samples collected from B-17; the sample collected from 17 to 17.5 feet at boring B-18; the samples collected from 29.5 to 30 feet at boring B-19; and the two uppermost samples collected from boring B-20.

Phenolic compounds were detected in at least one sample from all site borings except at borings B-18 and B-20. When detected, individual phenolic compound concentrations were greater than their respective soil guidance values. Relatively higher total phenolic compound concentrations (> 1 mg/kg) were detected at borings B-10, B-14, B-16, B-20, A-1, and A-3. The highest total phenolic compound concentration, 190.7 mg/kg, was detected at boring B-20 (northeast corner of site) in the sample collected from 26.5 to 27 feet (Figure 14).

The types and patterns of the BTEX, PAHs, and phenolic compounds detected in the soil indicate the presence of primarily MGP by-product tars, which are mixed at some locations with petroleum products that appear to be in the light to mid-distillate ranges. As in the preliminary investigation, the highest concentrations of PAHs were typically detected in the same soil samples as the highest concentrations of BTEX. This relationship of BTEX and PAH concentrations appears to be consistent whether the sample interval depth is shallow, intermediate, or deep. Furthermore, the highest BTEX and PAH sample concentrations (i.e. the concentrations that exceed soil guidance values for both total BTEX and total PAHs) appear to result from MGP by-product tars.

Shallow soils samples between 4 and 6 feet in depth (a total of 12) were also analyzed for PCBs, pesticides, and TAL metals. PCB Aroclors 1016 through 1260 were not detected. Trace concentrations of the pesticides dieldrin, endrin, and 4, 4'- DDT were detected in five samples from five separate borings (Table 5). These pesticide detections were well below their respective soil guidance values. The TAL metals, arsenic, beryllium, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium, and zinc, exceeded their respective soil guidance values.

Groundwater

During groundwater sampling on March 18, 2003, water depths ranged from 5.58 feet to 7.10 feet, and the water levels ranged from 0.92 feet to 2.63 feet above mean sea level (MSL) (Table 2). Groundwater elevation contours and the groundwater flow direction for March 18, 2003 are shown on Figure 17. For this date, the hydraulic gradient beneath the site ranged between 0.009 and 0.017 feet per foot (ft/ft). Groundwater appears to be flowing from the southwest to the northeast. Similar groundwater gradients and flow patterns were observed for the water levels obtained during the slug tests on April 23, 2003 as shown on Figure 18. It is not known if tide changes in the Hudson River influence groundwater levels and flow beneath the site.

BTEX concentrations exceeded the ambient groundwater criteria for all four constituents in the groundwater samples collected from all four monitoring wells. Benzene and total BTEX concentrations were greatest in the sample collected from well MW-10 and the least in sample collected from well MW-14. Benzene concentrations ranged from 7.2 micrograms per liter (µg/L) [sample collected from well MW-14] to 5,830 µg/L [sample from well MW-10] (Table 6 and Figure 19).

Concentrations of phenolic compounds exceeded the groundwater criteria in the groundwater samples collected from three of the four monitoring wells. Phenol, 2-methylphenol, 3,4-methylphenol, and 2,4-dimethylphenol

concentrations were greatest in the sample collected from well MW-10 and the least in sample collected from well MW-14, which contained only trace concentrations of the methylphenols and 2,4-dimethylphenol. 2,4-Dimethylphenol concentrations ranged from 3.6 µg/L [MW-14] to 2,410 µg/L [MW-10] (Table 7 and Figure 20).

Naphthalene and methylnaphthalene concentrations exceeded the groundwater criteria in four and three groundwater samples, respectively. Naphthalene and methylnaphthalene concentrations were greatest in the sample collected from well MW-13 and the least in sample collected from well MW-14. Naphthalene concentrations ranged from 25.1 µg/L [MW-14] to 2,710 µg/L [MW-13] and methylnaphthalene concentrations ranged from 4.2 µg/L [MW-14] to 395 µg/L [MW-13]. Naphthalene and methylnaphthalene concentrations in the groundwater sample collected from well MW-10 were similar to the concentrations detected at well MW-13 (Table 7 and Figure 20).

Concentrations of the less soluble PAHs were also detected at MW-10, MW-13, MW-14, and MW-19. Acenaphthene, acenaphthylene, fluorene, phenanthrene, benzo (a) anthracene, chrysene, benzo (b) fluoranthene, benzo (k) fluoranthene, and/or benzene (a) pyrene exceeded the groundwater criteria at wells MW-10, MW-13, and/or MW-19 (TOGS 1.1.1) (Table 7 and Figure 20). Carbazole and dibenzofuran were also detected at concentrations that exceeded their respective groundwater criteria in the samples collected from wells MW-10, MW-13, and MW-19. When detected, the cPAHs exceeded their respective groundwater criteria, with the highest total concentration (9.8µg/L total cPAHs) detected in the sample from MW-13. Two cPAHs (2.6 µg/L) were also detected in the sample collected from well MW-19.

Field parameters measured during well purging indicate that groundwater beneath the site has low natural conductivity and relatively neutral pH, very low dissolved oxygen, and has anaerobic (or reducing) conditions. Anaerobic conditions are interpreted from the negative ORP values recorded for groundwater beneath the site. Aerobic conditions are usually indicated by ORP values of +700 or greater. The highest ORP value observed at the site was +196 recorded at well MW-14.

Baseline Exposure Assessment

This baseline exposure assessment is based upon data collected during the preliminary and Phase II site investigation, including soil and groundwater analytical data, the site environmental setting, and present and foreseeable land uses. This qualitative exposure evaluation describes the potential for adverse human health effects associate with potential exposure to the site-related constituents of concern (COCs).

Environmental Setting

The site is located in the Manhattan Borough of the City of New York. The site vicinity is a mix of urban commercial, residential, and light industrial properties. The site is bounded to the south by 18th Street, to the west by 10th Avenue and the Miller Highway (Westside Highway), to the north by 19th Street, and to the east by commercial enterprises along 19th Street and another truck parking garage along 18th Street. Chelsea Piers entertainment center is located across the Miller Highway and the Hudson River is approximately 200 feet to the west. The site itself consists of a two-story brick structure that serves as a mid- to long-term truck parking garage and a small vacant lot in the southwestern part of the property. The vacant lot is fenced.

The site geology consists of urban fill material, silty sands with some gravel, and clayey silt with varying amounts of organic content. Groundwater at the site is encountered at depth between 6 and 8 feet. The shallow groundwater flow direction appears to be toward the northeast.

Constituents of Concern

The available analytical data indicate that the primary COCs in soil at the site are the BTEX compounds, non-carcinogenic and carcinogenic PAHs, and phenolic compounds. Secondary COCs consist of the metals – arsenic, beryllium, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium, and zinc. The primary COCs in groundwater are the BTEX compounds, PAHs, phenolic compounds, carbazole, and dibenzofuran.

The areas of soil and groundwater affected by the COCs have been defined by the site investigation work. Soil contamination from the primary COCs extends from the near surface to a depth of approximately 28 feet. Groundwater contamination appears to be site-wide, although the greatest groundwater impacts are found in the eastern two-thirds of the property. Site investigation soil and groundwater sampling shows that the maximum concentrations of COCs are as follows:

Maximum COC Concentrations

Primary COC	Soil	Groundwater
Benzene	725 mg/kg	5,830 µg/L
Total BTEX	3,781 mg/kg	16,225 µg/L
Naphthalene	2,120 mg/kg	2,710 µg/L
Total PAHs	7,065 mg/kg	3,701 ug/L
Total cPAHs	771.8 mg/kg	9.8 µg/L
Total Phenolics	190.7 mg/kg	3,395 µg/L

Phase II site investigation soil sampling results are provided in Tables 3 through 5 and are depicted on Figures 6 through 16 with the soil sampling locations. Phase II site investigation groundwater sampling results are provided in Tables 6 and 7 and are depicted on Figures 19 and 20 with the monitoring well locations.

Potential Exposure Points, Receptors, and Pathways

The initial step in evaluating potential human exposure is the identification of complete exposure pathways. For an exposure pathway to be complete, the following three elements must exist: 1) the presence of COCs in environmental media; 2) locations where human exposure to these media could occur; and 3) routes of exposure where constituents from these media could be taken up by the human body.

As previously described, BTEX, phenolic compounds, carcinogenic and non-carcinogenic PAHs, and a few TAL metals have been detected in soils and groundwater at the site. Soil contamination by VOCs and SVOCs was detected site wide from the near surface to a depth of approximately 28 feet in the northern part of the site. Soil contamination by metals is believed to be limited to shallow soils and fill material. Groundwater contamination by VOCs and SVOCs is site wide.

There are no municipal or private wells within one mile of the site. Public water is supplied by the City of New York. The potable supply is not obtained locally, but comes from surface water reservoirs in Westchester, Putnam, Ulster, Delaware, and Schoharie counties. The Hudson River is not a source of potable water for the City of New York. Therefore, there are no complete pathways for drinking water.

The site is presently used as a mid- to long-term truck-parking garage. Foreseeable use includes the demolition of the existing structure and the construction of a new commercial building. Local residents and parking garage workers/users are not considered likely receptors, because a building, which has a six-inch thick concrete floor

slab, covers the site. The most likely present and future human receptors for the site are subsurface workers, who may be exposed to impacted soil and/or groundwater as a result of remediation or construction activities. Future commercial building users would not be considered likely receptors provided appropriate engineering controls are in place.

Based on the information discussed above, there may be potential complete exposure pathways for subsurface workers. Future subsurface work for remedial purposes (e.g. installation of soil borings and monitoring wells, excavation of impacted soils) and construction activities (e.g. excavations for foundations, utilities, elevator shafts, piles) may cause potential exposure to COCs in soil and groundwater. The level of exposure to COCs in is dependant upon which specific areas of the site are disturbed by subsurface work, the depth of disturbance, and the length of time spent conducting these activities. Possible receptors would include subsurface remediation and construction workers. Potential worker exposures to soil and ground water would be mitigated through the required OSHA training and appropriate health and safety procedures and protocols.

Tables

WEST 19TH STREET DEVELOPMENT LLC
NEW YORK, NEW YORK

TABLE 1

SOIL BORING AND MONITORING WELL FIELD DATA
WEST 19TH STREET DEVELOPMENT SITE (MANHATTAN)
NEW YORK, NEW YORK

BORING NO.	B-9	B-10	B-11	B-12	B-13	B-14	B-15	B-16	B-17	B-18	B-19	B-20	A-1	A-2	A-3
Total Depth (Feet Below Ground Surface)	12	50	12	15	50	50	24	50	26	25	50	27	24	24	28
Sample Interval (ft.)															
4.0-4.5						X									
4.5-5.0								X			X				
5.0-5.5	X						X								
5.5-6.0			X	X	X				X			X			
6.0-6.5										X		X			
6.5-7.0		X				X		X	X						
7.0-7.5		X													
7.5-8.0				X							X				
8.0-8.5					X					X					
8.5-9.0															
9.0-9.5															
9.5-10.0			X												
10.0-10.5							X								
10.5-11.0				X											
11.0-11.5	X														
11.5-12.0			X												
12.0-12.5															
12.5-13.0															
13.0-13.5															
13.5-14.0				X											
14.0-14.5															
14.5-15.0															
15.0-15.5															
15.5-16.0															
16.0-16.5						X					X				
16.5-17.0								X							
17.0-17.5		X							X	X					
17.5-18.0															
18.0-18.5															
18.5-19.0															
19.0-19.5															
19.5-20.0															
20.0-20.5					X										
20.5-21.0															
21.0-21.5															
21.5-22.0												X			
22.0-22.5							X								
22.5-23.0															
23.0-23.5															
23.5-24.0		X					X						X	X	
24.0-24.5															
24.5-25.0										X					
25.0-25.5															
25.5-26.0									X						
26.0-26.5								X							
26.5-27.0												X			
27.0-27.5					X										
27.5-28.0															X
28.0-28.5															
28.5-29.0															
29.0-29.5															
29.5-30.0											X				
30.0-30.5															
30.5-31.0						X									
49.5-50.0		X				X		X			X				

Monitoring Well No.	MW-10	MW-13	MW-14	MW-19
Total Depth	17.0	18.0	17.0	18.0
Screened Interval	6-16	7-17	6-16	7-17
Top of Casing Elev.	7.94	8.57	8.02	8.36
Depth to Water	5.94	7.10	5.58	7.08

WEST 19TH STREET DEVELOPMENT LLC
NEW YORK, NEW YORK

TABLE 2

GROUNDWATER SAMPLING FIELD DATA - MARCH 18, 20032
WEST 19TH STREET DEVELOPMENT SITE (MANHATTAN)
NEW YORK, NEW YORK

Well ID	TOC Elevation	Oxygen Reduction Potential	Dissolved Oxygen	pH	Temperature	Depth to Product (ft-TOC)	Depth to Water (ft-TOC)	Product Thickness	Groundwater Elevation
MW-10	8.57	-94	0.98	6.97	54.8	-	5.94	-	2.63
MW-13	8.02	-156	0.41	6.95	59.4	-	7.10	-	0.92
MW-14	7.94	197	2.94	5.31	50.9	-	5.58	-	2.36
MW-19	8.36	-131	0.41	9.14	50.5	-	7.08	-	1.28

NOTE:
TOC - Top of casing

WEST 19TH STREET DEVELOPMENT LLC
NEW YORK, NEW YORK

TABLE 3

SOIL ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
WEST 19TH STREET DEVELOPMENT SITE (MANHATTAN)
NEW YORK, NEW YORK

Sample I.D.		B-9	B-9	B-10	B-10	B-10	B-10	B-10	B-11	B-11	B-11	B-12	B-12	B-12	B-12
Laboratory I.D.	SoilQC	5.0-5.5	11-11.5	6.5-7.0	7.0-7.5	17.0-17.5	23.5-24.0	49.0-50.0	5.5-6.0	9.5-10.0	11.5-12.0	5.5-6.0	7.5-8.0	10.5-11.0	13.5-14.0
Date Collected		3/4/2003	3/4/2003	3/7/2003	3/7/2003	3/7/2003	3/7/2003	3/7/2003	3/4/2003	3/4/2003	3/4/2003	3/17/2003	3/17/2003	3/17/2003	3/17/2003
Benzene	0.08	**0.098**	**1.95**	**13.0**	**3.83**	**0.214**			**0.187**	**0.479**	4.49	**0.54**	**16.9**	**0.182**	**0.224**
Ethylbenzene	5.5	0.36	0.326	**13.8**	4.68	0.111			0.194	0.363	4.56	1.00	**122**		0.179
Toluene	2	1.00	0.158	**47.5**	**13.4**				0.94	1.08	0.77		**31.7**	0.113	
Xylenes (Total)	1	**2.84**	0.491	**74.7**	**25.7**	0.349	0.363		**1.47**	**2.04**	**5.33**	1.04	**317**	0.229	0.420
Styrene	NA														
Chloromethane	NA														
Vinyl Chloride	0.2														
Chloroethane	1.9														
Methylene Chloride	0.1														
Acetone	0.2														
2-Butanone (MEK)	0.3														
Carbon Disulfide	2.7		1.51				0.204								0.523
Trichlorofluoromethane	NA														
1,1-Dichloroethene	0.4														
1,1-Dichloroethane	0.2														
trans-1,2-Dichloroethene	0.3														
cis-1,2-Dichloroethene	0.3														
Chloroform	0.3														
1,2-Dichloroethane	0.1														
1,1,1-Trichloroethane	0.8														
CarbonTetrachloride	0.6														
Trichloroethene	0.7														
1,1,2-Trichloroethane	NA														
Tetrachloroethene	1.4														
1,1,2,2-Tetrachloroethane	0.6														
Chlorobenzene	1.7														
Total BTEX		4.29	4.44	149	47.6	0.674	0.567	0	2.79	3.96	15.2	2.58	488	0.524	0.599

Notes:
All results are given in milligrams per kilogram (mg/kg),
bold indicates an exceedance of NYSDEC Soil Quality Criteria Appendix A, Table 1: TAGM #4046

WEST 19TH STREET DEVELOPMENT LLC
NEW YORK, NEW YORK

TABLE 3

SOIL ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
WEST 19TH STREET DEVELOPMENT SITE (MANHATTAN)
NEW YORK, NEW YORK

Sample I.D.		B-13	B-13	B-13	B-13	B-13	B-14	B-14	B-14	B-14	B-14	B-15	B-15	B-15	B-15
Laboratory I.D.	SoilQC	5.5-6.0	8.0-8.5	20.0-20.5	27.0-27.5	49.5-50.0	4.0-4.5	6.5-7.0	16.0-16.5	30.5-31.0	49.5-50.0	5.0-5.5	10.0-10.5	22.0-22.5	23.5-24.0
Date Collected		3/10/2003	3/10/2003	3/11/2003	3/11/2003	3/11/2003	3/12/2003	3/12/2003	3/12/2003	3/12/2003	3/12/2003	3/6/2003	3/6/2003	3/6/2003	3/7/2003
Benzene	0.08			**0.791**	**5.40**			**0.693**	**205**	**1.25**		**0.522**	**0.396**	**12.5**	**0.298**
Ethylbenzene	5.5			0.306	2.54		0.132	1.30	**306**	1.00		0.609	0.133	**19.5**	0.945
Toluene	2			**1.75**	0.140		0.123	0.577	**544**	**3.21**		0.730	0.233	19.4	
Xylenes (Total)	1			**2.51**	**5.58**		0.391	**1.29**	**823**	**4.53**		**1.51**	0.352	63.4	**1.70**
Styrene	NA														
Chloromethane	NA														
Vinyl Chloride	0.2														
Chloroethane	1.9														
Methylene Chloride	0.1														
Acetone	0.2														
2-Butanone (MEK)	0.3														
Carbon Disulfide	2.7														0.258
Trichlorofluoromethane	NA														
1,1-Dichloroethene	0.4														
1,1-Dichloroethane	0.2														
trans-1,2-Dichloroethene	0.3														
cis-1,2-Dichloroethene	0.3														
Chloroform	0.3														
1,2-Dichloroethane	0.1														
1,1,1-Trichloroethane	0.8														
CarbonTetrachloride	0.6														
Trichloroethene	0.7														
1,1,2-Trichloroethane	NA														
Tetrachloroethene	1.4														
1,1,2,2-Tetrachloroethane	0.6														
Chlorobenzene	1.7														
Total BTEX				5.36	13.7		0.646	3.86	1,878	10.0		3.37	1.11	115	3.20

Notes:
All results are given in milligrams per kilogram (mg/kg),
bold indicates an exceedance of NYSDEC Soil Quality Criteria Appendix A, Table 1: TAGM #4046

WEST 19TH STREET DEVELOPMENT LLC
NEW YORK, NEW YORK

TABLE 3

SOIL ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
WEST 19TH STREET DEVELOPMENT SITE (MANHATTAN)
NEW YORK, NEW YORK

Sample I.D.		B-16	B-16	B-16	B-16	B-16	B-17	B-17	B-17	B-17	B-18	B-18	B-18	B-18
Laboratory I.D.	SoilQC	4.5-5.0	6.5-7.0	16.5-17.0	26.0-26.5	49.5-50.0	5.5-6.0	6.5-7.0	17.0-17.5	25.5-26.0	6.0-6.5	8.0-8.5	17.0-17.5	24.5-25.0
Date Collected		3/17/2003	3/17/2003	3/17/2003	3/17/2003	3/17/2003	3/5/2003	3/5/2003	3/5/2003	3/5/2003	3/5/2003	3/5/2003	3/5/2003	3/5/2003
Benzene	0.08			**4.66**	**26.1**					**0.214**	**0.132**	**0.491**		**19.3**
Ethylbenzene	5.5			**37.2**	**88.4**					0.760		0.371		**43.8**
Toluene	2			**3.91**	**69.7**					0.160	0.162	0.507		**16.7**
Xylenes (Total)	1			**81.9**	**223**					**2.77**	0.270	0.952		**140**
Styrene	NA													
Chloromethane	NA													
Vinyl Chloride	0.2													
Chloroethane	1.9													
Methylene Chloride	0.1													
Acetone	0.2													
2-Butanone (MEK)	0.3													
Carbon Disulfide	2.7									214				
Trichlorofluoromethane	NA													
1,1-Dichloroethene	0.4													
1,1-Dichloroethane	0.2													
trans-1,2-Dichloroethene	0.3													
cis-1,2-Dichloroethene	0.3													
Chloroform	0.3													
1,2-Dichloroethane	0.1													
1,1,1-Trichloroethane	0.8													
CarbonTetrachloride	0.6													
Trichloroethene	0.7													
1,1,2-Trichloroethane	NA													
Tetrachloroethene	1.4													
1,1,2,2-Tetrachloroethane	0.6													
Chlorobenzene	1.7													
Total BTEX		0	0	128	407	0	0	0	0	4.12	0.564	2.32	0	220

Notes:
All results are given in milligrams per kilogram (mg/kg),
bold indicates an exceedance of NYSDEC Soil Quality Criteria Appendix A, Table 1: TAGM #4046

WEST 19TH STREET DEVELOPMENT LLC
NEW YORK, NEW YORK

TABLE 3

SOIL ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
WEST 19TH STREET DEVELOPMENT SITE (MANHATTAN)
NEW YORK, NEW YORK

Sample I.D.		B-19	B-19	B-19	B-19	B-19	B-20	B-20	B-20	B-20	A-1	A-2	A-3
Laboratory I.D.	SoilQC	4.5-5.0	7.5-8.0	16.0-16.5	29.5-30.0	49.5-50.0	5.5-6.0	6.0-6.5	21.5-22.0	26.5-27.0	23.5-24.0	23.5-24.0	27.5-28.0
Date Collected		3/18/2003	3/18/2003	3/18/2003	3/18/2003	3/18/2003	3/6/2003	3/6/2003	3/6/2003	3/6/2003	3/19/2003	3/19/2003	3/19/2003
Benzene	0.08	**0.155**		**0.277**			**0.094**		**45.3**	**725**	**61.8**	**9.8**	**89.5**
Ethylbenzene	5.5	0.251		0.155			0.231	0.618	**136**	**206**	**142**	**20.6**	**194**
Toluene	2	0.355							**85.0**	**1,450**	**206**	**1.63**	**328**
Xylenes (Total)	1	**1.80**		0.111	0.249				**355**	**1,400**	**382**	**12.1**	**470**
Styrene	NA												
Chloromethane	NA												
Vinyl Chloride	0.2												
Chloroethane	1.9												
Methylene Chloride	0.1												
Acetone	0.2												
2-Butanone (MEK)	0.3												
Carbon Disulfide	2.7												
Trichlorofluoromethane	NA												
1,1-Dichloroethene	0.4												
1,1-Dichloroethane	0.2												
trans-1,2-Dichloroethene	0.3												
cis-1,2-Dichloroethene	0.3												
Chloroform	0.3												
1,2-Dichloroethane	0.1												
1,1,1-Trichloroethane	0.8												
CarbonTetrachloride	0.6												
Trichloroethene	0.7												
1,1,2-Trichloroethane	NA												
Tetrachloroethene	1.4												
1,1,2,2-Tetrachloroethane	0.6												
Chlorobenzene	1.7												
Total BTEX		2.56	0	0.543	0.249	0	0.325	0.618	621	3,781	792	33	1,082

Notes:
All results are given in milligrams per kilogram (mg/kg),
bold indicates an exceedance of NYSDEC Soil Quality Criteria Appendix A, Table 1: TAGM #4046

WEST 19TH STREET DEVELOPMENT LLC
NEW YORK, NEW YORK

TABLE 4

SOIL ANALYTICAL RESULTS - SEMI VOLATILE-ORGANIC COMPOUNDS
WEST 19TH STREET DEVELOPMENT SITE (MANHATTAN)
NEW YORK, NEW YORK

Sample I.D.		B-9	B-9	B-10	B-10	B-10	B-10	B-10	B-11	B-11	B-11	B-12	B-12	B-12	B-12
Laboratory I.D.	SoilQC	5.0-5.5	11-11.5	6.5-7.0	7.0-7.5	17.0-17.5	23.5-24.0	49.0-50.0	5.5-6.0	9.5-10.0	11.5-12.0	5.5-6.0	7.5-8.0	10.5-11.0	13.5-14.0
Date Collected		3/4/2003	3/4/2003	3/7/2003	3/7/2003	3/7/2003	3/7/2003	3/7/2003	3/4/2003	3/4/2003	3/4/2003	3/17/2003	3/17/2003	3/17/2003	3/17/2003
Phenol	0.03			**0.571**											**0.102**
2-Methylphenol	0.03		**0.069**	**0.636**											**0.038**
3/4-Methylphenol	0.03		**0.203**	**1.26**	**0.637**						**0.241**				**0.162**
2,4-Dimethylphenol	0.03	**0.061**	**0.101**	**4.44**	**3.24**				**0.041**		**0.315**				**0.063**
Pentachlorophenol	1														
1,3-Dichlorobenzene	1.6														
1,4-Dichlorobenzene	8.5														
1,2-Dichlorobenzene	7.9														
Isophorone	4.4														
1,2,4-Trichlorobenzene	3.4														
Total Phenols		0.061	0.373	6.91	3.88	0	0	0	0.041	0	0.556	0	0	0	0.365
Naphthalene	13	0.531	**17.3**	**193**	100	1.35	0.522	0.254	0.986	0.675	**54.6**	**41.5**	**118**	0.429	**13.3**
2-Methylnaphthalene	36.4	0.416	4.46	**85.1**	72.7	0.667	0.258	0.168	1.05	0.819	**8.82**	**41.9**	33.4	0.222	8.60
Acenaphthylene	41	0.196	15.5	32.6	36.3	0.071	0.000	0.076	0.592	0.261	3.98	4.14	**55.5**	0.173	4.29
Acenaphthene	50	0.094	5.61	8.28	8.92	0.422	0.080	0.047	1.37	0.468	27.5	25.1	40.9	0.449	3.08
Diethylphthalate	7.1														
Fluorene	50	0.153	41.6	46.8	42.2	0.382	0.198	0.185	1.20	0.636	34.2	36.1	**114**	0.744	13.6
Hexachlorobenzene	0.41														
Phenanthrene	50	0.704	**134**	**88.4**	**105**	0.673	0.685	0.585	8.33	2.52	**105**	78.9	**318**	1.89	37.6
Anthracene	50	0.307	**56.6**	**38.2**	37.9	0.196	0.204	0.200	2.94	0.848	37.5	34.1	**100**	0.672	14.2
Di-n-butylphthalate	8.1														
Fluoranthene	50	1.02	**88.8**	38.0	**50.7**	0.418	0.339	0.339	11.3	2.32	**60.8**	**51.9**	**173**	1.08	28.1
Pyrene	50	1.07	**80.2**	34.9	48.7	0.421	0.279	0.276	10.5	2.28	**56.2**	**55.8**	**164**	0.909	23.8
Benzo(a)anthracene	0.224	**1.07**	**44.0**	**18.9**	**28.6**	**0.245**	0.161	0.169	**9.66**	**1.79**	**29.9**	**32.9**	**89.4**	**0.527**	**14.5**
Chrysene	0.4	**1.11**	**41.0**	**17.3**	**26.2**	0.250	0.161	0.164	**9.55**	**1.81**	**26.6**	**29.3**	**76.7**	**0.498**	**13.0**
Carbazole		0.113	9.22	35.0	18.2	0.186	0.076	0.064	1.33	0.261	11.7	10.5	**48.1**	0.349	3.96
bis(2-Ethylhexyl)phthalate	50	0.095									0.396			0.087	
Benzo(b)fluoranthene	1.1	**1.28**	**25.1**	**6.28**	**11.4**	0.143	0.067	0.063	**12.4**	**2.13**	**13.8**	**18.5**	47.3	0.308	**6.61**
Benzo(k)fluoranthene	1.1	0.703	**17.6**	**8.17**	**15.6**	0.169	0.090	0.090	**4.51**	0.811	**13.7**	**20.7**	**52.1**	0.348	**7.68**
Benzo(a)pyrene	0.061	**1.55**	**31.0**	**11.1**	**21.8**	**0.189**	**0.094**	**0.102**	**12.2**	**2.02**	**20.1**	**27.5**	65.9	**0.440**	**10.5**
Indeno(1,2,3-cd)pyrene	3.2	1.300	**3.5**	1.31	3.17				2.29	1.47	6.01	**14.3**	**25.5**	0.231	**4.12**
Dibenzofuran		0.100	20.4	26.1	26.7	0.169	0.112	0.096	0.706	0.387	19.4	24.4	82.5	0.466	7.06
Dibenzo(a,h)anthracene	0.014	**0.380**	**1.1**	**0.57**	**1.31**				**1.25**	**0.417**	**1.87**	**4.14**	**7.37**	**0.068**	**1.64**
Benzo(g,h,i)perylene	50	0.919	2.1	1.31	2.78	0.041			2.29	0.961	3.63	11.1	20.2	0.202	3.30
Total PAHs		13	639	691	658	6.0	3.3	2.9	94	23	535	563	1,632	10	219
Total CPAHs		8	165	65	111	1.0	0.57	0.59	54	11	116	158	384	2.6	61
Benzo(a)pyrene Equivalent		2.3	40.0	14.6	27.8	0.2	0.1	0.1	16.0	3.0	27.3	38.7	90.8	0.6	14.9

Notes:

All results are given in milligrams per kilogram (mg/kg), **bold** indicates an exceedance of NYSDEC Soil Quality Criteria Appendix A, Table 2: TAGM #4046

PAHs = Polyaromatic Hydrocarbons; CPAHs = Carcinogenic PAHs: benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene

NYSDOH relative potency of 1 for Benzo(a)pyrene and Dibenzo(a,h)anthracene; of 0.1 for Benzo(a)anthracene, Benzo(b)fluoranthene, and Indeno(1,2,3-cd)pyrene; and 0.01 for Benzo(k)fluoranthene and Chrysene

WEST 19TH STREET DEVELOPMENT LLC
NEW YORK, NEW YORK

TABLE 4

SOIL ANALYTICAL RESULTS - SEMI VOLATILE-ORGANIC COMPOUNDS
WEST 19TH STREET DEVELOPMENT SITE (MANHATTAN)
NEW YORK, NEW YORK

Sample I.D.		B-13	B-13	B-13	B-13	B-13	B-14	B-14	B-14	B-14	B-14	B-15	B-15	B-15	B-15
Laboratory I.D.	SoilQC	5.5-6.0	8.0-8.5	20.0-20.5	27.0-27.5	49.5-50.0	4.0-4.5	6.5-7.0	16.0-16.5	30.5-31.0	49.5-50.0	5.0-5.5	10.0-10.5	22.0-22.5	23.5-24.0
Date Collected		3/10/2003	3/10/2003	3/11/2003	3/11/2003	3/11/2003	3/12/2003	3/12/2003	3/12/2003	3/12/2003	3/12/2003	3/6/2003	3/6/2003	3/6/2003	3/7/2003
Phenol	0.03						**0.167**								
2-Methylphenol	0.03						**0.174**								
3/4-Methylphenol	0.03						**0.316**		**6.52**	0.170					
2,4-Dimethylphenol	0.03			**0.413**	**0.122**		**0.186**		**17.3**	**0.112**			**0.076**		
Pentachlorophenol	I														
1,3-Dichlorobenzene	1.6														
1,4-Dichlorobenzene	8.5														
1,2-Dichlorobenzene	7.9														
Isophorone	4.4														
1,2,4-Trichlorobenzene	3.4														
Total Phenols		0	0	0.413	0.122	0	0.843	0	23.8	0.282	0	0	0.076	0	0
Naphthalene	13		0.547	**51.3**	3.66		4.40	0.546	**840**	2.28		2.02	1.02	**252**	0.542
2-Methylnaphthalene	36.4		0.134	25.4	1.32		2.05	0.358	**333**	0.975		0.885	0.442	**141**	0.253
Acenaphthylene	41		1.33	3.54	0.250		1.71		**126**	0.302		0.708	1.02	**61.6**	
Acenaphthene	50		0.952	22.2	0.426		6.69	0.343	38.8	0.169		1.99	2.18	21.5	0.064
Diethylphthalate	7.1														
Fluorene	50		1.27	23.3	0.838		5.64	0.463	**182**	0.606		2.17	5.09	**117**	0.192
Hexachlorobenzene	0.41														
Phenanthrene	50	0.071	4.07	**72.0**	1.960		**128**	3.48	**478**	1.53		13.0	11.7	**304**	0.801
Anthracene	50		4.82	23.7	0.684		47.3	1.43	**146**	0.474		5.24	6.02	**111**	0.200
Di-n-butylphthalate	8.1														
Fluoranthene	50	0.134	24.6	41.0	0.976		**245**	6.60	**243**	0.747		21.6	16.8	**159**	0.325
Pyrene	50	0.100	22.0	33.5	0.940		**172**	5.43	**222**	0.683		18.5	15.6	**153**	0.294
Benzo(a)anthracene	0.224	0.086	**14.1**	**19.1**	**0.471**		**129**	**4.48**	**113**	**0.362**		**18.4**	**9.83**	**80.1**	0.159
Chrysene	0.4	0.097	**12.2**	**17.2**	**0.430**		**121**	**4.36**	**104**	0.350		**17.4**	**9.61**	**74.3**	0.153
Carbazole			0.306	7.93	0.316		12.3	0.418	57.8	0.201		1.82	0.996	22.7	
bis(2-Ethylhexyl)phthalate	50	0.085		0.260	0.082	0.069									
Benzo(b)fluoranthene	1.1	0.083	**8.26**	**11.1**	0.210		**98.4**	**3.98**	**46.5**	0.118		**21.100**	**7.18**	**36.8**	0.068
Benzo(k)fluoranthene	1.1	0.087	**6.53**	**10.2**	0.270		**102**	**3.10**	**57.9**	0.155		**9.21**	**4.38**	**35.5**	0.087
Benzo(a)pyrene	0.061	**0.068**	**8.73**	**12.0**	**0.278**		**136**	**5.55**	**80.3**	**0.214**		**22.500**	**8.29**	**53.5**	**0.097**
Indeno(1,2,3-cd)pyrene	3.2		1.81	2.20			81.6	**3.48**	**12.0**	0.085		**10.800**	2.44	9.95	
Dibenzofuran			0.492	13.6	0.444		4.11	0.206	95.6	0.307		1.25	2.44	59.4	0.081
Dibenzo(a,h)anthracene	0.014		**0.832**	**0.904**			**19.4**	**1.20**	**5.33**			**3.01**	**0.734**	**3.51**	
Benzo(g,h,i)perylene	50	0.041	1.64	1.91			67.9	3.31	11.9	0.093		6.29	1.21	6.58	
Total PAHs		0.8	115	392	13	0.0	1,385	49	3,193	10	0.0	178	107	1,702	3.3
Total CPAHs		0.5	54	75	1.7	0.0	755	29	431	1.4	0.0	109	44	300	0.6
Benzo(a)pyrene Equivalent		0.1	12.2	16.4	0.4	0.0	188.5	8.0	104.4	0.3	0.0	30.8	11.1	70.8	0.1

Notes:

All results are given in milligrams per kilogram (rAll results are given in milligrams per kilogram (mg/kg), bold indicates an exceedance of NYSDEC Soil Quality Criteria Appendix A, Table 2: TAGM #4046

PAHs = Polyaromatic Hydrocarbons; CPAHs = Ccarcinogenic PAHs: benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene

NYSDOH relative potency of 1 for Benzo(a)pyrerne and Dibenzo(a,h)anthracene; of 0.1 for Benzo(a)anthracene, Benzo(b)fluoranthene, and Indeno(1,2,3-cd)pyrene; and 0.01 for Benzo(k)fluoranthene and Chrysene

WEST 19TH STREET DEVELOPMENT LLC
NEW YORK, NEW YORK

TABLE 4

SOIL ANALYTICAL RESULTS - SEMI VOLATILE-ORGANIC COMPOUNDS
WEST 19TH STREET DEVELOPMENT SITE (MANHATTAN)
NEW YORK, NEW YORK

Sample I.D.		B-16	B-16	B-16	B-16	B-16	B-17	B-17	B-17	B-17	B-18	B-18	B-18	B-18
Laboratory I.D.	SoilQC	4.5-5.0	6.5-7.0	16.5-17.0	26.0-26.5	49.5-50.0	5.5-6.0	6.5-7.0	17.0-17.5	25.5-26.0	6.0-6.5	8.0-8.5	17.0-17.5	24.5-25.0
Date Collected		3/17/2003	3/17/2003	3/17/2003	3/17/2003	3/17/2003	3/5/2003	3/5/2003	3/5/2003	3/5/2003	3/5/2003	3/5/2003	3/5/2003	3/5/2003
Phenol	0.03			**0.080**										
2-Methylphenol	0.03				**0.239**									
3/4-Methylphenol	0.03				**0.490**									
2,4-Dimethylphenol	0.03	**0.043**		**0.382**	**3.17**					**0.071**				
Pentachlorophenol	1													
1,3-Dichlorobenzene	1.6													
1,4-Dichlorobenzene	8.5													
1,2-Dichlorobenzene	7.9													
Isophorone	4.4													
1,2,4-Trichlorobenzene	3.4													
Total Phenols		0.04	0	0.46	3.90	0	0	0	0	0.07	0	0	0	0
Naphthalene	13	0.303		**132**	**534**	0.264				12.7	0.260	0.237	1.90	**754**
2-Methylnaphthalene	36.4	0.191		16.8	**217**	0.159				9.7	0.118	0.079	0.520	**277**
Acenaphthylene	41	0.078		16.2	**44.0**	0.041				1.94				**53.0**
Acenaphthene	50	0.154		22.3	**66.3**	0.074				2.19	0.270	0.211	0.506	**121**
Diethylphthalate	7.1													
Fluorene	50	0.317		36.9	**96.7**	0.162				5.89	0.358	0.321	0.174	**142**
Hexachlorobenzene	0.41													
Phenanthrene	50	1.87	0.091	**79.3**	**290**	0.433				26.2	1.02	0.713	0.072	**329**
Anthracene	50	0.702	0.031	26.0	**75.0**	0.130				7.33	0.477	0.357		**106**
Di-n-butylphthalate	8.1													
Fluoranthene	50	2.17	0.178	37.1	**145**	0.222		0.067		10.4	2.00	1.26		**153**
Pyrene	50	**2.51**	0.157	43.4	**100**	0.220		0.068		9.48	1.81	1.08		**119**
Benzo(a)anthracene	0.224	**2.44**	0.167	**19.7**	**63.7**	0.112		0.044		**4.42**	**2.28**	**1.24**		**71.4**
Chrysene	0.4	**2.11**	0.154	**17.1**	**57.0**	0.103		0.043		**4.27**	**2.15**	**1.23**		68.6
Carbazole		**0.278**		10.6	32.4	0.063				1.86	0.242	0.181	0.313	51.5
bis(2-Ethylhexyl)phthalate	50	0.230	0.076					0.073	0.055		0.067	0.211		
Benzo(b)fluoranthene	1.1	**2.77**	0.139	**9.46**	**27.2**	0.050		0.046		**2.25**	**3.32**	**1.41**		**32.8**
Benzo(k)fluoranthene	1.1	**2.60**	0.182	**11.8**	**36.2**	0.075		0.035		**1.62**	**1.32**	0.988		**38.0**
Benzo(a)pyrene	0.061	**3.05**	**0.203**	**14.6**	46.6	**0.084**				**2.73**	**3.23**	**1.73**		**49.4**
Indeno(1,2,3-cd)pyrene	3.2	1.54	0.132	**4.85**	**19.6**					1.35	1.97	1.43		**15.7**
Dibenzofuran		0.163		22.0	62.0	0.087				2.80	0.168	0.167	0.261	83.2
Dibenzo(a,h)anthracene	0.014	**0.428**		**2.20**	**3.8**					**0.412**	**0.56**	**0.380**		**5.69**
Benzo(g,h,i)perylene	50	1.03	0.096	3.80	16.4					0.92	1.19	0.993		10.7
Total PAHs		25	1.5	526	1,933	2.3	0.0	0.3	0.0	108	23	14	3.7	2,481
Total CPAHs		16	1.1	84	270	0.4	0.0	0.2	0.0	18	16	9.4	0.0	292
Benzo(a)pyrene Equivalent		4.2	0.3	20.5	62.3	0.1	0.0	0.0	0.0	4.0	4.6	2.5	0.0	68.1

Notes:

All results are given in milligrams per kilogram (rAll results are given in milligrams per kilogram (mg/kg), bold indicates an exceedance of NYSDEC Soil Quality Criteria Appendix A, Table 2: TAGM #40

PAHs = Polyaromatic Hydrocarbons; CPAHs = Carcinogenic PAHs: benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene

NYSDOH relative potency of 1 for Benzo(a)pyrene and Dibenzo(a,h)anthracene; of 0.1 for Benzo(a)anthracene, Benzo(b)fluoranthene, and Indeno(1,2,3-cd)pyrene; and 0.01 for Benzo(k)fluoranthene and Chrysene

WEST 19TH STREET DEVELOPMENT LLC
NEW YORK, NEW YORK

TABLE 4

SOIL ANALYTICAL RESULTS - SEMI VOLATILE-ORGANIC COMPOUNDS
WEST 19TH STREET DEVELOPMENT SITE (MANHATTAN)
NEW YORK, NEW YORK

