AECOM

Prepared for:
National Grid
Brooklyn, New York

Remedial Investigation Work Plan

Metropolitan Former MGP Site
Brooklyn, New York
NYSDEC Site No.: 224046
Order on Consent Index #: A2-0552-0606

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AECOM, Inc.
May 2009
Document No.: 01765-075

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National Grid
287 Maspeth Avenue, Brooklyn, New York 11211

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Prepared By: Peter Cox, PG, Senior Geologist

Reviewed By: Mark McCabe, Principal-In Charge

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Executive Summary

This Remedial Investigation Work Plan (RIWP) has been prepared for National Grid USA (National Grid) by AECOM Environment (AECOM) for a site located at 124 - 136 2nd Avenue in Brooklyn, New York (Site). This site, known as the Metropolitan former MGP Site, was the former location of a manufactured gas plant (MGP) that was operated by Brooklyn Union Gas Company (BUG), a predecessor company to National Grid, from the late 1880s until approximately 1938.

A portion of the site was the subject of previous extensive remedial/redevelopment activities undertaken by independent third parties with NYSDEC oversight. This RIWP details investigation activities for those portions of the site that were not addressed by the previous remedial/redevelopment activities. The site areas to be investigated in the current RIWP are completely developed in commercial use and include various retail operations and parking lot areas.

Results from the prior investigation activities at the site provide the following information:

- The site area formerly contained a tidal stream (that is now the navigable Gowanus Canal) and adjacent salt marsh that formed on a glacial outwash plain.
- Site soils are comprised of fill containing coal ash (surface to 16 feet below ground surface (bgs); a semi-confining “meadow mat” layer comprised of peat, clay, and silt (16 to 18 ft bgs); and a mixture of sands, clays, and silts with some gravel (to approximately 80 ft. bgs).
- Two aquifer zones have been identified at the site, including a water table aquifer within fill material above the meadow mat layer, and a lower aquifer beneath the meadow mat layer. Strong downward gradients exist between the water table and lower aquifers. Wells in proximity (approximately 300 feet) to the Gowanus Canal are tidally influenced in both aquifer zones.
- The construction of several of the former MGP structures penetrated the semi-confining “meadow mat” layer, providing a downward conduit for migration of residual coal tar. Although former MGP structures were addressed during the previous remedial activities (excavation and installation/operation of recovery wells), residual material has been identified at depths of approximately 65 to 70 feet bgs in portions of the site.

The investigation presented in this RIWP will focus on the delineation of residual coal tar and associated soil impacts and dissolved phase impacts in groundwater, and will have the following objectives:

- To collect additional data to more completely determine the surface and subsurface characteristics of the site.
- To determine the nature and extent of MGP-related residuals that are present at the site and surrounding areas in soils, soil vapor, and groundwater.
- To identify the potential routes of off-site migration from on-site sources of MGP-related residuals.
- To perform an exposure assessment to evaluate the pathways by which human receptors (either on-site or off-site) may be exposed to MGP-related residuals.
- To further develop the dataset necessary to allow preparation of a Feasibility Study to evaluate remedies that will eliminate the potential threat to public health or the environment posed by the site.

The program will provide for the collection/analysis of the following samples:

- Approximately 66 soil samples
- Approximately 20 groundwater samples
- Vapor intrusion samples including sub-slab soil gas, indoor air and ambient background

Sufficient flexibility will be incorporated into the project scope to allow additions to, or modifications of proposed investigation locations in real time to better delineate the nature and extent of MGP residuals in various media (soil, soil vapor/indoor air, and groundwater).

The results from the program will be compiled into a comprehensive report to provide a delineation of MGP impacts and an evaluation of potential risk. The information will be appropriate for the evaluation of potential remedies for the site.

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1.0 Introduction

This Remedial Investigation (RI) Work Plan has been prepared for National Grid USA (National Grid) by AECOM Environment (AECOM) for a site located at 124 - 136 2nd Avenue in Brooklyn, New York (Site). The location of the site is shown on Figure 1-1. This site, known as the Metropolitan former Manufactured Gas Plant site was the former location of a manufactured gas plant (MGP) that was operated by Brooklyn Union Gas Company (BUG), a predecessor company to National Grid, from the late 1880s until approximately 1938. A portion of the site has been extensively investigated and remediated under New York State Department of Environmental Conservation (NYSDEC) Spill numbers 9214380, 9704147, and 0107907, also known as the USPS Gowanus Site (Site No.: V00405-2), performed by FC Gowanus Associates, LLC. FC Gowanus Associates performed the work prior to property redevelopment at a portion of the former MGP site. The NYSDEC issued a Case Closure Letter for this work with stipulations on property use, including a requirement for ongoing operations, monitoring, and maintenance (OM&M) of site recovery wells. A summary their work and other historical investigation and remediation documents is discussed in later sections and summarized in Appendix A.

The investigation is being conducted by National Grid pursuant to a Multi-site Order on Consent and administrative settlement with the NYSDEC, Index # A2-0552-0606, which was executed in February 2007, and in accordance with applicable guidelines of the NYSDEC, the New York State Department of Health (NYSDOH), the United States Environmental Protection Agency (USEPA) and the National Contingency Plan (NCP).

This RI Work Plan presents the project objectives, provides background information regarding historical site use and current conditions, summarizes the results of previous investigations, and outlines the strategies and methodologies that will be implemented during the investigation. The following four appendices have been developed which detail the procedures and protocols outlined in this Work Plan:

- The Field Sampling and Analytical Plan (FSAP) provides information regarding field sampling methods and procedures that will be used during the investigation.
- The Quality Assurance Project Plan (QAPP) specifies the quality assurance/quality control procedures that will be implemented during the fieldwork and in the laboratory which performs the chemical analyses of the samples collected during the RI.
- A Community Air Monitoring Program (CAMP) provides information regarding the procedures to be used to monitor and control, if necessary, the potential release of airborne constituents at the downwind perimeters of the investigation work areas. Included in the CAMP are procedures regarding the control of odors that may be present as a result of the intrusive site investigation activities.
- A Site-Specific Health and Safety Plan (HASP) has been prepared to outline procedures that will be undertaken to protect site workers and visitors from potential hazards that may exist as a result of the fieldwork performed at the site.

1.1 Project objectives

A site inspection and planning visit meeting was conducted by AECOM, National Grid, and the NYSDEC on December 2, 2008 to facilitate agreement of the RI objectives and scope presented in this Work Plan.

In summary, the objectives of the RI include the following:

- Collect additional data to more completely determine the surface and subsurface characteristics of the site.

- Determine the nature and extent of MGP-related residuals that are present at the site and surrounding areas in soils, soil vapor, and groundwater at locations not previously addressed as part of the FC Gowanus, LLC work presented above.
- Identify the potential routes of off-site migration of MGP-related residuals from on-site sources.
- Perform an exposure assessment to evaluate the pathways by which human receptors (either on-site or off-site) may be exposed to a MGP-related residuals.
- Further develop the dataset necessary to allow preparation of a Feasibility Study to evaluate remedies that will eliminate the threat to public health or the environment posed by the site.

It was also agreed during the December 2, 2008 planning meeting with NYSDEC representatives that sufficient flexibility would be incorporated into the investigation scope to allow additions to or modifications of investigation locations proposed in this document. Such changes may be required in real time to better delineate the nature and extent of MGP residuals in various media (soil, soil vapor/indoor air, and groundwater). Any modifications to the work presented herein would be made following consultation with National Grid and NYSDEC oversight personnel prior to work being performed.

1.2 Work plan organization

Following this introduction, the remainder of this Work Plan describes the proposed RI activities.

- Section 2 – provides a description of the site, summary information regarding site ownership and operational history, and the results of the previous investigation work performed at the site.
- Section 3 – presents the objectives for the investigation followed by a description of the specific tasks that will be undertaken to gather sufficient information to meet the project objectives.
- Section 4 – describes the companion documents that are included as appendices to this Work Plan, including the FSAP, QAPP, CAMP, and HASP.
- Section 5 – describes the Qualitative Human Health Exposure Assessment to be completed based on data collected during the RI that will be included as part of the RI Report.
- Section 6 – presents the approximate project schedule, with key milestones.
- Section 7 – provides a list of the references cited in the Work Plan.

Appendices to the Work Plan include the following:

- A summary of previous investigation reports and Sanborn Maps are included in Appendix A.
- Previous investigation soil boring and well completion logs are included in Appendix B.
- The FSAP is included as Appendix C.
- The QAPP is included as Appendix D.
- The CAMP is included as Appendix E.
- The HASP is included as Appendix F.
- The previous investigation reports are included as Appendix G (CD-ROM).

2.0 Site description and history

This section presents a description of the site, summary information regarding site ownership and operational history, and summarizes the results of the previous investigation work.

2.1 Site description

The Metropolitan former MGP site is located at 124 – 136 2nd Avenue, Brooklyn, Kings County, New York 11215, east of the Gowanus Canal, between the Gowanus Expressway (Highway 278) and the New York City Transit train bridge and associated subway rail line. The site is bounded by 10th Street and 11th Street to the north, 2nd Avenue to the east, 13th Street to the south, and the Gowanus Canal to the west. The location of the site and the surrounding features are shown on an aerial photograph on Figure 2-1.

A portion of the site was the subject of previous extensive remedial/redevelopment activities undertaken by independent third parties with NYSDEC oversight. This RIWP details investigation activities for those portions of the site that were not addressed by the previous remedial/redevelopment activities, i.e. the "Current Site". The Current Site is comprised of the following seven parcels of land:

Block/Lot Number	Owner's Name and Address	Operator's Name and Address	Status
Block 1007 Lot 172	Hamilton Plaza Associates 560 Sylvan Avenue Englewood Cliffs, NJ 07632	1 – 27 12th Street Extension or 2 11th St. Brooklyn, NY 11215	Currently a retail shopping plaza (strip mall) including a large grocery store (Pathmark) and small retail shops.
Block 1007 Lot 269	Department of Business Services 110 Williams Street New York, NY 10038	12th St. Brooklyn, NY 11215	Currently part of the retail shopping plaza. Parcel contains a permanent sewer easement.
Block 1025 Lot 16	Hamilton Plaza Associates 560 Sylvan Avenue Englewood Cliffs, NJ 07632	22 – 42 12th St. or 21–41 13th St. Brooklyn, NY 11215	A parking lot, currently part of the retail shopping plaza.
Block 1025 Lot 18	Hamilton Plaza Associates 560 Sylvan Avenue Englewood Cliffs, NJ 07632	Hamilton Place Brooklyn, NY 11215	Part of the retail shopping plaza as part of the parking lot. Parcel contains an easement.
Block 1025 Lot 20	Presumed to be Hamilton Plaza Associates 560 Sylvan Avenue Englewood Cliffs, NJ 07632	Hamilton Place Brooklyn, NY 11215	Presumed to be part of the retail shopping plaza as part of the parking lot.
Block 1025 Lot 100	Hamilton Plaza Associates 560 Sylvan Avenue Englewood Cliffs, NJ 07632	50 12th Street Brooklyn, NY 11215	Currently a retail parking lot selling used automobiles.
Block 1025 Lot 26	Hamilton Plaza Associates 560 Sylvan Avenue Englewood Cliffs, NJ 07632 and New York City Economic Development Corporation	60 12th Street Brooklyn, NY 11215 and 110 William Street New York, NY 10038	Currently a two-story maintenance garage/retail offices.

Current and historic site features are shown on Figure 2-2. Figure 2-3 provides a map showing the locations of the parcels listed above as well as other adjacent properties.

2.1.1 Adjacent properties

The Current Site is bounded by the Gowanus Canal to the west, beyond which are commercial properties. Southeast of the property is 2nd Avenue, beyond which are commercial and residential properties. To the southwest is 13th Street, commercial properties and the Gowanus Expressway (Highway 278). To the north and east of the site lie the properties that were previously remediated by a third party under NYSDEC supervision and redeveloped as a Lowe's Supply Store (Block 1007, Lots 118, and 220), and associated parking lots (Block 1007, Lots 1 and 219). To the south of the site lie two properties (Block 1025, Lots 1 and 52) that were previously part of the Brooklyn Alcatraz Asphalt Company. A summary of environmental database search records for these and other local properties is provided in Table 2-1.

2.2 Site history

A review of the historical information available for the Metropolitan former MGP site (Current Site and previously remediated areas) has been performed with the results summarized in a report prepared by Nelson, Pope & Voorhis, LLC (NP&V) entitled "*Phase I Environmental Site Assessment"*, dated May 15, 1997 (NP&V, 2003). The report included a review of the historic Sanborn Fire Insurance maps for the site as well as other available information (including tax records, zoning records, and United States Geologic Society (USGS) Topographic Maps). A copy of the Sanborn maps are included in Appendix A, and a summary of the historical information obtained from these sources is presented in Table 2-2. The following section discusses site usage based on a review of Sanborn maps covering the 110 year period of 1886 through 1996.

In 1886, portions of current Block 1007 (the block bounded by 2nd Avenue, 9th Street, 12th Street and the Gowanus Canal) were occupied by the Metropolitan Gas Light Company (listed as storage only on the 1886 Sanborn map). Buildings included a coal shed, gasometer (No. 1 holder), and retorts. By 1904, the site was identified as the Metropolitan Works Branch, owned by BUG, and the MGP had been expanded to the east to include two additional holders (Holders 2 and 3) with gas manufacture infrastructure in the western portion of the site (closer to the canal) having been improved.

Historical records suggest that the site operated as a coal gas plant prior to 1915, by which time the plant appears to have been converted to a carbureted water gas process, an additional hydrogen holder (Holder 4) as well as oil storage tanks, located east of Holder 2, being present. By 1915, the facility had been expanded south onto a portion of Block 1025 (the block bounded by 12th Street, 13th Street, 2nd Avenue and the Gowanus Canal), where a large distribution holder (Holder 5) was located. An asphalt plant (Brooklyn Alcatraz Asphalt Company) is shown to be located adjacent to the former MGP on two separate parcels.

By 1938, most of the operating structures and Holders 1 through 3 had been removed and the site was listed as the BUG "12th Street Holder Department", suggesting that gas manufacturing had ceased and the site was used for gas storage only. At this time, the Ernst Zobel Pitch Paint Manufacturing Plant was reportedly in operation adjacent to and northeast of the site. However, the adjacent Brooklyn Alcatraz Asphalt Company was no longer in operation.

By 1950, the north-eastern portion of the former MGP was listed as housing the US Post Office Garage and Repair shop, with some former MGP structures (a coal bunker where relief Holder 4 was previously located and a boiler house) still existing closer to the Gowanus Canal on the western portion of the site. The southern portion of the former MGP still housed Holder 5 and the exhaust house, with the parcel listed as a storage area for old electric cables.

By 1969, all former MGP structures had been removed from the surface of Block 1007, and a food products warehouse was present adjacent to the Gowanus Canal, in the western section of the former MGP. However BUG was still listed as the owner of the parcels on Block 1025, where Holder 5 was still present. By 1972, all structures from the former MGP had been removed from the surface of the site. Sanborn maps from 1982 through 1996 show no major changes in site usage, with the US Postal Service, the food products warehouse, and parking covering the footprint of the former MGP.

The eastern portion of the MGP (Block 1007, Lots 219 and 220) and two adjacent parcels (Block 1007, Lots 1 and 218) were investigated and remediated through extensive excavation of the former oil tanks and Holders 1 through 3. In addition, approximately 44 recovery wells were installed to allow recovery of free phase non-aqueous phase liquid (NAPL). This work, completed in 2003 by FC Gowanus, LLC, allowed the eastern portion of the former MGP and the two adjacent parcels to be closed under NYSDEC oversight in September 2003. The remediation/closure of these areas, with subsequent redevelopment as a Lowe's Supply Store, provides the basis for the definition of the Current Site. Recent information on the Current Site is limited to a Tank Closure Report and a Phase II, both dated 2007, for a maintenance and garage facility (Block 1025, Lot 26 [60 12th Street]). A list of available information related to the spill is provided in Appendix A.

2.3 Previous investigation work

Previous investigation activities have occurred at the Metropolitan MGP site (Current Site and previously remediated areas) between 1997 and 2007. A list of previous reports reviewed is provided in Appendix A and a copy of each report is provided in Appendix G. Information provided in these previous reports has been summarized in a series of figures, as outlined below:

- Figure 2-2 illustrates the locations of previous investigation locations, including surface soil, subsurface soil, monitoring wells and soil vapor locations. The majority of these locations are located near the southern portion of the main former MGP parcel, where three former gas holders (Holders 1 through 3) and historic above ground oil storage tanks (ASTs) and underground storage tanks (USTs part of the former US Postal Service building) were located. Also summarized on Figure 2-2 are areas that have been remediated and closed.
- Figure 2-3 shows the locations of the various parcels comprising the maximum extent of the former MGP site and the Current Site (defined previously), which does not include the parcels previously investigated and remediated (Block 1007, Lots 1, 118, 219, and 220). .
- Figure 2-4 shows locations where analytical laboratory data was generated from the locations shown in Figure 2-2. Note that several of the locations are within the areas that have been remediated. Table 2-3 through Table 2-5 provide summaries of the laboratory analytical parameters from the previous investigations.
- Figures 2-5 through 2-8 show locations where visible impacts were noted at various depths during previous investigation activities. Figure 2-5 shows visible impacts from locations ranging from the ground surface to 15 feet (ft) below ground surface (bgs). Visual impacts include coal tar impacted soil, a soil horizon described as a "black layer" in previous reports, or non-aqueous phase liquid (NAPL)/visible hydrocarbon impacts. Figures 2-6, 2-7, and 2-8 show NAPL impacts from 15 to 30 ft bgs, 30 to 50 ft bgs, and greater than 50 ft bgs, respectively. Figure 2-7 also shows locations where elevated hydrocarbon readings were detected when samples were screened with a photoionization detector (PID). Locations where no visible impacts were observed are also shown on these figures.
- Recovery well locations are shown on Figure 2-2. Note that many of the investigation locations, including monitoring wells, have been removed due to excavation activities associated with the FC Gowanus LLC work. The only remaining monitoring wells include the recovery wells (denoted by RW) RW-1 through RW-44 (located along the western edge of the current Lowe's Home Supply building) and three 4-inch monitoring wells (possibly including AMW-1 and AMW-2) located along 2nd Avenue near the intersection with 12th Street.

2.4 Site physical characteristics

Information obtained during the previous site investigations regarding the site topography, geology, and hydrogeology is summarized in the following sections.

2.4.1 Site topography and drainage

The ground surface in the area of the former MGP operations is approximately 10 ft above mean sea level (amsl). The area has been significantly altered due to industrial activities over the last century, and has likely been re-graded many times. The topography at the site is level, with a slight slope towards the Gowanus Canal, which forms the western boundary of the property and is classified as a NYSDEC Class D (SD) water body. The designated uses for a Class SD waters (the most degraded saline water body classification; GEI, 2007b) is for fishing and fish survival. Surface drainage generally follows surface topography, and is managed through an onsite storm water drainage system. Numerous outfall pipes have also been documented entering the Gowanus Canal (GEI, 2007b) from areas nearby the site.

2.4.2 Site geology

According to Mueser Rutledge (2002), the site area formerly contained a tidal stream (that is now the navigable Gowanus Canal) and adjacent salt marsh that formed on a glacial outwash plain. Gradual infilling of the salt marsh with fill materials (reported by ATC, 2007 to be largely comprised of coal ash from New York City incinerators) formed the current land surface. Bedrock at the site is reportedly over 150 feet below ground surface (bgs). Mueser Rutledge (2002) also report that glaciation initially scoured the existing soils over bedrock and deposited a relatively thick sequence of coarse grained outwash deposits (sands, gravels, and boulders) that were overlain by more recent glacially deposited marine clays (Gardiners Clay). The Gardiners Clay is overlain by sands, clays, and silts with some gravel. These deposits are present beneath a laterally continuous “meadow mat” layer comprised of peat, clay, and silt present at approximately 16 to 18 ft bgs. The meadow mat layer is approximately 2 ft thick in the eastern portion of the site, and increases in thickness to approximately 10 ft near the Gowanus Canal (AKRF, 2001). This meadow mat layer appears to be continuous across the site and reportedly forms the bottom layer of the Canal.

Available boring logs and well construction diagrams summarizing subsurface geology from previous investigation activities are provided in Appendix B.

2.5 Site hydrogeology

Water level measurements obtained during previous investigations indicate that the groundwater table is approximately 3 to 10 ft bgs (AKRF, January 2001). The existence of the meadow mat layer reportedly serves as semi-confining layer between the upper water table aquifer present in fill materials and a lower aquifer present in the glacial outwash deposits beneath the site. Previous investigation data (AKRF, July 2001) indicated a strong downward gradient between the upper and lower aquifers in most site wells, with the exception of well locations adjacent to the Gowanus Canal, where the downward vertical gradient was less pronounced. The upper aquifer flows toward the northwest with a head difference of over six ft between the eastern boundary of the site (at 2nd Avenue) and the Gowanus Canal. Groundwater flow in the lower aquifer appeared to flow in a more northerly direction, which a much lower gradient (less than one ft between 2nd Avenue and the Gowanus Canal; AKRF, July 2001)

Tidal fluctuations were measured in 2001 and indicated that in the lower aquifer water levels correlated with the New York harbor tides, fluctuating 0.5 ft during a complete tidal cycle at wells adjacent to and up to 350 feet east of the canal. In the upper aquifer, areas of the site closest to the canal were reported to be tidally influenced, but not at a shallow well location approximately 350 feet east of the canal (AKRF, July 2001).

3.0 Remedial investigation objectives and field activities

The overall objectives for the RI are to complete the investigation of the Current Site and lay the groundwork for the selection of a site remedy. The areas of the former Metropolitan MGP site to be investigated include:

- The former MGP structures on the western portion of the main MGP parcel where the Hamilton Plaza is currently located.
- The southern portion of the former MGP, which housed Holder 5 and additional gas storage (valve house) facilities.
- Along 12th Street between the Gowanus Canal and 2nd Avenue, adjacent to several former MGP structures.
- One upgradient area near the intersection of 12th Street and 2nd Avenue, and
- The downgradient property boundary areas along 13th Street and the Gowanus Canal.

The specific objectives for the RI and the activities that will be undertaken to meet these objectives are discussed below. The discussion of investigation activities has been grouped by environmental media of concern or field task in the following sections.

3.1 Underground utility clearance

Prior to the start of any intrusive fieldwork, clearance of underground utilities will be performed. The drilling subcontractor will contact Dig Safely New York to arrange for the location and marking of all underground utilities in the vicinity of the proposed soil boring and monitoring well locations. Copies of available city sewer and water maps from the site vicinity will also be obtained and reviewed during underground utility clearance procedures. Following review of the utilities in the site area, AECOM will contract a private company to locate all underground electric and gas utilities in the vicinity of each proposed subsurface sampling location using geophysical methods. Outlying areas where information is required to confirm the location of suspected utilities that may act as preferential migration pathways may also be surveyed using geophysical methods. Lastly, all boring/well locations will be hand or vacuum excavated to a depth of five feet to check for potential utilities not located by Dig Safely or geophysical methods.

3.2 Test pit excavation

Given the limited access in a number of areas of the site, the use of test pits will be focused in and around former Gas Holder No. 5 (Figure 3-1). Table 3-1 provides a summary of the proposed test pits, their designations, sampling rationale, the anticipated test pit excavation depth, and the number and type of the laboratory samples to be collected. The test pits will be excavated with a backhoe or excavator using methods presented in the FSAP (Appendix C), with samples collected from the bucket of the excavator. Details for the logging of the test pits and proposed analyses are provided in Section 3.4. In summary, the open excavations will be surrounded by temporary barricades to prevent unauthorized personnel from entering the excavation area and to protect site traffic. Soil removed during the excavation of each test pit will be temporarily stored on sheet plastic for return to the excavation. To the extent possible, clean soil will be segregated from impacted soil. Upon completion of each test pit, lightly impacted soil and debris will be returned to the excavation first, followed by clean soil and any additional clean backfill needed to return the excavation to original grade. Grossly contaminated material will not be returned to the excavation, but will be containerized and managed as investigation derived waste (IDW).

3.3 Surface soil sampling

Site reconnaissance has indicated that there are minimal areas of exposed surface soil at the Site. At a minimum, one surface soil sample will be collected from each of these areas. For purposes of this investigation, three surface soil samples have been proposed (SS-1 through SS-3) on Table 3-1. One known area of exposed surface soil is within a small parcel of land between the Hamilton Plaza building and the Gowanus Canal, where exposed soil and mixed vegetation were noted. In addition, there is an unpaved area adjacent to, and potentially within the defined Site, between the current Lowes building and Hamilton Plaza and a vegetated area approximately 10-12 feet wide adjacent to and northeast of the Hamilton Plaza and the Gowanus Canal bulkhead. Available surveying data will be used to determine if portions of these areas are within the defined Site boundary. Based on these findings, proposed sample SS-1 will be collected from the 0 to 2-inch bgs interval at the SB-9/MW-9 location using a steel shovel and stainless steel or disposable polyethylene trowel.. The specific locations of proposed surface soil samples SS-2 and SS-3 have not been identified on Figure 3-1 since their selection will depend on field conditions (e.g. obstructions, proximity to paved surfaces) and identified areas of exposed surface soil within the defined Site. Final locations of these surface soil samples will be confirmed with NYSDEC prior to collection. In the event that the parcel between the Hamilton Plaza building and the Gowanus Canal is the only area of identified surface soil, it is proposed that the remaining two samples (SS-2 and SS-3) be collected in this area. As shown in Table 3-1, surface soil samples will be analyzed for volatile organic compounds (VOCs) using US Environmental Protection Agency (USEPA) Method 8260B, semi-volatile organic compounds (SVOCs) using USEPA Method 8270C, RCRA 8 metals using USEPA Methods 6010 and 7000-series, and free cyanide (extraction by EPA method 9013A and analysis by Microdiffusion, ASTM International method D4282-02). One surface soil sample (SS-1) will be analyzed for the full Target Compound List (TCL) VOCs, SVOCs, pesticides (USEPA Method 8081A), herbicides (USEPA Method 8151A), PCBs (as Aroclors; USEPA Method 8082), Target Analyte List (TAL) metals, and free cyanide ASTM International method D4282-02. Additional information regarding the soil sampling methods and laboratory analyses is presented in the FSAP and QAPP.

3.4 Subsurface soil sampling and well installation

Subsurface soil borings will be advanced in order to obtain additional information regarding the thickness and composition of fill beneath the site; to determine the depth to the water table; to observe and screen subsurface soil in order to identify conditions that may be indicative of impacts by MGP or other residuals; and to install the monitoring wells proposed for the RI.

The locations of the proposed soil borings and wells are shown on Figure 3-1. Table 3-1 provides summary information regarding the borings and wells, including the boring or well designation, the sampling location or rationale, the anticipated completion depth, and the laboratory analyses to be performed. A total of 18 soil borings are proposed, with nine locations proposed for conversion to monitoring wells (shallow/intermediate well pairs or shallow/intermediate/deep well triplets). It was also agreed during the December 2, 2008 planning meeting and follow-up conversations that sufficient flexibility would be incorporated into the investigation scope to allow additions to, or modifications of proposed boring and well locations. For example, it was agreed that a minimum of one additional location will be installed northeast of the Pathmark building (which includes other merchants), on Lot 172, if survey indicates there is sufficient room between the building and the lot line. Such changes may be required in real time to better delineate the nature and extent of MGP residuals in subsurface soils and groundwater. Any modifications to the work presented herein would be made following consultation with National Grid and NYSDEC oversight personnel prior to work being performed.

As shown on Table 3-1, it is anticipated that the borings completed in the overburden soil will be advanced to varying depths (maximum of 70 feet bgs) to delineate the vertical extent of MGP residuals previously observed at depths up to 67 feet bgs in soil at the site. However, as stated in the footnotes of Table 3-1, completion depths may be adjusted shallower in instances where 10 feet of clean soils are encountered below apparently contaminated soils. Likewise, if impacts are noted at the proposed termination depth in any boring, National

Grid will consult with NYSDEC to determine the appropriate course of action, with a goal of obtaining vertical delineation in this RI mobilization.

Based on previous investigation methods, the subsurface borings will be advanced by either rotosonic drilling methods equipped with 4-inch diameter sampling cores or hollow-stem augers (HSAs) equipped with 2-inch or 3-inch diameter split-spoon samplers. In some instances, a direct-push (Geoprobe™) drilling rig equipped with Macro-Core™ samplers may be used if there are access limitations. Each of the methods will allow for continuous soil samples to be taken from the ground surface to the bottom of the borehole for both field characterization (photoionization detector screening and observations) and for the collection of samples for the chemical analyses.

The soil samples obtained by either method will be logged by a geologist recording such data as the presence of fill material or subsurface structures, the nature of each geologic unit encountered, observations regarding moisture content, the results of PID readings, and visual and olfactory observations regarding the presence of hydrocarbon-like residuals. The soils will be logged in accordance with the National Grid protocols (KeySpan, 2005) detailed in the FSAP (Appendix C).

Three soil samples are proposed for laboratory analysis from each soil boring. The first sample will be collected at the depth of greatest apparent contamination from the 0 to 5 feet bgs interval. The sample will be collected beneath the pavement and road base (or other surface cover) during utility clearance activities performed prior to borehole advancement. The second soil sample for laboratory analysis, will be collected from the apparently most impacted interval, below 5 feet bgs, based on PID screening and field observations. If impacts are not encountered, the sample will be collected from the 1-foot interval immediately above the water table. The third sample will be collected at the first clean interval below impacts (if encountered) or the bottom of the boring to confirm “non-impacted” conditions. As outlined on Table 3-1, the majority of the subsurface soil samples will be analyzed for VOCs using USEPA Method 8260B, SVOCs using USEPA Method 8270C, RCRA 8 metals using USEPA Methods 6010 and 7000-series, and free cyanide (extraction by EPA method 9013A and analysis by Microdiffusion, ASTM International method D4282-02). A subset (20%) of the initial sample locations (Table 3-1)will be analyzed for the full Target Compound List (TCL) VOCs, SVOCs, pesticides (USEPA Method 8081A), herbicides (USEPA Method 8151A), PCBs (as aroclors; USEPA Method 8082), Target Analyte List (TAL) metals, and free cyanide ASTM International method D4282-02. The frequency of these additional analyses will be reviewed for subsequent samples.

Samples of grossly impacted soil containing visible tar-like or oil-like NAPL will generally not be sampled for laboratory analyses. These “MGP source” materials will be assumed to be impacted to the extent that management will be required by the NYSDEC. Information regarding the vertical extent of this material will be recorded on the boring logs by the field geologist and the areal extent of this material will be surveyed during the survey task. However, in some instances, e.g. locations adjacent to the site perimeter, samples may be collected for forensic analysis to better evaluate the potential source of the impacts.

Overburden monitoring wells will be installed in nine of the proposed RI soil borings. The monitoring well locations, shown on Figure 3-1, were selected to have a sufficient number of wells (along with the previously installed recovery wells) to evaluate groundwater in areas that are considered up gradient, crossgradient, and downgradient of the site. In general, the groundwater monitoring wells will be installed at two depth intervals: the water table (estimated to be screened from 5 to 15 feet bgs) so that the screen straddles the water table above the “meadow mat” layer; and from approximately 30-40 feet bgs in the intermediate portion of the glacial outwash aquifer underlying the meadow mat layer allowing the screen to straddle the most impacted soil layer (if present). This deeper interval will be most consistent with the screened intervals of the recovery wells installed by FC Gowanus, LLC at the current Lowe’s property.

In addition, four deep wells (estimated to be screened from approximately 60 to 70 feet bgs) are also proposed to provide good lateral coverage to evaluate deeper portions of the glacial aquifer at depths consistent with the maximum extent of impacts noted in previous investigations at the site near former Holders 1 through 3.

Actual well design will depend on site conditions encountered, such as thickness of the saturated zone, observed stratigraphy, and the presence, location, and thickness of NAPL, if any.

The wells will be constructed using a 2-inch diameter Schedule 40 PVC well riser with a 0.01 or 0.02-inch slotted screen (if NAPL present), and a 2-foot long sump for monitoring the presence of any denser than water non-aqueous phase liquid (DNAPL). Grout will be tremied into the borehole annulus above the sand pack and the bentonite seal to seal the borehole to grade (given the lack of significant confining units at the site, it is not envisioned that isolation casing would be beneficial in preserving well integrity). National Grid may also evaluate the use of commercial nested wells for the well triplet locations in areas where no visible impacts or NAPL are detected. Additional details for monitoring well installation are provided in the FSAP.

Additionally, AECOM will conduct an on-site meeting with National Grid and the NYSDEC during the later stages of field activities to review observations/findings and discuss the need and potential benefits of collecting additional data/samples to further the understanding of site conditions, or potentially complete the delineation of impacts. A review of the status of the program at this time provides the ability to improve the efficiency of the program and minimize the need for subsequent mobilizations of staff and equipment.

3.5 Well development

Each of the new monitoring wells will be developed not sooner than 24 hours after their installation to evacuate fine-grained sediments that may have accumulated within the well during installation. Well development methods are presented in the FSAP.

3.6 Groundwater sampling and aquifer conductivity testing

Following completion of the well development, the wells will be allowed to stabilize for at least two weeks, and then sampled. All new and selected existing wells, including perimeter locations, will be checked for the presence of light non-aqueous phase liquids (LNAPL) or dense non-aqueous phase liquid (DNAPL). Water levels will be measured in all the new and select existing wells, and a groundwater flow direction map will be prepared and included in the RI Report for each of the three aquifer depth zones. Groundwater samples will be collected from all newly installed wells using low-flow purging methods using either a peristaltic pump or submersible pump with the downhole tubing or the pump placed at the approximate midpoint of the screened interval. At the ground surface, the water will pass through a sealed chamber containing probes which will measure the water temperature, pH, specific conductivity, oxidation-reduction potential, and dissolved oxygen. Samples of water discharging from the chamber will be collected at regular intervals and analyzed for turbidity using a hand-held field meter. After passing through this chamber, the water will be discharged to a calibrated five-gallon bucket where the pumping rate will be calculated. When this bucket is full, the water will be transferred into a fifty-five gallon drum where it will be stored for future disposal. Pumping rates will be set below the maximum sustainable flow rate so as not to significantly lower the water level in the well. Groundwater analytical samples will be collected when water quality parameters have stabilized. Table 3-1 provides summary information for the groundwater samples to be collected including the sample designations, sample rationale, and the laboratory analyses to be completed. The majority of the groundwater samples will be analyzed for VOCs using USEPA Method 8260B, SVOCs using USEPA Method 8270C, RCRA 8 metals using USEPA Methods 6010 and 7000-series, and total cyanide using USEPA Method 9012. A subset (20%) of the initial sample locations (Table 3-1) will be analyzed for the full Target Compound List (TCL) VOCs, SVOCs, pesticides (USEPA Method 8081A), herbicides (USEPA Method 8151A), PCBs (as Aroclors; USEPA Method 8082), Target Analyte List (TAL) metals, and total cyanide (USEPA Method 9012). The frequency of these additional analyses will be reviewed for subsequent samples.

Following groundwater sampling (and assuming that soil conditions are conductive, i.e. they do not recover too rapidly), conductivity tests (slug tests) will be performed at three well locations providing good lateral and vertical coverage at the Site. These data will be used to calculate the hydraulic conductivity of the aquifer to support the evaluation of the fate and transport of Site impacts and potential remedial alternatives.

Prior to any slug testing, "trial" slug tests will be performed to evaluate probable groundwater recovery characteristics at the wells. During aquifer testing, a background continuous water level survey (at least 24 hours) may be performed at select wells to evaluate the extent of tidal influence documented in previous investigation reports. If the pre-screening evaluations show that slug tests are a viable method to evaluate aquifer conductivity at the site, the slug tests will be performed by slug removal (water table wells only) or pneumatic testing methods and timing the equilibration to the static water level. The general steps to be performed during pneumatic slug testing are as follows:

- Static water level will be measured to the nearest 0.01 foot.
- A pressure transducer, attached to a data logger, will be placed into the well and the water level allowed to equilibrate to static conditions.
- The water column in the well will be pressurized while simultaneously measuring and recording water levels with the pressure transducer and data logger until the water level has equilibrated ("falling head test").
- The pressure in the well will then be rapidly removed and the water level will be measured and recorded ("rising head test").

The data from these tests will be analyzed by AQTESOLV® according to the Bouwer and Rice method (1989) or equivalent methods to calculate average hydraulic conductivity values for the aquifer.

3.7 Sub-slab vapor/indoor air/ambient air sampling

A soil vapor intrusion survey will be performed at the Site since MGP-related compounds have been detected in soil vapor, soil, and groundwater samples collected from the Site. The work will be performed in accordance with Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, 2006) and the USEPA document entitled *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils, Office of Solid Waste and Emergency Response* [US EPA, 2002]. The sampling event will be conducted in a one-time event during the heating season between November 1 and March 31 and will require two days to complete. The proposed sampling plan consists of the collection of a total of 10 samples, with two sub-slab vapor samples and matching indoor air samples collected in each of two buildings (eight total) plus one ambient outdoor air sample and one sample duplicate. The approximate sampling locations are shown on the Figure 3-1. Rationale for their placement is included on Table 3-1.

The indoor/ambient air and sub-slab vapor sampling will require two days to complete. On the first day, a chemical inventory check will be performed within each of the two site buildings to document current conditions with the regard to the storage of chemicals at each facility. On the second day, the ambient air sample, indoor air samples and sub-slab vapor samples will be collected concurrently.

Following utility clearance processes, sub-slab soil vapor samples will be collected from immediately below the concrete floor slabs of each building. The soil vapor samples will be collected from the immediately below the floor slab in accordance with NYSDEC Guidance. The sub-slab sampling implants will be installed by drilling a ¾-inch diameter hole through the concrete slab and placing Teflon tubing in the hole. An air-tight seal will be created by filling the space between the tubing and the concrete with hydrated bentonite clay or modeling clay. The integrity of the seals around the implants will be confirmed by placing a helium-filled "shroud" around the insertion points. One to three volumes of air will be purged with a helium meter at a rate not to exceed 0.2 liters per minute. Detections of helium will indicate a leak in the seal, requiring that the seal be repaired or replaced.

The sample tubing will be attached to the sample container (6-liter Summa canister) with Swagelok™ fittings. All samples will be collected in batch certified clean canisters through regulators set for an eight-hour sample duration, which conforms to the NYSDOH Guidance. Following the sub-slab vapor sample collection, all

concrete coring holes will be sealed and patched to match the existing grade. Additional information regarding the methods to be used for the soil vapor sampling is presented in the FSAP.

Indoor air samples will be collected at the same location as the sub-slab samples. All samples will be collected in batch certified, 6-liter Summa canisters through regulators set for an eight-hour sample duration, consistent with the soil vapor samples. The ambient air sample will be collected at a location determined to be upwind of the buildings at time of sampling. The air and soil gas samples will be shipped overnight to a NY ELAP-certified laboratory (Air Toxics, Ltd.) for analysis.

The laboratory samples will be analyzed for VOCs (including naphthalene) by USEPA SW846 Method TO-15, with an extended analyte list. The minimum reporting limit for the analysis will be at most one part per billion (1 to 7 micrograms per cubic meter depending on the molecular weight for each compound). The helium analysis will be performed using modified method ASTM D1945. The laboratory turn-around-time will be 14 days from the date the samples are received by the laboratory. The analytical results will be provided by the laboratory in a summary table, which will also include NYSDOH background concentrations for the respective target compounds.

The results of the indoor air and ambient air results will be evaluated by first comparing the VOC concentrations to typical background values published by NYSDOH. If compounds are detected above the typical range, the data will be evaluated to determine the sources of these compounds. For example, benzene may be associated with MGP residuals but is also widely found in urban soil gas and indoor air due to gasoline. To distinguish between these sources, and prevent the false attribution of the benzene to MGP residuals, compound ratios and the presence or absence of indicator compounds will be examined. In addition to the standard TO-15 list of compounds, several additional compounds will be analyzed for, including: indane, indene, thiophene, 2-methyl pentane, isopentane, 2,3-dimethyl pentane, isooctane, and methyl tert butyl ether (MTBE). This list of additional compounds was developed specifically for use in evaluation of soil vapor intrusion at MGP sites. Indane, indene, and thiophene are usually associated with MGP residuals. The presence or absence of these indicator compounds will be used as a line of evidence to distinguish between MGP and non-MGP sources in the soil vapor and indoor air. Similarly, inclusion of the pentane compounds and MTBE will allow the presence of gasoline sources to be identified. In some cases, statistical analysis of the data may be used to distinguish among the sources.

3.8 Site survey

A survey of the investigation sampling points and important site features (buildings, streets, etc.) will be conducted at the end of the fieldwork by a licensed NY-State surveying contractor. All horizontal locations will be reported in the New York State Plane Coordinate System, Long Island Zone (NAD83) in feet. All vertical measurements will be reported in NAVD88 in feet, to the nearest 0.1 ft. and 0.01 ft. for soil borings and monitoring wells respectively.

3.9 Investigation-derived waste management

All investigation waste generated during the RI will be collected in properly labeled USDOT approved storage containers (55-gallon drums) or a small bulk roll-off container and grouped by environmental matrix (soil, water, PPE/plastic, construction debris). If drums are used, as they are filled they will be tracked and given unique identification codes based on the following:

- A prefix indicating the site where the drum was generated and the drum's contents: i.e., M – Metropolitan plus S – Soil, W – Water, P – PPE/Plastic, and C&D – Construction Debris.
- Following the prefix and a hyphen will be the drum's chronological number of generation. For example, drum MS-1 is the first drum of the project generated and is filled with soil. Drum MW-8 is the eighth drum generated and contains water.

- As drums are generated, their identification code, date of generation, contents, source (i.e., drill cuttings from location x, purge water from well y), and date sampled will be entered on a tracking table.

The drums (or roll-off container) will be stored at a locked, temporary fenced location to be decided during the kickoff meeting, which will be completed prior to the start of the field investigation. Subsequently, the waste soils will be characterized with laboratory analyses including full TCLP, corrosivity, ignitability, reactivity, TPH, and PCBs. Waste transportation and disposal of all contaminated wastes will be managed by National Grid.

3.10 Analytical program summary

The laboratory samples for each media and the chemical analyses to be performed are included in Table 3-1. Requisite quality assurance/quality control (QA/QC) samples are presented in the QAPP (Appendix D).

3.10.1 Surface and subsurface soil analyses

The majority of the soil samples will be analyzed for the following parameters:

- VOC compounds by USEPA Method 8260B;
- Semi-volatile organic compounds (SVOCs) by USEPA Method 8270C;
- RCRA 8 metals by USEPA Method 6000-7000 Series; and
- Free Cyanide (extraction by EPA method 9013A and analysis by Microdiffusion, ASTM International method D4282-02).

A subset (approximately 20%) of the total number of soil samples will be analyzed for an expanded list of the following parameters:

- Full TCL VOCs by USEPA Method 8260B;
- Full TCL SVOCs by USEPA Method 8270C;
- TAL Metals by USEPA Method 6000-7000 Series;
- TCL Pesticides by USEPA Method 8081A;
- TCL Herbicides by USEPA Method 8151A;
- PCBs (as Aroclors) by USEPA Method 8082; and
- Free Cyanide (extraction by EPA method 9013A and analysis by Microdiffusion, ASTM International method D4282-02)

3.10.2 Groundwater analyses

Similar to soils, the majority of groundwater samples will be analyzed for the following parameters:

- VOC compounds by USEPA Method 8260B;
- SVOC compounds by USEPA Method 8270C;
- TAL Metals by USEPA Method 6000-7000 Series; and
- Total Cyanide by USEPA Method 9012.

A subset (approximately 20%) of the total number of groundwater samples will be analyzed for an expanded list of the following parameters:

- Full TCL VOCs by USEPA Method 8260B;
- Full TCL SVOCs by USEPA Method 8270C;
- TAL Metals by USEPA Method 6000-7000 Series;
- TCL Pesticides by USEPA Method 8081A;
- TCL Herbicides by USEPA Method 8151A;
- PCBs (as Aroclors) by USEPA Method 8082; and
- Total Cyanide by USEPA Method 9012.

3.10.3 Soil vapor/indoor air/ambient air analyses

The soil vapor/indoor air/ambient air samples will be analyzed for VOCs by USEPA Method TO-15 (including naphthalene). The soil vapor samples will also be analyzed for helium by ASTM Method ASTM D-1945. In addition to the standard TO-15 list of compounds, several additional compounds will be analyzed for, including: indane, indene, thiopene, styrene, 2-methyl pentane, isopentane, 2,3-dimethyl pentane, isooctane, and MTBE.

3.10.4 Waste characterization/profiling

Sufficient samples (a minimum of two) will be collected during the investigation and analyzed for full RCRA Hazardous Characteristics testing to determine if materials exhibiting hazardous characteristics may be present at the site and to support waste disposal profiling purposes. The analyses to be performed may include, but not be limited to, the following, depending on the medium and the selected disposal facility:

- Total Metals by USEPA Method 6010B (Mercury 7470A);
- Total Petroleum Hydrocarbons (DRO and GRO) by USEPA Method 8015 modified;
- PCBs by USEPA 8020;
- TCLP ZHE Extraction – U.S. EPA Method 1311;
- TCLP VOC – USEPA Method 8260B;
- TCLP SVOC – USEPA Method 8270C;
- TCLP RCRA Metals – USEPA Method 6010B (Mercury 7470A);
- Corrosivity – USEPA Method 9045C;
- Ignitability/Flashpoint – USEPA SW-846 Method 1010A
- Reactive Cyanide and Reactive Sulfide by USEPA SW-846 Chapter 7, Sections 7.3.3.2/7.3.4.2; and
- Total Organic Halogens – USEPA SW-846 Method 9020B

3.10.5 Quality assurance/quality control sampling

Field and laboratory quality control samples for the investigation will be collected and analyzed to document the accuracy and precision of the samples. The QA/QC samples, summarized in the QAPP (Appendix D), include trip blanks, field equipment blanks, field duplicates and matrix spikes, and matrix spike duplicates. The data quality level for the investigation will be consistent with procedures outlined in the NYSDEC Analytical Services Protocol (ASP) July 2005 methodologies. A full ASP Category B data package will be prepared by the laboratory for all samples. The data will be reviewed, and a Data Usability Summary Report (DUSR) will be prepared by a qualified chemist. Additional QA/QC information is provided in the QAPP.

3.11 Fish and wildlife resource impact assessment

A fish and wildlife resource impact assessment (FWRIA) has been conducted as part of the Gowanus Canal Investigation performed for National Grid by GEI and summarized in report dated April 2007 (Appendix G). In summary, there does not appear to be a significant risk as a result of the former MGP. Due to rapid sedimentation in the canal from the numerous combined sewer overflows (CSOs), the upper three feet of sediment has been isotopically dated to post-date the operation of the former MGP. Therefore, any inputs to the canal from the former MGP have been buried beneath this rapidly accumulating CSO sediment/sewage beneath the biologically active zone. A complete copy of the FWRIA will be included in the RI report.

4.0 Additional work plan documents

Four companion documents have been prepared to detail the methods and procedures to be used during the RI. Each of the documents is included as an Appendix to this Work Plan.

4.1 Field sampling and analytical plan

All sampling and analyses will be conducted in accordance with the methods described in the site-specific FSAP. The FSAP provides a description of the objectives and methods for each of the investigation field activities, and details concerning the project organization. The FSAP is provided in Appendix C.

4.2 Quality assurance project plan

In addition to the FSAP, a full QAPP has been developed for use on this project. The QAPP identifies the quality assurance objectives for the measurement data, the QA/QC procedures to be used in the field, the sample chain-of-custody methods to be used, and the analytical procedures to be followed. The QAPP will also include a description of the manner in which each type of data is to be used. The QAPP is provided in Appendix D.

4.3 Community air monitoring plan

A CAMP has been developed for this project that will be followed during all invasive fieldwork (soil borings, borings for well installations, and test pitting). Included in the CAMP is a description of methods that may be used to control odors during the RI if needed. The CAMP is provided in Appendix E.

4.4 Site-specific health and safety plan

A site specific HASP has been prepared to outline health and safety risks and procedures for all site workers and visitors. Included in the HASP is information regarding physical and chemical hazards at the site, emergency procedures and contact information, incident reporting procedures, and the route to the hospital. The HASP is provided in Appendix F.

5.0 Qualitative Human Health Exposure Assessment

A Qualitative Human Health Exposure Assessment (QHHEA) will be conducted following New York Department of Environmental Conservation (NYSDEC) guidance (Appendix 3B of NYSDEC, 2002). The QHHEA will characterize the exposure setting, identify potentially complete exposure pathways, and qualitatively evaluate potential fate and transport of constituents from one medium to another (i.e., soil-to-air or soil-to-groundwater).

An exposure pathway is considered complete when the following five conditions are met:

1. Source (i.e., MGP residuals);
2. Release and transport mechanism from source to environmental media (i.e., leaching of MGP residuals into the subsurface or volatilization to the air of an overlying building);
3. Point of human exposure (i.e., an occupied building or surface soil);
4. A route of exposure (ingestion, dermal contact, or inhalation);
5. A receptor population (i.e., on-site workers).

Once potentially complete exposure pathways are identified, the QHHEA will characterize site conditions to determine whether the site poses an existing or potential future hazard to the potentially exposed population. The evaluation will include a qualitative discussion of potential fate and transport mechanisms at the site. The results of the QHHEA will be included as part of the RI Report.

6.0 Project schedule and deliverables

6.1 Schedule

The RI field work will be initiated following approval of the scope of work presented in this Work Plan by NYSDEC. A general timeline for the project includes the following milestones:

- Field Mobilization – within 45 days of the approval of the work plan.
- Duration of Currently Proposed Field Activities – approximately 45 days.
- Draft Report to National Grid – within 60 days of the completion of field activities.
- Final Report to NYSDEC – within 90 days of the completion of field activities.

The milestones presented above are subject to change based on delays caused by access limitations and/or weather and unforeseen circumstances. However, it is intended to maintain a schedule to complete the project as expeditiously as possible. A more specific schedule will be submitted upon approval of the Work Plan.

6.2 Deliverables

6.2.1 RI Report

Upon completion of the field activities, an RI Report will be prepared to document the findings of the investigations performed at the site. The report will be consistent with the specifications presented in the Draft DER-10 (NYSDEC, 2002) document and will include:

- An executive summary
- A site description and history
- Summary information regarding previous investigations and remedial work performed at the site
- Descriptions of all field activities performed
- A summary of all field observations, field measurements, and laboratory analytical data summarized in tabular format. Data will be managed in a database. Soil and groundwater analytical results will be compared to appropriate NYSDEC guidance and standards. The results of the indoor air and ambient air results will be evaluated by first comparing the VOC concentrations to typical background values published by NYSDOH
- Plan view and cross-section figures presenting laboratory analytical data and field observations of surface and subsurface soil and groundwater impacts. A minimum of two profiles will be developed, one perpendicular to and one parallel with groundwater flow direction at the Site
- A qualitative human health risk assessment which assesses the sources of impact, on and off-site human and ecological receptors, and exposure pathways
- A summary of FWRIA findings based on previous Gowanus Canal investigation work
- An integration of field observations and measurements with laboratory analytical data to evaluate the nature and extent of impacts and to develop a site conceptual model of potential contaminant migration
- A set of conclusions for the investigation
- Recommendations

Appendices to the report will include all pertinent data used to support the RI effort, including validated laboratory analytical results (Form 1s), data usability reports, stratigraphic boring and monitoring well construction logs, and all field sampling sheets (monitoring well development forms, aquifer testing results, groundwater sampling sheets, etc.).

The RI Report will be reviewed and approved by a qualified senior geologist. The report and site data will be prepared and organized such that it can be used for the preparation of a feasibility study for the site. If appropriate, recommendations for additional site activities will be provided.

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Tables

Table 2-1
Adjacent Property Details
Metropolitan Former MGP
124 - 136 Second Avenue, Brooklyn, NY

Property	Database	Description	Source
Eastern Abutters across 2nd Ave			
NYCDS (127 2nd Ave)	HIST UST	7 closed-in-place USTs in Dec 2000 of unleaded gas, diesel, kerosene, and unknown contents. Also 5 in-service USTs. One 6000-gal Used oil, 4,000-gal diesel, 550-gal used oil, and 2 2000-gal unknown content USTs.	EDR Report
NYCDS (127 2nd Ave)	HIST AST	Two 275-gal unknown content ASTs were closed in 1993.	EDR Report
NYCDS (127 2nd Ave)	NY Spill	9-27-00 - #2 heating oil leak. Soil and GW contamination limited to area along 2nd Ave. VOC contaminants and a system was installed at the site which was shut down on July 2006. Soil sampling performed Jun/July 2007 and elevated VOC results. Last report mentioned was a progress report submitted June 2008. No Closure	EDR Report
NYCDS (127 2nd Ave)	Manifests	1993 and 2008 - for non-listed ingnitable wastes	EDR Report
NYCDS (127 2nd Ave)	RCRA - NonGen	no violations found.	EDR Report
NYCDS (127 2nd Ave)	NY Spill	12-14-94 - Petroleum - vent pipe overflowed - closure date 10-30-03.	EDR Report
NYCDS (127 2nd Ave)	NY Spill	12-6-93 - This relates to above spill that had the remediation system. This entry describes correspondence regarding extraction wells and sampling frequency. The end of the entry matched the one above.	EDR Report
NYCDS (127 2nd Ave)	LTANK	2-22-01 - tank test failure of #2 fuel oil. Memo says to uncover and inspect, no other update -	
11th St. and 2nd Ave	NY Spill	9-11-02 - Clean up unknown material on vacant lot - once was US postal facility and MGP site. It is no listed what the "material" was.	EDR Report
MH 52966 - 2nd Ave. and 10th St.	NY Spill	2-2-05 - Approx 1 quart of unknown oil found in 50 gals of water at manhole. Structure was double washed and spill closed 7-22-05.	EDR Report
2nd and 10th St.	NY Spill	7-7-94 - unknown petroleum spill of 10 gal. Memo states NYC DEP cleaned up site - no other info - spill closed 7-7-94.	EDR Report
2nd and 10th St. (construction site)	NY Spill	6-19-03 - caller stated that there was oil coming out of the ground at the construction site. Spill closure date 6-25-03. Not other info about corrective action	EDR Report
10th St. substation	NY Spill	8-19-1999 - transformer failed from unknown cause and material spilled to soil. Spill was contained to 100 gals. Closure date of 11-9-04.	EDR Report
137 Gowanus Refuse facility	RCRA - NonGen	no violations found.	EDR Report
Across Second Street	1996-1904	No Sanborn coverage	Sanborn
Across Second Street	1886	unlabeled store buildings	Sanborn
Across Second Street	2006, 1994	Buildings encompass entire abutters	Aerial
Across Second Street	1984, 1975, 1966, 1953, and 1943	Buildings encompass most of abutting properties beyond 2nd street, and one parking area	Aerial

Table 2-1
Adjacent Property Details
Metropolitan Former MGP
124 - 136 Second Avenue, Brooklyn, NY

Property	Database	Description	Source
Southeastern Abutter (on Block 1025)			
SE of NYC PS Office Building	1996, 1995, 1993	Unlabeled lots	Sanborn
SE of NYC PS Office Building	1992, 1991, 1988	"Sanitation Chemicals" to the south-southeast before 2nd Ave	Sanborn
SE of NYC PS Office Building	1987, 1986, 1982, 1981, 1980, 1979	"Sanitation Chemicals" to the south-southeast - Auto Salvage yard to the east-southeast	Sanborn
SE of NYC PS Office Building	1977, 1969, 1950	"Sanitation Chemicals" to the south-southeast - dwellings present 1950 to east-southeast	Sanborn
SE of NYC PS Office Building	1938	furniture warehouse to south-southeast - trucking property to east-southeast	Sanborn
SE of NYC PS Office Building	1915	unlabeled buildings and dwellings	Sanborn
SE of NYC PS Office Building	1904	Carpet Cleaning business and dwellings	Sanborn
SE of NYC PS Office Building	1886	Stone cutting yard and dwellings	Sanborn
SE of NYC PS Office Building	2006, 1994, 1984	Parking area and one smaller building	Aerial
SE of NYC PS Office Building	1975, 1966	Parking area and two smaller buildings	Aerial
SE of NYC PS Office Building	1954	Four buildings	Aerial
SE of NYC PS Office Building	1943	Three buildings	Aerial
Northeastern Abutter (across 11th)			
Vault at 58-74 10th Street	NY Spill	12/12/2000 Approx. 6-gals of soil on 800-gals of water in vault. Sample had PCB hits, vault was drained and pressure washed. Case closed 4-19-01.	EDR Report
Lowes - 118 2nd Ave	UST and HIST UST	7 USTs closed-removed between May 1993 and April 1994. (3 5,000-gal Diesel (93), 1 5,000-gal unleaded gasoline (93) and 3 20,000-gal Fuel oil (94).) One AST of unlisted content was closed in June 1999. There is one AST showing as in-service with no listing of content or size.	EDR Report
Across 11th Street	1996-1904	No Sanborn Coverage	Sanborn
Across 11th Street	1886	undeveloped	Sanborn
Block 1007, lots 1 and 118	2006	Connecting building to subject site building on Lot 220 and parking on lot 1	Aerial
Block 1007, lots 1 and 118	1994	One large building on lot 118 and clear area on lot 1	Aerial
Block 1007, lots 1 and 118	1984, 1975, 1966, 1953	One large building on lot 118 and two structures located at the SE side of Lot 1 parking area to the north of Lot 1	Aerial
Block 1007, lots 1 and 118	1943	One building at the eastern side of Lot 118 and rest of lot 118 and Lot 1 are cleared	Aerial

Table 2-1
Adjacent Property Details
Metropolitan Former MGP
124 - 136 Second Avenue, Brooklyn, NY

Property	Database	Description	Source
Northern western Abutter			
	1996-1886	Gowanus Canal	Sanborn
	2006 - 1943	Canal	Aerial
Southern western Abutter close to Gowanus Expressway			
Bruno Truck Sales (435 Hamilton Ave)	RCRA-CESQG	No violations found.	EDR Report
Bruno Truck Sales (435 Hamilton Ave)	Manifests	1998, 1999 - Non-listed ignitable wastes	
Bruno Truck Sales (435 Hamilton Ave)	UST	3 1,000-gal USTs of unknown content, 1 4,00-gal Unleaded gas, 1 4,000-gal diesel USTs in service. Not on LTANK list	Sanborn
Southern abutter of parking area	1996, 1995, 1993, 1992, 1991, 1988,	unlabeled building	Sanborn
Southern abutter of parking area	1982, 1981, 1980, 1979, 1977	Vacant	Sanborn
Southern abutter of parking area	1969, 1950	Machine Shop and manufacturing Chemists	Sanborn
Southern abutter of parking area	1938	Paint and varnish warehouse, pipe storage and a Brooklyn Alcatraz Asphalt building	Sanborn
Southern abutter of parking area	1915	Brooklyn Alcatraz Asphalt building and two vacant buildings containing boilers and terminal ornamental Iron Works	Sanborn
Southern abutter of parking area	1904, 1886	Saw and planing mill building and F.J.W. Bursch Co Salt building	Sanborn
Southern abutter of parking area	2006, 1994, 1984	Building, appears to be a shipping/receiving building	Aerial
Southern abutter of parking area	1975, 1966, 1953, 1943	Three smaller buildings	Aerial
Southern western Abutter Block 1025 Lot 52			
Block 1025, Lot 52	1996, 1995, 1993, 1992, 1991, 1988,	Unlabeled 2 story building	Sanborn
Block 1025, Lot 52	1950	Andro Waste Material Inc. - cotton waste - picking and cleaning - paper storage and bailing	Sanborn
Block 1025, Lot 52	1938	Cooperage Work - storage yard	Sanborn
Block 1025, Lot 52	1915	Cooperage and Purcell Bros' Cut Stone Works	Sanborn
Block 1025, Lot 52	1904, 1886	Undeveloped	Sanborn
Block 1025, Lot 52	2006, 1994	Parking area	Aerial
Block 1025, Lot 52	1984, 1975, 1966, 1953, 1943	"L" shaped building at the NE and NW side of the lot with parking	Aerial

Table 2-1
Adjacent Property Details
Metropolitan Former MGP
124 - 136 Second Avenue, Brooklyn, NY

Property	Database	Description	Source
Southern western Abutter across from Block 1025, lot 100			
Block 1031, Lot 1	1996, 1995, 1993, 1992, 1991, 1988,	Truck Sales and Service building	Sanborn
Block 1031, Lot 1	1981, 1980, 1979, 1977	Vacant	Sanborn
Block 1031, Lot 1	1969, 1950, 1938	Machine Shop and welding buildings with Gas Tanks	Sanborn
Block 1031, Lot 1	1915	Vacant	Sanborn
Block 1031, Lot 1	1904	Roebuck window screens Co with finishing Machine Paint Shop - and a generic storage and shipping building	Sanborn
Block 1031, Lot 1	1886	Lumber yard	Sanborn
Block 1031, Lot 1	2006, 1994, 1984	One building encompasses Lot	Aerial
Block 1031, Lot 1	1975, 1966, 1953, 1943	Several smaller buildings with parking areas	Aerial
Southern Abutter			
NYC Sanitation (465 Hamilton Ave)	RCRA-Non Gen	No violations found.	EDR Report

Table 2-2
Historical Information Summary
Metropolitan Former MGP
124 – 136 Second Avenue, Brooklyn, NY

Year(s)	Comments
1896	The area of the subject property southwest of 11th Street was occupied by the Metropolitan Gas Light Company (used for storage only). A coal shed, gasometer and retorts existed on the subject property. The area northeast of 11th Street, between 10th Street was vacant.
1904	The area of the subject property southwest of 11th Street was in use as a manufactured gas plant, Brooklyn Union Gas Company. Iron oil and fuel oil tanks exist on the property. The manufactured gas plant appears to have operated as a coal gas plant. A coal shed, gasometers (3), gas purifying facilities and retorts existed on the subject property.
1915	The area of the subject property southwest of 11th Street was still in use as a manufactured gas plant, Brooklyn Union Gas Company. The Brooklyn Union Gas Company has expanded to the southwest of the subject property. It appears the plant has converted to a carbonated water process due to the increased number of oil storage tanks. One iron oil and the fuel oil tank have been removed. One iron oil tank is now listed as a iron tar tank. An asphalt plant was located on two parcels and included a vehicle maintenance facility with 150 gallon and 250 gallon underground gasoline storage tanks.
1938	The area of the subject property southwest of 11th Street was still in use by Brooklyn Union Gas Company (listed as 12th Street Holder Dept.). The maps show several changes in the plant process or layout. The oil storage tanks, manufactured gas holding tanks, and all equipment have been removed. A hydrogen holder is listed as "To Be Coal Bunker." An underground gasoline tank appears in the vicinity of the future coal bunker. The asphalt plant is no longer in operation.
1950	The area of the subject property southwest of 11th Street has been subdivided. The northwest portion is still listed as Brooklyn Union Gas Company. A former hydrogen holder is listed as a coal bunker. The southeastern portion is listed as the U.S. Post Office Department (lessee) garage and repair shops identified as the vehicle maintenance facility (VMF). Two locations of UST gasoline tanks were presented in the U.S. Post Office Building. The area of the subject property northeast of 11th Street has not significantly changed since 1938.
1977	The existing detached mail unit (DMU) appears on the subject property northeast of 11th Street. UST gasoline tanks were listed at the northwestern end of the subject property. The area of the subject property southwest of 11th Street no longer is occupied by the Brooklyn Union Gas Company. The UST gas tank which was located near the coal bunker is not shown.
1981 –1996	The area of the subject property northeast of 11th Street and southwest of subject property has not significantly changed.

Note:
Information extracted from the Nelson, Pope & Voorhis, LLC. Phase I Environmental Site Assessment Report dated May 15, 1997.

Table 2-3
Historic Laboratory Sample Summary - Soils
Metropolitan Former MGP
124 - 136 Second Avenue, Brooklyn, NY

						SOIL											
Location Type	Location ID	Sample Depth (ft bgs)	Boring Log Available	Total Boring Depth (ft bgs)	Excavation Depth (ft bgs)	VOC	SVOC	PAH	METALS	CYANIDE	TCLP METALS	H2S RELEASED FROM WASTE	LEACHABLE AMENABLE CYANIDE	LEACHABLE TOC	DRO/GRO	Comments	Source
Monitoring Well	*SP-1/GWP-1*	*4 - 8*			*15*	*X*	*X*		*X*	*X*							*Nelson, Pope and Voorhis, June 1997*
Monitoring Well	*SP-2/GWP-2*	*4 - 8*			*11*	*X*	*X*		*X*	*X*							*Nelson, Pope and Voorhis, June 1997*
Monitoring Well	SP-3/GWP-3	4 - 8				X	X		X	X							Nelson, Pope and Voorhis, June 1997
Monitoring Well	SP-4/GWP-4	4 - 8				X	X		X	X							Nelson, Pope and Voorhis, June 1997
Monitoring Well	*SP-5/GWP-5*	*4 - 8*			*22*	*X*	*X*		*X*	*X*							*Nelson, Pope and Voorhis, June 1997*
Monitoring Well	SP-6/GWP-6	4 - 8				X	X		X	X							Nelson, Pope and Voorhis, June 1997
Boring	*SP-7*	*3 - 8*	*Yes*	*7*	*16*										*X*	*Note total depth and sample depth does not match.*	*Nelson, Pope and Voorhis, June 1997*
Boring	SP-10	4 - 10	Yes	7.5		X	X		X	X							Nelson, Pope and Voorhis, June 1997
Boring	SP-11	4 - 10	Yes	10		X	X		X	X							Nelson, Pope and Voorhis, June 1997
Boring	SP-12	5 - 11	Yes	10		X	X									Note total depth and sample depth does not match.	Nelson, Pope and Voorhis, June 1997
Boring	SP-13	5 - 11	Yes	10		X	X									Note total depth and sample depth does not match.	Nelson, Pope and Voorhis, June 1997
Boring	SP-14	4 - 8				X											Nelson, Pope and Voorhis, June 1997
Boring	SP-15	4 - 8				X											Nelson, Pope and Voorhis, June 1997
Boring	DP-2	6 - 8	Yes	28		X	X					X	X				ARKF, Jan. 2001
	DP-2	20 - 24	Yes	28		X	X					X	X				ARKF, Jan. 2001
Boring	DP-4	4 - 6	Yes	18	8	X	X					X	X				ARKF, Jan. 2001
	DP-4	16 - 18	Yes	18	8	X	X					X	X				ARKF, Jan. 2001
Boring	*DP-6*	*8 - 10*	*Yes*	*18*	*22*	*X*	*X*					*X*	*X*				*ARKF, Jan. 2001*
	DP-6	*16 - 18*	*Yes*	*18*	*22*	*X*	*X*					*X*	*X*				*ARKF, Jan. 2001*
Boring	*DP-7*	*12 - 14*	*Yes*	*18*	*24*	*X*	*X*					*X*	*X*				*ARKF, Jan. 2001*
	DP-7	*16 - 18*	*Yes*	*18*	*24*	*X*	*X*					*X*	*X*				*ARKF, Jan. 2001*
Boring	DP-10	15 - 16	Yes	28	8	X	X					X	X				ARKF, Jan. 2001
	DP-10	24 - 28	Yes	28	8	X	X					X	X				ARKF, Jan. 2001
Monitoring Well	MW-2/DP-1	8 - 12	Yes	28		X	X					X	X				ARKF, Jan. 2001
	MW-2/DP-1	20 - 24	Yes	28		X	X					X	X				ARKF, Jan. 2001
Monitoring Well	MW-3/DP-9	24 - 28	Yes	40		X	X					X	X				ARKF, Jan. 2001
	MW-3/DP-9	28 - 32	Yes	40		X	X					X	X				ARKF, Jan. 2001
Monitoring Well	*MW-4/DP-3*	*6 - 8*	*Yes*	*28*	*24*	*X*	*X*					*X*	*X*				*ARKF, Jan. 2001*
	MW-4/DP-3	24 - 28	Yes	28	24	X	X					X	X				ARKF, Jan. 2001
Monitoring Well	MW-5/DP-11	0 - 2	Yes	32		X	X					X	X	X			ARKF, Jan. 2001
	MW-5/DP-11	6 - 8	Yes	32		X	X					X	X	X			ARKF, Jan. 2001
	MW-5/DP-11	24 - 26	Yes	32		X	X					X	X	X			ARKF, Jan. 2001
Monitoring Well	MW-6/DP-12	0 - 2	Yes	32		X	X					X	X	X			ARKF, Jan. 2001
	MW-6/DP-12	4 - 6	Yes	32		X	X					X	X	X			ARKF, Jan. 2001
	MW-6/DP-12	31.5 - 32	Yes	32		X	X					X	X	X			ARKF, Jan. 2001
Monitoring Well	MW-7/DP-13	0 - 2	Yes	32		X	X					X	X	X			ARKF, Jan. 2001
	MW-7/DP-13	2 - 4	Yes	32			X					X	X	X		VOC data not on data table	ARKF, Jan. 2001
	MW-7/DP-13	4 - 6	Yes	32		X	X					X	X	X			ARKF, Jan. 2001
	MW-7/DP-13	24 - 26	Yes	32		X	X					X	X	X			ARKF, Jan. 2001
Surface Soil	S-1	3 - 5							X		X					Sample collected below 3-ft thick floor.	ARKF, Jan. 2001
Surface Soil	S-2	3 - 5							X		X					Sample collected below 3-ft thick floor.	ARKF, Jan. 2001
Surface Soil	S-3	3 - 5				X			X		X					Sample collected below 3-ft thick floor; VOC data also collected.	ARKF, Jan. 2001
Surface Soil	S-4	3 - 5							X		X					Sample collected below 3-ft thick floor.	ARKF, Jan. 2001
Surface Soil	S-5	3 - 5							X		X					Sample collected below 3-ft thick floor.	ARKF, Jan. 2001

Table 2-3
Historic Laboratory Sample Summary - Soils
Metropolitan Former MGP
124 - 136 Second Avenue, Brooklyn, NY

Location Type	Location ID	Sample Depth (ft bgs)	Boring Log Available	Total Boring Depth (ft bgs)	Excavation Depth (ft bgs)	SOIL										Comments	Source
						VOC	SVOC	PAH	METALS	CYANIDE	TCLP METALS	H2S RELEASED FROM WASTE	LEACHABLE AMENABLE CYANIDE	LEACHABLE TOC	DRO/GRO		
Surface Soil	S-6	3 - 5							X		X					Sample collected below 3-ft thick floor.	ARKF, Jan. 2001
Surface Soil	S-7	3 - 5							X		X					Sample collected below 3-ft thick floor.	ARKF, Jan. 2001
Surface Soil	S-8	0 - 2							X		X					Sample collected below 3-ft thick floor.	ARKF, Jan. 2001
Surface Soil	S-9	0 - 2							X		X					Sample collected below 3-ft thick floor.	ARKF, Jan. 2001
Surface Soil	S-10	2 - 4							X		X					Sample collected below 3-ft thick floor.	ARKF, Jan. 2001
Surface Soil	S-11	2 - 4							X		X					Sample collected below 3-ft thick floor.	ARKF, Jan. 2001
Surface Soil	S-12	2 - 4							X		X					Sample collected below 3-ft thick floor.	ARKF, Jan. 2001
Boring	GP-1	8 12	Yes	16		X		X									ARKF, July 2001
Boring	GP-2	6 8	Yes	8	8	X		X									ARKF, July 2001
Boring	GP-3	8 12	Yes	16	8	X		X									ARKF, July 2001
Boring	GP-4	4 8				X		X									ARKF, July 2001
Boring	GP-5	8 11				X		X									ARKF, July 2001
Boring	GP-6	8 11	Yes	11		X		X									ARKF, July 2001
Boring	GP-10	8 12			11	X		X									ARKF, July 2001
Boring	GP-15	8 12	Yes	16	15	X		X									ARKF, July 2001
Boring	GP-16	12 16	Yes	16	11	X		X									ARKF, July 2001
Boring	GP-17	12 16	Yes	16		X		X									ARKF, July 2001
Boring	GP-18	4 8	Yes	16		X		X									ARKF, July 2001
Boring	GP-19	12 16	Yes	16		X		X									ARKF, July 2001
Boring	GP-20	12 16	Yes	16		X		X									ARKF, July 2001
Boring	GP-21	8 12	Yes	16		X		X									ARKF, July 2001
Boring	GP-22	4 8	Yes	16		X		X									ARKF, July 2001
Boring	GP-23	6 8	Yes	16	8	X		X									ARKF, July 2001
Boring	GP-24	10 12	Yes	16	8	X		X									ARKF, July 2001
Boring	GP-25	12 16	Yes	16	8	X		X									ARKF, July 2001
Boring	GP-26	15 16	Yes	16	8	X		X									ARKF, July 2001
Boring	GP-28	15 16	Yes	16		X		X									ARKF, July 2001
Boring	GP-29	4 5	Yes	12	22	X		X									ARKF, July 2001
Boring	GP-31	8 12	Yes	16	6	X		X									ARKF, July 2001
Boring	GP-32	4 8	Yes	16	8	X		X									ARKF, July 2001
Boring	GP-33	4 8	Yes	16	8	X		X									ARKF, July 2001
Boring	GP-35	6 8			12	X		X									ARKF, July 2001
Boring	GP-36	4 8				X		X									ARKF, July 2001
Boring	GP-38	10 12				X		X									ARKF, July 2001
Boring	GP-39	12 16				X		X									ARKF, July 2001
Boring	GP-44	9 11	Yes	16		X		X									ARKF, July 2001
Boring	GP-46	6 7	Yes	20		X		X									ARKF, July 2001
Boring	GP-52	6 8				X		X									ARKF, July 2001
Boring	GP-54	5 8	Yes	16		X		X									ARKF, July 2001

Table 2-4
Historic Laboratory Sample Summary - Groundwater
Metropolitan Former MGP
124 - 136 Second Avenue, Brooklyn, NY

								GROUNDWATER					
Location Type	**Location ID**	**Screened interval (ft bgs)**			**Boring Log Available**	**Total Boring Depth (ft bgs)**	**Excavation Depth (ft bgs)**	**VOC**	**SVOC**	**PAH**	**METALS**	**Comments**	**Source**
Monitoring Well	SP-1/GWP-1						15	X	X		X	Document text states metals were analyzed; and although the analysis for metals was requested on COC, no lab data provided anywhere in report.	Nelson, Pope and Voorhis, June 1997
Monitoring Well	SP-2/GWP-2						11	X	X		X	Document text states metals were analyzed; and although the analysis for metals was requested on COC, no lab data provided anywhere in report.	Nelson, Pope and Voorhis, June 1997
Monitoring Well	SP-3/GWP-3							X	X		X	Document text states metals were analyzed; and although the analysis for metals was requested on COC, no lab data provided anywhere in report.	Nelson, Pope and Voorhis, June 1997
Monitoring Well	SP-4/GWP-4							X	X		X	Document text states metals were analyzed; and although the analysis for metals was requested on COC, no lab data provided anywhere in report.	Nelson, Pope and Voorhis, June 1997
Monitoring Well	SP-6/GWP-6							X	X		X	Document text states metals were analyzed; and although the analysis for metals was requested on COC, no lab data provided anywhere in report.	Nelson, Pope and Voorhis, June 1997
Monitoring Well	MW-1							X	X				Nelson, Pope and Voorhis, June 1997
Monitoring Well	MW-2							X	X				Nelson, Pope and Voorhis, June 1997
Monitoring Well	MW-3							X	X				Nelson, Pope and Voorhis, June 1997
Monitoring Well	MW-4							X	X				Nelson, Pope and Voorhis, June 1997
Monitoring Well	MW-5						24	X	X				Nelson, Pope and Voorhis, June 1997
Monitoring Well	AMW-1							X	X				ARKF, Jan. 2001
Monitoring Well	AMW-2							X	X				ARKF, Jan. 2001
Monitoring Well	MW-2/DP-1	5	-	25	Yes	28		X	X				ARKF, Jan. 2001
Monitoring Well	MW-3/DP-9	5	-	25	Yes	40		X	X				ARKF, Jan. 2001
Monitoring Well	MW-4/DP-3	5	-	25	Yes	28	24	X	X				ARKF, Jan. 2001
Monitoring Well	MW-5/DP-11	3	-	30	Yes	32		X	X				ARKF, Jan. 2001
Monitoring Well	MW-6/DP-12	5	-	25	Yes	32		X	X				ARKF, Jan. 2001
Monitoring Well	MW-7/DP-13	5	-	25	Yes	32		X	X				ARKF, Jan. 2001
Monitoring Well	MW-8/DP-14							X	X			Data provided in summary table for MW-8. However, text states that DP-14 could not be advanced due to refusal and concrete in location. But then the text states a well was installed and sampled at MW-8, and the log in in Appendix A - which is not included.	ARKF, Jan. 2001
Monitoring Well	C-1S/D							X		X		Shallow and deep well.	ARKF, July 2001
Monitoring Well	C-2S/D							X		X		Shallow and deep well.	ARKF, July 2001
Monitoring Well	C-3S/D							X		X		Shallow and deep well.	ARKF, July 2001
Monitoring Well	C-4S/D							X		X		Shallow and deep well.	ARKF, July 2001
Monitoring Well	C-5S/D							X		X		Shallow and deep well.	ARKF, July 2001
Monitoring Well	C-6S/D						11	X		X		Shallow and deep well.	ARKF, July 2001
Monitoring Well	MW-9							X		X		Deep well.	ARKF, July 2001
Monitoring Well	MW-10							X		X		Deep well.	ARKF, July 2001

Table 2-5
Historic Laboratory Sample Summary - Soil Gas
Metropolitan Former MGP
124 - 136 Second Avenue, Brooklyn, NY

			SOIL GAS			
Location Type	**Location ID**	**Excavated**	**VOC**	**SVOC**	**Comments**	**Source**
Soil Gas	SG-3		X	X		ARKF, Jan. 2001
Soil Gas	SG-4		X	X		ARKF, Jan. 2001
Soil Gas	SG-5		X	X		ARKF, Jan. 2001
Soil Gas	SG-6		X	X		ARKF, Jan. 2001
Soil Gas	SG-8			X		ARKF, Jan. 2001

Notes:

Due to shallow groundwater, soil gas samples were collected < 4 feet.

Table 3-1
Proposed RI Sample Location, Rationale, and Analytical Sample Summary
Metropolitan Former MGP, 124-136 Second Avenue, Brooklyn, New York

Location ID	Sample ID	Completion Depth*	Sample Depth	No. of Samples	Analyses	Rationale
Surface Soil/Subsurface Soil						
SS-1	SS-1 (depth)	2 inches	Surface (0 - 2 inches)	1	TCL VOCs, TCL SVOCs, TAL Metals, Free CN, PCBs (as Aroclors), TCL Pesticides & Herbicides	Evaluate existing surface soil on Site. Located on west side of Pathmark building between building and canal at SB-9/MW-9 location.
SS-2	SS-2 (depth)	2 inches	Surface (0 - 2 inches)	1	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate existing surface soil on Site. Location to be determined pending areas of surface soil identifed on Site.
SS-3	SS-3 (depth)	2 inches	Surface (0 - 2 inches)	1	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate existing surface soil on Site. Location to be determined pending areas of surface soil identifed on Site.
SB-1	SB-1 (depth)	Est. 70 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Anticipated upgradient location. Evaluate background soil quality in site area near eastern edge of former MGP footprint and elevated PID at LB-8 (35-55 feet bgs).
SB-2	SB-2 (depth)	Est. 70 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils adjacent to former Holders 2 and 3. Likely downgradient from former bulk oil storage beneath Lowes building. Evaluate extent of elevated PID at LB-7 (33-55 feet bgs).
SB-3	SB-3 (depth)	Est. 70 feet max	Uper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils adjacent to former Holder 5 and downgradient of primary NAPL producing recovery wells RW9 through RW-13 and RW-39 and 40.
SB-4	SB-4 (depth)	Est. 50 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils adjacent to former generator house and tar tank area along western site boundary. Likely down-gradient boundary of former MGP footprint by Gowanus Canal. Evaluate potential inputs from Brooklyn Alcatraz Asphalt Company.
SB-5	SB-5 (depth)	Est. 50 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	TCL VOCs, TCL SVOCs, TAL Metals, Free CN, PCBs (as Aroclors), TCL Pesticides & Herbicides	Evaluate soils along western site boundary. Likely down-gradient boundary of former MGP footprint by Gowanus Canal. Evaluate potential inputs from Brooklyn Alcatraz Asphalt Company.
SB-6	SB-6 (depth)	Est. 50 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	TCL VOCs, TCL SVOCs, TAL Metals, Free CN, PCBs (as Aroclors), TCL Pesticides & Herbicides	Evaluate soil adjacent to former gas holder in southern portion of former MGP footprint. Likely cross-gradient/down-gradient location.
SB-7	SB-7 (depth)	Est. 50 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soil adjacent to former operations and gas holder in southern portion of former MGP footprint. Likely cross-gradient/down-gradient location. Evaluate potential inputs from Brooklyn Alcatraz Asphalt Company.
SB-8	SB-8 (depth)	Est. 70 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	TCL VOCs, TCL SVOCs, TAL Metals, Free CN, PCBs (as Aroclors), TCL Pesticides & Herbicides	Evaluate soils adjacent to former operations area/Holder 4 in central/western portion of former MGP footprint. Attempt to delineate deep impacts noted at RB-1 to east adjacent to Holder 1.
SB-9	SB-9 (depth)	Est. 70 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate former tar tank area adjacent to Gowanus Canal along western boundary of former MGP.
SB-10	SB-10 (depth)	Est. 50 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Previously un-investigated area W/SW of former MGP. Evaluate possible inputs from Brooklyn Alcetraz Asphalt Company.
SB-11	SB-11 (depth)	Est. 50 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Previously un-investigated area west of former Holders 1 and 2 and N/NW of former Holder 5.
SB-12	SB-12 (depth)	Est. 50 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate former Holder 5 along southern boundary of former MGP footprint. Delineate LB-5 impacts at 27-32 feet bgs.
SB-13	SB-13 (depth)	Est. 70 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils W/SW of former Holders 1 and 2. Evaluate deep impacts to east at RB-1, LB-2, and LB-5, where impacts noted at depths up to 67 feet bgs.
SB-14	SB-14 (depth)	Est. 70 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	TCL VOCs, TCL SVOCs, TAL Metals, Free CN, PCBs (as Aroclors), TCL Pesticides & Herbicides	Evaluate soils west of Holders 2 and 3 and downgradient of primary NAPL producing recovery wells RW9 through RW-13 and RW-39 and 40.
SB-15	SB-15 (depth)	Est. 70 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate contents of edge of Holder 5 foundation (if present). Evaluate soils west of former Holder 2 and downgradient of primary NAPL producing recovery wells RW9 through RW-13 and RW-39 and 40.
SB-16	SB-16 (depth)	Est. 70 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils west of former Holder 1 and adjacent to former shaving scrubbers. Evaluate potential extent of deep impacts to east at RB-1, LB-2, and LB-5, where impacts noted at depths up to 67 feet bgs.
SB-17	SB-17 (depth)	Est. 50 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils adjacent to former tar extractors and condensers along 12th Street.
SB-18	SB-18 (depth)	Est. 70 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate soils downgradient of former tar extractors and condensers along 12th Street.
TP-1	TP-1 (distance/ depth)	Est. 8-10 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate location and contents of former Holder 5, valve house area, and coal line along 12th Street.
TP-2	TP-2 (distance/ depth)	Est. 8-10 feet max	Upper 5 feet, zone of worst-case impacts, and first clean or bottom	3	VOCs, SVOCs, RCRA 8 Metals, and Free CN	Evaluate location and contents of former Holder 5 and valve house area adjacent to current building.

Table 3-1
Proposed RI Sample Location, Rationale, and Analytical Sample Summary
Metropolitan Former MGP, 124-136 Second Avenue, Brooklyn, New York

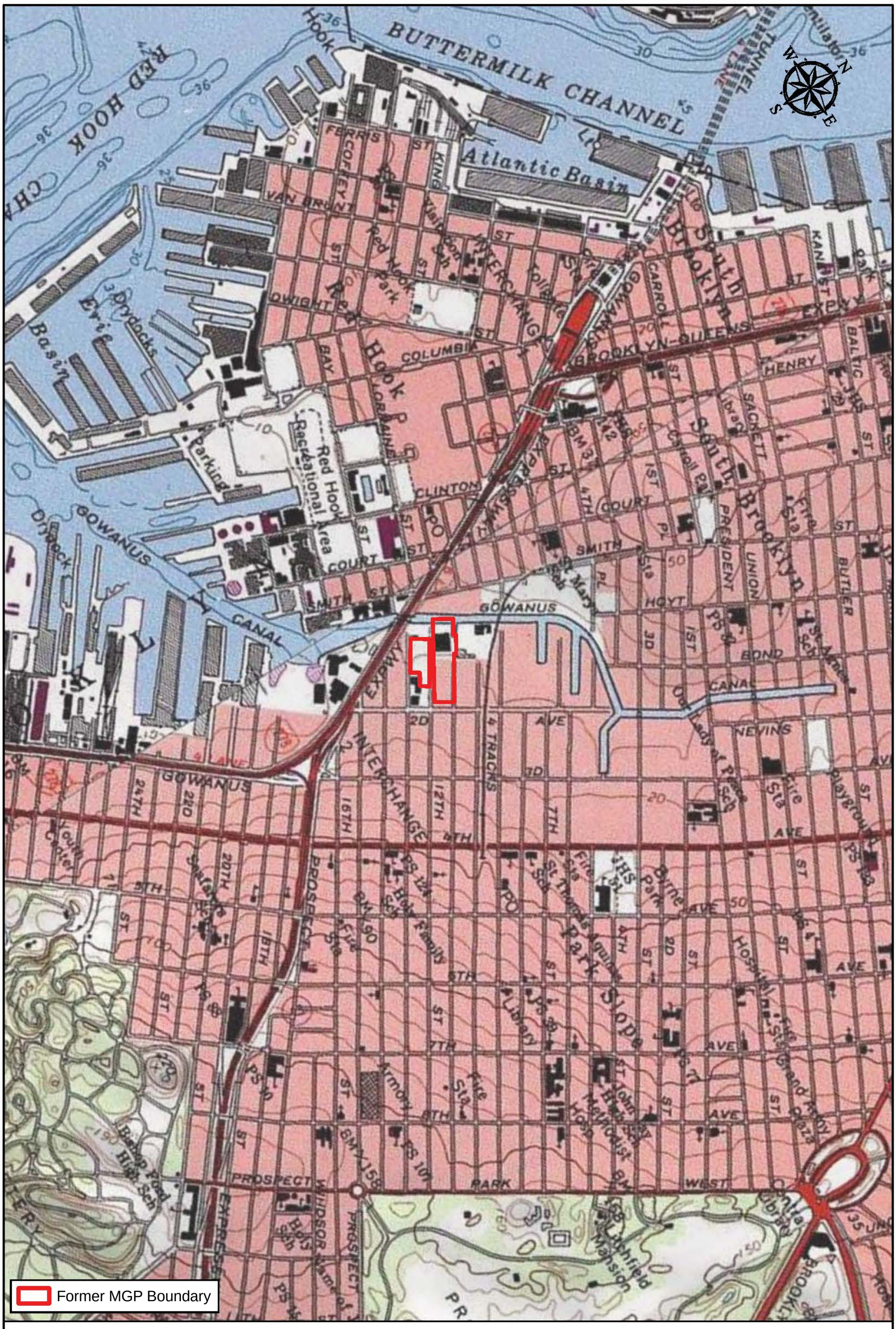
Location ID	Sample ID	Completion Depth*	Sample Depth	No. of Samples	Analyses	Rationale
Groundwater						
MW-1	MW-1S/I/D (date)	S-est. 15 ft, I est. 40 ft, D est. 70 ft	S ~ 5-15 ft., I ~ 30-40 ft., D ~ 60-70 ft.	3	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Anticipated upgradient/background location. Evaluate background groundwater quality in site area above "meadow mat", in upper portion of semi-confirmed aquifer, and deeper zone within lower aquifer.
MW-2	MW-2D (date)	Est 70 feet	Est. 60-70 ft.	1	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Anticipated cross-gradient location adjacent to former Holders 2 and 3. Evaluate deeper zone within lower aquifer. Shallow and intermediate groundwater data available from adjacent site RWs.
MW-3	MW-3S/I (date)	S-est. 15 ft, I est. 50 ft	S ~ 5-15 ft., I ~ 25-50 ft.	2	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Anticipated downgradient location of primary NAPL producing recovery wells RW9 through RW-13 and RW-39 and 40. Evaluate possible lateral extent of impacts noted in these RWs. Screened interval set to be consistent with RWs.
MW-4	MW-4S/I (date)	S-est. 15 ft, I est. 40 ft	S ~ 5-15 ft., I ~ 30-40 ft.	2	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Anticipated downgradient site boundary location adjacent to Gowanus Canal. Evaluate potential inputs from Brooklyn Alcatraz Asphalt Company. Evaluate groundwater flux/gradients into canal above "meadow mat" and in upper portion of semi-confirmed aquifer.
MW-5	MW-5S/I/D (date)	S-est. 15 ft, I est. 40 ft, D est. 70 ft	S ~ 5-15 ft., I ~ 30-40 ft., D ~ 60-70 ft.	3	TCL VOCs, TCL SVOCs, TAL Metals, Total CN, PCBs (as Aroclors), TCL Pesticides & Herbicides	Anticipated downgradient site boundary location adjacent to Gowanus Canal. Evaluate potential inputs from Brooklyn Alcatraz Asphalt Company. Evaluate groundwater flux/gradients into canal above "meadow mat" and in upper portion of semi-confirmed aquifer.
MW-6	MW-6S/I (date)	S-est. 15 ft, I est. 40 ft	S ~ 5-15 ft., I ~ 30-40 ft.	2	TCL VOCs, TCL SVOCs, TAL Metals, Total CN, PCBs (as Aroclors), TCL Pesticides & Herbicides	Anticipated downgradient/cross-gradient site boundary location adjacent to former southern gas holder along southern/western boundary of site.
MW-7	MW-7S/I (date)	S-est. 15 ft, I est. 40 ft	S ~ 5-15 ft., I ~ 30-40 ft.	2	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Anticipated downgradient/cross-gradient site boundary location adjacent to former southern gas holder and operations area along southern/western boundary of site. Evaluate potential inputs from Brooklyn Alcatraz Asphalt Company.
MW-8	MW-8S/I (date)	S-est. 15 ft, I est. 40 ft	S ~ 5-15 ft., I ~ 30-40 ft.	2	TCL VOCs, TCL SVOCs, TAL Metals, Total CN, PCBs (as Aroclors), TCL Pesticides & Herbicides	Anticipated downgradient location. Evaluate impacts noted near former Holder 1 to the east. Potential centerline plume location adjacent to Pathmark building.
MW-9	MW-9S/I/D (date)	S-est. 15 ft, I est. 40 ft, D est. 70 ft	S ~ 5-15 ft., I ~ 30-40 ft., D ~ 60-70 ft.	3	VOCs, SVOCs, RCRA 8 Metals, and Total CN	Anticipated downgradient site boundary location adjacent to Gowanus Canal and former tar tanks. Evaluate groundwater flux/gradients into canal at three aquifer depth intervals.
Soil Vapor/Indoor Air/Ambient Air						
SV-1/IA-1	SV-1 (date); IA-1 (date)	Immediately below floor slab		2	VOCs (TO-15) + Naphthalene	Satisfy requirements of the NYSDOH Soil Vapor Intrusion Guidance. The sample will be collected with co-located indoor air sample in Pathmark building.
SV-2/IA-2	SV-2 (date); IA-2 (date)	Immediately below floor slab		2	VOCs (TO-15) + Naphthalene	Satisfy requirements of the NYSDOH Soil Vapor Intrusion Guidance. The sample will be collected with co-located indoor air sample inside Pathmark building.
SV-3/IA-3	SV-3 (date); IA-3 (date)	Immediately below floor slab		2	VOCs (TO-15) + Naphthalene	Satisfy requirements of the NYSDOH Soil Vapor Intrusion Guidance. The sample will be collected with co-located indoor air sample inside building.
SV-4/IA-4	SV-4 (date); IA-4 (date)	Immediately below floor slab		2	VOCs (TO-15) + Naphthalene	Satisfy requirements of the NYSDOH Soil Vapor Intrusion Guidance. The sample will be collected with co-located indoor air sample inside building.
AMB-1	AMB-1 (date)	Ambient air		1	VOCs (TO-15) + Naphthalene	Satisfy requirements of the NYSDOH Soil Vapor Intrusion Guidance. The sample will be taken in representative background/ambient location.

Notes

1. No. - number
2. ID - identification
3. NA - Not applicable
4. NYSDOH - New York State Department of Health
5. MGP - Manufactured Gas Plant
6. RCRA - Resource Conservation and Recovery Act
7. SS - Surface Soil
8. SB - Soil Boring (Subsurface Soil)
9. MW - Monitoring Well (Groundwater Sample)
10. SV - Soil Vapor
11. IA- Indoor Air
12. AMB - Ambient Air
13. VOCs - volatile organic compounds
14. SVOCS - semi-volatile organic compounds
15. CN - cyanide
16. * - Depths may be adjusted shallower if 10 feet into clean achieved.

Indicates interval is proposed for inclusion in the 20% of originally proposed sample to be analyzed for an expanded list of analytes.

Figures



AECOM

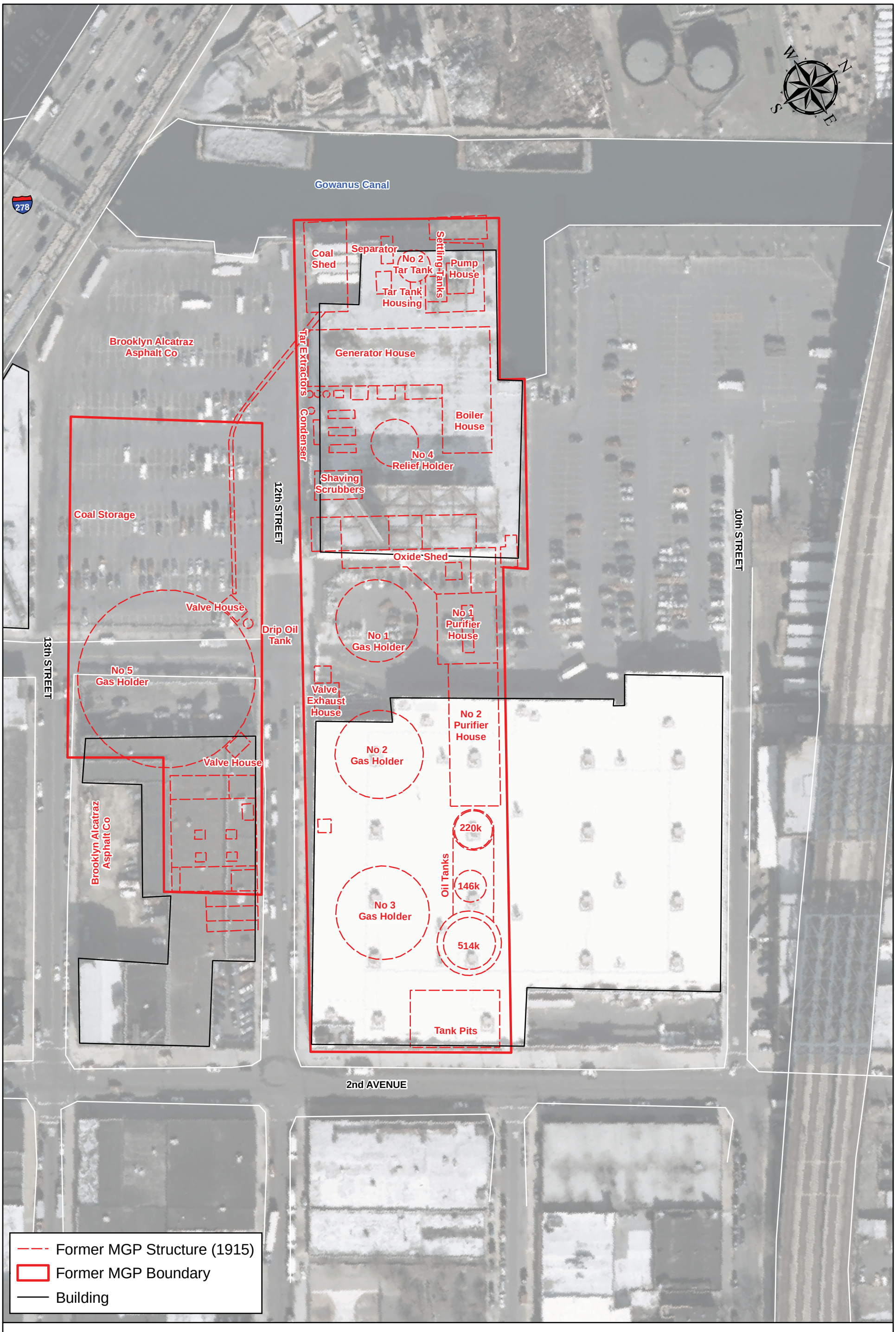
NATIONAL GRID
METROPOLITAN FORMER MGP SITE

1:12,000 1 Inch = 1000 ft

0 500 1,000 2,000 Feet

Site Location Map

Figure 1-1



AECOM

NATIONAL GRID
METROPOLITAN FORMER MGP SITE
1:1200 1 Inch = 100 ft
0 50 100 200 Feet

Historic and Current Site Features

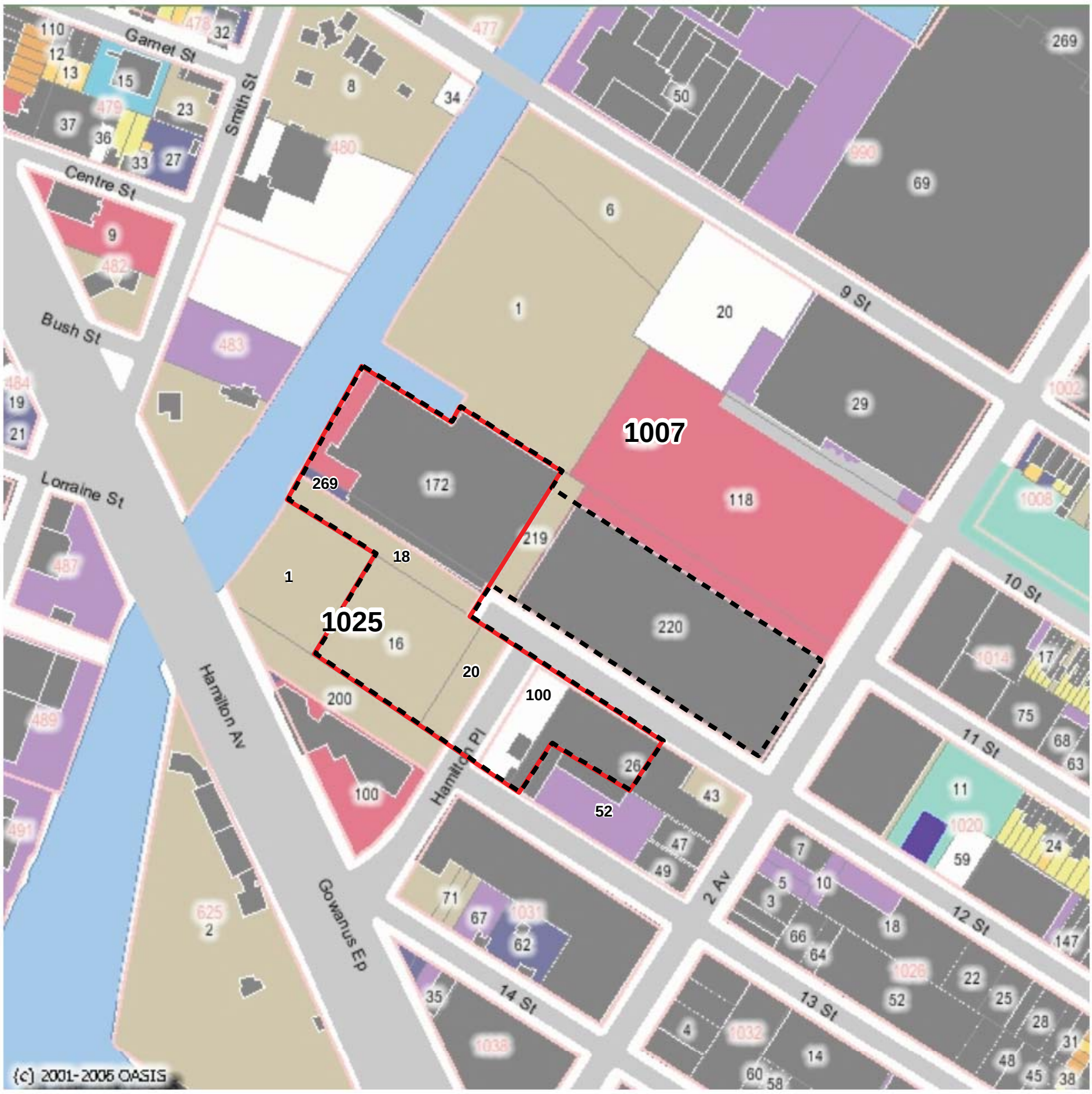
Figure 2-1

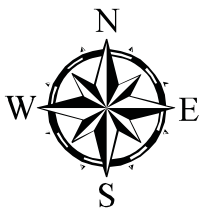
AECOM

NATIONAL GRID
METROPOLITAN FORMER MGP SITE
1:1200 1 Inch = 100 ft
0 50 100 200 Feet

Previous Investigation Locations

Figure 2-2





Legend

- Block/Lot Boundaries
- Buildings
- Historic Houses
- Current Site
- 1 & 2 Family Residential
- Multi-family Residential
- Mixed Use
- Former MGP Boundary (Maximum Extent)
- Commercial
- Institutions
- Transportation & Parking
- Industrial
- Vacant Lots

Tax Block & Tax Lot files are copyrighted by the New York City Department of City Planning (2006 Release 06C)

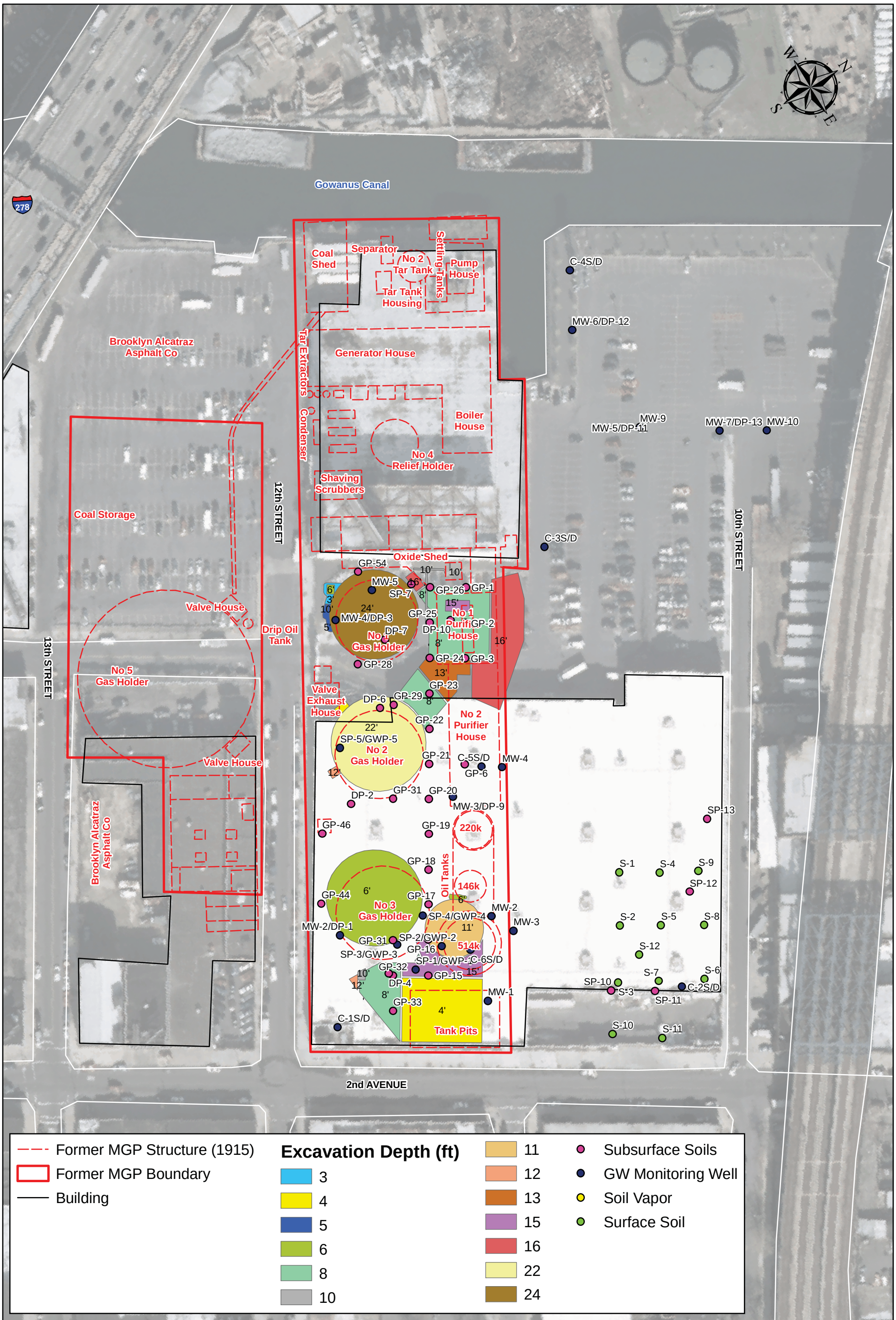
AECOM

NATIONAL GRID
METROPOLITAN FORMER MGP SITE
Not to Scale

Data Source: http://www.oasisnyc.com/oasismap.htm

Parcel Locations

Figure 2-3

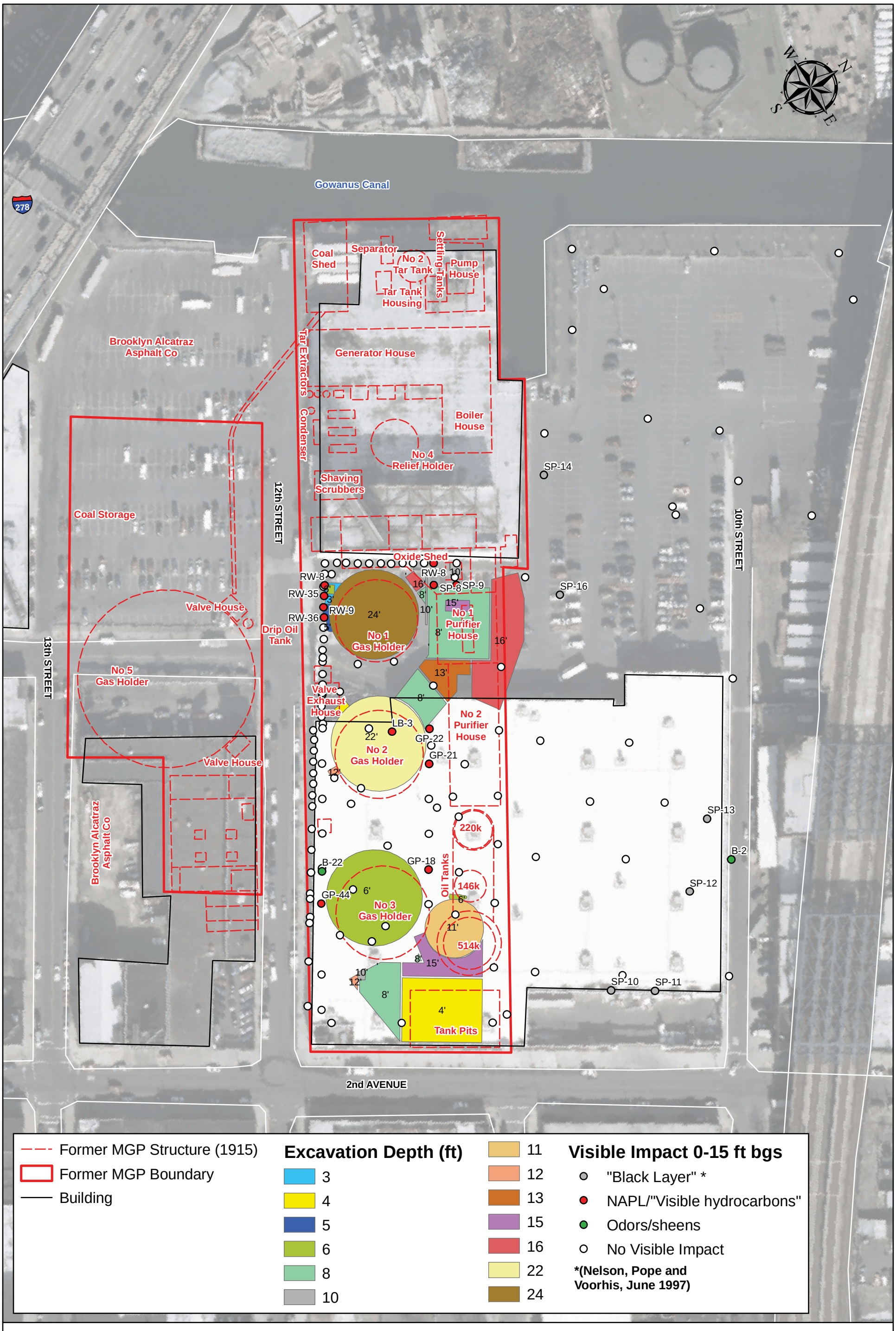


AECOM

NATIONAL GRID
METROPOLITAN FORMER MGP SITE
1:1200 1 Inch = 100 ft
0 50 100 200 Feet

Previous Investigation Locations with Laboratory Data

Figure 2-4

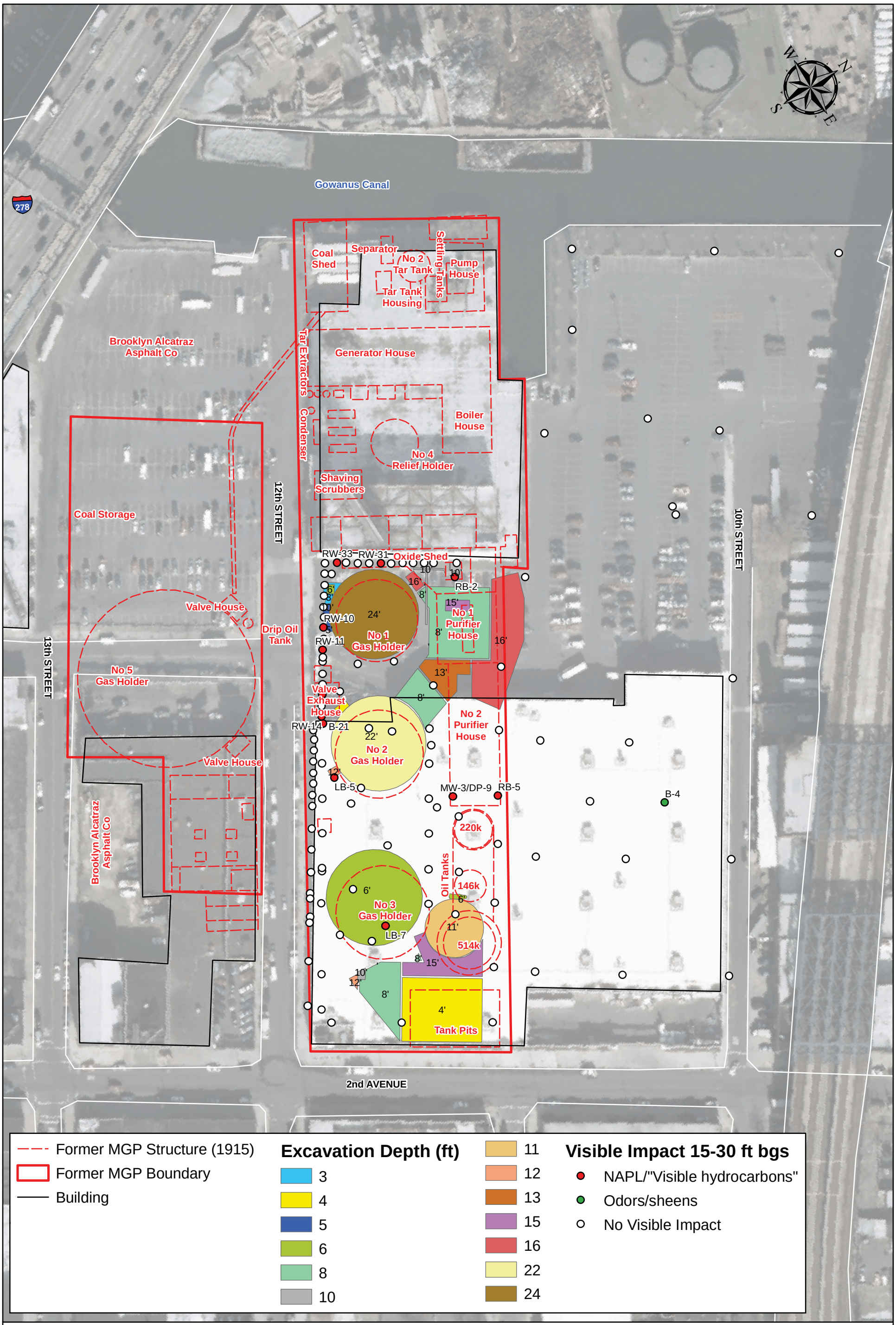


AECOM

NATIONAL GRID
METROPOLITAN FORMER MGP SITE
1:1200 1 Inch = 100 ft
0 50 100 200 Feet

Visible Impacts (0-15 Feet bgs)

Figure 2-5

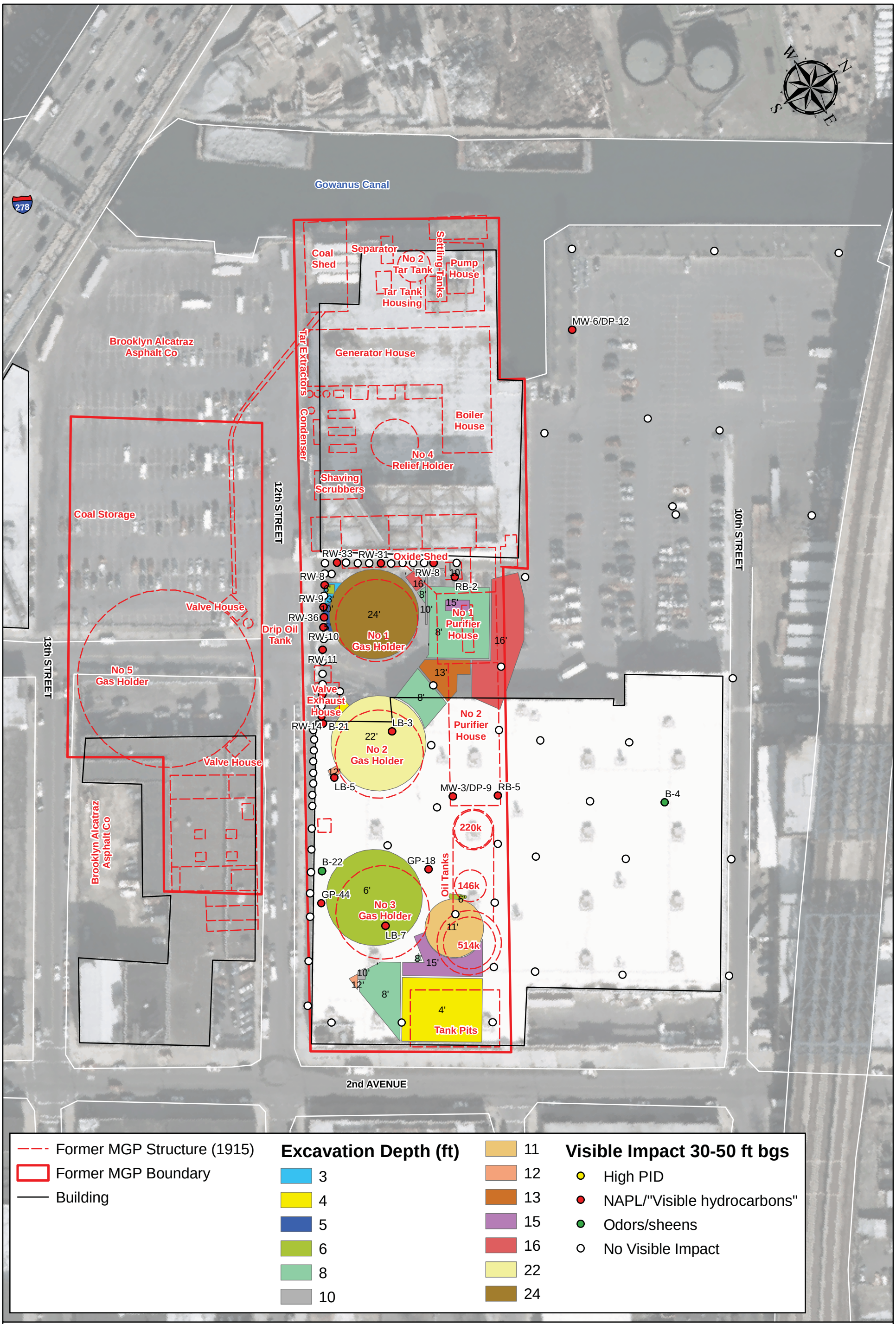


AECOM

NATIONAL GRID
METROPOLITAN FORMER MGP SITE
1:1200 1 Inch = 100 ft
0 50 100 200 Feet

Visible Impacts (15-30 Feet bgs)

Figure 2-6

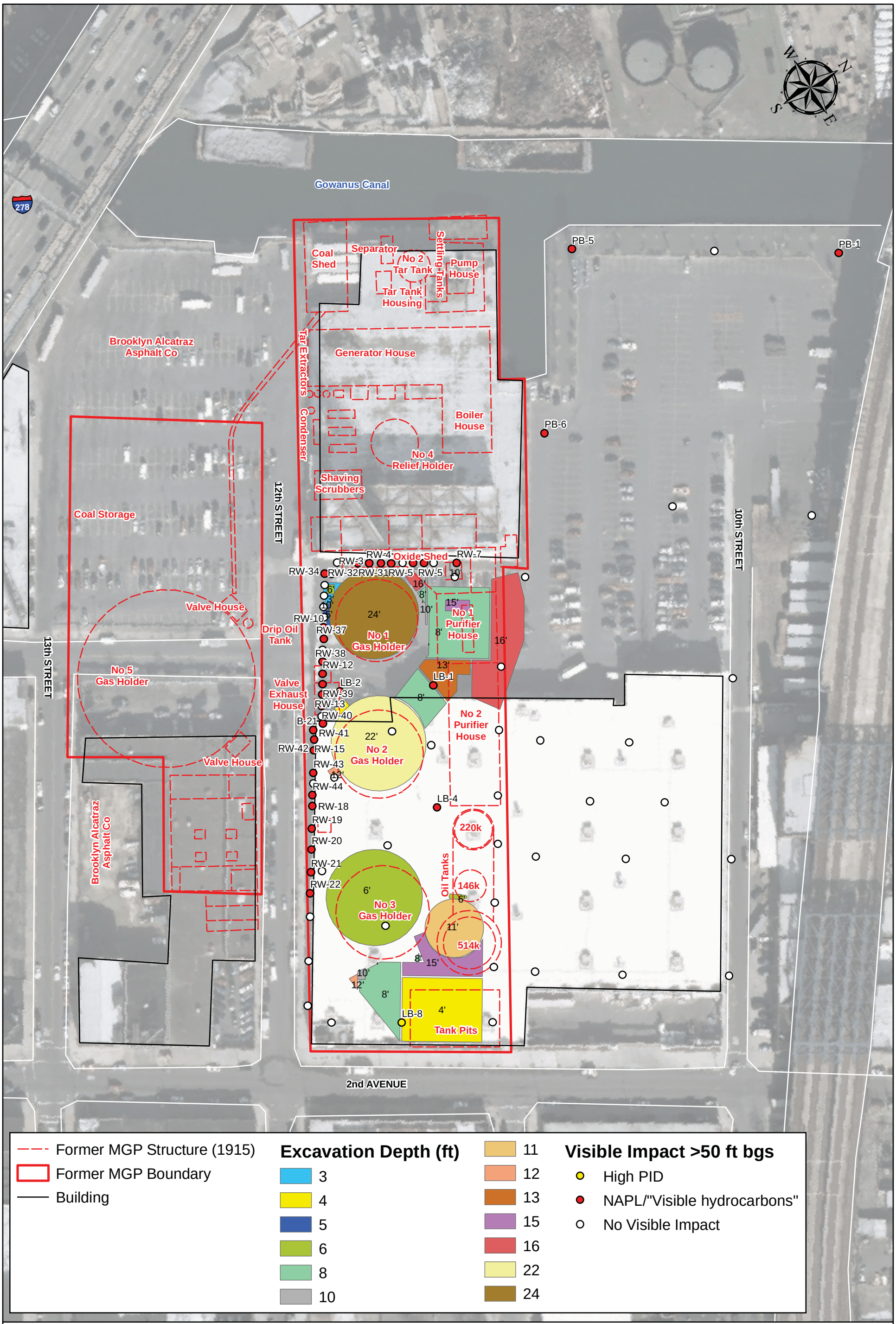


AECOM

NATIONAL GRID
METROPOLITAN FORMER MGP SITE
1:1200 1 Inch = 100 ft
0 50 100 200 Feet

Visible Impacts (30-50 Feet bgs)

Figure 2-7

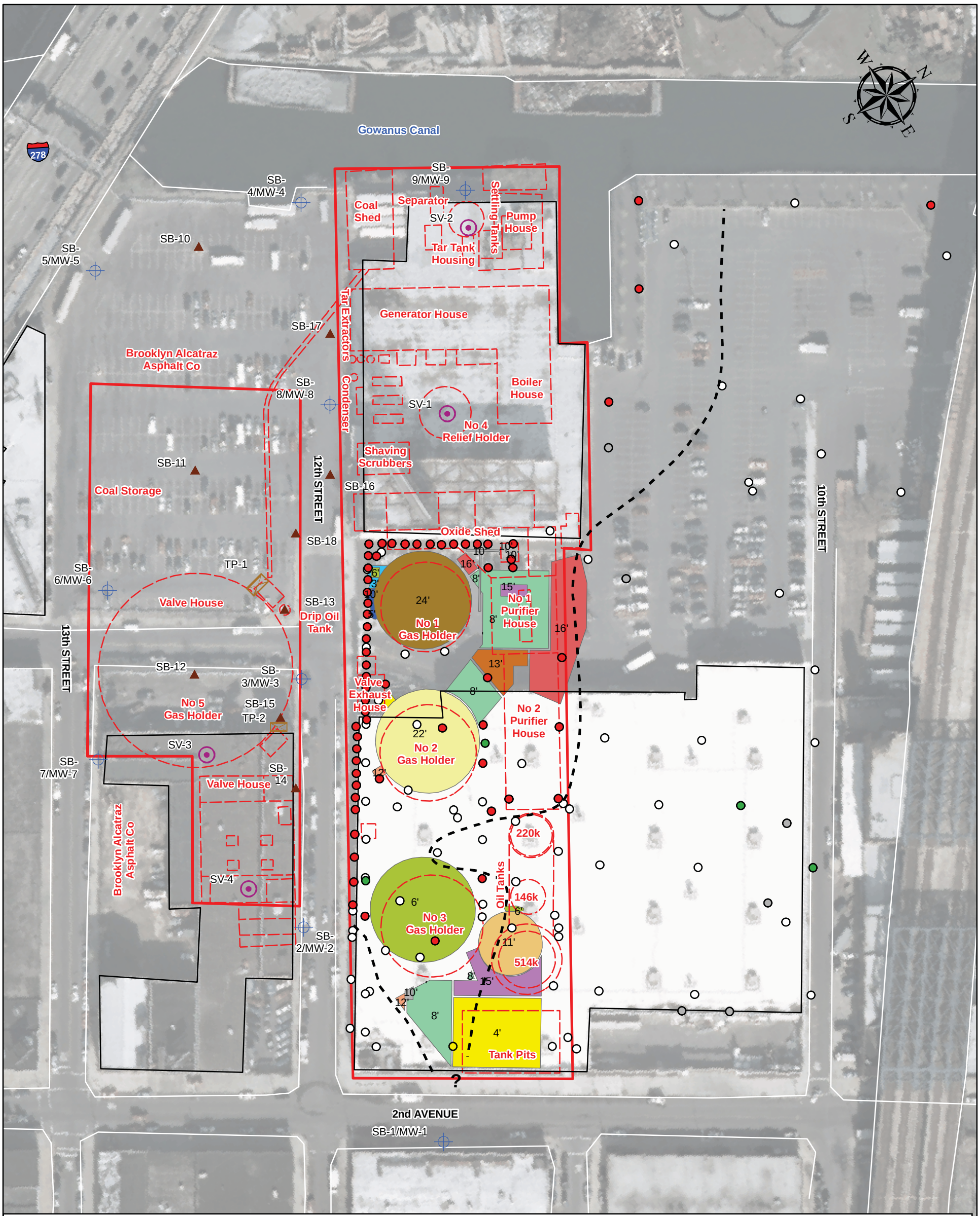


AECOM

NATIONAL GRID
METROPOLITAN FORMER MGP SITE
1:1200 1 Inch = 100 ft
0 50 100 200 Feet

Visible Impacts (>50 Feet bgs)

Figure 2-8



AECOM

NATIONAL GRID
METROPOLITAN FORMER MGP SITE
1:1200 1 Inch = 100 ft
0 50 100 200 Feet

Proposed Remedial Investigation Sampling Locations

Figure 3-1

Appendix A

Previous Investigation Report Summary and Sanborn Maps

Table A-1
Summary of Documents
Former Metropolitan MGP
124 - 136 Second Avenue, Brooklyn, New York

Report Name	Report Date	Consultant	File Name
NYSDEC Spill Investigation Report 136 2nd Avenue Brooklyn, New York	4/23/1997	Nelson, Pope and Voorhis	NYSDEC Spill Inv Rpt Apr 1997.pdf
Phase I Environmental Site Assessment 124/136 Second Avenue Brooklyn, New York	5/15/1997	Nelson, Pope and Voorhis	124-126SecondAvenue Ph I ESA_May15-1997.pdf
Phase II Environmental Site Assessment (Limited Subsurface Investigation) 124/136 Second Avenue Brooklyn, New York	6/2/1997	Nelson, Pope and Voorhis	Ph II ESA June2-1997.pdf
Remedation Plan for Spill Nos. 9214380 VMF Site, 9704147 DMU Site 124/136 Second Avenue Brooklyn, New York	9/30/1997	Nelson, Pope and Voorhis	124_136 Second Ave Rem Plan 1997.pdf
Closure Report Brooklyn Commons 124/136 2nd Avenue	6/7/1999	Nelson, Pope and Voorhis	Closure Rpt Brooklyn Commons 1999.pdf
Supplemental Phase II Environmental Site Assessment Brooklyn Commons DMU Building Gowanus, New York	7/2/1999	Nelson, Pope and Voorhis	Supplemental Ph II ESA 1999.pdf
Voluntary Cleanup Program Site Assessment Report and Conceptual Remedial Work Plan 124-136 Second Avenue Brooklyn, New York Site #V00405-2	Jan-01	AKRF Engineering	Site Assessment Rpt Concept Work Plan Jan 2001.pdf
Remedial Investigation Results 124-136 Second Avenue Brooklyn, New York Site #V00405-2	7/10/2001	AKRF Engineering	Remedial Inv Rpt July 2001.pdf
Voluntary Cleanup Program Remedial Workplan Supplement Hot Spot Removal 124-136 Second Avenue Brooklyn, New York Site #V00405-2	10/1/2001	AKRF Engineering	Vol Clnup Prgm Hot Spot Oct 2001.pdf
Revised Remedial Work Plan 124-139 Second Avenue Brooklyn, New York Site #V00405-2	12/5/2001	AKRF Engineering	Revised Remedial Work Plan Dec 2001.pdf
Geotechnical Investigation Lowe's Home Center Brooklyn, New York	1/14/2002	Mueser Rutledge Consulting Engineers	Geotech Inv Rpt Jan 2002.pdf
Hot Spot Delineation and Gasholder Characterization Results 2nd Avenue Former MGP Site Brooklyn, New York	4/26/2002	Roux Associates	Roux Hot Spot Delin Apr 2002.pdf
Installation of Product Recovery Wells and Completion of Well Monitoring and Product Recovery Activities during May 2002 124-136 Second Avenue Brooklyn, New York Site No. V00405-2	6/11/2002	Roux Associates	Install of Product Rec Wells June 2002.pdf
Detached Mail Unit (DMU) Subsurface Investigation Results and Recommendations Former Manufactured Gas Plant (MGP) 124-136 Second Avenue, Brooklyn, New York	11/27/2002	Roux Associates	DMU Subsurface Inv November27-2002.pdf
Addendum to Geotechnical Report, Supplemental Borings Lowe's Home Center	12/24/2002	Mueser Rutledge Consulting Engineers	Addendum to Geotech Rpt Dec 2002.pdf
Detached Mail Unit (DMU) Subsurface Remediation Results and Evaluation Former Manufactured Gas Plant (MGP) 124-136 Second Avenue, Brooklyn, New York	2/24/2003	Roux Associates	DMU Subsurface Remediation Results February24-2003.pdf