Sample I.D.		B-19	B-19	B-19	B-19	B-19	B-20	B-20	B-20	B-20	A-1	A-2	A-3
Laboratory I.D.	SoilQC	4.5-5.0	7.5-8.0	16.0-16.5	29.5-30.0	49.5-50.0	5.5-6.0	6.0-6.5	21.5-22.0	26.5-27.0	23.5-24.0	23.5-24.0	27.5-28.0
Date Collected		3/18/2003	3/18/2003	3/18/2003	3/18/2003	3/18/2003	3/6/2003	3/6/2003	3/6/2003	3/6/2003	3/19/2003	3/19/2003	3/19/2003
Phenol	0.03									**5.51**			0.769
2-Methylphenol	0.03									**25.9**	**0.759**		**0.821**
3/4-Methylphenol	0.03	**0.143**								**50.3**	**1.41**		**2.60**
2,4-Dimethylphenol	0.03									**109**	**4.70**		**9.69**
Pentachlorophenol	1												
1,3-Dichlorobenzene	1.6												
1,4-Dichlorobenzene	8.5												
1,2-Dichlorobenzene	7.9												
Isophorone	4.4												
1,2,4-Trichlorobenzene	3.4												
Total Phenols		0.14	0	0	0	0	0	0	0	191	6.87	0	13.9
Naphthalene	13	9.47		1.91	0.346		0.078		**1,530**	**2,120**	**842**	9.40	**423**
2-Methylnaphthalene	36.4	**8.65**	0.936	0.244	0.151				**596**	**858**	**298**	13.1	**181**
Acenaphthylene	41	1.45		0.262					**236**	**414**	**137**	0.000	**84.5**
Acenaphthene	50	4.44	0.342	0.533					**89.6**	**58.3**	44.4	0.300	14.8
Diethylphthalate	7.1					0.121							
Fluorene	50	8.23	1.05	0.795	0.066				**312**	**410**	**161**	0.441	**91.5**
Hexachlorobenzene	0.41												
Phenanthrene	50	21.5	2.350	6.64	0.302		0.098	0.089	**669**	**966**	**343**	1.56	**201**
Anthracene	50	**8.45**	0.234	6.55	0.070				**229**	**331**	**121**	0.509	**69.3**
Di-n-butylphthalate	8.1												
Fluoranthene	50	17.1	0.526	5.60	0.114		0.123	0.124	**319**	**433**	**166**	0.240	**100**
Pyrene	50	14.2	0.584	6.29	0.111		0.109	0.109	**287**	**337**	**191**	2.49	**87.7**
Benzo(a)anthracene	0.224	**10.8**	**0.331**	**3.56**	0.064		0.067	0.061	**145**	**207**	**95.0**	**2.31**	**49.2**
Chrysene	0.4	**9.88**	**0.322**	**3.65**	0.068		0.062	0.056	**113**	192	**85.0**	**2.26**	**45.0**
Carbazole		3.61		0.499					**89.6**	**123**	54.3	0.252	30.1
bis(2-Ethylhexyl)phthalate	50	0.437			0.082		0.057						
Benzo(b)fluoranthene	1.1	**6.54**	0.268	**1.50**			0.051		**80.7**	**98.6**	42.0	**3.18**	**21.6**
Benzo(k)fluoranthene	1.1	**7.15**	0.304	**1.450**			0.045	0.040	**23.2**	94.6	60.0	**3.41**	**26.7**
Benzo(a)pyrene	0.061	9.79	**0.327**	**1.80**			0.052		**77.8**	**135**	**71.8**	**4.34**	**36.2**
Indeno(1,2,3-cd)pyrene	3.2	**6.34**	0.225	0.776					**23.1**	**21.0**	**21.5**	2.70	**16.1**
Dibenzofuran		5.63	0.580	0.448					177	243	98.9	0.185	53.1
Dibenzo(a,h)anthracene	0.014	**1.66**		0.359					**7.81**	**8.22**	**6.80**	**0.636**	**5.37**
Benzo(g,h,i)perylene	50	5.01	0.327	0.543					16.5	15.4	17.5	2.23	14.8
Total PAHs		160	8.7	43	1.3	0.0	0.7	0.5	5,021	7,065	2,856	50	1,551
Total CPAHs		57	2.1	14	0.1	0.0	0.3	0.2	487	772	400	21	215
Benzo(a)pyrene Equivalent		14.0	0.4	2.8	0.0	0.0	0.1	0.0	111.9	178.7	95.9	5.9	51.0

Notes:

All results are given in milligrams per kilogram (rResults are given in milligrams per kilogram (mg/kg), bold indicates an exceedance of NYSDEC Soil Quality Criteria Appendix A, Table 2: TAGM

PAHs = Polyaromatic Hydrocarbons; CPAHs = C carcinogenic PAHs: benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene

NYSDOH relative potency of 1 for Benzo(a)pyrerne and Dibenzo(a,h)anthracene; of 0.1 for Benzo(a)anthracene, Benzo(b)fluoranthene, and Indeno(1,2,3-cd)pyrene; and 0.01 for Benzo(k)fluoranthene and Chrysene

WEST 19TH STREET DEVELOPMENT LLC
NEW YORK, NEW YORK

TABLE 5

SOIL ANALYTICAL RESULTS - PCBs, PESTICIDES, AND METALS
WEST 19TH STREET DEVELOPMENT SITE (MANHATTAN)
NEW YORK, NEW YORK

Sample I.D.		B-9	B-10	B-11	B-12	B-13	B-14	B-15	B-16	B-17	B-18	B-19	B-20	
Laboratory I.D.	SoilQC	5.0-5.5	6.5-7.0	5.5-6.0	5.5-6.0	5.5-6.0	4.0-4.5	5.0-5.5	4.5-5.0	5.5-6.0	6.0-6.5	4.5-5.0	5.5-6.0	
Date Collected		3/4/2003	3/7/2003	3/4/2003	3/17/2003	3/10/2003	3/12/2003	3/6/2003	3/17/2003	3/5/2003	3/5/2003	3/18/2003	3/6/2003	
PCBs														
Aroclor 1016	10													
Aroclor 1221	10													
Aroclor 1232	10													
Aroclor 1242	10													
Aroclor 1248	10													
Aroclor 1254	10													
Aroclor 1260	10													
PESTICIDES														
Aldrin	0.041													
alpha - BHC	0.11													
beta - BHC	0.2													
delta - BHC	0.3													
gamma - BHC(Lindane)	0.06													
alpha - Chlordane	0.54													
gamma - Chlordane	0.54													
Dieldrin	0.044		0.009	0.002				0.001						
4,4' - DDD	2.9													
4,4' - DDE	2.1													
4,4' - DDT	2.1	0.006												
Endrin	0.1													
Endosulfan sulfate	1.0										0.007			
Endrin aldehyde														
Endosulfan - I	0.9													
Endosulfan - II	0.9													
Heptachlor	0.1													
Heptachlor epoxide	0.02													
Methoxychlor														
Endrin ketone														
Toxaphene	1.9													

NOTES:

All concentrations are presented in micrograms per kilogram (ug/kg), **bold** indicating exceedance of SoilQC

SoilQC = NYSDEC Soil Quality Criteria Appenix A, Table 3: TAGM #4046

NA = Not Available

WEST 19TH STREET DEVELOPMENT LLC
NEW YORK, NEW YORK

TABLE 5

SOIL ANALYTICAL RESULTS - PCBs, PESTICIDES, AND METALS
WEST 19TH STREET DEVELOPMENT SITE (MANHATTAN)

Sample I.D.		B-9	B-10	B-11	B-12	B-13	B-14	B-15	B-16	B-17	B-18	B-19	B-20	
Laboratory I.D.	SoilQC	5.0-5.5	6.5-7.0	5.5-6.0	5.5-6.0	5.5-6.0	4.0-4.5	5.0-5.5	4.5-5.0	5.5-6.0	6.0-6.5	4.5-5.0	5.5-6.0	
Date Collected		3/4/2003	3/7/2003	3/4/2003	3/17/2003	3/10/2003	3/12/2003	3/6/2003	3/17/2003	3/5/2003	3/5/2003	3/18/2003	3/6/2003	
TAL METALS														
Aluminum	SB	4,060	10,100	6,690	4,050	12,100	4,970	8,430	12,100	10,600	5,720	7,560	81,400	
Antimony	SB													
Arsenic	7.5	4.0	3.0	**17.0**	**118.0**	**98.0**	82.6	**28.1**	2.9	**21.9**	**59.5**	**12.6**	6.0	
Barium	300	35	40	95	226	49	74	68	73	62	71	43	38	
Beryllium	0.16					**1.2**			0.66				**1.5**	
Cadmium	1				**3.0**				0.84				1.0	
Calcium	SB	21,600	2,720	28,600	4,800	6,300	13,400	14,600	2,500	1,500	6,100	68,600	31,600	
Chromium	10	**12.7**	**14.3**	**14.4**	**15.8**	**16.2**	**10.8**	**13.1**	**15.0**	**23.4**	**15.6**	**14.3**	**13.9**	
Cobalt	30		7.8		9.6	11.6			11.7				23.4	
Copper	25	16.2	19.3	**60.9**	**62.3**	68.1	**29.1**	**43.3**	**45.6**	**34.8**	18.1	11.2	**86.5**	
Iron	2,000	**8,120**	**18,700**	**21,700**	**81,400**	**18,400**	**26,800**	**23,800**	**15,200**	**28,400**	**33,000**	**11,500**	**21,000**	
Lead	SB	45.8	32.3	**541.0**	**194.0**	49.2	85.8	**148.0**	30.0	57.2	72.9	24.1	96.5	
Magnesium	SB	4,120	3,140	2,990	1,040	2,360	1,530	3,900	3,160	2,400	2,850	5,420	1,790	
Manganese	SB	91.4	267	175	140	168	97.9	157	119	151	119	145	708	
Mercury	0.1	**0.110**	**0.800**	**0.550**	**0.470**	**0.110**	**0.260**	**0.400**	0.061	0.082	**0.740**	**0.180**	0.053	
Nickel	13	6.7	**14.9**	11.2	**19.9**	**24.3**	8.0	**14.3**	**29.9**	**15.1**	10.6	6.9	**56.9**	
Potassium	SB	674	1,320	1,800		951	1,030	1,360	1,100	980	1,150	1,560	932	
Selenium	2				**7.3**		**2.9**							
Silver	SB				1.7									
Sodium	SB			1,350		789	687							
Thallium	SB													
Vanadium	150	8.8	18.6	19.3	30.0	21.5	16.0	16.8	17.5	22.9	20.8	11.9	19.8	
Zinc	20	**74.3**	**35.5**	**163.0**	**89.6**	**231.0**	**84.5**	**68.5**	**143.0**	**33.4**	**158.0**	**40.7**	**319.0**	

NOTES:
All concentrations are presented in milligrams per kilogram (mg/kg), **bold** indicating exceedance of SoilQC
SoilQC = NYSDEC Soil Quality Criteria Appenix A, Table 4: TAGM #4046
SB = Site Background
NA = Not Available

WEST 19TH STREET DEVELOPMENT LLC
NEW YORK, NEW YORK

TABLE 6

GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS
WEST 19TH STREET DEVELOPMENT SITE (MANHATTAN)
NEW YORK, NEW YORK

Sample I.D. Laboratory I.D. Date Collected	AWQS	MW-10 3/19/2003	MW-13 3/19/2003	MW-14 3/19/2003	MW-19 3/19/2003		
Benzene	0.7	**5,830**	**334**	**7.2**	**321**		
Ethylbenzene	5	**815**	**554**	**5.6**	**245**		
Toluene	5	**5,880**	**565**	**16.9**	**54**		
Xylenes (Total)	5	**3,700**	**1,230**	**14.9**	**459**		
Styrene	5						
Vinyl Chloride	2						
Chloroethane	50						
Methylene Chloride	5						
Acetone	50						
Trichlorofluoromethane	5						
1,1-Dichloroethene	5						
1,1-Dichloroethane	5						
trans-1,2-Dichloroethene	5						
cis-1,2-Dichloroethene	5						
Chloroform	7				**7.3**		
1,2-Dichloroethane	5						
1,1,1-Trichloroethane	5						
CarbonTetrachloride	5						
Trichloroethene	5						
1,1,2-Trichloroethane	5						
Tetrachloroethene	5						
1,1,2,2-Tetrachloroethane	5						
Chlorobenzene	5						
Total VOCs		16,225	2,683	44.6	1,086		

NOTES:
All concentrations are presented in micrograms per liter (ug/L),bold indicating exceedance of NYS AWQS
AWQS = NYSDEC GA Specific Ambient Groundwater Quality Standard

WEST 19TH STREET DEVELOPMENT LLC
NEW YORK, NEW YORK

TABLE 7

GROUNDWATER ANALYTICAL RESULTS
BASE NEUTRALS/ACID EXTRACTABLES
W. 19TH STREET DEVELOPMENT SITE (MANHATTAN)
NEW YORK, NEW YORK

Sample I.D. Laboratory I.D. Date Collected	AWQS	MW-10 3/19/2003	MW-13 3/19/2003	MW-14 3/19/2003	MW-19 3/19/2003	
Phenol	1	**71**	**3.8**		**1.6**	
2-Methylphenol	5	**509**	**11.9**	1.2	1.3	
3/4-Methylphenol	50	**405**	24.1	3.3	1.6	
2,4-Dimethylphenol	5	**2,410**	76.7	3.6	**14.5**	
Pentachlorophenol	1					
1,3-Dichlorobenzene	3					
1,4-Dichlorobenzene	3					
1,2-Dichlorobenzene	3					
Isophorone	50					
1,2,4-Trichlorobenzene	5					
Total Phenols		3,395	116.5	8.1	19	
Naphthalene	10	**2,600**	**2,710**	**25.1**	**1,560**	
2-Methylnaphthalene	50	**244**	**395**	4.2	**159**	
Acenaphthylene	20	**82.8**	**52.7**		9.5	
Acenaphthene	20	18.2	**82.9**		**29.1**	
Diethylphthalate	50					
Fluorene	50	35.6	**79.8**	1.2	37.9	
Hexachlorobenzene	0.35					
Phenanthrene	50	25.6	**61.3**	1.6	31.4	
Anthracene	50	25.2	17.3		8.1	
Di-n-butylphthalate	50					
Fluoranthene	50	3.1	10.5	0.7	5.2	
Pyrene	50		8.8	0.6	4.1	
Benzo(a)anthracene	0.002		**2.7**		**1.4**	
Chrysene	0.002		**2.5**		**1.2**	
Carbazole	50	**185**	**205**		**91.5**	
bis(2-Ethylhexyl)phthalate	50					
Benzo(b)fluoranthene	0.002		**1.3**			
Benzo(k)fluoranthene	0.002		**1.5**			
Benzo(a)pyrene	0.002		**1.8**			
Indeno(1,2,3-cd)pyrene	0.002					
Dibenzofuran	5	**24.9**	**65.3**		**30.0**	
Dibenzo(a,h)anthracene	50					
Benzo(g,h,i)perylene	5					
Total PAHs		3,219	3,701	36.1	1,972	
Total CPAHs			9.8		2.6	

NOTES:
All concentrations are presented in micrograms per liter (ug/L), bold indicating exceedance of GWQC
PAHs = Polyaromatic Hydrocarbons; CPAHs = Carcinogenic PAHs - benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(f)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene,, and dibenzo(a,h)anthracene

Figures



REFERENCE: BASE MAP USGS 7.5 MIN. QUADS., JERSEY CITY, AND WEEHAWKEN, NJ - NY, 1967.

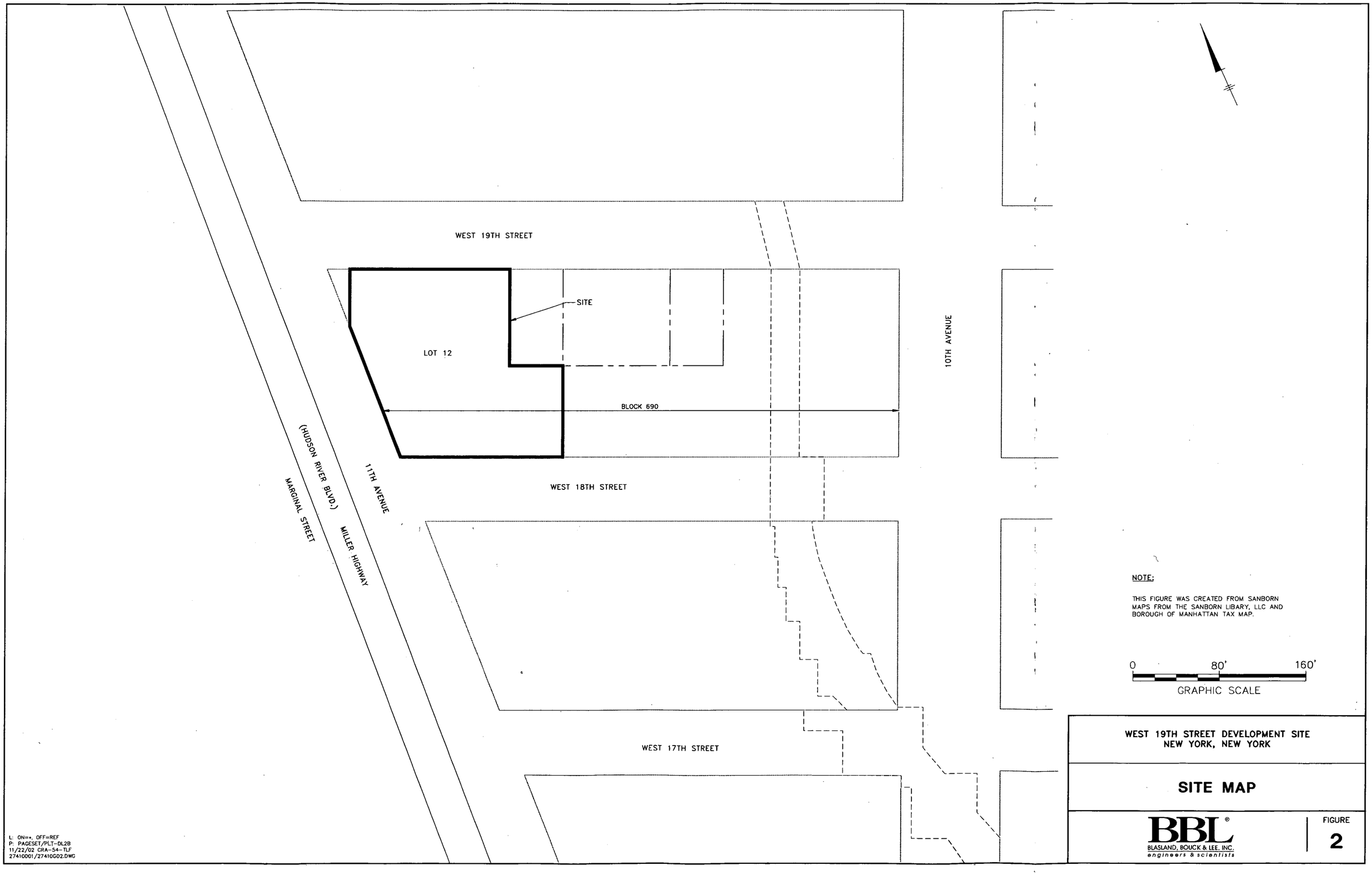
WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

SITE LOCATION MAP

FIGURE 1

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

11/18/02 SYR-D54-LBR, DJH
27410001/27410n01.cdr



WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

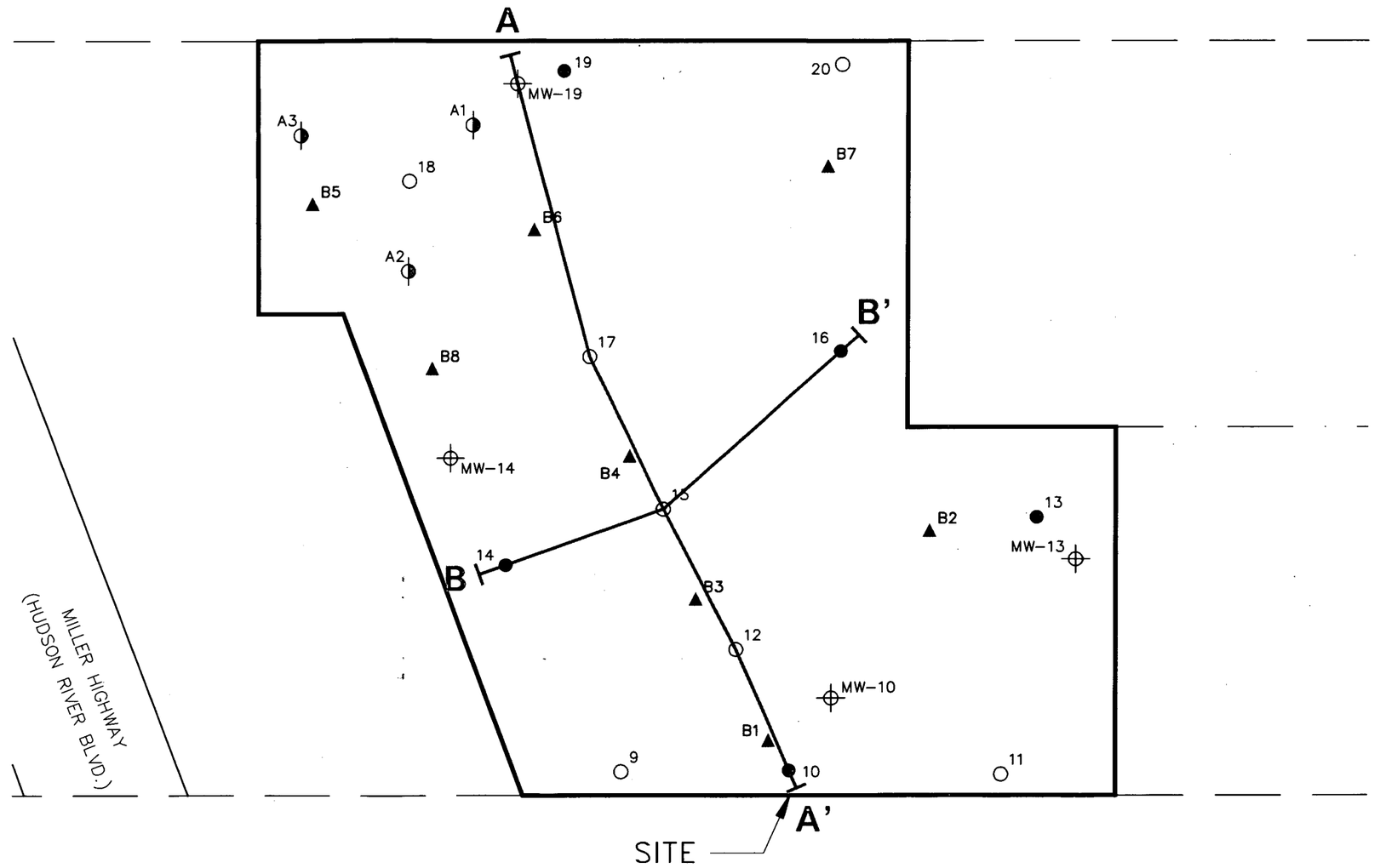
SITE MAP

BBL®
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

FIGURE
2

L: ON=*, OFF=REF
P: PAGESET/PLT-DL2B
11/22/02 CRA-54-TLF
27410001/27410G02.DWG

WEST 19TH STREET



WEST 18TH STREET

LEGEND:

- ▲ SOIL BORING LOCATION (OCTOBER 2002)
- ○ SHALLOW BORING (MARCH 2003)
- ● DEEP BORING (MARCH 2003)
- ⊕ DELINEATION BORING (MARCH 2003)
- ⊕ SHALLOW MONITORING WELL
- A-A' —— LINE OF CROSS-SECTION

NOTES:

1. THIS FIGURE WAS CREATED FROM SANBORN MAPS FROM THE SANBORN LIBRARY, LLC.
2. BORING LOCATIONS ARE APPROXIMATE AND ARE BASED ON FIELD LOCATION BY TAPE AND MEASURE FROM FIXED POINTS.

0 30' 60'

GRAPHIC SCALE

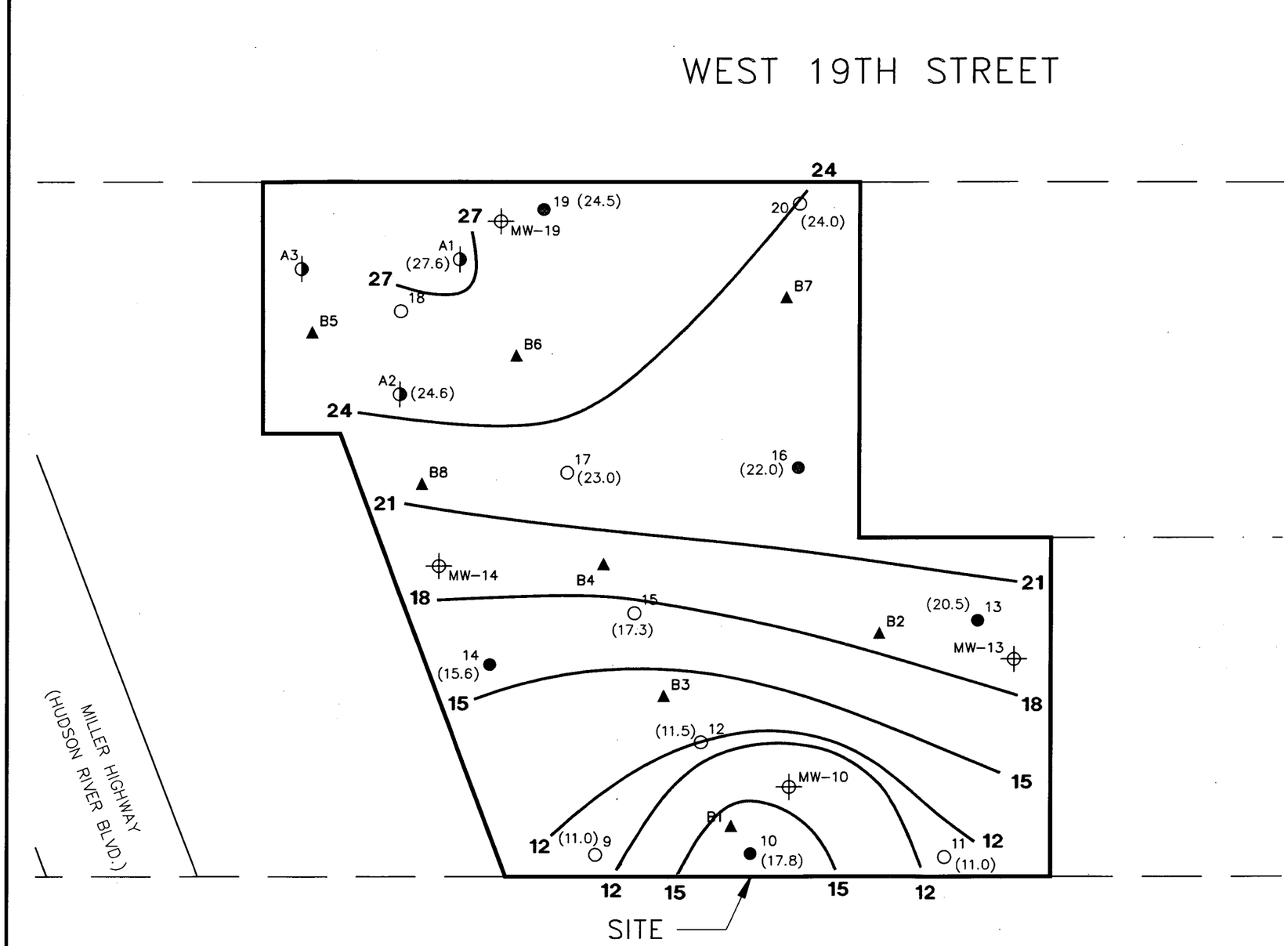
WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

BORING LOCATION MAP

BBL® BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 3

X: 27410X01.DWG
L: OFF=REF*
P: PAGESET/PLT-BL
06/02/03 CRA-BS-TLF
27410001/27410B05.DWG



LEGEND:

- ▲ SOIL BORING LOCATION (OCTOBER 2002)
- ○ SHALLOW BORING (MARCH 2003)
- ● DEEP BORING (MARCH 2003)
- ◐ DELINEATION BORING (MARCH 2003)
- ⊕ SHALLOW MONITORING WELL
- ~ DEPTH TO TOP OF CLAY/SILT LAYER FROM GROUNDSURFACE (FEET)
- (20.5) DEPTH TO TOP OF CLAY/SILT LAYER FROM GROUNDSURFACE (FEET)

NOTES:

1. THIS FIGURE WAS CREATED FROM SANBORN MAPS FROM THE SANBORN LIBRARY, LLC.
2. BORING LOCATIONS ARE APPROXIMATE AND ARE BASED ON FIELD LOCATION BY TAPE AND MEASURE FROM FIXED POINTS.

0 30' 60'

GRAPHIC SCALE

WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

CLAY/SILT LAYER STRUCTURE CONTOUR MAP

BBL® BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 4

X: 27410X01.DWG
L: OFF=REF*
P: PAGESET/PLT-BL
06/02/03 CRA-85-TLF
27410001/27410C12.DWG

WEST 19TH STREET

19 (25.5*)
MW-19
20
A3
A1
18
B5
B6
B7
28
A2
31
25
16
(25.8)
17
B8
22
34
MW-14
B4
15
B2
13
(21.05)
MW-13
14
(34.4)
B3
34
12
31
22
MW-10
B1
9
28
(25.8)
10
11
25
MILLER HIGHWAY
(HUDSON RIVER BLVD.)
SITE

WEST 18TH STREET

LEGEND:

- ▲ SOIL BORING LOCATION (OCTOBER 2002)
- ○ SHALLOW BORING (MARCH 2003)
- ● DEEP BORING (MARCH 2003)
- ◐ DELINEATION BORING (MARCH 2003)
- ⊕ SHALLOW MONITORING WELL
- ~ TOTAL THICKNESS OF CLAY/SILT LAYER (FEET)
- (20.8) TOTAL THICKNESS OF CLAY/SILT LAYER (FEET)
- (25.5*) MINIMUM TOTAL THICKNESS OF CLAY/SILT LAYER (FEET)

NOTES:

1. THIS FIGURE WAS CREATED FROM SANBORN MAPS FROM THE SANBORN LIBRARY, LLC.
2. BORING LOCATIONS ARE APPROXIMATE AND ARE BASED ON FIELD LOCATION BY TAPE AND MEASURE FROM FIXED POINTS.

0 30' 60'
GRAPHIC SCALE

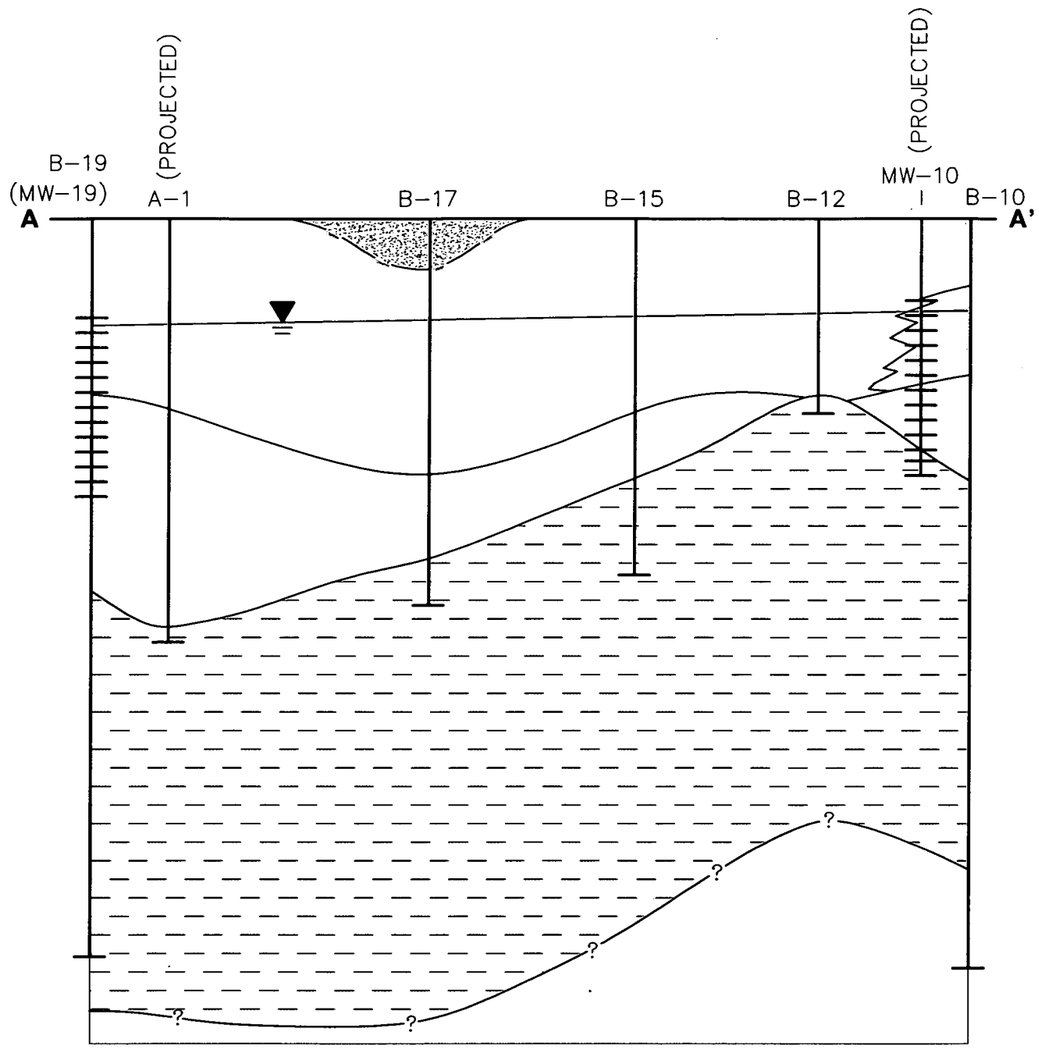
WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

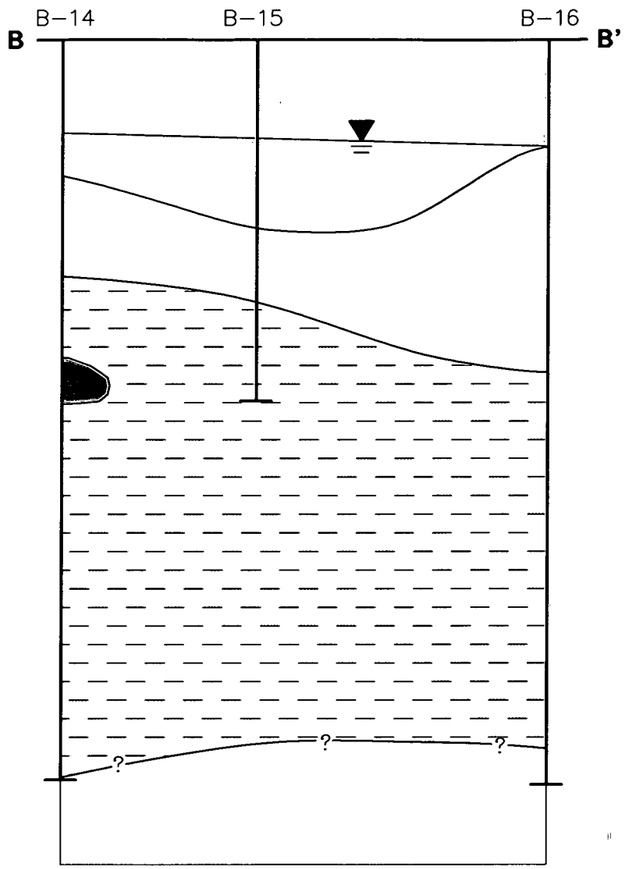
CLAY/SILT LAYER ISOPACH MAP

BBL® BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 5

X: 27410X01.DWG
L: OFF=REF*
P: PAGESET/PLT-BL
06/02/03 CRA-BS-TLF
27410001/27410C13.DWG





LEGEND

- YELLOW, TAN, BROWN SAND AND SILT
- GRAY SAND AND SILT WITH GRAVEL
- BLACK SAND WITH GRAVEL
- CLAYEY SILT WITH SAND
- WOOD FRAGMENTS
- RUBBLE ZONE
- GROUNDWATER SURFACE
- SOIL BORING
- MONITORING WELL AND SLOTTED INTERVAL

0 30' 60'
HORIZONTAL SCALE

0 10' 20'
VERTICAL SCALE

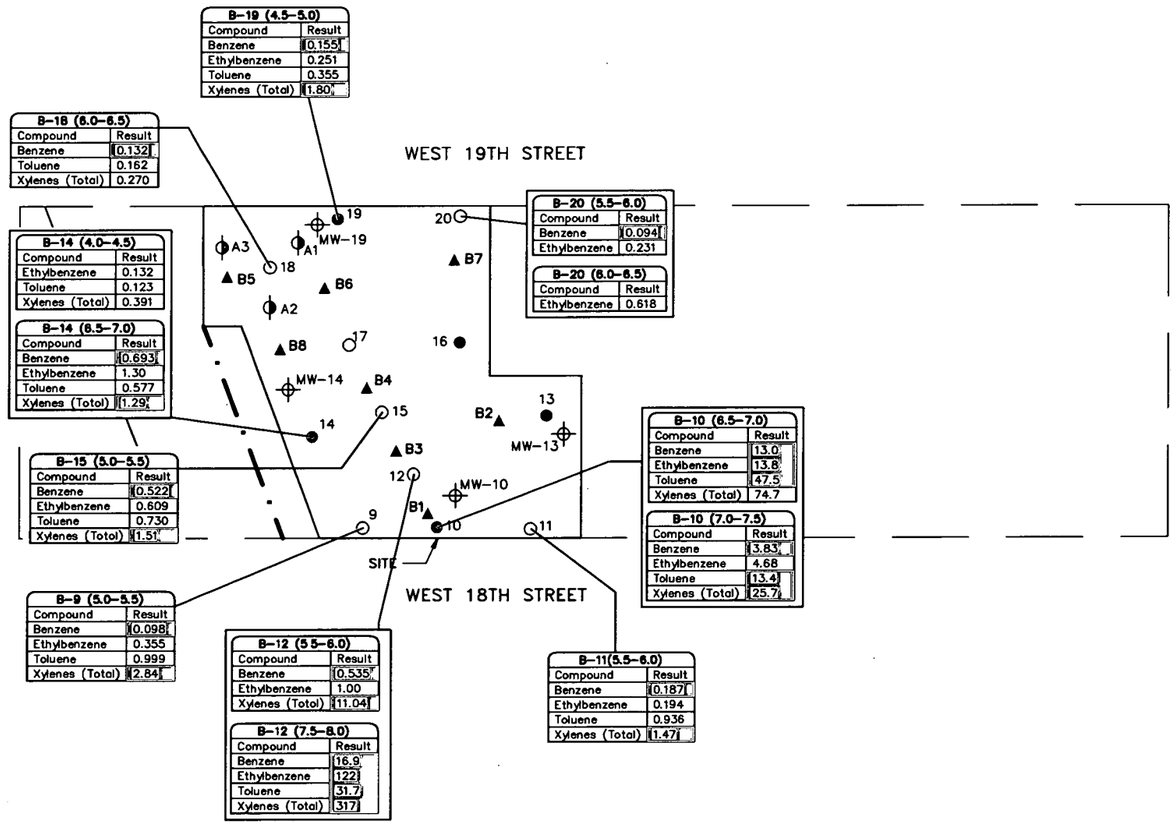
WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

CROSS-SECTIONS A-A' AND B-B'

BBL® BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 6

X:
L: OFF=REF*
P: PAGESET/PLT-BL
06/02/03 CRA-54-TLF
27410001/27410V01.DWG



LEGEND:

- ▲ SOIL BORING LOCATION (OCTOBER 2002)
- ○ SHALLOW BORING (MARCH 2003)
- ● DEEP BORING (MARCH 2003)
- ⌀ DELINEATION BORING (MARCH 2003)
- ⊕ SHALLOW MONITORING WELL
- ▭ CONCENTRATION EXCEEDS NYSDEC SOIL QUALITY CRITERIA

SOIL QUALITY CRITERIA	
Benzene	0.08
Ethylbenzene	5.5
Toluene	1.5
Xylenes (Total)	1.2

NOTE:

ALL CONCENTRATIONS GIVEN ARE IN mg/kg.

SOURCE:

THIS FIGURE WAS CREATED FROM SANBORN MAPS FROM THE SANBORN LIBRARY, LLC.