Table A-1
Summary of Documents
Former Metropolitan MGP
124 - 136 Second Avenue, Brooklyn, New York

Report Name	Report Date	Consultant	File Name
Final Completion Report 124-136 Second Avenue Brooklyn, New York Site No. V00405-2	5/23/2003	Remedial Engineering and Roux Associates	124-136SecondAvenue Final Completion_May23-2003.pdf
DRAFT Gowanus Canal Investigation Executive Summary Report AOC Index No. A2-0523-0705	Apr-07	GEI Consultants, Inc.	Draft Gowanus Invest Executive Summ Report 4-12-07.pdf
DRAFT Remedial Investigation Technical Report Gowanus Canal Brooklyn, New York AOC Index No. A2-0523-0705	Apr-07	GEI Consultants, Inc.	DraftGowanusCanalInvestigation Report-April2007.pdf
Phase II Environmental Site Investigation Former Department of Education Garage 60 12th Street, Brooklyn, NY 11215	12/7/2007	ATC Associates Inc.	ATC_60-12thStreetPhase_II_July2007.pdf

Metropolitan
124-136 2nd Avenue
Brooklyn, NY 11215

Inquiry Number: 2278472.3s
July 29, 2008

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

7/29/08

Site Name:
Metropolitan
124-136 2nd Avenue
Brooklyn, NY 11215

EDR Inquiry # 2278472.3s

Client Name:
ENSR Consulting &
78 Main Street, Suite 3
Nyack, NY 10960

Contact: Jennifer Koch

EDR® Environmental Data Resources Inc

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Certified Sanborn Results:

Site Name: Metropolitan
Address: 124-136 2nd Avenue
City, State, Zip: Brooklyn, NY 11215
Cross Street:
P.O. # NA
Project: NA
Certification # F339-41C9-AA06

Sanborn® Library search results
Certification # F339-41C9-AA06

Maps Identified - Number of maps indicated within "( )"

1996 (1)	1987 (1)	1977 (1)	1886 (1)
1995 (1)	1986 (1)	1969 (1)	
1993 (1)	1982 (1)	1950 (1)	
1992 (1)	1981 (1)	1938 (1)	
1991 (1)	1980 (1)	1915 (1)	
1988 (1)	1979 (1)	1904 (1)	

Total Maps: 19

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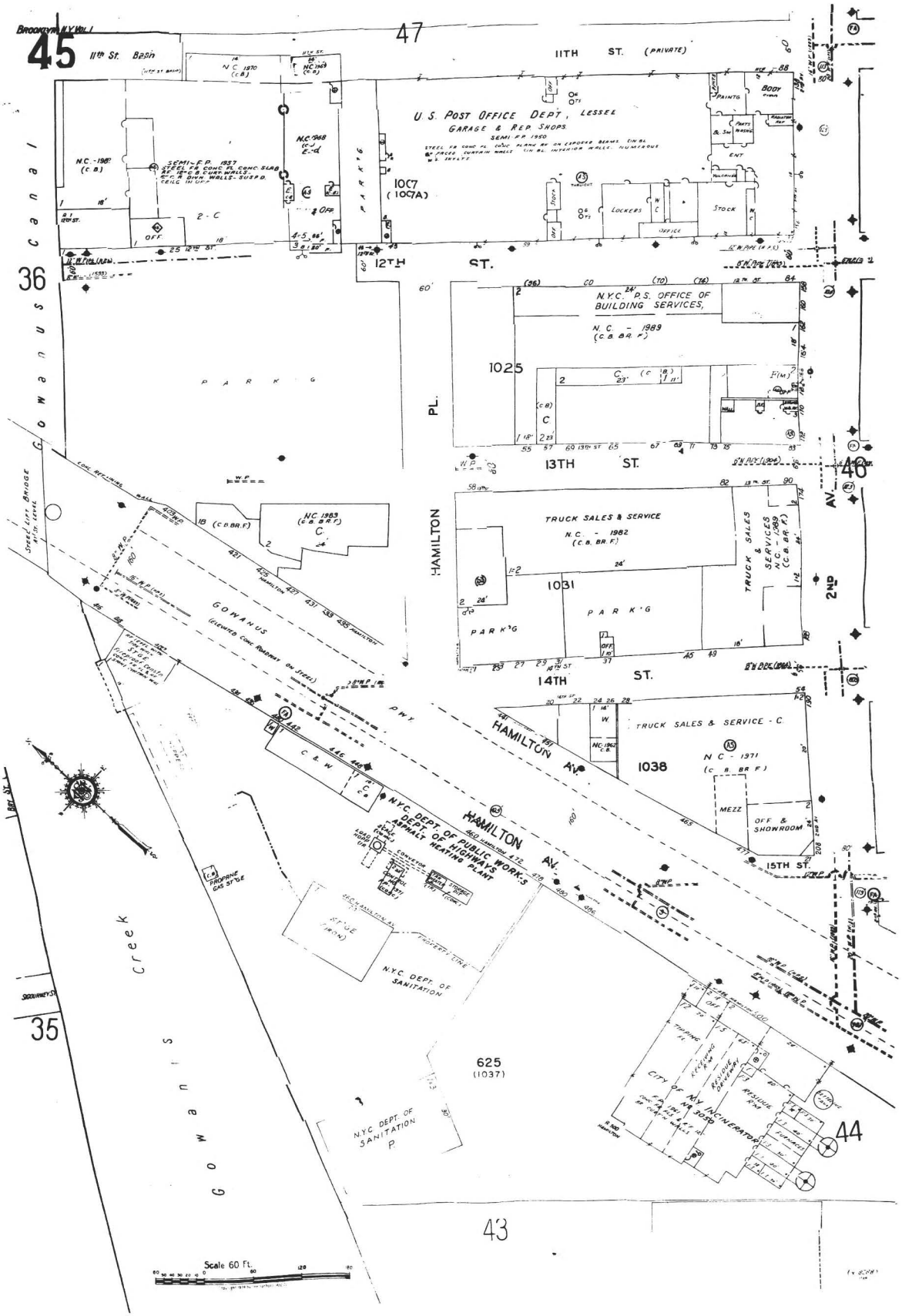

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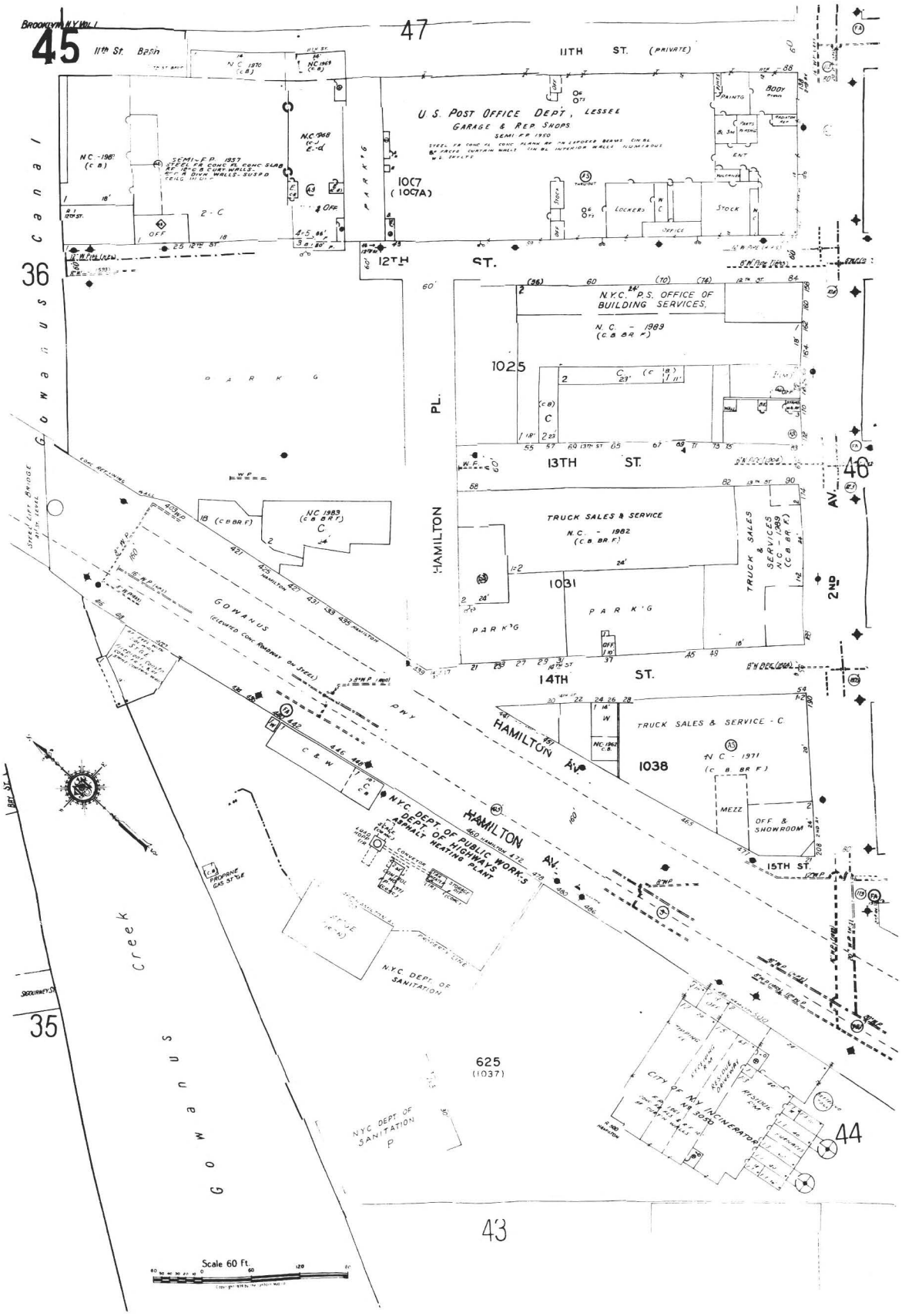

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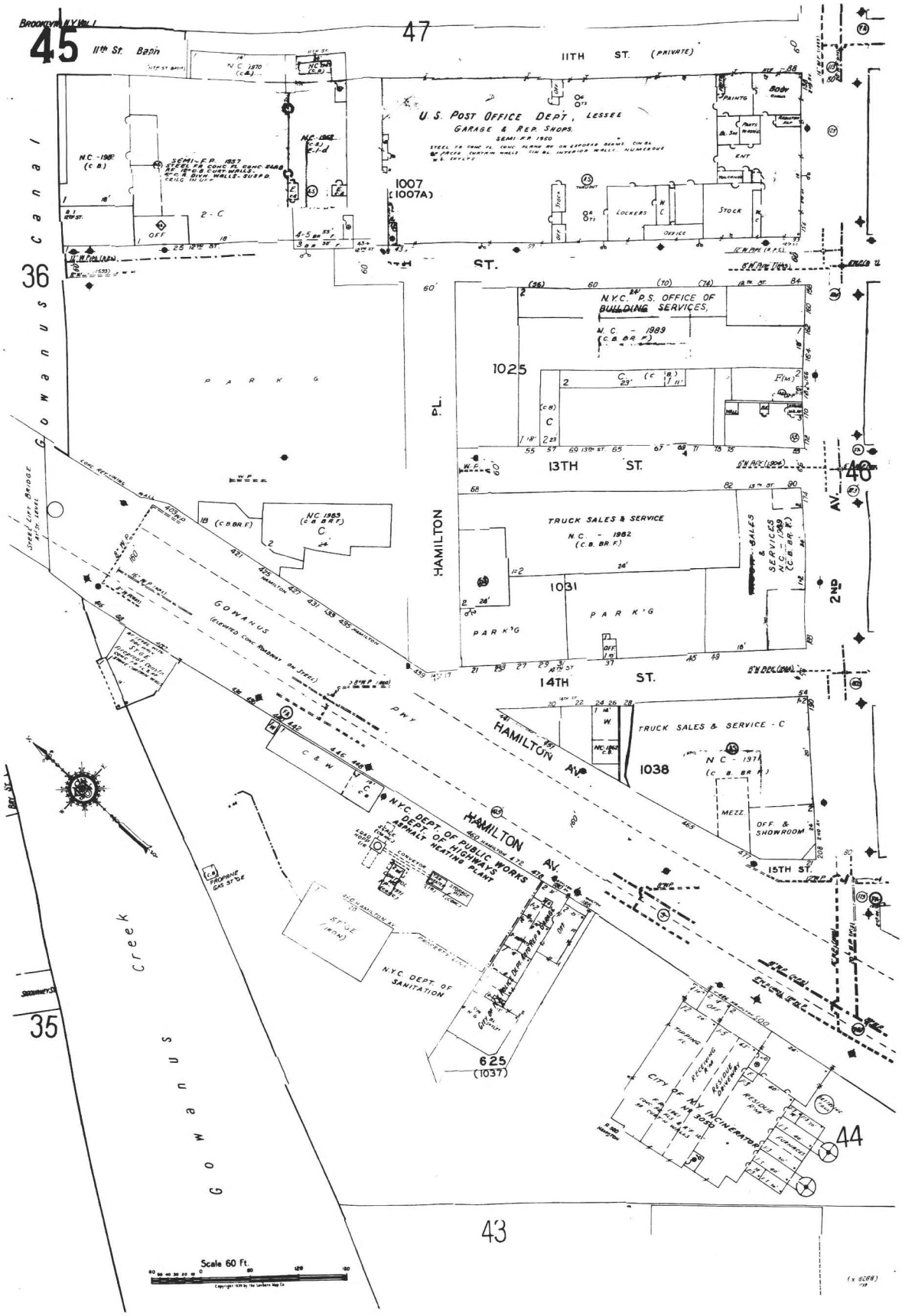

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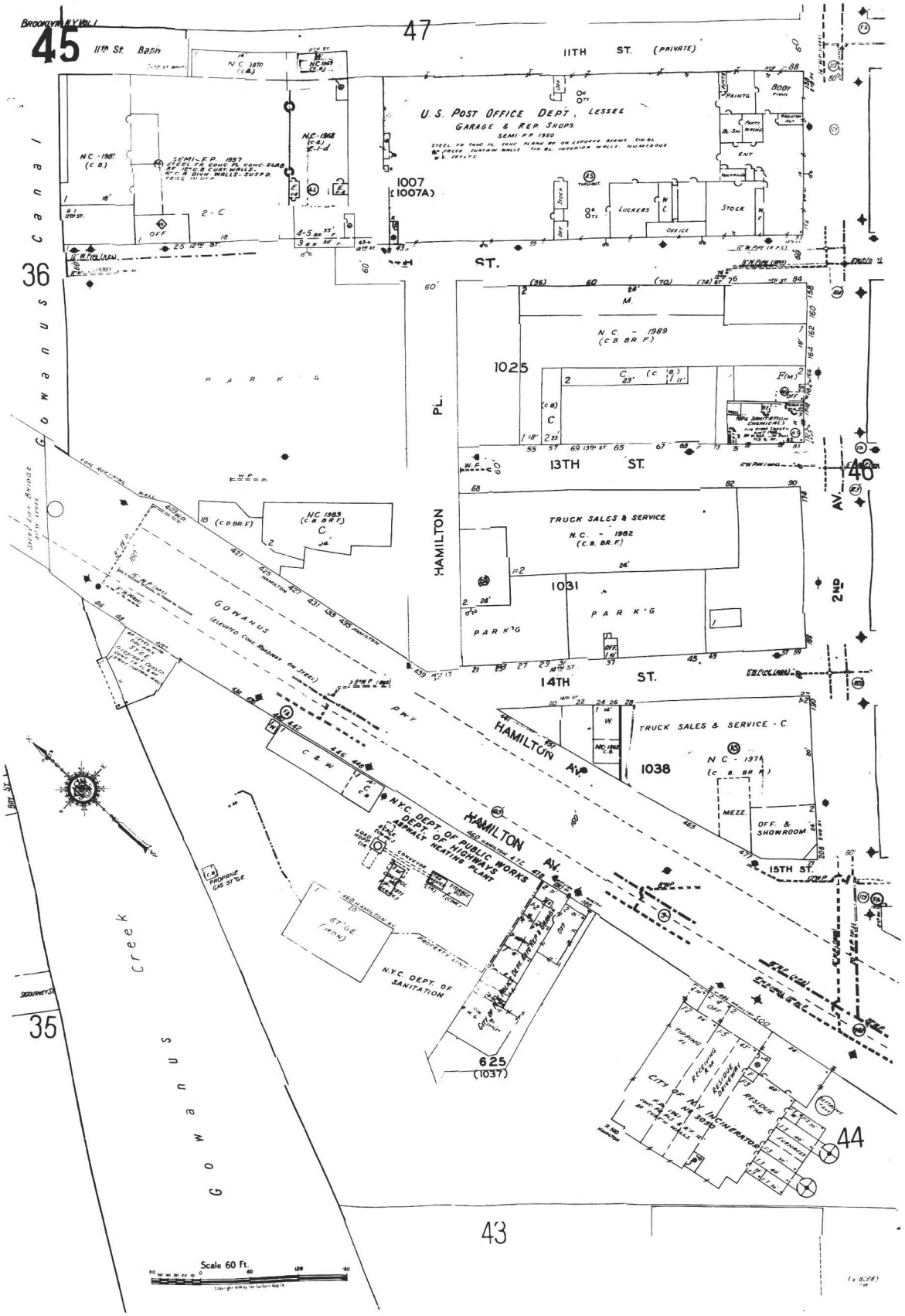

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Copyright:	1992

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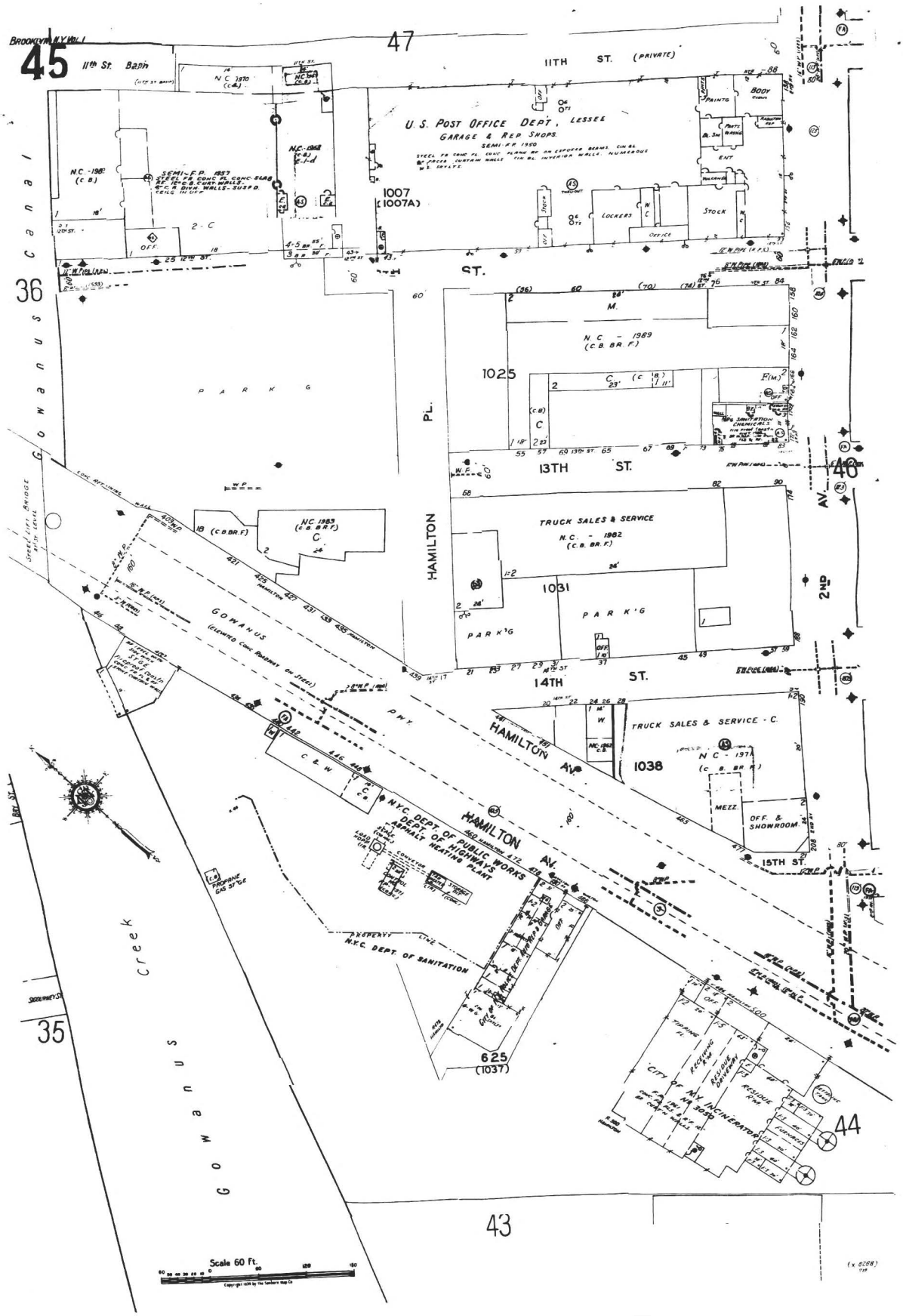

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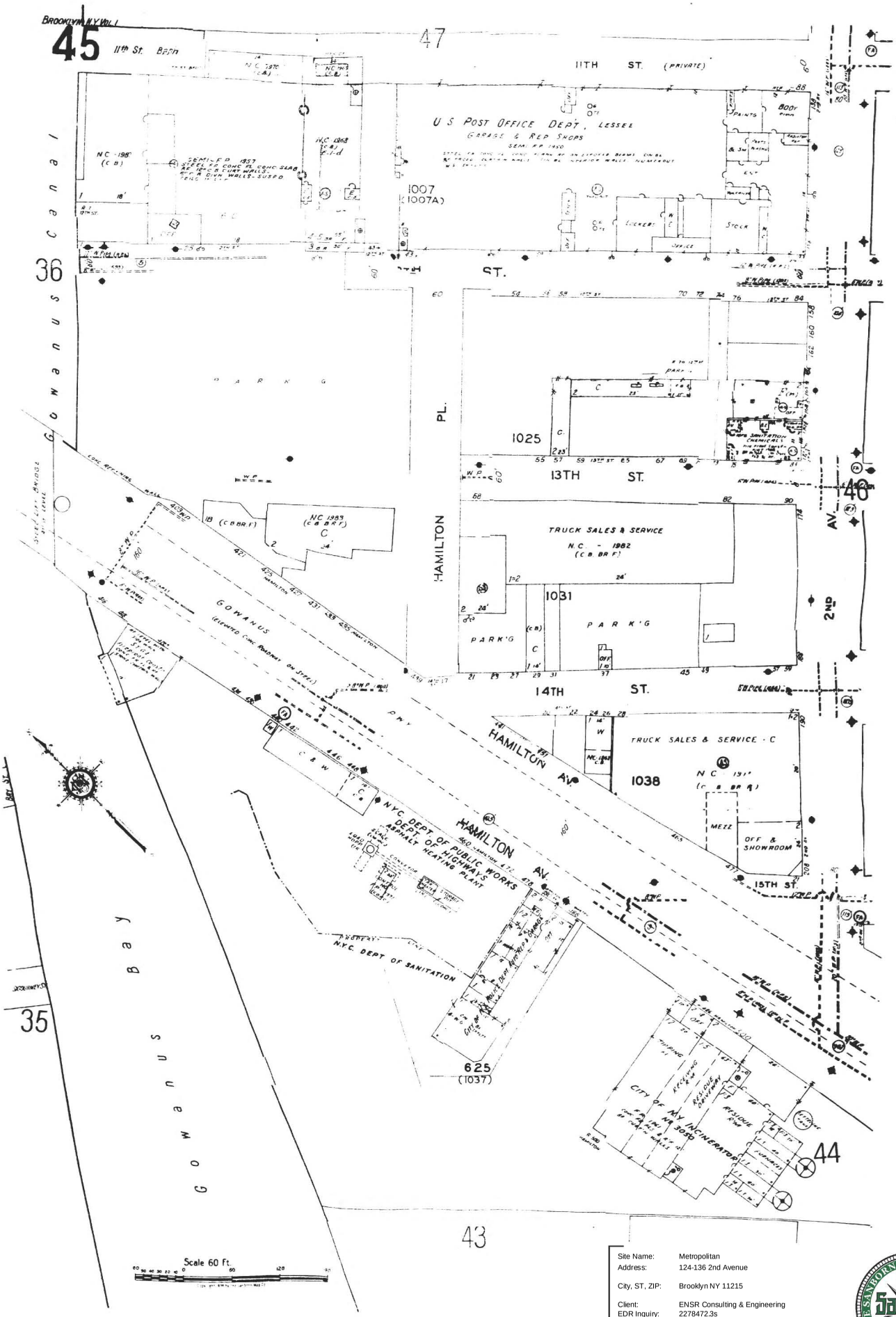
Copyright:	1991



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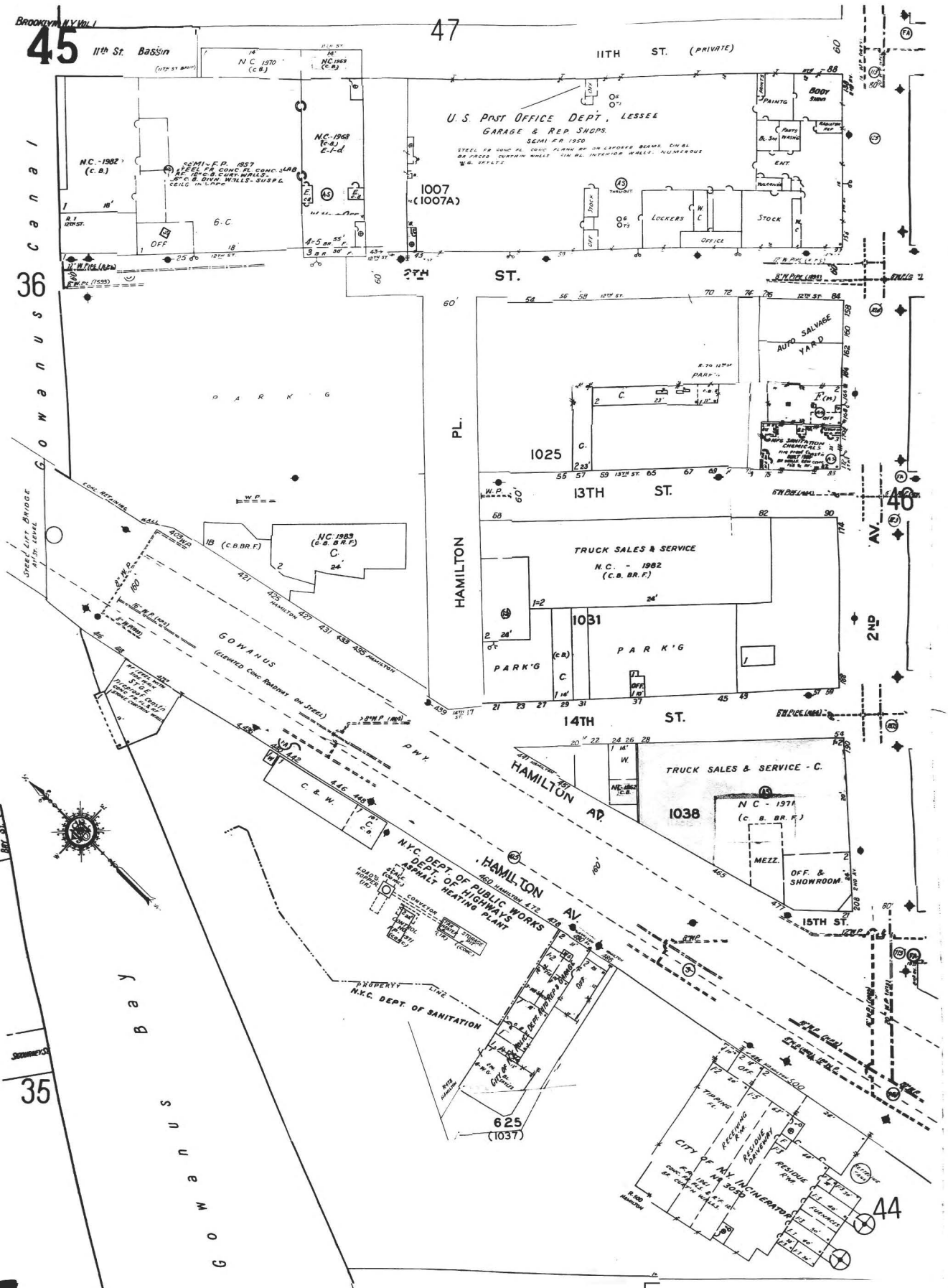

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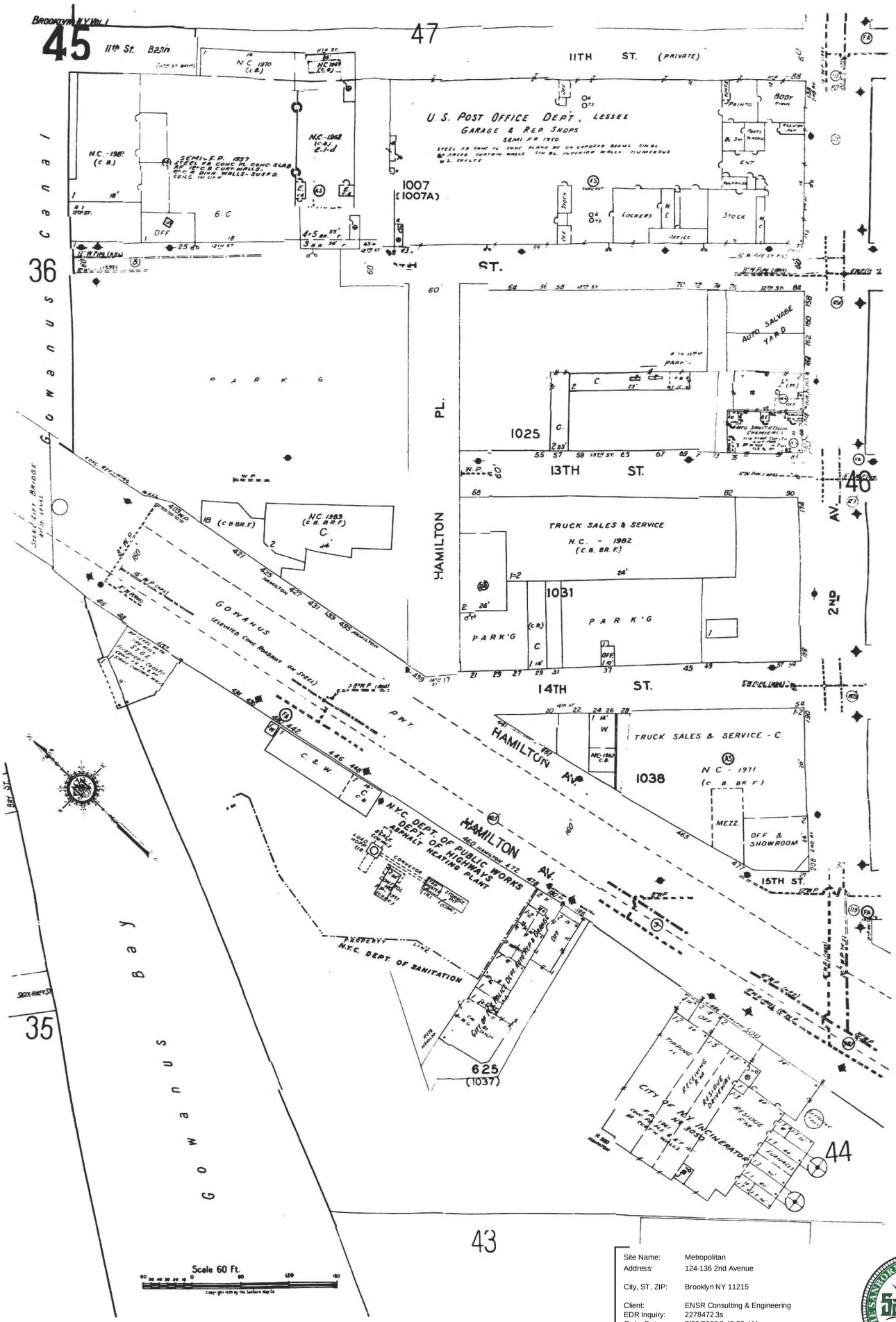
Copyright: 1987



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Copyright: 1986

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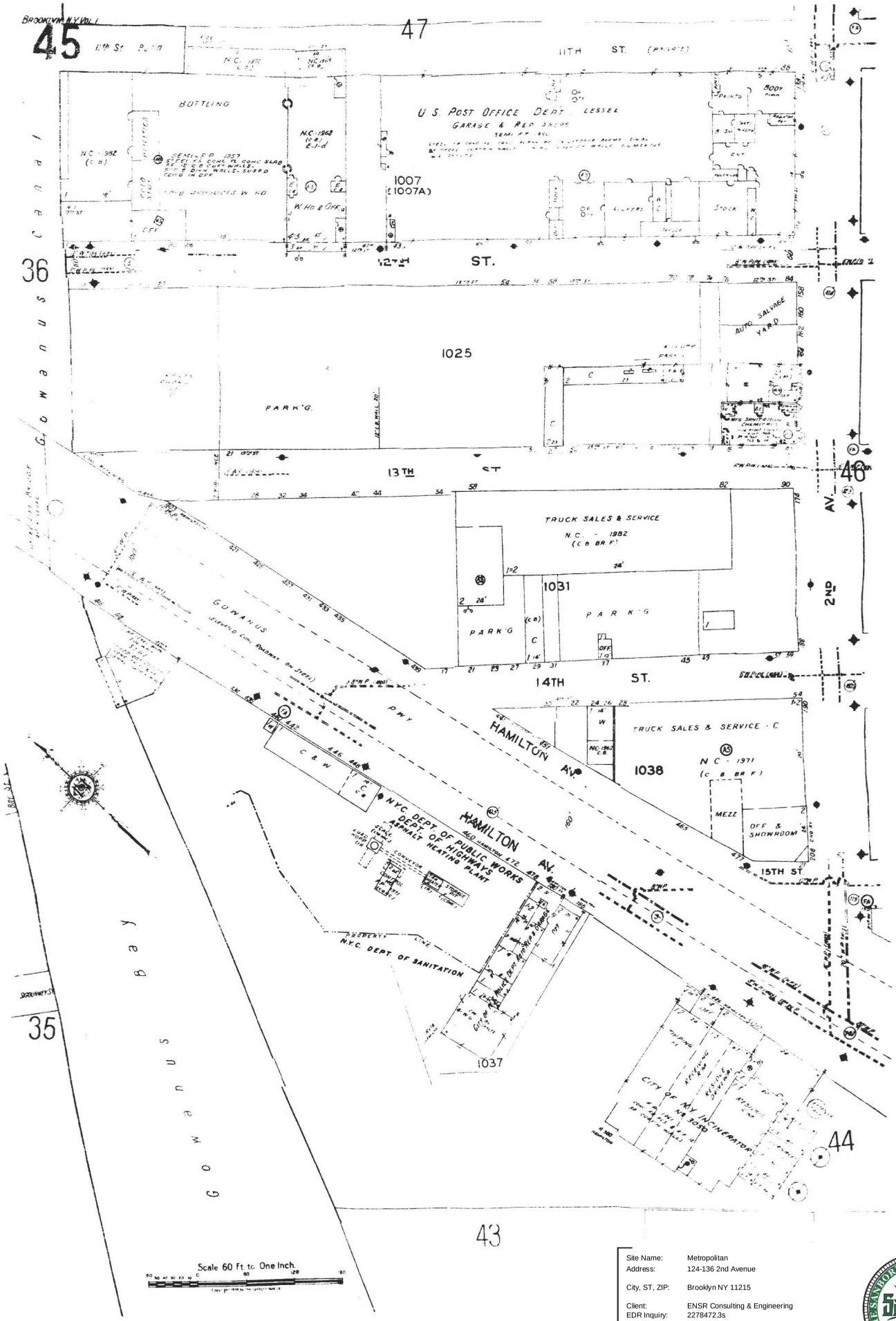

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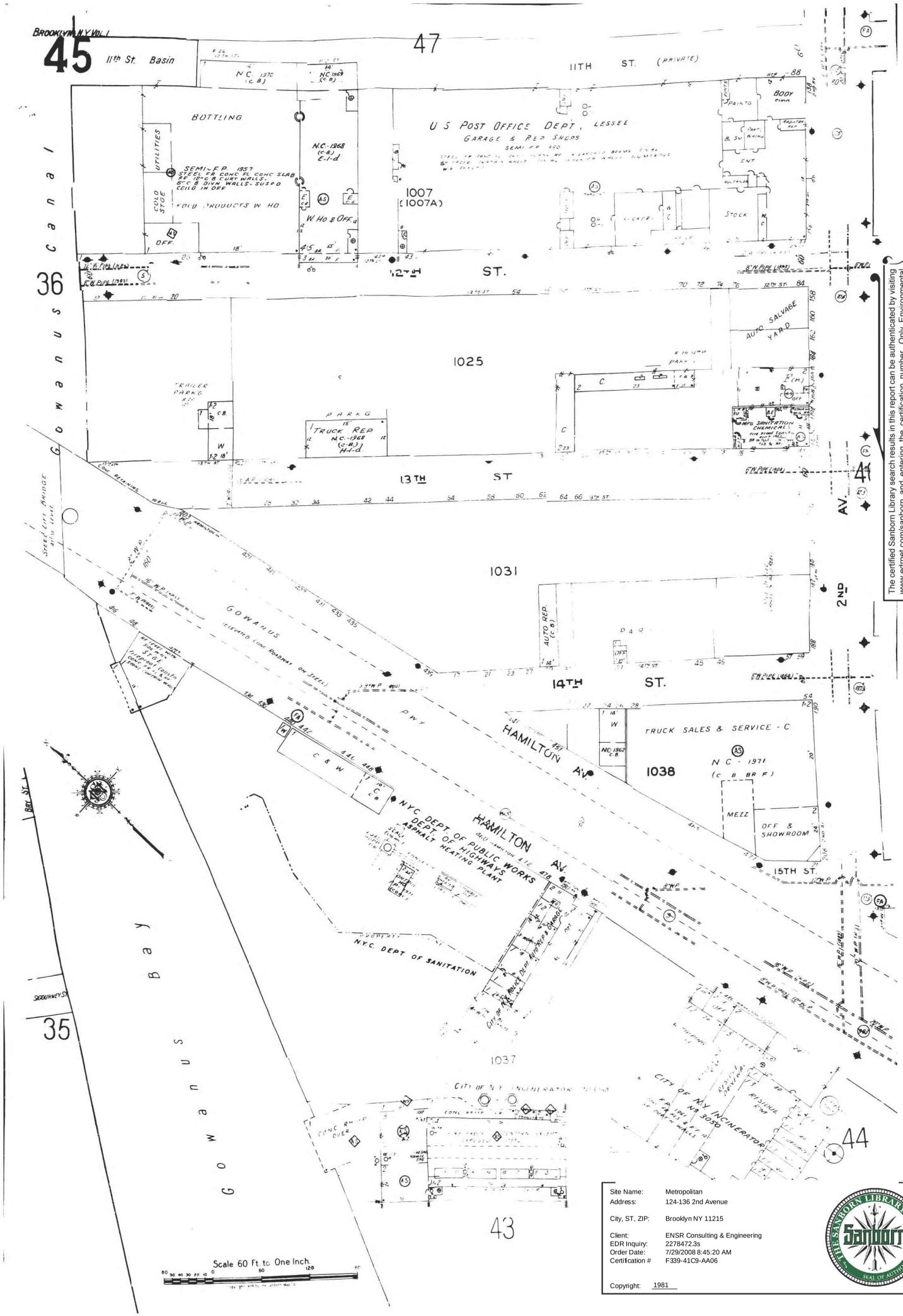
Copyright: 1982



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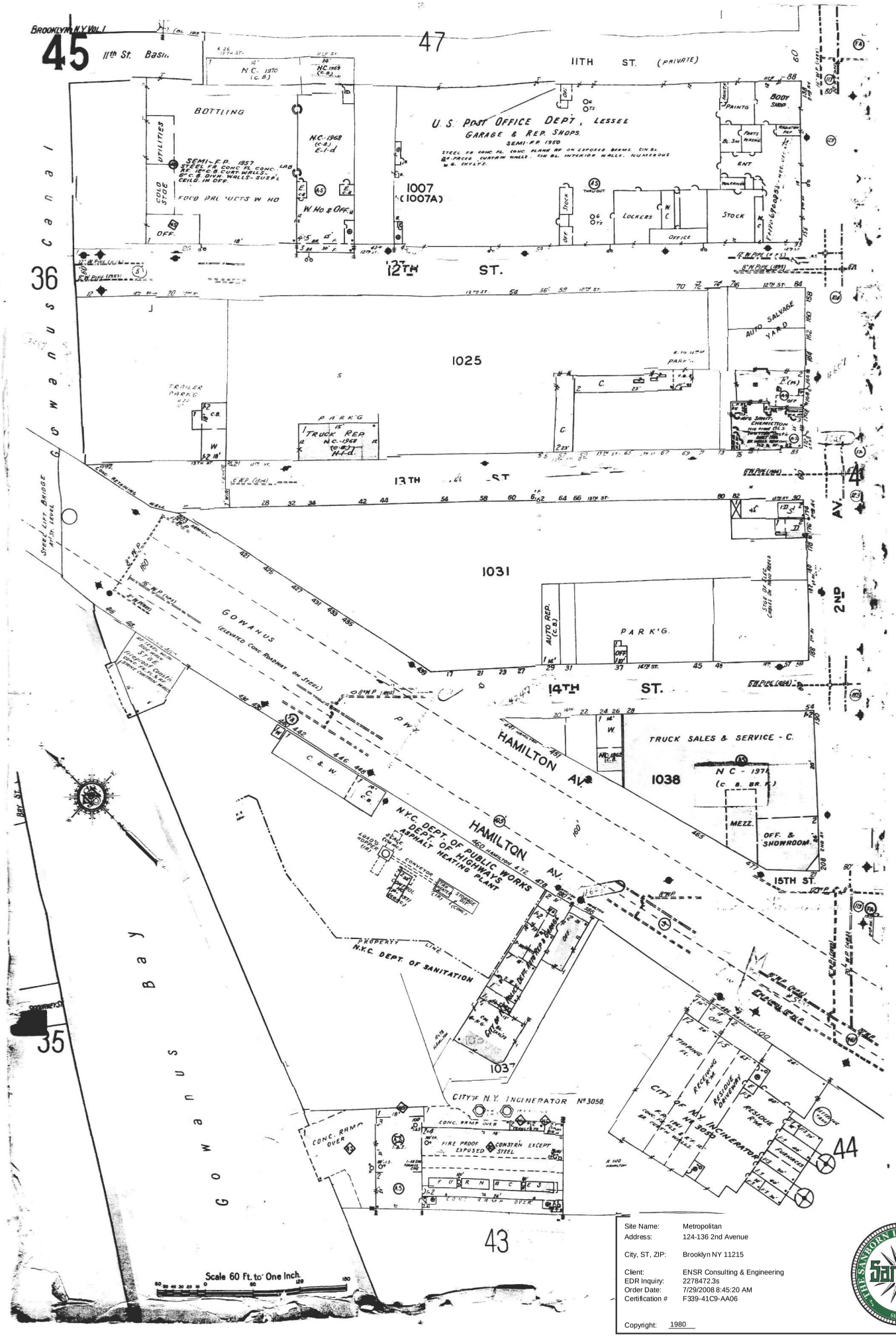
Copyright: 1981



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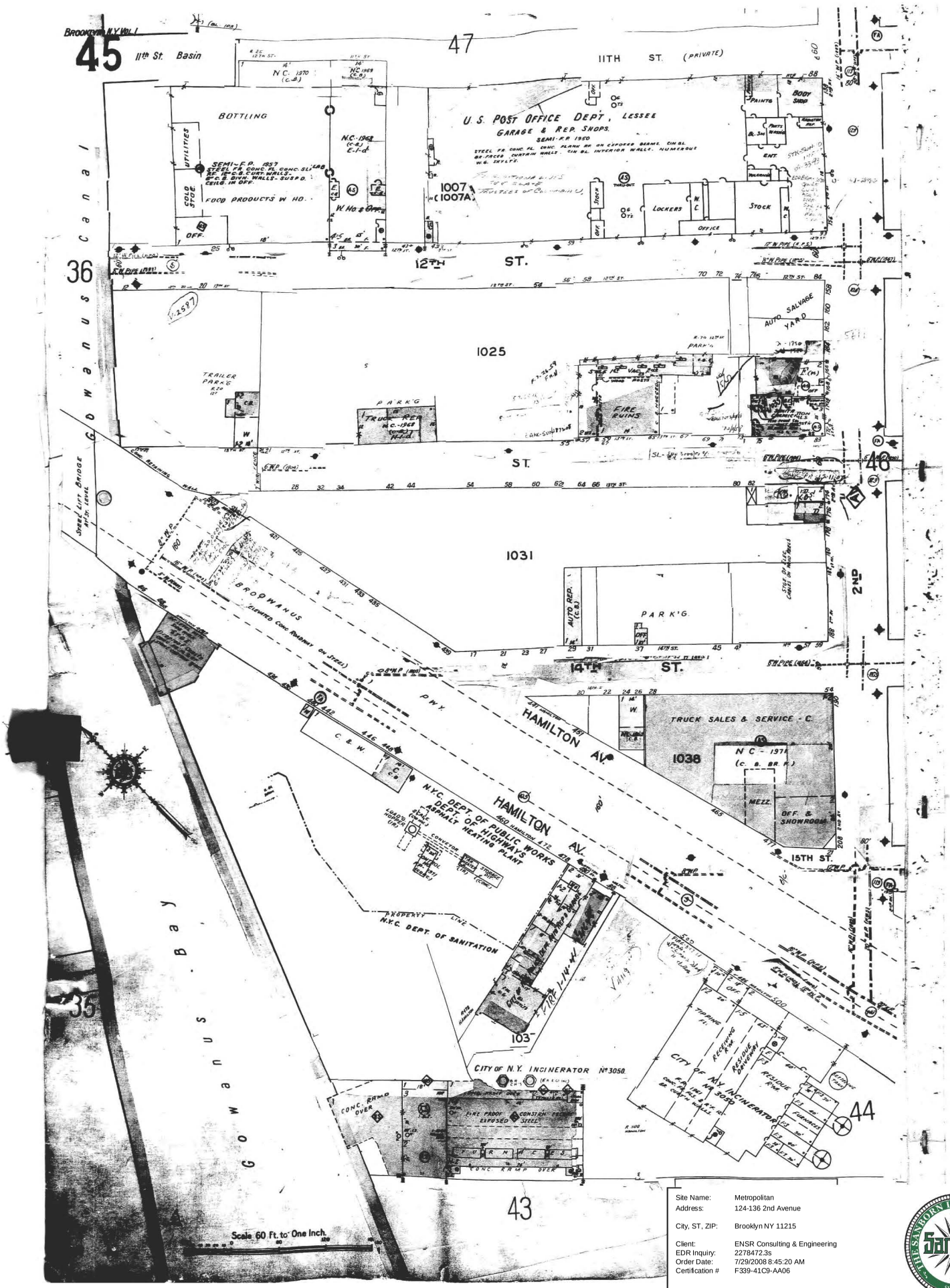

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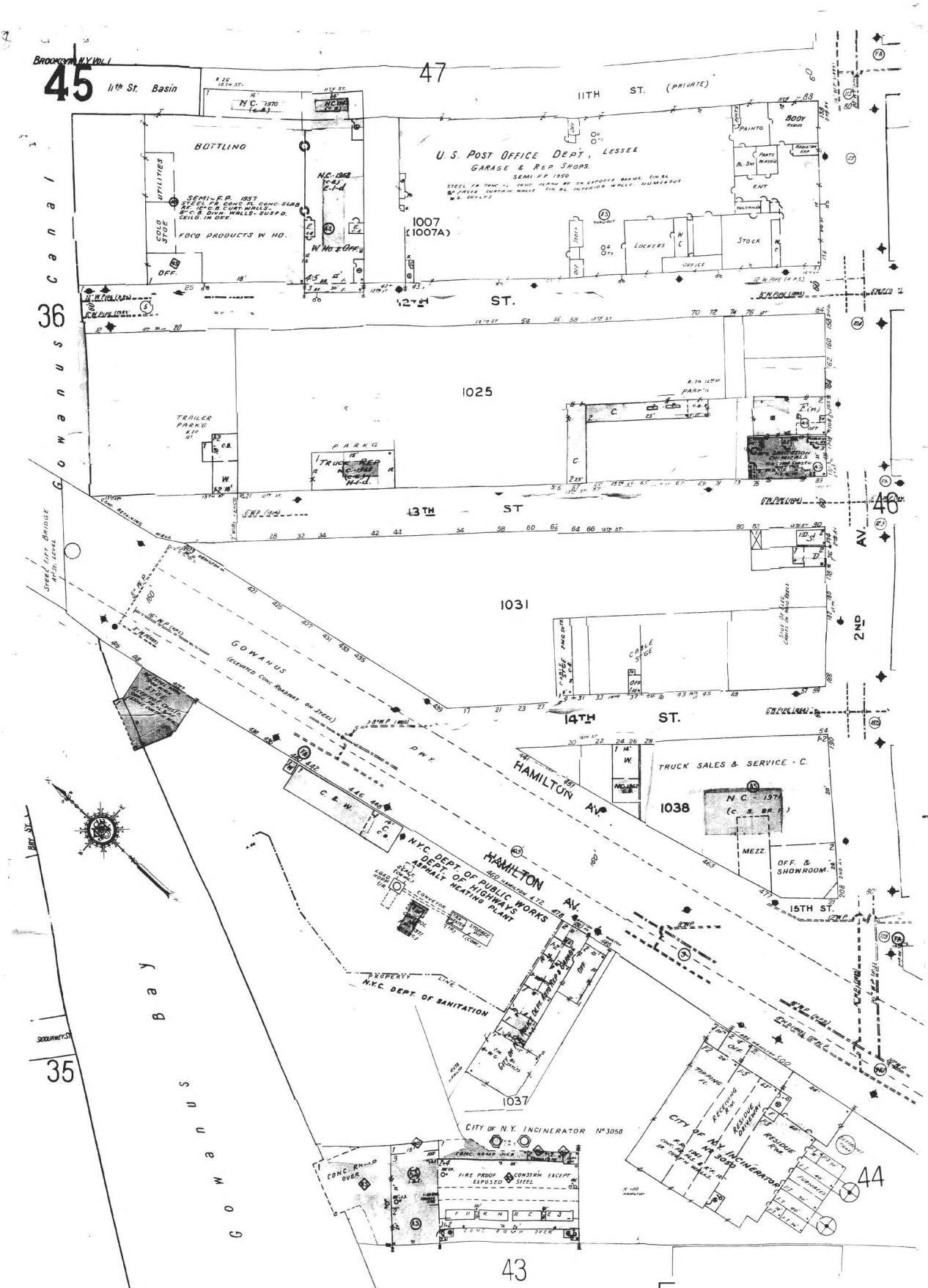

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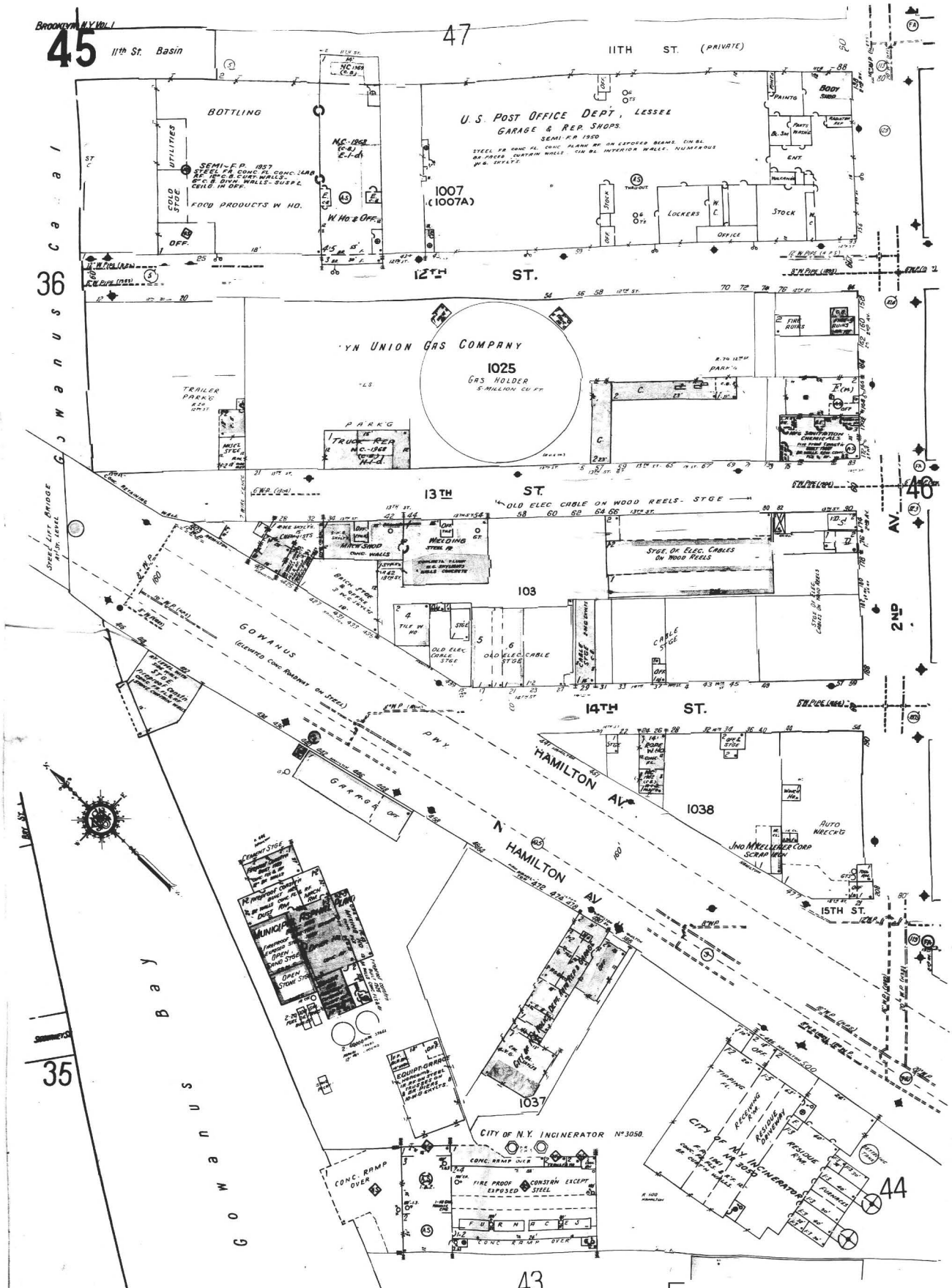

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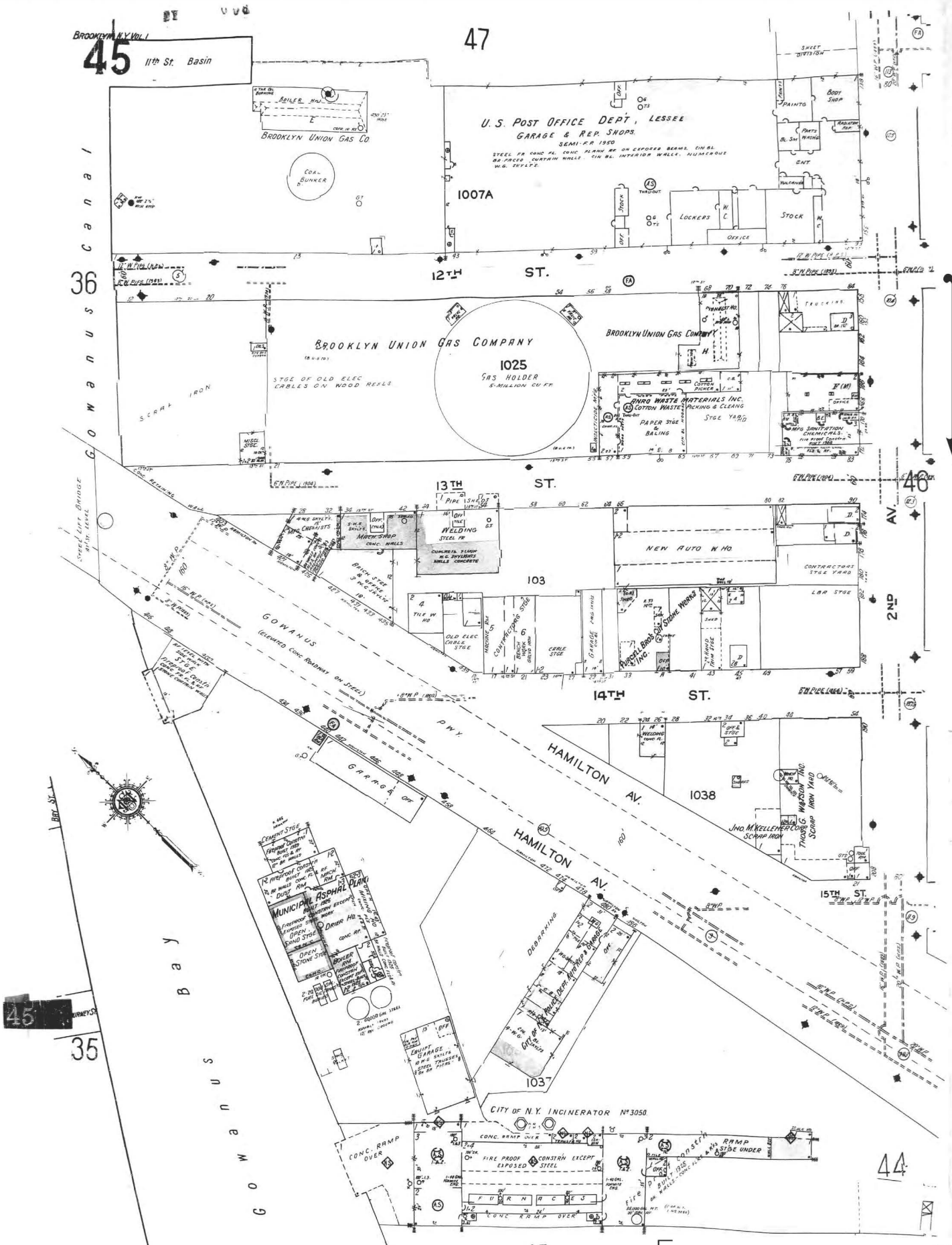
Copyright: 1969



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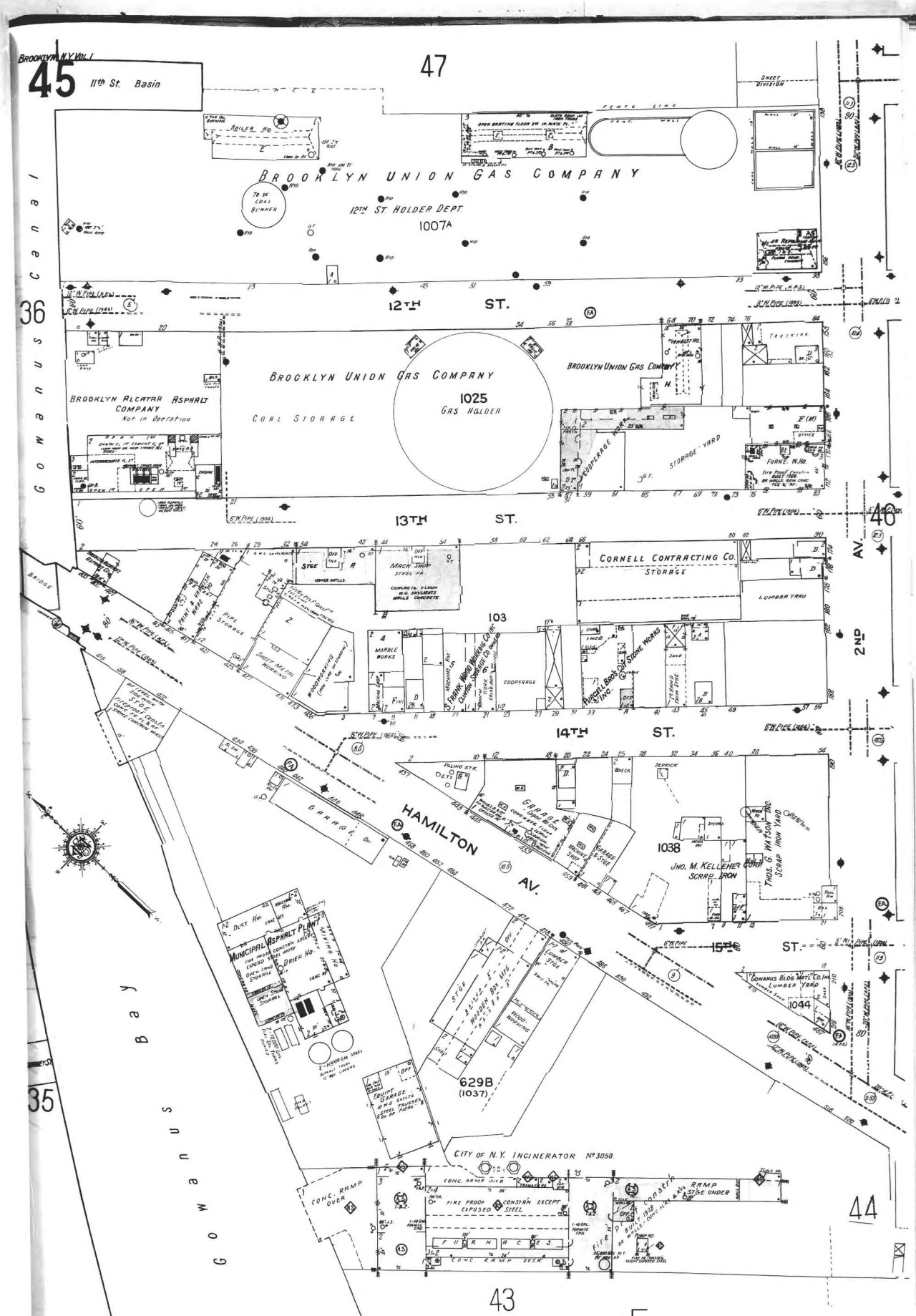
Copyright: 1950



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Copyright:	1938

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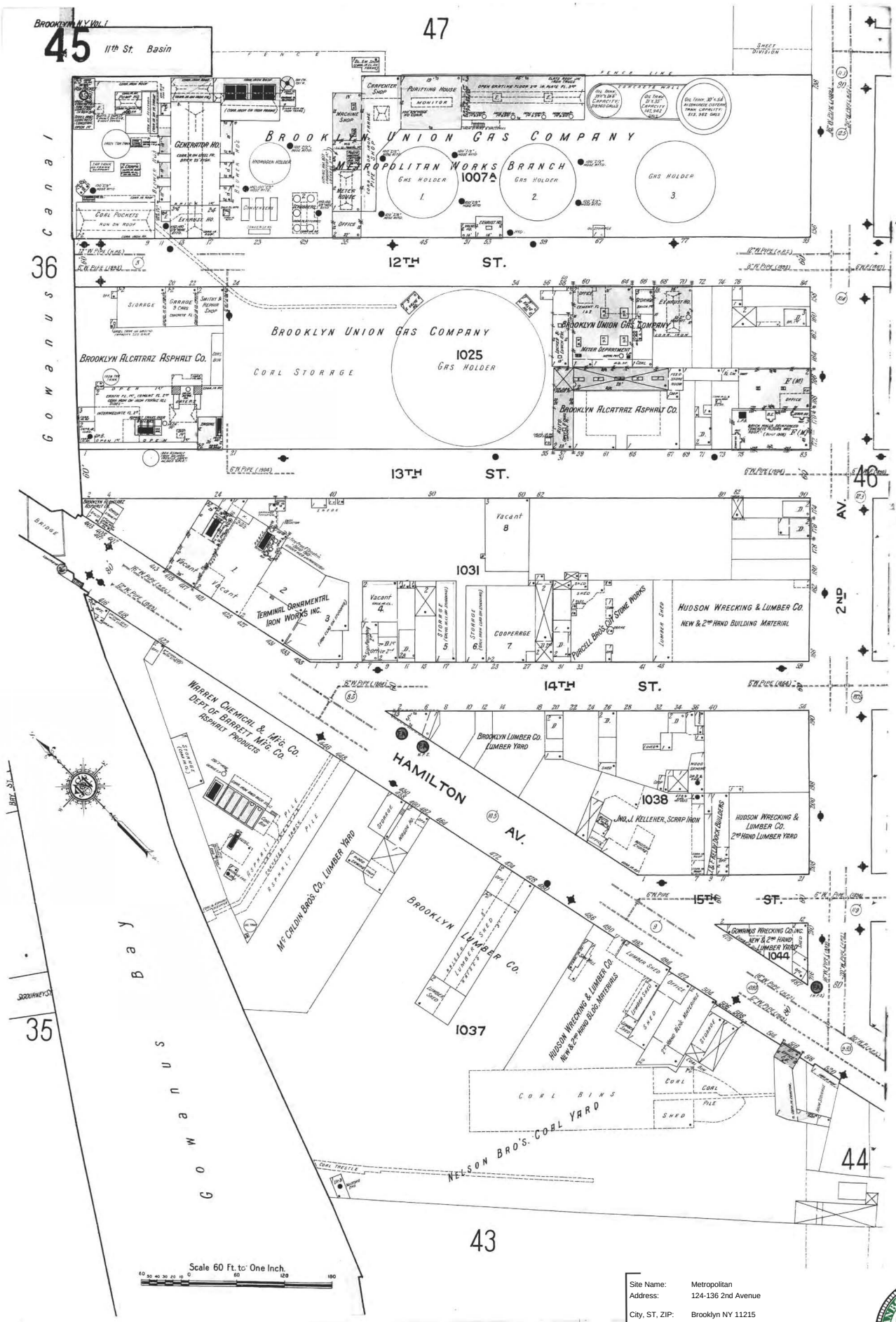

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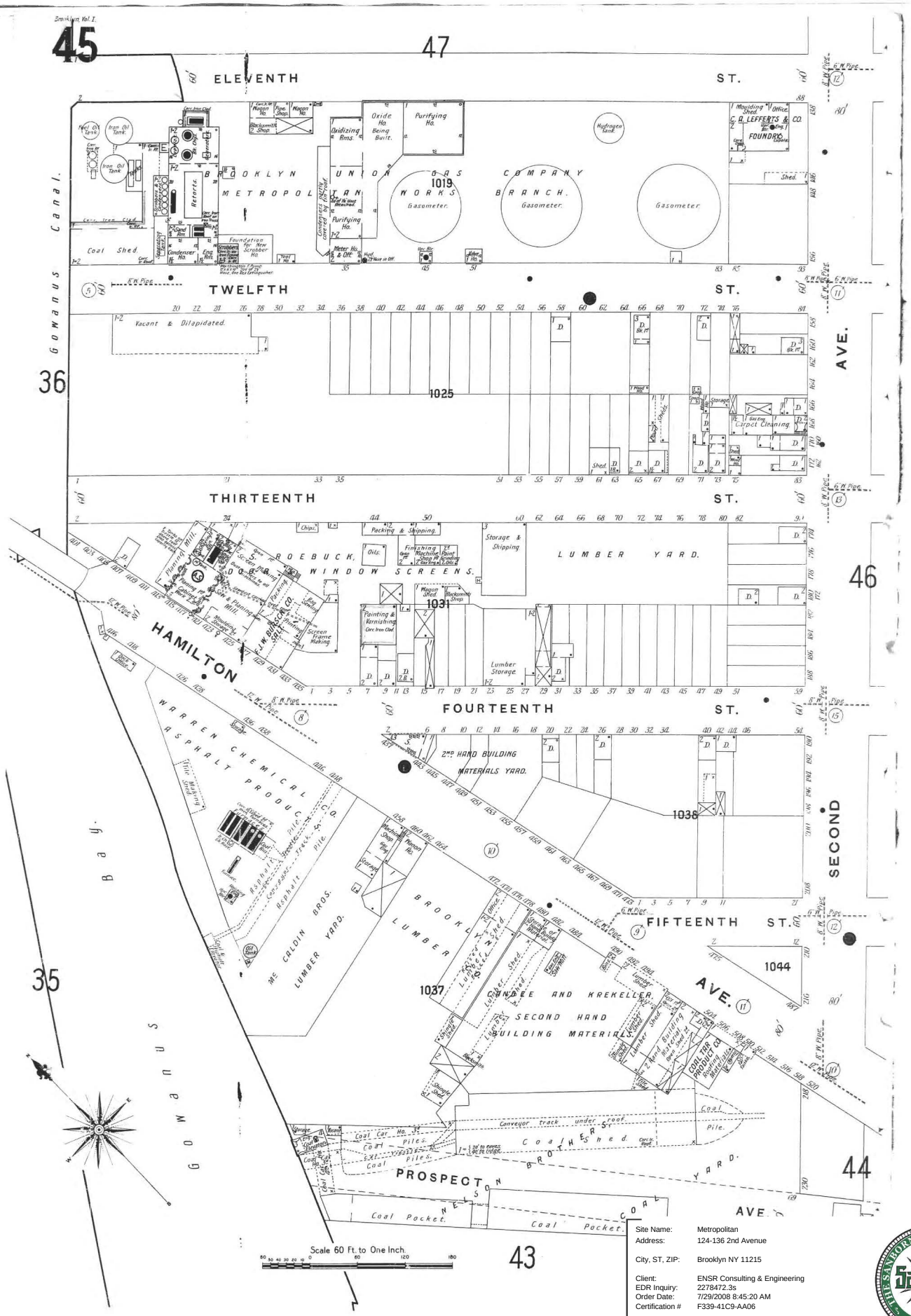
Copyright: 1915



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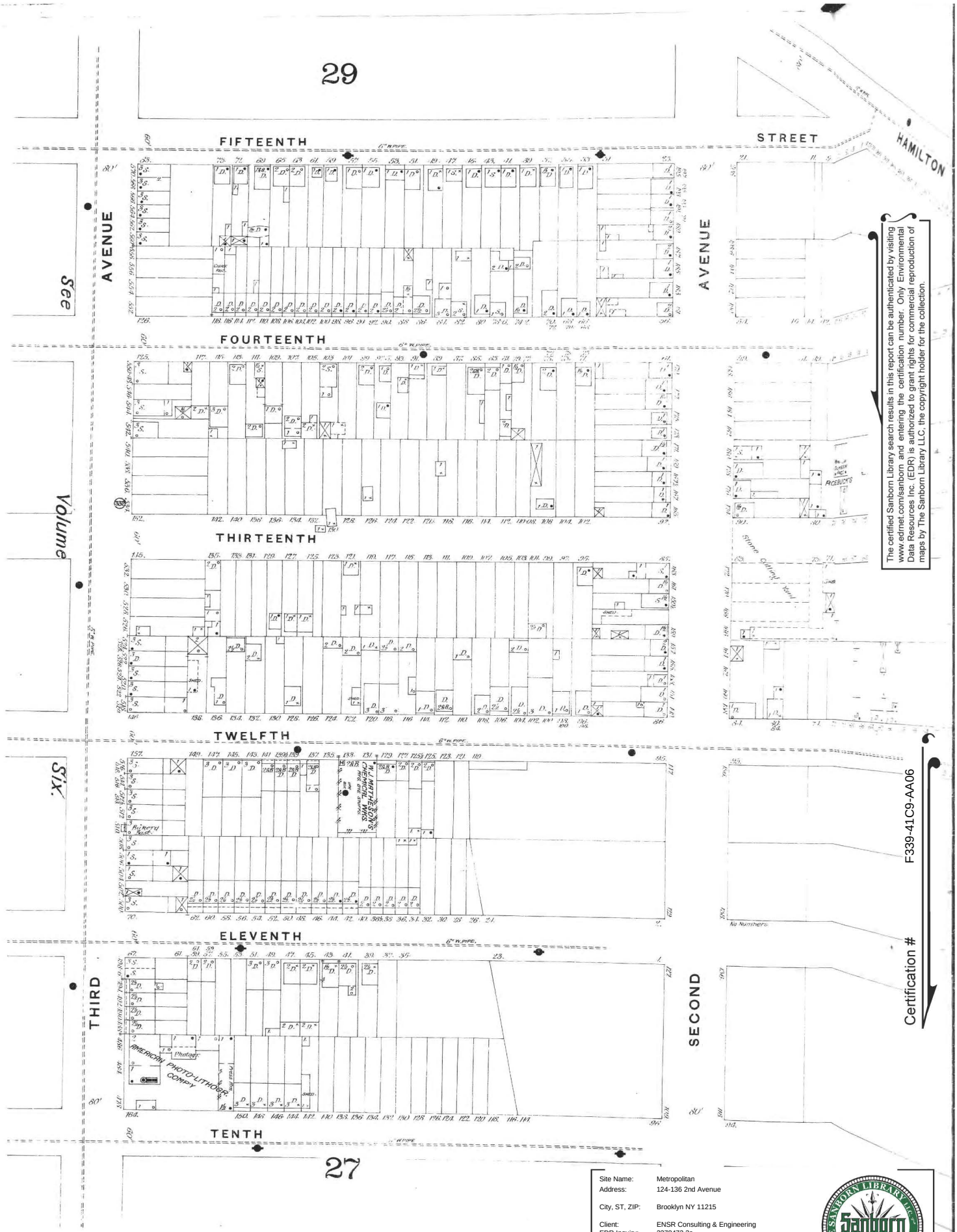
Copyright: 1904



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Copyright: 1886

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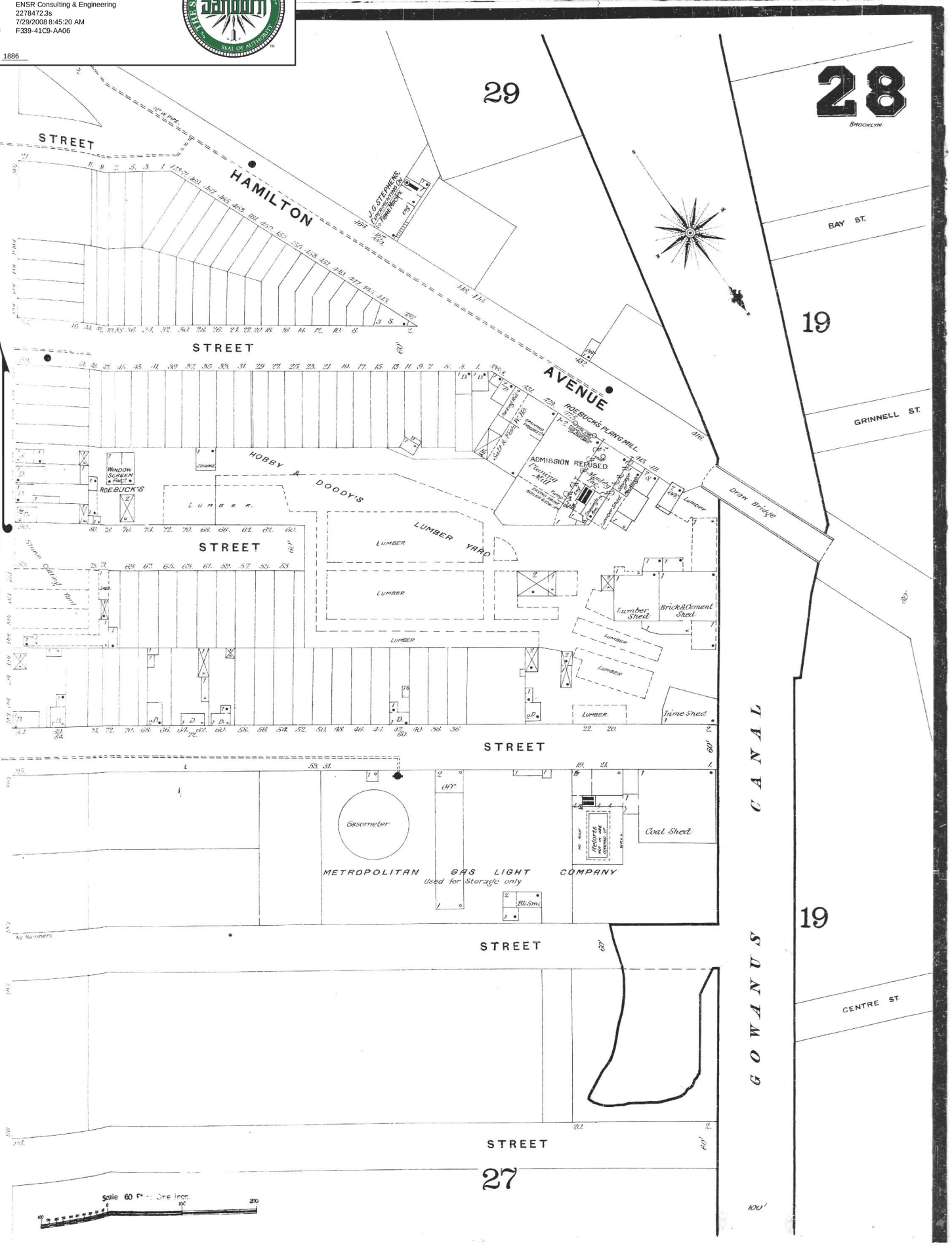

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SECO

Appendix B

Previous Investigation Boring Logs and Well Construction Logs

Mueser Rutledge Consulting Engineers Logs – 2002

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3
FILE NO. 9446
BORING NO. B-14
SURFACE ELEV.

PROJECT Lowe's Home Centre
PROJECT LOCATION Brooklyn NY
RES. ENGR. R. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
01/07/00 Wed. 20°Sep 1330							Drilled Ahead	Automatic Hammer 8" concrete surface 2" asphalt.
	10	1	10-6	Blk c-f sand, sm silt, tr. gl, wood (sm) (Fill)(Cinders)				
		3	3-2					
	20	3	3-3	Brn-blk m-f sand, sm silt, tr. gl.	(4)			
		5	3-3	Cinders (Fill)(sm)		5		
	30	5	2-2	DO-20 (Fill)(sm)			MW	
		7	1-1					
	40	7	2-1	DO-20 (Fill)(sm)				
		9	1-1					
1420						10		
01/07/01 Thurs. 20°F Cloudy 0640	50	10	WOH/12"	Gray-blk c-f sand, sm cinders, tr. silt, gl, tr. wd (Fill)(SP-sm)				
		12	1-1					
	60	12	WOH/12"	Gray-brn c-f sand, sm silt, cinders,				
		14	1-1	tr. brick (Fill)(sm)				
	70	14	2-1	Top(5") - DO - 60 (Fill)(sm)		14.7		
		16	1-2	Bot(16") - Stiff gray org. silty clay, tr. veg, f-sand (CH)	(6)			
	84	16	Push=24"	Soft gray org. silty clay, tr. f-sand, veg.				Sbu. Refusal Bot of Tube.
		18	Rec=24"	Peat (OH)				
	90	18	1-2	Top(6") - Brn Peat (Pt)		18.9		
		20	1-2	Bot(13") - Brn silty f-sand, tr. clay (sm)		20	↓	
	100	20	3-1	DO-90 (Bot) (sm)				
		22	3-3					
						25		
	110	25	7-7	Gray m-f sand, sm silt (sm)				
		27	9-11					
						30		
	120	30	2-4	Top(3") - Gray silty f-sand, tr. clay (sm)	(5)			
		32	8-12	Bot(6") Brn m-f sand, tr. silt (SP-sm)				
						35		
	130	35	8-16	Brn m-f sand, tr. silt (SP-sm)				
		37	13-15					
						40		
	140	40	5-6	DO-120, tr. gl (SP-sm)				
		42	6-5					
						45		
	150	45	1-1	Brn clayey silt, sm f-sand, tr. mica (ML)				
		47	1-1					
						48.5		
						50		
	160	50	11-14	Red-brn f-c sand, tr. silt, gl, silt lenses (SP-sm)	(7)			
		52	14-12					

BORING NO. B-14

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 2 OF 3
FILE NO. 9446
BORING NO. R-1
SURFACE ELEV.

PROJECT Lowe's Home Cntr.
PROJECT LOCATION Brooklyn NY
RES. ENGR. E. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
						55		
170	55	12-14		Top(6") - Brn C-f sand, Tr silt, silt (Sp-Sm)				
	57	14-15		Bot(11") - Red-Brn silty, f-sand, Tr mica (Sm)				
					T	60		
180	60	8-21		Brn silty f-m sand, tr gvl (Sm)				
	62	19-13						
						63		Hand drilling @ 63 FT.
					B	64		
						65		
190	65	15-21		Red-Brn C-f sand, sm gvl, Tr silt (Sp-Sm)				
	67	24-34						Hand drilling @ 67.5
						67.5		
					B	68.5		
						70		
200	70	33-34		Red Brn f-m sand, sm silt, gvl (Sm)				
	71.6	36-100/1"				71.6		
					B			
						73.5		
						75		
210	75	40-34		Red Brn C-f sand, sm silt, gvl (Sm)				
	77	35-35						
						80		
220	80	23-30		200-210 (Sm)				
1330	82	40-31				82		E.O.B @ 82 FT.

BORING NO. R-1

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B14
SHEET 3 OF 3
FILE NO. 9446
SURFACE ELEV.
DATUM

PROJECT Lowe's Home Center
LOCATION Brooklyn NY
BORING LOCATION

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	CME75	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM 0	TO 20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. split spoon
U-SAMPLER Shelby Tube
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 4 7/8, 3 7/8, 2 15/16"
TYPE OF DRILLING MUD Quik Gel

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					No observation

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. 79.1	NO. OF 3" SHELBY TUBE SAMPLES	—
3.5" DIA. U-SAMPLE BORING	LIN. FT. —	NO. OF 3" UNDISTURBED SAMPLES	—
CORE DRILLING IN ROCK	LIN. FT. —	OTHER: obstructions (boulders)	2.9

BORING CONTRACTOR JRD Co.
DRILLER M. Rivas HELPERS T. Sutton / D. Keith
REMARKS Grouted borehole upon completion
RESIDENT ENGINEER E. Nunez DATE 01/04/01

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. B-14

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3
FILE NO. 9446
BORING NO. B2
SURFACE ELEV.

PROJECT Lowe's Home Cntr
PROJECT LOCATION Brooklyn, NY
RES. ENGR. R. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
01/03/01 WED. 0940 18°F clear	1D	1	12-9	Blk f-m sand, sm silt, Tr. gvl, cinders (fill) (SM)			Drilled	Safety Hammer
		3	6-3				Ahead	1'± Asphalt at surface and cobble stone.
	2D	3	5-6	DO-1D (fill) (SM)				
		5	4-4					
					F	5		
	3D	5	3-1	gray m-f sand, sm gvl, silt, Tr. cinders (fill) (SM)				Petroleum odor.
		7	2-2					
	4D	7	3-9	DO-3D (fill) (SM)				
		9	10-11					
						10		
	5D	10	4-1	DO-3D (fill) (SM)				R=3"
		12	1-1					
	6D	12	3-3	Top (1") - Blk cinders, Tr. gvl (fill) (cinders)				R=5" Petroleum odor
		14	2-2	Bot (4") - Brn Peat		13.7		sheen
						15		
	7D	15	3-2	soft gray org silty clay, Tr. veg. (OH)	O			
		17	1-1					
	8D	17	2-2	Top (16") - DO-7D (OH)				
		19	4-4	Bot (6") - Brn Peat (Pt)		19.5		
						20	▽	
	9D	20	2-4	gray f-sand, sm silt, Tr. mica (SM)				
		22	4-5		S			
						25		
	10D	25	8-9	Gray-Brn m-f sand, Tr. silt (SP-SM)				
		27	17-13					
						28.5		
						30		
	11D	30	3-4	stiff gray clayey silt, Tr. f-sand (MH)	M			
		32	7-7					
						33.5		
						35		
	12D	35	12-15	Brn m-f sand, Tr. silt (SP-SM)	S			
		37	25-20					
						40		
	13D	40	10-10	DO-12D (SP-SM)				
		42	17-14					
						45		
	14D	45	12-13	Gray Brn f-sand, Tr. silt (SP-SM)				
		47	15-7					
						50		
	15D	50	12-18	Brn m-f sand, Tr. silt, gvl (SP-SM)				
		52	21-23					

BORING NO. B2

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 2 OF 3
FILE NO. 0446
BORING NO. B-2
SURFACE ELEV.

PROJECT Lowe's Home Ctr
PROJECT LOCATION Brooklyn NY
RES. ENGR. R. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	160	55	30-43	Red f-c sand, Tr. silt (Sp-Sm)	(S)	55		
		57	55-56					
						58.5		
						60		
	170	60	47-42	Red-Brn f-c sand, sm gvl, silt (Sm)				
145		62	75-71					
01/04/01 Thurs. 20's of cloudy 0645					(T)			
	180	65	100/6"	Red Brn f-m sand, sm silt, gvl (Sm)		65		R-2"
		65.5						
						70		
	190	70	28-29	Red Brn f-c sand, Tr. silt, gvl (Sp-Sm)				
		72	30-34					
						75		
	200	75	30-38	Red-Brn c-f sand, sm gvl, Tr. silt (Sp-Sm)				
		77	42-43					
						80		
	210	80	24-31	Red-Brn f-m sand, sm silt, Tr. gvl, mica (Sm)				
		82	37-43					
						85		
	220	85	30-33	DO-210 (Sm)				
			35-35					
						90		
	230	90	30-35	Red-Brn silty f-m sand, Tr. gvl, clay (Sm)				
		92	51-44					
						95		
	240	95	25-32	DO-230 (Sm)				
		97	41-53					
						100		
	250	100	37-33	Red-Brn c-f sand, Tr. silt (Sp-Sm)				
1230		102	40-34			102		E.O.B @ 102 FT.

BORING NO.

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B-2
SHEET 3 OF 3
FILE NO. 9446
SURFACE ELEV.
DATUM

PROJECT Lowe's Home Center
LOCATION Brooklyn, NY
BORING LOCATION

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	CHESS	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM 0	TO 20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" OD. split spoon
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 4 7/8, 3 7/8"
TYPE OF DRILLING MUD Quik-gel

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					No observation

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. 82.6	NO. OF 3" SHELBY TUBE SAMPLES	—
3.5" DIA. U-SAMPLE BORING	LIN. FT. —	NO. OF 3" UNDISTURBED SAMPLES	—
CORE DRILLING IN ROCK	LIN. FT. —	OTHER:	—

BORING CONTRACTOR JBD
DRILLER R. Lynch HELPERS E. Feliciano
REMARKS Grouted borehole upon completion.
RESIDENT ENGINEER R. Nunez DATE 01/04/01

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3
FILE NO. 9446
BORING NO. B-3
SURFACE ELEV.

PROJECT Lowe's Home Center

PROJECT LOCATION Brooklyn NY RES. ENGR. R. NUNEZ

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
01/02/01	1D	0	76-45	Brn m-f sand, sm silt, Tr. brick, gvl (fill)(sm)			Drilled	2"± asphalt surface
Thus.		2	27-24				Ahead	
clear	2D	2	15-19	DO-1D, Tr. cinders (fill)(sm)				Automatic Hammer
windy		4	10-9					
18°F	3D	4	5-5	gray-brn m-f sand, sm silt, Tr. veg (fill) (sm)	(F)	5		
5°F		6	3-3					
wind chill	4D	6	3-2	gray blk m-f sand, Tr. silt, cinders, shells, ceramic (fill)(sp-sm)				R=3" sample saturated w/water.
		8	1-1					
	5D	8	1-2	gray blk m-f sand, sm silt, Tr. gvl, veg, cinders, shells (fill)(sm)				
		10	3-3			10	MUD	
	6D	10	2-2	gray blk m-f sand, Tr. gvl, silt, shells, cinders, brick (fill)(sp-sm)				
		12	1-2					
	7D	12	1-2	DO-6D (fill)(sm)				
		14	1-1					
						15		
	8D	15	1-1	Top (8") gry-brn silty f-sand, Tr. veg (fill)(sm)		15.7		
		17	2-2	BOT (16") - BRN Peat (Pt)	(Pt)			
	9D	17	2-2	DO-8D BOT. (Pt)				
		19	2-3					
						19.5		
	10D	20	1-2	Brn f-sand, sm silt (sm)				
		22	3-3		(S)			
						25		
	11D	25	6-8	Brn m-f sand, Tr. silt, c. sand (sp-sm)				
		27	9-8					
						30		
	12D	30	3-3	gray-brn m-f sand, sm silt (sm)				
		32	6-4					
						35		
	13D	35	3-5	gray-brn silty f-m sand, Tr. mica (sm)				
		37	5-5					
						40		
1415	14D	40	5-6	gray-brn m-f sand, Tr. silt (sp-sm) Tr. mica				
1/03/01		42	9-9					
0700						45		
wed.	15D	45	5-5	DO-14D (sp-sm)				
3°F		47	5-7					
clear						50		
	16D	50	7-10	Brn f-c sand, sm gvl, Tr. silt (sp-sm)				
		52	14-15					

BORING NO. B-3

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 2 OF 3
FILE NO. 9446
BORING NO. B-3
SURFACE ELEV.

PROJECT Lowe's Home Cntr
PROJECT LOCATION Brklyn, NY
RES. ENGR. R. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
					S			
						53.5		
						55		
	17D	55	16-11	Red-Brn f-c sand, sm grl, silt (SM)	T			
		57	21-40					
						60		
	18D	60	21-17	DO-17D (SM)				
		62	16-20					
						65		
	19D	65	21-17	DO-17D (SM)				
		67	25-42					
						70		
	20D	70	31-19	Red-Brn f-c sand, sm grl, tr. silt (SM)				
		72	25-24					
						75		
	21D	75	29-24	Red-Brn f-c sand, sm grl, silt (SM)				
		77	30-34					
						80		
	22D	80	15-15	DO-21D (SM)				
13 hours		82	24-36			82		E.O.B @ 82 FT.

BORING NO. [illegible]

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B-3
SHEET 3 OF 3
FILE NO. 9440
SURFACE ELEV.
DATUM

PROJECT Lewis Home Center
LOCATION Brooklyn ny
BORING LOCATION

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	CME 75	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM 0	TO 20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. split spoon
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3 7/8", 5 7/8", 2 15/16"
TYPE OF DRILLING MUD Quik Gel

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
01/02/01		8	5	7	observed sample 40 saturated with water

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. 82	NO. OF 3" SHELBY TUBE SAMPLES	—
3.5" DIA. U-SAMPLE BORING	LIN. FT. —	NO. OF 3" UNDISTURBED SAMPLES	—
CORE DRILLING IN ROCK	LIN. FT. —	OTHER:	—

BORING CONTRACTOR JBD Co.
DRILLER M. Burgwas HELPERS D. Keith / Terry Fulton
REMARKS Grouted borehole upon completion.
RESIDENT ENGINEER Z. Nunez DATE 01/03/01

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. B-3

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 5
FILE NO. 9446
BORING NO. B4U
SURFACE ELEV.

PROJECT Lowe's Home Center

PROJECT LOCATION Brooklyn NY RES. ENGR. R. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
01/10/01 WED. 25°F windy 0645					CONS.		Drilled	7" ± Bone. slab.
	1D	1	3-4	BRN M-f SAND, Tr. gvl, silt, cinders,			AHEAD	
		3	6-7	Brick (fill) (sp-sm)				
	2D	3	9-9	Blk-Brn M-f SAND, SM silt, Tr. wood,	(F)			
		5	12-21	cinders, Brick (fill) (sm)		5		Rope broke changed
	3D	5	19-25	Blk M-f SAND, SM gvl, silt, Tr. cinders			MUD	Rope for Hammer.
		6-4	100/5"	Brick (fill) (sm)				3D-Rock frag. in the
	4D	7	8-4	Blk M-f SAND, SM cinders, silt, Tr. gvl,				tip of the spoon.
		9	5-15	Brick (fill) (sm)				
						10		
	5D	10	14-4	No Recovery				2nd attempt no
		12	4-4					Recovery, new trap.
	6D	12	4-1	No Recovery				
		14	3-1					
						15		
	7D	15	7-6	Blk gravel, Tr. wood (fill) (sp) (cinders)				Possible wash, R=1"
		17	11-6					
	8D	17	7-4	Blk M-f SAND, SM cinders, Tr. gvl, silt				Petroleum odor, sheen
		19	4-3	(fill) (sp-sm)				
						20		
	9U	20	P-24"	soft gray org. silty clay, Tr. f SAND (OH)				
		22	R=21		(O)			
	10D	22	WOH/24"	DO-9U (OH)				
		24						
						24.5		
	11D	25	WOH-5	Brn silty f-SAND, Tr. mica (sm)	(S)			
		27	6-7					
						30		
	12D	30	15-20	Brn gray M-f SAND, Tr. silt (sp-sm)				
		32	22-23					
						33.5		
				stiff.		35		
	13D	35	9-6	gray org. silty clay, sm f-SAND, Tr. mica (OH)	(O)			P.P.=1.0 T.S.F.±
1400		37	7-11					
01/11/01 THURS. 32°F 0645 windy cloudy	14U	37	P=12"	Top-DO-13D (OH)				Tube stopped @ 38 FT.
		38	R=12"	Bot. stiff gray silt and M-f SAND, Tr. clay		39		
				(Mtl & sp-sm)		40		
	15D	40	32-40	Brn M-f SAND, Tr. silt, Mica (sp-sm)				
		42	41-29					
					(S)	45		
	16D	45	12-13	DO-15D (sp-sm)				
		47	18-12					
						50		
	17D	50	13-11	DO-15D (sp-sm)				
		52	16-14					

BORING NO. B4U

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 2 OF 3
FILE NO. 9442
BORING NO. B-44
SURFACE ELEV.

PROJECT Lowe's Home Center

PROJECT LOCATION Brooklyn, NY RES. ENGR. E. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
					S			
						55		
	180	55	6-5	BRN gray clayey f-M sand, SM silt (SC)				
		57	10-9					
						60		
	190	60	24-19	BRN M-f sand, Tr. silt (SP-SM)				
		62	30-26					
						65		
	200	65	24-31	BRN f sand, SM silt, Tr. mica (SM)				
		67	45-33					
								Rod chattering @ 68 FT
						68.5		Hard drilling
						70		
	210	70	100/5"	Red-BRN f-M sand, Tr. silt, Tr. gvl, mica (SP-SM)	T			Rod chattering
		70.4						
						73		Hard drilling @ 73 FT ±
								cobbles.
						75		
	220	75	37-42	Red BRN f-M sand, SM silt, gvl, Tr. clay (SM)				
		77	47-42					
								Change rope, rope broke
						80		
Larche	230	80	35-58	DO-220				spoon bouncing
		81.2	100/5"			81.2		E.O.B @ 81.2 FT

BORING NO. B-44

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B-44
SHEET 3 OF 3
FILE NO. 9446
SURFACE ELEV.
DATUM

PROJECT Louis Home Center
LOCATION Brooklyn NY
BORING LOCATION offset → 1 ft south

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK		MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM 0	TO 20
SKID	Acker	HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. split spoon
U-SAMPLER Shelby Tube
S-SAMPLER
CORE BARREL
CORE BIT Thinwall bit
DRILL RODS NJ

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 2 15/16, 3 7/8"
TYPE OF DRILLING MUD Quik-gel

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					No observation.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. 78.2	NO. OF 3" SHELBY TUBE SAMPLES	2
3.5" DIA. U-SAMPLE BORING	LIN. FT. 3	NO. OF 3" UNDISTURBED SAMPLES	—
CORE DRILLING IN ROCK	LIN. FT. —	OTHER:	—

BORING CONTRACTOR TRDG
DRILLER R. Lynch HELPERS E. Feliciano
REMARKS Grouted borehole upon completion
RESIDENT ENGINEER E. Nunez DATE 6/11/01

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3
FILE NO. 9446
BORING NO. B-64
SURFACE ELEV.

PROJECT Lowe's Home Center

PROJECT LOCATION Brooklyn, NY RES. ENGR. R. NUNEZ

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
01/05/00					conc		Drilled	7" conc. slab.
Frid.	1D	1	9-9	Brn f-M sand, sm silt, Tr. gvl, cinders,			AHEAD	
20's of		3	29-44	brick (fill) (sm)	(F)			
cloudy.	2D	3	22-25	Brn-Blk f-c sand, sm silt, Tr. gvl,				
0945 hrs.		4.4	100/5"	cinders brick (fill) (sm)		5		
	3D	5	70-41	Brn M-f gravel, sm f-sand, Tr. silt (fill)			MOD	R=1"
		6.3	100/4"	(sp-sm)				
	4D	7	12-8	wood (fill)				
		9	6-5					
						10		
	5D	10	9-6	gray-Blk c-f sand, sm silt, Tr. gvl,				
		12	3-3	cinders (fill) (sm)				
	6D	12	7-10	70-50 (fill) (sm)				R=2"
		14	3-2					
						15		
	7D	15	14-3	No recovery				
		17	2-2					
	8D	17	1-2	Blk c-f sand, sm gvl, cinder, Tr. silt,				
		19	1-2	brick (fill) (sm)				
1400 hrs						20		Peat/clay in wash @ appx
01/08/01	9U	20	R=24"	soft gray org. silty clay, Tr. veg (OH)	(O)			19.5 ft.
Mon.		22	R=16"					
cloudy	10D	22	4-3	Top (12") Brn Peat, sp org. silty clay (PL)				
35°F		24	3-5	Bot (8") Brn silty f-sand, Tr. veg (sm)		23.3		
0645						25		
	11D	25	6-6	Brn f-sand, sm silt, Tr. mica (sm)				
		27	7-12					
					(S)			
						30		
	12D	30	19-17	gray M-f sand, Tr. silt, mica (sp-sm)				
		32	27-22					
						35		
	13D	35	9-13	70-80, Tr. silt pckts (sp-sm)				
		37	15-17					
						40		
	14D	40	17-25	Brn M-f sand, Tr. silt (sp-sm)				
		42	33-36					
						45		
	15D	45	10-21	Brn f-sand, sm silt, Tr. mica (sm)				
		47	29-24					
						50		
	16D	50	16-28	Brn f-m sand, Tr. silt, gvl, (sp-sm)				
		52	34-34	mica				

BORING NO. B-64

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 2 OF 3
FILE NO. 9440
BORING NO. B-6U
SURFACE ELEV.

PROJECT Lowe's Home Center

PROJECT LOCATION Brooklyn NY RES. ENGR. R. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
					S			
						55		
	17D	55	24-49	Brn silty f-m sand, Tr. gvl (SM)				
		57	37-30					
						60		
	18D	60	38-41	Brn m-f sand, Tr. silt (SP-SM)				
1410 hrs		62	51-47					
01/09/01								
Tues.								
0648 hrs						65		
30°F	19D	65	29-33	Brn f-c sand, sm silt (SM)				
Windy		67	50-49					
Cloudy								
						68.5		
					T	70		
	20D	70	100/5"	Red-Brn f-sand, sm silt (SM)		70.5		
		70.4			B			Hard drilling @ 70.5 FT
						73		to 73 FT±. Rods chatter
								to 75 FT. Hard drilling @
						75		75 FT. Rig L. fled up.
					B	76		Cont. drilling from 75 FT.
	21D	76	100/5"	Red-Brn f-m sand and gvl, sm silt (SM)				to 76 FT. Boulder.
		76.4						
						80		
	22D	80	48-59	Red-Brn clayey silt, Tr. gvl, f-sand (MH)				
1345 hrs.		81.2	100/3"			81.2		E.O.B @ 81.2 FT.

BORING NO.

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B-601
SHEET 3 OF 3
FILE NO. 9446
SURFACE ELEV.
DATUM

PROJECT Lowe's Home Cntr.
LOCATION Brooklyn, NY
BORING LOCATION As planned

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK		MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM 0	TO 20
SKID	Acker	HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. split spoon
U-SAMPLER Shelby Tube
S-SAMPLER
CORE BARREL
CORE BIT Thin wall bit (cut. floor)
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 2 15/16, 3 7/8"
TYPE OF DRILLING MUD Swiftgel

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					No observation

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. 75.7	NO. OF 3" SHELBY TUBE SAMPLES	1
3.5" DIA. U-SAMPLE BORING	LIN. FT. 2.	NO. OF 3" UNDISTURBED SAMPLES	—
CORE DRILLING IN ROCK	LIN. FT. —	OTHER: obstructions (boulders)	3.5 FT.

BORING CONTRACTOR JED Co.
DRILLER E. Lynch HELPERS E. Feliciano
REMARKS Grouted borehole upon completion.
RESIDENT ENGINEER E. Nunez DATE 01/09/01

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. B-601

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF
FILE NO. 94446
BORING NO. B74
SURFACE ELEV.

PROJECT Lowe's Home Center
PROJECT LOCATION Brooklyn NY
RES. ENGR. E. Alonez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
01/15/01 Move down 32'F (4 snow) (230 hrs)					Surf		Drilled	8" conc. slab
	10	1	7-8	Brn f-m sand sm silt, gvl, Tr. cinders,			Hand	
		3	40-34	Brick (fill) (sm)	(F)			
	20	3	40-23	Do-10, Tr. conc. (fill) (sm)				
		5	17-12			5		
	30	5	21-15	Brn-blk m-f sand, sm silt, Tr. gvl, cinders			Hand	
		7	9-11	(fill) (sm)				
	40	7	13-10	Do-30 (fill) (sm)				
		9	14-14					
						10		
	50	10	26-19	Do-30 (fill) (sm)				
		12	11-9					
	60	12	12-11	Brn c-f sand, sm gvl, brick, Tr.				
		14	6-4	cinder, (fill) (sp-sm)				
						15		
	70	15	4-7	No recovery				wash w/ sample.
		17	5-2					
	80	17	2-2	Med-gray org, silty clay, Tr. veg, f sand				P.P. = .5 t.s.f
		19	2-1	(OH)		18.3		
						20		
	90	20	P=24"	Do-80 (OH)				
		22	R=18"		(O)			
	100	22	P=24"	Top - Do 80 (OH)				
		24	R=22"	Bot - Brn peat (Pt)				
	110	24	WOR-2	Top (11") Soft gray org. silty clay, Tr. f. sand,		24.9		
		26	2-3	Peat (OH)				
				Bot (13") Brn silty m-f sand, Tr. veg (sm)	(S)			
						30		
	120	30	20-21	Brn m-f sand, Tr. silt, mica (sp-sm)				P.P. = 0.75 t.s.f
		32	26-17					
						33.5		
						35		
	130	35	WOH-4	Med-gray org, silty clay, Tr. f sand, veg (OH)				
		37	8-11		(O)			
						38.5		
						40		
	140	40	15-21	Gray-Brn m-f sand, Tr. silt (sp-sm)	(S)			
		42	23-25					
						45		
	150	45	11-14	Do-140 (sp-sm)				
1400		47	19-17					
01/16/01 0900 Back 32°F								
	160	50	19-13	Do-140 (sp-sm)				
		52	18-19					

BORING NO. 07

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 2 OF 3
FILE NO. 9446
BORING NO. B74
SURFACE ELEV.

PROJECT Lowe's Home Cntr
PROJECT LOCATION Brooklyn NY
RES. ENGR. R. NUNEZ

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
					(S)			
						53.5		
	120	55 57	WOR/12" 6-16	soft gray org silty clay, Tr. f sand (OH)	(O)	55		P.P. < 0.5 T.S.F
						58.5		
	180	60 62	27-27 34-37	BRN f-c SAND, Tr silt (SP-SM)	(S)	60		
						62.5		Rod chattering @ 62.5
					(B)	64		Hard drilling to 64 FT±
	190	65 67	39-37 34-45	RED-BRN f-c SAND, SM silt, Tr. gvl (SM)		65		
					(T)			Rods chattering @ 67.5 FT. to 75 FT±
						70		
	200	70 70.4	100/5"	RED-BRN f-c SAND, SM silt, gvl (SM)				
						75		
	210	75 75.3	100/4"	DO-ZOD, SM rock frag. (SM)				rock frag in the tip of the spoon - Rod chattering @ 75.5 FT.
						80		
	220	80 82	44-40 40-26	RED BRN f-c SAND, SM silt, gvl (SM)		82		E.O. 1 @ 82 FT.
1535								

BORING NO. B74

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B-74
SHEET 3 OF 3
FILE NO. 9446
SURFACE ELEV.
DATUM

PROJECT Lowe's Home Center
LOCATION Brooklyn NY
BORING LOCATION As Planned

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK		MECHANICAL		DIA., IN. 4	DEPTH, FT. FROM 0	TO 20	
SKID	Acker	HYDRAULIC	X	DIA., IN.	DEPTH, FT. FROM	TO	
BARGE		OTHER		DIA., IN.	DEPTH, FT. FROM	TO	
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. split spoon
U-SAMPLER Shelby tube
S-SAMPLER
CORE BARREL
CORE BIT Thinwall bit
DRILL RODS NJ

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3 7/8", 2 15/16"
TYPE OF DRILLING MUD Quikgel

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					No observation.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. 75.5	NO. OF 3" SHELBY TUBE SAMPLES	2
3.5" DIA. U-SAMPLE BORING	LIN. FT. 4	NO. OF 3" UNDISTURBED SAMPLES	—
CORE DRILLING IN ROCK	LIN. FT. —	OTHER: obstructions (boulder)	2.5 FT

BORING CONTRACTOR JBD Co.
DRILLER R. Lynch HELPERS E. Feliciano / Louie Abbate
REMARKS Grouted borehole upon completion
RESIDENT ENGINEER E. Nunez DATE 01/19/01

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. B-74

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3
FILE NO. 9446
BORING NO. B8
SURFACE ELEV.

PROJECT Lowe's Home Ctr.

PROJECT LOCATION Brooklyn NY RES. ENGR.

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
01/20/01 MON. SUNNY 25°F 0710 hrs					Conc		Drilled	8" conc slab.
	10	1	16-20	Gray-Brn f-m sand, sm silt, Tr. gvl, cinders			Ahead	
		3	27-45	(Fill)(Sm)				
	20	3	10-15	DO-10 (Fill)(Sm)	(F)			
		5	24-32			5		
	30	5	17-19	Gray-Blk c-f sand sm silt, cinders, Tr. gvl,			WH	
		7	24-10	Brick (Fill)(Sm)				
	40	7	7-8	DO-30, sm brick (Fill)(Sm)				
		9	12-7					
						10		
	50	10	23-8	Gray-Brn c-f sand, sm silt, cinders, Tr. gvl,				
		12	9-9	Brick (Fill)(Sm)				
	60	12	2-2	Gray-Brn m-f sand, sm silt, Tr. vcs, cinders				
		14	7-8	Brick (Fill)(Sm)				
						15		
	70	15	12-8	Gray-Blk m-f sand, sm cinders, silt, Tr. gvl,				
		17	8-5	Metal (Fill)(Sm)				
	80	17	4-3	Gray-Blk c-f sand, sm cinders, silt, Tr. gvl,				R=3"
		19	4-3	wood (Fill)(Sm)				
						19.5		
	90	20	3-4	Brn Peat (Pt)	(Pt)			
		22	7-7					
						23.5		
						25		
	100	25	8-7	Brn f-m sand, Tr. silt, vsg (sp-sm)	(3)			
		27	9-10					
						30		
	110	30	15-20	Brn c-f sand, Tr. silt (sp-sm)				
		32	23-17					
						35		
	120	35	7-4	Top (15") - gray org, clayey silt, sm f sand				
		37	11-9	(ML)				
				Bot (9") - gray silty f-m sand, Tr. clay (SM)				
						40		
	130	40	20-25	Gray m-f sand, Tr. silt, micaceous (sp-sm)				
1415 01/22/00 TUES. SUNNY 20°F 0645		42	25-27					
						45		
	140	45	12-15	DO-130 (Sp-SM)				
		47	22-21					
						50		
	150	50	12-14	Brn m-f sand, Tr. silt, mica (Sp-SM)				
		52	14-15					

BORING NO. B8

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 2 OF 3
FILE NO. 9446
BORING NO. B8
SURFACE ELEV.

PROJECT Lowe's Home Cntr
PROJECT LOCATION Brklyn NY
RES. ENGR. R. Nunez

SS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
					C			
						55		
	160	55	7-11	Brn m-f sand, sm silt, Tr. mica				
		57	16-16	(SM)				
						60		
	170	60	10-11	DO-160, Tr. clay (SM)				
			12-15					
								Red chattering.
								Hard drilling @ 64.5 FT
						64.5		to 66 FT.
					B	66		
	180	66	23-27	Red-brn f-c sand, sm gvl, Tr. silt (sp. SM)				
		67	24-25					
					T	70		
	190	70	34-42	Red-brn f-c sand, sm gvl, silt (SM)				
		71.1	100/1"			74.5		Hard drilling @ 71.5 ± FT
								to 75 FT boulder
					B			
						75		E.O.B. @ 75 FT.
						80		

BORING NO. T

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B-8
SHEET 3 OF 3
FILE NO. 94446
SURFACE ELEV.
DATUM

PROJECT Lowe's Home Ctr
LOCATION Brooklyn NY
BORING LOCATION

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK		MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM 0	TO 20
SKID	Acker	HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" o.d. split spoon
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3 7/8, 4 7/8
TYPE OF DRILLING MUD Quikgel

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					No observation

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING LIN. FT. 70.0
3.5" DIA. U-SAMPLE BORING LIN. FT. —
CORE DRILLING IN ROCK LIN. FT. —
NO. OF 3" SHELBY TUBE SAMPLES
NO. OF 3" UNDISTURBED SAMPLES
OTHER: obstruction (boulder) 5 FT

BORING CONTRACTOR STEDCO.
DRILLER R. Lynch HELPERS E. Fellciano
REMARKS Grouted borehole upon completion
RESIDENT ENGINEER R. Nunez DATE 01/24/01

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type: dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. B8

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3
FILE NO. 9440
BORING NO. B4U
SURFACE ELEV.

PROJECT Lowe's Home Center
PROJECT LOCATION Brooklyn NY
RES. ENGR. R. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
01/16/01					Conc.		Drilled	8" Conc. slab
0645	1D	1	7-17	Brn M-f sand, Sm silt, Tr. gvl, Brick			AHRAD	
Pores.		3	18-12	cinders (fill)(SM)				
35°F	2D	3	20-10/5"	Blk-Brn f-c sand, Sm silt, cinders, gvl,	(F)			
cloudy		3.9		Tr. brick (fill)(SM)		5		
	3D	5	21-27	Brn f-m sand, Sm silt, cinders, Tr. gvl				
		7	29-15	(fill)(SM)				
	4D	7	7-6	Blk-Brn M-f sand, Sm brick, Tr. cinders, gvl,				
		9	11-6	silt (Sp-SM)(fill)				
						10		
	5D	10	32-22	Brn C-f sand, Sm silt, Tr. brick, gvl, cinders				
		12	20-8	(fill)(SM)				
	6D	12	4-2	gray-blk C-f sand, Sm silt, cinders, Tr. gvl				
		14	3-4	(fill)(SM)				
						15		
	7D	15	5-5	DO-6D (fill)(SM)				
		17	2-2					
	8D	17	2-5	DO-6D, Tr. veg (fill)(SM)				
		19	4-2					
						20		
	9D	20	3-4	Blk-C-f sand, Tr. brick, silt (fill)(cinders)				R=1"
		22	5-4					clay in wash @ 23FT.
	10U	23	P=24"	Top-gray org. silty clay, SM f sand (OL)				
		25	R=21"	Bot-Brn silty M-f sand, Tr. veg. (SM)	@ ?			
	11D	25	7-8	DO-10U-Bot (SM)		25		
		27	18-16					
					(S)			
						30		
	12D	30	15-15	Brn M-f sand, Tr. silt (Sp-SM)				
		32	22-21					
						35		
	13D	35	8-12	Brn silty f-m sand (SM)				
		37	12-11					
						40		
	14D	40	23-24	Brn M-f sand, Tr. silt (Sp-SM)				
		42	23-28					
						45		
	15D	45	10-10	DO-14D, Tr. mica (Sp-SM)				
		47	13-12					
	16D	50	10-14	Brn clayey f-sand, Sm silt, Tr. mica				
410		52	9-11	(SM&I)				

BORING NO. B4U

FORM NO. B-1

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 2 OF 3
FILE NO. 9446
BORING NO. B9u
SURFACE ELEV.

PROJECT Lowe's Home Center
PROJECT LOCATION Brooklyn, NY
RES. ENGR. R. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
04/17/01								
0645 Partly cloudy 38°F					(3)			
						55		
	17D	55	32-28	BRN f-M SAND, SM silt (SM)				
		57	41-34					
						60		
	18D	60	28-32	BRN M-f SAND, Tr. silt (sp-sm)				
		62	30-29					
					?	63.5		
						65		
	19D	65	100/0"	NO RECOVERY				Spoon bouncing. Hard drilling from 65' to 68 FFT, cobbles
					(T)			
						70		
	20D	70	100/4"	NO RECOVERY				2nd attempt, NO REC. Rod chattering @ 70.3'
		70.3						
						75		
	21D	75	56-41	RED-BRN f-c SAND, SM silt, gvl (SM)				Rock frag. in the tip of the spoon.
			30-32					
						80		
	22D	80	23-29	RED-BRN f-M SAND, SM silt, Tr. mica (SM)				
1230		82	41-34			82		

FORM NO. B-1

BORING NO. D 3'1

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B9U
SHEET 3 OF 3
FILE NO. 94446
SURFACE ELEV.
DATUM

PROJECT Lowe's Home Center
LOCATION Brooklyn NY
BORING LOCATION As Planned

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK		MECHANICAL		DIA., IN. 4	DEPTH, FT. FROM 0	TO 20	
SKID	Acker	HYDRAULIC	X	DIA., IN.	DEPTH, FT. FROM	TO	
BARGE		OTHER		DIA., IN.	DEPTH, FT. FROM	TO	
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. split spoon
U-SAMPLER Shelby Tube
S-SAMPLER
CORE BARREL
CORE BIT Thinwall bit
DRILL RODS NJ

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3 7/8", 2 15/16"
TYPE OF DRILLING MUD Quik Gel

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
01/17/01	1245	82	—	7.2	Upon Completion

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING LIN. FT. 80 NO. OF 3" SHELBY TUBE SAMPLES 1
3.5" DIA. U-SAMPLE BORING LIN. FT. 2 NO. OF 3" UNDISTURBED SAMPLES —
CORE DRILLING IN ROCK LIN. FT. — OTHER: —

BORING CONTRACTOR SBD Co.
DRILLER R. Lynch HELPERS E. Feliciano
REMARKS Grouted borehole upon completion
RESIDENT ENGINEER R. Nungs DATE 01/17/01

NOTES:
1. Make a seperate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3
FILE NO. 94442
BORING NO. B-11
SURFACE ELEV.

PROJECT Lowe's Home Centers
PROJECT LOCATION Brooklyn, NY
RES. ENGR. R. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
12/19/00 Tues. 50°F Cloudy 12 Crews.	10	1	19-33	Dk. f-m sand, sm silt, tr. [illegible], [illegible]			Drilled	Safety Hammer
		3	24-37	Qtz (Fill) (Sm)			10 BLOWS	Refusal @ 5.5' [illegible]
	20	3	10-11	DO-10 (Fill) (Sm)				
		5	12-15					
					4	5		
	30	5	3-3	Wood Sample			WO	R=2"
		7	4-4					
	40	7	3-4	Gray m-f sand, sm silt, [illegible]				
		9	6-3					
						10		Wood in mass, [illegible]
	50	10	2-1	Gray f-m sand, sm silt, [illegible]				
		12	1-1					
	60	12	2-1	DO-50, tr. [illegible] (Fill) (Sm)				
		14	1-1					
						15		
	70	15	3-4	Soft gray org. silty clay, tr. veg, [illegible]				R=2",
		17	4-8		6			
	80	17	2-2	DO-70 (OA)				PP = < 0.5 TSF
		19	2-2					
						20		
	90	20	1-1	Gray silty f-m sand, tr. veg, clay (Sm)				
14 Crews		22	1-1					
12/20/00 WED Overcast Windy Cloudy 30°F					3			
						25		
	100	25	8-10	Brn m-f sand, sm silt (Sm)				
		27	15-10					
						30		
	110	30	5-4	Gray-Brn clayey silt, tr. f-sand, veg (ML)				
		32	4-5					
						35		
	120	35	10-12	Brn m-f sand, tr. silt, veg (Sp-Sm)				
		37	12-15					
						40		
	130	40	16-14	Brn m-f sand, tr. silt, mica (Sp-Sm)				
		42	21-17					
						45		
	140	45	10-13	Brn silty f-sand, tr. mica (Sm)				
		47	17-17					
						50		
	150	50	12-14	DO-140 (Sm)				
		52	13-12					

FORM NO. B-1

BORING NO. B-11

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 2 OF 3
FILE NO. 9446
BORING NO. B-11
SURFACE ELEV.

PROJECT Lowe's Home Ctr.
PROJECT LOCATION Brooklyn NY
RES. ENGR. R. Nunez

SS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
						55		
160	55	26-19		BRN C-f SAND, Tr. silt, mica (SP-SM)	(3)			
	57	23-25						
						60		
170	60	9-12		DO-160, Tr. gvl (SP-SM)				
	62	22-22						
						65		
180	65	10-11		BRN M-f SAND, Tr. C SAND mica (SP-SM)				
	67	11-12						
						68.5'		
						70		
190	70	41-30		RED-BRN Silty f-c SAND, Sm gvl (SM)	(T)			
	72	45-49						
						75		
200	75	46-43		RED-BRN f-c SAND, Sm silt, gvl (SM)				
	77	56-44						
						80		
210	80	50-65		Rock fragments & RED BRN Silty f-M				2-3" Rock fragments in the tip of the spoon.
	81.2	100/2"		SAND, Tr. gvl (SM)				
						85		
220	85	37-40		RED-BRN f-C SAND, Sm silt, gvl, Tr. black				Rock frag. in the tip of the spoon.
	87	41-50		frag (SM)				
						90		
230	90	13-13		RED-BRN C-f SAND, Sm gvl, Tr. silt (SP-SM)				
	92	18-16						
						95		
240	95	10-14		BRN M-f SAND, Tr. silt gvl (SP-SM)				
	97	27-20						
						100		
250	100	20-20		RED-BRN Silty f-M SAND Sm gvl (SM)				
	102	25-23						E.O.B @ 102 FT.

BORING NO. B-11

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B-11
SHEET 3 OF 3
FILE NO. 9446
SURFACE ELEV.
DATUM

PROJECT Lowe's Home Center
LOCATION Brooklyn NY
BORING LOCATION offset -> 16 Flow

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		[X] YES [ ] NO		
TRUCK	CME 55	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO 20
SKID		HYDRAULIC		DIA., IN.		DEPTH, FT. FROM		TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO
OTHER								

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. split spoon
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 5 7/8", 3 7/8", 2 15/16"
TYPE OF DRILLING MUD Quik Gel

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					No observation.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING LIN. FT. 102
3.5" DIA. U-SAMPLE BORING LIN. FT. -
CORE DRILLING IN ROCK LIN. FT. -
NO. OF 3" SHELBY TUBE SAMPLES -
NO. OF 3" UNDISTURBED SAMPLES -
OTHER:

BORING CONTRACTOR JBD Co.
DRILLER R. Lynch HELPERS E. Feliciano
REMARKS Grouted borehole upon completion.
RESIDENT ENGINEER R. Munoz DATE 12/20/00

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3
FILE NO. 9446
BORING NO. B-12
SURFACE ELEV.

PROJECT Lowe's Home Center

PROJECT LOCATION Brooklyn NY RES. ENGR. R. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
12/19/00 30' up Tues cloudy 1215 hrs	1D	0.5	5-10	Blk-Brn M f sand, Sm silt, Tr gvl, cinders			Drilled	Automatic Hamm
		2	23	Brick (fill)(SM)			Ahead	Concrete @ surface
	2D	2	9-19	DO-1D (fill)(SM)				4" thick
		4	12-6					1D-1.5FT sample.
	3D	4	1-1	Blk f-M sand, Sm silt, Tr. peat, brick	(F)	5		
		6	1-1	(fill)(SM)			MUD	
	4D	6	2-2	Blk-gray f-M sand, Sm silt, cinders, Tr. brick,				
		8	2-2	wood (fill)(SM)				
	5D	8	2-3	Blk-gray f-M sand, Sm silt, cinder, Tr. gvl				
		10	3-4	(fill)(SM)		10		
	6D	10	2-2	DO-5D (fill)(SM)				
		12	1-1					
	7D	12	2-2	DO-5D (fill)(SM)				
		14	2-1					
	8D	14	1-1	Top(6")-DO-5D (fill)(SM)		15		R-12"
		16	1-1	Bot(6") gray org silty clay, Sm veg, Tr f sand (OH)				
	9D	16	1-1	DO-8D-Bot (OH)	(O)			
		18	1-1					
						19		
						20		
1415	10D	20	1-1	Gray silty f-M sand, Tr veg (SM)	(S)			
		22	1-2					
12/20/00 WED 0630 hrs windy cloudy 10°F								
						25		
	11D	25	4-6	Brn M-f sand, Tr silt (SP-SM)				
		27	8-8					
						30		
	12D	30	3-3	Top(9")-Brn C-f sand, Tr. silt (SP-SM)				
		32	2-2	Bot(8")-Stiff gray Brn silt, Sm f-sand (ML)				Bot PP<1.5 T.S.F.
						35		
	13D	35	5-8	Brn M-f sand, Tr. silt, mica (SP-SM).				
		37	12-15					
						40		
	14D	40	6-8	DO-13D (SP-SM)				
		42	11-11					
						<45		
	15D	45	3-3	DO-13D, Tr. gvl. (SP-SM)				
		47	5-4					
						50		
	16D	50	4-4	Brn silty f-sand, Tr MICA (SM)				
		52	6-5					

BORING NO. B-12

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 2 OF 3
FILE NO. 9446
BORING NO. B-12
SURFACE ELEV.

PROJECT Lowe's Home Centr.
PROJECT LOCATION Brooklyn, NY
RES. ENGR. R. NUNEZ

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
					(3)	55		
170	55		7-11	Gray BRN M.f SAND, SM silt, Tr. HIGH (SM)				
	57		11-12					
						60		
180	60		12-16	100-170 (SM)				
	62		19-18					
						65		
190	65		23-19	Gray Silty f-m SAND AND ROCK frag. (SM)				Rock fragments in the tip of the spoon.
	67		22-22					
						68.5		
						70		
200	70		20-40	RED-BRN Silty f-c SAND, SM gvl (SM)				
	72		35-22					
						73		Rather, hard drilling from 73'-74.5'
					(6)			
						74.5		
210	75		19-15	RED BRN f-m SAND, SM gvl, silt (SM)				
	77		19-21					
					(7)	80		
220	80		20-24	200-210 (SM)				
	82		29-25					Hard drilling @ 82.5' Possible boulder.
					(8)	83		
						83.5		
						85		
230	85		30-26	RED BRN Silty f-m SAND, SM gvl (SM)				
	87		31-28					
						90		
240	90		20-20	RED-BRN f-c SAND, SM silt, gvl (SM)				R-2"
	92		17-21					
						95		
250	95		15-30	NO REC. (w ash)				
	97		30-28					
						100		
260	100		34-33	RED-BRN f-c SAND, SM silt, gvl (SM)				
	102		21-32			102		E.O.B @ 102 FT

1345

FORM NO. B-1

BORING NO. B-12

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B-12
SHEET 3 OF 3
FILE NO. 9446
SURFACE ELEV.
DATUM

PROJECT Lowe's Home Center
LOCATION Brooklyn NY
BORING LOCATION offset → 16 FT SW

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED					
TRUCK	CME 75	MECHANICAL		DIA., IN.	4	[X] YES	[ ] NO	DEPTH, FT. FROM	0 TO 20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. split spoon
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3 7/8", 5 7/8", 2 1/8"
TYPE OF DRILLING MUD Quik gel

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					No observation.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING LIN. FT. 99.5
3.5" DIA. U-SAMPLE BORING LIN. FT. —
CORE DRILLING IN ROCK LIN. FT. —
NO. OF 3" SHELBY TUBE SAMPLES —
NO. OF 3" UNDISTURBED SAMPLES —
OTHER: obstruction (boulders) 2.5

BORING CONTRACTOR JBDCo.
DRILLER M. Blejwas HELPERS D. Keith
REMARKS Grouted borehole upon completion
RESIDENT ENGINEER R. Nuner DATE 12/20/00

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. B-12

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3
FILE NO. 9440
BORING NO. B-13
SURFACE ELEV.

PROJECT Lowe's Home Center
PROJECT LOCATION Brooklyn NY
RES. ENGR. R. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
12/20/00	1D	0.5	24-15	Blk f-s sand, sm silt, Tr. cinder, gvl,			Drilled	Automatic Hammer
Wed.		2	17	Brick (fill) (sm)			AHAD	4" thick concrete
windy	2D	2	7-11	DO-1D (fill) (sm)				surface.
clear		4	16-6					
30 sq.	3D	4	4-4	DO-1D (fill) (sm)	(f)	5		Slight petroleum odor
1350 hrs		6	2-2				MWD	
	4D	6	1-1	gray blk f-m sand, sm silt, Tr. veg, gvl,				
		8	1-1	Brick (fill) (sm)				
	5D	8	2-1	DO-4D, Tr. cinders (fill) (sm)				
		10	2-2			10		
	6D	10	4-2	Blk-gray c-f sand, sm silt, cinders, Tr. gvl,				
		12	2-1	Brick (fill) (sm).				
	7D	12	1-1	Blk-gray c-f sand, sm silt, cinders, Tr.				
		14	1-1	Brick, shells (fill) (sm)				
						15		
	8D	15	8-6	Black cinders, sm f-m sand, Tr. shells				E=1"
		17	5-5	(fill) (cinders)		17		
	9D	17	2-1	Brn Peat (pt)	(Pt)			
		19	1-1					
						19.5	↓	
	10D	20	WOH/18"	gray silty f-m sand, Tr. Peat (sm)				
1615 hrs		22	1					
12/21/00								
Thurs						23.5		
20 sq.					(f)	25		
4650 hrs	11D	25	4-5	Brn f-c sand, Tr. silt, mica (sp-sm)				
cloudy		27	5-9					
						30		
	12D	30	8-7	Brn silty f sand, Tr. mica (sm)				
		32	4-4					
						33.5		
						35		
	13D	35	2-2	stiff gray org. silty clay, sm f-sand				PP=1.25 T.S.F
		37	7-5	(OH)	(O)			
						38.5		
						40		
	14D	40	3-5	gray m-f sand, Tr. silt, mica (sp-sm)	(S)			
		42	4-6					
						45		
	15D	45	4-4	DO-14D (sp-sm)				
		47	4-7					
						50		
	16D	50	2-4	gray f-m sand, sm silt (sm)				
		52	4-6					

BORING NO. B-13

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 2 OF 3
FILE NO. 9446
BORING NO. B-13
SURFACE ELEV.