0 80' 160'

GRAPHIC SCALE

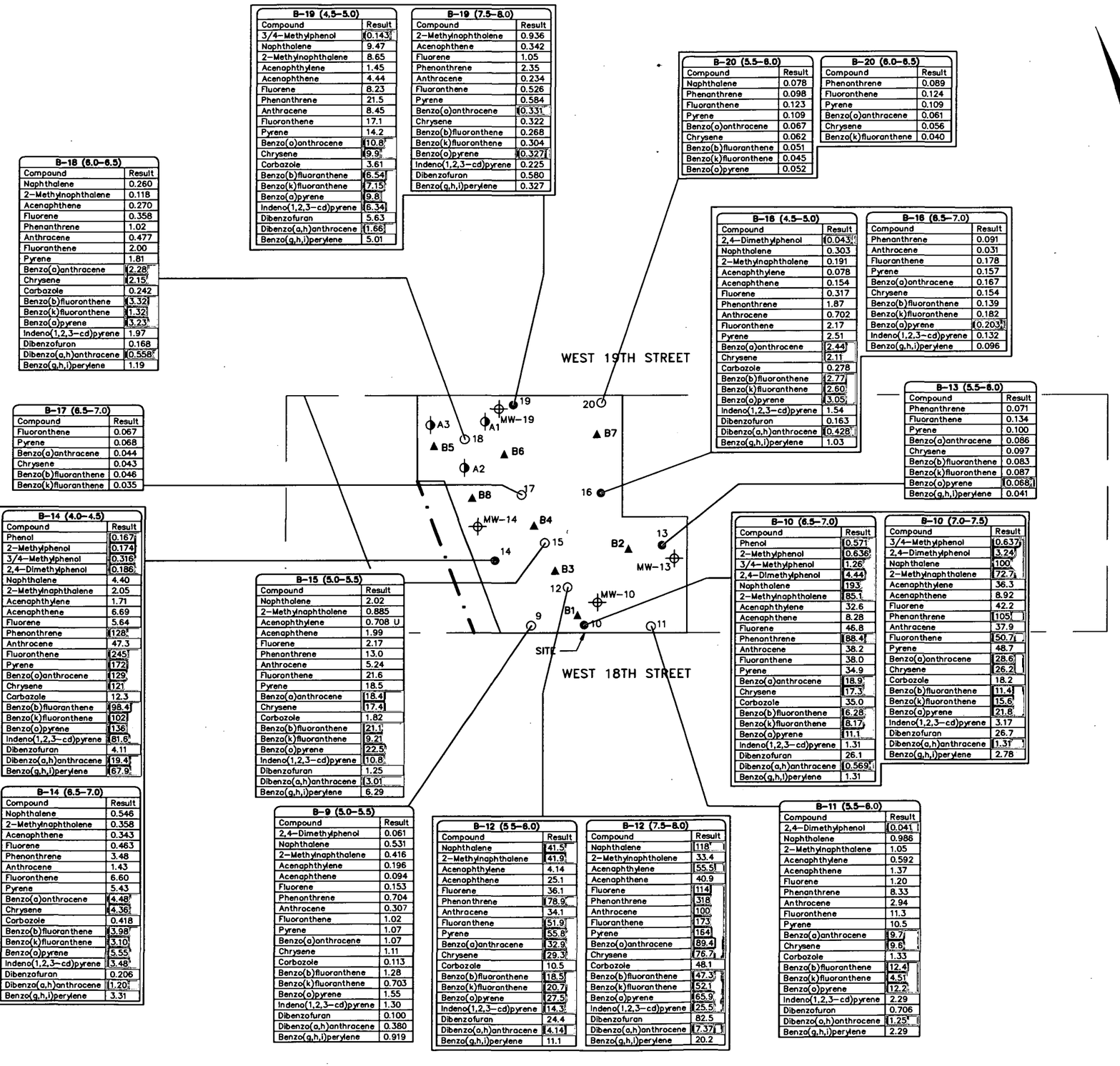
WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

BTEX CONCENTRATIONS IN SOIL MAP (4.0 TO 8.0 FEET BGS)

BBL® BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 7

X: 27410X02.DWG
L: OFF=REF*
P: PAGESET/PLT-BL
06/02/03 CRA-85-TLF
27410D01/27410C09.DWG



B-19 (4.5–5.0)	
Compound	Result
3/4–Methylphenol	(0.143)
Naphtholene	9.47
2–Methylnaphthalene	8.65
Acenaphthylene	1.45
Acenaphthene	4.44
Fluorene	8.23
Phenanthrene	21.5
Anthracene	8.45
Fluoronthene	17.1
Pyrene	14.2
Benzo(a)onthrocene	(10.8)
Chrysene	(9.9)
Corbazole	3.61
Benzo(b)fluoranthene	(6.54)
Benzo(k)fluoranthene	(7.15)
Benzo(a)pyrene	(9.8)
Indeno(1,2,3–cd)pyrene	(6.34)
Dibenzofuran	5.63
Dibenzo(a,h)anthrocene	(1.66)
Benzo(g,h,i)perylene	5.01

B-19 (7.5–8.0)	
Compound	Result
2–Methylnophtholene	0.936
Acenophthene	0.342
Fluorene	1.05
Phenonthrene	2.35
Anthracene	0.234
Fluoranthene	0.526
Pyrene	0.584
Benzo(a)onthrocene	(0.331)
Chrysene	0.322
Benzo(b)fluoronthene	0.268
Benzo(k)fluoronthene	0.304
Benzo(a)pyrene	(0.327)
Indeno(1,2,3–cd)pyrene	0.225
Dibenzofuran	0.580
Benzo(g,h,i)perylene	0.327

B-18 (6.0–6.5)	
Compound	Result
Naphthalene	0.260
2–Methylnophthalene	0.118
Acenaphthene	0.270
Fluorene	0.358
Phenanthrene	1.02
Anthracene	0.477
Fluoranthene	2.00
Pyrene	1.81
Benzo(a)anthracene	(2.28)
Chrysene	(2.15)
Carbazole	0.242
Benzo(b)fluoronthene	(3.32)
Benzo(k)fluoronthene	(1.32)
Benzo(a)pyrene	(3.23)
Indeno(1,2,3–cd)pyrene	1.97
Dibenzofuron	0.168
Dibenzo(a,h)anthracene	(0.558)
Benzo(g,h,i)perylene	1.19

B-20 (5.5–6.0)	
Compound	Result
Naphthalene	0.078
Phenanthrene	0.098
Fluoranthene	0.123
Pyrene	0.109
Benzo(a)onthrocene	0.067
Chrysene	0.062
Benzo(b)fluoranthene	0.051
Benzo(k)fluoronthene	0.045
Benzo(a)pyrene	0.052

B-20 (6.0–6.5)	
Compound	Result
Phenonthrene	0.089
Fluoronthene	0.124
Pyrene	0.109
Benzo(a)anthracene	0.061
Chrysene	0.056
Benzo(k)fluoranthene	0.040

B-16 (4.5–5.0)	
Compound	Result
2,4–Dimethylphenol	(0.043)
Naphtholene	0.303
2–Methylnaphtholene	0.191
Acenaphthylene	0.078
Acenaphthene	0.154
Fluorene	0.317
Phenonthrene	1.87
Anthrocene	0.702
Fluoronthene	2.17
Pyrene	2.51
Benzo(a)onthrocene	(2.44)
Chrysene	(2.11)
Carbazole	0.278
Benzo(b)fluoronthene	(2.77)
Benzo(k)fluoranthene	(2.60)
Benzo(o)pyrene	(3.05)
Indeno(1,2,3–cd)pyrene	1.54
Dibenzofuron	0.163
Dibenzo(a,h)anthrocene	(0.428)
Benzo(g,h,i)perylene	1.03

B-16 (6.5–7.0)	
Compound	Result
Phenanthrene	0.091
Anthrocene	0.031
Fluoranthene	0.178
Pyrene	0.157
Benzo(a)onthracene	0.167
Chrysene	0.154
Benzo(b)fluoronthene	0.139
Benzo(k)fluoranthene	0.182
Benzo(a)pyrene	(0.203)
Indeno(1,2,3–cd)pyrene	0.132
Benzo(g,h,i)perylene	0.096

B-17 (6.5–7.0)	
Compound	Result
Fluoronthene	0.067
Pyrene	0.068
Benzo(a)anthracene	0.044
Chrysene	0.043
Benzo(b)fluoranthene	0.046
Benzo(k)fluoranthene	0.035

B-13 (5.5–6.0)	
Compound	Result
Phenanthrene	0.071
Fluoranthene	0.134
Pyrene	0.100
Benzo(a)anthracene	0.086
Chrysene	0.097
Benzo(b)fluoranthene	0.083
Benzo(k)fluoranthene	0.087
Benzo(o)pyrene	(0.068)
Benzo(g,h,i)perylene	0.041

B-14 (4.0–4.5)	
Compound	Result
Phenol	(0.167)
2–Methylphenol	(0.174)
3/4–Methylphenol	(0.316)
2,4–Dimethylphenol	(0.186)
Naphthalene	4.40
2–Methylnaphthalene	2.05
Acenaphthylene	1.71
Acenaphthene	6.69
Fluorene	5.64
Phenonthrene	(128)
Anthrocene	47.3
Fluoronthene	(245)
Pyrene	(172)
Benzo(a)anthrocene	(129)
Chrysene	(121)
Carbazole	12.3
Benzo(b)fluoranthene	(98.4)
Benzo(k)fluoronthene	(102)
Benzo(a)pyrene	(136)
Indeno(1,2,3–cd)pyrene	(81.6)
Dibenzofuran	4.11
Dibenzo(a,h)anthracene	(19.4)
Benzo(g,h,i)perylene	(67.9)

B-14 (6.5–7.0)	
Compound	Result
Nophthalene	0.546
2–Methylnaphtholene	0.358
Acenaphthene	0.343
Fluorene	0.463
Phenonthrene	3.48
Anthrocene	1.43
Fluoronthene	6.60
Pyrene	5.43
Benzo(a)onthrocene	(4.48)
Chrysene	(4.36)
Corbozole	0.418
Benzo(b)fluoranthene	(3.98)
Benzo(k)fluoranthene	(3.10)
Benzo(a)pyrene	(5.55)
Indeno(1,2,3–cd)pyrene	(3.48)
Dibenzofuran	0.206
Dibenzo(a,h)anthrocene	(1.20)
Benzo(g,h,i)perylene	3.31

B-15 (5.0–5.5)	
Compound	Result
Nophtholene	2.02
2–Methylnaphtholene	0.885
Acenophthylene	0.708 U
Acenaphthene	1.99
Fluorene	2.17
Phenonthrene	13.0
Anthrocene	5.24
Fluoronthene	21.6
Pyrene	18.5
Benzo(a)anthracene	(18.4)
Chrysene	(17.4)
Corbozole	1.82
Benzo(b)fluoranthene	(21.1)
Benzo(k)fluoranthene	(9.21)
Benzo(o)pyrene	(22.5)
Indeno(1,2,3–cd)pyrene	(10.8)
Dibenzofuran	1.25
Dibenzo(a,h)anthracene	(3.01)
Benzo(g,h,i)perylene	6.29

B-10 (6.5–7.0)	
Compound	Result
Phenol	(0.571)
2–Methylphenol	(0.636)
3/4–Methylphenol	(1.26)
2,4–Dimethylphenol	(4.44)
Nophtholene	193
2–Methylnaphthalene	(85.1)
Acenaphthylene	32.6
Acenaphthene	8.28
Fluorene	46.8
Phenonthrene	(88.4)
Anthrocene	38.2
Fluoranthene	38.0
Pyrene	34.9
Benzo(a)anthracene	(18.9)
Chrysene	(17.3)
Corbozole	35.0
Benzo(b)fluoronthene	(6.28)
Benzo(k)fluoranthene	(8.17)
Benzo(a)pyrene	(11.1)
Indeno(1,2,3–cd)pyrene	1.31
Dibenzofuran	26.1
Dibenzo(a,h)anthracene	(0.569)
Benzo(g,h,i)perylene	1.31

B-10 (7.0–7.5)	
Compound	Result
3/4–Methylphenol	(0.637)
2,4–Dimethylphenol	(3.24)
Naphthalene	(100)
2–Methylnaphthalene	(72.7)
Acenaphthylene	36.3
Acenaphthene	8.92
Fluorene	42.2
Phenanthrene	(105)
Anthracene	37.9
Fluoronthene	(50.7)
Pyrene	48.7
Benzo(a)onthrocene	(28.6)
Chrysene	(26.2)
Corbozole	18.2
Benzo(b)fluoranthene	(11.4)
Benzo(k)fluoronthene	(15.6)
Benzo(o)pyrene	(21.8)
Indeno(1,2,3–cd)pyrene	3.17
Dibenzofuran	26.7
Dibenzo(a,h)anthracene	(1.31)
Benzo(g,h,i)perylene	2.78

B-9 (5.0–5.5)	
Compound	Result
2,4–Dimethylphenol	0.061
Naphthalene	0.531
2–Methylnaphthalene	0.416
Acenaphthylene	0.196
Acenaphthene	0.094
Fluorene	0.153
Phenonthrene	0.704
Anthrocene	0.307
Fluoronthene	1.02
Pyrene	1.07
Benzo(a)onthracene	1.07
Chrysene	1.11
Corbozole	0.113
Benzo(b)fluoranthene	1.28
Benzo(k)fluoranthene	0.703
Benzo(o)pyrene	1.55
Indeno(1,2,3–cd)pyrene	1.30
Dibenzofuran	0.100
Dibenzo(a,h)anthracene	0.380
Benzo(g,h,i)perylene	0.919

B-12 (5.5–6.0)	
Compound	Result
Naphthalene	(41.5)
2–Methylnaphthalene	(41.9)
Acenaphthylene	4.14
Acenaphthene	25.1
Fluorene	36.1
Phenonthrene	(78.9)
Anthrocene	34.1
Fluoranthene	(51.9)
Pyrene	(55.8)
Benzo(a)anthracene	(32.9)
Chrysene	(29.3)
Corbozole	10.5
Benzo(b)fluoranthene	(18.5)
Benzo(k)fluoranthene	(20.7)
Benzo(o)pyrene	(27.5)
Indeno(1,2,3–cd)pyrene	(14.3)
Dibenzofuran	24.4
Dibenzo(a,h)anthracene	(4.14)
Benzo(g,h,i)perylene	11.1

B-12 (7.5–8.0)	
Compound	Result
Naphthalene	(118)
2–Methylnaphthalene	33.4
Acenaphthylene	(55.5)
Acenaphthene	40.9
Fluorene	(114)
Phenonthrene	(318)
Anthrocene	(100)
Fluoranthene	(173)
Pyrene	(164)
Benzo(a)anthracene	(89.4)
Chrysene	(76.7)
Corbozole	48.1
Benzo(b)fluoranthene	(47.3)
Benzo(k)fluoranthene	(52.1)
Benzo(o)pyrene	(65.9)
Indeno(1,2,3–cd)pyrene	(25.5)
Dibenzofuran	82.5
Dibenzo(a,h)anthrocene	(7.37)
Benzo(g,h,i)perylene	20.2

B-11 (5.5–6.0)	
Compound	Result
2,4–Dimethylphenol	(0.041)
Naphtholene	0.986
2–Methylnaphthalene	1.05
Acenaphthylene	0.592
Acenaphthene	1.37
Fluorene	1.20
Phenanthrene	8.33
Anthrocene	2.94
Fluoranthene	11.3
Pyrene	10.5
Benza(a)anthracene	(9.7)
Chrysene	(9.6)
Corbozole	1.33
Benzo(b)fluoranthene	(12.4)
Benzo(k)fluoranthene	(4.51)
Benzo(o)pyrene	(12.2)
Indeno(1,2,3–cd)pyrene	2.29
Dibenzofuran	0.706
Dibenzo(o,h)onthrocene	(1.25)
Benza(g,h,i)perylene	2.29

LEGEND:

- ▲ SOIL BORING LOCATION (OCTOBER 2002)
- ○ SHALLOW BORING (MARCH 2003)
- ● DEEP BORING (MARCH 2003)
- ◐ DELINEATION BORING (MARCH 2003)
- ⊕ SHALLOW MONITORING WELL
- ▭ CONCENTRATION EXCEEDS NYSDEC SOIL QUALITY CRITERIA

SOIL QUALITY CRITERIA	
Phenol	0.03
2–Methylphenol	0.03
3/4–Methylphenol	0.03
2,4–Dimethylphenol	0.03
Naphtholene	13
2–Methylnaphtholene	36.4
Acenaphthylene	41
Acenaphthene	50
Fluorene	50
Phenonthrene	50
Anthracene	50
Fluoronthene	50
Pyrene	50
Benzo(a)onthracene	0.224
Chrysene	0.4
Carbazole	
Benzo(b)fluoronthene	1.1
Benzo(k)fluoranthene	1.1
Benzo(a)pyrene	0.061
Indeno(1,2,3–cd)pyrene	3.2
Dibenzofuron	
Dibenzo(a,h)onthracene	0.014
Benzo(g,h,i)perylene	50

NOTE:

ALL CONCENTRATIONS GIVEN ARE IN mg/kg.

SOURCE:

THIS FIGURE WAS CREATED FROM SANBORN MAPS FROM THE SANBORN LIBRARY, LLC.

0 80' 160'

GRAPHIC SCALE

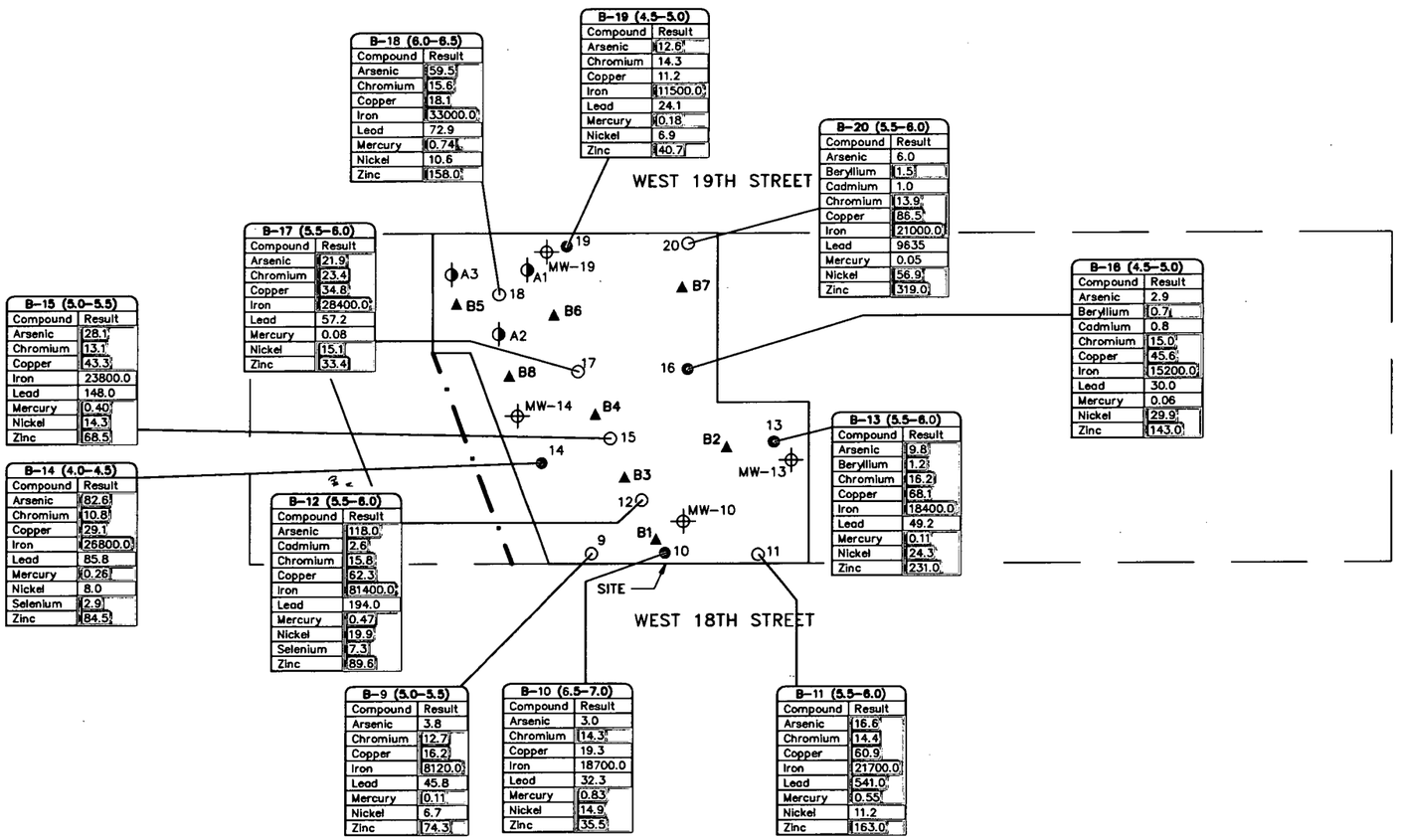
WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

PHENOL AND PAH CONCENTRATIONS IN SOIL MAP (4.0 TO 8.0 FEET BGS)

BBL® BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 8

X: 27410X02.DWG
L: OFF=REF*
P: PAGESET/PLT-BL
06/02/03 CRA-85-TLF
27410001/27410C08.DWG



B-15 (5.0-5.5)	
Compound	Result
Arsenic	28.1
Chromium	13.1
Copper	43.3
Iron	23800.0
Lead	148.0
Mercury	0.40
Nickel	14.3
Zinc	68.5

B-14 (4.0-4.5)	
Compound	Result
Arsenic	82.6
Chromium	10.8
Copper	29.1
Iron	26800.0
Lead	85.8
Mercury	0.26
Nickel	8.0
Selenium	2.9
Zinc	84.5

B-17 (5.5-6.0)	
Compound	Result
Arsenic	21.9
Chromium	23.4
Copper	34.8
Iron	28400.0
Lead	57.2
Mercury	0.08
Nickel	15.1
Zinc	33.4

B-18 (6.0-6.5)	
Compound	Result
Arsenic	59.5
Chromium	15.6
Copper	18.1
Iron	33000.0
Lead	72.9
Mercury	0.74
Nickel	10.6
Zinc	158.0

B-19 (4.5-5.0)	
Compound	Result
Arsenic	12.6
Chromium	14.3
Copper	11.2
Iron	11500.0
Lead	24.1
Mercury	0.18
Nickel	6.9
Zinc	40.7

B-20 (5.5-6.0)	
Compound	Result
Arsenic	6.0
Beryllium	1.5
Cadmium	1.0
Chromium	13.9
Copper	86.5
Iron	21000.0
Lead	9835
Mercury	0.05
Nickel	56.9
Zinc	319.0

B-16 (4.5-5.0)	
Compound	Result
Arsenic	2.9
Beryllium	0.7
Cadmium	0.8
Chromium	15.0
Copper	45.6
Iron	15200.0
Lead	30.0
Mercury	0.06
Nickel	29.9
Zinc	143.0

B-13 (5.5-6.0)	
Compound	Result
Arsenic	9.8
Beryllium	1.2
Chromium	16.2
Copper	68.1
Iron	18400.0
Lead	49.2
Mercury	0.11
Nickel	24.3
Zinc	231.0

B-12 (5.5-6.0)	
Compound	Result
Arsenic	118.0
Cadmium	2.6
Chromium	15.8
Copper	52.3
Iron	81400.0
Lead	194.0
Mercury	0.47
Nickel	19.9
Selenium	7.3
Zinc	89.6

B-9 (5.0-5.5)	
Compound	Result
Arsenic	3.8
Chromium	12.7
Copper	16.2
Iron	8120.0
Lead	45.8
Mercury	0.11
Nickel	6.7
Zinc	74.3

B-10 (6.5-7.0)	
Compound	Result
Arsenic	3.0
Chromium	14.3
Copper	19.3
Iron	18700.0
Lead	32.3
Mercury	0.83
Nickel	14.9
Zinc	35.5

B-11 (5.5-6.0)	
Compound	Result
Arsenic	16.6
Chromium	14.4
Copper	60.9
Iron	21700.0
Lead	541.0
Mercury	0.55
Nickel	11.2
Zinc	163.0

LEGEND:

- ▲ SOIL BORING LOCATION (OCTOBER 2002)
- ○ SHALLOW BORING (MARCH 2003)
- ● DEEP BORING (MARCH 2003)
- ◐ DELINEATION BORING (MARCH 2003)
- ⊕ SHALLOW MONITORING WELL
- ▭ CONCENTRATION EXCEEDS NYSDEC SOIL QUALITY CRITERIA

SOIL QUALITY CRITERIA	
Arsenic	7.5
Beryllium	0.16
Cadmium	1.0
Chromium	10
Copper	25
Iron	2000
Lead	SB
Mercury	0.1
Nickel	13
Zinc	20

NOTE:

ALL CONCENTRATIONS GIVEN ARE IN mg/kg.

SOURCE:

THIS FIGURE WAS CREATED FROM SANBORN MAPS FROM THE SANBORN LIBRARY, LLC.

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GRAPHIC SCALE

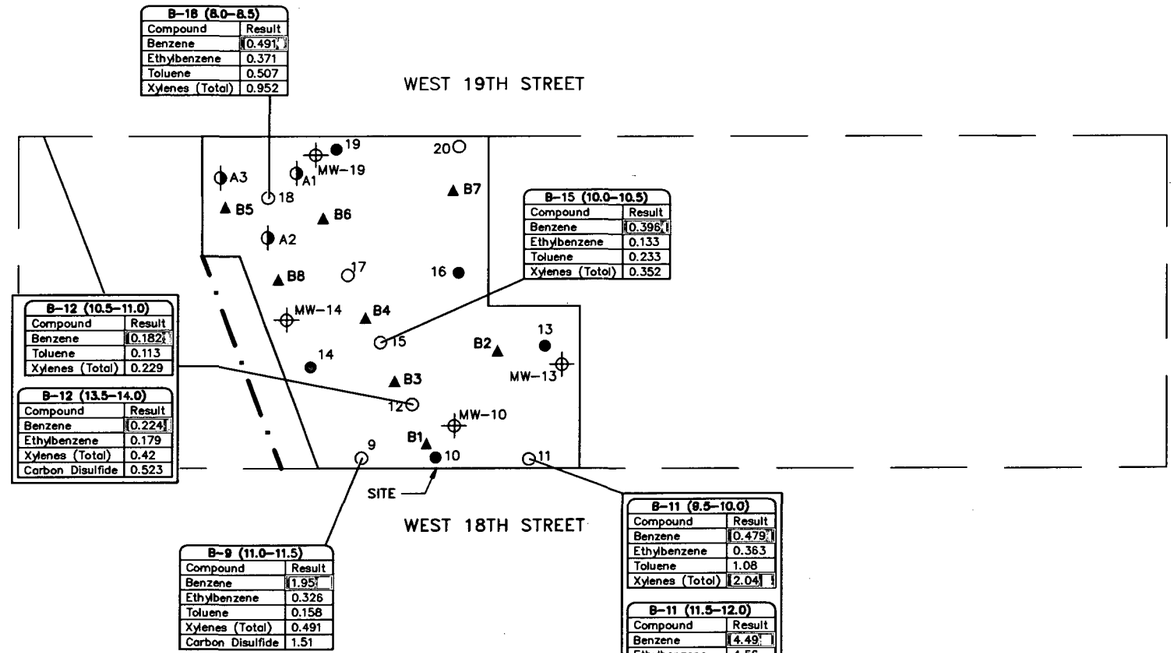
WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

HEAVY METALS DETECTED IN SOIL MAP (4.0 TO 7.0 FEET BGS)

BBL® BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 9

X: 27410X02.DWG
L: OFF=REF*
P: PAGESET/PLT-BL
06/02/03 CRA-85-TLF
27410001/27410C07.DWG



B-18 (8.0-8.5)	
Compound	Result
Benzene	(0.491)
Ethylbenzene	0.371
Toluene	0.507
Xylenes (Total)	0.952

B-15 (10.0-10.5)	
Compound	Result
Benzene	(0.396)
Ethylbenzene	0.133
Toluene	0.233
Xylenes (Total)	0.352

B-12 (10.5-11.0)	
Compound	Result
Benzene	(0.182)
Toluene	0.113
Xylenes (Total)	0.229

B-12 (13.5-14.0)	
Compound	Result
Benzene	(0.224)
Ethylbenzene	0.179
Xylenes (Total)	0.42
Carbon Disulfide	0.523

B-9 (11.0-11.5)	
Compound	Result
Benzene	(1.95)
Ethylbenzene	0.326
Toluene	0.158
Xylenes (Total)	0.491
Carbon Disulfide	1.51

B-11 (8.5-10.0)	
Compound	Result
Benzene	(0.479)
Ethylbenzene	0.363
Toluene	1.08
Xylenes (Total)	(2.04)

B-11 (11.5-12.0)	
Compound	Result
Benzene	(4.49)
Ethylbenzene	4.56
Toluene	0.774
Xylenes (Total)	(5.33)

LEGEND:

- ▲ SOIL BORING LOCATION (OCTOBER 2002)
- ○ SHALLOW BORING (MARCH 2003)
- ● DEEP BORING (MARCH 2003)
- ⌽ DELINEATION BORING (MARCH 2003)
- ⊕ SHALLOW MONITORING WELL
- ▭ CONCENTRATION EXCEEDS NYSDEC SOIL QUALITY CRITERIA

SOIL QUALITY CRITERIA	
Benzene	0.08
Ethylbenzene	5.5
Toluene	1.5
Xylenes (Total)	1.2

NOTE:
ALL CONCENTRATIONS GIVEN ARE IN mg/kg.

SOURCE:
THIS FIGURE WAS CREATED FROM SANBORN MAPS FROM THE SANBORN LIBRARY, LLC.

0 80' 160'
GRAPHIC SCALE

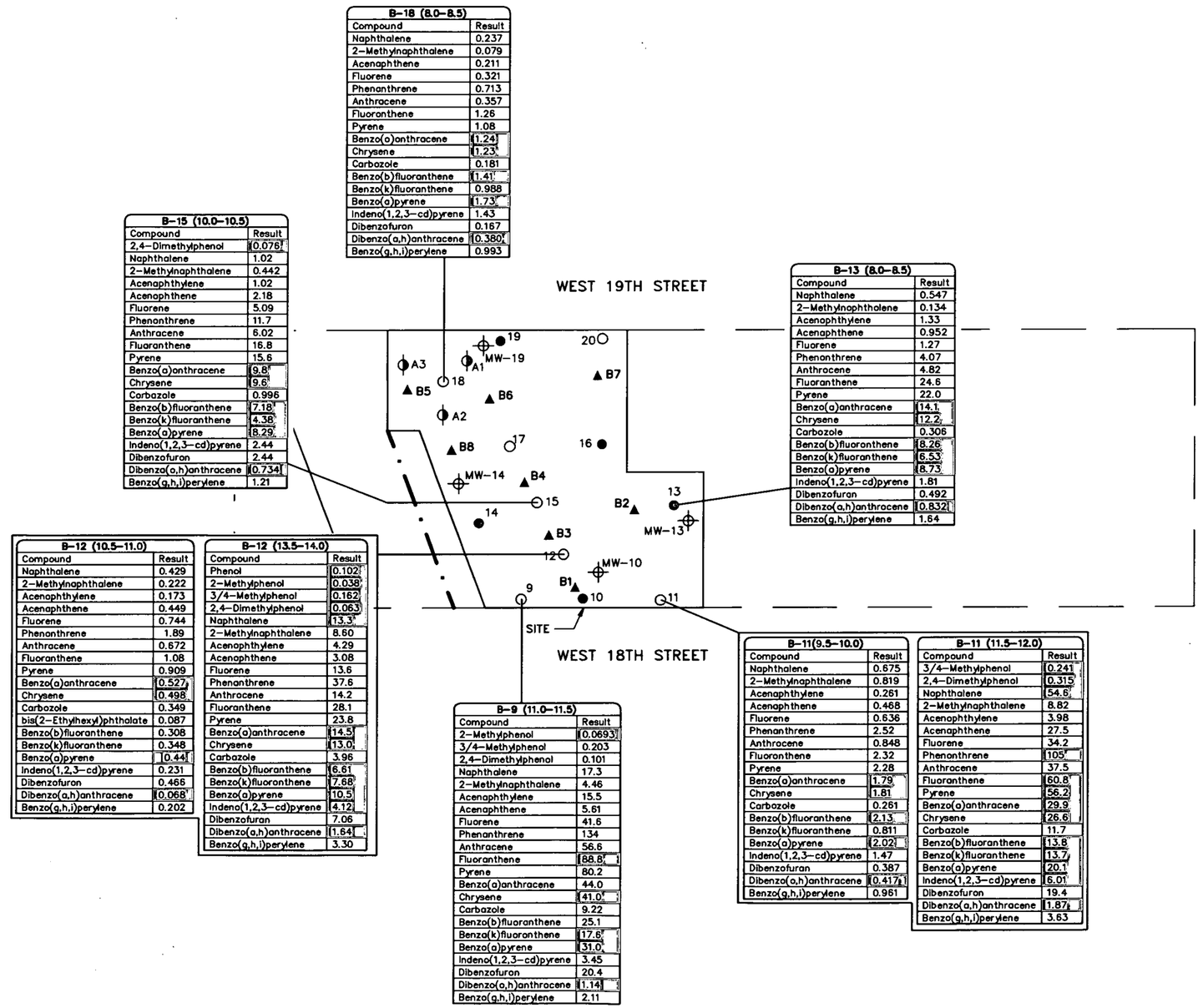
WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

BTEX CONCENTRATIONS IN SOIL MAP (8.0 TO 14.0 FEET BGS)

BBL® BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 10

X: 27410X02.DWG
L: OFF=REF*
P: PAGESET/PLT-BL
06/02/03 CRA-85-TLF
27410001/27410C11.DWG



B–18 (8.0–8.5)

Compound	Result
Naphthalene	0.237
2–Methylnaphthalene	0.079
Acenaphthene	0.211
Fluorene	0.321
Phenanthrene	0.713
Anthracene	0.357
Fluoranthene	1.26
Pyrene	1.08
Benzo(a)anthracene	1.24
Chrysene	1.23
Carbazole	0.181
Benzo(b)fluoranthene	1.41
Benzo(k)fluoranthene	0.988
Benzo(a)pyrene	1.73
Indeno(1,2,3–cd)pyrene	1.43
Dibenzofuran	0.167
Dibenzo(a,h)anthracene	0.380
Benzo(g,h,i)perylene	0.993

B–15 (10.0–10.5)

Compound	Result
2,4–Dimethylphenol	0.076
Naphthalene	1.02
2–Methylnaphthalene	0.442
Acenaphthylene	1.02
Acenaphthene	2.18
Fluorene	5.09
Phenanthrene	11.7
Anthracene	6.02
Fluoranthene	16.8
Pyrene	15.6
Benzo(a)anthracene	9.8
Chrysene	9.6
Carbazole	0.996
Benzo(b)fluoranthene	7.18
Benzo(k)fluoranthene	4.38
Benzo(a)pyrene	8.29
Indeno(1,2,3–cd)pyrene	2.44
Dibenzofuran	2.44
Dibenzo(a,h)anthracene	0.734
Benzo(g,h,i)perylene	1.21

B–13 (8.0–8.5)

Compound	Result
Naphthalene	0.547
2–Methylnaphthalene	0.134
Acenaphthylene	1.33
Acenaphthene	0.952
Fluorene	1.27
Phenanthrene	4.07
Anthracene	4.82
Fluoranthene	24.6
Pyrene	22.0
Benzo(a)anthracene	14.1
Chrysene	12.2
Carbazole	0.306
Benzo(b)fluoranthene	8.26
Benzo(k)fluoranthene	6.53
Benzo(a)pyrene	8.73
Indeno(1,2,3–cd)pyrene	1.81
Dibenzofuran	0.492
Dibenzo(a,h)anthracene	0.832
Benzo(g,h,i)perylene	1.64

B–12 (10.5–11.0)

Compound	Result
Naphthalene	0.429
2–Methylnaphthalene	0.222
Acenaphthylene	0.173
Acenaphthene	0.449
Fluorene	0.744
Phenanthrene	1.89
Anthracene	0.672
Fluoranthene	1.08
Pyrene	0.909
Benzo(a)anthracene	0.527
Chrysene	0.498
Carbazole	0.349
bis(2–Ethylhexyl)phthalate	0.087
Benzo(b)fluoranthene	0.308
Benzo(k)fluoranthene	0.348
Benzo(a)pyrene	0.44
Indeno(1,2,3–cd)pyrene	0.231
Dibenzofuran	0.466
Dibenzo(a,h)anthracene	0.068
Benzo(g,h,i)perylene	0.202

B–12 (13.5–14.0)

Compound	Result
Phenol	0.102
2–Methylphenol	0.038
3/4–Methylphenol	0.162
2,4–Dimethylphenol	0.063
Naphthalene	13.3
2–Methylnaphthalene	8.60
Acenaphthylene	4.29
Acenaphthene	3.08
Fluorene	13.6
Phenanthrene	37.6
Anthracene	14.2
Fluoranthene	28.1
Pyrene	23.8
Benzo(a)anthracene	14.5
Chrysene	13.0
Carbazole	3.96
Benzo(b)fluoranthene	6.61
Benzo(k)fluoronthene	7.68
Benzo(a)pyrene	10.5
Indeno(1,2,3–cd)pyrene	4.12
Dibenzofuran	7.06
Dibenzo(a,h)anthracene	1.64
Benzo(g,h,i)perylene	3.30

B–9 (11.0–11.5)

Compound	Result
2–Methylphenol	0.0693
3/4–Methylphenol	0.203
2,4–Dimethylphenol	0.101
Naphthalene	17.3
2–Methylnaphthalene	4.46
Acenaphthylene	15.5
Acenaphthene	5.61
Fluorene	41.6
Phenanthrene	134
Anthracene	56.6
Fluoranthene	88.8
Pyrene	80.2
Benzo(a)anthracene	44.0
Chrysene	41.0
Carbazole	9.22
Benzo(b)fluoranthene	25.1
Benzo(k)fluoranthene	17.6
Benzo(a)pyrene	31.0
Indeno(1,2,3–cd)pyrene	3.45
Dibenzofuran	20.4
Dibenzo(a,h)anthracene	1.14
Benzo(g,h,i)perylene	2.11

B–11(9.5–10.0)

Compound	Result
Naphthalene	0.675
2–Methylnaphthalene	0.819
Acenaphthylene	0.261
Acenaphthene	0.468
Fluorene	0.636
Phenanthrene	2.52
Anthracene	0.848
Fluoranthene	2.32
Pyrene	2.28
Benzo(a)anthracene	1.79
Chrysene	1.81
Carbazole	0.261
Benzo(b)fluoranthene	2.13
Benzo(k)fluoranthene	0.811
Benzo(a)pyrene	2.02
Indeno(1,2,3–cd)pyrene	1.47
Dibenzofuran	0.387
Dibenzo(a,h)anthracene	0.417
Benzo(g,h,i)perylene	0.961

B–11 (11.5–12.0)

Compound	Result
3/4–Methylphenol	0.241
2,4–Dimethylphenol	0.315
Naphthalene	54.6
2–Methylnaphthalene	8.82
Acenaphthylene	3.98
Acenaphthene	27.5
Fluorene	34.2
Phenanthrene	105
Anthracene	37.5
Fluoranthene	60.8
Pyrene	56.2
Benzo(a)anthracene	29.9
Chrysene	26.6
Carbazole	11.7
Benzo(b)fluoranthene	13.8
Benzo(k)fluoranthene	13.7
Benzo(a)pyrene	20.1
Indeno(1,2,3–cd)pyrene	6.01
Dibenzofuran	19.4
Dibenzo(a,h)anthracene	1.87
Benzo(g,h,i)perylene	3.63

LEGEND:

- ▲ SOIL BORING LOCATION (OCTOBER 2002)
- ○ SHALLOW BORING (MARCH 2003)
- ● DEEP BORING (MARCH 2003)
- ◐ DELINEATION BORING (MARCH 2003)
- ⊕ SHALLOW MONITORING WELL
- ▭ CONCENTRATION EXCEEDS NYSDEC SOIL QUALITY CRITERIA

SOIL QUALITY CRITERIA	
Phenol	0.03
2–Methylphenol	0.03
3/4–Methylphenol	0.03
2,4–Dimethylphenol	0.03
Naphthalene	13
2–Methylnaphthalene	36.4
Acenaphthylene	41
Acenaphthene	50
Fluorene	50
Phenanthrene	50
Anthracene	50
Fluoranthene	50
Pyrene	50
Benzo(a)anthracene	0.224
Chrysene	0.4
Carbazole	
Benzo(b)fluoranthene	1.1
Benzo(k)fluoranthene	1.1
Benzo(a)pyrene	0.061
Indeno(1,2,3–cd)pyrene	3.2
Dibenzofuran	
Dibenzo(a,h)anthracene	0.014
Benzo(g,h,i)perylene	50

NOTE:

ALL CONCENTRATIONS GIVEN ARE IN mg/kg.

SOURCE:

THIS FIGURE WAS CREATED FROM SANBORN MAPS FROM THE SANBORN LIBRARY, LLC.

0 80' 160'

GRAPHIC SCALE

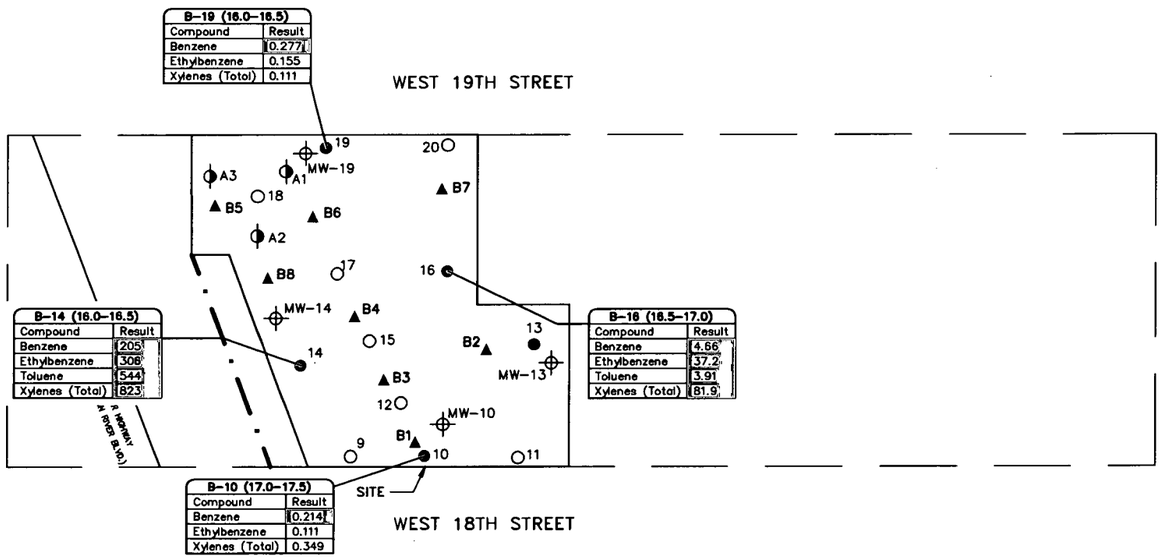
WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

PHENOL AND PAH CONCENTRATIONS IN SOIL MAP (8.0 TO 14.0 FEET BGS)

BBL® BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 11

X: 27410X02.DWG
L: OFF=REF*
P: PAGESET/PLT-BL
06/02/03 CRA-85-TLF
27410001/27410C10.DWG



LEGEND:

- ▲ SOIL BORING LOCATION (OCTOBER 2002)
- ○ SHALLOW BORING (MARCH 2003)
- ● DEEP BORING (MARCH 2003)
- ⌀ DELINEATION BORING (MARCH 2003)
- ⊕ SHALLOW MONITORING WELL
- ▭ CONCENTRATION EXCEEDS NYSDEC SOIL QUALITY CRITERIA

SOIL QUALITY CRITERIA	
Benzene	0.08
Ethylbenzene	5.5
Toluene	1.5
Xylenes (Total)	1.2

NOTE:

ALL CONCENTRATIONS GIVEN ARE IN mg/kg.

SOURCE:

THIS FIGURE WAS CREATED FROM SANBORN MAPS FROM THE SANBORN LIBRARY, LLC.