PROJECT Louis Home Center
PROJECT LOCATION Brooklyn, NY
RES. ENGR. E. Muner

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
					(5)			
						55.5		
110	55		WOR/24"	Soft Gray Org. Silty clay, with f-sand	(O)	55		P.P. = <0.5 T.S.F.
	57			Seams (OH)				
						58.5		
						60		
120	60		6-3	Red-Brn Silty f-c sand, tr. gvl,	(T)			R=2"
	62		10-9	Rock frag (SM)				
						65		
190	65		9-10	DO-18D (SM)				R. 3" Rock frag. in the tip of the spoon.
	67		11-17					
						70		
200	70		13-22	Red-Brn f-c sand, some silt, gvl (SM)				
	72		27-29					
					(B)	73		Hard drilling @ 73 ft. boulder.
						74		
						75		
210	75		12-14	DO-20D (SM)				
	77		17-21					Borehole caving, boulder rolled into borehole.
						80		
220	80		21-25	DO-20D, SM Rock frag. (SM)				Rec. 3" Rock frag. in the tip of the spoon.
	82		25-34					
						85		Borehole caved inside to boulder, to 70 ft. Reamed borehole to 85 ft.
230	85		24-17	Red-Brn f-c sand, some silt, gvl (SM)	(T)			
	87		21-18					
						89		Hard drilling from 89'-90'
					(B)	90		
240	90		20-17	DO-23D (SM)				
	92		13-13					
						95		
250	95		20-23	DO-23D (SM)				
	97		26-35					
						100		
260	100		21-25	DO-23D (SM)				
1410		102	23-23			102		E.O.B @ 102

BORING NO. B-13

FORM NO. B-1

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B-13
SHEET 3 OF 3
FILE NO. 9446
SURFACE ELEV.
DATUM

PROJECT Lowe's Home Center
LOCATION Brooklyn, NY
BORING LOCATION ~~see~~ DFR #7

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		[X] YES [ ] NO			
TRUCK	CME 75	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO	20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. split spoon
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 2 15/16", 3 7/8", 4 7/8"
TYPE OF DRILLING MUD Quik Gel

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
12/21/00	NRO	102	20	11.0±	Mud/water level upon completion.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING LIN. FT. 100
3.5" DIA. U-SAMPLE BORING LIN. FT. —
CORE DRILLING IN ROCK LIN. FT. —
NO. OF 3" SHELBY TUBE SAMPLES —
NO. OF 3" UNDISTURBED SAMPLES —
OTHER: Obstruction (boulders) 2 FT

BORING CONTRACTOR JBD Co.
DRILLER M. Blejwas HELPERS D. Keith
REMARKS Grouted borehole upon completion.
RESIDENT ENGINEER R. Nunez DATE 12/21/00

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-14
SHEET 1 OF 3
FILE NO. 9446
SURFACE ELEV. 10.4
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
06:30	1D	0.0	20-23	Black fine to medium sand, some silt, trace			DRILLED	
12-12-00		2.0	15-18	gravel, cinders (Fill) (SM)			AHEAD	
Friday	2D	2.0	10-21	Black brown coarse to fine sand, some silt,			4"	
Light Snow		4.0	18-23	trace cinders, gravel, brick (Fill) (SM)				
30°F						5		
	3D	5.0	1-1	Blk brn silty fine to coarse sand, tr gravel,				
		7.0	1-2	cinders, brick, vegetation (Fill) (SM)				
	4D	7.0	3-1	Do 3D (Fill) (SM)	F			
		9.0	3-3					
						10		
	5NR	10.0	1-1	No recovery				
		12.0	1-1					
	6D	12.0	1-1	Black cinders (Fill)				
		14.0	1-1					
						15		
	7D	15.0	1-1	Gray coarse to fine sand, some silt, trace				
		17.0	1-1	clay, cinders (Fill) (SM)		17		
	8D	17.0	2-2	Soft gray organic silty clay, trace				WC=73
		19.0	2-2	vegetation (OH)				
					O	20	▽	
	9D	20.0	1-1	Do 8D (OH)				WC=58
		22.0	2-2			22		
					S1	25		
	10D	25.0	8-13	Brown fine to medium sand, some silt (SM)				
		27.0	16-18					
						28.5		
						30		
	11D	30.0	7-5	Gray brown fine to medium sandy silt, trace	M			WC=24
		32.0	7-7	clay pocket (ML)				Percent Passing
								No. 200 Sieve=76
						33.5		11D: Petroleum
						35		odor.
	12D	35.0	12-17	Brown fine to medium sand, some silt (SM)				
		37.0	21-22					
						40		
	13D	40.0	11-12	Gray brown fine to medium sand, some silt				
		42.0	12-11	(SM)	S1			
						45		
	14D	45.0	10-11	Gray brown silty fine sand, trace clay (SM)				
		47.0	14-13					
						50		
	15D	50.0	9-12	Gray brown silty fine sand (SM)				
		52.0	17-14					

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-14
SHEET 2 OF 3
FILE NO. 9446
SURFACE ELEV. 10.4
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
Cont'd								
12-12-00								
Friday								
Light Snow								
30°F						55		
	16D	55.0	15-16	Do 15D, trace fine to medium sand seams				
		57.0	25-20	(SM)				
						60		
	17D	60.0	100/5"	Brown fine to medium sand, trace silt				REC=3"
		60.4		(SP-SM)	S1			
						65		
	18NR	65.0	100/0"	No recovery				
						70		
	19D	70.0	84-100/4"	Brown gravelly fine to coarse sand, some				19D-20D: Rock frag-
		70.9		silt (SM)				ments in tip of
								spoon.
								19D: REC=4"
						75		
	20D	75.0	61-75	Top: Brown coarse to fine sandy gravel,		76		
		76.2	100/3"	trace silt (GP-GM)				
				Bot: Red brown silt, trace fine sand (ML)				
					M			
						80		
	21D	80.0	21-30	Do 20D, Bottom (ML)				WC=25
		82.0	38-40			82		Percent Passing
14:30								No. 200 Sieve=96
								End of Boring at
						85		82'.
								WC=Water Content
								in percent of dry
								weight.
						90		
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT	LOWE'S HOME CENTER	BORING NO.	B-14
LOCATION	BROOKLYN, NEW YORK	SHEET	3 OF 3
BORING LOCATION	SEE PLAN	FILE NO.	9446
		SURFACE ELEV.	10.4
		DATUM	BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	CME-55	MECHANICAL		DIA., IN	4	DEPTH, FT. FROM 0	TO 20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:

D-SAMPLER	2" O.D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	N

DRILLING MUD USED [X] YES [ ] NO

DIAMETER OF ROTARY BIT, IN. 3-7/8, 2-15/16

TYPE OF DRILLING MUD QUIK - GEL

AUGER USED [ ] YES [X] NO

TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24

*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

*SAFETY HAMMER USED.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.		TOP ELEV.
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.		TIP ELEV.
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.		BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT.	80.3	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER: OBSTRUCTION (BOULDERS)	1.7

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.

DRILLER RAY LYNCH HELPERS EDWIN FELICIANO

REMARKS BOREHOLE GROUTED UPON COMPLETION.

RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-22-00

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-15
SHEET 1 OF 3
FILE NO. 9446
SURFACE ELEV. 10.7
RES. ENGR. RANDOLPH NUNE

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
06:30	1D	0.0	13-5	Brown fine to coarse sand, some silt, trace			DRILLED	
02-22-00		2.0	8-6	brick, cinders (Fill) (SM)			AHEAD	
Friday	2D	2.0	6-5	Brown medium to fine sand, trace silt (Fill)			4"	
Light		4.0	4-5	(SP)				
Snow	3D	4.0	3-2	Gray brown medium to fine sand, trace silt,		5		
30°F		6.0	2-2	brick, cinders (Fill) (SP-SM)				
	4D	6.0	2-2	Gray brown fine to coarse sand, some silt,	F			
		8.0	2-2	trace cinders, vegetation (Fill) (SM)				
	5D	8.0	3-2	Black fine to coarse sand, some cinders,				
		10.0	2-2	silt, trace gravel, brick, clay (Fill) (SM)		10		
	6D	10.0	1-1	Brown silty fine to medium sand, trace				
		12.0	1-1	cinders, vegetation, gravel (Fill) (SM)				
	7D	12.0	1-1	Gray brown fine to coarse sand, sm cinders,				
		14.0	1-1	tr silt, gravel, brick (Fill) (SP-SM)		14		
	8D	14.0	1-1	Brown soft organic silty clay, some		15		WC=214
		16.0	2-1	vegetation (OH)				
	9D	16.0	2-2	Do 8D (OH)	O			REC=4"
		18.0	2-2					Water in jar.
						19		
						20	∇	
	10D	20.0	1-2	Gray brown fine sand, some silt, trace				
		22.0	3-3	vegetation (SM)				
					S1			
						25		
	11D	25.0	6-6	Brown fine sand, some silt (SM)				
		27.0	10-11					
						28.5		
						30		
	12D	30.0	3-2	Brown fine sandy silt (ML)				WC=23
		32.0	2-5		M			
						33.5		
						35		
	13D	35.0	3-4	Gray brown fine sand, some silt (SM)				
		37.0	9-12					
						40		
	14D	40.0	6-7	Brown fine sand, some silt (SM)	S1			
		42.0	9-9					
						45		
	15D	45.0	5-4	Brown fine to medium sand, trace silt				
		47.0	6-8	(SP-SM)				
						48.5		
						50		
	16D	50.0	1-1	Soft gray clayey silt, trace fine sand (ML)	M			WC=39
		52.0	1-1					

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-15
SHEET 2 OF 3
FILE NO. 9446
SURFACE ELEV. 10.7
RES. ENGR. RANDOLPH NU

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
Cont'd								
02-22-00					M			
Friday								
Light						53.5		
Snow						55		
30°F	17D	55.0	10-14	Gray brown fine sand, some silt (SM)	S1			
		57.0	15-17					Hard drilling at 58'.
						58		
						60		
	18D	60.0	11-12	Red brown silty fine to medium sand, some gravel (SM)				Hard drilling at 62'.
		62.0	11-10					
						65		
	19D	65.0	10-13	Red brown silty fine to medium sand, trace gravel (SM)				
		67.0	12-14					Hard drilling at 67.5'.
					S2			
						70		
	20D	70.0	24-15	Red brown fine to coarse sand, some gravel, silt (SM)				
		72.0	17-37					
						75		
	21D	75.0	29-65	Do 20D (SM)				
		77.0	40-38					
						80		
	22D	80.0	25-21	Red brown gravelly coarse to fine sand,				End of Boring at 82'.
14:30		82.0	46-52	some clay (SC)		82		
								WC=Water Conten in percent of dry weight.
						85		
						90		
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT	LOWE'S HOME CENTER	BORING NO.	B-15
LOCATION	BROOKLYN, NEW YORK	SHEET	3 OF 3
BORING LOCATION	SEE PLAN	FILE NO.	9446
		SURFACE ELEV.	10.7
		DATUM	BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	CME-75	MECHANICAL		DIA., IN	4	DEPTH, FT. FROM 0	TO 20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:

D-SAMPLER 2" O.D. SPLIT SPOON
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 2-15/16, 3-7/8, 5-7/8
TYPE OF DRILLING MUD QUIK - GEL

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

*AUTOMATIC HAMMER USED.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE:	TYPE	ID, IN.	LENGTH, FT.	TOP ELEV.	
INTAKE ELEMENT:	TYPE	OD, IN.	LENGTH, FT.	TIP ELEV.	
FILTER:	MATERIAL	OD, IN.	LENGTH, FT.	BOT. ELEV.	

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT.	79.1	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER: OBSTRUCTION (BOULDERS)	2.9

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
DRILLER MIKE BLEJWAS HELPERS DENNIS KEITH
REMARKS BOREHOLE GROUTED UPON COMPLETION.
RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-22-00

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-15AS
SHEET 1 OF 2
FILE NO. 9446
SURFACE ELEV. 10.7
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
10:00							DRILLED	Drilled ahead to 50';
01-24-01							AHEAD	obtained 1S tube.
Wednesday							4"	No sampling in the
Partly								top 50'.
Cloudy						5		For strata, see
30°F								Boring Log B-15.
					F			
						10		
						14		
						15		
					O			
						19		
						20		
					S1			
						25		
						28.5		
						30		
					M			
						33.5		
						35		
						40		
					S1			
						45		
						48.5		
						50		
	1S	50.0	PUSH=24"	Soft gray organic silty clay, some fine sand	M/O			End of Boring at
12:00		52.0	REC=24"	(OH)		52		52'.

BORING NO. B-15AS

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B-15AS
SHEET 2 OF 2
FILE NO. 9446
SURFACE ELEV. 10.7
DATUM BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

PROJECT LOWE'S HOME CENTER
LOCATION BROOKLYN, NEW YORK
BORING LOCATION SEE PLAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	CME-55	MECHANICAL		DIA., IN	4	DEPTH, FT. FROM 0	TO 20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER
U-SAMPLER
S-SAMPLER SHELBY TUBE
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3-7/8
TYPE OF DRILLING MUD QUIK - GEL

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. AVERAGE FALL, IN.
SAMPLER HAMMER, LBS. AVERAGE FALL, IN.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT.	52	NO. OF 3" SHELBY TUBE SAMPLES	1
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER:	

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
DRILLER RAY LYNCH HELPERS EDWIN FELICIANO
REMARKS BOREHOLE GROUTED UPON COMPLETION.
RESIDENT ENGINEER RANDOLPH NUNEZ DATE 1-24-01

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

BORING NO. B-16
SHEET 1 OF 3
FILE NO. 9446
SURFACE ELEV. 11.1
RES. ENGR. RANDOLPH NUNEZ

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
06:30	1D	0.0	55-100/5"	Gray white gravel, trace concrete, coarse			DRILLED	4" Asphalt at
12-27-00		0.9		to fine sand, cinders (Fill) (GP-GM)			AHEAD	surface.
Wednesday	2D	1.0	34-26	Black coarse to fine sand, some silt, trace			4"	
		3.0	7-5	gravel, cinders (Fill) (SM)				
19°F	3D	3.0	3-3	Brown fine to coarse sand, some silt, trace		5		
		5.0	2-3	gravel, cinders, brick (Fill) (SM)				
	4D	5.0	3-3	Black brown coarse to fine sand, some silt,				
		7.0	3-6	cinders, trace gravel, brick (Fill) (SM)	F			
	5D	7.0	3-4	Do 4D (Fill) (SM)				
		9.0	3-3			10		
	6D	9.0	1-1	Brown silty fine to coarse sand, trace				
		11.0	2-1	gravel, brick (Fill) (SM)				
	7D	11.0	1-1	Brown gray fine to coarse sand, some silt,				
		13.0	1-1	trace gravel, wood, cinders (Fill) (SM)				
	8D	13.0	3-2	Brown fine to coarse sand, some silt,		15		
		15.0	2-3	gravel, trace wood, cinders (Fill) (SM)		16		
	9D	15.0	1-2	Brown peat, trace vegetation (Pt)				WC=286
		17.0	1-2		O			
	10D	17.0	2-2	Do 9D (Pt)				WC=322
		19.0	2-2			19.5		
	11D	20.0	2-2	Red brown fine sand, some silt, trace				
		22.0	1-1	vegetation (SM)				
						25		
	12D	25.0	5-7	Red brown fine to medium sand, trace silt				
		27.0	7-9	(SP-SM)				
						30		
	13D	30.0	2-4	Brown fine sand, some silt, silt layers (SM)				
		32.0	4-4					
					S1			
						35		
	14D	35.0	2-3	Gray medium sand, some silt (SM)				
		37.0	7-8					
						40		
	15D	40.0	4-4	Gray fine to medium sand, trace silt				
		42.0	7-10	(SP-SM)				
						45		
	16D	45.0	3-4	Gray fine sand, some silt (SM)				
		47.0	3-3					
						48.5		
					M	50		
	17D	50.0	WH/18"	Top 18": Gray fine sandy silt (ML)				17D Top: WC=32
		52.0	4	Bot 6": Gray silty fine sand (SM)		51.5		

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-16
SHEET 2 OF 3
FILE NO. 9446
SURFACE ELEV. 11.1
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
Cont'd					M			
12-27-00						51.5		
Wednesday								
19°F					S1	55		
	18D	55.0	8-11	Gray brown fine sand, some silt, gravel (SM)				
		57.0	12-12					
						58.5		
						60		
	19NR	60.0	30-39	No recovery				Wash in sample.
		62.0	50-47					
								Hard drilling at 63.5'.
						65		
	20D	65.0	20-20	Red brown fine to coarse sand, some gravel, silt, trace clay (SM)				
		67.0	25-27					
								Hard drilling at 69'.
					S2	70		
	21D	70.0	18-19	Red brown fine to coarse sand, some gravel, silt (SM)				
		72.0	19-21					
						75		
	22D	75.0	27-23	Do 21D (SM)				
		77.0	25-26					
						80		
	23D	80.0	24-22	Do 21D (SM)				End of Boring at 82'.
14:15		82.0	19-28			82		
								WC=Water Content in percent of dry weight.
						85		
						90		
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT	LOWE'S HOME CENTER	BORING NO.	B-16
LOCATION	BROOKLYN, NEW YORK	SHEET	3 OF 3
BORING LOCATION	SEE PLAN	FILE NO.	9446
		SURFACE ELEV.	11.1
		DATUM	BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		[X] YES [ ] NO			
TRUCK	CME-75	MECHANICAL		DIA., IN	4	DEPTH, FT. FROM	0	TO	25
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF:

D-SAMPLER	2" O.D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	N

DRILLING MUD USED [X] YES [ ] NO

DIAMETER OF ROTARY BIT, IN. 3-7/8, 4-7/8

TYPE OF DRILLING MUD QUIK - GEL

AUGER USED [ ] YES [X] NO

TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24

*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

*AUTOMATIC HAMMER USED.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
12-27-00	14:15	82	25	9	MUD/WATER UPON COMPLETION.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.		TOP ELEV.
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.		TIP ELEV.
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.		BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT.	79.5	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER: OBSTRUCTION (BOULDERS)	2.5

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.

DRILLER MIKE BLEJWAS HELPERS DENNIS KEITH

REMARKS BOREHOLE GROUTED UPON COMPLETION.

RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-27-00

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-17
SHEET 1 OF 3
FILE NO. 9446
SURFACE ELEV. 10.5
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
06:45	1D	0.0	77-100/1"	Gray white fine to coarse sand, gravel,			DRILLED	Drilled ahead to 1'.
12-18-00		0.5		trace silt, concrete (Fill) (SP-SM)			AHEAD	2D-4D, 13D-14D:
Monday	2D	1.0	6-4	Black brown fine to coarse sand, sm gravel,			4"	Petroleum odor.
		3.0	4-5	tr silt, brick, cinders (Fill) (SP-SM)				
30°F	3D	3.0	4-3	Black brown coarse to fine sand, some silt,		5		
		5.0	6-6	trace gravel, cinders, brick (Fill) (SM)			MUD	
	4D	5.0	3-3	Gray brown fine to coarse sand, some silt,				
		7.0	2-5	trace gravel, cinders, brick (Fill) (SM)				
	5D	7.0	2-2	Gray brown coarse to fine sand, some silt,				
		9.0	6-5	gravel, trace cinders, brick (Fill) (SM)	F	10		
	6D	9.0	1-1	Gray black fine to coarse sand, some silt,				REC=5"
		11.0	1-1	cinders, trace shells (Fill) (SM)				
	7D	11.0	1-1	Gray silty fine to coarse sand, trace gravel,				
		13.0	1-2	shells, brick, cinders (Fill) (SM)				
	8D	13.0	2-1	Gray silty fine sand, trace wood, mica (Fill)		15		
		15.0	1-3	(SM)				
	9D	15.0	1-2	Gray silty fine sand, trace vegetation (Fill)				
		17.0	2-2	(SM)				
	10D	17.0	1-2	Gray silty fine sand, some silt, trace organic				
		19.0	2-1	clay layers, brick (Fill) (SM)		20		
	11D	20.0	1-2	Gray fine sand, some silt, trace vegetation				
		22.0	1-1	(Fill) (SM)				
						23.5		
						25		
	12D	25.0	4-6	Gray fine sand, some silt, trace mica (SM)				
		27.0	8-11		S1			
						28.5		
						30		
	13D	30.0	5-3	Gray silt, trace fine sand (ML)	M			WC=23
		32.0	5-5					
						33.5		
						35		
	14D	35.0	4-8	Gray fine sand, some silt, trace silt layers,				
		37.0	11-13	trace mica (SM)				
						40		
	15D	40.0	6-5	Brown silty fine sand, trace clay pockets,				
		42.0	9-7	mica (SM)	S1			
						45		
	16D	45.0	9-10	Do 15D (SM)				
		47.0	13-13					
						50		
	17D	50.0	10-12	Red brown silty fine sand with medium to				Sand layer in
		52.0	13-20	fine sand layers (SM)				middle of sample.

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-17
SHEET 2 OF 3
FILE NO. 9446
SURFACE ELEV. 10.5
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
Cont'd								
12-18-00								
Monday								
30°F						55		
	18D	55.0	5-11	Top 10": Red brown silty fine sand, trace mica (SM)	S1			
		57.0	13-14	Bot 8": Brown fine to medium sand, trace silt, gravel (SP-SM)				
						60		
	19D	60.0	13-12	Brown fine to medium sand, some gravel, trace silt (SP-SM)				
		62.0	12-12					
						63.5		
					S2	65		
	20D	65.0	19-37	Brown fine to coarse sand, some silt, gravel, decomposed rock fragments, trace mica (SM)				Decomposed mica schist fragments.
		67.0	28-25					
						70		
	21D	70.0	17-21	Red brown silty fine to medium sand, trace gravel, clay, mica (SM)				
		72.0	16-20					
						75		
	22D	75.0	20-25	Red brown gravelly fine to coarse sand, some silt, trace clay (SM)				
		77.0	22-30					
						80		
	23D	80.0	23-26	Red brown gravelly fine to coarse sand, some clay (SC)				End of Boring at 82'.
14:00		82.0	19-15			82		
						85		WC=Water Content in percent of dry weight.
						90		
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT	LOWE'S HOME CENTER	BORING NO.	B-17
LOCATION	BROOKLYN, NEW YORK	SHEET	3 OF 3
BORING LOCATION	SEE PLAN	FILE NO.	9446
		SURFACE ELEV.	10.5
		DATUM	BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	CME-75	MECHANICAL		DIA., IN	4	DEPTH, FT. FROM 0	TO 20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:

D-SAMPLER 2" O.D. SPLIT SPOON
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3-7/8, 4-7/8
TYPE OF DRILLING MUD QUIK - GEL

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

*AUTOMATIC HAMMER USED.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.		TOP ELEV.
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.		TIP ELEV.
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.		BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT.	82	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER:	

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
DRILLER MIKE BLEJWAS HELPERS DENNIS KEITH
REMARKS BOREHOLE GROUTED UPON COMPLETION.
RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-18-00

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-18
SHEET 1 OF 3
FILE NO. 9446
SURFACE ELEV. +10.5
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
06:30	1D	0.0	19-24	Brown fine to coarse sand, some silt, trace			DRILLED	
12-15-00		2.0	22-18	gravel, brick, cinders (Fill) (SM)			AHEAD	
Friday	2D	2.0	15-15	Gray coarse to fine sand, trace silt, brick,			4"	
		4.0	12-10	cinders, concrete (Fill) (SP-SM)				
30°F	3D	4.0	2-2	Brown fine to coarse sand, some silt, trace		5		
		6.0	4-2	brick, cinders (Fill) (SM)				
	4D	6.0	2-2	Black brown fine to coarse sand, some silt,	F			
		8.0	5-5	trace cinders (Fill) (SM)				
	5D	8.0	4-3	Black fine to coarse sand, some silt, trace				5D-6D: Petroleum
		10.0	5-7	gravel, cinders (Fill) (SM)		10		odor.
	6D	10.0	2-3	Black gray fine to coarse sand, some silt,				REC=6"
		12.0	4-3	trace brick, cinders (Fill) (SM)				
	7D	12.0	4-3	Red brown silty fine to medium sand, trace				
		14.0	1-1	gravel (Fill) (SM)				
						15		
	8D	15.0	WH/18"	Top 7": Brn f-m sand, sm silt, tr gvl (SM)				
		17.0	1	Bot 6":Soft gray brn org si cl, sm veg (OH)		16.4		8D Bot: WC=236
	9D	17.0	1-1	Do 8D, Bottom (OH)	O			WC=302
		19.0	3-2					
						19.5		
	10D	20.0	1-1	Gray silty fine sand, trace vegetation (SM)				WC=23
		22.0	1-2					
					S1			
						25		
	11D	25.0	5-7	Gray fine sand, some silt (SM)				
		27.0	6-9					
						28.5		
						30		
	12D	30.0	4-1	Gray silt, some fine sand, trace clay (ML)				WC=27
		32.0	1-2					
					M			
						35		
	13D	35.0	1-2	Medium clayey silt, trace fine sand (ML)				WC=31
		37.0	3-5					
						38.5		
						40		
	14D	40.0	6-7	Gray brown fine sand, trace silt (SP-SM)	S1			
		42.0	9-11					
						43.5		
					M	45		
	15D	45.0	1-4	Top 14": Medium gray clayey silt, trace				15D Top: WC=32
		47.0	13-12	mica, fine sand (ML)		46.2		
				Bot 10": Gray fine sand, some silt, trace	S1			
				mica (SM)		48.5		
						50		
	16D	50.0	9-12	Red brown micaceous fine sand, some silt	S2			
		52.0	13-16	(SM)				

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-18
SHEET 2 OF 3
FILE NO. 9446
SURFACE ELEV. +10.5
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
Cont'd								
12-15-00								
Friday								Hard drilling from 54' to 55'.
30°F						55		
	17D	55.0	17-12	Red brown fine to medium sand, some silt, gravel, trace clay, mica (SM)				
		57.0	9-14					
								Hard drilling from 59' to 60'; possible boulder.
						60		
	18D	60.0	18-5	Red brown fine to medium sand, some gravel, silt (SM)				
		62.0	15-11					
						65		
	19D	65.0	34-17	Red brown coarse to fine sandy gravel, some silt (GM)				
		67.0	30-19					Hard drilling from 67.5' to 69'; possible boulder.
						70		
	20D	70.0	14-44	Red brown fine to medium sand, some silt, gravel, trace clay (SM)				
		72.0	82-37					Hard drilling boulder from 74' to 75'.
					S2	75		
	21D	75.0	100/5"	Red brown fine to medium sand, some gravel, silt, trace coarse sand (SM)				REC=5"
		77.0						Rods chattering at 76'. Hard drilling from 76' to 77.5'; possible boulder.
						80		
	22D	80.0	20-25	Red brown fine to medium sand, some silt, gravel (SM)				
		82.0	24-25					
						85		
	23D	85.0	100/3"	Red brown fine to medium sand, some silt, gravel, trace clay (SM)				REC=3"; hard drilling from 85.2' to 87.5'; possible boulder.
		87.0						
						90		
	24D	90.0	46-26	Red brown gravelly fine to medium sand, some silt, trace clay (SM)				
		92.0	23-27					
						95		
	25D	95.0	53-41	Gray brown gravel, trace fine to medium sand, silt (GP-GM)				Rock fragments in tip of spoon.
		97.0	52-39					WC=Water Content in percent of dry weight.
						100		
	26D	100.0	29-30	Red brown fine to medium sand, some gravel, silt, trace clay (SM)				End of Boring at 102'.
15:40		102.0	23-20			102		

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B-18
SHEET 3 **OF** 3
FILE NO. 9446
SURFACE ELEV. +10.5
DATUM BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

PROJECT LOWE'S HOME CENTER
LOCATION BROOKLYN, NEW YORK
BORING LOCATION SEE PLAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	CME-75	MECHANICAL		DIA., IN	4	DEPTH, FT. FROM 0	TO 20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. SPLIT SPOON
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN.
TYPE OF DRILLING MUD QUIK - GEL

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

*AUTOMATIC HAMMER USED.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
12-15-00	15:40	102	20	10	MUD/WATER UPON COMPLETION.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT.	102	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER: OBSTRUCTIONS	6

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
DRILLER MIKE BLEJWAS HELPERS DENNIS KEITH
REMARKS BOREHOLE GROUTED UPON COMPLETION.
RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-15-00

BORING NO. B-18

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-19
SHEET 1 OF 3
FILE NO. 9446
SURFACE ELEV. 10.5
RES. ENGR. RANDOLPH NUN

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
06:30	1D	0.0	5-6	Brown coarse to fine sand, some gravel silt,			DRILLED	
12-13-00		2.0	4-4	trace brick, concrete (Fill) (SM)			AHEAD	
Wednesday	2D	2.0	4-5	Light gray coarse to fine sand, some gravel,			4"	2D-4D, 8D, 13D:
Sunny		3.6	25-50/1"	silt (Fill) (SM)				Petroleum odor.
20°F						5		Hard drilling from
								4' to 7'.
	3D	7.0	5-3	Black brown silty fine to coarse sand, trace				
		9.0	2-3	gravel, vegetation (Fill) (SM)	F			
	4D	9.0	2-1	Black coarse to fine sand, some silt,		10		REC=6"
		11.0	2-2	cinders, trace shells (Fill) (SM)				
	5D	11.0	2-2	Do 4D (Fill) (SM)				
		13.0	1-2					
	6D	13.0	2-2	Do 4D (Fill) (SM)				
		15.0	3-6			15		
	7D	15.0	1-2	Black cinders (Fill)				REC=1"
		17.0	3-1			17		
	8D	17.0	2-2	Brown peat (Pt)				WC=289
		19.0	2-2		O			Sheen in wash at
						19.5	▽	20'.
	9D	20.0	2-2	Brown fine sand, some silt, trace				
		22.0	3-2	vegetation, mica (SM)				
						25		
	10D	25.0	8-9	Gray brown fine sand, some silt, trace mica	S1			
		27.0	12-12	(SM)				
						30		
	11D	30.0	8-8	Gray brown fine sand, some clay pockets,				
		32.0	6-7	silt (SM)				
						33.5		
						35		
	12D	35.0	4-4	Medium gray clayey silt, some micaceous	M			pp=1.0, WC=30
		37.0	3-4	fine sand (ML)				
						37.5		
						40		
	13D	40.0	6-4	Gray fine to medium sand, some silt, trace				
		42.0	3-17	mica (SM)	S1			
						45		
	14D	45.0	6-8	Gray fine to medium sand, trace silt				
		47.0	10-7	(SP-SM)				
						48.5		
						50		15D: WC=20
	15D	50.0	4-2	Gray brown micaceous fine sandy silt, trace	M			Percent Passing No.
		52.0	2-3	clay (ML)				200 Sieve=74

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-19
SHEET 2 OF 3
FILE NO. 9446
SURFACE ELEV. 10.5
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
Cont'd								
12-13-00								
Wednesday								
Sunny								
20°F						55		
	16D	55.0	WR-2	Gray micaceous fine sandy silt (ML)	M			WC=29
		57.0	1-3					Percent Passing No.
								200 Sieve=59
						60		
	17D	60.0	7-11	Do 16D (ML)				
		62.0	16-12					
						63.5		
						65		
	18D	65.0	22-18	Brown fine to coarse sand, some gravel, silt	S1			
		67.0	23-15	(SM)				
						68.5		
						70		
	19D	70.0	19-16	Top 12": Red brown silty fine to medium				
		72.0	10-18	sand, trace gravel (SM)				
				Bot 4": Red brown fine to medium sand,				
				some silt, trace silt (SM)				
					S2	75		
	20D	75.0	35-24	Red brown some fine to coarse sand, silt,				REC=8"
		77.0	100/4"	gravel (GM)				Roller bitted
								boulder from 76.4'
								to 78.2'.
						80		End of Boring at
	21D	80.0	20-22	Red brown fine to coarse sandy gravel,				82'.
14:00		82.0	22-19	some silt (GM)		82		
								pp=Pocket
								Penetrometer
						85		Unconfined Compres-
								sive Strength in tsf.
								WC=Water Content
								in percent of dry
						90		weight.
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B-19
SHEET 3 **OF** 3
FILE NO. 9446
SURFACE ELEV. 10.5
DATUM BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

PROJECT LOWE'S HOME CENTER
LOCATION BROOKLYN, NEW YORK
BORING LOCATION SEE PLAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO			
TRUCK	CME-75	MECHANICAL		DIA., IN	4	DEPTH, FT. FROM	0	TO 20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM		TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO
OTHER								

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. SPLIT SPOON
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3-7/8, 4-7/8
TYPE OF DRILLING MUD QUIK - GEL

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*AUTOMATIC HAMMER USED.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
12-13-00	14:00	82		10	CASING REMOVED UPON COMPLETION.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT.	80.2	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER: BOULDER	1.8

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
DRILLER MIKE BLEJWAS HELPERS DENNIS KEITH
REMARKS BOREHOLE GROUTED UPON COMPLETION.
RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-13-00

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-20
SHEET 1 OF 3
FILE NO. 9446
SURFACE ELEV. 10.5
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
13:45	1D	0.0	11-38	Brown fine to coarse sand, some silt, trace			DRILLED	
12-20-00		2.0	49-56	brick, cinders, gravel (Fill) (SM)			AHEAD	
Wednesday	2D	2.0	100/6"	Do 1D (Fill) (SM)			4"	2D, 4D-5D, 7D:
Windy,		2.5						REC=3"
Clear						5		
30°F-50°F	3D	5.0	8-2	Black brown coarse to fine sand, some silt,				3D, 18D: REC=2"
		7.0	4-5	trace cinders, brick (Fill) (SM)				Petroleum odor.
	4D	7.0	7-3	Do 3D (Fill) (SM)				
		9.0	3-2		F			
						10		
	5D	10.0	2-1	Do 3D (Fill) (SM)				
		12.0	1-1					
	6D	12.0	1-2	Black silty fine to coarse sand, trace gravel,				REC=1"
		14.0	1-1	cinders (Fill) (SM)				
						15		
	7D	15.0	3-3	Black coarse to fine sand, some silt,				
		17.0	3-3	cinders, trace brick (Fill) (SM)		17		
	8D	17.0	4-5	Top 22": Brown peat (Pt)	O			8D Top: WC=292
		19.0	8-5	Bot 2": Brown silty fine sand, trace peat		18.9		
16:15				(SM)		20	↓	
06:30	9D	20.0	2-2	Gray silty fine sand, trace concrete,				
12-21-00		22.0	4-4	vegetation (Fill) (SM)				
Thursday								
Cloudy								
20°F						25		
	10D	25.0	10-17	Brown fine sand, some silt (SM)	S1			
		27.0	20-14					
						30		
	11D	30.0	3-6	Brown silty fine sand (SM)				
		32.0	5-5					
						33.5		
						35		
	12D	35.0	5-4	Soft gray clayey silt, trace fine sand, mica				WC=38
		37.0	2-2	(ML)				
						40		
	13D	40.0	2-2	Soft gray clayey silt, trace fine sand, trace				pp=0.5, WC=44
		42.0	2-2	mica (ML)				
					M			
						45		
	14D	45.0	WR/12"	Do 13D (ML)				WC=39
		47.0	2-2					
						50		
	15D	50.0	WR-2	Do 13D (ML)				WC=38
		52.0	2-3					

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-20
SHEET 2 OF 3
FILE NO. 9446
SURFACE ELEV. 10.5
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
Cont'd								
12-21-00								
Thursday					M			
Cloudy								
20°F						54.5		
	16D	55.0	14-15	Gray brown fine to medium sand, some silt, trace mica (SM)				
		57.0	18-19		S1			Hard drilling at 57.9'.
						58		
								Boulder from 58' to 60'.
						60		
	17D	60.0	20-20	Red brown silty fine to coarse sand, trace gravel (SM)				
		62.0	35-37					
						65		
	18D	65.0	100/2"	Do 17D (SM)				
		65.2						
					S2			
						70		
	19D	70.0	20-100/5"	Gray brown gravel, trace fine to coarse sand, silt (GP-GM)				REC=4"
		70.9						Possible wash.
						75		
	20D	75.0	41-32	Red brown silty fine to medium sand, trace gravel (SM)				
		77.0	32-43					
						80		
	21D	80.0	36-38	Red brown fine to medium sand, some gravel, silt (SM)				Rock fragments in tip of spoon.
12:45		82.0	56-51			82		End of Boring at 82'.
						85		
								pp=Pocket Penetrometer Unconfined Compressive Strength in tsf.
						90		
								WC=Water Content in percent of dry weight.
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B-20
SHEET 3 OF 3
FILE NO. 9446
SURFACE ELEV. 10.5
DATUM BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

PROJECT LOWE'S HOME CENTER
LOCATION BROOKLYN, NEW YORK
BORING LOCATION SEE PLAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		[X] YES [ ] NO			
TRUCK	CME-55	MECHANICAL		DIA., IN	4	DEPTH, FT. FROM	0	TO	20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM		TO	
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO	
OTHER									

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. SPLIT SPOON
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3-7/8, 2-15/16
TYPE OF DRILLING MUD QUIK - GEL

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

*SAFETY HAMMER USED.

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT.	100	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER: OBSTRUCTION (BOULDERS)	2

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
DRILLER RAY LYNCH HELPERS EDWIN FELICIANO
REMARKS BOREHOLE GROUTED UPON COMPLETION.
RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-21-00

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 2
FILE NO. 9446
BORING NO. B20AM
SURFACE ELEV.

PROJECT Lowe's Home Cntr.
PROJECT LOCATION Brooklyn NY
RES. ENGR. R. NUNEZ

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
1/24/01 WED. 0715 Partly cloudy 30' SOF				Drilled Ahead to 35 FT, obtained 2-U-TUBES, No sampling in the top 35 FT.			Drilled Ahead	
						5	MUD	
						10		
						15		
						20		
						25		
						30		
						35		
	1U	35 37	P=24" R=20	soft gray org. silty clay, Tr. f. sand (OH)				
					⓪	40		
						45		
	2U	45 47	P=24" R=19"	DO-1U (OH)				
0930						47		E.O.B @ 47 FT

BORING NO. B-20AU

FORM NO. B-1

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B-20AU
SHEET 2 OF 2
FILE NO. 9446
SURFACE ELEV.
DATUM

PROJECT Lowe's Home Cntr
LOCATION Brooklyn NY
BORING LOCATION 5 FT. EAST of B20

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		☒ YES ☐ NO		
TRUCK	CME55	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO 20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM		TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO
OTHER								

TYPE AND SIZE OF:
D-SAMPLER
U-SAMPLER Shelby Tube
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED ☒ YES ☐ NO
DIAMETER OF ROTARY BIT, IN. 3 7/8"
TYPE OF DRILLING MUD Quikgel

AUGER USED ☐ YES ☒ NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. — AVERAGE FALL, IN. —
SAMPLER HAMMER, LBS. — AVERAGE FALL, IN. —

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					no observation

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT.	43	NO. OF 3" SHELBY TUBE SAMPLES	2
3.5" DIA. U-SAMPLE BORING	LIN. FT.	4	NO. OF 3" UNDISTURBED SAMPLES	—
CORE DRILLING IN ROCK	LIN. FT.	—	OTHER:	—

BORING CONTRACTOR SBDeo
DRILLER R. Lynch HELPERS G. Feliciano
REMARKS grouted borehole upon completion
RESIDENT ENGINEER R. Avant DATE 01/24/01

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type: dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. B20AU

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-20P
SHEET 1 OF 4
FILE NO. 9446
SURFACE ELEV. 10.5
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
08:00							DRILLED	Drilled to 30' for
12-21-00							AHEAD	piezometer instal-
Thursday							4"	lation.
Cloudy								Drilled borehole with
20°F						5		water.
								For strata, see
								Boring Log B-20.
					F			
						10		
						15		
						17		
					O			
						18.9		
						20	∀	
					F			
						25		
								End of Boring at
						30		30'.
						35		
						40		
						45		
						50		

BORING NO. B-20P

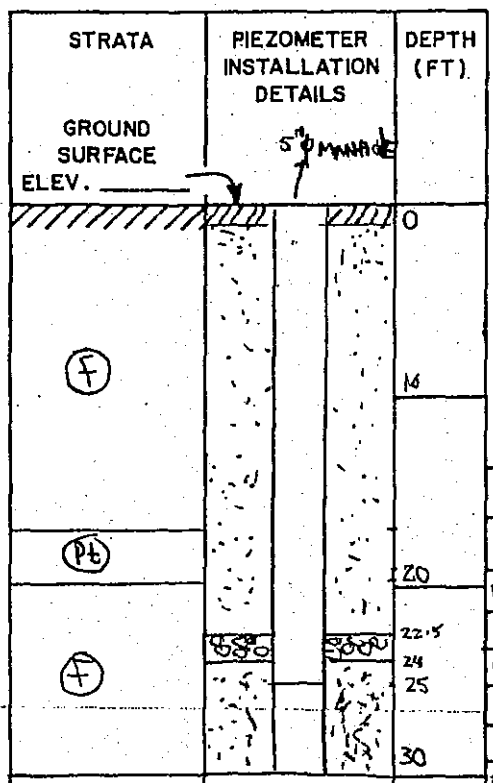
SHEET 2 OF 4
FILE NO. 9446
SUBCODE

MUESER RUTLEDGE CONSULTING ENGINEERS

PIEZOMETER RECORD

PROJECT Lowe's Home Center
PIEZOMETER NO. B-20P
LOCATION Brooklyn NY
PIEZOMETER LOCATION 4ft± Northeast from boring B-20
DATE OF INSTALLATION 12/21/00
☐ SEE SKETCH ON BACK
RES. ENG. K. Nunez

PIEZOMETER TYPE SCH40 slotted PVC



INTAKE POINT

depth to bottom, ft = 30
depth to top, ft = 24
length, ft = 6 = L
diameter, in = 4, ft = = 2R

STANDPIPE/RISER

elevation of rim, ft = 10.2
diameter, in = 1¼, ft = = 2r

READING TIME DATE	CLOCK	DEPTH – RIM TO WATER (ft.)	ELEVATION OF WATER	REMARKS
12/27/00	0850	7.6		Riser → 0.3 ft. below ground surface.
12/27/00	0915	7.6		
12/27/00	1300	7.55		
12/28	0715	7.5		
12/29	0710	7.7		
01/02	1135	7.9		
01/03	1024	7.8		
	1245	7.85		
01/04	0720	7.7		
01/05	0940	7.7		
01/08	0754	7.8		
01/09	0813	7.75		
01/10	1210	7.9		
01/12	0915	7.9		
01/16	1123	7.5		
01/19	1120	7.2		
01/23	1150	7.2		

Sand Bentonite
Gravel Grout

GROUND SURFACE ELEV. 10.5

PIEZOMETER NO. B-20P

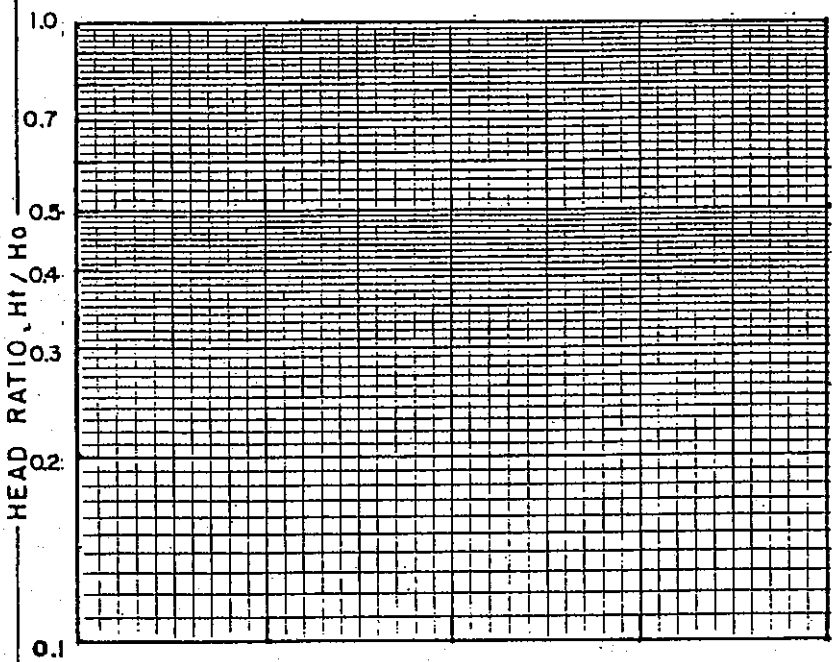
SHEET 3 OF 4
FILE NO. 9446
SUBCODE

MUESER RUTLEDGE CONSULTING ENGINEERS

VARIABLE HEAD PERMEABILITY TEST

☐ BOREHOLE OR ☒ PIEZOMETER NO. B-20P
TEST NO. 1

PROJECT Lowe's Home Center — RES.ENG. R. Nunez
LOCATION Brooklyn, NY — CALC.BY ____ DATE ____
PIEZOMETER LOCATION ____ CH'KD BY ____ DATE ____



INTAKE POINT

depth to bottom, ft = 30
depth to top, ft = 24
length, ft = 6 = L
diameter, in = 4, ft = ____ = 2R

STANDPIPE/RISER

diameter, in = 1¼, ft = ____ = 2r

depth of casing, ft = ____

depth to which standpipe was bailed, ft = ____ = Z

READING TIME DATE	CLOCK	Δt MIN.	TEST DEPTH-RIM TO WATER ft.	DEPTH-RIM TO TIDE OR GWL ft.	UNBALANCED HEAD H ft.	HEAD RATIO Ht/Ho	REMARKS
12/27/00	0855	—	0.0	7.6	0		STATIC WATER LEVEL
		0.5	0.8				Riser is 0.3 ft. below ground surface
		1	1.8				
		2	2.4				
		3	3.1				
		4	4.0				
		5	4.9				
		6	5.4				
		7	5.8				
		8	6.0				
		9	6.3				
		10	6.55				
		11	6.9				
		12	7.0				
		13	7.1				
		14	7.2				

Min	Depth (can't test)
15	7.3
16	7.35
17	7.45
18	7.5
19	7.5
20	7.6

PIEZOMETER NO. B-20P

MUESER RUTLEDGE CONSULTING ENGINEERS

		BORING NO.	B-20P
		SHEET	4 OF 4
PROJECT	LOWE'S HOME CENTER	FILE NO.	9446
LOCATION	BROOKLYN, NEW YORK	SURFACE ELEV.	10.5
BORING LOCATION	SEE PLAN	DATUM	BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	CME-55	MECHANICAL		DIA., IN	4	DEPTH, FT. FROM 0	TO 20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:

D-SAMPLER
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [ ] YES [X] NO
DIAMETER OF ROTARY BIT, IN. 3-7/8
TYPE OF DRILLING MUD

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. AVERAGE FALL, IN.
SAMPLER HAMMER, LBS. AVERAGE FALL, IN.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
12-27-00	8:50			7.6	PIEZOMETER READING.
12-27-00	9:15			7.6	AFTER FALLEN HEAD TEST.

PIEZOMETER INSTALLED [X] YES [ ] NO SKETCH SHOWN ON SEE SHEET 3 OF 4

STANDPIPE:	TYPE	SCHEDULE 40 PVC	ID, IN.		LENGTH, FT.	TOP ELEV.	
INTAKE ELEMENT:	TYPE	SLOTTED PVC	OD, IN.		LENGTH, FT.	TIP ELEV.	
FILTER:	MATERIAL	SAND	OD, IN.		LENGTH, FT.	BOT. ELEV.	

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT.		NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER: BORING WITHOUT SAMPLING	30 LIN. FT.

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
DRILLER RAY LYNCH HELPERS EDWIN FELICIANO
REMARKS PLACED MANHOLE COVER 5" DIAMETER.
RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-21-00

BORING NO. B-20P

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-21
SHEET 1 OF 3
FILE NO. 9446
SURFACE ELEV. 10.5
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
06:45	1D	0.0	40-29	Brown fine to coarse sand, some silt, trace			DRILLED	
12-18-00		2.0	32-31	gravel, brick (Fill) (SM)			AHEAD	
Monday	2D	2.0	9-20	Brown coarse to fine sand, some gravel,			4"	
		4.0	23-15	silt, trace brick (Fill) (SM)				
30°F						5		
	3D	5.0	1-3	Brown fine to coarse sand, some silt, trace				
		7.0	3-3	brick, cinders, vegetation (Fill) (SM)				
	4D	7.0	1-1	Brown gray peat, some silty clay (Pt)				WC=125
		9.0	1-1		F			
						10		
	5D	10.0	1-1	Brown peat, trace vegetation (Pt)				WC=281
		12.0	1-1					
	6D	12.0	5-7	Top 7": Do 5D, tr gravel, bricks, glass (Pt)				6D Top: WC=351
		14.0	9-6	Bot 12": Gray brown fine to medium sand,				
				some silt, trace gravel, mica (SM)		15		
	7D	15.0	1-1	Brown fine sand, some silt (SM)				Sample saturated
		17.0	2-2					with water.
	8D	17.0	3-1	Top 11" Do 7D, trace vegetation (SM)		17.9		
		19.0	2-2	Bot 13": Brown peat, trace vegetation (Pt)	O			8D Bot: WC=259
						19.5		
	9D	20.0	1-1	Gray silty fine sand, trace peat (SM)				
		22.0	2-1					
					S1			
						25		
	10D	25.0	10-12	Gray silty fine sand, trace mica (SM)				Petroleum odor.
		27.0	16-19					
						28.5		
						30		
	11D	30.0	5-3	Soft gray clayey silt, trace fine sand (ML)				WC=25
		32.0	6-5		M			
						35		
	12D	35.0	WH/12"	Top 10": Do 11D (ML)		36		12D Top: pp=0.5,
		37.0	13-17	Bot 7": Gray brown fine sand, some silt,	S1			WC=33
				mica (SM)				
						38.5		
						40		
	13D	40.0	WR-4	Soft gray clayey silt, some fine sand, trace	M			WC=32
		42.0	4-3	mica (ML)				
						43.5		
						45		
	14D	45.0	15-20	Brown fine sand, some silt, trace gravel				Petroleum odor;
		47.0	21-23	(SM)				sheens.
					S1			
						50		
	15D	50.0	18-26	Brown fine sand, some silt, trace mica (SM)				
		52.0	24-26					

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-21
SHEET 2 OF 3
FILE NO. 9446
SURFACE ELEV. 10.5
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
Cont'd								
12-18-00								
Monday								
30°F						55		
	16D	55.0	16-19	Brown fine sand, some silt, vegetation, mica (SM)				Petroleum odor.
		57.0	28-21					
						60		
	17D	60.0	17-19	Brown fine sand, some silt, mica (SM)				
		62.0	22-24					
					S1			
						65		
	18D	65.0	16-18	Brown fine to medium sand, some silt, trace gravel (SM)				
		67.0	22-20					
						70		
	19D	70.0	19-18	Brown gravelly coarse to fine sand, some silt (SM)				Heavy petroleum odor.
		72.0	26-31					
						75		
	20D	75.0	36-37	Do 19D (SM)				
		77.0	48-36					
						80		
	21D	80.0	50-100/3"	Brown silty fine to coarse sand, some gravel (SM)		80.8		REC=5"
		80.8						End of Boring at 80.8'.
						85		pp=Pocket Penetrometer Unconfined Compressive Strength in tsf.
						90		WC=Water Content in percent of dry weight.
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT	LOWE'S HOME CENTER	BORING NO.	B-21
LOCATION	BROOKLYN, NEW YORK	SHEET	3 OF 3
BORING LOCATION	SEE PLAN	FILE NO.	9446
		SURFACE ELEV.	10.5
		DATUM	BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO			
TRUCK	CME-55	MECHANICAL		DIA., IN	4	DEPTH, FT. FROM	0	TO 20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM		TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO
OTHER								

TYPE AND SIZE OF:

D-SAMPLER	2" O.D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	N

DRILLING MUD USED [X] YES [ ] NO

DIAMETER OF ROTARY BIT, IN. 3-7/8

TYPE OF DRILLING MUD QUIK - GEL

AUGER USED [ ] YES [X] NO

TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24

*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

*SAFETY HAMMER USED.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.		TOP ELEV.
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.		TIP ELEV.
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.		BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT.	82	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER:	

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.

DRILLER RAY LYNCH HELPERS EDWIN FELICIANO

REMARKS BOREHOLE GROUTED UPON COMPLETION.

RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-18-00

BORING NO. B-21

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-22
SHEET 1 OF 3
FILE NO. 9446
SURFACE ELEV. 10.4
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
13:00	1D	0.0	33-26	Brown fine to coarse sand, some gravel,			DRILLED	
12-13-00		2.0	21-34	silt, trace brick (Fill) (SM)			AHEAD	
Wednesday	2NR	2.0	100/1"	No Recovery			4"	
		2.1					MUD	
30°F	3D	4.0	2-1	Black fine to coarse sand, some silt, trace		5		3D, 5D, 9D: Petrol-
		6.0	2-2	gravel, brick (Fill) (SM)				leum odor.
	4D	6.0	4-6	Do 3D (Fill) (SM)				Sheen in wash.
		8.0	19-14					
					F			
						10		
	5D	10.0	3-5	Brown fine to coarse sand, some silt, trace				REC=5"
		12.0	4-4	gravel (Fill) (SM)				
	6D	12.0	4-10	Brown silty fine sand, trace gravel, trace				
		14.0	10-7	wood (Fill) (SM)				
	7D	14.0	11-8	Brown silty fine sand, some gravel, trace		15		
		16.0	9-2	vegetation (Fill) (SM)				
	8D	16.0	1-1	Brown fine sand, some silt, gravel (Fill) (SM)				REC=1"
		18.0	1-1					Driller placed new
						19		trap; 19' clay
						20		in wash.
	9D	20.0	1-1	Brown silty fine sand, trace vegetation (SM)				
		22.0	3-3					
					S1			
						25		
	10D	25.0	10-13	Gray fine sand, some silt (SM)				
14:30		27.0	22-16					
06:30								
12-15-00						28.5		
Friday						30		Percent Passing
	11D	30.0	5-5	Gray fine sandy silt, trace fine sand (ML)				No. 200 Sieve=90
30°F		32.0	5-10					WC=36
						35		
	12D	35.0	4-3	Medium gray clayey silt, some fine sand	M			pp=0.75, WC=31
		37.0	6-6	(ML)				
						40		
	13D	40.0	2-3	Stiff gray clayey silt, some fine sand (ML)				pp=1.0, WC=35
		42.0	3-4					
						43.5		
						45		
	14D	45.0	9-13	Brown fine sand, some silt (SM)				
		47.0	19-13					
					S1			
						50		
	15D	50.0	7-20	Brown silty fine sand, trace micaceous (SM)				
		52.0	19-22					

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING LOG

BORING NO. B-22
SHEET 2 OF 3
FILE NO. 9446
SURFACE ELEV. 10.4
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
Cont'd								
12-15-00								
Friday								
					S1			
30°F						55		
	16D	55.0	11-15	Gray brown fine sand, some silt (SM)				
		57.0	20-24					
						58.5		
						60		
	17D	60.0	18-30	Red brown silty fine sand, trace gravel, trace micaceous (SM)				
		62.0	28-20					
						65		
	18D	65.0	16-23	Red brown fine sand, some silt, trace gravel (SM)				REC=6"
		67.0	38-43					
						70		
	19D	70.0	28-35	Red brown fine to medium sand, some gravel, silt (SM)				
		72.0	40-22					
						75		
					S2			
								Driller overdrilled to 80'.
						80		
	20D	80.0	23-30	Red brown fine to medium sand, some gravel, silt (SM)				
		82.0	22-24					
						85		
	21D	85.0	60-88	Red brown fine to coarse sand, some gravel, silt (SM)				Rock fragments in the tip of spoon.
		86.3	100/4"					
						90		
	22D	90.0	62-53	Red brown fine to coarse sand, some gravel, silt (SM)				REC=5"
		92.0	50-31					pp=Pocket Penetrometer Unconfined Compressive Strength in tsf.
						95		
	23D	95.0	46-68	Red brown fine to coarse sand, some gravel, silt (SM)				
		96.0	100/2"					WC=Water Content in percent of dry weight.
						100		REC=7"
	24D	100.0	76-64	Do-23D (SM)				End of Boring at 102'.
15:00		102.0	55-36			102		

BORING NO. B-22

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. B-22
SHEET 3 OF 3
FILE NO. 9446
SURFACE ELEV. 10.4
DATUM BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

PROJECT LOWE'S HOME CENTER
LOCATION BROOKLYN, NEW YORK
BORING LOCATION SEE PLAN

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	CME-55	MECHANICAL		DIA., IN	4	DEPTH, FT. FROM 0	TO 25
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. SPLIT SPOON
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN.
TYPE OF DRILLING MUD QUIK - GEL

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
*SAMPLER HAMMER, LBS 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

*SAFETY HAMMER USED.

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT.	98.5	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER: OBSTRUCTION (BOULDERS)	3.5

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.
DRILLER RAY LYNCH HELPERS EDWIN FELICIANO
REMARKS BOREHOLE GROUTED UPON COMPLETION.
RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-15-00

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-23
SHEET 1 OF 3
FILE NO. 9446
SURFACE ELEV. 10.4
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
11:00	1D	0.0	5-9	Brown fine to coarse sand, some silt,			DRILLED	REC=13"
02-12-00		2.0	23-32	gravel, trace brick, concrete (Fill) (SM)			AHEAD	
Tuesday	2D	2.0	36-50	Do 1D (Fill) (SM)			4"	
Windy		4.0	38-100/3"					
						5		
	3NR	5.0	100/0"	No recovery				Spoon bouncing.
								Hard drilling from
	4NR	7.0	100/0"	No recovery	F			5' to 7'. Spoon
								bouncing.
						10		4NR: Rock frag-
								ments in wash.
								Hard drilling from
	5D	12.0	1-2	Gray silty fine to coarse sand, trace peat,				5' to 11.5'.
		14.0	2-2	wood (SM)				5D: WC=46
						15		
	6D	15.0	4-2	Soft gray organic silty clay, some				WC=124
		17.0	2-2	vegetation, fine sand layers (OH)				
	7D	17.0	1-2	Soft gray organic silty clay, some	O			WC=107
		19.0	1-1	vegetation, trace fine sand (OH)				
						19.5		
	8D	20.0	4-6	Gray brown silty fine sand, trace mica (SM)				
		22.0	10-13					
					S1			
						25		
	9D	25.0	9-18	Do 8D (SM)				
		27.0	24-26					
						28.5		
						30		
	10D	30.0	5-6	Red brown fine sandy silt, trace fine sand				WC=23
		32.0	6-7	seams (ML)				
						35		
	11D	35.0	1-2	Soft gray clayey silty trace micaceous fine				WC=33
		37.0	2-5	sand (ML)				Percent Passing
								No. 200 Sieve=93
					M			
						40		
14:30	12D	40.0	1-2	Soft gray fine sandy silt (ML)				WC=37
06:30		42.0	2-2					Percent Passing
12-13-00								No. 200 Sieve=64
Wednesday								
Sunny						45		
20°F	13D	45.0	4-3	Do 12D (ML)				WC=31
		47.0	4-4					
						48.5		
						50		
	14D	50.0	4-15	Brown fine sand, some silt, trace mica (SM)	S1			
		52.0	19-23					

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. B-23
SHEET 2 OF 3
FILE NO. 9446
SURFACE ELEV. 10.4
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
Cont'd								
12-13-00					S1			
Wednesday								
Sunny						53.5		
20°F						55		
	15D	55.0	15-13	Red brown silty fine to medium sand, trace gravel (SM)				
		57.0	18-21					
						60		
	16D	60.0	50-28	Do 15D (SM)				Hard drilling from 62.5' to 65'; possible boulders. Spoon bouncing.
		62.0	15-14					
						65		
	17NR	65.0	100/2"	No recovery				Possible boulder. Hard drilling from 65' to 69'.
		65.2			S2			
						70		
	18D	70.0	40-67	Red brown fine to medium sand, some gravel, silt, trace coarse sand, clay pockets, mica (SM)				
		72.0	38-32					
						75		
	19D	75.0	45-51	Red brown fine to medium sand, some gravel, silt, trace coarse sand, mica (SM)				
		77.0	43-41					
						80		End of Boring at 81'.
12:30	20D	80.0	41-100/6"	Red brown fine to medium sand, some silt, gravel, trace coarse sand (SM)		81		
		81.0						
								WC=Water Content in percent of dry weight.
						85		
						90		
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS

		BORING NO.	B-23
		SHEET	3 OF 3
PROJECT	LOWE'S HOME CENTER	FILE NO.	9446
LOCATION	BROOKLYN, NEW YORK	SURFACE ELEV.	10.4
BORING LOCATION	SEE PLAN	DATUM	BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	CME-55	MECHANICAL		DIA., IN	4	DEPTH, FT. FROM 0	TO 15
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:

D-SAMPLER	2" O.D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	N

DRILLING MUD USED [X] YES [ ] NO

DIAMETER OF ROTARY BIT, IN. 3-7/8, 4-7/8

TYPE OF DRILLING MUD QUIK - GEL

AUGER USED [ ] YES [X] NO

TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24

*SAMPLER HAMMER, LBS 140 AVERAGE FALL, IN. 30

*SAFETY HAMMER USED.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.	TOP ELEV.	
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.	TIP ELEV.	
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.	BOT. ELEV.	

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT.	81	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER:	

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.

DRILLER RAY LYNCH HELPERS EDWIN FELICIANO

REMARKS BOREHOLE GROUTED UPON COMPLETION.

RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-13-00

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3
FILE NO. 9446
BORING NO. PB-1
SURFACE ELEV.

PROJECT Lowe's Home center

PROJECT LOCATION Brooklyn, NY RES. ENGR. R. NUNEZ

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
							Drilled	Safety Hammer
					Conc		Allied	3 [illegible] at surface
	1D	3	35-31	concrete (fill) (conc.)				
		5	38-34		F			
	2D	5	11-17	BRN M-f sand, SM silt, gvl, Tr. Brick		5		R=2"
		7	18-18	(fill)(SM)			4	
	3D	7	15-14	RED-BRN silty m-f sand, SM Brick, Tr. gvl				
		9	15-17	(fill)(SM)				
	4D	10	4-2	BRN silty m-f sand, SM cinders, Tr.		10		R=2"
		12	2-1	Brick (fill)(SM)				
	5D	12	2-2	No Recovery				
		14	2-2					
								WOOD IN WASH.
						14.5		
	6D	15	6-4	gray org silty clay, SM f-sand, Tr. wood				
		17	2-2	(OH)	O			
	7D	17	1-2					
		19	2-1					
						20		
	8D	20	1-1	soft gray org silty clay, SM f-sand				
		22	1-1	(OH)				
						25		
	9D	25	1-2	DO-8D, Tr. shells (OH)				
		27	1-1					
						28.5		
						30		
	10D	30	7-10	gray f-c sand, Tr. silt (sp-sm)	S			
		32	12-14					
						35		
	11D	35	5-8	gray-BRN c-f sand, Tr. silt (sp-sm)				Petroleum in sample
		37	17+16					
						40		
	12D	40	14-19	gray m-f sand, Tr. silt (sp-sm)				
		42	22-15					
						45		
	13D	45	10-11	gray f-c sand, Tr. silt, gvl (sp-sm)				
		47	12-14					
						50		
	14D	50	7-9	DO-13D (sp-sm)				
		52	14-16					

BORING NO. Do 1

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 2 OF 3
FILE NO. 9446
BORING NO. PB-1
SURFACE ELEV.

PROJECT Lowe's Home Cntr

PROJECT LOCATION Brooklyn, NY RES. ENGR. R. Nunez

ESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	15D	55	14-14	DU-14D (SP-SM)	(S)	55		Petroleum in sample
		57	13-12					
						60		
	16D	60	11-20	BRN silty f-sand (SM)				
		62	18-18					
						65		
	17D	65	10-15	BRN c-f sand, SM gvl, Tr. silt (SP-SM)				
		67	15-11					
						70		
	18D	70	9-14	BRN c-f sand, Tr. gvl, silt (SP-SM)				
		72	15-12					
						75		
	19D	75	12-17	BRN silty f-c sand, Tr. gvl (SM)				
		77	34-14					
						80		
	20D	80	10-13	BRN f-c sand, SM silt, Tr. gvl (SM)				
		82	17-21			82		B.O.B @ 82 FT

BORING NO. PB-1

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. PB-1
SHEET 3 OF 3
FILE NO. 9446
SURFACE ELEV.
DATUM

PROJECT Lowe's Home Center
LOCATION Brooklyn NY
BORING LOCATION As shown

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	CME 55	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM 0	TO 20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" OD split spoon
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3 7/8, 5 7/8
TYPE OF DRILLING MUD QUIK-GEL

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					No observation.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. 82	NO. OF 3" SHELBY TUBE SAMPLES	—
3.5" DIA. U-SAMPLE BORING	LIN. FT. —	NO. OF 3" UNDISTURBED SAMPLES	—
CORE DRILLING IN ROCK	LIN. FT. —	OTHER:	—

BORING CONTRACTOR JBD Co.
DRILLER R. Lynch HELPERS E. Feliciano
REMARKS Grouted borehole upon completion
RESIDENT ENGINEER E. Nunez DATE 12/29/00

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3
FILE NO. 9446
BORING NO. PB-2
SURFACE ELEV.

PROJECT Lowe's Home Center

PROJECT LOCATION Brooklyn, NY RES. ENGR. R. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
01/02/01	1D	0	14-16	Blk. M.f sand, sm silt, Tr. gvl, cinders			Drilled	Safety Hammer
Res.		2	19-19	(fill) (SM)			Ahead	
clear	2D	2	48-100/2"	Blk-Brn M.f sand, Tr. gvl, silt, cinders,	(F)			
windy		2.7		concrete (fill) (sp-sm)				
18°F						5		
	3D	5	14-16	gray gravel, Tr. metal (GP) (fill)			MUD	R=3"
5°F		7	10-12					
wind chill	4D	7	8-8	gray gravel, Tr. conc. (fill) (GP)				R=4"
0805		9	11-13					
						10		
	5D	10	10-9	Red-Brn M.f sand, sm gvl, Tr. silt (sp-sm)				
		12	12-20			12		
	6D	12	8-2	gray org. silty clay, sm veg, f-sand				
		14	2-2	(OH)	(O)			
						15		
	7D	15	1-1	soft gray org. silty clay, Tr. f-sand,				
		17	1-1	swells (OH)				
	8D	17	1-1	Do-7D, Tr. veg. (OH)				
		19	1-1					
						20		
	9D	20	1-1	no recovery				Drilled ahead to next
		22	3-3					sample depth, unable
								to take spoon below
					?	23.5		sample 9D.
						25		
	10D	25	WOH/12"	gray silty M.f sand, Tr. mica (SM)	(S)			
		27	3-4					
						30		
	11D	30	13-22	Brn M.f sand, Tr. silt, mica (sp-sm)				
		32	28-21					
						33.5		
						35		
	12D	35	10-12	Red-Brn silty f-sand (SM)				
		37	13-16					
						40		
	13D	40	12-18	Red-Brn M.f sand, Tr. silt, mica (sp-sm)	(S)			
		42	13-14					
						45		
	14D	45	9-9	Brn M.f sand, Tr. silt, mica (sp-sm)				
		47	12-12					
						50		
	15D	50	12-13	Do-14D (sp-sm)				
		52	14-15					

FORM NO. R-1

BORING NO. PB-2

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 2 OF 3
FILE NO. 9446
BORING NO. P-B2
SURFACE ELEV.

PROJECT Lowe's Home Center

PROJECT LOCATION Brklyn, NY RES. ENGR. R. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
					E	55		
	16D	55	23-24	Brn m-f sand, Tr. silt, gvl (SP-SM)				R=3"
		57	24-21					
						58.5		
						60		
	17D	60	9-8	Red-Brn m-f sand, Sm silt (SM)				
1410		62	9-9		T			
01/03/01								
WGD.								
18°F						65		
0700	18D	65	41-36	Red-Brn silty f-sand, SM gvl (SM)				
		67	21-32					
						70		
	19D	70	21-35	DO-18D (SM)				
		72	38-40					
						75		
	20D	75	19-16	Red-Brn f-sand, Sm silt (SM)				
		77	26-28					
						80		
	21D	80	10-11	DO-20D, Tr. gvl (SM)				
0915		82	14-18			82		E.O.B @ 82 FT.

BORING NO. PB-7

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. PB-2
SHEET 3 **OF** 3
FILE NO. 9446
SURFACE ELEV.
DATUM

PROJECT Lowe's Home Imp.
LOCATION Brooklyn NY
BORING LOCATION

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED ☒ YES ☐ NO			
TRUCK	CME 55	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM 0	TO 20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. split spoon
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED ☒ YES ☐ NO
DIAMETER OF ROTARY BIT, IN. 3 7/8", 4 7/8", 6 1/4"
TYPE OF DRILLING MUD Quikgel

AUGER USED ☐ YES ☒ NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					No observation.

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. 82	NO. OF 3" SHELBY TUBE SAMPLES	—
3.5" DIA. U-SAMPLE BORING	LIN. FT. —	NO. OF 3" UNDISTURBED SAMPLES	—
CORE DRILLING IN ROCK	LIN. FT. —	OTHER:	—

BORING CONTRACTOR JRB Co.
DRILLER R. Lynch HELPERS E. Feliciano
REMARKS Grouted borehole upon completion
RESIDENT ENGINEER R. Nunez DATE 01/03/01

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3
FILE NO. 9446
BORING NO. PB-3
SURFACE ELEV.

PROJECT Lowe's Home Center
PROJECT LOCATION Brooklyn, NY
RES. ENGR. R. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
12/20/00 Thurs. Cloudy 35°F, [illegible]	10	0.5	5-6	Blk-C-f sand, sm silt, Tr. gvl, cinders			Drilled	Automatic Hammer
		2	6	(fill)(SM)			HWD	4" Conc. at surface
	20	2	5-8	Blk-Brn C-f sand, sm silt, Asphalt, Tr. gvl				
		4	17-16	sand (fill)(SM)				
	30	4	4-7	Blk-f-c sand, sm silt, gvl, Tr. cinders	(f)	5		
		6	21-15	(fill)(SM)				
	40	6	10-12	Brn C-f sand, sm silt, Tr. gvl, cinders			HWD	
		8	13-10	(fill)(SM)				
	50	8	8-7	Blk C-f sand, sm cinders, Tr. silt, gvl				
		10	7-4	(fill)(SP-SM)		10		
	60	10	2-1	Gray Brn C-f sand, sm gvl, silt, cinders,				
		12	2-2	wood (fill)(SM)				
	70	12	2-4	DO-60, Tr. Brick (fill)(SM)				
		14	1-1					
						15		
	80	15	2-1	Fa(7") - DO-70 (fill)(SM)				
		17	2-1	Bot(6") - Hed gray org. silty clay, Tr. f sa (OH)		16.5		P.P. = .75 T.S.F.
	90	17	2-1	DO-80 (Bot), Tr. wood (OH)				
		19	2-2					
						20		
	100	20	WOH/18"	soft gray org. silty clay, Tr. f sand, (OH)	(a)			P.P. < 0.5 T.S.F.
		22	1	Tr. shells				
						25		
	110	25	WOH/18"	Hed-gray org. silty clay, Tr. f sand (OH)				P.P. = 0.75 T.S.F.
		27	1					
						30		
	120	30	2-2	DO-110 (OH)				
		32	1-2					
						33.5		
						35		
	130	35	9-6	Brn M-f sand, sm silt, (SM)	(s)			
		37	8-8					
						40		
	140	40	5-8	Brn M-f sand, Tr. silt (SP-SM)				
		42	8-7					
						45		
	150	45	5-7	Brn C-f sand, sm gvl, Tr. silt (SP-SM)				
		47	6-6					
						50		
	160	50	5-9	DO-150 (SP-SM)				
		52	5-6					

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 2 OF 2
FILE NO. 9446
BORING NO. PB-3
SURFACE ELEV.

PROJECT Lowe's Home Cntr

PROJECT LOCATION Brooklyn NY RES. ENGR. R. NUNEZ

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
					S	55		
	17D	55	5-6	Brn M-f sand, Tr. silt, grl (Sp-Sm)				
		57	7-7					
						60		
	18D	60	5-8	Brn C-f sand, Sm grl, Tr. silt, mica (Sp-Sm)				
		62	7-7					
						62.5		
						65		
	19D	65	5-7	Red-Brn C-f sand, Sm grl, Tr. silt, mica (Sp-Sm)				
		67	8-8					
						70		
	20D	70	12-9	Red-Brn f-c sand, Sm silt, grl (Sm)	T			Rock frag. in the Tip of the spoon.
		72	11-15					
						75		
	21D	75	8-7	Red-Brn M-f sand, Tr. silt (Sp-Sm)				
		77	9-8					
						80		
	22D	80	10-11	Red-Brn C-f sand, Tr. silt (Sp-Sm)				
1430hrs		82	13-15			82		E.O.B @ 82 Ft.

BORING NO. PB-3

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. PB-3
SHEET 3 OF 3
FILE NO. 9946
SURFACE ELEV.
DATUM

PROJECT Lowe's Home Ctr.
LOCATION Brooklyn, NY
BORING LOCATION As Marked

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	CME 55	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM 0	TO
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. split spoon
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 2 7/16, 5 7/8", 3 7/8"
TYPE OF DRILLING MUD Quik Gel

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT.	NO. OF 3" SHELBY TUBE SAMPLES	—
3.5" DIA. U-SAMPLE BORING	LIN. FT. —	NO. OF 3" UNDISTURBED SAMPLES	—
CORE DRILLING IN ROCK	LIN. FT. —	OTHER:	

BORING CONTRACTOR JBD Co.
DRILLER M. Blejwas HELPERS D. Keith
REMARKS Grouted borehole upon completion
RESIDENT ENGINEER E. Nunez DATE 12/28/00

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. PB-3

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3
FILE NO. 9446
BORING NO. PB-4
SURFACE ELEV.

PROJECT Lowe's Home Center

PROJECT LOCATION Brooklyn, NY RES. ENGR. E. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
12/8/06 Rig on site	10	0	100/6"	Brn c-f sand, tr silt, gvl, conc (fill) (Sp-Sm)			Drilled	Automatic trip
		0.5					NWD	
	20	2	22-18	Brn c-f sand, sm silt, cinders, tr. brick (fill) (Sm)				
		4	12-7		(F)			
	30	4	3-2	Do-20 (fill) (Sm)		5		
		6	2-2				MUD	
	40	6	1-1	Gray blk-m-f sand, sm silt, tr veg, cinders (fill) (Sm)				
		8	1-1					
	50	8	2-1	Do-40 (fill) (Sm)				
		10	2-1			10		
6/9	60	10	2-2	Brn f-c sand, sm silt, tr. brick, cinders (fill) (Sm)				Sample saturated w/ water. D=5"
		12	2-2					R=6"
	70	12	2-2	Do-60 (fill) (Sm)				
		14	3-3			14.5		
						15		
	80	15	wh/18"	Soft gray org. silty clay, tr. f sand, shells (OH)	(O)			
		17	2-2					
	90	17	wh/6"	Soft gray org. silty clay, tr. f sand, veg. (OH)				
		19	wh/18"					
						20		
	100	20	1-3	Do-90 (OH)				
		22	3-3					
						23.5		
						25		
	110	25	1-1	Gray m-f sand, sm silt, tr. clay, shells (Sm)				
		27	2-1					
						30		
	120	30	13-19	Brn c-f sand, tr. silt (Sp-Sm)				
		32	23-24		(S)			
						35		
	130	35	5-7	Red brn silty f-sand (Sm)				
		37	9-8					
						40		
	140	40	6-8	Brn m-f sand, tr. silt (Sp-Sm)				
		42	10-10					
						45		
	150	45	5-6	Brn c-f sand, tr. gvl, silt (Sp-Sm)				
			6-7					
						50		
	160	50	4-5	Brn m-f sand, tr. silt (Sp-Sm)				
		52	6-8					

BORING NO. PB-4

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 2 OF 3
FILE NO. 94-16
BORING NO. PB-4
SURFACE ELEV.

PROJECT Lowe's Home CNTR

PROJECT LOCATION Brooklyn NY RES. ENGR. K. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
					S			
	170	55	5-5	BRN M.f SAND, Tr. silt (SP-SM)		55		
		57	5-5					
	180	60	6-7	DO-FTD (SP-SM)		60		
		62	10-12					
	190	65	8-9	Rock fragments		65		Rock frag. in the tip of the spoon.
		67	8-6					
	200	70	8-9	RED-BRN M.f SAND, Tr. C. SAND, silt (SP-SM)		70		
		72	11-11					
	210	75	8-10	RED-BRN M.f SAND, Tr. silt (SP-SM)		75		
		77	11-10					
						78.5		
	220	80	10-12	RED-BRN silt, Tr. f SAND, clay (MH)	M	80		
		82	12-15			82		E.O.B @ 82 FT.

BORING NO. PB-4

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. PB-4
SHEET 3 OF 3
FILE NO. 9446
SURFACE ELEV.
DATUM

PROJECT Lowe's Home Cntr
LOCATION Brooklyn NY
BORING LOCATION As planned

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		[X] YES [ ] NO		
TRUCK	CME 75	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO 20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM		TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO
OTHER								

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. split spoon
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3 7/8", 4 7/8"
TYPE OF DRILLING MUD Quikgel

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					no observation

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. 82	NO. OF 3" SHELBY TUBE SAMPLES	–
3.5" DIA. U-SAMPLE BORING	LIN. FT. –	NO. OF 3" UNDISTURBED SAMPLES	–
CORE DRILLING IN ROCK	LIN. FT. –	OTHER:	–

BORING CONTRACTOR JBD Co.
DRILLER M. Blejuas HELPERS D. Keith
REMARKS Grouted borehole upon completion
RESIDENT ENGINEER R. Nunez DATE 12/29/00

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. PB-4

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 4
FILE NO. 9446
BORING NO. PB-4P
SURFACE ELEV.

PROJECT Lowe's Home Center

PROJECT LOCATION Brooklyn, NY RES. ENGR. T. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
01/02/01				Piezometer installation.			Drilled	
Tues,							Ahead	
clear				Drilled to 30 FT.				
windy						5		
18°F				No sampling.				
5°F wind chill								
0800								
						10		
						15		
						20		
						25		
1040 hrs						30		E.O.B @ 30 FT

BORING NO. PB4P

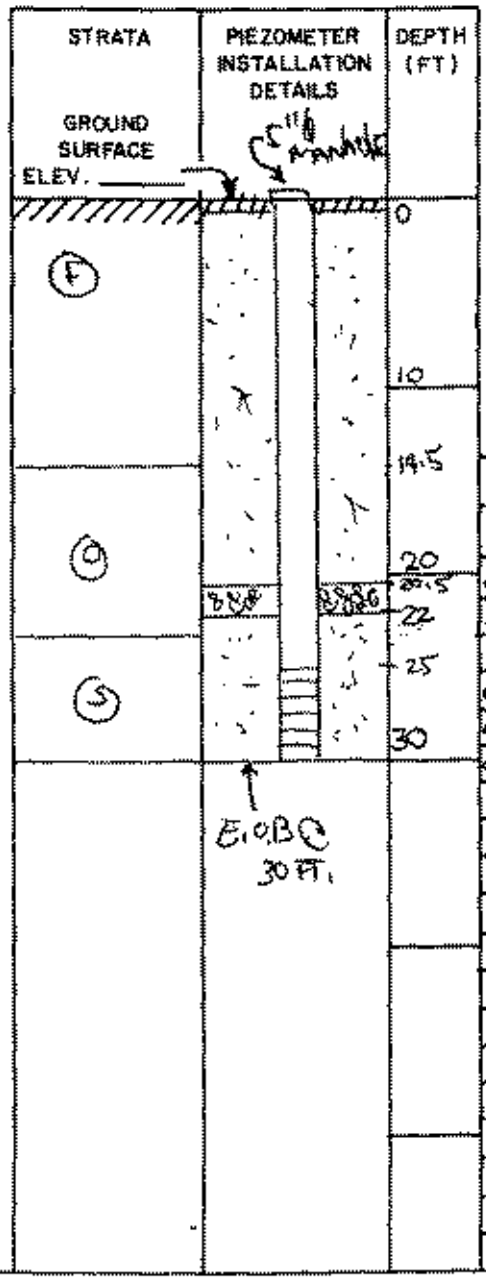
FORM NO. B-1

SHEET 2 OF 4
FILE NO. 9446
SUBCODE

MUESER RUTLEDGE CONSULTING ENGINEERS

PIEZOMETER RECORD

PROJECT Lowe's Home Center
PIEZOMETER NO. PB-4P
LOCATION Brooklyn NY
PIEZOMETER LOCATION
DATE OF INSTALLATION 01/02/01
☐ SEE SKETCH ON BACK
RES. ENG. R. NUNEZ



PIEZOMETER TYPE slotted PVC

INTAKE POINT

depth to bottom, ft = 30
depth to top, ft = 22
length, ft = 8 = L
diameter, in = 4, ft = = 2R

STANDPIPE/RISER

elevation of rim, ft =
diameter, in = 1¼, ft = = 2r

READING TIME		DEPTH – RIM TO WATER	ELEVATION OF WATER	REMARKS
DATE	CLOCK			
01/02/01	1147	7.5		
01/02/01	1030	7.3		
	1250	7.2		
01/04/01	0725	7.1		
01/05/01	0930	7.1		
01/08/01	0946	6.8		

Sand
Bentonite
Gravel
Grout

GROUND SURFACE ELEV.

PIEZOMETER NO. PB-4P

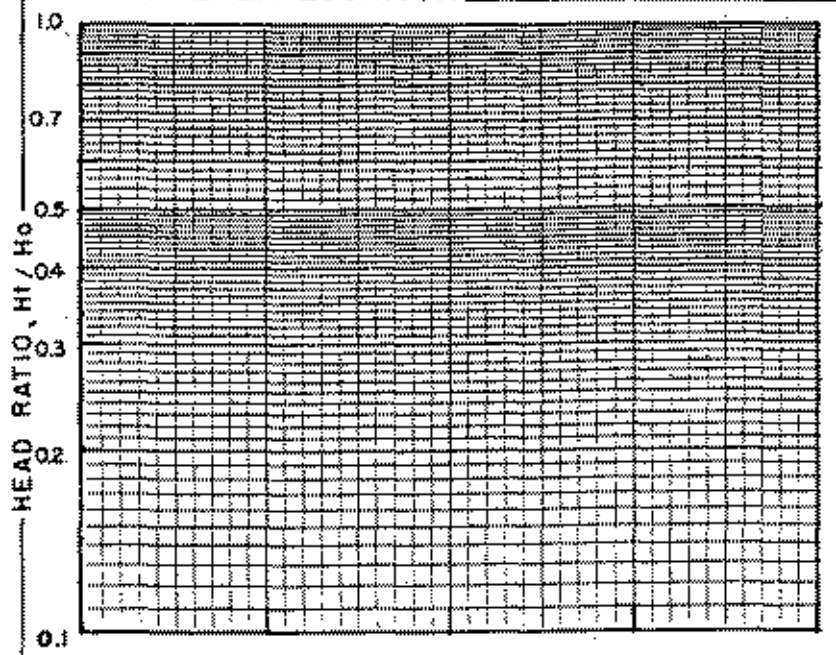
SHEET 2 OF 4
FILE NO. 9446
SUBCODE

MUESER RUTLEDGE CONSULTING ENGINEERS

VARIABLE HEAD PERMEABILITY TEST

☐ BOREHOLE OR ☒ PIEZOMETER NO. PB-4P
TEST NO. 1

PROJECT Lowe's Home Center — RES. ENG. R. NUNEZ
LOCATION Brooklyn NY — CALC. BY ____ DATE ____
PIEZOMETER LOCATION ____ CH'KD BY ____ DATE ____



ELAPSED TIME, Δt, MIN.

INTAKE POINT

depth to bottom, ft = 30
depth to top, ft = 22
length, ft = 8 = L
diameter, in = 4, ft = ____ = 2R

STANDPIPE/RISER

diameter, in = 1¼, ft = ____ = 2r

depth of casing, ft = ____

depth to which standpipe was bailed, ft = ____ = Z

READING TIME DATE	CLOCK	Δt MIN.	TEST DEPTH-RIM TO WATER ft.	DEPTH-RIM TO TIDE OR GWL ft.	UNBALANCED HEAD H ft.	HEAD RATIO Ht/Ho	REMARKS
01/06/01	0940	0		6.8	0		STATIC WATER LEVEL
		0.5	0.8				
		1	1.8				
		2	3.2				
		3	4.3				
		4	5.0				
		5	5.6				
		6	5.8				
		7	5.9				
		8	6.1				
		9	6.4				
		10	6.45				
		11	6.55				
		12	6.6				
		13	6.7				
		14	6.75				
		15	6.75				
		16	6.8				

PIEZOMETER NO. PB-4P

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. PB4P
SHEET 4 OF 4
FILE NO. 94446
SURFACE ELEV.
DATUM

PROJECT Lowe's Home Center
LOCATION Brooklyn NY
BORING LOCATION

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	CME 75	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM 0	TO 20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [ ] YES [X] NO
DIAMETER OF ROTARY BIT, IN. 3 7/8"
TYPE OF DRILLING MUD

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. — AVERAGE FALL, IN. —
SAMPLER HAMMER, LBS. — AVERAGE FALL, IN. —

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
01/02/01	1147			7.3	Piezo. Reading, approx. one hour after installation

PIEZOMETER INSTALLED [X] YES [ ] NO SKETCH SHOWN ON

STANDPIPE: TYPE SCH 40 ID, IN. 1 1/4" LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE Slotted PVC OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL SAND OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. 30	NO. OF 3" SHELBY TUBE SAMPLES	—
3.5" DIA. U-SAMPLE BORING	LIN. FT. —	NO. OF 3" UNDISTURBED SAMPLES	—
CORE DRILLING IN ROCK	LIN. FT. —	OTHER:	—

BORING CONTRACTOR JBD
DRILLER M. Blagrove HELPERS D. Keith
REMARKS
RESIDENT ENGINEER Z. Nunez DATE 01/02/01

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3
FILE NO. 9446
BORING NO. PB-5
SURFACE ELEV.

PROJECT Lowe's Home Center

PROJECT LOCATION Brooklyn NY RES. ENGR. E. Nuber

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
2/25/00 Times, scattered wind, Sleet 20°F 10° wind-chill	10	1	6-28	Top(8") - Wet f-c sand, Tr. silt (Fill) !			Drilled Through	Safety Harness
		3	56-37	Bot(8") - Blk-f-c sand, Sm silt, Tr. Cinders (Fill) (Sm)				4" Conc. at surface.
	20	3	100/6"	No Recovery	(F)			
		3.5						
	30	5	4-3	Rock frag., Tr. Conc. (Fill)		5		
		7	2-1					
	40	7	1-1	No Recovery			NW	
		9	1-1					Rock frag. in the tip of the spoon.
						10		
	50	10	1-1	Blk-c-f gvl, Tr. f-sand, shells (Fill) (Cinders)				R=3"
		12	1-1					
	60	12	2-2	Rock frag., Tr. wood (Fill)				R=2"
		14	3-7					
						15		
	70	15	4-2	No Recovery				Loose fill spoons have new tropl
		17	2-2					
	80	17	2-4	Top(15") - Soft gray-Blk org. silty clay, Tr. f-sand, Tr. wood (OH)				
		19	4-3					
				Bot(9") - Gray silty f-m sand, Tr. Cinders, wood (Fill) (Sm)		20		
	90	20	2-1	Gray stone (), Tr. org. clay (Fill) (GP)				R=1"
		22	2-1					
						25		
	100	25	1-1	Gray silty m-f sand, Tr. clay (SM)				
		27	1-1					
						28.5		
						30		
	110	30	WOR-2	Med gray org. silty clay, Tr. f sand, very (OH)	(O)			R.P.=0.75 T.S.I.F.
		32	2-3					
						33.5		
						35		
	120	35	WOR-12	Brn c-f sand, Tr. silt, gvl (SP)	(S)			
		37	16-22					
						40		
	130	40	8-10	Brn f-c sand, Tr. silt (SP-SM)				
		42	13-16					
						45		
	140	45	10-10	Brn c-f sand, Tr. silt (SP-SM)				
		47	16-19					
						48.5		
						50		
	150	50	9-17	Brn gravelly c-f sand, Tr. silt (SP-SM)	(T)			Abandoned in sample
		52	18-13					

BORING NO. PB-5

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 2 OF 3
FILE NO. 9440
BORING NO. PB-5
SURFACE ELEV.

PROJECT Lowe's Home Ctr
PROJECT LOCATION Brooklyn NY
RES. ENGR. R. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
					(3)	55		
	160	55	12-14	DO-150 (SP-SM)				Petroleum in sample
		57	15-17					
						60		
	170	60	11-20	DO-150 (SP-SM)				
		62	20-24					
						65		
	180	65	27-29	BRN C-f SAND, Tr. SILT, gvl (SP-SM)				
		67	31-38					
						70		
	190	70	14-17	BRN M-f SAND, Tr. SILT, (SP-SM)				
		72	21-23					
						75		
	200	75	12-10	BRO-BRN f-c SAND, SM SILT, (SM)				
		77	14-16					
						80		
	210	80	25-45	DO-200 (SM)				
1410 hrs.		82	32-36			82		E.O.A @ 82 FT.

BORING NO. PB-5

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. PB-5
SHEET 3 OF 3
FILE NO. 9446
SURFACE ELEV.
DATUM

PROJECT Lowe's Home Cntr
LOCATION Brooklyn NY
BORING LOCATION As planned

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	ME 55	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM 0	TO 25
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. Split Spoon
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 2 7/16", 4 5/16", 3 7/32"
TYPE OF DRILLING MUD Quikgel

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT. 82	NO. OF 3" SHELBY TUBE SAMPLES	—
3.5" DIA. U-SAMPLE BORING	LIN. FT. —	NO. OF 3" UNDISTURBED SAMPLES	—
CORE DRILLING IN ROCK	LIN. FT. —	OTHER:	—

BORING CONTRACTOR JBD Co.
DRILLER R. Lynch HELPERS E. Feliciano
REMARKS Grouted borehole upon completion
RESIDENT ENGINEER TC. NUNEZ DATE 12/28/00

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

BORING NO. PB-5

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3
FILE NO. 9446
BORING NO. PB6
SURFACE ELEV.

PROJECT Lowe's Home Center

PROJECT LOCATION Brooklyn NY RES. ENGR. R. NUNEZ

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
12/27/00 0630 WED. 19°F	1D	1	2-4	Blk-Brn f-c sand, sm silt, Tr. sub. Brick (fill)(sm)			Drilled	Safety Hammer
		3	4-5				Ahead	
	2D	3	2-3	Blk-Brn m-f sand, sm sub, Tr. Cinder, silt Tr. Brick (fill)(sm)	(5)			
		5	4-4					
	3D	5	1-1	Gray-Brn f-c sand, sm silt, Tr. veg (fill)(sm)		5		
		7	1-1				MUD	
	4D	7	1-1	Gray-Brn m-f sand, sm silt, Tr. Brick (fill)(sm)				
		9	1-1					
						9.5		
						10		
	[illegible]	10	1-1	soft gray org. silty clay, Tr. veg, f-sand (OH)				
		12	1-1					
	6D	12	2-1	Soft gray org. silty clay, Tr. f sand (OH)				
		14	2-1					
						15		
	7D	15	1-1	DO-6D (OH)	(0)			
		17	1-1					
	8D	17	1-2	DO-6D (OH)				
		19	1-1					
						19.5		
						20		
	9D	20	3-4	Gray-Brn silty f-sand, Tr. clay (sm)				
		22	8-16					
						25		
	10D	25	5-7	Brn-gray silty m-f sand (sm)				
		27	8-10		(5)			
						30		
	11D	30	11-20	Brn f-c sand, Tr. silt (sp-sm)				
		32	20-10					
						35		
	12D	35	12-13	DO-11D (sp-sm)				
		37	11-12					
						40		
	13D	40	14-26	DO-11D (sp-sm)				
		42	31-38					
						45		
	14D	45	15-20	Brn m-f sand, Tr. silt (sp-sm)				
		47	21-25					
						50		
	15D	50	13-11	Brn f-c sand, Tr. silt (sp-sm)				
		52	13-14					

BORING NO. PR-6

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 2 OF 3
FILE NO. 9446
BORING NO. PB-6
SURFACE ELEV.

PROJECT Lowe's Home Ctr
PROJECT LOCATION Brooklyn NY
RES. ENGR. R. Nunez

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
						55		
	60	55	14-14	BRN M-f SAND, Tr. Silt, gvl (SP-SM)				
		57	15-17		(S)			
						58.5		
						60		
	170	60	15-18	RED-BRN C-f SAND, Sm gvl, Tr. Silt (SP-SM)				
		62	17-9					
						65		
	180	65	12-13	DO-170 (SP-SM)	(T)			
		67	23-20					
						70		
	190	70	14-18	BLK-BRN C-f SAND, Sm gvl, Tr. Silt (SP-SM)				Sample is saturated w/ Petroleum.
		72	28-30					
						75		
	200	75	18-12	RED-BRN M-f SAND, Tr. Silt (SP-SM)				Petroleum odor.
		77	14-17					
						78.5		
						80		
	210	80	12-14	RED-BRN Silt, Tr. f-sand, clay (ML)	(M)			
1400 hrs.		82	27-25			82		E.O.B. @ 82 ft.

BORING NO. PB-6

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. PB-6
SHEET 3 OF 3
FILE NO. 9446
SURFACE ELEV.
DATUM

PROJECT Lowe's Home Center
LOCATION Brooklyn NY
BORING LOCATION offset → 15 ft NE

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED		[X] YES [ ] NO		
TRUCK	CME 55	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0	TO 15
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM		TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO
OTHER								

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. split spoon
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS N

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3 7/8", 4 7/8"
TYPE OF DRILLING MUD Quik Gel

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					No observation

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING LIN. FT. 82 NO. OF 3" SHELBY TUBE SAMPLES —
3.5" DIA. U-SAMPLE BORING LIN. FT. — NO. OF 3" UNDISTURBED SAMPLES —
CORE DRILLING IN ROCK LIN. FT. — OTHER: —

BORING CONTRACTOR JBD Co.
DRILLER R. Lynch HELPERS E. Feliciano
REMARKS Grouted borehole upon completion.
RESIDENT ENGINEER R. Nunez DATE 12/27/00

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

MUESER RUTLEDGE CONSULTING ENGINEERS

SHEET 1 OF 3
FILE NO. 9446
BORING NO. PB-7
SURFACE ELEV.

PROJECT Lowe's Home Center

PROJECT LOCATION Brooklyn, NY RES. ENGR. [illegible] NUNEZ

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
12/11/00 Mon. 30°F 1430hrs	1D	0	11-13	Brn m-f sand, Tr. silt, grl (fill)(sp-sm)			Drilled	Automatic Hammer
		2	15-16		(S)		Ahead	
	2D	2	9-26	Blk-gray c-f sand, Sm grl, Tr. silt, cinders (fill)(sp-sm)				
		4	26-16					
	3D	4	6-8	Gray f-m sand, Sm silt, Tr grl (fill)(sm)		5		
		6	7-5				Mud	
	4D	6	1-1	Gray f-m sand, Sm silt, Tr veg, wood (fill)(sm)				
		8	1-1					
	5D	8	1-1	DO-4D (fill)(sm)				
		10	1-1			10		
	6D	10	WOH-1	Brn f-c sand, Tr. silt, grl, veg, Brick (fill)(sp-sm)				
		12	1-1					
	7D	12	1-1	Blk-gray f-m sand, Sm silt, Tr. grl, wood (fill)(sm)				2x2"
		14	1-2					
	8D	14	WOH-1	Soft-gray org. silty clay, Tr. f sand, Veg (OH)	(O)	15		P.P. <0.5 T.S.F.
		16	1-1					
	9D	16	WOH/12"	DO-8D (OH)				
		18	WOH/12"					
						18.5		
1645						20		
12/19/00 Tues. 30°F cloudy 0645hrs	10D	20	1-3	Brn f-m sand, Sm silt (sm)				
		22	2-3					
						25		
	11D	25	4-7	Brn m-f sand, Tr silt, grl (sp-sm)				
		27	7-8					
					(S)			
						30		
	12D	30	6-5	Brn m-f sand, Sm silt (sm)				
		32	8-9					
						35		
	13D	35	8-10	Brn m-f sand, Tr. silt, mica (sp-sm)				
		37	4-3					
						40		
	14D	40	5-8	Brn f-m sand, Sm silt, Tr. grl, mica (sm)				
		42	11-11					
						45		
	15D	45	5-5	Brn m-f sand, Tr. silt, grl, mica (sp-sm)				
		47	6-5					
						50		
	16D	50	3-5	Brn c-f sand, Tr. silt, grl, mica (sp-sm)				
		52	5-7					

BORING NO. PB-7

FORM NO. B-1

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. PB-7
SHEET 2 OF 3
FILE NO. 9446
SURFACE ELEV. 8.9
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
Cont'd								
12-19-00								
Tuesday								
Cloudy					S1			
30°F						55		
	17D	55.0	6-6	Brown fine to medium sand, trace silt				
		57.0	8-7	(SP-SM)				
						58.5		
						60		
	18D	60.0	13-13	Red brown fine to medium sand, some				
		62.0	12-10	gravel, silt, trace mica (SM)				
						65		
	19D	65.0	9-8	Red brown fine to medium sand, some silt,				
		67.0	6-7	trace gravel (SM)				
					S2	70		
	20D	70.0	18-15	Red brown fine to medium sand, some				
		72.0	22-20	gravel, silt, trace clay, mica (SM)				
						75		
	21D	75.0	18-37	Red brown fine to medium sand, some				
		77.0	17-16	gravel, silt (SM)				
						80		
	22D	80.0	14-15	Do 21D, trace clay (SM)				End of Boring at
11:35		82.0	24-19			82		82'.
								pp=Pocket
						85		Penetrometer
								Unconfined Compres-
								sive Strength in tsf.
								WC=Water Content
						90		in percent of dry
								weight.
						95		
						100		

MUESER RUTLEDGE CONSULTING ENGINEERS

		BORING NO.	PB-7
		SHEET	3 OF 3
PROJECT	LOWE'S HOME CENTER	FILE NO.	9446
LOCATION	BROOKLYN, NEW YORK	SURFACE ELEV.	8.9
BORING LOCATION	SEE PLAN	DATUM	BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	CME-75	MECHANICAL		DIA., IN	4	DEPTH, FT. FROM 0	TO 20
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:

D-SAMPLER	2" O.D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	N

DRILLING MUD USED [X] YES [ ] NO

DIAMETER OF ROTARY BIT, IN. 3-7/8, 4-7/8

TYPE OF DRILLING MUD QUIK - GEL

AUGER USED [ ] YES [X] NO

TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24

*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

*AUTOMATIC HAMMER USED.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
12-19-00		82	20	11	MUD/WATER UPON COMPLETION.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE:	TYPE	ID, IN.	LENGTH, FT.	TOP ELEV.	
INTAKE ELEMENT:	TYPE	OD, IN.	LENGTH, FT.	TIP ELEV.	
FILTER:	MATERIAL	OD, IN.	LENGTH, FT.	BOT. ELEV.	

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT.	82	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER:	

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.

DRILLER MIKE BLEJWAS HELPERS DENNIS KEITH

REMARKS BOREHOLE GROUTED UPON COMPLETION.

RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-19-00

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. PB-8
SHEET 1 OF 3
FILE NO. 9446
SURFACE ELEV. 7.4
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
	1D	0.0	16-26	Brown medium to fine sand, some silt, trace			DRILLED	
12-18-00		2.0	30-31	gravel, brick, cinders (Fill) (SM)			AHEAD	
Monday	2D	2.0	17-19	Do 1D, some gravel (Fill) (SM)			4"	
		4.0	16-14					
30°F						5		
	3D	5.0	2-2	Brown fine to medium sand, some silt, trace				3D,7D, 10D-12D &
		7.0	2-2	gravel (Fill) (SM)				17D: Petroleum
	4D	7.0	2-2	Do 3D (Fill) (SM)				odor.
		9.0	3-4					
						10		
	5D	10.0	2-3	Red brown fine to medium sand, some silt,	F			
		12.0	6-6	trace gravel (Fill) (SM)				
	6D	12.0	4-4	Do 5D (Fill) (SM)				
		14.0	6-8					
						15		
	7D	15.0	3-2	Gray brown fine to medium sand, some silt,				
		17.0	3-3	trace gravel, metal, cinders (Fill) (SM)				
	8D	17.0	5-16	Brown fine to medium sand, some silt, rock				
		19.0	31-14	fragments, trace wood (Fill) (SM)				
						20		
	9D	20.0	12-7	Rock fragments (Fill)				REC=1"; rock
16:15		22.0	9-9					fragments in tip of
06:45								spoon.
12-19-00						23.5		
Tuesday						25	∇	
Cloudy	10D	25.0	9-14	Brown fine to medium sand, some silt (SM)				
30°F		27.0	20-16		S1			
						29		
						30		
	11D	30.0	5-9	Stiff gray brown clayey silt, trace fine sand				Silt & clay in wash
		32.0	14-18	(MH)	M			at 29'.
						33.5		
						35		
	12D	35.0	7-12	Brown gray silty fine to medium sand (SM)				
		37.0	12-12					
						40		
	13D	40.0	9-13	Brown silty fine sand (SM)				
		42.0	14-13					
					S1			
						45		
	14D	45.0	10-12	Brown fine sand, some silt (SM)				Heavy petroleum
		47.0	12-14					odor oil in sample.
						50		
	15D	50.0	11-15	Brown fine to medium sand, some silt (SM)				
		52.0	26-29					

MUESER RUTLEDGE CONSULTING ENGINEERS
BORING LOG

BORING NO. PB-8
SHEET 2 OF 3
FILE NO. 9446
SURFACE ELEV. 7.4
RES. ENGR. RANDOLPH NUNEZ

PROJECT: LOWE'S HOME CENTER
LOCATION : BROOKLYN, NEW YORK

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
Cont'd								
12-19-00								
Tuesday								
Cloudy								
30°F						55		
	16D	55.0	8-14	Brown fine to medium sand, trace silt				
		57.0	15-19	(SP-SM)				
					S1			
						60		
	17D	60.0	5-15	Gray brown fine to medium sand, some silt,				Hard drilling at
		62.0	38-55	gravel (SM)				62.5'.
								Possible boulder &
								cobbles from 62.5'
						65		to 65'.
	18D	65.0	18-15	Gray fine to medium sand, some gravel, silt,				
		67.0	15-8	trace coarse sand (SM)				
						68.5		
						70		
	19D	70.0	22-18	Red brown silt, some fine sand, trace clay				
		72.0	18-18	seams, gravel (ML)				
					S2	75		
	20D	75.0	27-27	Red brown silty fine to medium sand, trace				
		77.0	25-16	gravel, coarse sand, clay (SM)				
						80		
	21D	80.0	48-26	Red brown fine to medium sand, some silt,				End of Boring at
11:45		82.0	28-15	trace gravel, coarse sand (SM)		82		82'.
						85		
						90		
						95		
						100		

BORING NO. PB-8

MUESER RUTLEDGE CONSULTING ENGINEERS

PROJECT	LOWE'S HOME CENTER	BORING NO.	PB-8
LOCATION	BROOKLYN, NEW YORK	SHEET	3 OF 3
BORING LOCATION	SEE PLAN	FILE NO.	9446
		SURFACE ELEV.	7.4
		DATUM	BOROUGH PRESIDENT OF BROOKLYN HIGHWAY

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO			
TRUCK	CME-55	MECHANICAL		DIA., IN	4	DEPTH, FT. FROM	0	TO 25
SKID		HYDRAULIC	X	DIA., IN.		DEPTH, FT. FROM		TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM		TO
OTHER								

TYPE AND SIZE OF:

D-SAMPLER	2" O.D. SPLIT SPOON
U-SAMPLER	
S-SAMPLER	
CORE BARREL	
CORE BIT	
DRILL RODS	N

DRILLING MUD USED [X] YES [ ] NO

DIAMETER OF ROTARY BIT, IN. 3-7/8, 2-15/16

TYPE OF DRILLING MUD QUIK - GEL

AUGER USED [ ] YES [X] NO

TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24

*SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

*SAFETY HAMMER USED.

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE.

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE:	TYPE		ID, IN.		LENGTH, FT.		TOP ELEV.
INTAKE ELEMENT:	TYPE		OD, IN.		LENGTH, FT.		TIP ELEV.
FILTER:	MATERIAL		OD, IN.		LENGTH, FT.		BOT. ELEV.

PAY QUANTITIES

2.5" DIA. DRY SAMPLE BORING	LIN. FT.	79.5	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER: OBSTRUCTION (BOULDER)	2.5

BORING CONTRACTOR JERSEY BORING & DRILLING CO. INC.

DRILLER RAY LYNCH HELPERS EDWIN FELICIANO

REMARKS BOREHOLE GROUTED UPON COMPLETION.

RESIDENT ENGINEER RANDOLPH NUNEZ DATE 12-19-00

BORING NO. PB-8

Langan
Engineering and Environmental Services

LOG OF BORING RB1

SHEET 1 OF 2

PROJECT: Gowanus Development	PROJECT NO.: 1503701
LOCATION: Brooklyn, NY	ELEVATION AND DATUM: Approx. el. 7.4 [BBHDD]
DRILLING EQUIPMENT: Mobile B61 Truck Mounted Rig	DATE STARTED: 10/20/98; DATE FINISHED: 10/20/98; COMPLETION DEPTH: 80 ft.
SIZE AND TYPE OF BIT: 4 7/8" (0'-3') and 3 7/8" Tri-Cone Roller Bits	NUMBER OF SAMPLES: DIST. 16; UNDIST. --------; CORE --------
CASING DIAMETER (in): 4 1/2" OD 4" ID; CASING DEPTH(ft): 18	WATER LEVEL (ft.): FIRST ▽ 8; COMPL. ▼ -----; 24 HR. ▼ -----
SAMPLER: 2" OD 1 3/4" ID Split Spoon (SS)	DRILLING FOREMAN: Ernest Thomas/Desmond Williams
SAMPLER HAMMER; WEIGHT(lbs): 140; DROP(in): 30	INSPECTING ENGINEER: Gary L. Gleason

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in.	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
pprox. el. 7.4	Surficial ASPHALT								* New York City BC Classification numbers in parenthesis Added water D = 0'
	Brown f.-c. SAND, trace silt and red brick (11-65)*		5	S1	SS	14	4 3 3 2	6	PID = 0 ppm
	Brown f.-c. SAND, trace f.-m. gravel/coal, silt, and red brick (11-65)		10	S2	SS	4	1 6 2 2	8	PID = 196 ppm, visible "Copper" brown petroleum like material Trace wood in wash
	Brown f.-c. SAND, trace silt, f.-m gravel, and wood (11-65)		15	S3	SS	13	8 5 3 2	8	PID = 290 ppm, visible petroleum like material Added mud D = 15'
	Inferred WOOD FIBERS and brown clayey SILT, trace f. sand (11-65)		20	S4	SS	0	6 2 2 1	4	PID = 25 ppm Sample S4 spoon tip material
	WOOD FIBERS, trace brown silt and f. sand (11-65)		25	S5	SS	9	21 29 38 41	67	PID = 52 ppm Very slow/hard drilling and wood fibers in wash D = 23' - 28'
	Green brown SILT, trace clay, wood fibers, and f.-m. sand (11-65)		30	S6	SS	16	8 10 11 12	21	PID = 9.6 ppm
	Brown/gray f.-m SAND, some silt and clay (7-65)		35	S7	SS	19	4 7 15 13	22	PID = 168 ppm, slightly visible petroleum like material
	Brown silty f. SAND (8-65)		40	S8	SS	14.5	10 13 10 10	23	PID = 20 ppm

Langan
Engineering and Environmental Services

LOG OF BORING RB1

SHEET 2 OF 2

PROJECT	PROJECT NO.
Gowanus Development	1503701
LOCATION	**ELEVATION AND DATUM**
Brooklyn, NY	Approx. el. 7.4 [BBHDD]

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
	Gray/brown f.-m SAND (7-65)		45	S9	SS	13	9 12 15 21	27	PID = 410 ppm, petroleum like material very visible
	Gray/brown f.-m. SAND, trace silt (8-65)		50	S10	SS	15	12 15 18 20	33	PID = 188 ppm, visible petroleum like material
	Brown f.-m. SAND (7-65)		55	S11	SS	12	6 9 11 11	20	PID = 7.1 ppm, visible petroleum like material
	Brown f.-m. SAND, trace silt (7-65)		60	S12	SS	16	11 14 16 18	30	PID = 330 ppm, very visible petroleum like material
									Rig chatter D = 62'
	Red/gray f.-c. GRAVEL and f.-c. SAND, trace silt (6-65)		65	S13	SS	4	77 62 22 18	84	Slow/hard drilling D = 62' - 63' PID = 25 ppm Minor rig chatter D = 63' to 68'
	Inferred Gray f.-c. GRAVEL, some red/brown silty clay and f.-c. sand (6-65)		70	S14	SS	0	21 28 22 26	50	Petroleum like material floating on the surface of wash tub PID = 19.8 ppm Sample S14 spooon tip material
	Red brown f.-c. SAND, trace silt, f.-m. gravel, and clay (6-65)		75	S15	SS	12	33 27 19 19	46	PID = 3 ppm
									Rig chatter D = 77'
	Red brown f.-c. SAND, some clay, trace silt and f.-m. gravel (6-65)		80	S16	SS	9.5	14 12 14 12	26	PID = 5.1 ppm
	Boring terminated D = 80'		85						Borehole grouted upon completion
			90						

Langan
Engineering and Environmental Services

LOG OF BORING RB2

SHEET 1 OF 2

PROJECT: Gowanus Development	PROJECT NO.: 1503701
LOCATION: Brooklyn, NY	ELEVATION AND DATUM: Approx. el. 9.0 [BBHDD]
DRILLING EQUIPMENT: CME 75 Truck Mounted Rig	DATE STARTED: 10/19/98 · DATE FINISHED: 10/20/98 · COMPLETION DEPTH: 85 ft.
SIZE AND TYPE OF BIT: 4 7/8" (0'-3') and 3 7/8" Tri-Cone Roller Bits	NUMBER OF SAMPLES: DIST. 16 · UNDIST. -------- · CORE --------
CASING DIAMETER (in): 4 1/2" OD 4" ID · CASING DEPTH(ft): 14	WATER LEVEL (ft.): FIRST ▽ 10 · COMPL. ▼ ----- · 24 HR. ▼ -----
SAMPLER: 2" OD 1 3/4" ID Split Spoon (SS)	DRILLING FOREMAN: Tommy Gregorey/Chris Mitchell
SAMPLER HAMMER · WEIGHT(lbs): 140 · DROP(in): 30	INSPECTING ENGINEER: Gary L. Gleason

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
pprox. el. 9.0	Surficial ASPHALT								*New York City BC Classification numbers in parenthesis Added water D = 2'
	Brown f.-c. GRAVEL, trace f.-c. sand, silt, and red brick (11-65)*		5	S1	SS	4	4 4 5 5	9	PID = 0.1 ppm
	Brown/black f.-m. SAND, trace silt, coarse sand, and f. gravel/coal (11-65)	▽	10	S2	SS	3.5	4 2 5 2	7	PID = 14 ppm
	Gray silty CLAY, trace roots and shell (11-65)		15	S3	SS	24	2 1 1 1	2	PID = 0.4 ppm
	Gray silty CLAY, some roots/wood (11-65)		20	S4	SS	24	WOH WOH 2 1	2	WOH: Weight of hammer Added mud D = 20' PID = 0.2 ppm
	Brown f.-m. SAND, trace silt and m. gravel (7-65)		25	S5	SS	13	9 14 16 19	32	PID = 17.2 ppm, visible petroleum like material sheen
	Brown f.-m. SAND (7-65)		30	S6	SS	24	19 29 38 30	67	PID = 250 ppm, visible petroleum like material
	Brown silty f. SAND (8-65)		35	S7	SS	17	10 16 13 14	29	PID = 40 ppm, visible petroleum like material
	Brown SILT, trace f. sand and clay (10-65)		40	S8	SS	15	20 17 17 18	34	PID = 32 ppm

Langan
Engineering and Environmental Services

LOG OF BORING RB2

SHEET 2 OF 2

PROJECT	PROJECT NO.
Gowanus Development	1503701
LOCATION	ELEVATION AND DATUM
Brooklyn, NY	Approx. el. 9.0 [BBHDD]

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG.	DEPTH SCALE	SAMPLE DATA NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
			45	S9	SS	17	7 6 12 14	18	PID = 8 ppm, visible petroleum like material Minor rig chatter
	Gray/brown f.-m. SAND, trace silt (7-65)		50	S10	SS	20	12 13 13 15	26	PID = 20 ppm, slightly visible petroleum like material
	Gray/brown f.-m. SAND (7-65)		55	S11	SS	20	9 7 8 10	15	PID = 10.8 ppm
	Gray/brown f.-m. SAND (7-65)		60	S12	SS	18	9 12 10 11	22	PID = 5.9 ppm
	Brown f.-m. SAND, some silt, trace clay (7-65)								Rig chatter D = 63.5' - 65'
	Red brown f.-c. sandy SILT, some clay, trace f. gravel (10-65)		65	S13	SS	15	31 16 19 27	35	"Copper" brown petroleum like material floating on the surface of wash tub PID = 6.2 ppm Major rig chatter D = 65' - 70'
	Red brown f.-m. SAND,trace silt, clay, and m. gravel (7-65)		70	S14	SS	14	24 29 27 21	56	PID = 8.8 ppm Minor rig chatter D = 70' - 75'
	Red brown f.-m. SAND, trace silt, clay, and f. gravel (7-65)		75	S15	SS	14	23 22 21 28	43	PID = 43 ppm Rig chatter D = 75' - 83'
	Red brown f.-m. SAND, trace silt, clay, and c. sand (7-65)		80	S16	SS		43 30 39 38	69	PID = 6 ppm
	Boring terminated D = 85'		85						Borehole grouted upon completion
			90						

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LOG OF BORING RB3A

SHEET 1 OF 1

PROJECT: Gowanus Development	PROJECT NO.: 1503701
LOCATION: Brooklyn, NY	ELEVATION AND DATUM: Approx el. 10.1 [BBHDD]
DRILLING EQUIPMENT: Mobile B61 Truck Mounted Rig	DATE STARTED: 10/19/98 / DATE FINISHED: 10/19/98 / COMPLETION DEPTH: 1 ft.
SIZE AND TYPE OF BIT: 4 7/8" Tri-Cone Roller Bits w/water	NUMBER OF SAMPLES: DIST. -------- / UNDIST. -------- / CORE --------
CASING DIAMETER (in): ----- / CASING DEPTH(ft):	WATER LEVEL (ft.): FIRST ----- / COMPL. ----- / 24 HR. -----
SAMPLER: --------	DRILLING FOREMAN: Ernest Thomas/Desmond Williams
SAMPLER HAMMER / WEIGHT(lbs): ----- / DROP(in): -----	INSPECTING ENGINEER: Gary L. Gleason

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
pprox el. 10.1	2.5" ASPHALT 6.5" Black f.-c. SAND and GRAVEL (11-65)* 3" COBBLE/BOULDER (6-65)								*New York City BC Classification numbers in parenthesis Added water D = 0.5' Hard/slow drilling D = 0.75' - 1' Drill equiptment refusal D = 1'
	Boring terminated D = 1'		5 10 15 20 25 30 35 40						

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LOG OF BORING RB3B

SHEET 1 OF 2

PROJECT: Gowanus Development	PROJECT NO.: 1503701
LOCATION: Brooklyn, NY	ELEVATION AND DATUM: Approx. el. 10.1 [BBHDD]
DRILLING EQUIPMENT: Mobile B61 Truck Mounted Rig	DATE STARTED: 10/19/98 / DATE FINISHED: 10/19/98 / COMPLETION DEPTH: 80 ft.
SIZE AND TYPE OF BIT: 4 7/8" (0'-3') and 3 7/8" Tri-Cone Roller Bits	NUMBER OF SAMPLES: DIST. 13 / UNDIST. -------- / CORE --------
CASING DIAMETER (in): 4 1/2" OD 4" ID / CASING DEPTH(ft): 13	WATER LEVEL (ft.): FIRST ▽ 8 / COMPL. ▼ ----- / 24 HR. ▼ -----
SAMPLER: 2" OD 1 3/4" ID Split Spoon (SS)	DRILLING FOREMAN: Ernest Thomas/Desmond Williams
SAMPLER HAMMER / WEIGHT(lbs): 140 / DROP(in): 30	INSPECTING ENGINEER: Gary L. Gleason

ELEV. (ft)	SAMPLE DESCRIPTION	SAMPLE NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
Approx. el. 10.1	Surficial ASPAHLT						*New York City BC Classification numbers in parenthesis Rig chatter D = 0' - 3'
	Black f.-c. SAND, trace silt, f. gravel, and red brick (11-65)*	S1	SS	13	10 6 9 8	15	PID = 5 ppm, petroleum like material oder
	Inferred miscellaneous FILL (11-65)	-	SS	0	2 1 1 1	2	Added mud D = 10'
	Gray/brown organic SILT/PEAT, trace f. gravel (11-65)	S2	SS	10	2 2 2 1	4	PID = 0.1 ppm, petroleum like material oder
	Gray silty CLAY, trace shell and organics/root (11-65)	S3	SS	21	WOH WOH WOH WOH	WOH	WOH: Weight of hammer PID = 0 ppm
	Gray silty CLAY, trace shell and organics (11-65)	S4	SS	15	2 2 2 2	4	PID = 0 ppm
	Brown silty f. SAND, trace clay (8-65)	S5	SS	15	3 4 7 8	11	PID = 0.5 ppm, slight pertroleum like material oder
	Gray f.-m. SAND (7-65)	S6	SS	20	13 18 18 15	36	PID = 95 ppm, visible petroleum like material w/oder
	Brown/gray f. sandy SILT, trace clay (10-65)	S7	SS	15	9 12 9 16	21	PID = 8 ppm, petroleum like material oder

DEPTH SCALE: 5, 10, 15, 20, 25, 30, 35, 40

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LOG OF BORING RB3B

SHEET 2 OF 2

PROJECT	PROJECT NO.
Gowanus Development	1503701
LOCATION	ELEVATION AND DATUM
Brooklyn, NY	Approx. el. 10.1 [BBHDD]

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
	Brown silty f. SAND, trace clay (8-65)		45	S8	SS	14	8 11 13 14	24	PID = 5.2 ppm, petroleum like material oder
	Brown silty f.-m. SAND, trace clay (7-65)		50	S9	SS	17	12 13 18 24	31	PID = 6.5 ppm, petroleum like material oder
	Brown/gray f.-c. SAND, trace f. gravel (7-65)		55	S10	SS	13	9 12 14 15	26	PID = 0.6 ppm, slight petroleum like material oder
	Gray/brown f.-c. SAND (7-65)		60	S11	SS	14	13 18 18 20	36	PID = 1.2 ppm, petroleum like material oder
	Gray/brown SILT, some clay, trace f. sand (10-65)		65	S12	SS	15	10 9 18 20	27	PID = 0.2 ppm
	Red brown f.-c. SAND, trace silt and f. gravel (6-65)		70	S13	SS	7	21 24 80 100/3"	104	PID = 0.7 ppm, petroleum like material oder Spoon refusal D = 69.5' Rig chatter D = 69.5' and 73'
	Red brown f.-c. SAND, some silt and clay, trace f. gravel (7-65)		75	S14	SS	7	28 21 15 18	36	PID = 0.1 ppm Minor rig chatter D = 73' - 78'
	Red brown clayey SILT, trace f. sand, trace m. gravel (10-65)		80	S15	SS	18	18 19 13	32	PID = 0.3 ppm, petroleum like material oder
	Boring terminated D = 80'		85 90						Borehole grouted upon completion

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LOG OF BORING RB4

SHEET 1 OF 2

PROJECT: Gowanus Development	PROJECT NO.: 1503701
LOCATION: Brooklyn, NY	ELEVATION AND DATUM: Approx. el. 10.4 [BBHDD]
DRILLING EQUIPMENT: CME 75 Truck Mounted Rig	DATE STARTED: 10/16/98 / DATE FINISHED: 10/19/98 / COMPLETION DEPTH: 73 ft.
SIZE AND TYPE OF BIT: 4 7/8" (0'-3') and 3 7/8" Tri-Cone Roller Bits	NUMBER OF SAMPLES: DIST. 14 / UNDIST. -------- / CORE --------
CASING DIAMETER (in): 4 1/2" OD 4" ID / CASING DEPTH(ft): 10	WATER LEVEL (ft.): FIRST ----- / COMPL. ----- / 24 HR. 6.5
SAMPLER: 2" OD 1 3/4" ID Split Spoon (SS)	DRILLING FOREMAN: Tommy Gregorey/Chris Mitchell
SAMPLER HAMMER / WEIGHT(lbs): 140 / DROP(in): 30	INSPECTING ENGINEER: Gary L. Gleason

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
prox. el. 10.4	Surficial ASPHALT								*New York City BC Classification numbers in parenthesis Black drill water w/ petroleum like material oder D = 1.5' - 5'
	Black/brown f.-c. SAND, some silt, trace f. gravel/coal, wood/organics, and red brick (11-65)*		5	S1	SS	5	2 8 6 8	14	PID = 0.2 ppm, petroleum like material oder
	Black and white f. GRAVEL/COAL, trace m.-c. sand (11-65)		10	S2	SS	TRACE	1 1 WOH WOH	1	WOH: Weight of hammer PID = 3 ppm, petroleum like material oder Over drove spoon to aid in Sample recovery
	Black and white f. GRAVEL/COAL, trace m.-c. sand and glass (11-65)		15	S3	SS	TRACE	1 2 1 1	3	PID = 4 ppm, petroleum like material oder Added mud D = 15'
	Gray silty CLAY, trace shell and f. gravel (11-65)		20	S4	SS	14	1 WOH WOH WOH	WOH	PID = 0.4 ppm, petroleum like material oder
	Gray silty CLAY, trace shell (11-65)		25	S5	SS	8	1 WOH WOH WOH	WOH	PID = 7.2 ppm, petroleum like material oder
	Gray SILT, trace clay, f.-m. sand, f.-m. gravel/coal, and shell (10-65)		30	S6	SS	22	9 12 12 9	24	PID = 8 ppm, slight petroleum like material odor
	Brown f.-m. SAND (7-65)		35	S7	SS	16	22 23 22 13	45	PID = 190 ppm, visible petroleum like material w/ oder
	Brown f.-m. SAND, trace silt and coal (7-65)		40	S8	SS	19	20 15 15 20	30	PID = 2.5 ppm, petroleum like material

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LOG OF BORING RB4

SHEET 2 OF 2

PROJECT	PROJECT NO.
Gowanus Development	1503701
LOCATION	**ELEVATION AND DATUM**
Brooklyn, NY	Approx. el. 10.4 [BBHDD]

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
			45	S9	SS	15	16 14 18 18	32	PID = 5 ppm, petroleum like material oder Added mud D = 46'
	Brown f. SAND, trace silt (8-65)		50	S10	SS	12	18 20 26 28	46	PID = 1.6 ppm, petroleum like material oder
	Gray f.-m. SAND (7-65)		55	S11	SS	24	17 14 15 21	29	PID = 1 ppm, petroleum like material oder
	Brown f.-c. SAND (7-65)		60	S12	SS	13	29 32 25 21	57	PID = 9 ppm, petroleum like material oder
	Gray/brown f.-c. SAND, trace f.-m. gravel (6-65)		65	S13	SS	13	28 41 59 63	100	
	Red brown SILT, some f. sand, trace clay (10-65)								PID = 0.6 ppm, slight petroleum like material oder Rig chatter D = 66.5' - 68.5'
	Red brown f.-c. SAND, trace silt, f.-m. gravel, and clay (6-65)		70	S14	SS	10	30 37 47 50	84	Rig chatter D = 70' - 73' PID = 0.9 ppm, slight petroleum like material odor Very hard/slow drilling D = 72' - 73' Drilling equiptment refusal D = 73'
	Boring terminated D = 73'		75						Bore hole grouted upon completion
			80						
			85						
			90						

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LOG OF BORING RB5

SHEET 1 OF 2

PROJECT: Gowanus Development	PROJECT NO.: 1503701
LOCATION: Brooklyn, NY	ELEVATION AND DATUM: Approx. el. 10.6 [BBHDD]
DRILLING EQUIPMENT: Mobile B61 Truck Mounted Rig	DATE STARTED: 10/15/98; DATE FINISHED: 10/16/98; COMPLETION DEPTH: 79.5 ft.
SIZE AND TYPE OF BIT: 4 7/8" (0'-1') and 3 7/8" Tri-Cone Roller Bits	NUMBER OF SAMPLES: DIST. 16; UNDIST. --------; CORE --------
CASING DIAMETER (in): 4 1/2" OD 4" ID; CASING DEPTH(ft): 13	WATER LEVEL (ft.): FIRST ▽ 9; COMPL. ▽ -----; 24 HR. ▽ -----
SAMPLER: 2" OD 1 3/4" ID Split Spoon (SS)	DRILLING FOREMAN: Ernest Thomas/Desmond Williams
SAMPLER HAMMER: WEIGHT(lbs) 140; DROP(in) 30	INSPECTING ENGINEER: Gary L. Gleason

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
prox. el. 10.6	Surficial ASPHALT								*New York City BC Classification numbers in parenthesis Added water D = 0.5' Rig chatter D = 1'
	Black/gray f.-c. SAND, some f-c. gravel/coal, trace silt and red brick (11-65)*		5	S1	SS	10	13 14 4 3	18	Petroleum like material/oder and color in drill water D = 1' to 3' PID = 6 ppm, petroleum like material odor Trace wood in wash WOH: Weight of hammer
	Inferred Black/gray f.-c. GRAVEL, trace f.-c. sand, silt, and metal (11-65)	▽	10	S2	SS	0	2 1 WOH 1	1	PID = 3 ppm, petroleum like material oder Sample S2 spoon tip material
	Gray silty CLAY, some woody roots, trace shell (11-65)		15	S3	SS	17	2 2 2 2	4	PID = 1 ppm, petroleum like material oder WOR: Weight of rods
	Gray silty CLAY, trace organics/root (11-65)		20	S4	SS	14	WOR WOR WOR WOR	WOR	PID = 0.2 ppm, petroleum like material oder
	Brown f. SAND, trace silt and wood (8-65)		25	S5	SS	18	5 8 12 13	20	PID = 6.5 ppm, petroleum like material oder
	Brown/gray f.-c. SAND (7-65)		30	S6	SS	18	13 14 10 6	24	PID = 4 ppm, visible petroleum like material and odor
	Gray/brown f. SAND (8-65)		35	S7	SS	13	9 18 21 20	39	PID = 13 ppm, petroleum like material oder
	Brown/gray f.-m. SAND (7-65)		40	S8	SS	17	11 14 8 13	22	PID = 0.4 ppm, petroleum like material oder

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LOG OF BORING RB5

SHEET 2 OF 2

PROJECT	PROJECT NO.
Gowanus Development	1503701
LOCATION	ELEVATION AND DATUM
Brooklyn, NY	Approx. el. 10.6 [BBHDD]

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
	Gray/brown f. SAND, trace silt (8-65)		45	S9	SS	18	13 13 14 15	27	PID = 3.9 ppm, petroleum like material oder
	Brown f.-m. SAND, trace silt (7-65)		50	S10	SS	18	10 12 15 18	27	PID = 0.5 ppm, slight petroleum like material oder
	Brown SILT, trace f. sand and clay (10-65)		55	S11	SS	18	11 14 18 20	32	PID = 0.3 ppm, slight petroleum like material oder
	Brown f.-m. SAND, trace silt (7-65)		60	S12	SS	14	17 21 100/3"	121/9"	PID = 0.4 ppm, petroleum like material oder Spoon refusal D = 59' Major rig chatter D = 60'
	Red brown f.-c. SAND, some f.-m. gravel, trace silt and clay (6-65)		65	S13	SS	14	35 51 62 24	113	Rig chatter D = 60' - 63' PID = 0.2 ppm, slight petroleum like material oder Rig chatter D = 63' - 68'
	Red brown f.-c. SAND, trace f.-m. gravel, silt, and clay (7-65)		70	S14	SS	14	41 40 66 100	106	Rig chatter D = 68' - 73' PID = 0.4 ppm, slight petroleum like material oder
	Red brown f.-c. SAND, trace silt, f.-m. gravel, and clay (6-65)		75	S15	SS	16	56 35 50 35	85	PID = 0.1 ppm Major rig chatter D = 76' - 77'
	Red brown f.-c. SAND, trace silt, f. gravel, and clay (6-65)		80	S16	SS	10	41 89 100/5"	189/11"	Spoon refusal D = 79.5' PID = 0 ppm, slight petroleum like material oder
	Boring terminated D = 79.5'		85 90						Borehole grouted upon completion