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GRAPHIC SCALE

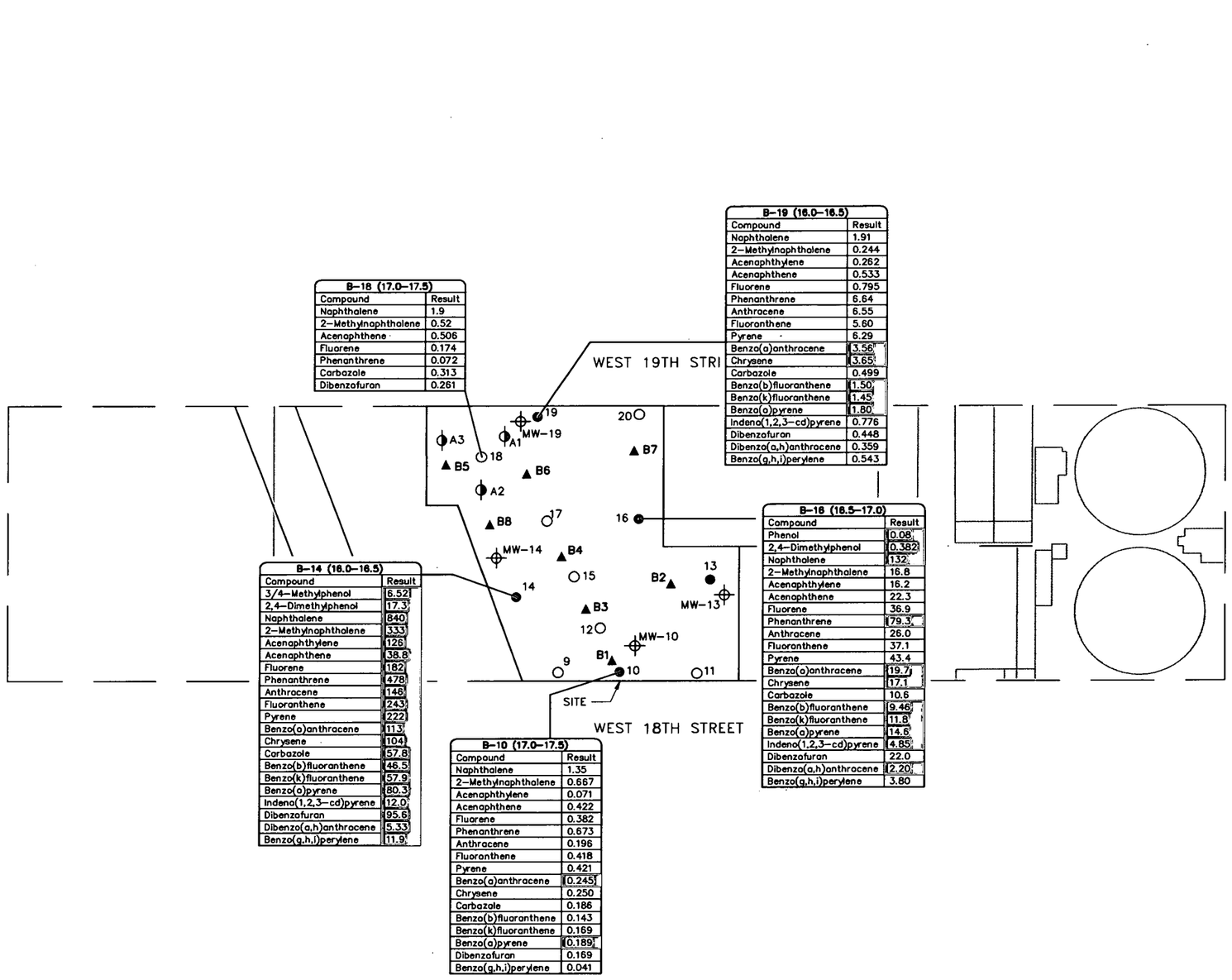
WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

BTEX CONCENTRATIONS IN SOIL MAP (16.0 TO 17.5 FEET BGS)

BBL® BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 12

X: 27410X02.DWG
L: OFF=REF*
P: PAGESET/PLT-BL
06/02/03 CRA-85-TLF
27410001/27410C03.DWG



B-18 (17.0–17.5)	
Compound	Result
Naphthalene	1.9
2–Methylnaphthalene	0.52
Acenaphthene	0.506
Fluorene	0.174
Phenanthrene	0.072
Carbazole	0.313
Dibenzofuran	0.261

B-19 (16.0–16.5)	
Compound	Result
Naphthalene	1.91
2–Methylnaphthalene	0.244
Acenaphthylene	0.262
Acenaphthene	0.533
Fluorene	0.795
Phenanthrene	6.64
Anthracene	6.55
Fluoranthene	5.60
Pyrene	6.29
Benza(a)anthracene	3.58
Chrysene	3.65
Carbazole	0.499
Benza(b)fluoranthene	1.50
Benza(k)fluoranthene	1.45
Benza(a)pyrene	1.80
Indeno(1,2,3–cd)pyrene	0.776
Dibenzofuran	0.448
Dibenzo(a,h)anthracene	0.359
Benzo(g,h,i)perylene	0.543

B-16 (16.5–17.0)	
Compound	Result
Phenol	0.08
2,4–Dimethylphenol	0.382
Naphthalene	132
2–Methylnaphthalene	16.8
Acenaphthylene	16.2
Acenaphthene	22.3
Fluorene	36.9
Phenanthrene	179.3
Anthracene	26.0
Fluoranthene	37.1
Pyrene	43.4
Benzo(a)anthracene	19.7
Chrysene	17.1
Carbazole	10.6
Benzo(b)fluoranthene	9.46
Benza(k)fluoranthene	11.8
Benzo(a)pyrene	14.6
Indeno(1,2,3–cd)pyrene	4.85
Dibenzofuran	22.0
Dibenzo(a,h)anthracene	2.20
Benzo(g,h,i)perylene	3.80

B-14 (16.0–16.5)	
Compound	Result
3/4–Methylphenol	6.52
2,4–Dimethylphenol	17.3
Naphthalene	840
2–Methylnaphthalene	333
Acenaphthylene	126
Acenaphthene	38.8
Fluorene	182
Phenanthrene	478
Anthracene	146
Fluoranthene	243
Pyrene	222
Benzo(a)anthracene	113
Chrysene	104
Carbazole	57.8
Benzo(b)fluoranthene	46.5
Benzo(k)fluoranthene	57.9
Benzo(a)pyrene	80.3
Indeno(1,2,3–cd)pyrene	12.0
Dibenzofuran	95.6
Dibenzo(a,h)anthracene	5.33
Benzo(g,h,i)perylene	11.9

B-10 (17.0–17.5)	
Compound	Result
Naphthalene	1.35
2–Methylnaphthalene	0.667
Acenaphthylene	0.071
Acenaphthene	0.422
Fluorene	0.382
Phenanthrene	0.673
Anthracene	0.196
Fluoranthene	0.418
Pyrene	0.421
Benzo(a)anthracene	0.245
Chrysene	0.250
Carbazole	0.186
Benzo(b)fluoranthene	0.143
Benzo(k)fluoranthene	0.169
Benzo(a)pyrene	0.189
Dibenzofuran	0.169
Benzo(g,h,i)perylene	0.041

LEGEND:

- ▲ SOIL BORING LOCATION (OCTOBER 2002)
- ○ SHALLOW BORING (MARCH 2003)
- ● DEEP BORING (MARCH 2003)
- ◐ DELINEATION BORING (MARCH 2003)
- ⊕ SHALLOW MONITORING WELL
- ▭ CONCENTRATION EXCEEDS NYSDEC SOIL QUALITY CRITERIA

SOIL QUALITY CRITERIA	
3/4–Methylphenol	0.03
2,4–Dimethylphenol	0.03
Naphthalene	13
2–Methylnaphthalene	36.4
Acenaphthylene	41
Acenaphthene	50
Fluorene	50
Phenanthrene	50
Anthracene	50
Fluoranthene	50
Pyrene	50
Benzo(a)anthracene	0.224
Chrysene	0.4
Carbazole	
Benzo(b)fluoranthene	1.1
Benzo(k)fluoranthene	1.1
Benzo(a)pyrene	0.061
Indeno(1,2,3–cd)pyrene	3.2
Dibenzofuran	
Dibenzo(a,h)anthracene	0.014
Benzo(g,h,i)perylene	50

NOTE:
ALL CONCENTRATIONS GIVEN ARE IN mg/kg.

SOURCE:
THIS FIGURE WAS CREATED FROM SANBORN MAPS FROM THE SANBORN LIBRARY, LLC.

0 80' 160'
GRAPHIC SCALE

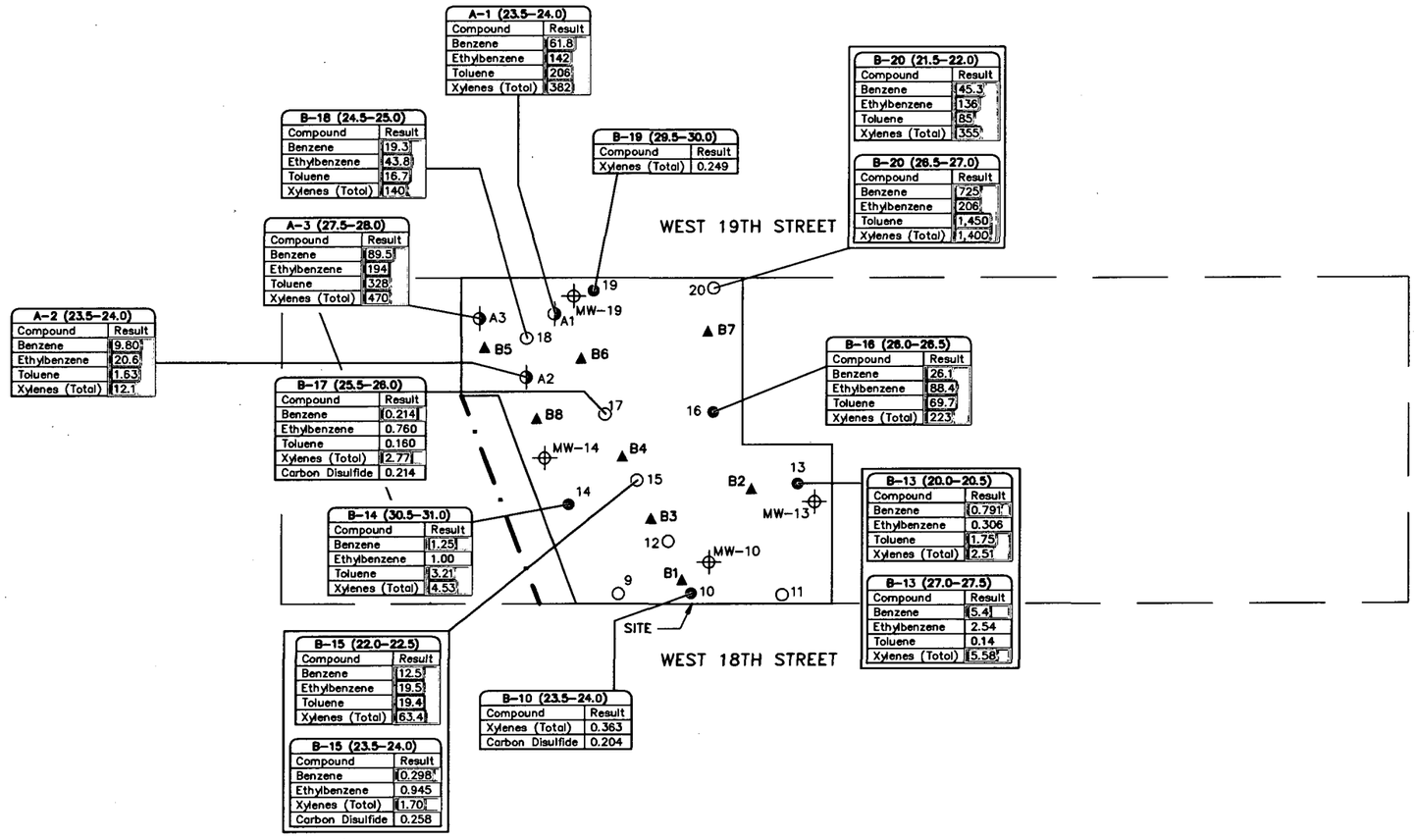
WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

PHENOL AND PAH CONCENTRATIONS IN SOIL MAP (16.0 TO 17.5 FEET BGS)

BBL® BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 13

X: 27410X01.DWG
L: OFF=REF*
P: PAGESET/PLT-BL
06/02/03 CRA-B5-TLF
27410001/27410C02.DWG



LEGEND:

- ▲ SOIL BORING LOCATION (OCTOBER 2002)
- ○ SHALLOW BORING (MARCH 2003)
- ● DEEP BORING (MARCH 2003)
- ⊕ DELINEATION BORING (MARCH 2003)
- ⊕ SHALLOW MONITORING WELL
- ▭ CONCENTRATION EXCEEDS NYSDEC SOIL QUALITY CRITERIA

SOIL QUALITY CRITERIA	
Benzene	0.08
Ethylbenzene	5.5
Toluene	1.5
Xylenes (Total)	1.2
Carbon Disulfide	0.258

NOTE:

ALL CONCENTRATIONS GIVEN ARE IN mg/kg.

SOURCE:

THIS FIGURE WAS CREATED FROM SANBORN MAPS FROM THE SANBORN LIBRARY, LLC.

0 80' 160'

GRAPHIC SCALE

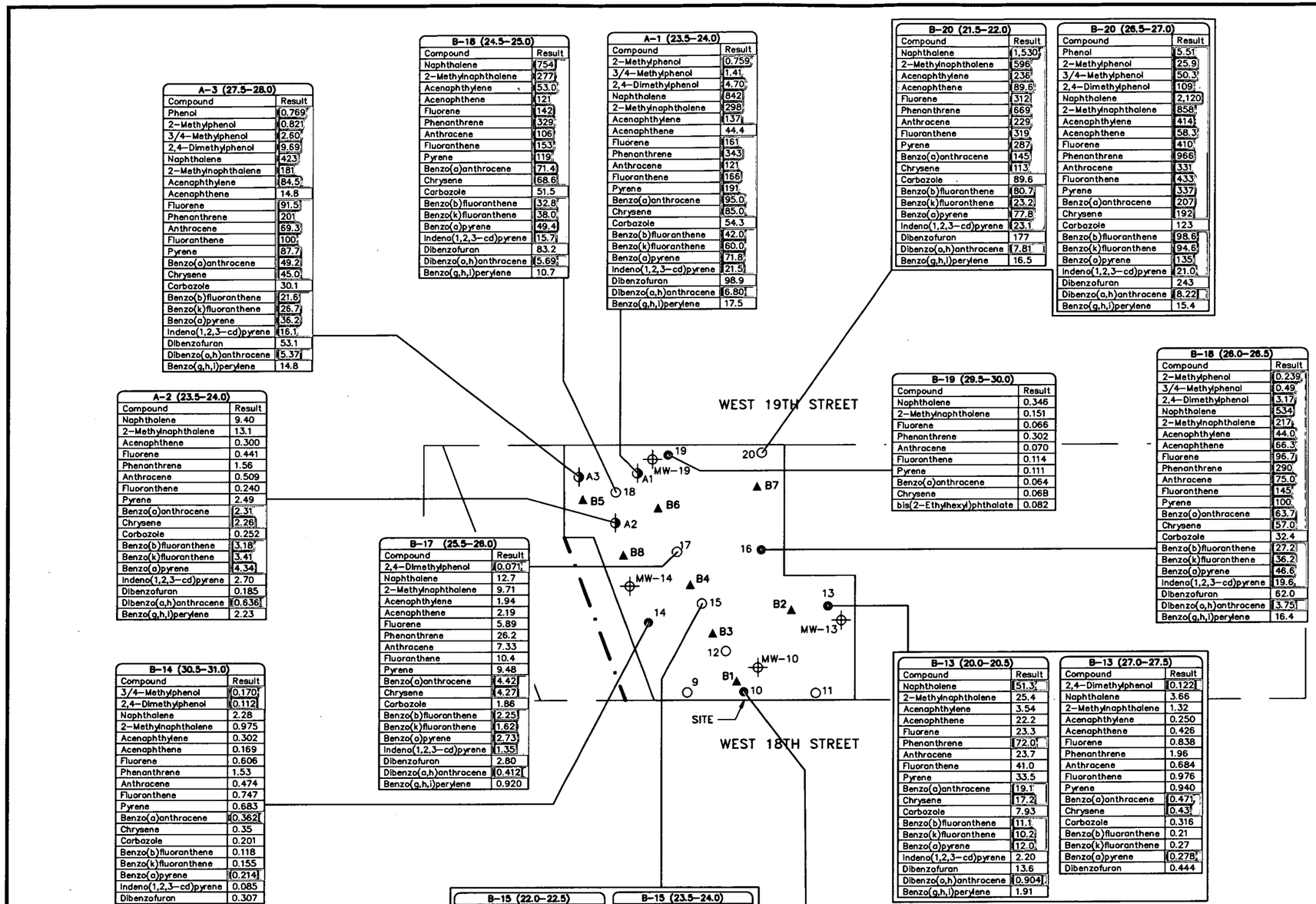
WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

BTEX CONCENTRATIONS IN SOIL MAP (20.0 TO 31.0 FEET BGS)

BLASLAND, BOUCK & LEE, INC.
engineers & scientists

FIGURE 14

X: 27410X02.DWG
L: OFF=REF*
P: PAGESET/PLT-BL
06/02/03 CRA-85-TLF
27410001/27410C05.DWG



A-3 (27.5–28.0)	
Compound	Result
Phenol	0.769
2-Methylphenol	0.821
3/4-Methylphenol	2.60
2,4-Dimethylphenol	9.69
Naphthalene	423
2-Methylnaphthalene	181
Acenaphthylene	84.5
Acenaphthene	14.8
Fluorene	91.5
Phenanthrene	201
Anthracene	69.3
Fluoranthene	100
Pyrene	87.7
Benzo(a)anthracene	49.2
Chrysene	45.0
Carbazole	30.1
Benzo(b)fluoranthene	21.6
Benzo(k)fluoranthene	26.7
Benzo(a)pyrene	36.2
Indeno(1,2,3-cd)pyrene	16.1
Dibenzofuran	53.1
Dibenzo(a,h)anthracene	5.37
Benzo(g,h,i)perylene	14.8

B-18 (24.5–25.0)	
Compound	Result
Naphthalene	754
2-Methylnaphthalene	277
Acenaphthylene	53.0
Acenaphthene	121
Fluorene	142
Phenanthrene	329
Anthracene	106
Fluoranthene	153
Pyrene	119
Benzo(a)anthracene	71.4
Chrysene	68.6
Carbazole	51.5
Benzo(b)fluoranthene	32.8
Benzo(k)fluoranthene	38.0
Benzo(a)pyrene	49.4
Indeno(1,2,3-cd)pyrene	15.7
Dibenzofuran	83.2
Dibenzo(a,h)anthracene	15.69
Benzo(g,h,i)perylene	10.7

A-1 (23.5–24.0)	
Compound	Result
2-Methylphenol	0.759
3/4-Methylphenol	1.41
2,4-Dimethylphenol	4.70
Naphthalene	842
2-Methylnaphthalene	298
Acenaphthylene	137
Acenaphthene	44.4
Fluorene	161
Phenanthrene	343
Anthracene	121
Fluoranthene	166
Pyrene	191
Benzo(a)anthracene	95.0
Chrysene	85.0
Carbazole	54.3
Benzo(b)fluoranthene	42.0
Benzo(k)fluoranthene	60.0
Benzo(a)pyrene	71.8
Indeno(1,2,3-cd)pyrene	21.5
Dibenzofuran	98.9
Dibenzo(a,h)anthracene	16.80
Benzo(g,h,i)perylene	17.5

B-20 (21.5–22.0)	
Compound	Result
Naphthalene	1,530
2-Methylnaphthalene	596
Acenaphthylene	236
Acenaphthene	89.6
Fluorene	312
Phenanthrene	669
Anthracene	229
Fluoranthene	319
Pyrene	287
Benzo(a)anthracene	145
Chrysene	113
Carbazole	89.6
Benzo(b)fluoranthene	80.7
Benzo(k)fluoranthene	23.2
Benzo(a)pyrene	77.8
Indeno(1,2,3-cd)pyrene	23.1
Dibenzofuran	177
Dibenzo(a,h)anthracene	17.81
Benzo(g,h,i)perylene	16.5

B-20 (26.5–27.0)	
Compound	Result
Phenol	5.51
2-Methylphenol	25.9
3/4-Methylphenol	50.3
2,4-Dimethylphenol	109
Naphthalene	2,120
2-Methylnaphthalene	858
Acenaphthylene	414
Acenaphthene	58.3
Fluorene	410
Phenanthrene	966
Anthracene	331
Fluoranthene	433
Pyrene	337
Benzo(a)anthracene	207
Chrysene	192
Carbazole	123
Benzo(b)fluoranthene	98.6
Benzo(k)fluoranthene	94.6
Benzo(a)pyrene	135
Indeno(1,2,3-cd)pyrene	21.0
Dibenzofuran	243
Dibenzo(a,h)anthracene	8.22
Benzo(g,h,i)perylene	15.4

B-19 (29.5–30.0)	
Compound	Result
Naphthalene	0.346
2-Methylnaphthalene	0.151
Fluorene	0.066
Phenanthrene	0.302
Anthracene	0.070
Fluoranthene	0.114
Pyrene	0.111
Benzo(a)anthracene	0.064
Chrysene	0.068
bis(2-Ethylhexyl)phthalate	0.082

B-18 (26.0–26.5)	
Compound	Result
2-Methylphenol	0.239
3/4-Methylphenol	0.49
2,4-Dimethylphenol	3.17
Naphthalene	534
2-Methylnaphthalene	217
Acenaphthylene	44.0
Acenaphthene	66.3
Fluorene	96.7
Phenanthrene	290
Anthracene	75.0
Fluoranthene	145
Pyrene	100
Benzo(a)anthracene	63.7
Chrysene	57.0
Carbazole	32.4
Benzo(b)fluoranthene	27.2
Benzo(k)fluoranthene	36.2
Benzo(a)pyrene	48.6
Indeno(1,2,3-cd)pyrene	19.6
Dibenzofuran	62.0
Dibenzo(a,h)anthracene	3.75
Benzo(g,h,i)perylene	16.4

A-2 (23.5–24.0)	
Compound	Result
Naphthalene	9.40
2-Methylnaphthalene	13.1
Acenaphthene	0.300
Fluorene	0.441
Phenanthrene	1.56
Anthracene	0.509
Fluoranthene	0.240
Pyrene	2.49
Benzo(a)anthracene	2.31
Chrysene	2.26
Carbazole	0.252
Benzo(b)fluoranthene	3.18
Benzo(k)fluoranthene	3.41
Benzo(a)pyrene	4.34
Indeno(1,2,3-cd)pyrene	2.70
Dibenzofuran	0.185
Dibenzo(a,h)anthracene	0.636
Benzo(g,h,i)perylene	2.23

B-17 (25.5–26.0)	
Compound	Result
2,4-Dimethylphenol	0.071
Naphthalene	12.7
2-Methylnaphthalene	9.71
Acenaphthylene	1.94
Acenaphthene	2.19
Fluorene	5.89
Phenanthrene	26.2
Anthracene	7.33
Fluoranthene	10.4
Pyrene	9.48
Benzo(a)anthracene	4.42
Chrysene	4.27
Carbazole	1.86
Benzo(b)fluoranthene	2.25
Benzo(k)fluoranthene	1.62
Benzo(a)pyrene	2.73
Indeno(1,2,3-cd)pyrene	1.35
Dibenzofuran	2.80
Dibenzo(a,h)anthracene	0.412
Benzo(g,h,i)perylene	0.920

B-14 (30.5–31.0)	
Compound	Result
3/4-Methylphenol	0.170
2,4-Dimethylphenol	0.112
Naphthalene	2.28
2-Methylnaphthalene	0.975
Acenaphthylene	0.302
Acenaphthene	0.169
Fluorene	0.606
Phenanthrene	1.53
Anthracene	0.474
Fluoranthene	0.747
Pyrene	0.683
Benzo(a)anthracene	0.362
Chrysene	0.35
Carbazole	0.201
Benzo(b)fluoranthene	0.118
Benzo(k)fluoranthene	0.155
Benzo(a)pyrene	0.214
Indeno(1,2,3-cd)pyrene	0.085
Dibenzofuran	0.307
Benzo(g,h,i)perylene	0.093

B-13 (20.0–20.5)	
Compound	Result
Naphthalene	51.3
2-Methylnaphthalene	25.4
Acenaphthylene	3.54
Acenaphthene	22.2
Fluorene	23.3
Phenanthrene	72.0
Anthracene	23.7
Fluoranthene	41.0
Pyrene	33.5
Benzo(a)anthracene	19.1
Chrysene	17.2
Carbazole	7.93
Benzo(b)fluoranthene	11.1
Benzo(k)fluoranthene	10.2
Benzo(a)pyrene	12.0
Indeno(1,2,3-cd)pyrene	2.20
Dibenzofuran	13.6
Dibenzo(a,h)anthracene	0.904
Benzo(g,h,i)perylene	1.91

B-13 (27.0–27.5)	
Compound	Result
2,4-Dimethylphenol	0.122
Naphthalene	3.66
2-Methylnaphthalene	1.32
Acenaphthylene	0.250
Acenaphthene	0.426
Fluorene	0.838
Phenanthrene	1.96
Anthracene	0.684
Fluoranthene	0.976
Pyrene	0.940
Benzo(a)anthracene	0.471
Chrysene	0.431
Carbazole	0.316
Benzo(b)fluoranthene	0.21
Benzo(k)fluoranthene	0.27
Benzo(a)pyrene	0.278
Dibenzofuran	0.444

B-15 (22.0–22.5)	
Compound	Result
Naphthalene	252
2-Methylnaphthalene	141
Acenaphthylene	61.6
Acenaphthene	21.5
Fluorene	117
Phenanthrene	304
Anthracene	111
Fluoranthene	159
Pyrene	153
Benzo(a)anthracene	80.1
Chrysene	74.3
Carbazole	22.7
Benzo(b)fluoranthene	36.8
Benzo(k)fluoranthene	35.5
Benzo(a)pyrene	53.5
Indeno(1,2,3-cd)pyrene	9.95
Dibenzofuran	59.4
Dibenzo(a,h)anthracene	3.51
Benzo(g,h,i)perylene	6.58

B-15 (23.5–24.0)	
Compound	Result
Naphthalene	0.542
2-Methylnaphthalene	0.253
Acenaphthene	0.064
Fluorene	0.192
Phenanthrene	0.801
Anthracene	0.200
Fluoranthene	0.325
Pyrene	0.294
Benzo(a)anthracene	0.159
Chrysene	0.153
Benzo(b)fluoranthene	0.068
Benzo(k)fluoranthene	0.087
Benzo(a)pyrene	0.097
Dibenzofuran	0.081

B-10 (23.5–24.0)	
Compound	Result
Naphthalene	0.522
2-Methylnaphthalene	0.258
Acenaphthene	0.080
Fluorene	0.198
Phenanthrene	0.685
Anthracene	0.204
Fluoranthene	0.339
Pyrene	0.279
Benzo(a)anthracene	0.161
Chrysene	0.161
Carbazole	0.076
Benzo(b)fluoranthene	0.067
Benzo(k)fluoranthene	0.090
Benzo(a)pyrene	0.094
Dibenzofuran	0.112

LEGEND:

- ▲ SOIL BORING LOCATION (OCTOBER 2002)
- ○ SHALLOW BORING (MARCH 2003)
- ● DEEP BORING (MARCH 2003)
- ⊕ DELINEATION BORING (MARCH 2003)
- ⊕ SHALLOW MONITORING WELL
- ▭ CONCENTRATION EXCEEDS NYSDEC SOIL QUALITY CRITERIA

SOIL QUALITY CRITERIA	
Phenol	0.03
2-Methylphenol	0.03
3/4-Methylphenol	0.03
2,4-Dimethylphenol	0.03
Naphthalene	13
2-Methylnaphthalene	36.4
Acenaphthylene	41
Acenaphthene	50
Fluorene	50
Phenanthrene	50
Anthracene	50
Fluoranthene	50
Pyrene	50
Benzo(a)anthracene	0.224
Chrysene	0.4
Carbazole	
Benzo(b)fluoranthene	1.1
Benzo(k)fluoranthene	1.1
Benzo(a)pyrene	0.061
Indeno(1,2,3-cd)pyrene	3.2
Dibenzofuran	
Dibenzo(a,h)anthracene	0.014
Benzo(g,h,i)perylene	50

NOTE:

ALL CONCENTRATIONS GIVEN ARE IN mg/kg.

SOURCE:

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GRAPHIC SCALE

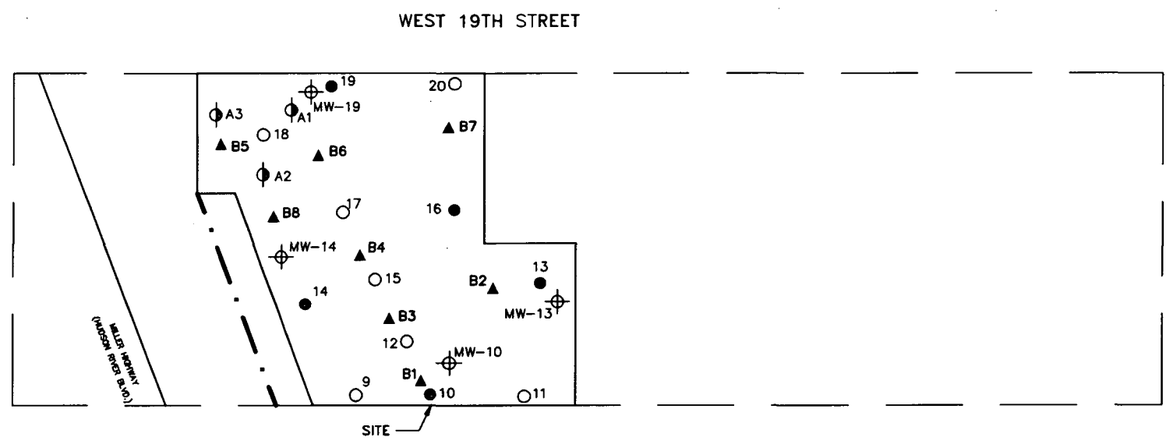
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NEW YORK, NEW YORK

PHENOL AND PAH CONCENTRATIONS IN SOIL MAP (20.0 TO 31.0 FEET BGS)

BBL® BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 15

X: 27410X02.DWG
L: OFF=REF*
P: PAGESET/PLT-BL
06/02/03 CRA-85-TLF
27410001/27410C04.DWG



* NO BTEX FOUND

LEGEND:

- ▲ SOIL BORING LOCATION (OCTOBER 2002)
- O SHALLOW BORING (MARCH 2003)
- ● DEEP BORING (MARCH 2003)
- ⌽ DELINEATION BORING (MARCH 2003)
- ⊕ SHALLOW MONITORING WELL

SOIL QUALITY CRITERIA	
Benzene	0.08
Ethylbenzene	5.5
Toluene	1.5
Xylenes (Total)	1.2

NOTE:

ALL CONCENTRATIONS GIVEN ARE IN mg/kg.

SOURCE:

THIS FIGURE WAS CREATED FROM SANBORN MAPS FROM THE SANBORN LIBRARY, LLC.

0 80' 160'

GRAPHIC SCALE

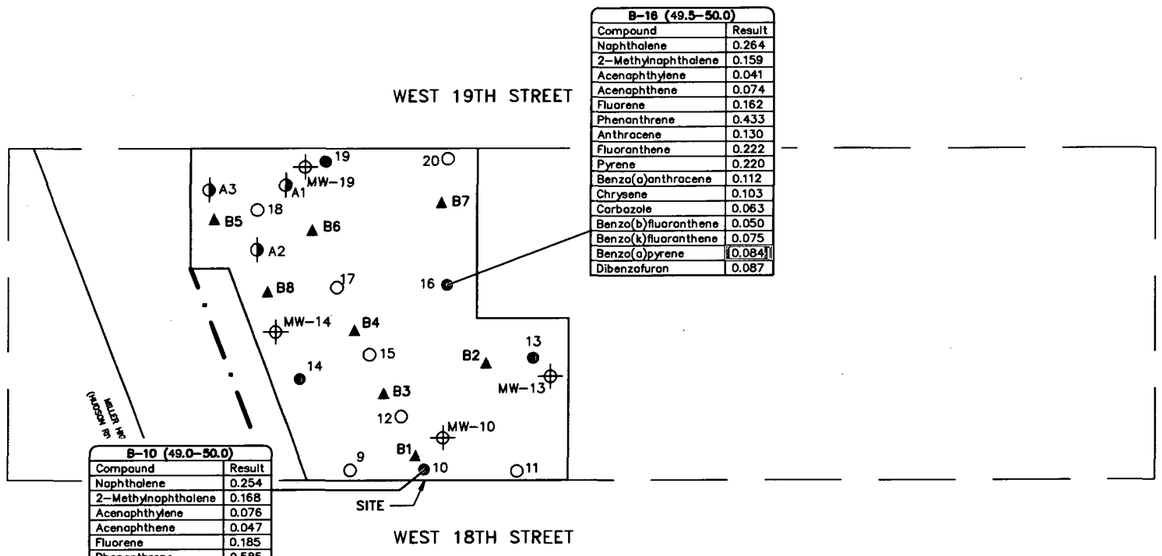
WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

BTEX CONCENTRATIONS IN SOIL MAP (49.0 TO 50.0 FEET BGS)

BBL® BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 16

X: 27410X02.DWG
L: OFF=REF*
P: PAGESET/PLT-BL
06/02/03 CRA-85-TLF
27410001/27410C14.DWG



B-16 (49.5-50.0)	
Compound	Result
Naphthalene	0.264
2-Methylnaphthalene	0.159
Acenaphthylene	0.041
Acenaphthene	0.074
Fluorene	0.162
Phenanthrene	0.433
Anthracene	0.130
Fluoranthene	0.222
Pyrene	0.220
Benzo(a)anthracene	0.112
Chrysene	0.103
Carbazole	0.063
Benzo(b)fluoranthene	0.050
Benzo(k)fluoranthene	0.075
Benzo(a)pyrene	(0.084)
Dibenzofuran	0.087

B-10 (49.0-50.0)	
Compound	Result
Naphthalene	0.254
2-Methylnaphthalene	0.168
Acenaphthylene	0.076
Acenaphthene	0.047
Fluorene	0.185
Phenanthrene	0.585
Anthracene	0.200
Fluoranthene	0.339
Pyrene	0.276
Benzo(a)anthracene	0.169
Chrysene	0.164
Carbazole	0.064
Benzo(b)fluoranthene	0.063
Benzo(k)fluoranthene	0.090
Benzo(a)pyrene	(0.102)
Dibenzofuran	0.096

LEGEND:

- ▲ SOIL BORING LOCATION (OCTOBER 2002)
- ○ SHALLOW BORING (MARCH 2003)
- ● DEEP BORING (MARCH 2003)
- ⌽ DELINEATION BORING (MARCH 2003)
- ⌖ SHALLOW MONITORING WELL
- ▭ CONCENTRATION EXCEEDS NYSDEC SOIL QUALITY CRITERIA

SOIL QUALITY CRITERIA	
Naphthalene	13
2-Methylnaphthalene	36.4
Acenaphthylene	41
Acenaphthene	50
Fluorene	50
Phenanthrene	50
Anthracene	50
Fluoranthene	50
Pyrene	50
Benzo(a)anthracene	0.224
Chrysene	0.4
Carbazole	
Benzo(b)fluoranthene	1.1
Benzo(k)fluoranthene	1.1
Benzo(a)pyrene	0.061
Dibenzofuran	

NOTE:

ALL CONCENTRATIONS GIVEN ARE IN mg/kg.

SOURCE:

THIS FIGURE WAS CREATED FROM SANBOR MAPS FROM THE SANBORN LIBRARY, LLC.

0 80' 160'

GRAPHIC SCALE

WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

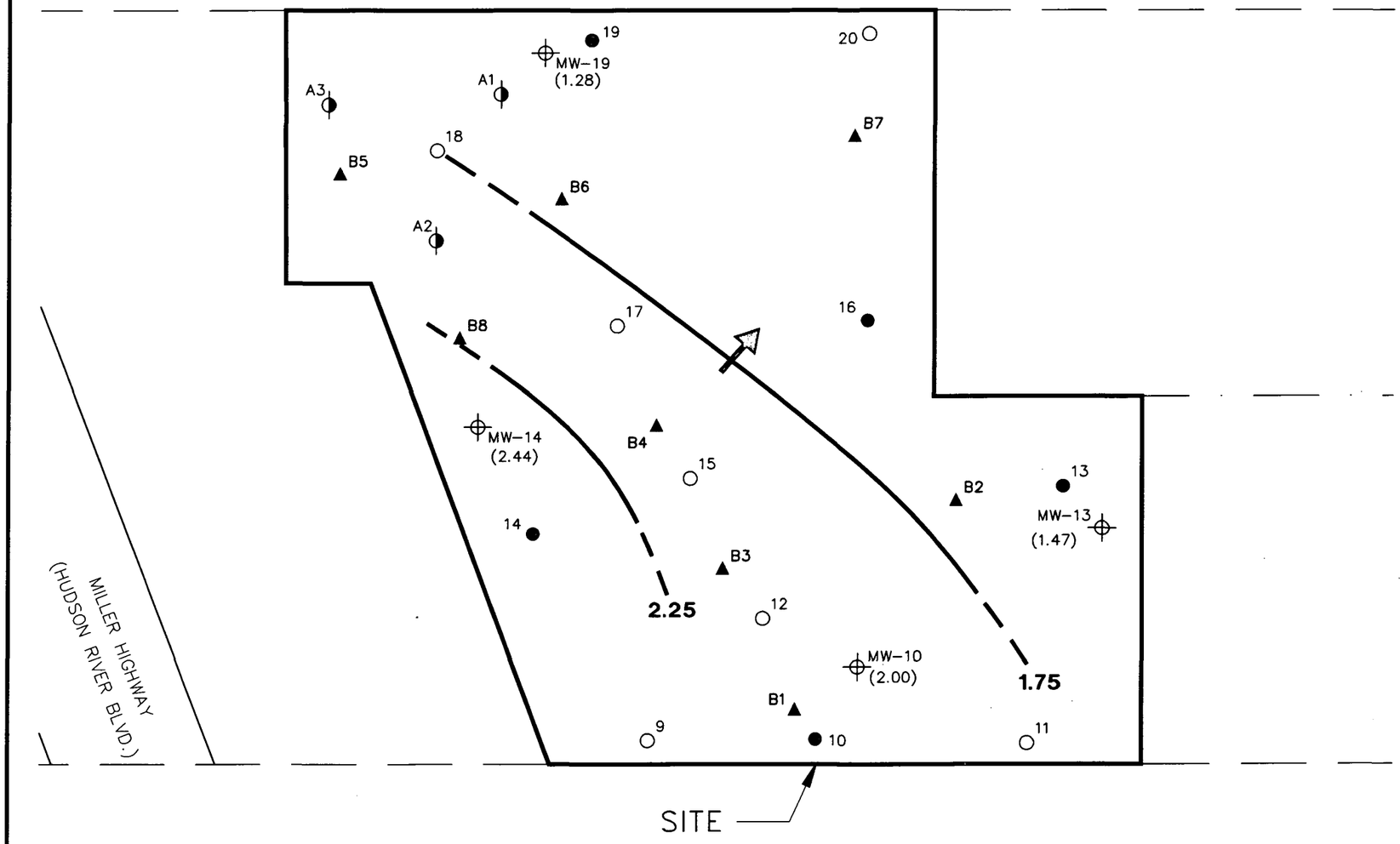
PHENOLS AND PAH CONCENTRATIONS IN SOIL MAP (49.0 TO 50.0 FEET BGS)

BBL® BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 17

X: 27410X02.DWG
L: OFF=REF*
P: PAGESET/PLT-BL
06/02/03 CRA-BS-TLF
27410001/27410C06.DWG

WEST 19TH STREET



WEST 18TH STREET

LEGEND:

- ▲ SOIL BORING LOCATION (OCTOBER 2002)
- ○ SHALLOW BORING (MARCH 2003)
- ● DEEP BORING (MARCH 2003)
- ◐ DELINEATION BORING (MARCH 2003)
- ⊕ SHALLOW MONITORING WELL
- ~ GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- (1.47) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- ⇨ GROUNDWATER FLOW DIRECTION

NOTE:

THIS FIGURE WAS CREATED FROM SANBORN MAPS FROM THE SANBORN LIBRARY, LLC.