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LOG OF BORING RB6

SHEET 1 OF 2

PROJECT: Gowanus Development	PROJECT NO.: 1503701
LOCATION: Brooklyn, NY	ELEVATION AND DATUM: Approx. el. 10.6 [BBHDD]
DRILLING EQUIPMENT: CME 75 Truck Mounted Rig	DATE STARTED: 10/15/98 / DATE FINISHED: 10/16/98 / COMPLETION DEPTH: 82 ft.
SIZE AND TYPE OF BIT: 4 7/8" (0'-3') and 3 7/8" Tri-Cone Roller Bits	NUMBER OF SAMPLES: DIST. 16 / UNDIST. -------- / CORE --------
CASING DIAMETER (in): 4 1/2" OD 4" ID / CASING DEPTH(ft):	WATER LEVEL (ft.): FIRST ----- / COMPL. ----- / 24 HR. 8
SAMPLER: 2" OD 1 3/4" ID Split Spoon (SS)	DRILLING FOREMAN: Robert Danielson/Tommy Gregorey/Chris Mitchell
SAMPLER HAMMER / WEIGHT(lbs): 140 / DROP(in): 30	INSPECTING ENGINEER: Gary L. Gleason

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
prox. el. 10.6	Surficial ASPHALT								*New York City BC Classification numbers in parenthesis Added water D = 3'
	Inferred miscellaneous FILL with coal (11-65)*		5	S1	SS	0	3 1 1 1	2	Sample S1 spoon tip material
									WOH: Weight of hammer
	Black/gray f.-m. GRAVEL/COAL, trace f.-c. sand and wood (11-65)		10	S2	SS	2	1 1 WOH WOH	1	PID = 40 ppm, petroleum light material odor
	Gray silty CLAY, some wood/root, trace shell (11-65)		15	S3	SS	24	1 WOH 1 1	1	PID = 0.1 ppm, petroleum like material odor
	Gray silty CLAY, trace root (11-65)		20	S4	SS	22	1 1 1 1	2	PID = 0 ppm
	Brown/gray f.-m. SAND, trace silt (7-65)		25	S5	SS	20	16 20 19 18	39	PID = 0.2 ppm Added mud D = 27'
	Gray/brown clayey SILT, trace f.-m. sand (10-65)		30	S6	SS	12	6 9 8 13	17	PID = 0.2 ppm
	Gray f.-m. SAND (7-65)		35	S7	SS	12	20 22 18 19	40	PID = 0.1 ppm, slight petroleum like material odor
	Gray f.-m. SAND (7-65)		40	S8	SS	14	11 13 12 12	25	PID = 0.5 ppm, petroleum like material odor

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LOG OF BORING RB6

SHEET 2 OF 2

PROJECT	PROJECT NO.
Gowanus Development	1503701
LOCATION	ELEVATION AND DATUM
Brooklyn, NY	Approx. el. 10.6 [BBHDD]

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
	Gray/brown f.-m. SAND, trace silt (7-65)		45	S9	SS	14	S13 12 8 7	20	PID = 0.2 ppm, slight petroleum like material odor
	Brown f. SAND (8-65)		50	S10	SS	15	12 15 25 27	40	PID = 0.4 ppm, petroleum like material odor
	Brown f.-m. SAND, trace silt (8-65)		55	S11	SS	18	18 30 34 41	64	PID = 0.2 ppm
	Brown SILT, trace f. sand and clay (10-65)		60	S12	SS	15	25 34 31 44	65	PID = 0.8 ppm, petroleum like material odor Rig chatter D = 63.5'
	Red brown c.-f. SAND, some f.-c. gravel, trace silt and clay (6-65)		65	S13	SS	12	82 64 50 54	114	PID = 0.6 ppm Rig chatter D = 65' - 70'
	Red brown silty f.-m. SAND, trace f.-m. gravel and clay (6-65)		70	S14	SS	8	34 50 100/5"	150/11"	PID = 0 ppm Spoon refusal D = 71.5' Rig chatter and slow drilling D = 70' - 75'
	Red brown f.-c. SAND and GRAVEL, trace silt and clay (6-65)		75	S15	SS	3	100/3"	R"	PID = 0.7 ppm Major rig chatter Slow drilling
	Red brown fine GRAVEL and f.-c. SAND, some silt, trace clay (6-65)		80	S16	SS	7	38 72 100	172	PID = 0.6 ppm, slight petroleum like material odor
	Boring terminated D = 82'		85						Borehole grouted upon completion
			90						

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LOG OF BORING RB7

SHEET 1 OF 2

PROJECT: Gowanus Development	PROJECT NO.: 1503701
LOCATION: Brooklyn, NY	ELEVATION AND DATUM: Approx. el. 10.6 [BBHDD]
DRILLING EQUIPMENT: Mobile B61 Truck Mounted Rig	DATE STARTED: 10/15/98; DATE FINISHED: 10/15/98; COMPLETION DEPTH: 80 ft.
SIZE AND TYPE OF BIT: 4 7/8" (0'-3') and 3 7/8" Tri-Cone Roller Bits	NUMBER OF SAMPLES: DIST. 17; UNDIST. --------; CORE ---------
CASING DIAMETER (in): 4 1/2" OD 4" ID; CASING DEPTH(ft): 13	WATER LEVEL (ft.): FIRST ▽ 8; COMPL. ▼ -----; 24 HR. ▼ -----
SAMPLER: 2" OD 1 3/4" ID Split Spoon	DRILLING FOREMAN: Ernest Thomas/Desmond Williams
SAMPLER HAMMER; WEIGHT(lbs): 140; DROP(in): 30	INSPECTING ENGINEER: Gary L. Gleason

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
Approx. el. 10.6	Surficial ASPHALT								*New York City BC Classification numbers in parenthesis Added water D = 0'
	Brown/black f.-c. SAND, trace silt, m. gravel/coal, and red brick (11-65)*		5	S1	SS	5	2 3 3 2	6	PID = 0.1 ppm
	Gray/black f.-c. SAND, trace silt, f. gravel/coal, and glass (11-65)		10	S2	SS	5	4 3 2 2	5	PID = 0 ppm
	Brown/black PEAT (11-65)		15	S3	SS	0	4 1 1 1	2	PID = 0.9 ppm, organic odor Sample S3 from second recovery attempt WOH: Weight of hammer
	Gray/brown/black f.-m. sandy PEAT, trace silt (11-65)		20	S4	SS	24	WOH 4 3 6	7	PID = 0 ppm PID = 0 ppm
	Gray/brown f. SAND, trace silt (8-65)								Sample S5 6" Lense of Gray/brown SILT, trace clay and f. sand in top of sample
	Brown f.-m. SAND, trace silt (7-65)		25	S6	SS	18	12 16 18 17	34	PID = 0 ppm PID = 0 ppm
	Brown f.-m. SAND (7-65)		30	S7	SS	15	9 10 10 5	20	
	Gray f.-m. SAND, some clay, trace silt (7-65)		35	S8	SS	19	3 3 8 14	11	
	Brown/gray f.-m. SAND (7-65)		40	S9	SS	16	8 14 18 18	32	

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LOG OF BORING RB7

SHEET 2 OF 2

PROJECT	PROJECT NO.
Gowanus Development	1503701
LOCATION	ELEVATION AND DATUM
Brooklyn, NY	Approx. el. 10.6 [BBHDD]

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
	Gray f.-m. SAND (7-65)		45	S10	SS	16	12 14 19 16	33	
	Gray/brown f.-m. SAND, trace silt (7-65)		50	S11	SS	24	10 9 7 8	16	Sample S11 12" Lense of Gray/brown silty CLAY, trace f. sand in bottom of sample
	Brown/gray f.-m. SAND, trace silt (7-65)		55	S12	SS	16	17 21 27 30	48	
	Brown/gray f.-c. SAND, trace f.-m. gravel and silt (6-65)		60	S13	SS	15	27 40 31 33	71	
	Red brown silty f.-c. SAND, trace f.-m. gravel (6-65)		65	S14	SS	8	19 29 38 30	67	
	Red brown f.-c. SAND, trace f.-m. gravel, silt, and clay (6-65)		70	S15	SS	8	50 95 28 37	123	Rig chatter
	Red brown f.-c. SAND, trace silt, clay, and f.-c. gravel (6-65)		75	S16	SS	12	37 48 33 40	81	Rig chatter
	Red brown f.-c. SAND, trace f.-c. gravel, silt, and clay (6-65)		80	S17	SS	9	21 37 62 48	99	
	Boring terminated D = 80'		85						Borehole grouted upon completion
			90						

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LOG OF BORING RB8

SHEET 1 OF 2

PROJECT: Gowanus Development	PROJECT NO.: 1503701
LOCATION: Brooklyn, NY	ELEVATION AND DATUM: Approx. el. 10.9 [BBHDD]
DRILLING EQUIPMENT: CME 75 Truck Mounted Rig	DATE STARTED: 10/14/98 · DATE FINISHED: 10/15/98 · COMPLETION DEPTH: 82 ft.
SIZE AND TYPE OF BIT: 4 7/8" (0'-4') and 3 7/8" Tri-Cone Roller Bits	NUMBER OF SAMPLES: DIST. 19 · UNDIST. -------- · CORE --------
CASING DIAMETER (in): 4 1/2" OD 4" ID · CASING DEPTH(ft): 8	WATER LEVEL (ft.): FIRST ▽ 8 · COMPL. ▼ ----- · 24 HR. ▼ -----
SAMPLER: 2" OD 1 3/4" ID Split Spoon	DRILLING FOREMAN: Greg Marney/Robert Danielson/Tommy Gregorey
SAMPLER HAMMER · WEIGHT(lbs): 140 · DROP(in): 30	INSPECTING ENGINEER: Gary L. Gleason

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
prox. el. 10.9	2" ASPHALT								
	Black f.-c. SAND, some f.-m. gravel/coal and red brick, trace silt (11-65)*			S1	SS	6	25 28 28 39	65	*New York City BC Classification numbers in parenthesis PID = 21 ppm, petroleum like material odor
	Black f.-c. SAND, trace f.-m. gravel/coal, red brick, silt, and wood (11-65)			S2	SS	7	80 85 42 47	127	PID = 4.5 ppm, petroleum like material odor Added water/mud D = 4'
	Black/brown f.-m. GRAVEL/COAL, some f.-c. sand, trace silt and glass (11-65)		5	S3	SS	7	8 11 2 2	13	PID = 4.5 ppm, petroleum like material odor
	Black/brown f.-c. silty SAND, trace f. gravel/coal (11-65)			S4	SS	3.5	3 3 2 3	5	PID = 1.5 ppm, petroleum like material odor
	Black/gray f.-c. SAND, some silt and wood, trace f. gravel/coal (11-65)			S5	SS	3	4 3 3 3	6	PID = 0 ppm, petroleum like material odor
			10						
	WOOD, some black/gray f.-c. sand and f. gravel/coal, trace silt and glass (11-65)		15	S6	SS	2	6 3 3 2	6	PID = 2 ppm, petroleum like material odor
	Gray/brown f. sandy SILT, trace roots, shell, and clay (11-65)		20	S7	SS	18	2 3 6 6	9	PID = 0 ppm
	Brown f.-m. SAND (7-65)		25	S8	SS	22	20 19 17 17	36	PID = 0 ppm
									Sample S9 6" Lense brown clayey SILT, trace f. sand (10-65) in bottom of sample
	Brown f.-m. SAND (7-65)		30	S9	SS	11	10 5 7 8	12	PID = 0.1 ppm
	Gray f.-m. SAND, trace silt and clay (7-65)		35	S10	SS	20	8 11 13 13	24	PID = 0.1 ppm
	Brown/gray f.-m. SAND (7-65)		40	S11	SS	16	8 8 7 6	15	PID = 0.3 ppm

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LOG OF BORING RB8

SHEET 2 OF 2

PROJECT	PROJECT NO.
Gowanus Development	1503701
LOCATION	ELEVATION AND DATUM
Brooklyn, NY	Approx. el. 10.9 [BBHDD]

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE (ft)	SAMPLE DATA NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
	Brown/gray silty f. SAND sand, trace clay (8-65)		45	S12	SS	19	6 7 8 8	15	PID = 0.2 ppm PID = 0.3 ppm
	Brown/gray f.-m. SAND, trace silt (7-65)								
	Brown/gray clayey SILT, trace f.-m. sand (10-65)		50	S13	SS	19	3 3 4 5	7	PID = 0.1 ppm
									Rig chatter D = 53'
	Inferred Red brown f.-c. SAND, some f.-m. gravel, trace silt and clay (6-65)		55	S14	SS	0	40 39 39 35	78	Sample S14 spoon tip material
									Rig chatter D = 55' - 60'
	Red brown f.-c. SAND, some silt, trace f.-m. gravel and clay (6-65)		60	S15	SS	4	27 43 37 39	80	PID = 0 ppm
									Rig chatter D = 60' - 65'
	Red brown silty f.-c. SAND, some f.-c. gravel, trace clay (6-65)		65	S16	SS	4	26 33 34 41	67	
	Red brown f.-m. GRAVEL, some f.-c. sand, trace silt (6-65)		70	S17	SS	3	29 65 54 76	119	
	Red brown f.-m. GRAVEL, trace f.-c. sand, silt, and clay (6-65)		75	S18	SS	2	29 58 52 73	110	
	Red brown f.-c. GRAVEL, some f.-c. sand, trace silt and clay (6-65)		80	S19	SS	3	31 32 47 98	79	
	Boring terminated D = 82'		85						Borehole grouted upon completion
			90						

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LOG OF BORING RB9

SHEET 1 OF 2

PROJECT: Gowanus Development	PROJECT NO.: 1503701
LOCATION: Brooklyn, NY	ELEVATION AND DATUM: Approx. el. 11.2 [BBHDD]
DRILLING EQUIPMENT: Mobile B61 Truck Mounted Rig	DATE STARTED: 10/14/98 / DATE FINISHED: 10/15/98 / COMPLETION DEPTH: 82 ft.
SIZE AND TYPE OF BIT: 4 7/8" (0'-4') and 3 7/8" Tri-Cone Roller Bits	NUMBER OF SAMPLES: DIST. 19 / UNDIST. -------- / CORE --------
CASING DIAMETER (in): 4 1/2" OD 4" ID / CASING DEPTH(ft): 14	WATER LEVEL (ft.): FIRST ▼ 6 / COMPL. ▼ ----- / 24 HR. ▼ -----
SAMPLER: 2" OD 1 3/4" ID Split Spoon	DRILLING FOREMAN: Ernest Thomas/Desmond Williams
SAMPLER HAMMER / WEIGHT(lbs): 140 / DROP(in): 30	INSPECTING ENGINEER: Gary L. Gleason

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
prox. el. 11.2	3" ASPHALT								
	Black/brown f.-c. GRAVEL/COAL, some f.-c. sand, trace silt (11-65)*			S2	SS	7	28 21 100	121	*New York City BC Classification numbers in parenthesis Added water D = 0.5'
	Black/brown f.-c. SAND, trace f.-m. gravel/coal, silt, and metal (11-65)			S2	SS	10	7 8 2 2	10	PID = 11 ppm, petroleum like material odor PID = 0.2 ppm, petroleum like material odor
	Black/brown f.-m. GRAVEL/COAL and f.-c. SAND, trace silt (11-65)		5	S3	SS	6	3 4 2 3	6	PID = 0.3 ppm, petroleum like material odor
	Gray/brown f.-c. SAND, some silt, trace f.-m. gravel/coal, one seed (11-65)			S4	SS	0.5	4 3 3 4	6	PID = 0 ppm
	Inferred miscellaneous FILL (11-65)			-	SS	0	4 2 2 2	4	
			10						
									Very hard drilling Added mud D = 14' - 15'
	Brown f.-c. SAND, trace f. gravel and silt (11-65)		15						
	Brown/black PEAT (11-65)			S6 S5	SS	14	5 4 3 4	7	PID = 0.1 ppm, petroleum like material odor PID = 1 ppm, petroleum like material odor
			20						
	Brown-silty f. SAND, trace clay (8-65)			S7	SS	10	2 2 5 7	7	PID = 0 ppm, petroleum like material odor
	Brown f. SAND, trace silt (8-65)		25	S8	SS	20	13 14 15 17	29	PID = 0.1 ppm
	Gray/brown f. SAND, some silt (8-65)		30	S9	SS	21	5 3 2 4	5	PID = 0 ppm Sample S9 10" Lense Gray clayey SILT, trace f. sand (10-65) w/ PID = 0 ppm in bottom of sample
	Gray clayey f.-m. SAND, trace silt (7-65)		35	S10	SS	19	12 15 19 20	34	PID = 0 ppm
	Brown/gray f.-m. SAND (7-65)								PID = 0 ppm
	Brown/gray f.-m. SAND (7-65)		40	S11	SS	17	5 7 8 9	15	PID = 0 ppm

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LOG OF BORING RB9

SHEET 2 OF 2

PROJECT	PROJECT NO.
Gowanus Development	1503701
LOCATION	ELEVATION AND DATUM
Brooklyn, NY	Approx. el. 11.2 [BBHDD]

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
			45						
	Brown/gray f.-m. sandy SILT (10-65)			S12	SS	11119	2 3 5 7	8	PID = 0 ppm
			50						
	Brown/gray SILT, trace clay and f.-m. sand (10-65)			S13	SS	24	2 1 2 3	3	PID = 0 ppm
			55						
	Red brown silty f.-c. SAND, trace clay and f. gravel (7-65)			S14	SS	12	10 13 19 16	32	PID = 0 ppm PID = 0 ppm Slow/hard drilling D = 59'
			60						
	Red brown silty f.-c. SAND, some f.-m. gravel, trace clay (6-65)			S15	SS	16	17 25 26 28	51	PID = 0 ppm
			65						
	Red brown silty f.-c. SAND, some f.-m. gravel, trace clay (6-65)			S16	SS	16	21 49 67 100/5"	116	Spoon refusal D = 67'
			70						
	Red brown f.-c. SAND, some f.-m. gravel and silt, trace clay (6-65)			S17	SS	5	21 100/6"	100/6"	Spoon refusal 100/6" D = 71' Rig chatter
			75						
	Red brown f.-c. SAND, some f.-m. gravel, trace silt and clay (6-65)			S18	SS	14	40 53 58 38	111	
			80						
	Gray f.-c. GRAVEL and red brown f.-c. SAND, trace silt and clay (6-65)			S19	SS		66 83 100/5"	183/11"	Spoon refusal D = 81.5'
	Boring terminated D = 82'								Borehole grouted upon completion
			85						
			90						

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LOG OF BORING **LB1**

SHEET 1 OF 2

PROJECT	Loews @ Gowanus
PROJECT NO.	1531601
LOCATION	Brooklyn, NY
ELEVATION AND DATUM	approx. el 11 [BBHDD]
DRILLING EQUIPMENT	Davey Kent DK50RA Track Rig
DATE STARTED	12/9/98
DATE FINISHED	12/11/98
COMPLETION DEPTH	81 ft.
SIZE AND TYPE OF BIT	4 7/8" and 3 7/8" Tri-Cone Roller Bits
NUMBER OF SAMPLES	DIST. 21 / UNDIST. ---- / CORE ----
CASING DIAMETER (in)	4 1/2" OD 4" ID
CASING DEPTH (ft)	18.5
WATER LEVEL (ft.)	FIRST ---- / COMPL. ---- / 24 HR. 8.5
SAMPLER	Standard Split Spoon (SS) or Shelby Tube (ST)
DRILLING FOREMAN	Tom Gregory/Kurt Conlon
SAMPLER HAMMER	WEIGHT (lbs) 140 / DROP (in) 30
INSPECTING ENGINEER	Gary L. Gleason

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST. BLS/in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
~ el 11	Inferred 4.5" CONCRETE								
	Brown f.-m. SAND, trace c. sand, f. gravel, and silt (11-65)*			S1	SS	4.5	10 24 24 100/3"	48	*New York City BC Classification numbers in parenthesis Hard slow drilling on concrete first 4.5' S1 SS Tip plugged with rocklike material (in S1 jar) PID = 580 ppm Added water D=0.25' Spoon refusal D=2' Rig chatter D=2' Petroleum like material floating in wash tub D=5' PID = 820 ppm
	Brown f.-m. SAND, trace c. sand (11-65)		5	S2	SS	8	10 11 7 8	18	
	Brown f.-m. SAND, trace c. sand (11-65)		10	S3	SS	11	2 3 3 2	6	Started casing D=10' PID = 320 ppm
0.0	Brown f.-m. SAND, trace organics/root, f.-m. gravel, clay, silt, and c. sand (11-65)			S4					PID = 420 ppm Advanced casing D=10'-13.5'
	Gray silty CLAY, some organics/root (11-65)		15	S5	SS	18	2 1 1 2	2	PP = 0.3-0.6 tsf PID = 150 ppm
	Gray silty CLAY, trace organics/root (11-65)			T1	ST	30	PUSH PUSH PUSH PUSH		PP = 0.2-0.3 tsf TV = 0.23 tsf WOH : Weight of Hammer
	Gray silty CLAY, trace organics/root (11-65)		20	S6	SS	24	WOH 2 3 4	5	PP = 0.2-0.3 tsf PID = 480 ppm
	Brown SILT, trace f. sand and clay (10-65)		25	S7	SS	17	8 7 14 21	21	PID = 860 ppm
	Brown/gray CLAY and SILT, trace f. sand (10-65)		30	S8					S8 4" Lense of Brown f. SAND, trace silt and clay (8-65) w/ PID = 580 ppm in top of SS
				S9	SS	18	8 8 7 10	15	PP = 1.2-2.1 tsf PID = 720 ppm S10 2" Gray f. SAND, trace clay and silt w/ PID = 850 ppm in bottom of SS Visible petroleum like material D=30'-32'
	Brown f. SAND, trace silt and clay (8-65)		35	S11	SS	15	14 20 22 18	42	PID = 380 ppm
	Brown f. SAND, trace silt and clay (8-65)		40	S12	SS	16	12 13 12 13	25	Brown f. sandy SILT, trace clay in SS tip PID = 330 ppm Trace visible petroleum like material

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LOG OF BORING LB1

SHEET 2 OF 2

PROJECT	Loews @ Gowanus	PROJECT NO.	1531601
LOCATION	Brooklyn, NY	ELEVATION AND DATUM	approx. el 11 (BBHDD)

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS/FOOT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
	Brown f. sandy SILT, trace clay (10-65)		45	S13	SS	17	17 17 15 20	32	PID = 570 ppm
	Brown SILT, trace clay and f. sand (10-65)		50	S15 S14	SS	15	14 15 22 26	37	PID = 540 ppm PID = 650 ppm Trace visible petroleum like material
	Brown f. SAND, trace silt (8-65)								
	Brown f. SAND, trace m. sand (7-65)		55	S16	SS	14.5	11 16 16 17	32	PID = 710 ppm
	Gray f. SAND, trace m.-c. sand (7-65)		60	S17	SS	13.5	15 22 20 23	42	Brown/gray SILT, trace f. sand and clay in SS tip PID = 530 ppm Trace visible petroleum like material near bottom of SS tip Minor on/off rig chatter D=60.5'-63'
	Brown f. sandy SILT, trace clay (10-65)		65	S18	SS	13	19 23 23 26	46	PID = 1240 ppm
	Red brown f. sandy SILT, some f. sand, trace clay (10-65)		70	S19	SS	15.5	20 29 28 28	57	PID = 950 ppm
	Inferred Red brown f.-c. SAND, trace f.-m. gravel (7-65)								On/off rig chatter D=73'-74.5' Slow/hard drilling D=74.5'-75.5' w/ rig chatter
	Inferred BOULDER (6-65)		75						
	Red brown f. SAND, trace silt, f. gravel, m.-c. sand, and clay (6-65)			S20	SS	13	51 68 100/5"	168/11"	PID = 900 ppm Spoon refusal D=77.5' Slow/hard drilling D=77.5'-78.75'
	Inferred BOULDER (6-65)								
	Red brown and brown f.-m. SAND, trace f.-m. gravel, c. sand, silt, and clay		80	S21	SS	24	19 41 36 36	77	PID = 1200 ppm
	Boring terminated D=81'		85						
			90						

BORING 1531601.GPJ LANGANFL.GDT 22/12/98

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LOG OF BORING LB2

SHEET 1 OF 2

PROJECT: Loews @ Gowanus	PROJECT NO.: 1531601
LOCATION: Brooklyn, NY	ELEVATION AND DATUM: approx. el 11 [BBHDD]
DRILLING EQUIPMENT: Davey Kent DK50RA Track Rig	DATE STARTED: 12/8/98; DATE FINISHED: 12/9/98; COMPLETION DEPTH: 80 ft.
SIZE AND TYPE OF BIT: 4 7/8" and 3 7/8" Tri-Cone Roller Bits	NUMBER OF SAMPLES: DIST. 20; UNDIST. ----; CORE ----
CASING DIAMETER (in): 4 1/2" OD 4" ID; CASING DEPTH (ft): 13.5	WATER LEVEL (ft.): FIRST ----; COMPL. ----; 24 HR. 6.5
SAMPLER: 2" OD 1 3/4" ID Split Spoon (SS)	DRILLING FOREMAN: Tom Gregory/Kurt Conlon
SAMPLER HAMMER: WEIGHT (lbs) 140; DROP (in) 30	INSPECTING ENGINEER: Gary L. Gleason

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
approx. el 11	4" CONCRETE								*New York City BC Classification numbers in parenthesis
	Brown and black f. SAND, trace silt, f.-c. sand, f. gravel, and coal (11-65)*			S1	SS	13.5	32 38 24 24	52	Started drilling w/ water; PID = 650 ppm; On/off rig chatter D = 0.75'-5'
	Black and brown c. SAND and f. GRAVEL/COAL, trace f.-m. sand and silt (11-65)		5	S2	SS	13	10 7 9 7	16	PID = 102 ppm
0.0	Gray silty CLAY, some brown peat, trace f. sand (11-65)		10	S3 S4	SS	8	2 1 4 6	5	PID = 9 ppm; PID = 10.2 ppm
	Brown/black f. SAND, some silt, trace clay (11-65)								
	Brown f. sandy SILT, trace clay (11-65)		15	S5 S6	SS	18	3 3 3 4	6	PID = 19.6 ppm; PID = 400 ppm; Added mud D = 15'
	Gray/brown PEAT, trace f. sand, silt, and clay (11-65)								
	Gray silty CLAY, trace organics/root (11-65)		20	S7 S8	SS	24	1 3 5 5	8	PP = 0.6 - 1.25 tsf; PID = 19.7 ppm; PID = 40 ppm
	Gray f. SAND, some clay, trace silt (8-65)								
	Brown/gray f. SAND, some silt, trace clay (8-65)		25	S9	SS	15	4 4 5 7	9	PID = 9 ppm
	Brown f.-m. sandy SILT, trace clay (10-65)		30	S10	SS	19.5	11 10 8 7	18	PID = 330 ppm; Visible petroleum like material
	Brown f. SAND, trace m. sand (7-65)		35	S11	SS	16	14 16 22 24	38	PID = 800 ppm
	Brown/gray f. SAND, trace m. sand, clay, and silt (8-65)		40	S12	SS	18	5 7 12 16	19	PID = 20 ppm

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LOG OF BORING LB2

SHEET 2 OF 2

PROJECT	Loews @ Gowanus	PROJECT NO.	1531601
LOCATION	Brooklyn, NY	ELEVATION AND DATUM	approx. el 11 [BBHDD]

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST. BLOWS/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
	Brown f. sandy SILT, trace clay (10-65)		45	S13	SS	18	8 10 11 13	21	PID = 500 ppm
	Brown f. sandy SILT, trace clay (10-65)		50	S14	SS	14	16 19 22 28	41	PID = 1020 ppm
	Brown SILT, trace f. sand and clay (10-65)		55	S15	SS	17	19 24 24 25	48	PID = 830 ppm Gray/brown f. SAND, trace silt in S15 SS tip
	Brown f. SAND, trace m. sand and silt (7-65)		60	S16	SS	18	11 17 17 13	34	PID = 50 ppm Slightly visible petroleum like material
	Brown f. SAND, trace m.-c. sand, f. gravel, and silt (7-65)		65	S17	SS	14	17 44 44 24	88	PID = 600 ppm Visible petroleum like material
	Brown f.-m. SAND, trace c. sand, f. gravel, and silt (7-65)		70	S18	SS	5.5	14 13 16 22	29	PID = 880 ppm Rig chatter D = 72.5' - 75' Very slow/hard drilling D = 72.5' - 73.5'
	Inferred boulder (6-65)								
	Red brown f. SAND, some m.-c. gravel, trace silt, m.-c. sand, f. gravel, and clay (6-65)		75	S19	SS	11	22 26 32 23	58	PID = 500 ppm
	Red brown f. SAND, trace silt and clay (8-65)			S20	SS	6	32 32 25 29	57	PID > 2000 ppm
	Boring terminated D = 80'		80						Borehole grouted upon completion
			85						
			90						

BORING 1531601.GPJ LANGANFL.GDT 22/12/98

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LOG OF BORING LB3

SHEET 1 OF 2

PROJECT: Loews @ Gowanus	PROJECT NO.: 1531601
LOCATION: Brooklyn, NY	ELEVATION AND DATUM: approx. el 11 [BBHDD]
DRILLING EQUIPMENT: Davey Kent DK50RA Track Rig	DATE STARTED: 12/8/98 / DATE FINISHED: 12/9/98 / COMPLETION DEPTH: 80.5 ft.
SIZE AND TYPE OF BIT: HW Rock Core and Tri-Cone Roller Bits	NUMBER OF SAMPLES: DIST. 18 / UNDIST. ----- / CORE -----
CASING DIAMETER (in): 4 1/2" OD 4" ID / CASING DEPTH (ft): 19.5	WATER LEVEL (ft.): FIRST ----- / COMPL. ----- / 24 HR. 2.6
SAMPLER: 2" OD 1 3/4" ID Split Spoon (SS)	DRILLING FOREMAN: Gus Suri/Mike Chizmar
SAMPLER HAMMER: WEIGHT (lbs) 140 / DROP (in) 30	INSPECTING ENGINEER: Gary L. Gleason

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST. Blows/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
Approx. el 11	6" CONCRETE w/ wire mesh								*New York City BC Classification numbers in parenthesis
	Inferred miscellaneous FILL (11-65)*								Started coring w/ water
	Black/gray f.-m. SAND, trace silt, c. sand, f. gravel, and coal (11-65)			S1	SS	8	25 33 44 93	77	PID = 125 ppm Slightly visible petroleum like material Or/off rig charter D = 1' - 5'
	Brown f.-m. SAND, trace red brick and silt (11-65)		5	S2	SS	3	21 28 20 12	48	Petroleum like material floating in wash tub D = 5' PID = 84 ppm
	Brown c. SAND, some f. gravel, trace clay, silt, and f.-m. sand (11-65)		10	S3	SS	8	15 4 4 7	8	PID = 155 ppm Slightly visible petroleum like material
	Brown f.-c. SAND, some gravel, trace clay and silt (11-65)		15	S4	SS	4	5 2 3 4	5	Added mud D = 15' PID = 55 ppm Slightly visible petroleum like material
	Brown f.-c. SAND and f. GRAVEL, some clay, trace silt (11-65)		20	S5	SS	2.5	102/2.5	Refusal	Refusal D = 20' Hard drilling D = 20.25' - 20.75' PID = 340 ppm Visible petroleum like material Added mud D = 20'
	Inferred CONCRETE								
	Brown SILT, trace clay, f. sand, and f. gravel (10-65)		25	S6	SS	7	6 10 8 13	18	PID = 220 ppm
	Brown/gray SILT, trace clay and f. sand (10-65)		30	S7	SS	11	5 8 7 7	15	Hole too tight D = 23' to get rods down so removed existing casing and drilled to D = 30' w/ 4 7/8" bit, then spun/cored casing to D = 19.5' PID = 45 ppm Slightly visible petroleum like material
	Brown f. SAND, trace silt and clay (8-65)		35	S8	SS	10	3 4 4 12	8	PID = 480 ppm
	Brown f. sandy SILT, trace clay (10-65)		40	S9	SS	14	7 12 12 14	24	PID = 640 ppm

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LOG OF BORING LB3

SHEET 2 OF 2

PROJECT	PROJECT NO.
Loews @ Gowanus	1531601
LOCATION	ELEVATION AND DATUM
Brooklyn, NY	approx. el 11 [BBHDD]

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST. BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
	Brown f. SAND, trace silt (8-65)		45	S11 S10	SS	12	11 10 10 10	20	PID 25 ppm S11 4" Lense of brown SILT, trace clay and f. sand (10-65) w/ PID = 55 ppm in bottom of SS
	Brown f.-m. SAND (7-65)		50	S12	SS	14	10 11 12 17	23	PID = 90 ppm
	Brown f. SAND, trace m.-c. sand (7-65)		55	S13	SS	8.5	11 14 19 17	33	PID = 9.8 ppm
	Brown f. SAND, trace m.-c. sand and silt (7-65)		60	S15 S14	SS	11.5	13 17 17 19	34	PID = 260 ppm PID = 210 ppm
	Brown/gray SILT, trace clay and f. sand (10-65)								
	Red brown f. SAND, some silt, trace f. gravel, m.-c. sand, and clay (7-65)		65	S16	SS	5	23 100/3"	100/3"	Spoon refusal D = 66' w/ bouncing Rig chatter D = 68' PID = 95 ppm
	Red brown f.-m. SAND, trace c. sand and f. gravel (7-65)		70	S18 S17	SS	8	17 40 22 21	62	PID = 510 ppm PID = 800 ppm
	Red brown SILT, trace f. gravel, f.-c. sand, and clay (10-65)								Minor on/off rig chatter D = 72' - 76.5'
	Inferred BOULDER		75						Slow/hard drilling D = 76.5' - 79' w/ minor rig chatter
	Inferred Red brown f.-c. SAND, trace f. gravel, silt, and clay (7-65)		80		SS	0	58 53 100/3"	53/11	Spoon refusal D = 80.5' Borehole grouted upon completion
	Boring terminated D=80.5'								
			85						
			90						

BORING 1531601.GPJ LAF(GANFLGDT 22/12/98

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LOG OF BORING LB4

SHEET 1 OF 2

PROJECT: Loews @ Gowanus	PROJECT NO.: 1531601
LOCATION: Brooklyn, NY	ELEVATION AND DATUM: approx. el 11 [BBHDD]
DRILLING EQUIPMENT: Davey Kent DK50RA Track Rig	DATE STARTED: 12/3/98 · DATE FINISHED: 12/7/98 · COMPLETION DEPTH: 80 ft.
SIZE AND TYPE OF BIT: HW and NQ Rock Cores and Tri-Cone Roller Bits	NUMBER OF SAMPLES: DIST. 16 · UNDIST. ---- · CORE ----
CASING DIAMETER (in): 4 1/2" OD 4" ID · CASING DEPTH (ft): 24	WATER LEVEL (ft.): FIRST ---- · COMPL. ---- · 24 HR. 6.7
SAMPLER: Standard Split Spoon (SS) or Shelby Tube (ST)	DRILLING FOREMAN: Gus Suri/Mike Chizmar
SAMPLER HAMMER · WEIGHT (lbs): 140 · DROP (in): 30	INSPECTING ENGINEER: Gary L. Gleason

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS/0.3 FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
approx. el 11	5.5" CONCRETE w/ wire mesh								*New York City BC Classification numbers in parenthesis
	Inferred miscellaneous FILL (11-65)*								
0.0	Black/brown f.-c. SAND, trace silt, red brick, l.-c. gravel/coal (11-65)			S1	SS	8	17 S2 85/1.5"	57/7.5"	Started coring with water Spoon refusal D=2' PID = 400 ppm
	Very c. CONCRETE								COBBLE fragment in D=1'-3' SS tip
			5						Lost majority of water D=2'-12'
			10						
	Inferred CONCRETE								Hard/slow drilling D=12'-13.5'
	Inferred WOOD (11-65)								Broke through concrete D=13.5'
			15						WOOD in wash D=13.5'-25' w/ slow drilling
	WOOD FIBERS, trace gray f. sand (11-65)			S2	ST	5	PUSH PUSH PUSH PUSH		One bend/dent in end of tube D=17'-19' PID = 58 ppm Petroleum like material odor
	WOOD FIBERS (11-65)		20	S3	SS	3	12 10 10 11	20	Added mud D~20' PID = 7.2 ppm Petroleum like material odor
	WOOD FIBERS (11-65)		25						Petroleum like material odor D=25'-25.5'
	Brown f. SAND, trace silt and clay (8-65)			S4	SS	14	19 22 23 24	45	PID = 5.4 ppm
	Brown f. SAND, trace silt (8-65)		30	S5	SS	10	13 20 20 15	40	PID = 148 ppm Visible petroleum like material Visible petroleum like material
	Brown f. SAND, trace silt (8-65)		35	S6	SS	7	9 8 8 7	16	PID = 90 ppm Visible petroleum like material Visible petroleum like material
	Brown f. SAND, trace m. sand, silt, and clay (7-65)		40	S7	SS	14.5	10 10 12 12	22	PID = 9.2 ppm

BORING 1531601 GPJ LANGANFL.GDT 12/15/98

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LOG OF BORING LB4

SHEET 2 OF 2

PROJECT	PROJECT NO.
Loews @ Gowanus	1531601
LOCATION	ELEVATION AND DATUM
Brooklyn, NY	approx. el 11 [BBHDD]

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA NUMBER	TYPE	RECOV. (in)	PENETH. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
	Brown f. SAND, trace silt and clay (8-65)		45	S8	SS	16	9 12 17 18	29	PID = 1.8 ppm
	Brown SILT, some f. sand, trace m. sand and clay (10-65)		50	S9	SS	15.5	13 15 21 21	36	PID = 368 ppm
	Brown f. sandy SILT, trace m. sand (10-65)		55	S11 S10	SS	11	13 18 18 18	36	PID = 7 ppm PID = 13.5 ppm
	Brown f. SAND, trace m. sand and silt (7-65)								
	Brown/gray f. SAND, trace m. sand and silt (7-65)		60	S12	SS	11	12 16 16 15	32	PID = 5.2 ppm Slightly visible petroleum like material Rig chatter D=64.5'-65'
	Red brown f.-m. SAND, trace f. gravel, c. sand, silt, and clay (7-65)		65	S13	SS	11	25 39 33 45	72	PID = 780 ppm On/off rig chatter D=65'-70'
	Red brown f.-m. SAND, trace f.-m. gravel, c. sand, and silt (7-65)		70	S14	SS	12	32 55 56 87	111	Added mud D = 70' PID = 1 ppm On/off rig chatter D=70'-75'
	Red brown c. SAND, some f.-m. sand and f.-m. gravel, trace silt (6-65)		75	S15	SS	2.5	100/4.5	R*	*Spoon refusal D=75.5' PID = 4.6 ppm On/off rig chatter D=75'-78'
	Red brown f.-m. gravelly f.-m. SAND, trace c. sand and silt (6-65)			S16	SS	14.5	40 53 87 102	140	C. GRAVEL in S16 SS tip PID = 0.4 ppm Borehole grouted upon completion
	Boring terminated D=80'		80						
			85						
			90						

BORING 1531601.GPJ LANGANFL.GDT 2/12/99

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LOG OF BORING LB5

SHEET 1 OF 2

PROJECT: Loews @ Gowanus	PROJECT NO.: 1531601
LOCATION: Brooklyn, NY	ELEVATION AND DATUM: approx. el 11 [BBHDD]
DRILLING EQUIPMENT: Davey Kent DK50RA Track Rig	DATE STARTED: 12/4/98 · DATE FINISHED: 12/8/98 · COMPLETION DEPTH: 80 ft.
SIZE AND TYPE OF BIT: 4 7/8" and 3 7/8" Tri-Cone Roller Bits	NUMBER OF SAMPLES: DIST. 15 · UNDIST. ---- · CORE ----
CASING DIAMETER (in): 4 1/2" OD 4" ID · CASING DEPTH(ft): 30.5	WATER LEVEL (ft.): FIRST ---- · COMPL. ---- · 24 HR. 6.4
SAMPLER: 2" OD 1 3/4" ID Split Spoon (SS)	DRILLING FOREMAN: Tom Gregory/Kurt Conlon
SAMPLER HAMMER: WEIGHT(lbs) 140 · DROP(in) 30	INSPECTING ENGINEER: Gary L. Gleason

ELEV. (ft)	SAMPLE DESCRIPTION	DEPTH SCALE	NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
approx. el 11	4.5" CONCRETE							*New York City BC Classification numbers in parenthesis
	5.5" DENSE GRADED AGGREGATE							Began drilling with water
	3.5" CONCRETE		S1	SS	0	50/0.5"	R*	*Spoon refusal D=1" 50/0.5" w/ bouncing
0.0	2.5" DENSE GRADED AGGREGATE							PID = 49 ppm
	Red BRICK (11-65)*							Sample S1 Gray f.-c. SAND and c. GRAVEL FRAGMENT, trace silt from SS tip
	Inferred Red BRICK							
	(Red f.-c. SAND, trace silt and clay) Inferred red BRICK (11-65)	5	S2	SS	4	90/4"	R*	Hard/slow drilling w/ on/off rig chatter D=1'-5' and Red wash water D=2.5'-5' *Spoon refusal D=5.5' 90/4" w/ bouncing PID = 20 + ppm Hard/slow drilling w/ on/off rig chatter and red wash water D=5'-10'
	(Red f.-c. SAND, trace f. gravel and silt) Inferred red BRICK (11-65)	10	S3	SS	3	100/3"	R*	*Spoon refusal D=10' 100/3" w/ bouncing PID = 21 ppm
								Hard/slow drilling w/ on/off rig chatter and red wash water D=10'-27.5'
	Inferred red BRICK (11-65)	15						
	Inferred red BRICK (11-65)	20						
	Inferred red BRICK (11-65)	25						Petroleum like material in wash water D=27.5' Hard drilling D=28'-28.5'
	Gray f.-m. SAND, trace c. sand (11-65)	30	S4	SS	17	3 3 9 18	12	PID = 20 ppm Visible petroleum like material
	Gray silty CLAY, trace f. sand (11-65)	35	S5	SS	19	4 5 23 28	28	Gray f. sandy SILT, trace clay and m. sand in S4 SS tip Added mud D=30' PP = 1.2-1.5 tsf PID = 9.8 ppm
	Gray/brown f. SAND, trace m. sand and silt (7-65)		S6					PID = 180 ppm
	Brown/gray silty f. SAND (8-65)	40	S7	SS	13	11 11 13 11	24	PID = 1.1 ppm

BORING 1531601.GPJ LANGANFI.GDT 7/1/99

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LOG OF BORING LB5

SHEET 2 OF 2

PROJECT	PROJECT NO.
Loews @ Gowanus	1531601
LOCATION	ELEVATION AND DATUM
Brooklyn, NY	approx. el 11 (BBHDD)

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA NUMBER	TYPE	RECOV. (in)	PENETR RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
	Brown/gray SILT, some f. sand, trace clay (10-65)		45	S8	SS	12.5	11 15 19 24	34	PP = No reading PID = 400 ppm
	Gray/brown f. SAND, some silt, trace m. sand (7-65)		50	S9	SS	15	13 19 22 23	41	PID = 1.2 ppm
	Gray/brown f.-m. SAND, trace silt (7-65)		55	S10	SS	8	6 16 19 22	35	PID = 2.2 ppm Hard drilling D=58'-60'
	Brown f.-c. SAND, trace f.-m. gravel and silt (6-65)		60	S11	SS	9	12 17 27 28	44	PID = 0.4 ppm On/off rig chatter D=60'-65'
	Red brown f. SAND, some silt, trace m.-c. sand and f. gravel (7-65)		65	S12	SS	15	19 20 25 26	45	PID = 8.2 ppm On/off rig chatter D=65'-70'
	Red brown f.-m. SAND, some f.-m. gravel, trace c. sand and silt (6-65)		70	S13	SS	6	62 35 67 31	102	PID = 3.3 ppm On/off rig chatter D = 70'-75'
	Red brown f.-c. SAND, trace f.-m. gravel and silt (6-65)		75	S14	SS	7	22 49 25 13	74	PID = 0.4 ppm On/off rig chatter D=75'-78'
	Red brown f.-m. SAND, trace silt, c. sand, and f. gravel (7-65)			S15	SS	8	26 24 28 15	52	PID = 340 ppm
	Boring terminated D=80'		80						Borehole grouted upon completion
			85						
			90						

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LOG OF BORING LB6

SHEET 1 OF 2

PROJECT: Loews @ Gowanus	PROJECT NO.: 1531601
LOCATION: Brooklyn, NY	ELEVATION AND DATUM: approx. el 11 [BBHDD]
DRILLING EQUIPMENT: Davey Kent DK50RA Track Rig	DATE STARTED: 11/24/98 · DATE FINISHED: 11/25/98 · COMPLETION DEPTH: 77 ft.
SIZE AND TYPE OF BIT: HW Rock Core and Tri-Cone Roller Bits	NUMBER OF SAMPLES: DIST. 16 · UNDIST. ----- · CORE -----
CASING DIAMETER (in): 4 1/2" OD 4" ID · CASING DEPTH (ft): 13.5	WATER LEVEL (ft.): FIRST ----- · COMPL. ----- · 24 HR. 3.8
SAMPLER: 2" OD 1 3/4" ID Split Spoon (SS)	DRILLING FOREMAN: Gus Surl/Mike Chizmar
SAMPLER HAMMER · WEIGHT (lbs): 140 · DROP (in): 30	INSPECTING ENGINEER: Gary L. Gleason

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
approx. el 11	5" CONCRETE w/ wire mesh								
	Inferred Miscellaneous FILL (11-65)* Black/brown f.-c. SAND, trace f.-c. gravel/coal and silt (11-65)			S1	SS	14	24 21 14 12	35	*New York City BC Classification numbers in parenthesis; Started coring w/ water; PID = 16.4 ppm
	Brown f.-c. SAND, trace f.-m. gravel/coal and silt (11-65)		5	S2	SS	4	7 7 5 5	12	Trace wood and red brick in wash D=6.25'-10'; PID = 5.5 ppm
									Rig chatter D=7.25'-8.25'; Lost some water D=7.25'-10'; Added mud D=10'
	Brown/black f.-c. SAND, trace silt, c. gravel/coal, and organics/wood fibers (11-65)		10	S3	SS	11.5	12 4 5 20	9	PID = 11.8 ppm
	Brown f.-c. SAND, some silt and clay, trace f.-m. gravel (11-65)		15	S5 S4	SS	16	1 2 2 2	4	PID = 4.2 ppm; PID = 18.3 ppm
	Brown, gray, and black PEAT, trace silt and clay (11-65)								
	Brown f. SAND, some silt, trace clay (8-65)		20	S6	SS	17	2 1 2 2	3	PID = 5 ppm
	Gray/brown f. SAND, trace silt (8-65)		25	S7	SS	13	11 12 16 15	28	PID = 20 ppm
	Brown and gray f.-m. SAND, some silt, trace clay (7-65)		30	S8	SS	14.5	7 8 8 7	16	PID = 30 ppm
	Gray/brown f.-m. SAND (7-65)		35	S9	SS	17	4 6 17 20	23	PP = 0.9-1.4 tsf; PID = 11.2 ppm
	Gray CLAY, trace f. sand and silt (9-65)								
	Brown f. SAND, trace silt (8-65)		40	S10	SS	16.5	10 17 15 16	32	0.5" of Gray CLAY, trace f. sand and silt (9-65) in top of S10 SS sample; PID = 550 ppm

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LOG OF BORING LB6

SHEET 2 OF 2

PROJECT	PROJECT NO.
Loews @ Gowanus	1531601
LOCATION	ELEVATION AND DATUM
Brooklyn, NY	approx. el 11 [BBHDD]

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS REQ'D	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
	Brown SILT, some f. sand, trace clay (10-65)		45	S11	SS	14	16 19 13 14	32	PID = 1.4 ppm
	Gray/black f.-m. SAND, trace silt (7-65)		50	S12	SS	18	20 24 25 22	49	PID = 1.2 ppm
	Inferred COBBLE (6-65)		55	-	SS	0	162/4"	R"	Rig chatter D=53.75'-55' "Spoon refusal D=55' Rig chatter D=55'-55.25' Minor rig chatter D=58.75'
	Red brown f. SAND, some f.-c. gravel, trace m.-c. sand and silt (6-65)		60	S13	SS	111	150 58 51 65	109	PID = 400 ppm Slow/hard drilling D=62.25'-62.5' On/off rig chatter D=60'-65'
	Red brown f. SAND, some f.-c. gravel, trace m.-c. sand and silt (6-65)		65	S14	SS	6	96 39 26 26	65	PID = 155 ppm On/off rig chatter D=65'-70'
	Red brown f. SAND, some f.-m. gravel, trace m.-c. sand and silt (6-65)		70	S15	SS	13	62 100 93 37	193	PID = 410 ppm Minor on/off rig chatter D=70'-75'
	Red brown f.-c. GRAVEL and f.-c. SAND, trace silt (6-65)		75	S16	SS	14	100 88 77 56	165	PID = 380 ppm
	Boring terminated D=77'		80						Borehole grouted upon completion
			85						
			90						

BORING 1531601.GPJ LANGANFL.GDT 22/12/98

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LOG OF BORING LB7

SHEET 1 OF 2

PROJECT: Loews @ Gowanus	PROJECT NO.: 1531601
LOCATION: Brooklyn, NY	ELEVATION AND DATUM: approx. el 11 [BBHDD]
DRILLING EQUIPMENT: Davey Kent DK50RA Track Rig	DATE STARTED: 11/19/98 · DATE FINISHED: 11/24/98 · COMPLETION DEPTH: 77 ft.
SIZE AND TYPE OF BIT: HW and NQ Rock Cores and Tri-Cone Roller Bit	NUMBER OF SAMPLES: DIST. 18 · UNDIST. 1 · CORE —
CASING DIAMETER (in): 4 1/2" OD 4" ID · CASING DEPTH (ft): 7	WATER LEVEL (ft.): FIRST ----- · COMPL. ----- · 24 HR. 6.5
SAMPLER: Standard Split Spoon (SS) or Shelby Tube (ST)	DRILLING FOREMAN: Gus Suri/Mike Chizmar
SAMPLER HAMMER · WEIGHT (lbs): 140 · DROP (in): 30	INSPECTING ENGINEER: Gary L. Gleason

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST. BL/6in	N-VALUE BLOWS/FOOT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
approx. el 11	5" CONCRETE w/ wire mesh								*New York City BC Classification numbers in parenthesis
	5" CONCRETE								Started coring w/ water
	Inferred miscellaneous FILL (11-65)*								Lost some water D = 1.5'
	Gray/black f.-c. SAND, some silt (11-65)			S1	SS	7	28 47 54 20	101	PID = 400 ppm Petroleum like material odor On/off rig chatter D = 1.5' - 4.5'
	Black SILT/PETROLEUM LIKE MATERIAL, some c. sand, and white cement fragments, trace f.-m. sand and clay (11-65)		5	S2	SS	2	4 2 1 50/1"	3	Petroleum like material in wash D = 4.75' Spoon refusal 50/1" w/ bouncing D = 6' PID = 480 ppm
0.0	Piece of STEEL								A 16" x 4" x 1/4" piece of vertical steel on a 1/2" thick base plate D = 7' w/ 2" wide horizontal pieces of steel, which were cut, at the top inside and bottom outside D = 6' - 7'
	Inferred miscellaneous FILL (11-65)								
0.0	0.5" STEEL			S3					
0.0	CONCRETE								
	Petroleum like material treated WOOD (11-65)		10						Lost some water D = 8' - 9.25'
	Inferred WOOD (11-65)			-	SS	0	WOR WOR WOR WOR	WOR	Added mud D = 9.25' Drilled through WOOD and lost circulation D = 9.75'
	Inferred Brown PEAT, some silt (11-65)								WOR: Weight of rods WOR went from D = 10' - 15'
	Inferred Brown PEAT, some silt (11-65)		15	S4	SS	0	WOH WOH WOH WOH	WOH	WOH: Weight of hammer Sample S4 SS tip material PID = 590 ppm WOH went from D = 15' - 17.5'
	Brown PEAT, some silt (11-65)			T1	ST	24	PUSH PUSH PUSH PUSH	PUSH	Visible petroleum like material w/ odor Pushing became more difficult D = 19.25'
	Brown/gray f. SAND, some silt (8-65) Brown f. SAND, some silt (8-65)		20	S5	SS	19	1 3 3 4	6	Added mud D = 20' PID = 920 ppm
	Brown f. SAND, trace silt and clay (8-65)		25	S6	SS	11	34 42 33 40	75	PID = 700 ppm Trace wood fibers in wash D = 27' - 30.5' Tight fit for bit D = 27' - 30.5'
	Brown f.-m. SAND, trace silt (7-65)		30	S8 S7	SS	7	18 19 11 12	30	1" of WOOD FIBERS, trace f.-m. sand w/ PID = 170 ppm in top of SS PID = 750 ppm Brown SILT, trace clay and f. sand in SS tip D = 32.5'
	Brown SILT, trace clay and f. sand (10-65)		35	S10 S9	SS	18	1 3 2 5	5	PP = 0.1 - 0.3 tsf PID = 640 ppm PP = 0.6 - 0.9 tsf PID = 320 ppm
	Gray CLAY, some silt (9-65)								
	Gray/brown CLAY, some silt, trace f. sand (9-65)		40	S11	SS	17	WOH 2 2 4	4	PP = 0.4 - 0.65 tsf PID > 2000 ppm

BORING 1531601.GPJ LANGANFL.GDT 2/2/2/98

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LOG OF BORING LB7

SHEET 2 OF 2

PROJECT	PROJECT NO.
Loews @ Gowanus	1531601
LOCATION	ELEVATION AND DATUM
Brooklyn, NY	approx. el 11 [BBHDD]

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
	Brown CLAY, some silt, trace f. sand (9-65)		45	S12	SS	13	4 4 4 4	8	PP = 0.5 - 0.65 tsf PID = 170 ppm
	Brown f. SAND, trace silt (8-65)		50	S13	SS	14	19 31 25 19	56	PID = 550 ppm Rig chatter D = 52.25' - 53'
	Brown f.-c. SAND, trace silt and f.-m. gravel (6-65)		55	S14	SS	10.5	20 20 24 24	44	PID = 710 ppm Added mud D = 57' - 58' Rig chatter D = 57.5 - 58'
	Red brown f.-c. SAND, trace silt and f.-m. gravel (6-65)		60	S15	SS	8	10 36 31 22	67	PID = 40 ppm On/off rig chatter D = 60' - 65'
	Red brown f.-c. SAND, some f.-m. gravel, trace silt (6-65)		65	S16	SS	8	28 42 22 13	64	PID = 640 ppm On/off rig chatter D = 65' - 70'
	Red brown f.-c. SAND, some f.-m. gravel, trace silt (6-65)		70	S17	SS	7.5	45 26 22 24	46	PID = 20 ppm On/off rig chatter D = 70' - 75'
	Red brown f.-c. SAND, some f.-m. gravel, trace silt (6-65)		75	S18	SS	8	50 28 22 25	50	PID = 540 ppm Borehole grouted upon completion
	Boring terminated D = 77'		80						
			85						
			90						

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LOG OF BORING LB8

SHEET 1 OF 2

PROJECT: Loews @ Gowanus		PROJECT NO.: 1531601	
LOCATION: Brooklyn, NY		ELEVATION AND DATUM: approx. el 11 [BBHDD]	
DRILLING EQUIPMENT: Davey Kent DK50RA Track Rig		DATE STARTED: 11/18/98	DATE FINISHED: 11/19/98 / COMPLETION DEPTH: 55 ft.
SIZE AND TYPE OF BIT: HW and NQ Rock Cores and Tri-Cone Roller Bits		NUMBER OF SAMPLES: DIST. 14	UNDIST. ----- / CORE -----
CASING DIAMETER (in): 4 1/2" OD 4" ID	CASING DEPTH(ft): 19.5	WATER LEVEL (ft.): FIRST ▽ -----	COMPL. ▼ ----- / 24 HR. ▼ 3.6
SAMPLER: 2" OD 1 3/4" ID Split Spoon (SS)		DRILLING FOREMAN: Gus Suri/Mike Chizmar	
SAMPLER HAMMER	WEIGHT(lbs): 140 / DROP(in): 30	INSPECTING ENGINEER: Gary L. Gleason	

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	NUMBER	TYPE	RECOV. (in)	PENETR RESIST (BL/6in)	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
approx. el 11	5" CONCRETE w/ wire mesh								*New York City BC Classification numbers in parenthesis
	CONCRETE DEBRIS and inferred miscellaneous FILL (11-65)*								Started coring w/ water
	Red BRICK, some gray c. sand, trace f. gravel, concrete, tan brick, gray f.-m. sand, and white tile (11-65)			S1	SS	4.5	12 9 10 24	19	Lost some water D = 2' PID = 82 ppm
0.0	Red BRICK, some c. sand, trace f. sand and gravel (11-65)		5	S2	SS	1	25/5"	R*	Lost water D = 2' - 6.5' *Spoon refusal 28/5" w/ bouncing D = 4.5' Hard/slow drilling w/ rig chatter D = 4.5' - 5' PID = 135 ppm
0.0	CONCRETE Inferred reinforced CONCRETE								
	Gray c. SAND, trace coal, concrete, red brick, gray f.-m. sand, f.-m. gravel, and glass (11-65)			S3	SS	3	9 7 4 4	11	PID = 15 ppm
			10						
	Gray c. SAND, trace coal, red brick, gray f.-m. sand, silt, and f. gravel (11-65)			S4	SS	1	5 3 2 4	5	PID = 260 ppm
	Gray c. SAND, some coal, trace red brick, gray f.-m. sand, silt, and f. gravel (11-65)		15	S5	SS	9	2 2 3 5	5	PID = 52 ppm
	Brown PEAT (11-65)								Added mud D = 20"
	Brown f. sandy SILT, trace clay (10-65)		20	S6	SS	6	4 4 6 5	10	PID = 30 ppm
	Brown f.-m. SAND, trace silt (7-65)		25	S7	SS	6	29 31 33 28	64	PID = 11 ppm
	Gray/brown SILT, some f. sand, trace m. sand and clay (10-65)		30	S8	SS	5	WOH 5 8 5	13	WOH: Weight of hammer Over drilled to D = 30'-5' resulting in WOH blow count PID = 36 ppm
	Brown/gray SILT, some clay, trace f. sand (10-65)		35	S10 SS	SS	17	4 3 3 6	6	PP = No reading PID = 420 ppm PP = 0.4 tsf PID = 340 ppm
	Brown/gray silty CLAY, trace f. sand (9-65)								
	Brown/gray silty CLAY, trace f. sand (9-65)		40	S11	SS	19	2 4 2 5	6	PP = 0.3 - 0.4 tsf PID = 108 ppm

Langan
Engineering and Environmental Services

LOG OF BORING LB8

SHEET 2 OF 2

PROJECT	PROJECT NO.
Loews @ Gowanus	1531601
LOCATION	ELEVATION AND DATUM
Brooklyn, NY	approx. el 11 [BBHDD]

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
	Brown/gray silty CLAY, trace f. sand (9-65)		45	S12	SS	19	2 1 WOH 1	1	PP = No reading - 0.2 tsf PID = 810 ppm
	Brown/gray silty CLAY, trace f. sand (9-65)		50	S13	SS	17	WOH WOH 9 17	9	PP = 0.2 - 0.7 tsf PID = 400 ppm
	Brown f.-m. SAND, trace gray silt and clay (7-65)			S14	SS	11	14 14 13 15	27	PID = 520 ppm
	Boring terminated D = 55'		55						Borehole grouted upon completion
			60						
			65						
			70						
			75						
			80						
			85						
			90						

Langan
Engineering and Environmental Services

LOG OF BORING LB9

SHEET 1 OF 2

PROJECT: Loews @ Gowanus	PROJECT NO.: 1531601
LOCATION: Brooklyn, NY	ELEVATION AND DATUM: approx. el 11 [BBHDD]
DRILLING EQUIPMENT: Davey Kent DK50RA Track Rig	DATE STARTED: 11/16/98 · DATE FINISHED: 11/18/98 · COMPLETION DEPTH: 57 ft.
SIZE AND TYPE OF BIT: 4 7/8" (0' - 5') and 3 7/8" Tri-Cone Roller Bits	NUMBER OF SAMPLES: DIST. 14 · UNDIST. ---- · CORE ----
CASING DIAMETER (in): 4 1/2" OD 4" ID · CASING DEPTH(ft): 13.5	WATER LEVEL (ft.): FIRST ---- · COMPL. ---- · 24 HR. 4.6
SAMPLER: 2" OD 1 3/4" ID Split Spoon (SS)	DRILLING FOREMAN: Gus Suri/Mike Chizmar
SAMPLER HAMMER · WEIGHT(lbs): 140 · DROP(in): 30	INSPECTING ENGINEER: Gary L. Gleason

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BLOWS	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
pprox. el 11	4" CONCRETE								*New York City BC Classification numbers in parenthesis
	Inferred DENSE GRADED AGGREGATE								Started drilling w/ water
	CONCRETE								Lost some water D=2.5'
									D=0'-4.5' : Slow/hard drilling and wash water Gray cement/concrete color
0.0									NX Rock Core Barrel used D=4'-4.5' : 6" Concrete core recovered
	Inferred miscellaneous FILL (11-65)*		5	S1	SS	0	4 7 5 4	12	Lost some water D=4.5' Attempted a 2nd SS to acquire some form a sample: Only gray sand wash was recovered, Sample S1
	Inferred Gray c. SAND/COAL, trace silt, f.-m. sand, clay, f. gravel, and organics (11-65)			S2	SS	0	3 2 2 2	4	PID = 2 ppm Overdrove SS 7'-10' to aid in recovery Sample S2 SS tip material
	Gray c. SAND/COAL, trace f.-m. sand, silt, and f. gravel (11-65)		10	S3	SS	4	3 2 2 2	5	Overdrove SS D=10'-13' to aid in recovery PID = 3.3 ppm
									Added mud D=15'
	Gray silty, organic/rooty CLAY (11-65)		15	S5 S4	SS	16.5	3 2 2 2	4	PID = 0 ppm
	Brown/gray PEAT (11-65)								PID = 0 ppm
	Brown SILT, trace clay and f. sand (10-65)		20	S6	SS	10.5	9 7 12 10	19	PID = 38 ppm
	Inferred Brown/gray f.-m. SAND, trace silt (7-65)		25	-	SS	0	27 32 27 34	59	
	Brown/gray f.-m. SAND, trace silt (7-65)			S7	SS	17	24 26 39	65	PID = 0 ppm
	Brown f.-m. SAND, trace silt and clay		30	S8	SS	7	11 11 9 10	20	PID = 0 ppm
	Gray/brown silty CLAY, trace f.-m. sand (9-65)		35	S9	SS	17.5	4 4 6 5	10	PID = 0.2 ppm
	Brown/gray f.-m. SAND, trace silt (7-65)		40	S10	SS	10.5	16 10 10 10	20	PID = 0 ppm

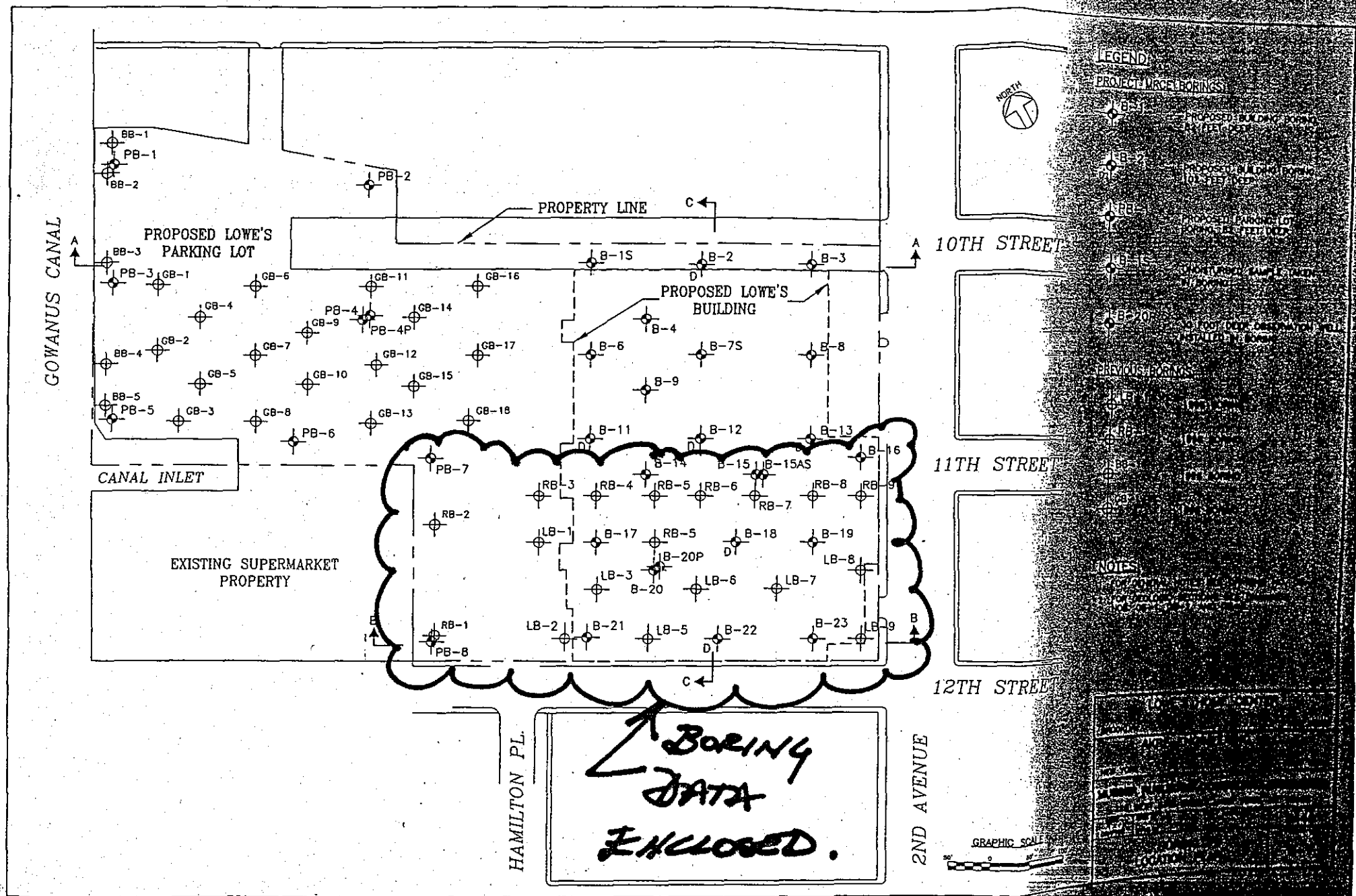
Langan
Engineering and Environmental Services

LOG OF BORING LB9

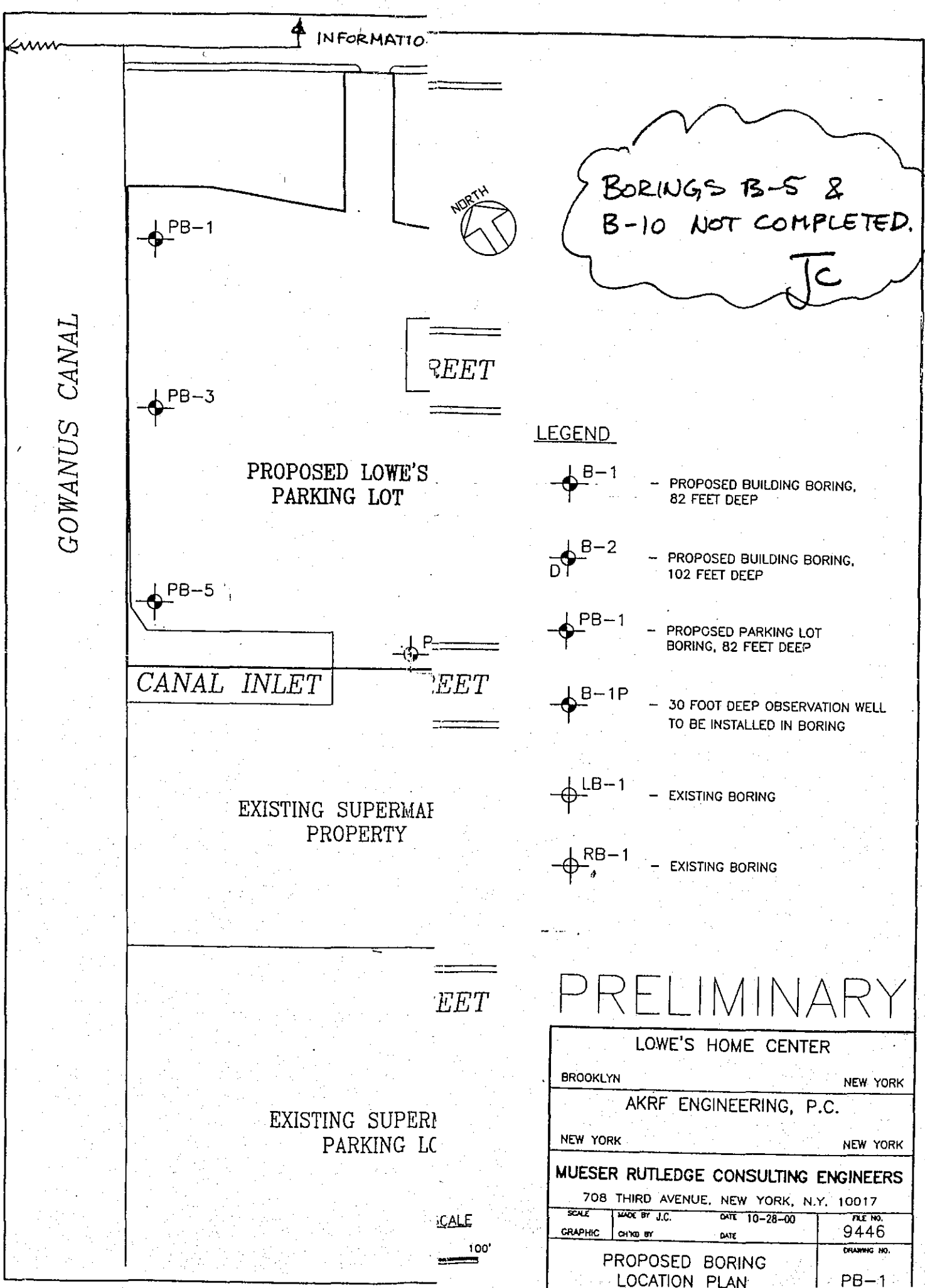
SHEET 2 OF 2

PROJECT	PROJECT NO.
Loews @ Gowanus	1531601
LOCATION	ELEVATION AND DATUM
Brooklyn, NY	approx. el 11 [BBHDD]

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA NUMBER	TYPE	RECOV. (in)	PENETR. RESIST BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
	Brown/gray SILT, some f. sand, trace clay (10-65)		45	S11	SS	19	7 6 6 6	12	PID = 0 ppm
	Brown/gray f. sandy SILT, trace f. gravel (10-65)		50	S13 S12	SS	15	15 16 15 17	31	PID = 0 ppm
	Brown/gray f.-m. SAND, trace silt (7-65)								PID = 0 ppm
	Brown f.-m. SAND, trace silt (7-65)		55	S14	SS	15	17 19 23 22	42	PID = 0 ppm
	Boring terminated D=57'								Borehole grouted upon completion
			60						
			65						
			70						
			75						
			80						
			85						
			90						



GOWANUS CANAL
PROPOSED LOWE'S PARKING LOT
PROPERTY LINE
PROPOSED LOWE'S BUILDING
CANAL INLET
EXISTING SUPERMARKET PROPERTY
10TH STREET
11TH STREET
12TH STREET
HAMILTON PL.
2ND AVENUE
NORTH
LEGEND
PROJECT MRCE BORINGS
PREVIOUS BORINGS
NOTES
GRAPHIC SCALE
BORING DATA ENCLOSED.