0 30' 60'

GRAPHIC SCALE

WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

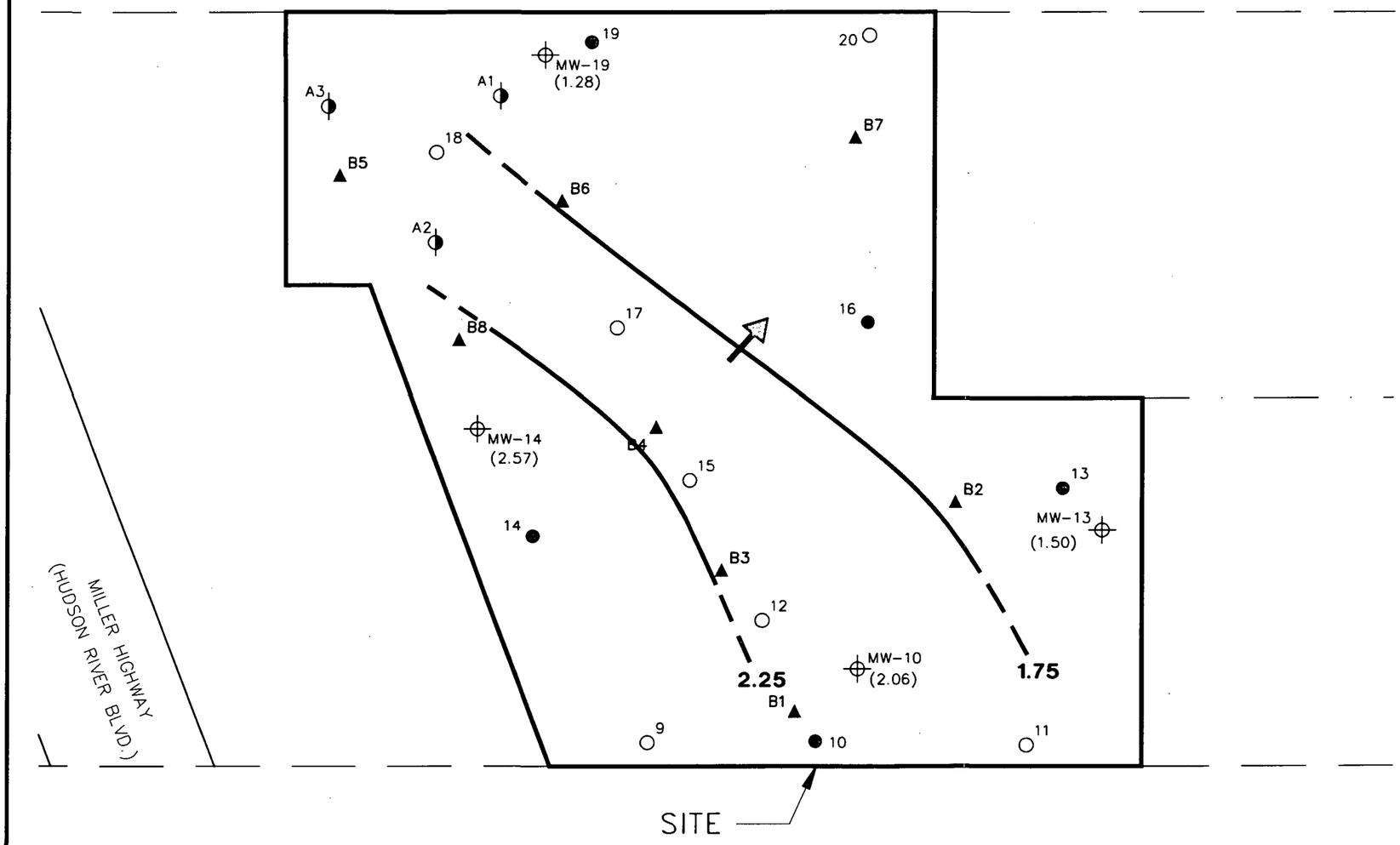
GROUNDWATER CONTOUR MAP
MARCH 18, 2003

BBL® BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE **18**

X: 27410X01.DWG
L: OFF=REF*
P: PAGESET/PLT-BL
06/02/03 CRA-85-TLF
27410001/27410W02.DWG

WEST 19TH STREET



WEST 18TH STREET

LEGEND:

- ▲ SOIL BORING LOCATION (OCTOBER 2002)
- ○ SHALLOW BORING (MARCH 2003)
- ● DEEP BORING (MARCH 2003)
- ◑ DELINEATION BORING (MARCH 2003)
- ⊕ SHALLOW MONITORING WELL
- ~ GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- (1.50) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- ⇨ GROUNDWATER FLOW DIRECTION

NOTE:

THIS FIGURE WAS CREATED FROM SANBORN MAPS FROM THE SANBORN LIBRARY, LLC.

0 30' 60'

GRAPHIC SCALE

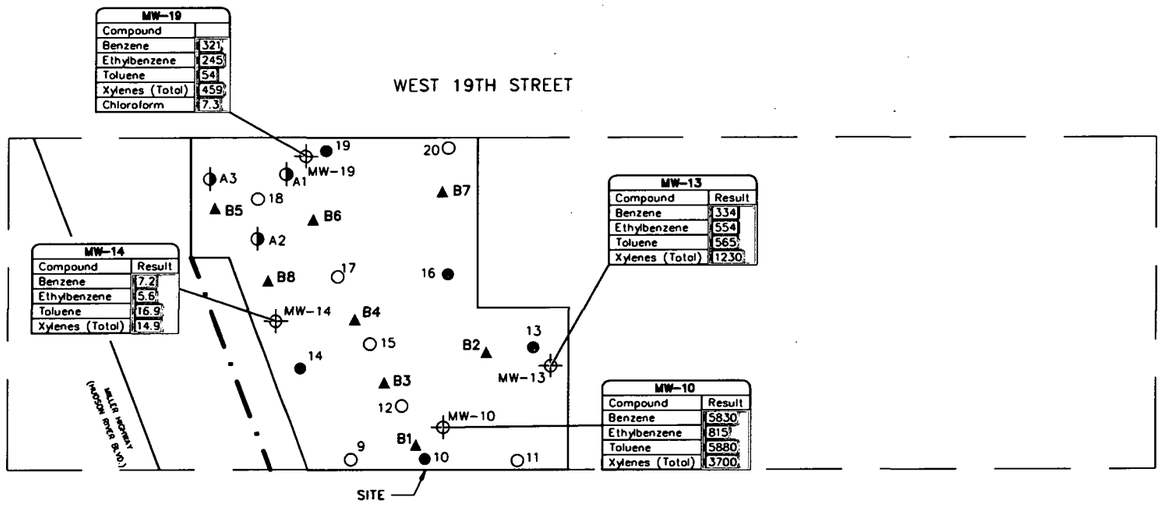
WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

GROUNDWATER CONTOUR MAP
APRIL 23, 2003

BBL® BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE **19**

X: 27410X01.DWG
L: OFF=REF*
P: PAGESET/PLT-BL
06/02/03 CRA-85-TLF
27410001/27410W03.DWG



LEGEND:

- ▲ SOIL BORING LOCATION (OCTOBER 2002)
- ○ SHALLOW BORING (MARCH 2003)
- ● DEEP BORING (MARCH 2003)
- ⌀ DELINEATION BORING (MARCH 2003)
- ⊕ SHALLOW MONITORING WELL
- ▭ CONCENTRATION EXCEEDS NYSDEC AWOS

AWQS	
Benzene	0.7
Ethylbenzene	5
Toluene	5
Xylenes (Total)	5
Chloroform	7

NOTE:

ALL CONCENTRATIONS GIVEN ARE IN ug/L.

SOURCE:

THIS FIGURE WAS CREATED FROM SANBORN MAPS FROM THE SANBORN LIBRARY, LLC.

0 80' 160'

GRAPHIC SCALE

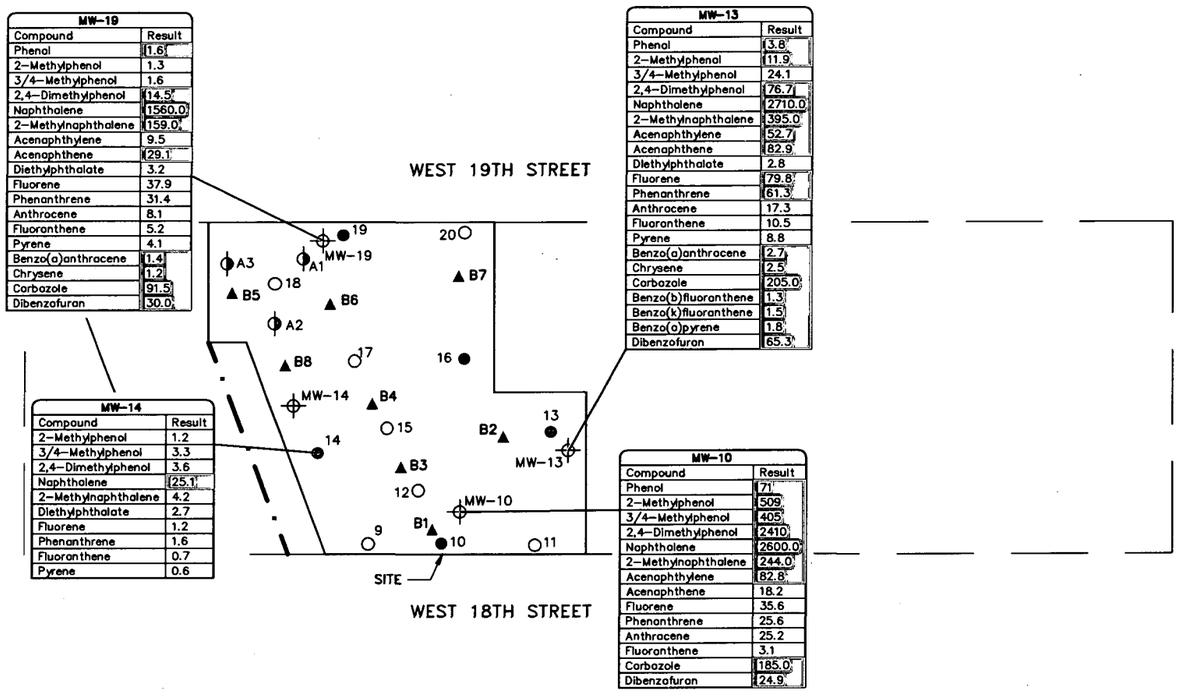
WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

BTEX CONCENTRATIONS IN GROUNDWATER MAP (MARCH 18, 2002)

BBL® BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 20

X: 27410X02.DWG
L: OFF=REF*
P: PAGESET/PLT-BL
06/02/03 CPA-85-TLF
27410001/27410W05.DWG



MW-19	
Compound	Result
Phenol	1.6
2-Methylphenol	1.3
3/4-Methylphenol	1.6
2,4-Dimethylphenol	14.5
Naphtholene	1560.0
2-Methylnaphthalene	159.0
Acenaphthylene	9.5
Acenaphthene	29.1
Diethylphthalate	3.2
Fluorene	37.9
Phenanthrene	31.4
Anthrocene	8.1
Fluoranthene	5.2
Pyrene	4.1
Benzo(a)anthracene	1.4
Chrysene	1.2
Carbozole	91.5
Dibenzofuran	30.0

MW-13	
Compound	Result
Phenol	3.8
2-Methylphenol	11.9
3/4-Methylphenol	24.1
2,4-Dimethylphenol	76.7
Naphthalene	2710.0
2-Methylnaphthalene	395.0
Acenaphthylene	52.7
Acenaphthene	82.9
Diethylphthalate	2.8
Fluorene	79.8
Phenanthrene	61.3
Anthrocene	17.3
Fluoranthene	10.5
Pyrene	8.8
Benzo(a)anthracene	2.7
Chrysene	2.5
Carbozole	205.0
Benzo(b)fluoranthene	1.3
Benzo(k)fluoranthene	1.5
Benzo(a)pyrene	1.8
Dibenzofuran	65.3

MW-14	
Compound	Result
2-Methylphenol	1.2
3/4-Methylphenol	3.3
2,4-Dimethylphenol	3.6
Naphtholene	25.1
2-Methylnaphthalene	4.2
Diethylphthalate	2.7
Fluorene	1.2
Phenanthrene	1.6
Fluoranthene	0.7
Pyrene	0.6

MW-10	
Compound	Result
Phenol	71
2-Methylphenol	509
3/4-Methylphenol	405
2,4-Dimethylphenol	2410
Naphtholene	2600.0
2-Methylnaphthalene	244.0
Acenaphthylene	82.8
Acenaphthene	18.2
Fluorene	35.6
Phenanthrene	25.6
Anthracene	25.2
Fluoranthene	3.1
Carbozole	185.0
Dibenzofuran	24.9

LEGEND:

- ▲ SOIL BORING LOCATION (OCTOBER 2002)
- ○ SHALLOW BORING (MARCH 2003)
- ● DEEP BORING (MARCH 2003)
- ◐ DELINEATION BORING (MARCH 2003)
- ⊕ SHALLOW MONITORING WELL
- ▭ CONCENTRATION EXCEEDS NYSDEC AWQS

AWQS	
Phenol	1
2-Methylphenol	5
3/4-Methylphenol	50
2,4-Dimethylphenol	5
Naphtholene	10
2-Methylnaphthalene	50
Acenaphthylene	20
Acenaphthene	20
Diethylphthalate	50
Fluorene	50
Phenanthrene	50
Anthracene	50
Fluoranthene	50
Pyrene	50
Benzo(a)anthracene	0.002
Chrysene	0.002
Carbozole	50
Benzo(b)fluoranthene	0.002
Benzo(k)fluoranthene	0.002
Benzo(a)pyrene	0.002
Dibenzofuran	5

NOTE:

ALL CONCENTRATIONS GIVEN ARE IN ug/L.

SOURCE:

THIS FIGURE WAS CREATED FROM SANBORN MAPS FROM THE SANBORN LIBRARY, LLC.

0 80' 160'

GRAPHIC SCALE

WEST 19TH STREET DEVELOPMENT SITE
NEW YORK, NEW YORK

PHENOL AND PAH CONCENTRATIONS IN GROUNDWATER MAP (MARCH 18, 2003)

BBL® BLASLAND, BOUCK & LEE, INC. engineers & scientists

FIGURE 21

X: 27410X02.DWG
L: OFF=REF*
P: PAGESET/PLT-BL
06/02/03 CRA-85-TLF
27410D01/27410WD4.DWG

Appendices

Appendix A

Date Start/Finish: 3/4/03
Drilling Company: Aquifer Drilling & Testing, Inc.
Driller's Name: Jerry Hellen
Drilling Method: Auger
Sampling Method: 2 Foot Split-spoon.

Northing:
Easting:
Casing Elevation:

Borehole Depth: 12 Feet
Surface Elevation:

Geologist: GCP

Well/Boring ID: B-9

Client: Georgetown West 19th Street Development LLC

Location: West 19th Street Development Site
530 West 19th Street
New York City, New York

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
0							CONCRETE.		Concrete
							Tan medium GRAVEL.		
	1	1.0/2.0	6/7/11/9	18	17.1 28.3		Tan medium GRAVEL and medium SAND, moist.		
5	2	1.5/2.0	11/15/6/3	21	83 16 28		Tan medium GRAVEL and medium SAND, strong odor, moist.	▽	Backfill
							Missed due to height clearance.		
	3	2.0/2.0	10/11/21/14	32	24 134 25 225		Tan to brown fine SAND, odor, dry.		
10	4	2.0/2.0	6/5/3/4	8	65 27 5.0 3.3		Tan to brown fine SAND, odor, moist. Black SILT, trace organics, moist.		Bentonite

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engineers & scientists

Remarks: Soil samples collected at 5.0-5.5 and 11.0-11.5 for analysis of volatile organic compounds and semivolatile organic compounds.
Interval 5.0-5.5 was also analyzed for PCB's, pesticides, and inorganic compounds.

Date Start/Finish: 3/7/03 **Drilling Company:** Aquifer Drilling & Testing, Inc. **Driller's Name:** Jerry Hellen **Drilling Method:** Auger **Sampling Method:** 2 Foot Split-spoon.	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 50 Feet **Surface Elevation:** **Geologist:** GCP	**Well/Boring ID:** B-10 **Client:** Georgetown West 19th Street Development LLC **Location:** West 19th Street Development Site 530 West 19th Street New York City, New York

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
0							CONCRETE.		Concrete
							Tan medium GRAVEL.		
	1	1.5/2.0	3/3/2/3	5	0.0 0.0 0.0		Brown medium to fine SAND, little fine gravel, dry.		
5	2	1.5/2.0	3/6/7/10	13	43.7 278 1298		Black fine SAND and SILT, some medium gravel, moist.		Grout
	3	0.5/2.0	10/11/14/22	25	- 1452		Black fine SAND and SILT, some medium gravel, possible SPH, moist.		
	4	1.5/2.0	20/29/20/20	49	1087 567 1400		Black coarse SAND and medium GRAVEL, possible SPH, wet.		
10	5	2.0/2.0	5/3/5/3	8	261 101 65.7 61.2		Gray fine SAND, wet.		
	6	2.0/2.0	3/3/5/7	8	106 101 65.7 49.3				
15	7	1.5/2.0	1/1/1/1	2	5.3 2.7 3.5				

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engineers & scientists

Remarks: Soil samples collected at (5.5-6.0), (7.0-7.5), (17.0-17.5) (23.5-24.0) and (49.5-50.0) for analysis of volatile organic compounds and semivolatile organic compounds.
Interval (5.5-6.0) was also analyzed for PCB's, pesticides, and inorganic compounds.

Client:
Georgetown West 19th

Site Location:
West 19th Street Development Site
530 West 19th Street
New York City, New York

Well/Boring ID: B-10

Borehole Depth: 50 Feet

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
	8	2.0/2.0	2/2/2/2	4	3.6 2.7 2.0 3.5				
							Black SILT, some organics, wet.		
	9	0.5/2.0	2/2/2/2	4	26.3		Black SILT, some organics, wet.		Grout
20	10	1.0/2.0	1/1/1/2	2	5.2 4.2				
	11	1.0/2.0	2/2/2/2	4	6.1 1.8				
	12	1.0/2.0	wor/1/1/1	2	7.4 4.5		Black SILT, wet.		
25	13	1.0/2.0	2/2/3/3	5	10.7 3.1		Dark gray SILT, wet.		
	14	1.0/2.0	2/1/2/1	3	5.7 1.0				
30	15	2.0/2.0	1/2/2/2	4	0.8 1.2 1.0 0.8				
	16	1.5/2.0	2/2/1/2	3	1.5 1.2				

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engineers & scientists

Remarks: Soil samples collected at (5.5-6.0), (7.0-7.5), (17.0-17.5) (23.5-24.0) and (49.5-50.0) for analysis of volatile organic compounds and semivolatile organic compounds.
Interval (5.5-6.0) was also analyzed for PCB's, pesticides, and inorganic compounds.

Client:
Georgetown West 19th

Site Location:
West 19th Street Development Site
530 West 19th Street
New York City, New York

Well/Boring ID: B-10

Borehole Depth: 50 Feet

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
					0.8				
35	17	1.0/2.0	2/2/2/2	4	1.7 1.2				
	18	1.0/2.0	1/1/2/2	3	1.3 1.6				Grout
	19	1.5/2.0	2/2/2/2	4	1.7 1.0 1.2				
40	20	2.0/2.0	2/2/2/2	4	1.7 1.2 0.8 0.4				
	21	2.0/2.0	3/5/3/8	8	0.8 1.3 0.6 0.4		Gray fine to medium SAND, wet.		
45	22	1.0/2.0	3/5/8/5	13	0.8 0.7 0.7 0.8				
	23	0.3/2.0	wor/wor	NA	0.6		Gray fine to medium SAND, some silt, wet.		
	24	0.3/2.0	2/7/7/10	14	0.3		Gray to light brown fine to medium GRAVEL, wet.		
50									

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engineers & scientists

Remarks: Soil samples collected at (5.5-6.0), (7.0-7.5), (17.0-17.5) (23.5-24.0) and (49.5-50.0) for analysis of volatile organic compounds and semivolatile organic compounds. Interval (5.5-6.0) was also analyzed for PCB's, pesticides, and inorganic compounds.

Date Start/Finish: 3/4/03 Drilling Company: Aquifer Drilling & Testing, Inc. Driller's Name: Jerry Hellen Drilling Method: Auger Sampling Method: 2 Foot Split-spoon.	Northing: Easting: Casing Elevation: Borehole Depth: 12 Feet Surface Elevation: Geologist: GCP	Well/Boring ID: B-11 Client: Georgetown West 19th Street Development LLC Location: West 19th Street Development Site 530 West 19th Street New York City, New York

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
0							CONCRETE.		Concrete
							Tan medium GRAVEL.		
	1	0.0/2.0	2/2/3/4	5			No Recovery.		
	2	0.5/1.0	4/100/5inches	NA	22.1		Light brown fine SAND, some brick fragments and concrete, dry.		
5	3	1.5/1.5	11/14/50/6 inches	NA	18.3 23.4 19.2		Brown fine SAND, some fine to medium gravel, dry.	▽	Backfill
							Missed due to height clearance.		
	4	0.5/2.0	19/6/2/4	8	115		Brown fine SAND, some fine gravel, dry.		
10	5	1.0/2.0	1/2/5/6	7	19.0 14.3		Gray fine SAND, wet. Black CLAY and SILT, wet.		Bentonite

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: Soil samples collected at (5.5-6.0), (9.5-10.0), (11.5-12.0) for analysis of volatile organic compounds and semivolatile organic compounds.
Interval (5.5-6.0) was also analyzed for PCB's, pesticides, and inorganic compounds.

Date Start/Finish: 3/17/03 **Drilling Company:** Aquifer Drilling & Testing, Inc. **Driller's Name:** Jerry Hellen **Drilling Method:** Auger **Sampling Method:** 2 Foot Split-spoon.	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 14 Feet **Surface Elevation:** **Geologist:** GCP	**Well/Boring ID:** B-12 **Client:** Georgetown West 19th Street Development LLC **Location:** West 19th Street Development Site 530 West 19th Street New York City, New York

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
0							CONCRETE.		Concrete
							Tan medium GRAVEL.		
	1	0.0/2.0	11/10/6/5	16			No Recovery.		
5	2	1.0/2.0	13/8/7/8	15	13.9 39.7		Black fine SAND, some fine to medium gravel, little brick fragments, moist.		Backfill
	3	1.5/2.0	13/8/11/8	19	212 267 535		Black fine SAND, some silt, little medium gravel, wet.	▽	
	4	0.5/2.0	7/5/4/22	9	35.4		Brown fine to medium SAND, some fine gravel, moist.		
10	5	1.5/2.0	7/8/6/2	14	7.4 5.6				Bentonite
					3.2		Black SILT, trace organics, moist.		
	6	1.0/2.0	3/7/8/2	15	0.0 0.0		Black SILT, trace organics, wet.		

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BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: Soil samples collected at (5.5-6.0), (7.5-8.0), (10.5-11.0) and (13.5-14.0) for analysis of volatile organic compounds and semivolatile organic compounds.
interval (5.5-6.0) was also analyzed for PCB's, pesticides, and inorganic compounds.

Date Start/Finish: 3/11/03 **Drilling Company:** Aquifer Drilling & Testing, Inc. **Driller's Name:** Jerry Hellen **Drilling Method:** Auger **Sampling Method:** 2 Foot Split-spoon.	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 50 Feet **Surface Elevation:** **Geologist:** GCP	**Well/Boring ID:** B-13 **Client:** Georgetown West 19th Street Development LLC **Location:** West 19th Street Development Site 530 West 19th Street New York City, New York

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Cpnstruction
0							CONCRETE.		Concrete
							Tan medium GRAVEL.		
	1	0.5/2.0	2/3/4/2	7	0.3		Brown fine SAND, some silt and medium gravel, dry.		
5	2	1.5/2.0	6/14/10/9	24	0.2 0.1 0.2		Brown fine SAND, some silt and fine gravel, trace brick fragments, dry.		Grout
	3	0.5/2.0	6/6/24/29	30	3.7				
	4	1.0/2.0	42/50/3 in	NA	0.6 0.3		Dark gray SILT and medium GRAVEL, some medium sand, wet.		
10	5	2.0/2.0	11/18/19/49	37	1.7 1.7 0.8 0.8		Gray fine SAND, some medium gravel, moist.		
	4	1.0/2.0	8/11/16/21	27	1.8 2.0				
15	5	1.0/2.0	8/17/16/80	33	1.8 624		WOOD		

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Remarks: Soil samples collected at (5.5-6.0), (7.0-7.5), (17.0-17.5), (23.5-24.0) and (49.5-50.0) for analysis of volatile organic compounds and semivolatile organic compounds. Interval (5.5-6.0) was also analyzed for PCB's, pesticides, and inorganic compounds.

Client:
Georgetown West 19th

Site Location:
West 19th Street Development Site
530 West 19th Street
New York City, New York

Well/Boring ID: B-13

Borehole Depth: 50 Feet

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
							No recovery.		Grout
20	6	2.0/2.0	16/6/3/1	9	2.0 2.1 1.4 1.6		Dark gray medium GRAVEL and SILT, wet. Dark gray SILT, some organics, wet.		
	7	2.0/2.0	3/2/6/7	8	26.7 17.9 6.3 26.8		Dark gray SILT, little fine gravel, wet.		
25	8	1.3/2.0	7/21/8/7	29	1.8		Dark gray SILTand WOOD, little fine gravel, wet. Dark gray SILT and WOOD.		
	9	2.0/2.0	8/4/3/3	7	7.8 2.4 7.8 2.8		Dark gray to black SILT, little medium gravel, wet.		
	10	1.0/2.0	5/6/2/3	8	4.2 5.1				
30	11	1.0/2.0	4/3/2/2	5	3.2 4.2				
	12	1.5/2.0	5/3/2/2	5	1.2 3.2				

BBL
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engineers & scientists

Remarks: Soil samples collected at (5.5-6.0), (7.0-7.5), (17.0-17.5), (23.5-24.0) and (49.5-50.0) for analysis of volatile organic compounds and semivolatile organic compounds. Interval (5.5-6.0) was also analyzed for PCB's, pesticides, and inorganic compounds.

Client:
Georgetown West 19th

Site Location:
West 19th Street Development Site
530 West 19th Street
New York City, New York

Well/Boring ID: B-13

Borehole Depth: 50 Feet

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
					2.2				
35	13	1.0/2.0	2/2/2/2	4	2.1 1.8				
	14	1.0/2.0	2/2/2/2	4	1.8 2.2				Grout
	15	1.5/2.0	2/3/2/2	5	1.7 2.7 2.2				
40	16	1.8/2.0	5/6/11/15	17	2.1 1.8 1.7		WOOD		
	17	2.0/2.0	10/12/13/16	25	1.7 2.0 5.6 1.0		Dark gray fine to medium SAND, trace silt, wet. Gray fine to medium SAND, wet. Gray fine to medium GRAVEL, wet. Gray fine to medium SAND, wet.		
45	18	1.5/2.0	15/18/20/10	38	1.9 1.7 1.9		Gray fine to medium SAND and GRAVEL, trace silt, wet.		
	19	2.0/2.0	12/14/15/19	29	1.4 1.2 1.3 1.2				
	20	2.0/2.0	14/15/16/12	31	1.4 1.2 0.8 1.3				
50									

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: Soil samples collected at (5.5-6.0), (7.0-7.5), (17.0-17.5), (23.5-24.0) and (49.5-50.0) for analysis of volatile organic compounds and semivolatile organic compounds. Interval (5.5-6.0) was also analyzed for PCB's, pesticides, and inorganic compounds.

Date Start/Finish: 3/12/03 **Drilling Company:** Aquifer Drilling & Testing, Inc. **Driller's Name:** Jerry Hellen **Drilling Method:** Auger **Sampling Method:** 2 Foot Split-spoon.	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 50 Feet **Surface Elevation:** **Geologist:** GCP	**Well/Boring ID:** B-14 **Client:** Georgetown West 19th Street Development LLC **Location:** West 19th Street Development Site 530 West 19th Street New York City, New York

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
0							CONCRETE.		Concrete
							Tan medium GRAVEL.		
	1	1.5/2.0	5/5/5/6	10	1.1 0.1 0.0		Brown fine SAND, some silt, little medium gravel, dry. Dark brown fine to medium GRAVEL, dry.		
5	2	1.0/2.0	13/7/8/7	15	0.5 0.4		Brown fine SAND, some silt and medium gravel, moist.		Grout
	3	0.8/2.0	12/5/6/6	11	- 526		Brown fine SAND, some silt and medium gravel, wet.	▽	
	4	1.0/2.0	3/4/8/6	12	7.3 0.7		Gray fine SAND, wet.		
10	5	1.5/2.0	8/2/4/5	6	46.2 22.2 4.5				
	4	0.3/2.0	1/1/5/8	6	0.5				
	5	1.0/2.0	3/5/5/5	10	19.2 166		Gray fine SAND, some medium gravel, wet. Black SILT, wet.		
15									

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Remarks: Soil samples collected at (4.0-4.5), (6.5-7.0), (16.0-16.5), (30.5-31.0) and (49.5-50.0) for analysis of volatile organic compounds and semivolatile organic compounds. Interval (4.0-4.5) was also analyzed for PCB's, pesticides, and inorganic compounds.

Client:
Georgetown West 19th

Site Location:
West 19th Street Development Site
530 West 19th Street
New York City, New York

Well/Boring ID: B-14

Borehole Depth: 50 Feet

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
	6	1.0/2.0	5/4/3/3	7	428 119		Black fine SAND and SILT, wet.		
	7	1.0/2.0	3/3/3/2	6	280 360		Black SILT, little fine gravel, wet.		Grout
20	8	1.0/2.0	3/22/21/8	43	160 328		WOOD		
	9	1.0/2.0	10/7/6/6	13	20.2 25.2		WOOD, some fine sand.		
25	10	2.0/2.0	4/2/3/2	5	28.3 29.5 27.3 41.3		Black SILT and CLAY, little organics, wet.		
	11	0.8/2.0	4/3/3/3	6	35.4				
	12	0.5/2.0	2/2/2/2	4	35.2				
30	13	2.0/2.0	2/2/2/2	4	47 67 10.9 9.9				
	14	2.0/2.0	1/1/1/1	2	47.3 41.2				

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Remarks: Soil samples collected at (4.0-4.5), (6.5-7.0), (16.0-16.5), (30.5-31.0) and (49.5-50.0) for analysis of volatile organic compounds and semivolatile organic compounds. Interval (4.0-4.5) was also analyzed for PCB's, pesticides, and inorganic compounds.

Client:
Georgetown West 19th

Site Location:
West 19th Street Development Site
530 West 19th Street
New York City, New York

Well/Boring ID: B-14

Borehole Depth: 50 Feet

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
					37.8				
					19.2				
					100				
35	15	1.5/2.0	2/2/2/1	4	51				
					26.7				
					117				
					46.7				
	16	2.0/2.0	1/2/1/2	3	48.3				Grout
					9.8				
					23.3				
	17	2.0/2.0	3/2/2/3	4	5.5				
					4.8				
40					3.3				
					6.5				
	18	2.0/2.0	2/3/2/2	5	2.3				
					1.9				
					6.5				
					3.2				
	19	2.0/2.0	3/3/2/2	5	2.5				
					6.7				
					19.1				
					5.7				
45	20	2.0/2.0	3/3/3/3	6	3.2				
					4.1				
					6.3				
					4.3				
	21	1.5/2.0	1/2/2/2	4	5.7				
					2.5				
					1.4				
	22	1.5/2.0	3/5/6/2	11	1.5				
50					1.4				

BBL
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Remarks: Soil samples collected at (4.0-4.5), (6.5-7.0), (16.0-16.5), (30.5-31.0) and (49.5-50.0) for analysis of volatile organic compounds and semivolatile organic compounds. Interval (4.0-4.5) was also analyzed for PCB's, pesticides, and inorganic compounds.

Date Start/Finish: 3/6/03-3/7/03 **Drilling Company:** Aquifer Drilling & Testing, Inc. **Driller's Name:** Jerry Hellen **Drilling Method:** Auger **Sampling Method:** 2 Foot Split-spoon.	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 24 Feet **Surface Elevation:** **Geologist:** GCP	**Well/Boring ID:** B-15 **Client:** Georgetown West 19th Street Development LLC **Location:** West 19th Street Development Site 530 West 19th Street New York City, New York

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
0							CONCRETE.		Concrete
							Tan medium GRAVEL.		
	1	1.0/2.0	2/4/4/4	8	1.0 1.2		Brown fine SAND, some brick fragments.		
5	2	0.5/2.0	1/1/2/1	3	1.2		Brown fine SAND, moist.		Backfill
							Missed due to height clearance. No sample recovery.	▽	
10	3	1.0/2.0	5/4/2/2	6	2.9 2.4		Brown SAND and SILT, some medium gravel, wet.		

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Remarks: Soil samples collected at (5.0-5.5), (10.0-10.5), (22.0-22.5) and (23.5-24.0) for analysis of volatile organic compounds and semivolatile organic compounds.
Interval (5.0-5.5) was also analyzed for PCB's, pesticides, and inorganic compounds.

Client:
Georgetown West 19th

Site Location:
West 19th Street Development Site
530 West 19th Street
New York City, New York

Well/Boring ID: B-15

Borehole Depth: 24 Feet

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
	4	1.0/2.0	5/6/7/7	13	1.7 1.9		Gray fine SAND, some medium gravel, wet.		
15	5	1.5/2.0	4/4/3/4	7	0.3 0.8 0.9				
	4	1.5/2.0	7/2/4/5	6	1.5 1.7 3.5		Black SILT, some organics.		Backfill
	5	0.5/2.0	1/1/1/1	2	34.9		Black SILT, some organics, fine angular gravel and medium sand, wet.		
20	6	0.5/2.0	2/2/2/2	4	42.9				
	7	2.0/2.0	2/2/2/2	4	26.1 56.2 24.3 5.6		Black CLAY, little fine sand, wet.		Bentonite

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Remarks: Soil samples collected at (5.0-5.5), (10.0-10.5), (22.0-22.5) and (23.5-24.0) for analysis of volatile organic compounds and semivolatile organic compounds. Interval (5.0-5.5) was also analyzed for PCB's, pesticides, and inorganic compounds.

Date Start/Finish: 3/17/03 **Drilling Company:** Aquifer Drilling & Testing, Inc. **Driller's Name:** Jerry Hellen **Drilling Method:** Auger **Sampling Method:** 2 Foot Split-spoon.	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 50 Feet **Surface Elevation:** **Geologist:** GCP	**Well/Boring ID:** B-16 **Client:** Georgetown West 19th Street Development LLC **Location:** West 19th Street Development Site 530 West 19th Street New York City, New York

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
0							CONCRETE.		Concrete
							Tan medium GRAVEL.		
	1	1.0/2.0	2/2/2/1	4	0.0 0.1		Dark brown fine SAND, little silt and medium gravel, dry.		
5	2	1.0/2.0	1/1/5/5	6	0.0 0.0		Brown SILT, some wood, dry.		Grout
	3	0.5/2.0	5/6/6/6	12	0.0		Dark gray fine SAND, some silt wet.	▽	
	4	1.5/2.0	3/3/3/7	6	0.0 0.0 0.2		Gray fine SAND, little silt, wet.		
10	5	1.5/2.0	3/6/11/13	17	0.0 0.1 3.1				
	4	1.0/2.0	4/6/5/4	11	0.0 0.0		Gray fine SAND, some silt, little silt, wet.		
15	5	0.5/2.0	6/5/7/5	12	1.2		Dark gray to black SILT, some fine sand and medium gravel, wet.		

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Remarks: Soil samples collected at (4.5-5.0), (6.5-7.0), (16.5-17.0), (26.0-26.5) and (49.5-50.0) for analysis of volatile organic compounds and semivolatile organic compounds. Interval (4.0-4.5) was also analyzed for PCB's, pesticides, and inorganic compounds.

Client:
Georgetown West 19th

Site Location:
West 19th Street Development Site
530 West 19th Street
New York City, New York

Well/Boring ID: B-16

Borehole Depth: 50 Feet

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
	6	1.0/2.0	7/9/10/10	19	41.9 52.3		Dark gray fine SAND, wet, strong odor.		
	7	0.0/2.0	8/8/8/3	16			No Recovery.		Grout
20	8	0.5/2.0	6/3/5/5	8	300		Dark gray to black fine SAND and SILT, wet.		
	9	2.0/2.0	2/2/3/3	5	56.2 22.3 3.4 7.8		Black SILT, little fine sand and organics, wet.		
25	10	2.0/2.0	2/2/2/2	4	56.2 37.5 6.8 7.2		Black SILT, trace organics, wet.		
	11	2.0/2.0	2/3/3/1	6	156 42.7 17.8 16.3				
	12	2.0/2.0	1/1/2/2	3	26.7 28.7 10.3 7.5				
30	13	2.0/2.0	3/2/3/2	5	7.3 8.4 7.9 10.3				
	14	2.0/2.0	1/1/2/1	3	11.3 7.8				

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Remarks: Soil samples collected at (4.5-5.0), (6.5-7.0), (16.5-17.0), (26.0-26.5) and (49.5-50.0) for analysis of volatile organic compounds and semivolatile organic compounds. Interval (4.0-4.5) was also analyzed for PCB's, pesticides, and inorganic compounds.

Client:
Georgetown West 19th

Well/Boring ID: B-16

Site Location:
West 19th Street Development Site
530 West 19th Street
New York City, New York

Borehole Depth: 50 Feet

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
					8.3				
					7.5				
35	15	2.0/2.0	1/1/1/2	2	12.3				
					8.6				
					7.3				
					8.0				
	16	2.0/2.0	2/2/1/1	3	12.0				
					13.3				Grout
					11.8				
					10.7				
	17	1.5/2.0	2/2/1/1	3	10.7				
					9.8				
					8.7				
40	18	2.0/2.0	2/2/2/2	4	9.8				
					10.2				
					11.7				
					10.0				
	19	2.0/2.0	2/2/2/2	4	7.1				
					2.0				
					2.3				
					2.0				
45	20	2.0/2.0	2/2/2/2	4	2.1				
					1.8				
					1.7				
					2.0				
	21	2.0/2.0	2/2/2/2	4	4.0				
					2.7				
					2.3				
					4.1		Gray fine SAND and SILT, wet.		
	22	0.5/2.0	9/11/14/12	25	4.7				
50									

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Remarks: Soil samples collected at (4.5-5.0), (6.5-7.0), (16.5-17.0), (26.0-26.5) and (49.5-50.0) for analysis of volatile organic compounds and semivolatile organic compounds. Interval (4.0-4.5) was also analyzed for PCB's, pesticides, and inorganic compounds.

Date Start/Finish: 3/5/03 Drilling Company: Aquifer Drilling & Testing, Inc. Driller's Name: Jerry Hellen Drilling Method: Auger Sampling Method: 2 Foot Split-spoon.	Northing: Easting: Casing Elevation: Borehole Depth: 26 Feet Surface Elevation: Geologist: GCP	Well/Boring ID: B-17 Client: Georgetown West 19th Street Development LLC Location: West 19th Street Development Site 530 West 19th Street New York City, New York

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
0							CONCRETE.		Concrete
							Tan medium GRAVEL.		
	1	1.0/1.0	50/40	NA	0.0 0.0		Fragmented CONCRETE No recovery.		
5	2	1.5/2.0	5/3/3/2	6	0.5 0.3 0.2		Brown to gray fine SAND, moist.		Backfill
	3	1.5/2.0	5/5/6/12	11	35.2 1067 46.7		Brown fine SAND, moist.	▽	
	4	1.0/2.0	5/5/6/7	11	53.1 9.0		Gray and brown SILT and fine SAND, wet.		
10	5	1.5/2.0	3/3/4/12	7	6.0 4.8 4.0		Gray fine SAND and SILT, wet.		
							Fine to medium GRAVEL, wet.		

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Remarks: Soil samples collected at (5.5-6.0), (6.5-7.0), (17.0-17.5) and (25.5-26.0) for analysis of volatile organic compounds and semivolatile organic compounds.
Interval (5.5-6.0) was also analyzed for PCB's, pesticides, and inorganic compounds.

Client:
Georgetown West 19th

Site Location:
West 19th Street Development Site
530 West 19th Street
New York City, New York

Well/Boring ID: B-17

Borehole Depth: 26 Feet

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
	4	1.0/2.0	12/7/3/7	10	0.7 1.7		Dark brown SILT, wet.		
15	5	1.5/2.0	9/5/9/9	14	2.0 1.5 1.2		Gray SILT, little medium gravel, wet.		
	6	2.0/2.0	5/4/4/4	8	0.6 0.7 0.3 0.4		Brown fine SAND and medium GRAVEL, wet Gray fine SAND, wet.		Backfill
	7	1.5/2.0	3/3/1/1	4	1.0 1.2		Gray fine SAND, some silt, wet.		
20	8	1.0/2.0	wor/wor/5/5	5	0.0 0.0				
	9	2.0/2.0	2/3/2/2	5	0.0 0.0 0.2 2.8		Black CLAY, some silt, little organics, wet.		
25	10	2.0/2.0	2/2/2/2	4	0.2 0.3 0.4 4.0				Bentonite

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: Soil samples collected at (5.5-6.0), (6.5-7.0), (17.0-17.5) and (25.5-26.0) for analysis of volatile organic compounds and semivolatile organic compounds.
Interval (5.5-6.0) was also analyzed for PCB's, pesticides, and inorganic compounds.

Date Start/Finish: 3/5/03 **Drilling Company:** Aquifer Drilling & Testing, Inc. **Driller's Name:** Jerry Hellen **Drilling Method:** Auger **Sampling Method:** 2 Foot Split-spoon.	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 26 Feet **Surface Elevation:** **Geologist:** GCP	**Well/Boring ID:** B-18 **Client:** Georgetown West 19th Street Development LLC **Location:** West 19th Street Development Site 530 West 19th Street New York City, New York

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
0							CONCRETE.		Concrete
							Tan medium GRAVEL.		
	1	0.5/1.0	3/50/3 inches	NA	1.9		Brown SILT and fine SAND, some fine gravel, moist.		
5	2	1.0/2.0	2/2/9/15	11	14.7 - 115				Backfill
	3	1.8/2.0	14/13/12/12	25	863 745 45		Brown SILT and fine SAND, some fine gravel, storng odor, moist.	▽	
	4	0.3/2.0	5/7/5/6	12	475		Brown SILT and fine SAND, some fine gravel, storng odor, moist.		
10	5	1.0/2.0	5/4/8/7	12	119 52.7		Gray SILT and fine SAND, little fine gravel, wet.		
					237		Black fine SAND, some silt and fine gravel, wet		

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Remarks: Soil samples collected at (6.0-6.5), (8.0-8.5), (17.0-17.5) and (24.5-25.0) for analysis of volatile organic compounds and semivolatile organic compounds.
Interval (6.0-6.5) was also analyzed for PCB's, pesticides, and inorganic compounds.

Client:
Georgetown West 19th

Site Location:
West 19th Street Development Site
530 West 19th Street
New York City, New York

Well/Boring ID: B-18

Borehole Depth: 26 Feet

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
	4	2.0/2.0	4/4/4/4	8	222 218 53.7		Gray SILT and fine SAND, wet.		
15	5	2.0/2.0	3/4/12/15	16	10.3 9.7 9.3 10.1		Black to dark brown fine SAND, some silt and medium to fine gravel, wet.		Backfill
	6	2.0/2.0	5/3/13/20	16	5.7 34.3 4.9 3.2		Dark brown SAND and SILT, wet. WOOD		
20							No recovery.		
	7	1.0/2.0	10/9/12/9	21	310 190		Black fine SAND, sheen present, strong odor, wet.		
	8	2.0/2.0	9/11/12/8	23	430 450 461 570		Dark black fine grained material, saturated in heavy liquid, possible Ash-Like-Material.		
25	9	0.5/2.0	7/9/2/3	11	192		Dark black fine grained material, trace organic material, saturated in heavy liquid, possible Ash-Like-Material.		Bentonite

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Remarks: Soil samples collected at (6.0-6.5), (8.0-8.5), (17.0-17.5) and (24.5-25.0) for analysis of volatile organic compounds and semivolatile organic compounds.
Interval (6.0-6.5) was also analyzed for PCB's, pesticides, and inorganic compounds.

Date Start/Finish: 3/18/03 **Drilling Company:** Aquifer Drilling & Testing, Inc. **Driller's Name:** Jerry Hellen **Drilling Method:** Auger **Sampling Method:** 2 Foot Split-spoon.	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 50 Feet **Surface Elevation:** **Geologist:** GCP	**Well/Boring ID:** B-19 **Client:** Georgetown West 19th Street Development LLC **Location:** West 19th Street Development Site 530 West 19th Street New York City, New York

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
0							CONCRETE.		Concrete
							Tan medium GRAVEL.		
	1	0.3/2.0	5/7/10/6	17	51.0		Brown fine to medium SAND, some medium gravel, dry.		
5	2	0.5/2.0	21/6/4/3	10	65.4				Grout
	3	1.0/2.0	7/8/11/15	19	65.4		Brown fine SAND, some medium gravel, dry.	▽	
					1739		Brown fine SAND, some medium gravel, black staining, wet.		
	4	1.0/2.0	10/24/11/8	35	1979 1542		Brown fine to medium SAND and medium GRAVEL, some staining, moist to wet.		
10	5	1.3/2.0	6/6/11/3	17	1562				
					562		Gray fine SAND, some silt, wet.		
	4	2.0/2.0	2/4/5/14	9	11.5 9.8 8.7 11.0				
15	5	1.5/2.0	5/1/1/1	2	10.3 13.1 7.5		Gray to light red fine SAND, some silt, wet.		

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Remarks: Soil samples collected at (4.5-5.0), (7.5-8.0), (16.0-16.5, (29.5-30.0) and (49.5-50.0) for analysis of volatile organic compounds and semivolatile organic compounds. Interval (4.0-4.5) was also analyzed for PCB's, pesticides, and inorganic compounds.

Client:
Georgetown West 19th

Site Location:
West 19th Street Development Site
530 West 19th Street
New York City, New York

Well/Boring ID: B-19

Borehole Depth: 50 Feet

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
	6	1.0/2.0	3/4/2/3	6	191 13.3				
							No recovery.		Grout
20	7	1.0/2.0	2/2/3/5	5	61 180		Gray medium SAND, little medium gravel, wet.		
	8	1.0/2.0	7/5/5/5	10	757 1856				
							Black staining, heavy liquid, possible coal material.		
					282		Gray medium SAND, little medium gravel, wet.		
25	9	2.0/2.0	4/2/2/2	4	456 118 112		Black SILT, little organics, wet to moist.		
	10	2.0/2.0	1/2/2/2	4	180 85.0 25.2 21.3				
	11	2.0/2.0	2/2/2/3	4	75.0 65.0 28.3 13.9				
30							Gray SILT, little organics, wet to moist.		
	12	2.0/2.0	1/2/2/2	4	35.0 37.0 18.1 17.4				
	13	2.0/2.0	3/2/2/3	4	35.2 17.7				

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engineers & scientists

Remarks: Soil samples collected at (4.5-5.0), (7.5-8.0), (16.0-16.5, (29.5-30.0) and (49.5-50.0) for analysis of volatile organic compounds and semivolatile organic compounds. Interval (4.0-4.5) was also analyzed for PCB's, pesticides, and inorganic compounds.

Client:
Georgetown West 19th

Site Location:
West 19th Street Development Site
530 West 19th Street
New York City, New York

Well/Boring ID: B-19

Borehole Depth: 50 Feet

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
					12.1				
					7.9				
					16.7				
35	14	2.0/2.0	2/2/1/2	3	11.2				
					12.1				
					8.1				
					12.3				
	15	1.5/2.0	2/2/1/1	3	11.2				Grout
					10.1				
					10.1				
	16	2.0/2.0	2/1/1/2	2	12.3				
					12.0				
40					7.1				
					23.1				
	17	2.0/2.0	2/2/2/2	4	14.7				
					16.8				
					7.8		Gray SILT, some fine sand, wet.		
					9.7		Gray SILT, wet.		
	18	2.0/2.0	3/2/3/3	5	12.1				
					11.3				
					7.1				
					13.7				
45	19	2.0/2.0	2/2/2/2	4	10.1				
					9.8				
					6.5				
					7.8				
	20	2.0/2.0	5/6/4/2	10	5.1				
					5.2				
					2.6				
					2.5				
	21	2.0/2.0	2/2/2/2	4	3.1				
					3.3				
50					4.2				

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engineers & scientists

Remarks: Soil samples collected at (4.5-5.0), (7.5-8.0), (16.0-16.5, (29.5-30.0) and (49.5-50.0) for analysis of volatile organic compounds and semivolatile organic compounds. Interval (4.0-4.5) was also analyzed for PCB's, pesticides, and inorganic compounds.

Date Start/Finish: 3/6/03
Drilling Company: Aquifer Drilling & Testing, Inc.
Driller's Name: Jerry Hellen
Drilling Method: Auger
Sampling Method: 2 Foot Split-spoon.

Northing: .
Easting:
Casing Elevation:

Borehole Depth: 28 Feet
Surface Elevation:

Geologist: GCP

Well/Boring ID: B-20

Client: Georgetown West 19th Street Development LLC

Location: West 19th Street Development Site
530 West 19th Street
New York City, New York

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
0							CONCRETE.		Concrete
							Tan medium GRAVEL.		
	1	1.0/2.0	3/4/4/4	8	0.0 0.1		Brown medium SAND, little fine gravel, dry.		
5	2	2.0/2.0	10/9/9/9	18	0.6 6.0 8.3 65.5		Black fine SAND and SILT, moist.		Backfill
	3	1.0/2.0	5/6/5/5	11	1120 960				
	4	1.0/2.0	2/3/2/2	5	718 104		Black fine SAND and SILT, wet.		
10	5	0.5/2.0	2/1/1/1	2	45.6		Brown medium to fine SAND and SILT, wet.		
	4	2.0/2.0	2/2/2/2	4	2.0 1.4 2.3		Brown medium SAND, some silt, wet. Black SILT and ORGANICS, wet.		

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engineers & scientists

Remarks: Soil samples collected at (5.5-6.0), (6.0-6.5), (21.5-22.0) and (26.5-28.0) for analysis of volatile organic compounds and semivolatile organic compounds.
Interval (5.5-6.0) was also analyzed for PCB's, pesticides, and inorganic compounds.

Client:
Georgetown West 19th

Site Location:
West 19th Street Development Site
530 West 19th Street
New York City, New York

Well/Boring ID: B-20

Borehole Depth: 28 Feet

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
					0.7				
15	5	1.0/2.0	1/2/1/1	3	14.0 34.0		Black SILT and ORGANICS, some fine sand, wet.		
	6	2.0/2.0	9/9/9/10	18	10.4 7.0 14.1 13.2		Black SILT, some coarse to medium sand and organics, wet.		Backfill
	7	2.0/2.0	2/17/22/10	39	17.0 24.0 19.0 65.7		Black fine SAND, odor, wet.		
20	8	2.0/2.0	10/15/17/12	32	16.3 27.9 98.9 115		Black fine SAND, some coarse gravel, odor, wet.		
	9	0.0/2.0	22/9/3/5	12			No Recovery		
25	10	2.0/2.0	4/3/3/3	6	586 320 280 130		Black CLAY, wet, strong odor, high plasticity		Bentonite
	11	2.0/2.0	2/2/2/2	4	582 1083 442 140				Bentonite

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engineers & scientists

Remarks: Soil samples collected at (5.5-6.0), (6.0-6.5), (21.5-22.0) and (26.5-28.0) for analysis of volatile organic compounds and semivolatile organic compounds.
Interval (5.5-6.0) was also analyzed for PCB's, pesticides, and inorganic compounds.

Date Start/Finish: 3/7/03 **Drilling Company:** Aquifer Drilling & Testing, Inc. **Driller's Name:** Jerry Hellen **Drilling Method:** Auger **Sampling Method:** 2 Foot Split-spoon.	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 17 Feet **Surface Elevation:** **Geologist:** GCP	**Well/Boring ID:** MW-10 **Client:** Georgetown West 19th Street Development LLC **Location:** West 19th Street Development Site 530 West 19th Street New York City, New York

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
0							CONCRETE.		Flush mount (0-1 ft bgs.)
							Tan medium GRAVEL.		
	1	1.5/2.0	3/3/2/3	5	0.0 0.0 0.0		Brown medium to fine SAND, little fine gravel, dry.		Grout (1-3 ft bgs.)
									Bentonite (3-4 ft bgs.)
5	2	1.5/2.0	3/6/7/10	13	43.7 278 1298		Black fine SAND and SILT, some medium gravel, moist.		
	3	0.5/2.0	10/11/14/22	25	1452		Black fine SAND and SILT, some medium gravel, possible SPH, moist.		Riser (0.3-6 ft bgs.) Schdule 40 PVC Riser.
	4	1.5/2.0	20/29/20/20	49	1087 567 1400		Black coarse SAND and medium GRAVEL, possible SPH, wet.	▽	
10	5	2.0/2.0	5/3/5/3	8	261 101 65.7 61.2		Gray fine SAND, wet.		Screen (6-16 ft bgs.) Schdule 40 PVC 0.010 slotted screen.
	6	2.0/2.0	3/3/5/7	8	106 101 65.7 49.3				
15	7	1.5/2.0	1/1/1/1	2	5.3 2.7 3.5				Sandpack #01 (4-17 ft bgs.)
	8	NA	2/2	NA	3.6				Sump (16-17 ft bgs.)

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Remarks: Soil description taken from B-10.

Date Start/Finish: 3/11/03 **Drilling Company:** Aquifer Drilling & Testing, Inc. **Driller's Name:** Jerry Hellen **Drilling Method:** Auger **Sampling Method:** 2 Foot Split-spooh.	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 18 Feet **Surface Elevation:** **Geologist:** GCP	**Well/Boring ID:** MW-13 **Client:** Georgetown West 19th Street Development LLC **Location:** West 19th Street Development Site 530 West 19th Street New York Gity, New York

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
0							CONCRETE.		Flush mount (0-1 ft bgs.)
							Tan medium GRAVEL.		
	1	0.5/2.0	2/3/4/2	7	0.3		Brown fine SAND, some silt and medium gravel, dry.		Grout (1-4 ft bgs.)
5	2	1.5/2.0	6/14/10/9	24	0.2 0.1 0.2		Brown fine SAND, some silt and fine gravel, trace brick fragments, dry.		Bentonite (4-5 ft bgs.)
	3	0.5/2.0	6/6/24/29	30	3.7				Riser (0.3-7 ft bgs.) Schdule 40 PVC Riser.
	4	1.0/2.0	42/50/3 in	NA	0.6 0.3		Dark gray SILT and medium GRAVEL, some medium sand, wet.	▽	
10	5	2.0/2.0	11/18/19/49	37	1.7 1.7 0.8 0.8		Gray fine SAND, some medium gravel, moist.		Screen (7-17 ft bgs.) Schdule 40 PVC 0.010slottedscreen.
	4	1.0/2.0	8/11/16/21	27	1.8 2.0				
15	5	1.0/2.0	8/17/16/80	33	1.8 624		WOOD		Sandpack #01 (5-18 ft bgs.)
							No recovery.		Sump (17-18 ft bgs.)

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Remarks: Soil description taken from B-13.

Date Start/Finish: 3/13/03 **Drilling Company:** Aquifer Drilling & Testing, Inc. **Driller's Name:** Jerry Hellen **Drilling Method:** Auger **Sampling Method:** 2 Foot Split-spoon.	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 17 Feet **Surface Elevation:** **Geologist:** GCP	**Well/Boring ID:** MW-14 **Client:** Georgetown West 19th Street Development LLC **Location:** West 19th Street Development Site 530 West 19th Street New York City, New York

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
0							CONCRETE.		Flush mount (0-1 ft bgs.)
							Tan medium GRAVEL.		
	1	1.5/2.0	5/5/5/6	10	1.1 0.1		Brown fine SAND, some silt, little medium gravel, dry.		Grout (1-3 ft bgs.)
					0.0		Dark brown fine to medium GRAVEL, dry.		Bentonite (3-4 ft bgs.)
5	2	1.0/2.0	13/7/8/7	15	0.5 0.4		Brown fine SAND, some silt and medium gravel, moist.		
	3	0.8/2.0	12/5/6/6	11	526		Brown fine SAND, some silt and medium gravel, wet.	▽	Riser (0.3-6 ft bgs.) Schdule 40 PVC Riser.
	4	1.0/2.0	3/4/8/6	12	7.3 0.7		Gray fine SAND, wet.		
10	5	1.5/2.0	8/2/4/5	6	46.2 22.2 4.5				Screen (6-16 ft bgs.) Schdule 40 PVC 0.010slottedscreen.
	4	0.3/2.0	1/1/5/8	6	0.5				
	5	1.0/2.0	3/5/5/5	10	19.2 166		Gray fine SAND, some medium gravel, wet. Black SILT, wet.		Sandpack #01 (4-17 ft bgs.)
15	6	NA	5/4	NA	428		Black fine SAND and SILT, wet.		Sump (16-17 ft bgs.)

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Remarks: Soil description taken from B-14.

Date Start/Finish: 3/14/03 **Drilling Company:** Aquifer Drilling & Testing, Inc. **Driller's Name:** Jerry Hellen **Drilling Method:** Auger **Sampling Method:** 2 Foot Split-spoon.	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 18 Feet **Surface Elevation:** **Geologist:** GCP	**Well/Boring ID:** MW-19 **Client:** Georgetown West 19th Street Development LLC **Location:** West 19th Street Development Site 530 West 19th Street New York City, New York

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
0							CONCRETE.		Flush mount (0-1 ft bgs.)
							Tan medium GRAVEL.		
	1	0.3/2.0	5/7/10/6	17	51.0		Brown fine to medium SAND, some medium gravel, dry.		Grout (1-4 ft bgs.)
5	2	0.5/2.0	21/6/4/3	10	65.4				Bentonite (4-5 ft bgs.)
	3	1.0/2.0	7/8/11/15	19	65.4 - 1739		Brown fine SAND, some medium gravel, dry. Brown fine SAND, some medium gravel, black staining, wet.	▽	Riser (0.3-7 ft bgs.) Schdule 40 PVC Riser.
	4	1.0/2.0	10/24/11/8	35	1979 1542		Brown fine to medium SAND and medium GRAVEL, some staining, moist to wet.		
10	5	1.3/2.0	6/6/11/3	17	1562 562		Gray fine SAND, some silt, wet.		Screen (7-17 ft bgs.) Schdule 40 PVC 0.010slottedscreen.
	4	2.0/2.0	2/4/5/14	9	11.5 9.8 8.7 11.0				
15	5	1.5/2.0	5/1/1/1	2	10.3 13.1 7.5		Gray to light red fine SAND, some silt, wet.		Sandpack #01 (5-18 ft bgs.)
	6	1.0/2.0	3/4/2/3	6	191 13.3				Sump (17-18 ft bgs.)

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Remarks: Soil description taken from B-19.

Date Start/Finish: 3/19/03 **Drilling Company:** Aquifer Drilling & Testing, Inc. **Driller's Name:** Jerry Hellen **Drilling Method:** Auger **Sampling Method:** 2 Foot Split-spoon.	**Northing:** **Easting:** **Casing Elevation:** **Borehole Depth:** 28 Feet **Surface Elevation:** **Geologist:** GCP	**Well/Boring ID:** A-1 **Client:** Georgetown West 19th Street Development LLC **Location:** West 19th Street Development Site 530 West 19th Street New York City, New York

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
0							CONCRETE.		Concrete
							Interval not sampled.		
5									Backfill
10									

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Remarks: Soil sample collected at (23.5-24.0) for Fingerprint analysis.

Client:
Georgetown West 19th

Site Location:
West 19th Street Development Site
530 West 19th Street
New York City, New York

Well/Boring ID: A-1

Borehole Depth: 28 Feet

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
15									Backfill
20	1	0.5/2.0	14/21/14/7	35	21.7		Dark gray to black fine to medium GRAVEL, some medium sand, wet.		
	2	1.5/2.0	11/12/14/12	26	191 190 300		Gray fine to medium SAND, wet. Gray medium GRAVEL, wet, possile SPH. Fine grained material, strong odor, possible ALM.		
25	3	0.5/2.0	14/16/11/12	27	305		Black fine SAND, some fine gravel, black staining, wet.		Bentonite
	4	1.0/2.0	6/6/3/3	9	265 360		Black SILT, wet.		

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Remarks: Soil sample collected at (23.5-24.0) for Fingerprint analysis.

Date Start/Finish: 3/19/03
Drilling Company: Aquifer Drilling & Testing, Inc.
Driller's Name: Jerry Hellen
Drilling Method: Auger
Sampling Method: 2 Foot Split-spoon.

Northing:
Easting:
Casing Elevation:

Borehole Depth: 26 Feet
Surface Elevation:

Geologist: GCP

Well/Boring ID: A-2

Client: Georgetown West 19th Street Development LLG

Location: West 19th Street Develppment Site
530 West 19th Street
New York City, New York

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
0							CONCRETE.		Concrete
							Interval not sampled.		
5									Backfill
10									

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Remarks: Soil sample collected at (23.5-24.0) for Fingerprint analysis.

Client:
Georgetown West 19th

Site Location:
West 19th Street Development Site
530 West 19th Street
New York City, New York

Well/Boring ID: A-2

Borehole Depth: 26 Feet

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
15									
20	1	0.5/2.0	4/2/1/2	3	65.0		Gray fine to medium GRAVEL, some medium sand, wet.		Backfill
	2	2.0/2.0	4/5/6/5	11	657 708 856 1044		Black medium to fine grained material, possible ALM, less observed SPH, wet.		
25	3	1.0/2.0	3/3/2/4	5	86.4 125		Gray fine to medium GRAVEL, little silt, wet. Black SILT, trace organics, wet.		Bentonite

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks: Soil sample collected at (23.5-24.0) for Fingerprint analysis.

Date Start/Finish: 3/19/03
Drilling Company: Aquifer Drilling & Testing, Inc.
Driller's Name: Jerry Hellen
Drilling Method: Auger
Sampling Method: 2 Foot Split-spoon.

Northing:
Easting:
Casing Elevation:

Borehole Depth: 31 Feet
Surface Elevation:

Geologist: GCP

Well/Boring ID: A-3

Client: Georgetown West 19th Street Development LLC

Location: West 19th Street Development Site
530 West 19th Street
New York City, New York

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
0							CONCRETE.		Concrete
							Interval not sampled.		
5									Backfill
10									
15									

BBL
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engineers & scientists

Remarks: Soil sample collected at (27.5-28.0) for Fingerprint analysis.

Client:
Georgetown West 19th

Site Location:
West 19th Street Development Site
530 West 19th Street
New York City, New York

Well/Boring ID: A-3

Borehole Depth: 31 Feet

DEPTH (bgs)	Sample Run Number	Recovery (feet)	Blows / 6 Inches	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Water Level	Well/Boring Construction
20	1	1.0/2.0	3/4/4/2	8	174 36.4		Gray fine to medium SAND, little silt, wet.		Backfill
	2	2.0/2.0	5/7/8/3	13	958 1213 578 627				
25	3	2.0/2.0	26/17/18/18	35	196 117 221 325				Bentonite
	4	2.0/2.0	7/8/8/50	16	562 641 625 683		Black stained material, heavy black liquid, possible SPH, wet. Gray medium SAND and fine GRAVEL, black staining through out, wet. WOOD		
							No recovery.		
30	5	2.0/2.0	8/10/12/10	22	128 286 113 112		WOOD, sheen present. Gray medium GRAVEL, sheen, wet.		

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Remarks: Soil sample collected at (27.5-28.0) for Fingerprint analysis.

Appendix B

DATA VALIDATION REPORT

THE GEORGETOWN COMPANY
WEST 19th STREET
NEW YORK, NY

SDG# N34941

SOIL SAMPLING

VOLATILES, SEMIVOLATILES,
PESTICIDE, PCB AND INORGANIC ANALYSES

Analyses performed by:

Accutest Laboratories
Dayton, New Jersey

Review performed by:

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Blasland, Bouck & Lee, Inc.
Syracuse, New York

Summary

The following is an assessment of the SDG# N34941for soil sampling at the 19th street Georgetown Company site in New York, NY. Included with this assessment are the data review check sheets used in the review of the package and corrected sample results. Analyses were performed on the following samples:

Sample ID	Sample Delivery Group	Lab ID	Matrix	Sample Date	Analysis				
					VOC	SVOC	PCB	PEST	TAL
B-16 (4.5-5.0)	N34941	N34941-1	Soil	3/17/03	x	x	x	x	X
B-16 (6.5-7.0)	N34941	N34941-2	Soil	3/17/03	x	x			
B-16 (16.5-17)	N34941	N34941-3	Soil	3/17/03	x	x			
B-16 (26.0-26.5)	N34941	N34941-4	Soil	3/17/03	x	x			
B-16 (49.5-50.0)	N34941	N34941-5	Soil	3/17/03	x	x			
B-12 (5.5-6.0)	N34941	N34941-6	Soil	3/17/03	x	x	x	x	x
B-12 (7.5-8.0)	N34941	N34941-7	Soil	3/17/03	x	x			
B-12 (10.5-11.0)	N34941	N34941-8	Soil	3/17/03	x	x			
B-12 (13.5-14.0)	N34941	N34941-9	Soil	3/17/03	x	x			
B-19 (4.5-5.0)	N34941	N34941-10	Soil	3/18/03	x	x	x	x	x
B-19 (7.5-8.0)	N34941	N34941-11	Soil	3/18/03	x	x			
B-19 (16.0-16.5)	N34941	N34941-12	Soil	3/18/03	x	x			
B-19 (29.5-30.0)	N34941	N34941-13	Soil	3/18/03	x	x			
B-19 (49.5-50.0)	N34941	N34941-14	Soil	3/18/03	x	x			
A-1 (23.5-24.0)	N34941	N34941-15	Soil	3/19/03	x	x			
A-2 (23.5-24.0)	N34941	N34941-16	Soil	3/19/03	x	x			
A-3 (27.5-28.0)	N34941	N34941-17	Soil	3/19/03	x	x			
Trip Blank	N34941	N34941-18	Water	--	x				

Sample Analysis: Volatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)	X		
	Continuing calibration (%D, RF)		X	
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)		X	
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	Internal standard (Response, RT)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)		X	
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

The response for chloroethane was below control limits in one continuing calibration verification standard. Data for chloroethane have been qualified as estimated, with a potential low bias, in samples B-16 (6.5-7.0), B-12 (10.5-11.0), B-19 (16.0-16.5) and TRIP BLANK based on the deviation.

The response for chloroethane was above control limits in one continuing calibration verification standard. Since the response was increasing and since no chloroethane was detected in the associated samples , no data have been qualified based on the deviation.

The recoveries for bromomethane and chloroethane were below control limits in one matrix spike and the recovery for chloroethane was below control limits in a second matrix spike. Based on the deviations data for bromomethane have been qualified as estimated in sample B-16 (4.5-5.0) and data for chloroethane have been qualified as estimated in samples B-16 (4.5-5.0) and B-12 (10.5-11.0).

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Semivolatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)	X		
	Continuing calibration (%D, RF)		X	
	Surrogate (%Recovery)		X	
	Matrix spike (%Recovery)		X	
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	Internal standard (Response, RT)		X	
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)		X	
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

The responses for several compounds were below control limits in the continuing calibration verification standards. Based on the deviations data for the following compounds and samples have been qualified as estimated: 2,4-dinitrotoluene, 2,4-dinitrophenol and 4,6-dinitro-2-methylphenol in samples B-19 (49.5-50.0), B-16 (26-26.5), B-12 (5.5-6.0), B-12 (7.5-8.0), B-12 (10.5-11.0), B-19 (4.5-5.0), B-19 (16.0-16.5), B-19 (29.5-30.0) and B-12 (13.5-14.0); 4-nitroaniline and 3,3'-dichlorobenzidine in samples B-16 (16.5-17.0), A-2 (23.5-24.0), A-3 (27.5-28.0) and B-16 (4.5-5.0); and carbazole in sample B-19 (7.5-8.0), B-16 (49.5-50.0) and B-16 (6.5-7.0).

One or more internal standard responses were below control limits in samples B-16 (26.0-26.5), B-12 (5.5-6.0), B-12 (7.5-8.0), B-19 (4.5-5.0), B-12 (13.5-14.0), B-16 (16.5-17.0), A-3 (27.5-28.0) and A-1 (23.5-24.0). Data for all compounds quantitated under the non-compliant standards have been qualified as estimated in associated samples based on the deviations.

Recoveries for one surrogate were outside control limits in several samples. Since recoveries for the remaining surrogates were within control limits no data have been qualified based on the deviations. Surrogates were diluted in several samples. No data have been qualified based on the diluted surrogates.

The matrix spike and matrix spike duplicate recoveries were outside control limits for several compounds. Most of the deviations could be attributed to interference from target compounds present in the unspiked sample, however, data for 2,4-dinitrophenol, 4-nitrophenol, hexachlorocyclopentadiene and pentachlorophenol have been qualified as estimated in sample B-19 (4.5-5.0) based on the recoveries.

All laboratory control sample recoveries were within control limits.

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: PCBs

Quality Control Checks

		YES	NQ	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)	X		
	Continuing calibration (%D, RF)	X		
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)	X		
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)	X		
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

All data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Pesticides

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)	X		
	Continuing calibration (%D, RF)	X		
	Surrogate (%Recovery)		X	
	Matrix spike (%Recovery)		X	
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)	X		
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

Recoveries for both surrogates were above control limits in sample B-12 (5.5-6.0). Since no target compounds were detected in the sample, no data have been qualified based on the recoveries. Recovery for one surrogate was above control limits in sample B-19 (4.5-5.0). Since recovery for the second surrogate was within control limits, no data have been qualified based on the deviation.

Recoveries for several compounds were above control limits in the matrix spike and matrix spike duplicate. Since none of the noncompliant compounds were detected in the associated sample, no data have been qualified based on the deviations.

Other than for the deviations noted, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Metals

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%R, R2)	X		
	Continuing calibration (%R)	X		
	Matrix spike (%Recovery)		X	
	Blank spike (%Recovery)	X		
	Control sample (%Recovery)	X		
	CRDL standard (%R)	X		
	Serial dilution (%D)	X		
	Internal standard (Response)			X
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)			X
	Laboratory duplicate (RPD)		X	
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples		X	

Notes

Copper was detected the method blank. Since the copper detected in the samples were present at concentrations greater than five times that in the blank, no data have been qualified based on the blank content.

Matrix spike recoveries for antimony, magnesium and potassium were below control limits. Data for the listed analytes have been qualified as estimated in all samples based on the deviations.

The duplicate results were outside control limits for chromium. No data have been qualified based on the duplicate results.

SAMPLE COMPLIANCE REPORT

Sample Delivery	Sampling Date	ASP Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	PCB	PEST	MET	
N34941	3/17/03	2000	B-16 (4.5-5.0)	Soil	no	no	yes	yes	no	VOC ms/msd SVOC ccal MET ms
N34941	3/17/03	2000	B-16 (6.5-7.0)	Soil	no	no	--	--	--	VOC ccal SVOC ccal
N34941	3/17/03	2000	B-16 (16.5-17)	Soil	yes	no	--	--	--	SVOC internal standard, ccal
N34941	3/17/03	2000	B-16 (26.0-26.5)	Soil	yes	no	--	--	--	SVOC internal standard, ccal
N34941	3/17/03	2000	B-16 (49.5-50.0)	Soil	yes	no	--	--	--	SVOC ccal
N34941	3/17/03	2000	B-12 (5.5-6.0)	Soil	yes	no	yes	yes	no	SVOC internal standard, ccal MET ms
N34941	3/17/03	2000	B-12 (7.5-8.0)	Soil	yes	no	--	--	--	SVOC ccal
N34941	3/17/03	2000	B-12 (10.5-11.0)	Soil	no	no	--	--	--	VOC ms, ccal SVOC ccal
N34941	3/17/03	2000	B-12 (13.5-14.0)	Soil	yes	no	--	--	--	SVOC internal standard, ccal
N34941	3/18/03	2000	B-19 (4.5-5.0)	Soil	yes	no	yes	yes	no	SVOC ms/msd, internal standard, ccal MET ms
N34941	3/18/03	2000	B-19 (7.5-8.0)	Soil	yes	no	--	--	--	SVOC internal standard, ccal
N34941	3/18/03	2000	B-19 (16.0-16.5)	Soil	no	no	--	--	--	VOC ccal SVOC ccal
N34941	3/18/03	2000	B-19 (29.5-30.0)	Soil	yes	no	--	--	--	SVOC ccal
N34941	3/18/03	2000	B-19 (49.5-50.0)	Soil	yes	no	--	--	--	SVOC ccal
N34941	3/19/03	2000	A-1 (23.5-24.0)	Soil	yes	no	--	--	--	SVOC internal standard, ccal
N34941	3/19/03	2000	A-2 (23.5-24.0)	Soil	yes	no	--	--	--	SVOC ccal
N34941	3/19/03	2000	A-3 (27.5-28.0)	Soil	yes	no	--	--	--	SVOC internal standard, ccal
N34941	--	2000	Trip Blank	Water	no	--	--	--	--	VOC ccal SVOC ccal

1 Samples which are compliant with no added validation qualifiers are listed as 'yes". Samples which are non-compliant or which have added qualifiers are listed as 'no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

Summary

The following is an assessment of the SDG# N34454 for soil sampling at the 19th street Georgetown Company site in New York, NY. Included with this assessment are the data review check sheets used in the review of the package and corrected sample results. Analyses were performed on the following samples:

Sample ID	Sample Delivery Group	Lab ID	Matrix	Sample Date	Analysis				
					VOC	SVOC	PCB	PEST	TAL
B-9 (5.0-5.5)	N34454	N34454-1	Soil	3/04/03	x	x	x	x	x
B-9 (11-11.5)	N34454	N34454-2	Soil	3/04/03	x	x			
B-11 (5.5-6.0)	N34454	N34454-3	Soil	3/04/03	x	x	x	x	x
B-11 (9.5-10.0)	N34454	N34454-4	Soil	3/04/03	x	x			
B-11 (11.5-12.0)	N34454	N34454-5	Soil	3/04/03	x	x			
B-18 (6.0-6.5)	N34454	N34454-6	Soil	3/05/03	x	x	x	x	x
B-18 (8.0-8.5)	N34454	N34454-7	Soil	3/05/03	x	x			
B-18 (17.0-17.5)	N34454	N34454-8	Soil	3/05/03	x	x			
B-18 (24.5-25.0)	N34454	N34454-9	Soil	3/05/03	x	x			
B-17 (5.5-6.0)	N34454	N34454-10	Soil	3/05/03	x	x	x	x	x
B-17 (6.5-7.0)	N34454	N34454-11	Soil	3/05/03	x	x			
B-17 (17.0-17.5)	N34454	N34454--12	Soil	3/05/03	x	x			
B-17 (25.5-26.0)	N34454	N34454-13	Soil	3/05/03	x	x			
B-20 (6.0-6.5)	N34454	N34454-14	Soil	3/06/03	x	x			
B-20 (5.5-6.0)	N34454	N34454-15	Soil	3/06/03	x	x	x	x	x
B-20 (21.5-22.0)	N34454	N34454-16	Soil	3/06/03	x	x			
B-20 (26.5-27.0)	N34454	N34454-17	Soil	3/06/03	x	x			
B-15 (5.0-5.5)	N34454	N34454-18	Soil	3/06/03	x	x	x	x	x
B-15 (10.0-10.5)	N34454	N34454-19	Soil	3/06/03	x	x			
B-15 (22.0-22.5)	N34454	N34454-20	Soil	3/07/03	x	x			
B-15 (23.5-24.0)	N34454	N34454-21	Soil	3/07/03	x	x			
B-10 (6.5-7.0)	N34454	N34454-22	Soil	3/07/03	x	x	x	x	x
B-10 (7.0-7.5)	N34454	N34454-23	Soil	3/07/03	x	x			
B-10 (17.0-17.5)	N34454	N34454-24	Soil	3/07/03	x	x			
B-10 (23.5-24.0)	N34454	N34454-25	Soil	3/07/03	x	x			
B-10 (49.5-50.0)	N34454	N34454-26	Soil	3/07/03	x	x			
B-13 (5.5-6.0)	N34454	N34454-27	Soil	3/10/03	x	x	x	x	x
B-13 (8.0-8.5)	N34454	N34454--28	Soil	3/10/03	x	x			
B-13 (20-20.5)	N34454	N34454-29	Soil	3/11/03	x	x			
B-13 (27.0-27.5)	N34454	N34454-30	Soil	3/11/03	x	x			
B-13 (49.5-50.0)	N34454	N34454-31	Soil	3/11/03	x	x			

Sample ID	Sample Delivery Group	Lab ID	Matrix	Sample Date	Analysis				
					VOC	SVOC	PCB	PEST	TAL
B-14 (4.0-4.5)	N34454	N34454-32	Soil	3/12/03	x	x	x	x	x
B-14 (6.5-7.0)	N34454	N34454-33	Soil	3/12/03	x	x			
B-14 (16-16.5)	N34454	N34454-34	Soil	3/12/03	x	x			
B-14 (30.5-31.0)	N34454	N34454-35	Soil	3/12/03	x	x			
B-14 (49.5-50.0)	N34454	N34454-36	Soil	3/12/03	x	x			

Sample Analysis: Volatiles

Quality Control Checks

		YES	NQ	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)	X		
	Continuing calibration (%D, RF)		X	
	Surrogate (%Recovery)		X	
	Matrix spike (%Recovery)		X	
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	Internal standard (Response, RT)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)		X	
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

The responses for several compounds were below control limits in the continuing calibration verification standards. Based on the responses, data for acetone and 1,1,2,2-tetrachloroethane have been qualified as estimated in samples B-9 (5.0-5.5), B-9 (11-11.5), B-11 (9.5-10.0) and B-18 (6.0-6.5), data for 2-butanone have been qualified as estimated in samples B-18 (8.0-8.5), B-18 (17.0-17.5), B-20 (5.5-6.0), B-20 (21.5-22.0), B-20 (26.5-27.0) and B-15 (22.0-22.5), data for 2-butanone and 1,1,2,2-tetrachloroethane have been qualified as estimated in samples B-11 (5.5-6.0), B-11 (11.5-12.0), B-17 (5.5-6.0) and B-17 (17.0-17.5), data for 1,1,2,2-tetrachloroethane have been qualified as estimated in samples B-18 (24.5-25.0), B-17 (6.5-7.0), B-17 (25.5-26.0), B-17 (25.5-26.0), B-20 (6.0-6.5), B-15 (5.0-5.5) and B-15 (10.0-10.5), and data for acetone, 2-butanone, 2-hexanone and 1,1,2,2-tetrachloroethane have been qualified as estimated in sample B-15 (23.5-24.0).

MS/MSD analyses were performed on two samples in this data set. Recoveries for chloroethane were below control limits in one set and recoveries for bromomethane and chloroethane were below control limits in the second set. In addition, the relative percent differences between recoveries were outside control limits for 2-hexanone and vinyl chloride. Data have been qualified as estimated for chloroethane in sample B-18 (17.0-17.5) and bromomethane and chloroethane in sample B-14 (4.0-4.5) based on the

recoveries.

Recovery for one surrogate was above control limits in samples B-18 (6.0-6.5) and B-17 (6.5-7.0). All positive data in the listed samples have been qualified as estimated based on the deviations.

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Semivolatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)	X		
	Continuing calibration (%D, RF)		X	
	Surrogate (%Recovery)		X	
	Matrix spike (%Recovery)	X		
	Blank spike (%Recovery)	X		
	Control sampie (%Recovery)			X
	Internal standard (Response, RT)		X	
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)		X	
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

The responses for several compounds were below control limits in the continuing calibration verification standards. Data for benzo(b)fluoranthene have been qualified as estimated in samples B-9 (11-11.5), B-11 (11.5-12.0) and B-15 (10.0-10.5), data for indeno(1,2,3-cd)pyrene have been qualified as estimated in samples B-20 (26.5-27.0) and B-15 (22.0-22.5), and data for benzo(b)fluoranthene and indeno(1,2,3-cd)pyrene have been qualified as estimated in samples B-11 (5.5-6), B-20 (21.5-22) and B-15 (5.0-5.5) based on the deviations.

One or more internal standard responses were below control limits in samples B-20 (21.5-22.0), B-10 (6.5-7.0), B-14 (4.0-4.5), B-13 (20.0-20.5), B-14 (16-16.5), B-10 (7.0-7.5) and B-13 (8.0-8.5). Data for all compounds quantitated under the non-compliant standards have been qualified as estimated in associated samples based on the deviations.

Recovery for one surrogate was outside control limits in several samples. Since recoveries for the remaining surrogates were within control limits no data have been qualified based on the deviations.

Surrogates were diluted in several samples. No data have been qualified based on the diluted surrogates.

The matrix spike and matrix spike duplicate recoveries were above control limits for naphthalene and hexachlorocyclopentadiene. Data for naphthalene have been qualified as estimated in sample B-18 (17.0-17.5) based on the recoveries. Since data for hexachlorocyclopentadiene was undetected in the associated sample, no additional data have been qualified based on the deviations.

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: PCBs

Quality Control Checks

		YES	NQ	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)	X		
	Continuing calibration (%D, RF)	X		
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)	X		
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)	X		
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

All data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Metals

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%R, R2)	X		
	Continuing calibration (%R)	X		
	Matrix spike (%Recovery)		X	
	Blank spike (%Recovery)			X
	Control sample (%Recovery)	X		
	CRDL standard (%R)		X	
	Serial dilution (%D)		X	
	Internal standard (Response)			X
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)			X
	Laboratory duplicate (RPD)	X		
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples	X		

Notes

Matrix spike recoveries for arsenic, antimony, beryllium, cadmium, chromium, cobalt, lead, nickel, selenium, thallium and zinc were below control limits. All data for the listed analytes have been qualified as estimated in the samples based on the deviations.

The matrix spike recovery for sodium was above control limits. Positive data for sodium have been qualified as estimated based on the deviations.

One CRDL recovery was above control limits for selenium. No data fell within the affected range therefore no data have been qualified based on the deviation.

The serial dilution results were above control limits for several compounds. Based on the deviations, data for aluminum, barium, calcium, chromium, copper, iron, lead, magnesium, manganese, nickel, vanadium and zinc have been qualified as estimated in the samples.

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

SAMPLE COMPLIANCE REPORT

Sample Delivery	Sampling Date	ASP Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	PCB	PEST	MET	
N34454	3/04/03	2000	B-9 (5.0-5.5)	Soil	no	yes	yes	yes	no	VOC coal MET ms, serial dilution
N34454	3/04/03	2000	B-9 (11-11.5)	Soil	no	no	--	--	--	VOC ccal SVOC coal
N34454	3/04/03	2000	B-11 (5.5-6.0)	Soil	no	no	yes	yes	no	VOC coal SVOC coal MET ms, serial dilution
N34454	3/04/03	2000	B-11 (9.5-10.0)	Soil	no	yes	--	--	--	VOC ccal
N34454	3/04/03	2000	B-11 (11.5-12.0)	Soil	no	no	--	--	--	VOC ccal SVOC coal
N34454	3/05/03	2000	B-18 (6.0-6.5)	Soil	no	yes	yes	yes	no	VOC surrogate, coal MET ms, serial dilution
N34454	3/05/03	2000	B-18 (8.0-8.5)	Soil	no	yes	--	--	--	VOC coal
N34454	3/05/03	2000	B-18 (17.0-17.5)	Soil	no	no	--	--	--	VOC ms/msd, coal SVOC rpd
N34454	3/05/03	2000	B-18 (24.5-25.0)	Soil	no	yes	--	--	--	VOC coal
N34454	3/05/03	2000	B-17 (5.5-6.0)	Soil	no	yes	yes	yes	no	VOC ccal MET ms, serial dilution
N34454	3/05/03	2000	B-17 (6.5-7.0)	Soil	no	yes	--	--	--	VOC coal
N34454	3/05/03	2000	B-17 (17.0-17.5)	Soil	no	yes	--	--	--	VOC coal
N34454	3/05/03	2000	B-17 (25.5-26.0)	Soil	no	yes	--	--	--	VOC ccal
N34454	3/06/03	2000	B-20 (6.0-6.5)	Soil	no	yes	--	--	--	VOC coal
N34454	3/06/03	2000	B-20 (5.5-6.0)	Soil	no	yes	yes	yes	no	VOC ccal MET ms, serial dilution
N34454	3/06/03	2000	B-20 (21.5-22.0)	Soil	no	no	--	--	--	VOC ccal SVOC internal standard, ccal
N34454	3/06/03	2000	B-20 (26.5-27.0)	Soil	no	no	--	--	--	VOC ccal SVOC coal
N34454	3/06/03	2000	B-15 (5.0-5.5)	Soil	no	no	yes	yes	no	VOC coal SVOC ccal MET ms, serial dilution
N34454	3/06/03	2000	B-15 (10.0-10.5)	Soil	no	no	--	--	--	VOC coal SVOC coal
N34454	3/07/03	2000	B-15 (22.0-22.5)	Soil	no	no	--	--	--	VOC coal SVOC ccal
N34454	3/07/03	2000	B-15 (23.5-24.0)	Soil	no	no	--	--	--	VOC coal
N34454	3/07/03	2000	B-10 (6.5-7.0)	Soil	yes	no	yes	yes	no	SVOC internal standard MET ms, serial dilution
N34454	3/07/03	2000	B-10 (7.0-7.5)	Soil	yes	no	--	--	--	SVOC internal standard

N34454	3/07/03	2000	B-10 (17.0-17.5)	Soil	yes	yes	--	--	--	
N34454	3/07/03	2000	B-10 (23.5-24.0)	Soil	yes	no	--	--	--	SVOC rpd
N34454	3/07/03	2000	B-10 (49.5-50.0)	Soil	yes	yes	--	--	--	
N34454	3/10/03	2000	B-13 (5.5-6.0)	Soil	yes	yes	yes	yes	no	MET ms, serial dilution
N34454	3/10/03	2000	B-13 (8.0-8.5)	Soil	yes	no	--	--	--	SVOC internal standard
N34454	3/11/03	2000	B-13 (20-20.5)	Soil	yes	no	--	--	--	SVOC internal standard
N34454	3/11/03	2000	B-13 (27.0-27.5)	Soil	yes	yes	--	--	--	
N34454	3/11/03	2000	B-13 (49.5-50.0)	Soil	yes	yes	--	--	--	
N34454	3/12/03	2000	B-14 (4.0-4.5)	Soil	no	no	yes	yes	no	VOC ms/msd SVOC internal standard MET ms, serial dilution
N34454	3/12/03	2000	B-14 (6.5-7.0)	Soil	yes	yes	--	--	--	
N34454	3/12/03	2000	B-14 (16-16.5)	Soil	yes	no	--	--	--	SVOC internal standard
N34454	3/12/03	2000	B-14 (30.5-31.0)	Soil	yes	yes	--	--	--	
N34454	3/12/03	2000	B-14 (49.5-50.0)	Soil	yes	yes	--	--	--	

1 Samples which are compliant with no added validation qualifiers are listed as 'yes". Samples which are non-compliant or which have added qualifiers are listed as 'no". A "no" designation does not necessarilyindicate that the data have been rejected or are otherwise unusable.

Appendix C

Attachment 1

GROUND-WATER SAMPLING LOG

Well No. MW-10
Key No.
Date/Time 3/18/03
Sample ID MW-10
Duplicate Sample ID BD031803
MS/MSD ID NA

Site Name W 19th St - NYC
Sampling Personnel DAS
Weather 50s Sunny
PID Background 0.0
PID Well 447

KSH

WELL INFORMATION

	TIC	TOC	BGL
Reference Point Marked on Casing			
Well Diameter	2"		
Well Depth	~~15.00~~ 11.9		
Water Table Depth	~~7.88~~ 5.04		
Depth to Casing Below Grade			

Slug Test? N Redevelop? (Y/N) N

WELL WATER INFORMATION

Length of Water Column	
Volume of Water in Well	
Pumping Rate of Pump	
Volume of Bailer	NA
Minutes of Pumping	
Number of Bails	NA

Pump set at 11.00
Pre-purge WL 5.97
Start time 10:22

EVACUATION INFORMATION

Volume of Water Removed from Well 4 gallons
Did well go dry? Y (N)
Evacuation Method: Bailer ( ) Grundfos Pump ( ) Peristaltic Pump (X) [Pump & ~~Bladder~~ tubing]
Pumping Rate 125 mL/min

	Time	Water Level (ft)	Temperature (celcius)	pH	SpC (ms/cm)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	FL
Initial	10:30	6.03	12.18	6.81	2.26	219.0	1.76	-53	220
1	10:35	~~6.10~~	12.98	6.90	2.26	129.0	1.37	-75	200
2	10:40	6.13	12.92	6.92	2.26	104.0	1.45	-80	60
3	10:45	6.11	12.50	6.93	2.27	84.0	1.45	-78	"
4	10:50	6.11	12.24	6.93	2.27	69.8	1.50	-77	"
5	10:55	6.13	12.30	6.93	2.28	59.2	1.50	-75	125
6	11:00	6.16	12.53	6.94	2.27	58.7	1.46	-75	"
7	11:05	6.18	12.66	6.95	2.28	48.7	1.38	-75	"
8	11:10	6.18	12.69	6.95	2.28	47.6	1.32	-76	"
9	11:15	6.18	12.68	6.96	2.27	38.4	1.16	-87	"
10	11:20	6.19	12.65	6.97	2.26	32.4	1.05	-90	"
11	11:25	6.20	12.64	6.97	2.24	11.7	1.00	-93	"
12	11:30	6.21	12.65	6.97	2.24	10.1	0.99	-93	"
Final	11:35	6.22	12.65	6.97	2.24	10.6	8.98	-94	"

Color: tan
Odor: Strong chem

11:40 collect sample.

MISCELLANEOUS OBSERVATIONS/PROBLEMS

Location of BD031803

SAMPLE DESTINATION

Analysis Requested TCL VOC, TCL SVOC
Laboratory Accutest
Via Courier
Sent By DAS

Clean Palmer
Field Sampling Coordinator

Ref:
T = Top of inner casing.
TC = Top of outer casing.

BGL = Below ground level.
gpm = Gallons per minute.

C = Degrees Centigrade.
mS/cm = MilliSiemens per centimeter.

SU = Standard unit.
NTU = Nephelometric Turbidity Units
mg/L = Milligrams per liter.

Attachment 1

GROUND-WATER SAMPLING LOG

Well No. MW-13
Key No.
Date/Time 3/10/05
Sample ID MW-13
Duplicate Sample ID NA
MS/MSD ID NA

Site Name W 19th St. NYC
Sampling Personnel DN
Weather Clear sunny
PID Background 0.0
PID Well 103

Purged at 12:05

Pre-pumping WL 7.07
Stop Pump time 13:20

WELL INFORMATION

	TIC	TOC	BGL
Reference Point Marked on Casing	✓		
Well Diameter	2"		
Well Depth	17.7		
Water Table Depth	7.10		
Depth to Casing Below Grade	NA		

Slug Test? N Redevelop? (Y/N) N

WELL WATER INFORMATION

Length of Water Column	10.6
Volume of Water in Well	NA
Pumping Rate of Pump	150
Volume of Bailer	NA
Minutes of Pumping	
Number of Bails	NA

EVACUATION INFORMATION

Volume of Water Removed from Well _____ gallons
Did well go dry? Y (N)
Evacuation Method: Bailer ( ) Grundfos Pump ( ) Peristaltic Pump (X) [Pump & ~~dedicated~~ tubing]
Pumping Rate 150 mL/min

	Time	Water Level (ft)	Temperature (celcius)	pH	SpC (ms/cm)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	FL	Color	Odor
Initial	1335	7.10	14.87	6.93	4.37	153.0	0.83	-74	100	tan	chem
1	1340	7.10	14.86	6.93	4.30	129.0	0.59	-87	150	"	"
2	1345	7.11	15.05	6.93	4.16	102.0	0.50	-100	"	"	"
3	1350	7.11	15.13	6.94	3.99	82.4	0.48	-110	"	"	"
4	13:55	7.11	15.10	6.95	3.87	67.2	0.44	-119	"	"	"
5	14:00	7.11	15.03	6.95	3.78	63.1	0.43	-125	"	"	"
6	14:05	7.11	15.06	6.96	3.70	55.7	0.43	-130	"	"	"
7	14:10	7.11	15.02	6.95	3.61	50.3	0.42	-133	"	"	"
8	14:15	7.11	15.11	6.95	3.53	~~44.4~~ 40.8	0.42	-145	"	"	"
9	14:20	7.11	15.16	6.95	3.49	39.4	0.42	-151	"	"	"
10	14:25	7.11	15.20	6.95	3.45	36.7	0.41	-156	"	"	"
11	14:30	collect sample									
12											
Final											

MISCELLANEOUS OBSERVATIONS/PROBLEMS

SAMPLE DESTINATION

Analysis Requested _____
Laboratory _____
Via _____
Sent By _____

_____
Field Sampling Coordinator

Notes:
TIC = Top of inner casing.
TOC = Top of outer casing.
BGL = Below ground level.
gpm = Gallons per minute.
C = Degrees Centigrade.
mS/cm = MilliSiemens per centimeter.
SU = Standard unit.
NTU = Nephelometric Turbidity Units
mg/L = Milligrams per liter.

Attachment 1

GROUND-WATER SAMPLING LOG

Well No. MW-14
Key No. —
Date/Time 3/18/03 8:27
Sample ID MW-14
Duplicate Sample ID NA
MS/MSD ID MW-14

Site Name W 19th St - NYC
Sampling Personnel DAS
Weather Cool Sunny
PID Background 0.0
PID Well 42.7

WELL INFORMATION

	TIC	TOC	BGL
Reference Point Marked on Casing			
Well Diameter	2"		
Well Depth	13.0'		
Water Table Depth	5.55'		
Depth to Casing Below Grade			

Slug Test? N Redevelop? (Y/N) N

Start time 8:27
Replot water level 5.58

WELL WATER INFORMATION

Length of Water Column	
Volume of Water in Well	
Pumping Rate of Pump	
Volume of Bailer	NA
Minutes of Pumping	
Number of Bails	NA

EVACUATION INFORMATION

Volume of Water Removed from Well 4 gallons
Did well go dry? Y (N)
Evacuation Method: Bailer ( ) Grundfos Pump ( ) Peristaltic Pump (X) [Pump & dedicated tubing]
Pumping Rate 150 mL/min

	Time	Water Level (ft)	Temperature (celcius)	pH	SpC (ms/cm)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	FR	C	Odor
Initial	8:50	5.84	10.70	5.37	0.194	45.5	3.91	191	150	Tan	none
1	8:55	5.82	10.63	5.33	0.193	31.2	3.03	196	150	Tan	slight
2	9:00	5.82	10.52	5.31	0.193	32.0	2.92	198			
3	9:05	5.82	10.48	5.31	0.193	33.2	2.94	197			
4	9:10 collect sample										
5											
6											
7											
8											
9											
10											
11											
12											
Final											

MISCELLANEOUS OBSERVATIONS/PROBLEMS

SAMPLE DESTINATION

Analysis Requested TCL VOC, TCL SVOC
Laboratory Accutest
Via courier
Sent By DAS

Glenn Palmer
Field Sampling Coordinator

Notes:
TIC = Top of inner casing.
TOC = Top of outer casing.
BGL = Below ground level.
gpm = Gallons per minute.
C = Degrees Centigrade.
mS/cm = MilliSiemens per centimeter.
SU = Standard unit.
NTU = Nephelometric Turbidity Units
mg/L = Milligrams per liter.

Attachment 1

GROUND-WATER SAMPLING LOG

Well No. MW-19
Key No. —
Date/Time 3/18/03
Sample ID MW-19
Duplicate Sample ID NA
MS/MSD ID NA

Site Name W 19th St NYC
Sampling Personnel DA
Weather Sunny
PID Background 0.0
PID Well 0.7 327

WELL INFORMATION

	TIC	TOC	BGL
Reference Point Marked on Casing	0.0		
Well Diameter	2"		
Well Depth	16.8		
Water Table Depth	2.03		
Depth to Casing Below Grade			

~~Hand~~ Sub pump @ 12.04

Slug Test? _____ Redevelop? (Y/N) _____

WELL WATER INFORMATION

Length of Water Column	9.72
Volume of Water in Well	NA
Pumping Rate of Pump	
Volume of Bailer	NA
Minutes of Pumping	
Number of Bails	NA

EVACUATION INFORMATION

Volume of Water Removed from Well _____ gallons
Evacuation Method: Bailer ( ) Grundfos Pump ( ) Peristaltic Pump (X) [Pump & dedicated tubing]
Did well go dry? Y N
Pumping Rate _____ mL/min

	Time	Water Level (ft)	Temperature (celcius)	pH	SpC (ms/cm)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	EL	Clr	Odr
Initial	1435	6.90									
1	1445	7.01	10.40	7.25	0.98	760.0	2.01	-91	@ 75mL	tan	slt
2	1450	~~7.30~~	10.28	8.36	0.95	593.0	.96	-118	0.75mL	"	"
3	1455	7.18	10.14	8.60	0.94	505.0	0.70	-120	0.75	"	"
4	1500	7.20	10.08	8.79	0.93	602.0	0.60	-119	"	"	"
5	1505	7.25	10.01	8.89	0.92	556.0	0.54	-119	"	"	"
6	1510	7.29	9.96	8.96	0.92	533.0	0.52	-121	"	"	"
7	1515	7.32	9.89	9.03	0.92	451.0	0.48	-123	"	"	"
8	1520	7.38	9.85	9.08	0.92	356.0	0.45	-125	"	"	"
9	1525	7.40	9.83	9.10	0.92	336.0	0.47	-126	"	"	"
10	1530	7.42	9.83	9.13	0.92	284.0	0.43	-127	"	"	"
11	1535	7.45	10.07	9.14	0.92	238.0	0.44	-129	"	"	"
12	1540	7.49	10.18	9.15	0.92	189.0	0.43	-130	"	"	"
Final	1543	7.50	10.24	9.15	0.92	176.0	0.42	-130	"	"	"
	1550	7.81	10.27	9.14	0.92	170.0	0.41	-131	"	"	"

MISCELLANEOUS OBSERVATIONS/PROBLEMS

1535 collected sample

SAMPLE DESTINATION

Analysis Requested TCL VOC, TCL SVOC
Laboratory Accutest
Via driver
Sent By DA

Glenn Palmer
Field Sampling Coordinator

Notes:
TIC = Top of inner casing.
TOC = Top of outer casing.
BGL = Below ground level.
gpm = Gallons per minute.
C = Degrees Centigrade.
mS/cm = MilliSiemens per centimeter.
SU = Standard unit.
NTU = Nephelometric Turbidity Units
mg/L = Milligrams per liter.

Appendix D

DATA VALIDATION REPORT

THE GEORGETOWN COMPANY
WEST 19th STREET
NEW YORK, NY

SDG# N34878

WATER SAMPLING

VOLATILE AND
SEMIVOLATILE ANALYSES

Analyses performed by:

Accutest Laboratories
Dayton, New Jersey

Review performed by:

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Blasland, Bouck & Lee, Inc.
Syracuse, New York

Summary

The following is an assessment of the SDG# N34878 for soil sampling at the 19th Street Georgetown Company site in New York, NY. Included with this assessment are the data review check sheets used in the review of the package and corrected sample results. Analyses were performed on the following samples:

Sample ID	Sample Delivery Group	Lab ID	Matrix	Sample Date	Analysis				
					VOC	SVOC	PCB	PEST	TAL
MW-14[1]	N34878	N34878-1	Water	3/18/03	x	x			
MW-10	N34878	N34878-2	Water	3/18/03	x	x			
MW-13	N34878	N34878-3	Water	3/18/03	x	x			
MW-19	N34878	N34878-4	Water	3/18/03	x	x			
BD031803	N34878	N34878-5	Water	3/18/03	x	x			
FB031803	N34878	N34878-6	Water	3/18/03	x	x			
TB031803	N34878	N34878-7	Water	3/18/03	x	x			

1 MS/MSD analyses performed on sample

Sample Analysis: Volatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)	X		
	Continuing calibration (%D, RF)		X	
	Surrogate (%Recovery)	X		
	Matrix spike (%Recovery)	X		
	Blank spike (%Recovery)	X		
	Control sample (%Recovery)			X
	Internal standard (Response, RT)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)	X		
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples		X	

Notes

The response for chloromethane was below control limits in one of the continuing calibration verification standards. Data for chloromethane have been qualified as estimated in samples MW-14, MW-10, MW-13, BD031803, TB031803 and FB031803 based on the deviation.

Toluene was detected in field blank FB031803. Since all detected toluene was present in the samples at concentrations greater than 5 times that in the blank, no data have been qualified based on the blank content.

Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

Sample Analysis: Semivolatiles

Quality Control Checks

		YES	NO	NA
1.	Field Chain-of-Custody complete	X		
2.	Proper methods for analysis used	X		
3.	All documentation supplied	X		
4.	Samples analyzed within specified holding times	X		
5.	The minimum number of field and laboratory QC samples analyzed	X		
6.	Accuracy maintained within established ranges for the following:			
	Initial calibration (%RSD, R2, RF)	X		
	Continuing calibration (%D, RF)		X	
	Surrogate (%Recovery)		X	
	Matrix spike (%Recovery)	X		
	Blank spike (%Recovery)	X		
	Control sample (%Recovery)			X
	Internal standard (Response, RT)	X		
7.	Precision maintained within established ranges for the following:			
	Matrix spike (RPD)	X		
	Laboratory duplicate (RPD)			X
	Field duplicate (RPD)			X
8.	Target analyte concentrations below detection limit in all blank samples		X	

Notes

The responses for several compounds were outside control limits in the continuing calibration verification standards. Since the responses were increasing and since none of the noncompliant compounds were detected in the associated samples, no data have been qualified based on the deviations.

Recovery for one surrogate was above control limits in sample MW-13. Since recoveries for the remaining surrogates were within control limits no data have been qualified based on the deviations.

Diethylphthalate and naphthalene were detected in field blank F031803. Based on the blank content, data for diethylphthalate have been qualified as undetected in samples MW-14, MW-13, MW-19 and BD031803.

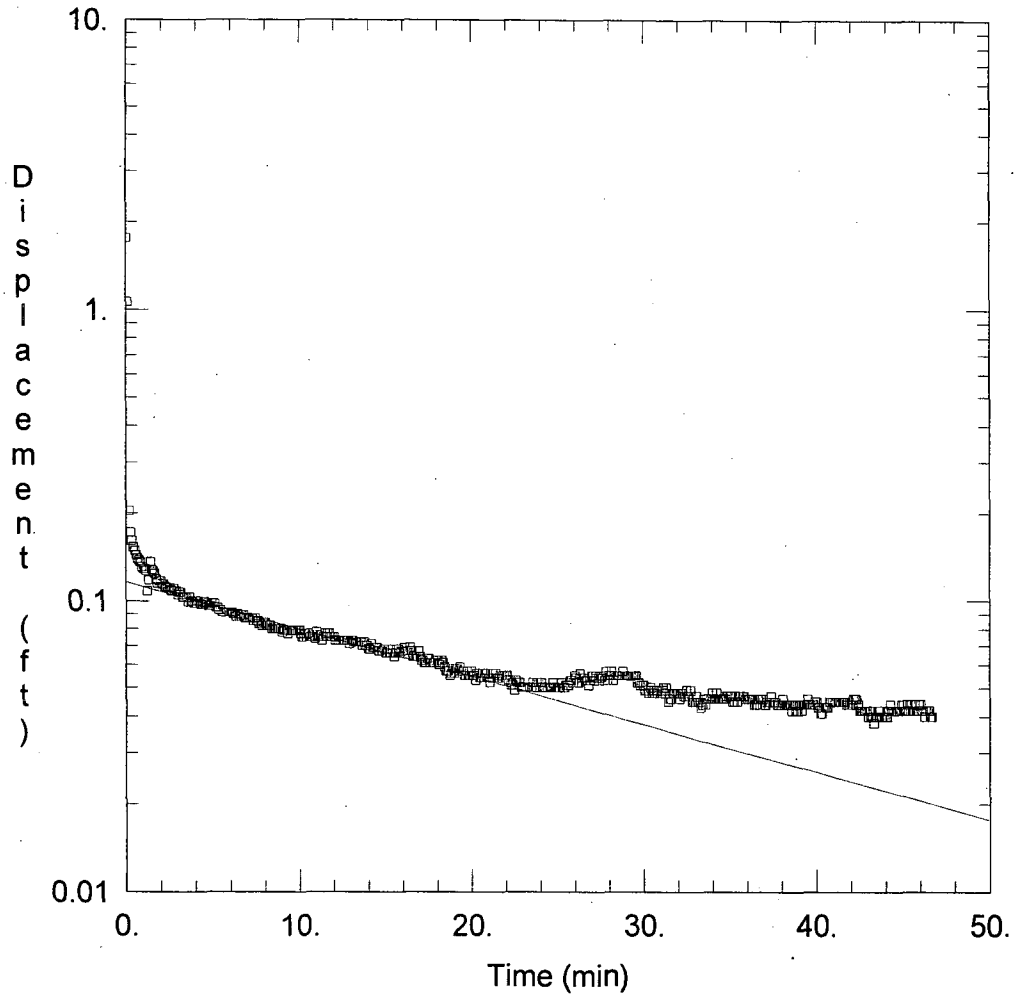
Other than for the deviations noted in this review, all data quality parameters were within method-specified limits and the data is acceptable for use as reported by the laboratory.

SAMPLE COMPLIANCE REPORT

Sample Delivery	Sampling Date	ASP Protocol	Sample ID	Matrix	Compliancy[1]					Noncompliance
					VOC	SVOC	PCB	PEST	TAL	
N34878	3/18/03	2000	MW-14	Water	no	no	--	--	--	VOC ccal SVOC blank, ccal
N34878	3/18/03	2000	MW-10	Water	no	yes	--	--	--	VOC ccal
N34878	3/18/03	2000	MW-13	Water	no	no	--	--	--	VOC ccal SVOC blank, ccal
N34878	3/18/03	2000	MW-19	Water	yes	no	--	--	--	SVOC blank, ccal
N34878	3/18/03	2000	BD031803	Water	no	no	--	--	--	VOC ccal SVOC blank
N34878	3/18/03	2000	FB031803	Water	no	yes	--	--	--	VOC ccal SVOC ccal
N34878	--	2000	TB031803	Water	no	--	--	--	--	VOC ccal

1 Samples which are compliant with no added validation qualifiers are listed as 'yes". Samples which are non-compliant or which have added qualifiers are listed as 'no". A "no" designation does not necessarily indicate that the data have been rejected or are otherwise unusable.

Appendix E



MW-10 SLUG TEST

Data Set: F:\PROJECTS\GEORGE~1\FIELD_~1\SLUG_T~1\MW-10.AQT
Date: 06/02/03 Time: 15:56:16

PROJECT INFORMATION

Company: BBL
Client: GEORGETOWN COMPANY
Project: 27410.001
Test Location: W 19TH STREET, NYC
Test Well: MW-10
Test Date: 04/23/03

AQUIFER DATA

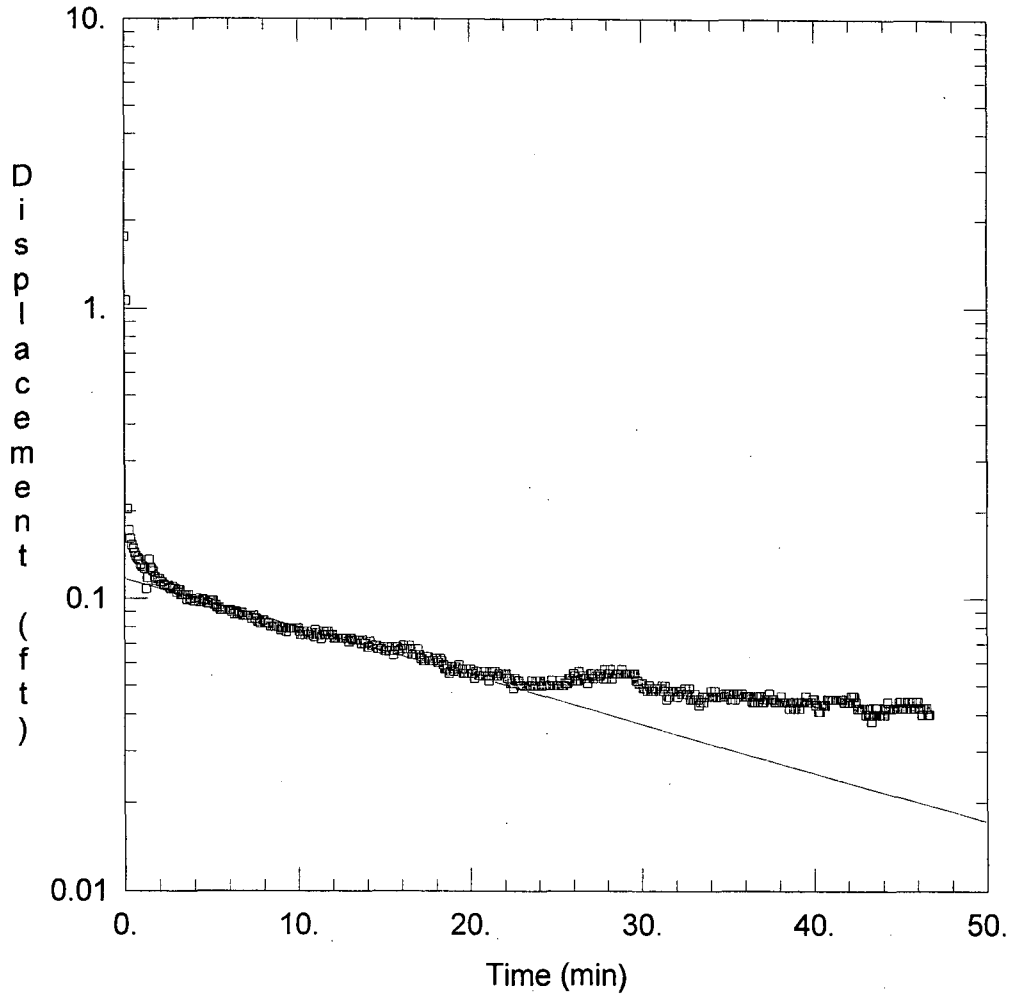
Saturated Thickness: 9.92 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 1.76 ft
Casing Radius: 0.0833 ft
Screen Length: 9.92 ft
Water Column Height: 9.92 ft
Wellbore Radius: 0.318 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.0001169 cm/sec
y0 = 0.1161 ft



MW-10 SLUG TEST

Data Set: F:\PROJECTS\GEORGE~1\FIELD_~1\SLUG_T~1\MW-10.AQT
Date: 06/02/03 Time: 15:56:49

PROJECT INFORMATION

Company: BBL
Client: GEORGETOWN COMPANY
Project: 27410.001
Test Location: W 19TH STREET, NYC
Test Well: MW-10
Test Date: 04/23/03

AQUIFER DATA

Saturated Thickness: 9.92 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 1.76 ft
Casing Radius: 0.0833 ft
Screen Length: 9.92 ft
Water Column Height: 9.92 ft
Wellbore Radius: 0.318 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 9.006E-05 cm/sec
y0 = 0.1171 ft

Data Set: F:\PROJECTS\GEORGE~1\FIELD_~1\SLUG_T~1\MW-10.AQT
Title: MW-10 SLUG TEST
Date: 06/02/03
Time: 15:57:05

PROJECT INFORMATION

Company: BBL
Client: GEORGETOWN COMPANY
Project: 27410.001
Location: W 19TH STREET, NYC
Test Date: 04/23/03
Test Well: MW-10

AQUIFER DATA

Saturated Thickness: 9.92 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-10

X Location: 0. ft
Y Location: 0. ft

No. of observations: 560

Observation Data

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.0833	1.064	15.67	0.068	31.25	0.048
0.1666	0.204	15.75	0.068	31.33	0.05
0.25	0.172	15.83	0.066	31.42	0.045
0.3333	0.161	15.92	0.067	31.5	0.046
0.4166	0.153	16.	0.067	31.58	0.046
0.5	0.149	16.08	0.069	31.67	0.048
0.5833	0.144	16.17	0.067	31.75	0.048
0.6666	0.14	16.25	0.067	31.83	0.048
0.75	0.138	16.33	0.067	31.92	0.048
0.8333	0.136	16.42	0.069	32.	0.048
0.9166	0.131	16.5	0.067	32.08	0.046
1.	0.129	16.58	0.064	32.17	0.048
1.083	0.129	16.67	0.064	32.25	0.048
1.167	0.127	16.75	0.064	32.33	0.047
1.25	0.108	16.83	0.064	32.42	0.047
1.333	0.118	16.92	0.067	32.5	0.049
1.417	0.136	17.	0.064	32.58	0.047
1.5	0.128	17.08	0.062	32.67	0.047
1.583	0.126	17.17	0.062	32.75	0.049
1.667	0.124	17.25	0.061	32.83	0.045

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
1.75	0.119	17.33	0.061	32.92	0.045
1.833	0.115	17.42	0.063	33.	0.045
1.917	0.117	17.5	0.063	33.08	0.047
2.	0.117	17.58	0.061	33.17	0.045
2.083	0.114	17.67	0.061	33.25	0.045
2.167	0.114	17.75	0.061	33.33	0.043
2.25	0.112	17.83	0.061	33.42	0.044
2.333	0.111	17.92	0.062	33.5	0.046
2.417	0.111	18.	0.062	33.58	0.044
2.5	0.111	18.08	0.06	33.67	0.046
2.583	0.109	18.17	0.06	33.75	0.046
2.667	0.108	18.25	0.062	33.83	0.046
2.75	0.11	18.33	0.061	33.92	0.046
2.833	0.108	18.42	0.059	34.	0.048
2.917	0.108	18.5	0.057	34.08	0.046
3.	0.105	18.58	0.057	34.17	0.046
3.083	0.107	18.67	0.057	34.25	0.048
3.167	0.107	18.75	0.055	34.33	0.046
3.25	0.103	18.83	0.056	34.42	0.046
3.333	0.103	18.92	0.058	34.5	0.046
3.417	0.103	19.	0.056	34.58	0.046
3.5	0.103	19.08	0.058	34.67	0.046
3.583	0.099	19.17	0.058	34.75	0.046
3.667	0.103	19.25	0.057	34.83	0.047
3.75	0.1	19.33	0.059	34.92	0.047
3.833	0.1	19.42	0.057	35.	0.047
3.917	0.098	19.5	0.057	35.08	0.047
4.	0.098	19.58	0.055	35.17	0.045
4.083	0.1	19.67	0.055	35.25	0.045
4.167	0.1	19.75	0.057	35.33	0.047
4.25	0.098	19.83	0.055	35.42	0.045
4.333	0.097	19.92	0.055	35.5	0.047
4.417	0.097	20.	0.057	35.58	0.047
4.5	0.099	20.08	0.055	35.67	0.047
4.583	0.097	20.17	0.055	35.75	0.047
4.667	0.098	20.25	0.053	35.83	0.047
4.75	0.096	20.33	0.056	35.92	0.046
4.833	0.096	20.42	0.056	36.	0.046
4.917	0.098	20.5	0.054	36.08	0.046
5.	0.098	20.58	0.054	36.17	0.046
5.083	0.098	20.67	0.056	36.25	0.046
5.167	0.095	20.75	0.054	36.33	0.046
5.25	0.095	20.83	0.056	36.42	0.044
5.333	0.093	20.92	0.054	36.5	0.044
5.417	0.093	21.	0.054	36.58	0.044
5.5	0.091	21.08	0.052	36.67	0.046
5.583	0.091	21.17	0.054	36.75	0.044
5.667	0.091	21.25	0.056	36.83	0.046
5.75	0.091	21.33	0.054	36.92	0.046
5.833	0.091	21.42	0.056	37.	0.044
5.917	0.091	21.5	0.054	37.08	0.044

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
6.	0.091	21.58	0.054	37.17	0.045
6.083	0.091	21.67	0.055	37.25	0.045
6.167	0.09	21.75	0.055	37.33	0.045
6.25	0.09	21.83	0.055	37.42	0.047
6.333	0.088	21.92	0.055	37.5	0.045
6.417	0.09	22.	0.055	37.58	0.045
6.5	0.088	22.08	0.055	37.67	0.045
6.583	0.089	22.17	0.053	37.75	0.044
6.667	0.089	22.25	0.053	37.83	0.044
6.75	0.089	22.33	0.051	37.92	0.044
6.833	0.087	22.42	0.051	38.	0.044
6.917	0.087	22.5	0.049	38.08	0.046
7.	0.087	22.58	0.053	38.17	0.044
7.083	0.087	22.67	0.052	38.25	0.044
7.167	0.087	22.75	0.052	38.33	0.044
7.25	0.087	22.83	0.052	38.42	0.044
7.333	0.085	22.92	0.05	38.5	0.044
7.417	0.087	23.	0.05	38.58	0.042
7.5	0.085	23.08	0.05	38.67	0.044
7.583	0.085	23.17	0.05	38.75	0.044
7.667	0.083	23.25	0.05	38.83	0.042
7.75	0.083	23.33	0.05	38.92	0.042
7.833	0.082	23.42	0.05	39.	0.044
7.917	0.084	23.5	0.05	39.08	0.044
8.	0.084	23.58	0.052	39.17	0.042
8.083	0.082	23.67	0.05	39.25	0.044
8.167	0.082	23.75	0.05	39.33	0.044
8.25	0.082	23.83	0.052	39.42	0.044
8.333	0.082	23.92	0.052	39.5	0.046
8.417	0.08	24.	0.052	39.58	0.044
8.5	0.08	24.08	0.052	39.67	0.044
8.583	0.08	24.17	0.05	39.75	0.044
8.667	0.08	24.25	0.05	39.83	0.044
8.75	0.08	24.33	0.05	39.92	0.045
8.833	0.08	24.42	0.05	40.	0.045
8.917	0.08	24.5	0.05	40.08	0.043
9.	0.078	24.58	0.05	40.17	0.043
9.083	0.079	24.67	0.05	40.25	0.041
9.167	0.079	24.75	0.052	40.33	0.041
9.25	0.079	24.83	0.05	40.42	0.043
9.333	0.077	24.92	0.05	40.5	0.043
9.417	0.079	25.	0.05	40.58	0.043
9.5	0.079	25.08	0.05	40.67	0.043
9.583	0.079	25.17	0.05	40.75	0.045
9.667	0.079	25.25	0.052	40.83	0.045
9.75	0.079	25.33	0.05	40.92	0.045
9.833	0.079	25.42	0.05	41.	0.045
9.917	0.079	25.5	0.051	41.08	0.045
10.	0.079	25.58	0.051	41.17	0.045
10.08	0.077	25.67	0.051	41.25	0.045
10.17	0.075	25.75	0.053	41.33	0.045

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
10.25	0.075	25.83	0.053	41.42	0.045
10.33	0.077	25.92	0.052	41.5	0.045
10.42	0.075	26.	0.055	41.58	0.045
10.5	0.077	26.08	0.054	41.67	0.045
10.58	0.075	26.17	0.052	41.75	0.044
10.67	0.075	26.25	0.052	41.83	0.044
10.75	0.076	26.33	0.056	41.92	0.044
10.83	0.076	26.42	0.054	42.	0.044
10.92	0.074	26.5	0.054	42.08	0.044
11.	0.078	26.58	0.054	42.17	0.046
11.08	0.076	26.67	0.053	42.25	0.046
11.17	0.075	26.75	0.053	42.33	0.046
11.25	0.075	26.83	0.051	42.42	0.044
11.33	0.073	26.92	0.053	42.5	0.042
11.42	0.075	27.	0.055	42.58	0.042
11.5	0.077	27.08	0.055	42.67	0.042
11.58	0.075	27.17	0.053	42.75	0.042
11.67	0.077	27.25	0.055	42.83	0.042
11.75	0.077	27.33	0.054	42.92	0.042
11.83	0.075	27.42	0.054	43.	0.04
11.92	0.075	27.5	0.054	43.08	0.042
12.	0.075	27.58	0.054	43.17	0.04
12.08	0.073	27.67	0.055	43.25	0.04
12.17	0.073	27.75	0.053	43.33	0.038
12.25	0.073	27.83	0.057	43.42	0.04
12.33	0.073	27.92	0.053	43.5	0.04
12.42	0.073	28.	0.055	43.58	0.042
12.5	0.073	28.08	0.055	43.67	0.042
12.58	0.073	28.17	0.057	43.75	0.04
12.67	0.073	28.25	0.053	43.83	0.04
12.75	0.073	28.33	0.055	43.92	0.04
12.83	0.073	28.42	0.055	44.	0.04
12.92	0.071	28.5	0.055	44.08	0.04
13.	0.073	28.58	0.055	44.17	0.042
13.08	0.073	28.67	0.055	44.25	0.044
13.17	0.072	28.75	0.055	44.33	0.042
13.25	0.072	28.83	0.057	44.42	0.042
13.33	0.072	28.92	0.055	44.5	0.042
13.42	0.072	29.	0.055	44.58	0.042
13.5	0.072	29.08	0.055	44.67	0.042
13.58	0.072	29.17	0.055	44.75	0.042
13.67	0.07	29.25	0.055	44.83	0.042
13.75	0.072	29.33	0.055	44.92	0.044
13.83	0.07	29.42	0.055	45.	0.044
13.92	0.07	29.5	0.055	45.08	0.042
14.	0.068	29.58	0.055	45.17	0.042
14.08	0.068	29.67	0.052	45.25	0.044
14.17	0.071	29.75	0.052	45.33	0.042
14.25	0.069	29.83	0.051	45.42	0.042
14.33	0.069	29.92	0.051	45.5	0.042
14.42	0.069	30.	0.051	45.58	0.042

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
14.5	0.069	30.08	0.049	45.67	0.044
14.58	0.067	30.17	0.049	45.75	0.042
14.67	0.067	30.25	0.049	45.83	0.042
14.75	0.067	30.33	0.048	45.92	0.044
14.83	0.067	30.42	0.05	46.	0.044
14.92	0.068	30.5	0.048	46.08	0.042
15.	0.066	30.58	0.048	46.17	0.042
15.08	0.066	30.67	0.048	46.25	0.04
15.17	0.068	30.75	0.049	46.33	0.042
15.25	0.066	30.83	0.049	46.42	0.042
15.33	0.066	30.92	0.049	46.5	0.042
15.42	0.066	31.	0.049	46.58	0.04
15.5	0.064	31.08	0.049	46.67	0.04
15.58	0.066	31.17	0.05		

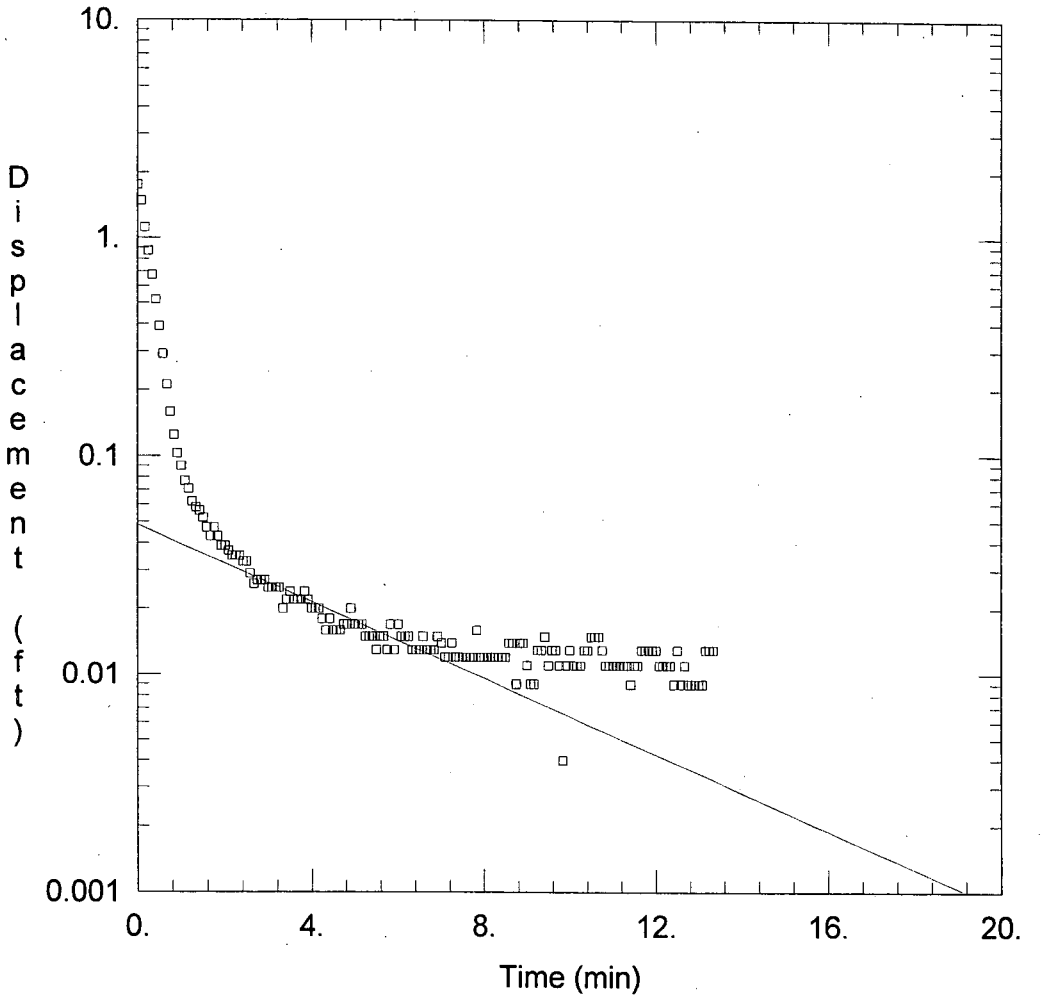
SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	9.006E-05	cm/sec
y0	0.1171	ft



MW-13 SLUG TEST

Data Set: F:\PROJECTS\GEORGE~1\FIELD_~1\SLUG_T~1\MW-13.AQT
Date: 06/02/03 Time: 15:57:38

PROJECT INFORMATION

Company: BBL
Client: GEORGETOWN COMPANY
Project: 27410.001
Test Location: W 19TH STREET, NYC
Test Well: MW-13
Test Date: 04/23/03

AQUIFER DATA

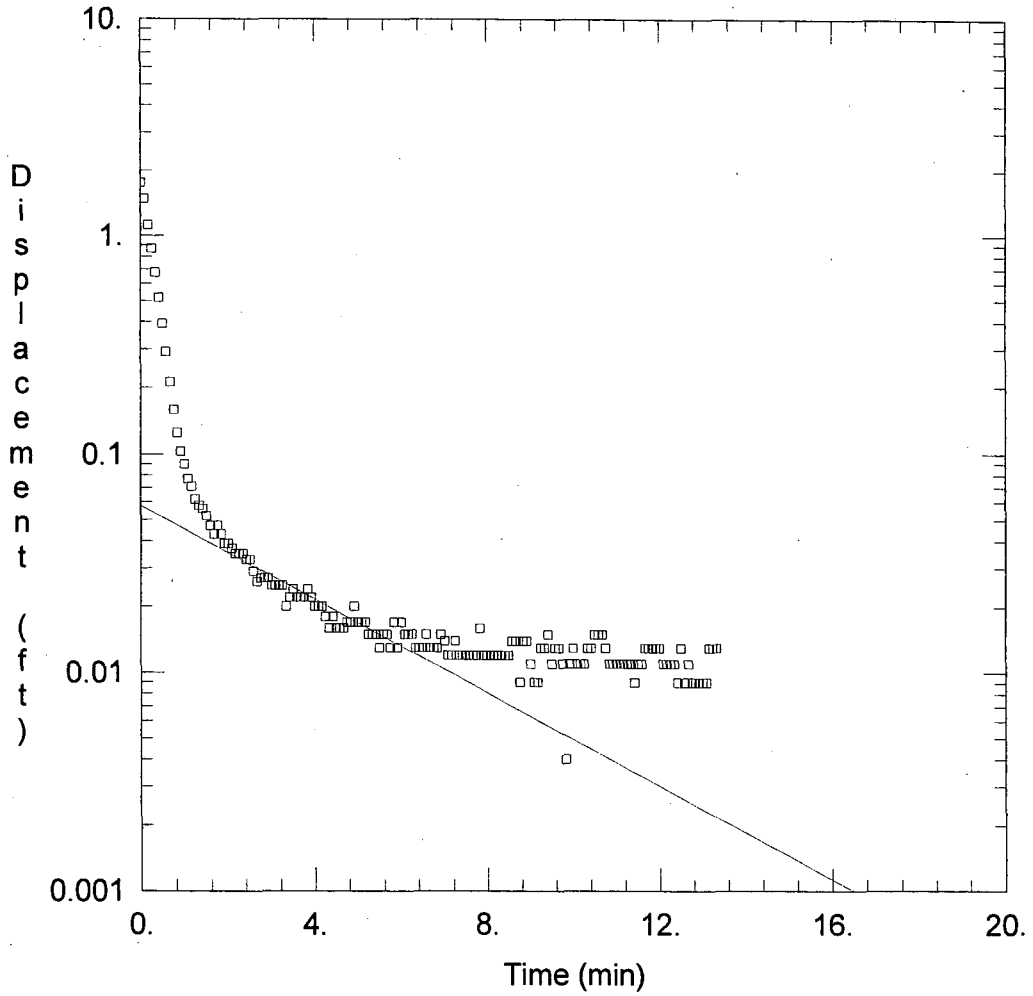
Saturated Thickness: 9.64 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 1.76 ft
Casing Radius: 0.0833 ft
Screen Length: 9.64 ft
Water Column Height: 9.64 ft
Wellbore Radius: 0.318 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.0006407 cm/sec
y0 = 0.04834 ft



MW-13 SLUG TEST

Data Set: F:\PROJECTS\GEORGE~1\FIELD_~1\SLUG_T~1\MW-13.AQT
Date: 06/02/03 Time: 15:58:35

PROJECT INFORMATION

Company: BBL
Client: GEORGETOWN COMPANY
Project: 27410.001
Test Location: W 19TH STREET, NYC
Test Well: MW-13
Test Date: 04/23/03

AQUIFER DATA

Saturated Thickness: 9.64 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 1.76 ft
Water Column Height: 9.64 ft
Casing Radius: 0.0833 ft
Wellbore Radius: 0.318 ft
Screen Length: 9.64 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
K = 0.0005886 cm/sec
Solution Method: Bouwer-Rice
y0 = 0.05776 ft

Data Set: F:\PROJECTS\GEORGE~1\FIELD_~1\SLUG_T~1\MW-13.AQT
Title: MW-13 SLUG TEST
Date: 06/02/03
Time: 15:58:48

PROJECT INFORMATION

Company: BBL
Client: GEORGETOWN COMPANY
Project: 27410.001
Location: W 19TH STREET, NYC
Test Date: 04/23/03
Test Well: MW-13

AQUIFER DATA

Saturated Thickness: 9.64 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-13

X Location: 0. ft
Y Location: 0. ft

No. of observations: 160

Observation Data

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.0834	1.484	4.583	0.016	9.083	0.009
0.1667	1.116	4.667	0.016	9.167	0.009
0.25	0.87	4.75	0.017	9.25	0.013
0.3334	0.677	4.833	0.017	9.333	0.013
0.4167	0.519	4.917	0.02	9.417	0.015
0.5	0.392	5.	0.017	9.5	0.011
0.5834	0.292	5.083	0.017	9.583	0.013
0.6667	0.212	5.167	0.017	9.667	0.013
0.75	0.159	5.25	0.015	9.75	0.011
0.8334	0.125	5.333	0.015	9.833	0.004
0.9167	0.103	5.417	0.015	9.917	0.011
1.	0.09	5.5	0.013	10.	0.013
1.083	0.077	5.583	0.015	10.08	0.011
1.167	0.071	5.667	0.015	10.17	0.011
1.25	0.062	5.75	0.013	10.25	0.011
1.333	0.058	5.833	0.017	10.33	0.013
1.417	0.056	5.917	0.013	10.42	0.013
1.5	0.052	6.	0.017	10.5	0.015
1.583	0.047	6.083	0.015	10.58	0.015
1.667	0.043	6.167	0.015	10.67	0.015

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
1.75	0.047	6.25	0.015	10.75	0.013
1.833	0.043	6.333	0.013	10.83	0.011
1.917	0.039	6.417	0.013	10.92	0.011
2.	0.039	6.5	0.013	11.	0.011
2.083	0.037	6.583	0.015	11.08	0.011
2.167	0.035	6.667	0.013	11.17	0.011
2.25	0.035	6.75	0.013	11.25	0.011
2.333	0.035	6.833	0.013	11.33	0.011
2.417	0.033	6.917	0.015	11.42	0.009
2.5	0.033	7.	0.014	11.5	0.011
2.583	0.029	7.083	0.012	11.58	0.011
2.667	0.026	7.167	0.012	11.67	0.013
2.75	0.027	7.25	0.014	11.75	0.013
2.833	0.027	7.333	0.012	11.83	0.013
2.917	0.027	7.417	0.012	11.92	0.013
3.	0.025	7.5	0.012	12.	0.013
3.083	0.025	7.583	0.012	12.08	0.011
3.167	0.025	7.667	0.012	12.17	0.011
3.25	0.025	7.75	0.012	12.25	0.011
3.333	0.02	7.833	0.016	12.33	0.011
3.417	0.022	7.917	0.012	12.42	0.009
3.5	0.024	8.	0.012	12.5	0.013
3.583	0.022	8.083	0.012	12.58	0.009
3.667	0.022	8.167	0.012	12.67	0.011
3.75	0.022	8.25	0.012	12.75	0.009
3.833	0.024	8.333	0.012	12.83	0.009
3.917	0.022	8.417	0.012	12.92	0.009
4.	0.02	8.5	0.012	13.	0.009
4.083	0.02	8.583	0.014	13.08	0.009
4.167	0.02	8.667	0.014	13.17	0.013
4.25	0.018	8.75	0.009	13.25	0.013
4.333	0.016	8.833	0.014	13.33	0.013
4.417	0.018	8.917	0.014		
4.5	0.016	9.	0.011		

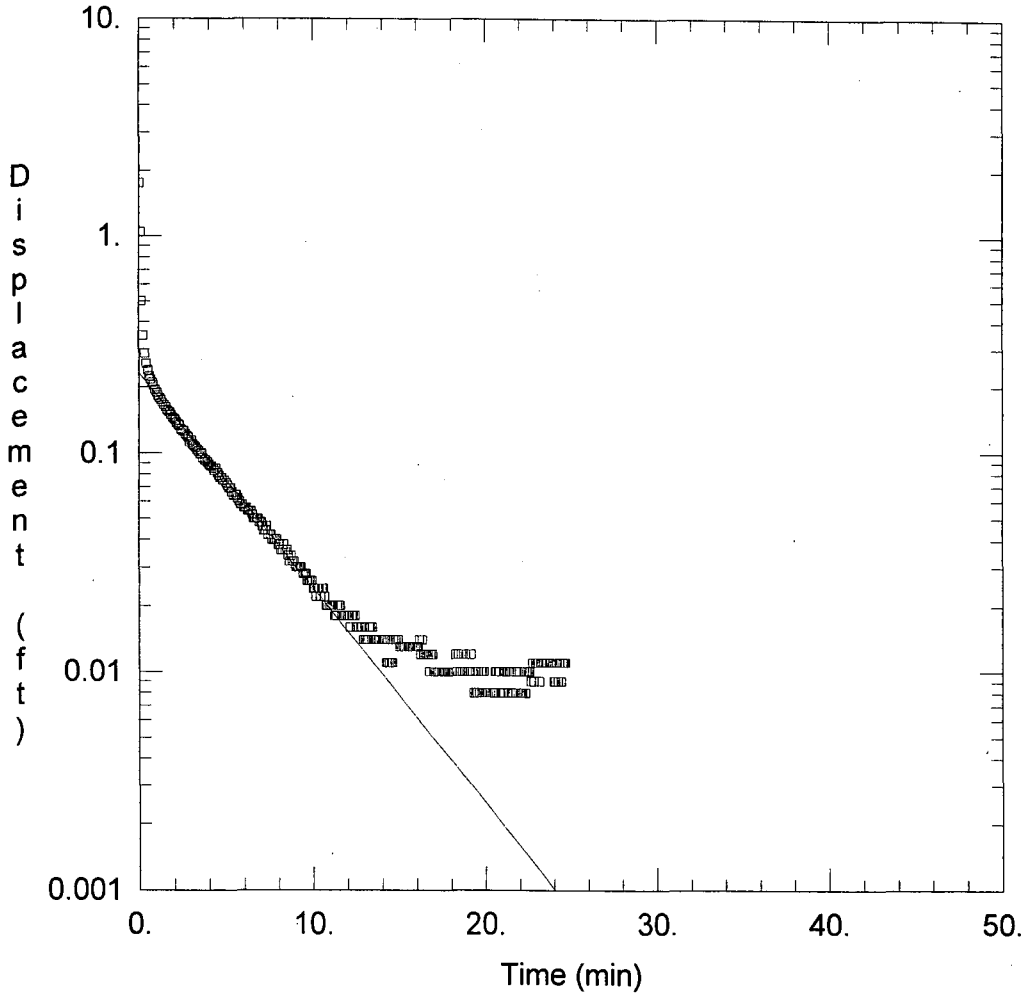
SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0005886	cm/sec
y0	0.05776	ft



MW-14 SLUG TEST

Data Set: F:\PROJECTS\GEORGE~1\FIELD_~1\SLUG_T~1\MW-14.AQT
Date: 06/02/03 Time: 15:59:33

PROJECT INFORMATION

Company: BBL
Client: GEORGETOWN COMPANY
Project: 27410.001
Test Location: W 19TH STREET, NYC
Test Well: MW-14
Test Date: 04/23/03

AQUIFER DATA

Saturated Thickness: 10.55 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 1.76 ft
Casing Radius: 0.0833 ft
Screen Length: 10. ft
Water Column Height: 10.55 ft
Wellbore Radius: 0.318 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0005355 cm/sec
y0 = 0.2318 ft

Data Set: F:\PROJECTS\GEORGE~1\FIELD_~1\SLUG_T~1\MW-14.AQT
Title: MW-14 SLUG TEST
Date: 06/02/03
Time: 15:59:44

PROJECT INFORMATION

Company: BBL
Client: GEORGETOWN COMPANY
Project: 27410.001
Location: W 19TH STREET, NYC
Test Date: 04/23/03
Test Well: MW-14

AQUIFER DATA

Saturated Thickness: 10.55 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-14

X Location: 0. ft
Y Location: 0. ft

No. of observations: 296

Observation Data

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.0833	1.039	8.333	0.038	16.58	0.012
0.1666	0.502	8.417	0.036	16.67	0.012
0.25	0.347	8.5	0.036	16.75	0.01
0.3333	0.287	8.583	0.034	16.83	0.012
0.4166	0.258	8.667	0.032	16.92	0.012
0.5	0.24	8.75	0.034	17.	0.01
0.5833	0.225	8.833	0.032	17.08	0.01
0.6666	0.217	8.917	0.032	17.17	0.01
0.75	0.21	9.	0.03	17.25	0.01
0.8333	0.204	9.083	0.03	17.33	0.01
0.9166	0.195	9.167	0.03	17.42	0.01
1.	0.189	9.25	0.03	17.5	0.01
1.083	0.183	9.333	0.03	17.58	0.01
1.167	0.179	9.417	0.028	17.67	0.01
1.25	0.175	9.5	0.028	17.75	0.01
1.333	0.17	9.583	0.028	17.83	0.01
1.417	0.166	9.667	0.026	17.92	0.01
1.5	0.162	9.75	0.026	18.	0.01
1.583	0.157	9.833	0.026	18.08	0.01
1.667	0.155	9.917	0.026	18.17	0.01

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
-1.75	0.153	10.	0.024	18.25	0.012
1.833	0.149	10.08	0.024	18.33	0.01
1.917	0.145	10.17	0.022	18.42	0.012
2.	0.143	10.25	0.024	18.5	0.01
2.083	0.141	10.33	0.024	18.58	0.012
2.167	0.137	10.42	0.022	18.67	0.01
2.25	0.135	10.5	0.024	18.75	0.01
2.333	0.133	10.58	0.024	18.83	0.012
2.417	0.128	10.67	0.022	18.92	0.01
2.5	0.126	10.75	0.02	19.	0.01
2.583	0.126	10.83	0.02	19.08	0.01
2.667	0.122	10.92	0.02	19.17	0.012
2.75	0.12	11.	0.02	19.25	0.01
2.833	0.118	11.08	0.02	19.33	0.008
2.917	0.112	11.17	0.02	19.42	0.008
3.	0.114	11.25	0.018	19.5	0.008
3.083	0.11	11.33	0.018	19.58	0.01
3.167	0.108	11.42	0.02	19.67	0.008
3.25	0.106	11.5	0.02	19.75	0.01
3.333	0.104	11.58	0.02	19.83	0.01
3.417	0.102	11.67	0.018	19.92	0.01
3.5	0.099	11.75	0.018	20.	0.008
3.583	0.1	11.83	0.018	20.08	0.008
3.667	0.095	11.92	0.018	20.17	0.008
3.75	0.093	12.	0.018	20.25	0.008
3.833	0.093	12.08	0.018	20.33	0.008
3.917	0.091	12.17	0.016	20.42	0.008
4.	0.089	12.25	0.018	20.5	0.008
4.083	0.087	12.33	0.018	20.58	0.01
4.167	0.087	12.42	0.018	20.67	0.01
4.25	0.085	12.5	0.016	20.75	0.01
4.333	0.083	12.58	0.016	20.83	0.01
4.417	0.085	12.67	0.016	20.92	0.008
4.5	0.081	12.75	0.016	21.	0.008
4.583	0.079	12.83	0.016	21.08	0.008
4.667	0.077	12.92	0.014	21.17	0.01
4.75	0.077	13.	0.014	21.25	0.01
4.833	0.075	13.08	0.014	21.33	0.008
4.917	0.075	13.17	0.014	21.42	0.01
5.	0.073	13.25	0.016	21.5	0.01
5.083	0.071	13.33	0.016	21.58	0.008
5.167	0.069	13.42	0.016	21.67	0.008
5.25	0.069	13.5	0.014	21.75	0.008
5.333	0.066	13.58	0.014	21.83	0.01
5.417	0.064	13.67	0.014	21.92	0.008
5.5	0.064	13.75	0.014	22.	0.008
5.583	0.064	13.83	0.014	22.08	0.008
5.667	0.062	13.92	0.014	22.17	0.008
5.75	0.06	14.	0.014	22.25	0.01
5.833	0.058	14.08	0.014	22.33	0.008
5.917	0.058	14.17	0.014	22.42	0.01

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
6.	0.056	14.25	0.011	22.5	0.01
6.083	0.056	14.33	0.011	22.58	0.01
6.167	0.056	14.42	0.011	22.67	0.009
6.25	0.054	14.5	0.011	22.75	0.011
6.333	0.054	14.58	0.011	22.83	0.009
6.417	0.054	14.67	0.014	22.92	0.011
6.5	0.052	14.75	0.014	23.	0.011
6.583	0.05	14.83	0.014	23.08	0.011
6.667	0.05	14.92	0.014	23.17	0.009
6.75	0.05	15.	0.013	23.25	0.011
6.833	0.05	15.08	0.013	23.33	0.011
6.917	0.048	15.17	0.013	23.42	0.011
7.	0.048	15.25	0.013	23.5	0.011
7.083	0.046	15.33	0.013	23.58	0.011
7.167	0.044	15.42	0.013	23.67	0.011
7.25	0.044	15.5	0.013	23.75	0.011
7.333	0.046	15.58	0.013	23.83	0.011
7.417	0.042	15.67	0.013	23.92	0.011
7.5	0.042	15.75	0.013	24.	0.009
7.583	0.042	15.83	0.013	24.08	0.009
7.667	0.04	15.92	0.013	24.17	0.011
7.75	0.04	16.	0.013	24.25	0.009
7.833	0.04	16.08	0.013	24.33	0.011
7.917	0.04	16.17	0.014	24.42	0.009
8.	0.038	16.25	0.012	24.5	0.011
8.083	0.038	16.33	0.014	24.58	0.011
8.167	0.036	16.42	0.012	24.67	0.011
8.25	0.036	16.5	0.012		

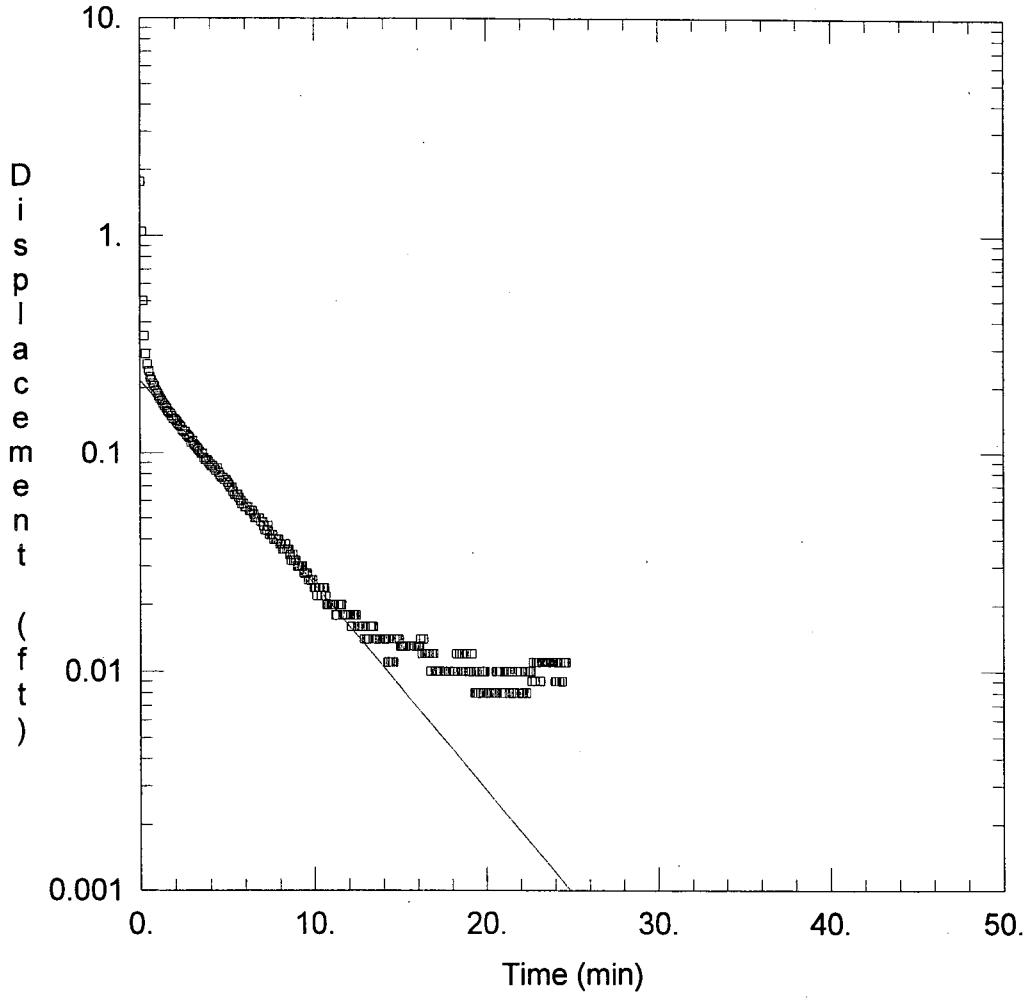
SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	0.0005355	cm/sec
y0	0.2318	ft



MW-14 SLUG TEST

Data Set: F:\PROJECTS\GEORGE~1\FIELD_~1\SLUG_T~1\MW-14.AQT
Date: 06/02/03 Time: 16:00:20

PROJECT INFORMATION

Company: BBL
Client: GEORGETOWN COMPANY
Project: 27410.001
Test Location: W 19TH STREET, NYC
Test Well: MW-14
Test Date: 04/23/03

AQUIFER DATA

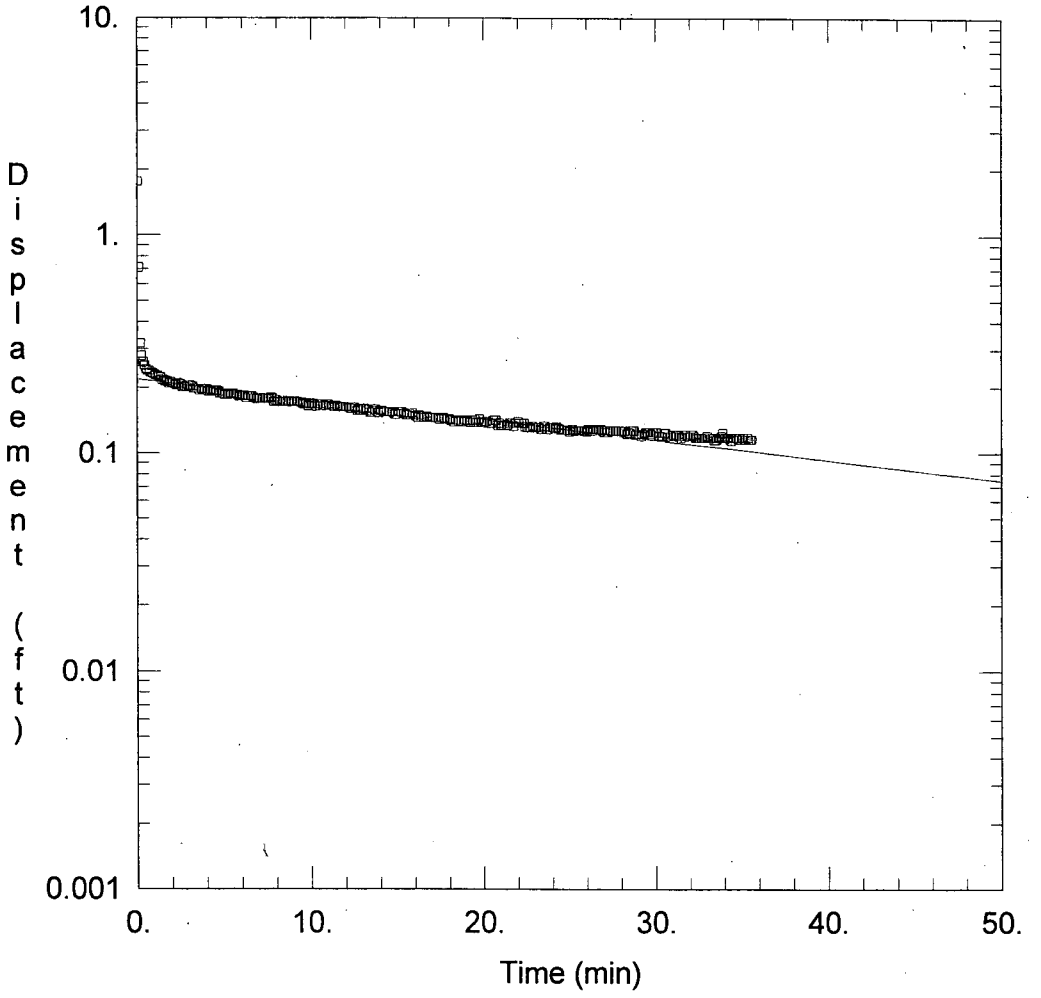
Saturated Thickness: 10.55 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 1.76 ft
Casing Radius: 0.0833 ft
Screen Length: 10. ft
Water Column Height: 10.55 ft
Wellbore Radius: 0.318 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 0.0006666 cm/sec
y0 = 0.2166 ft



MW-19 SLUG TEST

Data Set: F:\PROJECTS\GEORGE~1\FIELD_~1\SLUG_T~1\MW-19.AQT
Date: 06/02/03 Time: 16:00:56

PROJECT INFORMATION

Company: BBL
Client: GEORGETOWN COMPANY
Project: 27410.001
Test Location: W 19TH STREET, NYC
Test Well: MW-19
Test Date: 04/23/03

AQUIFER DATA

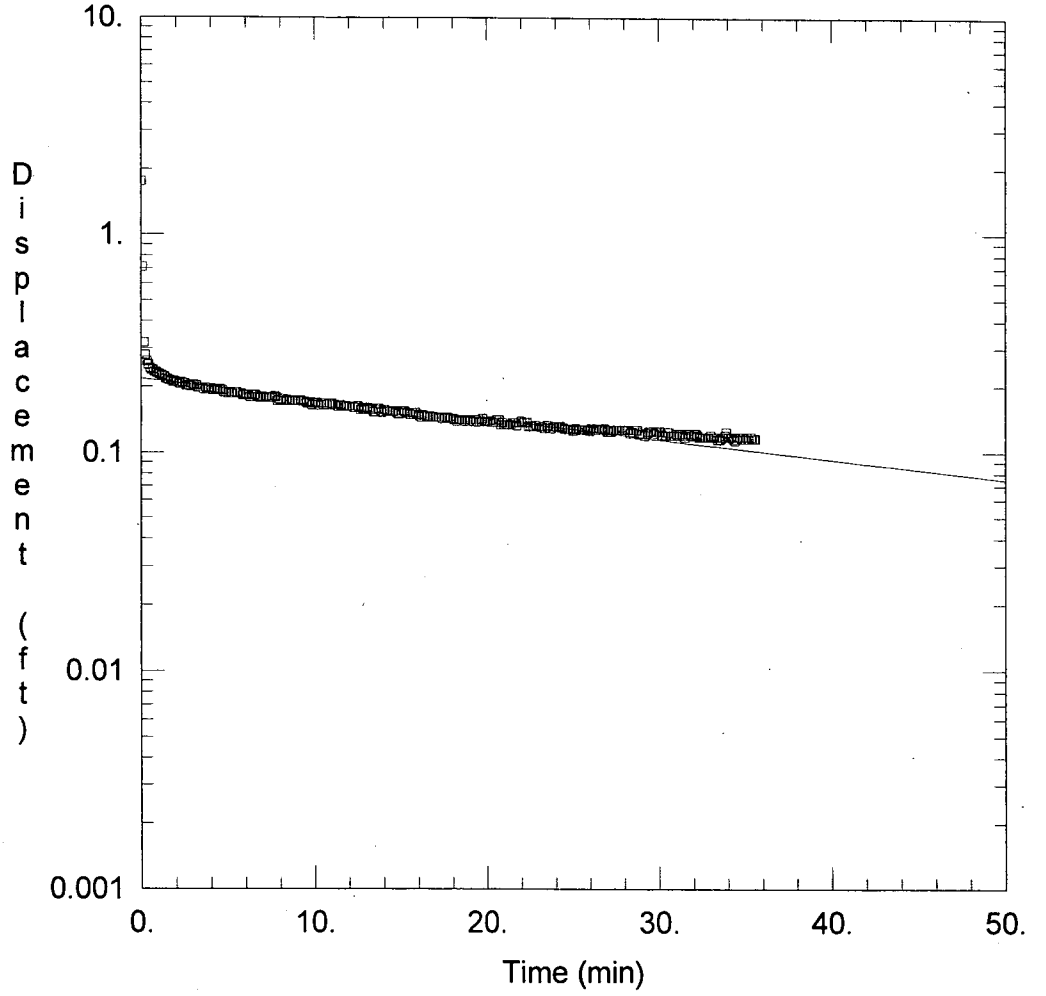
Saturated Thickness: 8.78 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 1.76 ft
Water Column Height: 8.78 ft
Casing Radius: 0.0833 ft
Wellbore Radius: 0.318 ft
Screen Length: 8.78 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
K = 7.255E-05 cm/sec
Solution Method: Hvorslev
y0 = 0.2187 ft



MW-19 SLUG TEST

Data Set: F:\PROJECTS\GEORGE~1\FIELD_~1\SLUG_T~1\MW-19.AQT
Date: 06/02/03 Time: 16:03:08

PROJECT INFORMATION

Company: BBL
Client: GEORGETOWN COMPANY
Project: 27410.001
Test Location: W 19TH STREET, NYC
Test Well: MW-19
Test Date: 04/23/03

AQUIFER DATA

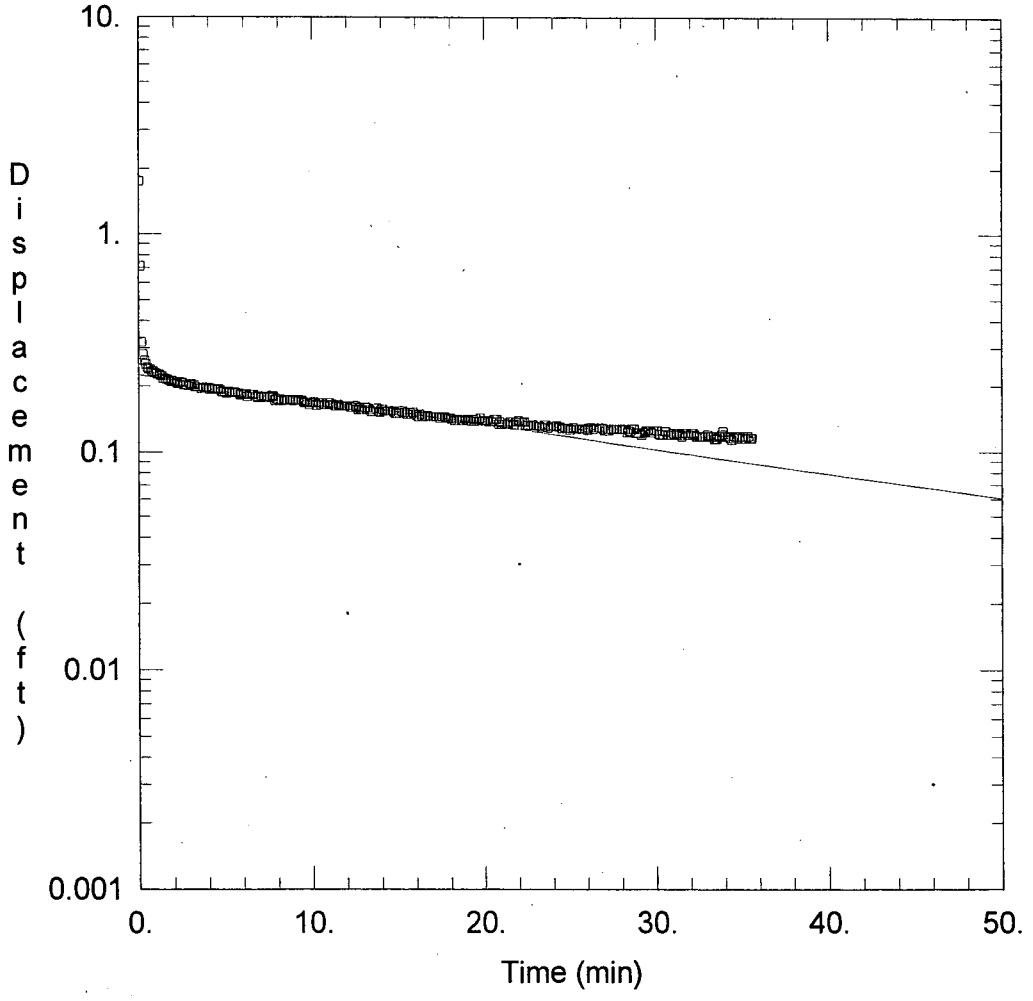
Saturated Thickness: 8.78 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 1.76 ft
Casing Radius: 0.0833 ft
Screen Length: 8.78 ft
Water Column Height: 8.78 ft
Wellbore Radius: 0.318 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 7.255E-05 cm/sec
y0 = 0.2187 ft



MW-19 SLUG TEST

Data Set: F:\PROJECTS\GEORGE~1\FIELD_~1\SLUG_T~1\MW-19.AQT
Date: 06/02/03 Time: 16:03:51

PROJECT INFORMATION

Company: BBL
Client: GEORGETOWN COMPANY
Project: 27410.001
Test Location: W 19TH STREET, NYC
Test Well: MW-19
Test Date: 04/23/03

AQUIFER DATA

Saturated Thickness: 8.78 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 1.76 ft
Casing Radius: 0.0833 ft
Screen Length: 8.78 ft
Water Column Height: 8.78 ft
Wellbore Radius: 0.318 ft
Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 6.698E-05 cm/sec
y0 = 0.226 ft

Data Set: F:\PROJECTS\GEORGE~1\FIELD_~1\SLUG_T~1\MW-19.AQT
Title: MW-19 SLUG TEST
Date: 06/02/03
Time: 16:03:58

PROJECT INFORMATION

Company: BBL
Client: GEORGETOWN COMPANY
Project: 27410.001
Location: W 19TH STREET, NYC
Test Date: 04/23/03
Test Well: MW-19

AQUIFER DATA

Saturated Thickness: 8.78 ft
Anisotropy Ratio (Kz/Kr): 1.

OBSERVATION WELL DATA

Number of observation wells: 1

Observation Well No. 1: MW-19

X Location: 0. ft
Y Location: 0. ft

No. of observations: 427

Observation Data

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.0834	0.711	12.	0.162	23.92	0.131
0.1667	0.319	12.08	0.162	24.	0.131
0.25	0.281	12.17	0.162	24.08	0.131
0.3334	0.263	12.25	0.16	24.17	0.131
0.4167	0.253	12.33	0.16	24.25	0.132
0.5	0.244	12.42	0.162	24.33	0.13
0.5834	0.24	12.5	0.162	24.42	0.13
0.6667	0.24	12.58	0.16	24.5	0.128
0.75	0.235	12.67	0.156	24.58	0.128
0.8334	0.235	12.75	0.158	24.67	0.128
0.9167	0.232	12.83	0.156	24.75	0.128
1.	0.23	12.92	0.156	24.83	0.128
1.083	0.228	13.	0.156	24.92	0.128
1.167	0.227	13.08	0.16	25.	0.126
1.25	0.225	13.17	0.158	25.08	0.127
1.333	0.223	13.25	0.156	25.17	0.129
1.417	0.218	13.33	0.156	25.25	0.127
1.5	0.218	13.42	0.153	25.33	0.127
1.583	0.215	13.5	0.153	25.42	0.127
1.667	0.215	13.58	0.158	25.5	0.127

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
1.75	0.213	13.67	0.158	25.58	0.127
1.833	0.21	13.75	0.158	25.67	0.127
1.917	0.213	13.83	0.153	25.75	0.127
2.	0.21	13.92	0.152	25.83	0.127
2.083	0.21	14.	0.156	25.92	0.127
2.167	0.208	14.08	0.156	26.	0.126
2.25	0.206	14.17	0.154	26.08	0.129
2.333	0.21	14.25	0.154	26.17	0.129
2.417	0.208	14.33	0.154	26.25	0.129
2.5	0.208	14.42	0.154	26.33	0.127
2.583	0.202	14.5	0.154	26.42	0.129
2.667	0.203	14.58	0.154	26.5	0.129
2.75	0.203	14.67	0.154	26.58	0.129
2.833	0.201	14.75	0.152	26.67	0.129
2.917	0.205	14.83	0.15	26.75	0.129
3.	0.205	14.92	0.15	26.83	0.129
3.083	0.203	15.	0.152	26.92	0.127
3.167	0.203	15.08	0.154	27.	0.125
3.25	0.198	15.17	0.154	27.08	0.125
3.333	0.198	15.25	0.154	27.17	0.125
3.417	0.198	15.33	0.152	27.25	0.125
3.5	0.198	15.42	0.151	27.33	0.127
3.583	0.195	15.5	0.149	27.42	0.127
3.667	0.198	15.58	0.149	27.5	0.127
3.75	0.197	15.67	0.151	27.58	0.127
3.833	0.197	15.75	0.149	27.67	0.127
3.917	0.197	15.83	0.152	27.75	0.127
4.	0.197	15.92	0.149	27.83	0.127
4.083	0.193	16.	0.149	27.92	0.127
4.167	0.193	16.08	0.147	28.	0.127
4.25	0.195	16.17	0.145	28.08	0.127
4.333	0.195	16.25	0.149	28.17	0.127
4.417	0.195	16.33	0.147	28.25	0.127
4.5	0.192	16.42	0.147	28.33	0.123
4.583	0.194	16.5	0.145	28.42	0.125
4.667	0.192	16.58	0.145	28.5	0.124
4.75	0.188	16.67	0.147	28.58	0.127
4.833	0.188	16.75	0.145	28.67	0.127
4.917	0.188	16.83	0.145	28.75	0.127
5.	0.186	16.92	0.145	28.83	0.122
5.083	0.188	17.	0.145	28.92	0.122
5.167	0.186	17.08	0.145	29.	0.122
5.25	0.186	17.17	0.145	29.08	0.122
5.333	0.186	17.25	0.145	29.17	0.12
5.417	0.188	17.33	0.145	29.25	0.123
5.5	0.188	17.42	0.143	29.33	0.123
5.583	0.186	17.5	0.145	29.42	0.125
5.667	0.186	17.58	0.145	29.5	0.125
5.75	0.186	17.67	0.145	29.58	0.125
5.833	0.182	17.75	0.143	29.67	0.125
5.917	0.184	17.83	0.143	29.75	0.123

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
6.	0.182	17.92	0.143	29.83	0.125
6.083	0.184	18.	0.143	29.92	0.125
6.167	0.184	18.08	0.141	30.	0.125
6.25	0.179	18.17	0.141	30.08	0.125
6.333	0.182	18.25	0.139	30.17	0.121
6.417	0.182	18.33	0.141	30.25	0.12
6.5	0.182	18.42	0.141	30.33	0.12
6.583	0.183	18.5	0.141	30.42	0.12
6.667	0.179	18.58	0.141	30.5	0.124
6.75	0.179	18.67	0.139	30.58	0.124
6.833	0.177	18.75	0.141	30.67	0.12
6.917	0.179	18.83	0.141	30.75	0.12
7.	0.177	18.92	0.141	30.83	0.12
7.083	0.177	19.	0.139	30.92	0.12
7.167	0.179	19.08	0.141	31.	0.122
7.25	0.179	19.17	0.141	31.08	0.12
7.333	0.179	19.25	0.138	31.17	0.122
7.417	0.179	19.33	0.141	31.25	0.122
7.5	0.177	19.42	0.138	31.33	0.122
7.583	0.179	19.5	0.141	31.42	0.12
7.667	0.181	19.58	0.138	31.5	0.118
7.75	0.179	19.67	0.138	31.58	0.122
7.833	0.172	19.75	0.143	31.67	0.12
7.917	0.174	19.83	0.139	31.75	0.122
8.	0.174	19.92	0.139	31.83	0.12
8.083	0.172	20.	0.139	31.92	0.12
8.167	0.172	20.08	0.139	32.	0.12
8.25	0.171	20.17	0.139	32.08	0.122
8.333	0.173	20.25	0.137	32.17	0.122
8.417	0.173	20.33	0.137	32.25	0.12
8.5	0.171	20.42	0.137	32.33	0.118
8.583	0.173	20.5	0.137	32.42	0.118
8.667	0.171	20.58	0.141	32.5	0.118
8.75	0.171	20.67	0.141	32.58	0.118
8.833	0.172	20.75	0.141	32.67	0.118
8.917	0.173	20.83	0.134	32.75	0.118
9.	0.173	20.92	0.137	32.83	0.118
9.083	0.173	21.	0.134	32.92	0.118
9.167	0.173	21.08	0.134	33.	0.12
9.25	0.171	21.17	0.134	33.08	0.118
9.333	0.171	21.25	0.134	33.17	0.118
9.417	0.171	21.33	0.134	33.25	0.118
9.5	0.169	21.42	0.135	33.33	0.118
9.583	0.167	21.5	0.137	33.42	0.115
9.667	0.167	21.58	0.137	33.5	0.115
9.75	0.167	21.67	0.137	33.58	0.116
9.833	0.164	21.75	0.133	33.67	0.118
9.917	0.167	21.83	0.137	33.75	0.118
10.	0.167	21.92	0.137	33.83	0.12
10.08	0.169	22.	0.139	33.92	0.124
10.17	0.167	22.08	0.137	34.	0.118

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
10.25	0.163	22.17	0.137	34.08	0.118
10.33	0.167	22.25	0.137	34.17	0.118
10.42	0.167	22.33	0.137	34.25	0.118
10.5	0.164	22.42	0.132	34.33	0.116
10.58	0.167	22.5	0.132	34.42	0.114
10.67	0.164	22.58	0.132	34.5	0.116
10.75	0.164	22.67	0.131	34.58	0.118
10.83	0.164	22.75	0.131	34.67	0.118
10.92	0.167	22.83	0.133	34.75	0.118
11.	0.167	22.92	0.131	34.83	0.118
11.08	0.164	23.	0.131	34.92	0.118
11.17	0.164	23.08	0.131	35.	0.116
11.25	0.164	23.17	0.131	35.08	0.118
11.33	0.162	23.25	0.131	35.17	0.116
11.42	0.164	23.33	0.129	35.25	0.116
11.5	0.164	23.42	0.129	35.33	0.118
11.58	0.162	23.5	0.133	35.42	0.116
11.67	0.162	23.58	0.133	35.5	0.116
11.75	0.162	23.67	0.129	35.58	0.116
11.83	0.162	23.75	0.129		
11.92	0.162	23.83	0.131		

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	6.698E-05	cm/sec
y0	0.226	ft