INFORMATIO
NORTH
BORINGS B-5 & B-10 NOT COMPLETED.
JC
PB-1
PB-3
PB-5
GOWANUS CANAL
REET
PROPOSED LOWE'S PARKING LOT
CANAL INLET
EET
EXISTING SUPERMAI PROPERTY
EET
EXISTING SUPERI PARKING LC
SCALE
100'
LEGEND
B-1 - PROPOSED BUILDING BORING, 82 FEET DEEP
B-2 - PROPOSED BUILDING BORING, 102 FEET DEEP
PB-1 - PROPOSED PARKING LOT BORING, 82 FEET DEEP
B-1P - 30 FOOT DEEP OBSERVATION WELL TO BE INSTALLED IN BORING
LB-1 - EXISTING BORING
RB-1 - EXISTING BORING
PRELIMINARY
LOWE'S HOME CENTER
BROOKLYN NEW YORK
AKRF ENGINEERING, P.C.
NEW YORK NEW YORK
MUESER RUTLEDGE CONSULTING ENGINEERS
708 THIRD AVENUE, NEW YORK, N.Y. 10017
SCALE GRAPHIC
MADE BY J.C. DATE 10-28-00
CH'KD BY DATE
FILE NO. 9446
PROPOSED BORING LOCATION PLAN
DRAWING NO. PB-1

MUESER RUTLEDGE CONSULTING ENGINEERS

FIELD LOG

SHEET 1 OF 2
FILE NO. 9854
BORING NO. T1
SURFACE ELEV. 10.2 ±

PROJECT LOWE'S HOME CENTER

PROJECT LOCATION BROOKLYN, NY RES. ENGR. A. MODICA

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
FRIDAY 5 NOV 02 PARTLY CLOUDY ~55°F 1200	1D	0'-	8-11	BROWN C-F SAND, SM GVL, TR BRICK,	F		3" 4"	
		2'	10-7	SILT (FILL) (SP-SM)				
	2D	2'-	6-5	BROWN C-F SAND, SM GVL, TR BRICK,				
		4'	6-14	WOOD, CONCRETE, SILT (FILL) (SP-SM)				
	3D	4'-	17-17	BROWN C-F SAND, CONCRETE, SM GVL,		5		
		6'	18-21	TR BRICK, SILT (FILL) (SP-SM)				
	4D	6'-	13-11	GRAY C-F SAND, SM GVL, TR BRICK				
		8'	9-7	SILT (FILL) (SP-SM)				
	5D	8'-	9-6	GRAY C-F SAND, SM GVL, CONCRETE				
		10'	9-14	TR BRICK (FILL) (SM)		10		
	6D	10'-	10-16	GRAY C-F SAND, SM CONCRETE, GVL,				
		12'	23-56	TR BRICK, GLASS (FILL) (SM)				
	7D	12'-	11-9	CONCRETE, GVL, SM C-F SAND, TR				POOR RECOVERY
		14'	6-6	BRICK (FILL) (SM)				
	8D	14'-	11-14	GRAY C-F SAND, SM GVL, TR BRICK		15		POOR RECOVERY
		16'	10-8	(FILL) (SM)				
	9D	16'-	6-8	GRAY C-F SAND, SM GVL, TR				PETROLEUM ODOR
		18'	5-5	BRICK (FILL) (SM)				PRESENSE
	10D	18'-	6-100/4"	SPUN CASING THRU CONCRETE,		18.5		
		20'		CONCRETE IN BAG	CONC.	19.5		CONCRETE @ ~18.5'
	11NR	20'-	2-2	NO RECOVERY	?			CONCRETE ENDED @ ~19
		22'	3-5			22		REC: ~7" CONC.
	12D	22'-	6-5	GRAY SILTY F-SAND (SM)				+ 2" BRICK
		24'	6-10					22'-28' PETROLEUM O
	13D	24'-	11-10	"DO 12D" (SM)	S	25		
		26'	13-15					
	14D	26'-	11-11	"DO 12D" (SM)				
1530		28'	16-10			28		EOB @ 28'

FORM NO. B-1

BORING NO. T1

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. T1
SHEET 2 OF 2
FILE NO. 9854
SURFACE ELEV. 10.2 ±
DATUM BROOKLYN HWY

PROJECT LOWE'S HOME CENTER
LOCATION BROOKLYN, NY
BORING LOCATION

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	☒ YES ☐ NO		
TRUCK	X	MECHANICAL		DIA., IN.	3	DEPTH, FT. FROM 0	TO 20
SKID		HYDRAULIC		DIA., IN.	4	DEPTH, FT. FROM 0	TO 4
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. S.S.
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS

DRILLING MUD USED ☒ YES ☐ NO
DIAMETER OF ROTARY BIT, IN. 2 7/8", 3 7/8"
TYPE OF DRILLING MUD

AUGER USED ☐ YES ☒ NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NO OBSERVATIONS MADE

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING LIN. FT. 28
3.5" DIA. U-SAMPLE BORING LIN. FT.
CORE DRILLING IN ROCK LIN. FT.
NO. OF 3" SHELBY TUBE SAMPLES
NO. OF 3" UNDISTURBED SAMPLES
OTHER: SPUN CASING THRU 12" CONCRETE

BORING CONTRACTOR ADT, INC
DRILLER DAVID CARTER HELPERS LIONEL EDWARDS
REMARKS
RESIDENT ENGINEER A. MODICA DATE 15 NOV 02

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

MUESER RUTLEDGE CONSULTING ENGINEERS

FIELD LOG

SHEET 1 OF 2
FILE NO. 9854
BORING NO. T2
SURFACE ELEV. 10.0 ±

PROJECT LOWE'S HOME CENTER

PROJECT LOCATION BROOKLYN, NY RES. ENGR. A. MODICA

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
'ONDAY NOV 02 AIN ~65°F 500 500					F		4"	
	1D	3'- 5'	5-4 2-2	BROWN C-F SAND, SM GVL, TR BRICK (FILL) (SM)	STEEL	5		
ESDAY 12 NOV 02 AIN ~50°F 1815	2NR	5'- 7'	50/0"	NO RECOVERY, SPUN CASING THRU 18" CONCRETE REC ≈ 11" IN BAG	CONC	6.5 ±		1½" STEEL PLATE 18" CONCRETE
					WOOD	7 ±		
	3NR	8'- 10'	—	FOUND VOID 8' TO 10'	VOID	10		
	4D	10'- 12'	1-1 2-2	BLACK Pt, TR WOOD, VEGETATION (Pt)	O			PETROLEUM ODOR
	5D	12'- 14'	WH/24"	BLACK Pt (Pt)				
	6D	14'- 16'	WR/24"	TOP 24" = "DO 5D" (Pt) TIP OF S.S. = GRV SILTY F-SAND, TR VEG (SM)		15 15.8'		
	7D	16'- 18'	WH/24'	GRAY, SILTY F-SAND, TR VEG (SM) BRN	S			
	8D	18'- 20'	3-4 4-3	GRAY, SILTY F-SAND, TR MICA (SM) BRN		20		
	9D	20'- 22'	WH/12" 2-4	"DO 8D" (SM)				
1330	10D	22'- 24'	4-8 11-11	GRAY F-SAND, SM SILT, TR MICA (SM)		24		EOB @ 24'

FORM NO. B-1

BORING NO. T2

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. T2
SHEET 2 OF 2
FILE NO. 9854
SURFACE ELEV. 10.0 ±
DATUM BROOKLYN HWY.

PROJECT LOWE'S HOME CENTER
LOCATION BROOKLYN, NY
BORING LOCATION

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	X	MECHANICAL		DIA., IN.	4"	DEPTH, FT. FROM 0	TO 12
SKID		HYDRAULIC		DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. S.S.
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3 7/8", 4 7/8"
TYPE OF DRILLING MUD

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. AVERAGE FALL, IN.
* AUTOMATIC HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NONE MADE

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING LIN. FT. 24
3.5" DIA. U-SAMPLE BORING LIN. FT.
CORE DRILLING IN ROCK LIN. FT.
NO. OF 3" SHELBY TUBE SAMPLES
NO. OF 3" UNDISTURBED SAMPLES
OTHER: STUN CASING THRU 18" CONCRETE

BORING CONTRACTOR A.D.T., INC
DRILLER DAVID CARTER HELPERS LIONEL EDWARDS
REMARKS
RESIDENT ENGINEER A. MODICA DATE 13 NOV 02

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

MUESER RUTLEDGE CONSULTING ENGINEERS

FIELD LOG

SHEET 1 OF 2
FILE NO. 9854
BORING NO. T3
SURFACE ELEV. 10.5 ±

PROJECT LOWE'S HOME CENTER

PROJECT LOCATION BROOKLYN, NY RES. ENGR. A. Moisiet

DAILY PROGRESS	SAMPLE NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
1 DAY NOV 02 SUNNY ~45°F 700	1D	0'-	37-67	BROWN C-F SAND, SM CONCRETE, GVL,			4" 3"	
		2'	100/5"	TR BRICK, SILT (FILL) (SP-SM)	F			
	2D	2'-	19-50	BROWN C-F SAND, SM GVL, TR CONCRETE,				
		4'	21-20	BRICK, SILT (FILL) (SP-SM)				
	3D	4'-	10-10°/3"	OIL, BLACK C-M SAND, SM GVL, TR		4.5		CONCRETE SLAB @
		6'		CONCRETE (SM)	CONC.	5.5		4'-9" REC=6½"
	4NR	6'-	—	VOID, NO RECOVERY	VOID			IN BAG LABELED
		8'				7.5		C1 (CORED → 12")
	5D	8'-	3-3	BROWN C-F SAND, TR GVL, SILT				
		10'	6-3	(SP-SM)		10		
	6D	10'-	2-4	BROWN C-F SAND, SM GVL, TR MICA				
		12'	5-5	SILT (SP-SM)	F?			
	7D	12'-	5-5	BROWN C-F SAND, SM GVL, TR MICA				
		14'	11-9	SILT (SP-SM)				
	8D	14'-	3-3	GRAY CLAYEY F-M SAND, SM VEG.		15		8D - POOR RECOVERY
		16'	2-2	(CL)		16		
	9D	16'-	1-2	SOFT GRAY CLAY, SM VEG. (OH)	O			
		18'	2-3					
	10D	18'-	3-3	TOP 6" - "DO 9D" (OH)				
		20'	3-4	BOTTOM 18" GRY CLAYEY F-M SAND, SM VEG (CL)		20		
	11D	20'-	3-4	GRAY F-M SAND, SM SILT (SM)	S			
		22'	4-6					
	12D	22'-	6-6	"DO 11D" (SM)				
1130		24'	7-14			24		EOB @ 24'

FORM NO. B-1

BORING NO. T3

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. T3
SHEET 2 OF 2
FILE NO. 9854
SURFACE ELEV. 10.5 ±
DATUM BROOKLYN HWY

PROJECT LOWE'S HOME CENTER
LOCATION BROOKLYN, NY
BORING LOCATION

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	X	MECHANICAL		DIA., IN.	3	DEPTH, FT. FROM 0	TO 13
SKID		HYDRAULIC		DIA., IN.	4	DEPTH, FT. FROM 0	TO 4
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. S.S.
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3 7/8, 2 7/8"
TYPE OF DRILLING MUD QUIK GEL

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NONE MADE

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING LIN. FT. 24
3.5" DIA. U-SAMPLE BORING LIN. FT.
CORE DRILLING IN ROCK LIN. FT.
NO. OF 3" SHELBY TUBE SAMPLES
NO. OF 3" UNDISTURBED SAMPLES
OTHER: SPUN CASING THRU 12" CONCRETE

BORING CONTRACTOR ADT, INC
DRILLER DAVID CARTER HELPERS LIONEL EDWARDS
REMARKS
RESIDENT ENGINEER A. Moded DATE 15 NOV 02

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

MUESER RUTLEDGE CONSULTING ENGINEERS

FIELD LOG

SHEET 1 OF 2
FILE NO. 9854
BORING NO. T4
SURFACE ELEV. 10.5 ±

PROJECT LOWE'S HOME CENTER

PROJECT LOCATION BROOKLYN, NY RES. ENGR. A. MODKA

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
RS.	1D	0'-	10-14	BROWN C-F SAND, SM GVL, CONCRETE,			3" 4"	
JOV 02		2'	27-26	TR BRICK, GLASS (FILL) (SM)	F			
UNNY	2D	2'-	10-29	CONCRETE, BROWN C-F SAND, SM				
~50°F		4'	19-15	GVL, BRICK, TR SILT, GLASS (FILL) (SP-SM)				
000	3D	4'-	4-7	CONCRETE		5		POOR RECOVERY,
		6'	10-100/2"			5.5		RECOVERED 2" OF
	4C	6'-	——	SPUN 3" CASING THRU 12" CONCRETE,	CONCRETE	6.5		CONCRETE IN TIP OF
		8'		IN BAG	VOID	7.5		S.S.
	4D	8'-	2-2	BRN C-F SAND, SM GVL, SILT				-STARTED CORING
		10'	3-2	(SM)		10		@ 5.5' STOPPED @ 6.5'
	5D	10'-	10-7	BRN C-F SAND, SM GVL, TR SILT	F?			REC'D ~8" CONCRETE
		12'	4-8	(SP-SM)				-@ VOID RIG LOST
	6D	12'-	10-14	BRN M-F SAND, SM SILT, TR GVL				ALOT OF WATER
		14'	10-7	(SM)				
	7D	14'-	9-10	BRN M-F SAND, SM SILT, TR GVL		15		
		16'	5-4	(SM)				
	8D	16'-	4-12	SOFT GRAY CLAY, SM VEGETATION	O			
130		18'	6-7	(OH)		18		EOB @ 18'

FORM NO. B-1

BORING NO. T4

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. T4
SHEET 2 OF 2
FILE NO. 9854
SURFACE ELEV. 10.5 ±
DATUM BROOKLYN HWY

PROJECT LOWE'S HOME CENTER
LOCATION BROOKLYN, NY
BORING LOCATION

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	X	MECHANICAL		DIA., IN.	3	DEPTH, FT. FROM 0	TO 8
SKID		HYDRAULIC		DIA., IN.	4	DEPTH, FT. FROM 0	TO 4
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" OD S.S.
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3 7/8", 2 7/8"
TYPE OF DRILLING MUD QUIK GEL

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24"
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NONE MADE

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING LIN. FT. 18
3.5" DIA. U-SAMPLE BORING LIN. FT.
CORE DRILLING IN ROCK LIN. FT.
NO. OF 3" SHELBY TUBE SAMPLES
NO. OF 3" UNDISTURBED SAMPLES
OTHER: SPUN CASING THRU 12" CONCRETE

BORING CONTRACTOR ADT, INC
DRILLER DAVID CARTER HELPERS LIONEL EDWARDS
REMARKS
RESIDENT ENGINEER A. Modica DATE 14 NOV 02

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

MUESER RUTLEDGE CONSULTING ENGINEERS

FIELD LOG

SHEET 1 OF 2
FILE NO. 9854
BORING NO. T5
SURFACE ELEV. 11.0 ±

PROJECT: LOWE'S HOME CENTER

PROJECT LOCATION: BROOKLYN, NY RES. ENGR.: MODICA

DAILY PROGRESS	SAMPLE NO.	DEPTH	BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
DNES. NOV 02 HOWERS/ CLOUDY ~50°F 30	1D	0'-	4-6	BROWN C-M SAND, SM GVL, CONCRETE,	F		4"	
		2'	11-24	TR SILT, BRICK, GLASS (FILL) (SP-SM)				
	2D	2'-	17-10	BROWN C-M SAND, SM CONCRETE, GVL, TR				
		4'	12-14	BRICK, GLASS, SILT (FILL) (SP-SM)				
	3NR	4'-	5-5	NO RECOVERY, SILT (FILL) (SM)		5		CONCRETE JAMMED
		6'	4-2					IN TIP OF SPOON
	4D	6'-	2-3	CONCRETE, BROWN C-M SAND, SM				
		8'	12-3	GVL, TR. WOOD, BRICK, GLASS (FILL) (SM)				
	5D	8'-	4-7	GRAVEL				
		10'	5-4			10		
	6D	10'-	4-3	CONCRETE, SM BROWN C-M SAND, TR				
		12'	3-30/3"	GVL, SILT (SP-SM)		11.5		CONCRETE @ 11'-6"
	1C	12'-		SPUN CASING THRU 24" CONCRETE,	CONCRETE			
		14'		REC 13" IN BAG		13.5		ENDS @ 13'-6"
	7NR	14'-	4-3	NO RECOVERY	WOOD	15		WOOD JAMMED IN
		16'	3-3					TIP OF S.S.
	8D	16'-	5-2	WOOD				POOR RECOVERY
		18'	3-3					
	9D	18'-	2-2	WOOD, SM BLACK M-C SAND, TR GVL	O W/ WOOD			POOR RECOVERY
1500		20'	2-2			20		
IRSDAY NOV 02 SUNNY ~45°F 0700	10D	20'-	2-2	WOOD				
		22'	2-3					POOR RECOVERY
	11D	22'-	3-4	TOP 4"- WOOD				24" RECOVERY
		24'	3-5	BOTTOM 20"- BLACK PEAT (PT)		24		
	12D	24'-	4-8	GRAY SILTY F-SAND W/ POCKETS		25		HIT EDGE OF TIMBER
		26'	11-13	OF ORG. BLACK CLAYEY SILT	S/O			PILE ½ OF S.S. IS
	13D	26'-	10-13	DO 12D				WOOD, OTHER ½ IS
		28'	16-16					SAND (24' → 28')
	14D	28'-	7-10	BROWN F-M SAND, TR SILT (SP-SM)				
		30'	14-13			30		
	15D	30'-	6-12	BRN SILTY F-SAND (SM)				
9:00		32'	9-9			32		EOB @ 32'

FORM NO. B-1

BORING NO. T5

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. T5
SHEET 2 OF 2
FILE NO. 9854
SURFACE ELEV. 11.0±
DATUM BROOKLYN HWY

PROJECT LOWE'S HOME CENTER
LOCATION BROOKLYN, NY
BORING LOCATION

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	X	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM	0 TO
SKID		HYDRAULIC		DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. S.S.
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 2 7/8", 3 7/8"
TYPE OF DRILLING MUD QUIK GEL

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. — AVERAGE FALL, IN. —
SAMPLER HAMMER, LBS. 140 AVERAGE FALL, IN. 30
*AUTOMATIC HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NONE MADE

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING LIN. FT. 32 NO. OF 3" SHELBY TUBE SAMPLES
3.5" DIA. U-SAMPLE BORING LIN. FT. NO. OF 3" UNDISTURBED SAMPLES
CORE DRILLING IN ROCK LIN. FT. OTHER: SPUN CASING THRU 24" CONCRETE

BORING CONTRACTOR ADT, INC
DRILLER DAVID CARTER HELPERS LIONEL EDWARDS
REMARKS
RESIDENT ENGINEER A. MODICA DATE

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

MUESER RUTLEDGE CONSULTING ENGINEERS

FIELD LOG

SHEET 1 OF 2
FILE NO. 9854
BORING NO. TO-1
SURFACE ELEV. 10.2 ±

PROJECT LOWE'S HOME CENTER

PROJECT LOCATION BROOKLYN, NY RES. ENGR. A. MODICA

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
:DNES. NOV 02 ONERS/ CLOUDY ~50°F 1900	1D	0'-	7-10	BROWN M-C SAND, SM GVL, TR BRICK,				
		2'	12-13	SILT (FILL) (SP-SM)	F			
	2D	2'-	13-14	CONCRETE, BROWN M-C SAND, SM GVL,				
		4'	11-12	TR BRICK, GLASS, SILT (FILL) (SP-SM)				
	3D	4'-	3-1	BLACK M-F SAND, SM SILT, TR VEG.	F	5		PETROLEUM ODOR &
		6'	1-2	(SM)				PRESENSE
	4D	6'-	2-2	GRAY SILTY F-M SAND, TR MICA				
		8'	2-3	(SM)				
	5D	8'-	1-1	GRAY SILTY F-SAND, TR VEGETATION,		9		
		10'	1-3	MICA (SM)		10		
	6D	10'-	WH-2	GRAY SILTY F-SAND VVD/W POCKET PEAT	F/O			
		12'	3-2	(SM-Pt)				
	7D	12'-	5-2	GRAY SILTY-F-SAND, TR MICA (SM)				
		14'	4-5		S			
	8D	14'-	2-3	"DO 7D" (SM)		15		
100		16'	4-6			16		EOB @ 16'

FORM NO. B-1

BORING NO. TO-1

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. TO-1
SHEET 2 OF 2
FILE NO. 9854
SURFACE ELEV. 10.21
DATUM BROOKLYN HWY

PROJECT LOWE'S HOME CENTER
LOCATION BROOKLYN, NY
BORING LOCATION

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	☐ YES ☒ NO		
TRUCK	X	MECHANICAL		DIA., IN.		DEPTH, FT. FROM	TO
SKID		HYDRAULIC		DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. S.S.
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS

DRILLING MUD USED ☒ YES ☐ NO
DIAMETER OF ROTARY BIT, IN. 2 7/8", 3 7/8"
TYPE OF DRILLING MUD QUICK GEL

AUGER USED ☐ YES ☒ NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. — AVERAGE FALL, IN. —
SAMPLER HAMMER, LBS. AVERAGE FALL, IN.
* AUTOMATIC HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NONE MADE

PIEZOMETER INSTALLED ☐ YES ☒ NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT.	16	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.		NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.		OTHER:	

BORING CONTRACTOR A.D.T. INC
DRILLER DAVID CARTER HELPERS LIONEL EDWARDS
REMARKS
RESIDENT ENGINEER A. MODICA DATE 13 NOV 02

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

MUESER RUTLEDGE CONSULTING ENGINEERS

FIELD LOG

SHEET 1 OF 2
FILE NO. 9854
BORING NO. TO-2
SURFACE ELEV. 10.7±

PROJECT LOWE'S HOME CENTER

PROJECT LOCATION BROOKLYN, NY RES. ENGR. A. MODICA

DAILY PROGRESS	SAMPLE NO.	SAMPLE DEPTH	SAMPLE BLOWS/6"	SAMPLE DESCRIPTION	STRATA	DEPTH	CASING BLOWS	REMARKS
SUNDAY NOV 02 CLOUDY/SHOWERS ~65°F 1930	1D	0'-	8-26	BROWN M-C SAND, SM GVL, BRICK,			4"	
		2'	27-29	TR GLASS, PORCALAIN (FILL) (SM)				
	2D	2'-	17-13	BLK M-C SAND, SM GVL, TR BRICK				
		4'	13-10	(FILL) (SM)				
	3D	4'-	7-17	GRY-BLK C-M SAND, SM GVL, TR		5		PETROLEUM ODOR
		6'	15-19	CONCRETE, BRICK, SILT (FILL) (SP-SM)		6		
	4D	6'-	6-10	BROWN C-M SAND, SM GVL	F			PETROLEUM ODOR
		8'	6-3	(SM)				
	5D	8'-	4-3	BROWN M-F SILTY SAND, TR				
		10'	2-4	C-SAND (SM)		10		
	6D	10'-	3-2	BROWN M-F SAND UVD/W BLACK				
		12'	3/12"	F-SAND POCKETS (SM)				
	7D	12'-	WH	GRY SILTY F-SAND, TR GVL (SM)				
		14'						
	8D	14'-	WR	BLK PT, TR GVL, GRY F-SAND, SILT		15		POOR RECOVERY
		16'	1-1	(PT)		16		
	9D	16'-	WR-1	BLK-BROWN PEAT (PT)	O			
		18'	1-2			18		
	10D	18'-	WH/12"	GRY SILTY F-SAND (SM)				
		20'	2-2		S_2	20		
	11D	20'-	2-3	"DO 10D" (SM)				
		22'	4-6					
	12D	22'-	5-5	"DO 10D" (SM)				
1230		24'	6-12			24		EOB @ 24'

FORM NO. B-1

BORING NO. TO-2

MUESER RUTLEDGE CONSULTING ENGINEERS

BORING NO. TO-2
SHEET 2 OF 2
FILE NO. 9854
SURFACE ELEV. 10.7±
DATUM BROOKLYN HWY.

PROJECT LOWE'S HOME CENTER
LOCATION BROOKLYN, NY
BORING LOCATION

BORING EQUIPMENT AND METHODS OF STABILIZING BOREHOLE

TYPE OF BORING RIG		TYPE OF FEED DURING CORING		CASING USED	[X] YES [ ] NO		
TRUCK	X	MECHANICAL		DIA., IN.	4	DEPTH, FT. FROM 0	TO 8
SKID		HYDRAULIC		DIA., IN.		DEPTH, FT. FROM	TO
BARGE		OTHER		DIA., IN.		DEPTH, FT. FROM	TO
OTHER							

TYPE AND SIZE OF:
D-SAMPLER 2" O.D. S.S.
U-SAMPLER
S-SAMPLER
CORE BARREL
CORE BIT
DRILL RODS

DRILLING MUD USED [X] YES [ ] NO
DIAMETER OF ROTARY BIT, IN. 3 7/8"
TYPE OF DRILLING MUD QUICK GEL

AUGER USED [ ] YES [X] NO
TYPE AND DIAMETER, IN.

CASING HAMMER, LBS. 300 AVERAGE FALL, IN. 24
SAMPLER HAMMER, LBS. — AVERAGE FALL, IN. —
* AUTOMATIC HAMMER

WATER LEVEL OBSERVATIONS IN BOREHOLE

DATE	TIME	DEPTH OF HOLE (FEET)	DEPTH OF CASING (FEET)	DEPTH TO WATER (FEET)	CONDITIONS OF OBSERVATION
					NONE MADE

PIEZOMETER INSTALLED [ ] YES [X] NO SKETCH SHOWN ON

STANDPIPE: TYPE ID, IN. LENGTH, FT. TOP ELEV.
INTAKE ELEMENT: TYPE OD, IN. LENGTH, FT. TIP ELEV.
FILTER: MATERIAL OD, IN. LENGTH, FT. BOT. ELEV.

PAY QUANTITIES

3.5" DIA. DRY SAMPLE BORING	LIN. FT. 24'	NO. OF 3" SHELBY TUBE SAMPLES	
3.5" DIA. U-SAMPLE BORING	LIN. FT.	NO. OF 3" UNDISTURBED SAMPLES	
CORE DRILLING IN ROCK	LIN. FT.	OTHER:	

BORING CONTRACTOR AQUIFER DRILLING & TESTING, INC
DRILLER DAVID CARTER HELPERS LIONEL EDWARDS
REMARKS
RESIDENT ENGINEER A. MODICA DATE 11 NOV 02

NOTES:
1. Make a separate log of each boring and each unsuccessful boring attempt. Keep a copy of all logs in the field.
2. In daily progress column indicate depth at beginning and end of work day, calendar date, day of week, time at beginning and end of work day and weather conditions.
3. All samples shall be numbered in consecutive order regardless of type; dry samples D, wash samples W, shelby tube samples S, fixed piston samples U. Assign NR to lost samples and record blows. Make another sample attempt immediately below the lost sample.
4. Mark each U-sample with job number, boring number, sample number, depth, penetration and recovery. Indicate method by which penetration of tube sampler was obtained.
5. Record blows on spoon sampler per six inches of penetration. Note all blows and penetrations when taken at less than six-inch interval.
6. List changes of material in strata column and list generalized strata descriptions.
7. List under remarks the manner by which changes in material were detected, all obstructions, any loss or gain of wash water including amount and any unusual occurrences.
8. For rock core, the recovery and the RQD (Rock Quality Designation) should be shown in both inches and percent of run length in the blows per six inches column. All core runs shall be numbered in consecutive order. A run number is given even if recovery is zero.
9. Include sample description by Unified Soil Classification System.
10. Obtain water level at the beginning of each day and at all other times when stable water conditions exist.

Roux Associates Logs – 2002

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Environmental Consulting & Management

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
AN-3				
PROJECT NO./NAME: 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION: 124-136 2nd Avenue, Brooklyn, New York		
APPROVED BY: S. Glash	LOGGED BY: T. Mills			
DRILLING CONTRACTOR/DRILLER: Aquifer Drilling & Testing, Inc. /		GEOGRAPHIC AREA: Area A		
DRILL BIT DIAMETER/TYPE: 4.25-in. / Auger	BOREHOLE DIAMETER: 6-inches	DRILLING EQUIPMENT/METHOD: / HSA	SAMPLING METHOD: 2" Split Spoon	START-FINISH DATE: 1/21/02-1/21/02
LAND SURFACE ELEVATION: (FT.)	DEPTH TO WATER: (Feet BLS)	BACKFILL: Cuttings/Bentonite Pellets		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to medium SAND, trace Gravel, trace Wood, trace Brick; dry (fill)	23		
			36		
			30		
			28		
		Brown to gray fine to medium Sand and Gravel, trace Brick, trace Concrete; dry (fill)	16	19.8	
			17		
			21		
			13		
		Brown to black stained fine to medium SAND, trace Silt; dry (fill)	10		
5			15	67.1	5
			10		Slight odor.
			9	101	
		Brown to black stained fine to medium SAND, trace Silt, trace Gravel; dry (fill)	8		
			8	58.2	
			5		
		Brown to reddish brown Silt and fine Sand; (fill)	12	40.2	
		Black stained fine to medium Sand and Silt; (fill)	5		
			6	30.1	
			5		Free product.
10			9	60.2	10
		Dark brown to reddish brown fine to medium Sand and Silt, trace Clay; (fill)	2		
			2	59.1	
			2		Sheen.
			2	24.9	
		Dark brown to black stained fine to medium Sand and Silt; (fill)	1		
			1	58.5	
			1		Sheen.
			1	55.9	
		Dark gray to black stained fine to medium Sand and Gravel; (fill)	2		
15			1	55.9	Free product. 15
		PEAT	3		
			3		

Bottom of boring 16 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
AN-4				
PROJECT NO./NAME: 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION: 124-136 2nd Avenue, Brooklyn, New York		
APPROVED BY: S. Glash	LOGGED BY: D.Moss			
DRILLING CONTRACTOR/DRILLER: Aquifer Drilling & Testing, Inc. / J. Philbin		GEOGRAPHIC AREA: Area A		
DRILL BIT DIAMETER/TYPE: 3 7/8 inch / Tri-Cone	BOREHOLE DIAMETER: 4-inches	DRILLING EQUIPMENT/METHOD: CME-45 / Drive and Wash	SAMPLING METHOD: 2" Split Spoon	START-FINISH DATE: 2/7/02-2/7/02
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER (Feet BLS)	BACKFILL: Grout		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Dark brown to tan medium to coarse SAND, trace Gravel, trace Brick, trace Concrete; moist (fill)	15, 19, 18, 31		
		Dark brown to tan medium to coarse SAND, trace Gravel, trace Brick, trace Concrete; moist (fill)	15, 15, 30, 27	7.9	
		Black stained fine SAND, little Silt, trace Gravel, trace Coal Fragments; moist (fill)	6, 7		
5			6	55.2	5
		Black stained fine SAND, some Coal Fragments, little Gravel, trace Silt; wet (fill)	10, 12, 10		
			2, 2	52.3	Trace free product.
		Gray fine SAND, little Coal Fragments, little Silt, trace Gravel; wet (fill)		12.8	Trace free product.
10		Dark gray to black stained fine to coarse SAND, some Gravel, little Silt, trace Glass; wet (fill)			10
				3.1	Odor.
		No recovery			
		Black stained medium to coarse SAND, little Silt, little Gravel; wet (fill)			Slight odor.
15		PEAT		6.9	15

Bottom of boring 16 feet below land surface

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SOIL BORING LOG

WELL NO. AN-6	NORTHING	EASTING		
PROJECT NO./NAME 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION 124-136 2nd Avenue		
APPROVED BY S. Glash	LOGGED BY D.Moss	Brooklyn, New York		
DRILLING CONTRACTOR/DRILLER Aquifer Drilling & Testing, Inc. / J. Philbin		GEOGRAPHIC AREA Area A		
DRILL BIT DIAMETER/TYPE 3 7/8 inch / Tri-Cone	BOREHOLE DIAMETER 4-inches	DRILLING EQUIPMENT/METHOD CME-45 / Drive and Wash	SAMPLING METHOD 2" Split Spoon	START-FINISH DATE 2/19/02-2/19/02
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER (Feet BLS)	BACKFILL Cuttings/Bentonite Pellets		

Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	Brown to tan fine to coarse SAND, trace Silt, trace Brick, trace Concrete; dry (fill)	9		
		17		
		14		
		21		
		7	4.1	
		14		
		21		
		27		
	Brown fine to coarse SAND, little Silt, trace Gravel; moist to wet (fill)	9		
5		9		5
		10	4.3	
		6		
	Brown to black stained fine to medium SAND, little Silt, trace Gravel, trace coarse Sand; wet (fill)	6		
		5		
		10	18.1	Odor and trace free product.
		10		
	Black stained medium SAND, little Silt, trace Gravel trace, Ashalt-like material; wet (fill)	9		
		9		
		16	89.1	Odor and trace free product.
10		17		10
	Black stained medium to coarse SAND, some Gravel, trace Silt, trace Ashalt-like material; wet (fill)	17		
		22		
		25	57.2	Odor and free product.
	CONCRETE	50/1		
	Black stained fine to medium SAND, little Silt, trace Gravel; wet (fill)			
			78.7	
15	No recovery			15
	Peat and Clay; wet			
20				20

Bottom of boring 20 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
AN-9				
PROJECT NO./NAME: 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION: 124-136 2nd Avenue, Brooklyn, New York		
APPROVED BY: S. Glash	LOGGED BY: D.Moss			
DRILLING CONTRACTOR/DRILLER: Aquifer Drilling & Testing, Inc. / D. Pepe		GEOGRAPHIC AREA: Area A		
DRILL BIT DIAMETER/TYPE: 3 7/8 inch / Tri-Cone	BOREHOLE DIAMETER: 4-inches	DRILLING EQUIPMENT/METHOD: CME-75 / Drive and Wash	SAMPLING METHOD: 2" Split Spoon	START-FINISH DATE: 3/12/02-3/13/02
LAND SURFACE ELEVATION: (FT.)	DEPTH TO WATER: (Feet BLS)	BACKFILL: Grout		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Tan to brown fine to coarse SAND, trace Gravel, trace Brick, trace Concrete, trace Wood; dry (fill)	18, 20, 23, 20		
		Tan to brown fine to coarse SAND, trace Gravel, trace Brick, trace Concrete, trace Wood; wet at 4 ft. (fill)	23, 18, 30, 46		
		Brown to red Sand and Gravel, little Concrete, trace Silt; wet (fill)	10, 50/5		
5		CONCRETE			5
		Black fline SAND, some Silt, trace coarse Sand, trace Gravel; wet (fill)			Odor and Free product.
		Brown to black stained fine SAND, some Silt; wet (fill)	5, 3, 1, 1		Slight odor.
10		Brown to green fine Sand and Silt; wet (fill)			10
		Light brown fine SAND, some Silt, trace Gravel; wet (fill)	1, 1, 1, 1		
		Light brown fine SAND and Silt, trace Clay, trace Gravel; wet (fill)	2, 1		
15		Brown PEAT, and green to grey Clay	1, 1		15

Bottom of boring 16 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
AN-9N				
PROJECT NO./NAME: 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION: 124-136 2nd Avenue, Brooklyn, New York		
APPROVED BY: S. Glash	LOGGED BY: D.Moss			
DRILLING CONTRACTOR/DRILLER: Aquifer Drilling & Testing, Inc. /		GEOGRAPHIC AREA: Area A		
DRILL BIT DIAMETER/TYPE: 3 7/8 inch / Tri-Cone	BOREHOLE DIAMETER: 4-inches	DRILLING EQUIPMENT/METHOD: CME-75 / Drive and Wash	SAMPLING METHOD: 2" Split Spoon	START-FINISH DATE: 3/13/02-3/13/02
LAND SURFACE ELEVATION: (FT.)	DEPTH TO WATER: (Feet BLS)	BACKFILL: Grout		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Dark brown medium to coarse SAND, trace Gravel, trace brick, trace Concrete; moist (fill)	11, 14, 19, 17		
		Dark brown medium to coarse SAND, trace Gravel, trace brick, trace Concrete; wet at 4 (fill)	14, 12, 12, 8	8.9	
		Green to brown fine SAND, some Silt, trace Gravel; wet (fill)	6, 50/3	7.9	
5		CONCRETE			5
		Black stained fine SAND, some Silt, trace Gravel; wet (fill)	6, 6, 3, 7/12	160	Strong odor.
		Red to brown fine SAND, little Silt, trace coarse Sand; wet (fill)	8, 7, 6, 3	4.9	
10		Red to black stained SILT, some fine to medium Sand; wet (fill)	1, 1, 1, 1	5.2	10
		Red to brown medium SAND, some Silt, trace Gravel; wet (fill)	1, 1, 1, 1	4.7	
		PEAT; wet	1, 1, 1/12		
15					15

Bottom of boring 16 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
ANE-1				
PROJECT NO./NAME: 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION: 124-136 2nd Avenue, Brooklyn, New York		
APPROVED BY: S. Glash	LOGGED BY: D.Moss			
DRILLING CONTRACTOR/DRILLER: Aquifer Drilling & Testing, Inc. / J. Philbin		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE: 3 7/8 inch / Tri-Cone	BOREHOLE DIAMETER: 4-inches	DRILLING EQUIPMENT/METHOD: CME-45 / Drive and Wash	SAMPLING METHOD: 2" Split Spoon	START-FINISH DATE: 1/21/02-1/21/02
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER (Feet BLS)	BACKFILL: Grout		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, trace Gravel, trace Brick; dry (fill)	11		
			9		
			18	6.3	
			18		
		Gray fine to medium SAND, trace Gravel, trace Ash; moist (fill)	4		
			5		
		Black stained fine SAND, trace Gravel, trace Roots; moist (fill)	8	1735	Strong odor.
			20		
		CONCRETE			Slight odor.
5					5
		Black stained fine to coarse SAND, little Silt, trace Gravel; wet (fill)	2		
			1		
			2	81.3	Slight odor.
			1		
		No recovery			
		Black stained fine to coarse SAND, some Gravel, trace Silt, trace Shells, trace, Glass; wet (fill)	1		
			1		
			1	21.8	Slight odor.
10			1		10
		Black Coal Fragments, trace Silt; wet (fill)	2		
			2		
			1	7.8	Slight odor.
			1		
			1		
		PEAT	1	14.4	
			2		
			3		

Bottom of boring 14 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
ANW-1 (SB-3)				
PROJECT NO./NAME		LOCATION		
92401Y02 / FCRC 2nd Avenue MGP Site		124-136 2nd Avenue		
APPROVED BY	LOGGED BY	Brooklyn, New York		
S. Glash	D.Moss			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
Roux Associates Inc / P. Barczak				
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. / Drive Sampler	2-inches	/ Geoprobe	2" Macro-Core	1/2/02-1/2/02
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	(Feet BLS)	Cuttings/Bentonite Pellets		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to medium SAND, trace Silt, trace Gravel, trace Coal, trace Brick; dry (fill)		0.0	
				0.0	
		Light brown to black stained fine to medium SAND, trace Silt, trace Gravel; dry (fill)		49.5	Slight odor.
5					
		Black stained fine to coarse SAND, some Silt, trace Gravel, trace Coal; wet (fill)		91.5	
		Black stained fine to coarse Sand and Silt, trace Gravel; wet (fill)		7.2	Slight odor and sheen on water.
10					
		Black stained SILT, little fine to coarse Sand, trace Gravel; (fill)		35.2	Slight odor.
15					
		Black stained Silt and fine Sand; wet		0.0	
		PEAT, little green to gray Silt, trace Sand; wet (fill)			Sheen on water.
20					

Bottom of boring 20 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
AS-2				
PROJECT NO./NAME: 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION: 124-136 2nd Avenue, Brooklyn, New York		
APPROVED BY: S. Glash	LOGGED BY: D.Moss			
DRILLING CONTRACTOR/DRILLER: Roux Associates Inc / P. Barczak		GEOGRAPHIC AREA: Area A		
DRILL BIT DIAMETER/TYPE: 2-in. / Drive Sampler	BOREHOLE DIAMETER: 2-inches	DRILLING EQUIPMENT/METHOD: / Geoprobe	SAMPLING METHOD: 2" Macro-Core	START-FINISH DATE: 1/8/02-1/8/02
LAND SURFACE ELEVATION: (FT.)	DEPTH TO WATER: (Feet BLS)	BACKFILL: Cuttings/Bentonite Pellets		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown to black stained fine to coarse SAND, trace Gravel, trace Brick; dry (fill)			
				0.0	
		Black stained fine to medium SAND, trace Gravel; dry to wet (fill)		6.7	
5				4.9	
				56.8	Trace free product.
		Black stained fine to coarse SAND, little Gravel, trace Silt; wet (fill)			
10				22.3	
		No recovery			
15					

Bottom of boring 16 feet below land surface.

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SOIL BORING LOG

WELL NO. ASW-1 (SB-2)	NORTHING	EASTING		
PROJECT NO./NAME 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION 124-136 2nd Avenue		
APPROVED BY S. Glash	LOGGED BY D.Moss	Brooklyn, New York		
DRILLING CONTRACTOR/DRILLER Roux Associates Inc / P. Barczak		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE 2-in. / Drive Sampler	BOREHOLE DIAMETER 2-inches	DRILLING EQUIPMENT/METHOD / Geoprobe	SAMPLING METHOD 2" Macro-Core	START-FINISH DATE 1/2/02-1/2/02
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER (Feet BLS)	BACKFILL Cuttings/Bentonite Pellets		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Fine to medium SAND, trace Silt, trace Gravel, trace Glass, trace Brick; dry (fill)		0.0	
				225	
		Black stained fine to coarse SAND, trace Brick; dry (fill)		71.2	Strong odor.
5				58.4	
		Black stained SILT, trace fine to medium Sand, trace brick; wet (fill)		201	
				221	Free product.
		Black stained coarse to fine Sand and Silt, trace Gravel, trace Brick; wet (fill)			
10		Brown coarse to fine Sand and Silt, trace Gravel; wet (fill)			
		Dark brown SILT, some fine to medium Sand, trace Gravel; wet			
15		PEAT			

Bottom of boring 16 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
ASW-2				
PROJECT NO./NAME		LOCATION		
92401Y02 / FCRC 2nd Avenue MGP Site		124-136 2nd Avenue		
APPROVED BY	LOGGED BY	Brooklyn, New York		
S. Glash	D.Moss			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
Roux Associates Inc / P. Barczak		Area A		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. / Drive Sampler	2-inches	/ Geoprobe	2" Macro-Core	1/8/02-1/8/02
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	(Feet BLS)	Cuttings/Bentonite Pellets		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown to black stained fine to medium SAND, trace Gravel, trace Brick trace Coal Fragments; dry (fill)			
				3.5	
				3.5	Strong odor.
		Brown to black stained SAND, some Silt, trace Gravel, trace Coal Fragments; dry to wet (fill)			
5				148	
				237	Strong odor and free product.
		Gray to green Silt and fine Sand; wet (fill)			
10				32.9	
		No recovery			
15					

Bottom of boring 16 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
AN-11				
PROJECT NO./NAME: 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION: 124-136 2nd Avenue, Brooklyn, New York		
APPROVED BY: S. Glash	LOGGED BY: C. Battista			
DRILLING CONTRACTOR/DRILLER: Aquifer Drilling & Testing, Inc. / S. Miller		GEOGRAPHIC AREA: Area A		
DRILL BIT DIAMETER/TYPE: 4.25-in. / Auger	BOREHOLE DIAMETER: 8-inches	DRILLING EQUIPMENT/METHOD: Mobile Drill B-61 / HSA	SAMPLING METHOD: 2" Split Spoon	START-FINISH DATE: 3/19/02-3/19/02
LAND SURFACE ELEVATION: (FT.)	DEPTH TO WATER: (Feet BLS)	BACKFILL: Grout		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Light brown medium to coarse SAND, trace Gravel, trace fine Sand, trace Coal Fragments; dry to moist (fill)	7, 8, 7	3.1	
			10	0.8	
		Dark brown fine to coarse SAND, trace Silt, trace Gravel, trace Coal Fragments, trace wood; moist (fill)	7, 6, 7	0.0	
			6	3.2	
		Light brown to dark brown fine to coarse SAND, little Silt, little Gravel; moist to wet (fill)	10, 2, 3	0.0	
5					5
			5	0.0	
		Dark brown fine to coarse SAND, some Wood, some Organic Material, trace Gravel; wet (fill)		2.4	
				4.7	
		Brown to dark brown fine to coarse Sand and Silt, little Organic Material, little Coal Fragments, trace Ash; wet (fill)	3, 2, 1	2.6	
10			1		10
		Dark brown to black stained SAND, some Gravel, some Silt; wet (fill)	3, 2, 4, 6		
		Brown to black stained fine to coarse Sand and Cinders, and Ash, some Coal Fragments; wet (fill)		2.6	Organic odor.
15		Brown PEAT; moist			15
					Organic odor.

Bottom of boring 16 feet below land surface.

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SOIL BORING LOG

WELL NO. AN-12	NORTHING	EASTING		
PROJECT NO./NAME 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION 124-136 2nd Avenue Brooklyn, New York		
APPROVED BY S. Glash	LOGGED BY C. Battista			
DRILLING CONTRACTOR/DRILLER Aquifer Drilling & Testing, Inc. / S. Miller		GEOGRAPHIC AREA Area A		
DRILL BIT DIAMETER/TYPE 4.25-in. / Auger	BOREHOLE DIAMETER 8-inches	DRILLING EQUIPMENT/METHOD Mobile Drill B-61 / HSA	SAMPLING METHOD 2" Split Spoon	START-FINISH DATE 3/19/02-3/19/02
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER (Feet BLS)	BACKFILL Grout		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Light brown fine to coarse SAND, trace Gravel, trace Silt, trace Brick; moist (fill)	11		
			9		
			8	0.0	
			12		
		Light brown fine to coarse SAND, trace Gravel, trace Silt, trace Brick; moist (fill)	10		
			6		
			5	0.0	
			7		
		Dark brown fine to coarse Sand and Gravel, trace Silt, trace Brick, trace Coal Fragments; moist (fill)	3		
5			6	0.0	5
		Light brown fine to coarse SAND, trace Gravel, trace Silt, trace Brick; moist to wet (fill)	9		
			4	0.0	
		Light brown fine to coarse SAND, trace Gravel, trace Silt, trace Brick; wet (fill)			
				0.0	
		Light brown to dark gray fine to coarse SAND, little Silt, trace Gravel; wet (fill)			
		Dark gray to brown and green Silt and fine Sand, some Organic Material; wet (fill)		2.4	Odor.
10		Brown to black stained fine to coarse SAND, little Silt, little Organic Material, trace Gravel, trace Coal Fragments; wet (fill)			10
				3.6	Odor.
		Black stained fine to coarse SAND, trace Gravel, trace Silt, trace Coal Fragments; wet (fill)			
				4.0	Odor.

Bottom of boring 14 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
BNE-E-2				
PROJECT NO./NAME: 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION: 124-136 2nd Avenue, Brooklyn, New York		
APPROVED BY: S. Glash	LOGGED BY: D.Moss			
DRILLING CONTRACTOR/DRILLER: Roux Associates Inc / C. Battista		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE: 2-in. / Drive Sampler	BOREHOLE DIAMETER: 2-inches	DRILLING EQUIPMENT/METHOD: / Geoprobe	SAMPLING METHOD: 2" Macro-Core	START-FINISH DATE: 1/11/02-1/11/02
LAND SURFACE ELEVATION: (FT.)	DEPTH TO WATER: (Feet BLS)	BACKFILL: Cuttings/Bentonite Pellets		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Dark brown fine to coarse SAND, trace Silt, trace Gravel, trace Brick; dry (fill)		2.1	
		Brown to black stained fine to coarse SAND, some Brick, some Concrete; moist (fill)		7.0	
5					5
		Black stained fine to coarse SAND, trace Silt, trace Coal Fragments, trace Ash; moist to wet (fill)		96.3	
				26.7	
		Black stained fine SAND, little Silt, trace Gravel; wet (fill)		5.5	
					Trace free product.
10					10
		Green to gray Peat and Clay, trace Silt; wet			
		Green to gray Peat and Clay, trace Sand, trace Silt; wet			
15					15

Bottom of boring 16 feet below land surface.

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SOIL BORING LOG

WELL NO. BNW-2 (BOW-2)	NORTHING	EASTING		
PROJECT NO./NAME 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION 124-136 2nd Avenue		
APPROVED BY S. Glash	LOGGED BY D.Moss	Brooklyn, New York		
DRILLING CONTRACTOR/DRILLER Roux Associates Inc / P. Barczak		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE 2-in. / Drive Sampler	BOREHOLE DIAMETER 2-inches	DRILLING EQUIPMENT/METHOD / Geoprobe	SAMPLING METHOD 2" Macro-Core	START-FINISH DATE 1/10/02-1/10/02
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER (Feet BLS)	BACKFILL Cuttings/Bentonite Pellets		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Dark brown fine to coarse SAND, trace Gravel, trace Brick; dry (fill)			
				3.2	
					Free product.
		Gray to brown fine to medium SAND, some Silt, trace Gravel, trace Coal Fragments, trace Ash, trace Brick; moist to wet (fill)			
5				61.4	5
				126	
		Black stained fine to coarse SAND, some Silt, trace Gravel, trace Ash; wet (fill)			
10				665	10 Free product.
		Black stained fine to medium Sand and Silt, trace Gravel; wet (fill)			Odor and free product.
				175	
					Refusal at 13 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
BS-1 (SB-9)				
PROJECT NO./NAME		LOCATION		
92401Y02 / FCRC 2nd Avenue MGP Site		124-136 2nd Avenue		
APPROVED BY	LOGGED BY	Brooklyn, New York		
S. Glash	D.Moss			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
Zebra Environmental Inc / L. Davis		Area B		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. / Drive Sampler	2-inches	/ Geoprobe	2" Macro-Core	1/4/02-1/4/02
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	(Feet BLS)	Cuttings/Bentonite Pellets		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, trace Gravel, trace Brick; dry (fill)			
				1.8	
		Black stained coarse Sand and Gravel, trace Silt, trace Brick; dry (fill)			
5				253	5
		Black stained fine to medium Sand, and Silt, trace Gravel; wet (fill)		125	Strong odor.
		Gray Silt and Peat; wet		12.1	
		Gray SILT, little Sand, Little Clay; wet		11.8	
		Brown Peat and gray Silt, some Sand; wet		12.7	
10				6.1	10
				13.2	
		Gray to brown SILT, little Clay, trace Sand; wet			Free product.
				234	
		Brown SILT, little Sand, trace Gravel; wet		12.1	
		Black stained Sand and Silt; wet		59.5	
		Brown to black stained Sand and Silt; wet			
15				28.7	15
				37.2	
					Bottom of boring 16 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
BS-2				
PROJECT NO./NAME: 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION: 124-136 2nd Avenue, Brooklyn, New York		
APPROVED BY: S. Glash	LOGGED BY: D.Moss			
DRILLING CONTRACTOR/DRILLER: Roux Associates Inc / P. Barczak		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE: 2-in. / Drive Sampler	BOREHOLE DIAMETER: 2-inches	DRILLING EQUIPMENT/METHOD: / Geoprobe	SAMPLING METHOD: 2" Macro-Core	START-FINISH DATE: 1/10/02-1/10/02
LAND SURFACE ELEVATION: (FT.)	DEPTH TO WATER: (Feet BLS)	BACKFILL: Cuttings/Bentonite Pellets		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Orange to brown fine to coarse SAND, trace Silt, trace Gravel, trace Concrete, trace Brick; dry (fill)		3.4	
1					1
2					2
3					3
4		Green to grey Peat and Clay, some Sand, some Silt;		7.6	4
5					5
6					6
7					7
8					8

Bottom of boring 8 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
CB-1				
PROJECT NO./NAME		LOCATION		
92401Y02 / FCRC 2nd Avenue MGP Site		124-136 2nd Avenue		
APPROVED BY	LOGGED BY			
S. Glash	D.Moss	Brooklyn, New York		
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
Aquifer Drilling & Testing, Inc. /				
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
4.25-in. / Auger	8-inches	CME-75 / HSA	2" Split Spoon	1/17/02-1/17/02
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	(Feet BLS)	Cuttings/Bentonite Pellets		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, trace Gravel, trace Concrete, trace Brick; dry (fill)			
1					
2					
			13	62.4	
			26		
3					
			38		
			34		
4		Green to black stained fine to medium SAND, some Silt, trace Gravel, trace Brick trace Coal; moist (fill)			
			8		
			8		
5					
			8	650	Strong odor.
			8		
6		Brick and Gravel, trace Sand; moist to wet (fill)			
			16		
			31		
7					
			46	960	Strong odor and free product.
			29		
8					
					Refusal at 8 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
CN-10N				
PROJECT NO./NAME: 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION: 124-136 2nd Avenue, Brooklyn, New York		
APPROVED BY: S. Glash	LOGGED BY: D.Moss			
DRILLING CONTRACTOR/DRILLER: Aquifer Drilling & Testing, Inc. / J. Philbin		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE: 3 7/8 inch / Tri-Cone	BOREHOLE DIAMETER: 4-inches	DRILLING EQUIPMENT/METHOD: CME-45 / Drive and Wash	SAMPLING METHOD: 2" Split Spoon	START-FINISH DATE: 2/28/02-2/28/02
LAND SURFACE ELEVATION: (FT.)	DEPTH TO WATER: (Feet BLS)	BACKFILL: Grout		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown to tan fine to medium SAND, trace Gravel, trace Brick, trace Concrete; dry (fill)	17, 32, 35, 42		
		Brown to tan fine to medium SAND, trace Gravel, trace Brick, trace Concrete; dry (fill)	48, 45, 39, 47	1.4	
		Brown and green to black stained SILT, trace Sand, trace Gravel; wet (fill)	6, 2, 2, 2	0.0	
5					5
		No recovery	2, 3, 1, 1		
		Gray SILT, trace fine Sand, trace Gravel; wet (fill)	4, 3, 1, 1	0.0	
10		Grey fine Sand and Silt, trace Gravel; wet (fill)		0.0	10
		No recovery	3, 2, 1/12		
		Peat and Clay; wet			
15					15

Bottom of boring 16 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
CN-12				
PROJECT NO./NAME: 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION: 124-136 2nd Avenue		
APPROVED BY: S. Glash	LOGGED BY: D.Moss	Brooklyn, New York		
DRILLING CONTRACTOR/DRILLER: Aquifer Drilling & Testing, Inc. / J. Philbin		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE: 3 7/8 inch / Tri-Cone	BOREHOLE DIAMETER: 4-inches	DRILLING EQUIPMENT/METHOD: CME-45 / Drive and Wash	SAMPLING METHOD: 2" Split Spoon	START-FINISH DATE: 3/1/02-3/1/02
LAND SURFACE ELEVATION: (FT.)	DEPTH TO WATER: (Feet BLS)	BACKFILL: Grout		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown to tan fine to coarse SAND, trace Gravel, trace Brick; dry (fill)	12		
			15		
			25		
			31		
		Brown to tan fine to coarse SAND, trace Gravel, trace Brick; dry (fill)	24	4.5	
			30		
			36		
			42		
		Green and brown to black stained fine Sand and Silt, trace coarse Sand, trace Gravel, trace Wood; wet (fill)	1		
5			1		5
			1	55.1	Slight odor.
			1		
		Brown to green fine to coarse SAND, little Silt, trace Gravel; wet (fill)	2		
			1		
			1	17.6	Slight odor.
			1		
		Dark brown to black stained fine to medium SAND, little Silt, trace Gravel; wet (fill)			
				37.8	
10		No recovery			10
		No recovery			
		Brown fine to medium SAND, some Gravel; wet (fill)			
15				2.8	15
		Green and gray Clay and Silt, little Peat; wet			

Bottom of boring 16 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
CN-5				
PROJECT NO./NAME		LOCATION		
92401Y02 / FCRC 2nd Avenue MGP Site		124-136 2nd Avenue		
APPROVED BY	LOGGED BY	Brooklyn, New York		
S. Glash	D.Moss			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
Aquifer Drilling & Testing, Inc. / J. Philbin				
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
3 7/8 inch / Tri-Cone	4-inches	CME-45 / Drive and Wash	2" Split Spoon	2/20/02-2/20/02
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	(Feet BLS)	Grout		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Tan to fine to coarse SAND, trace Gravel, trace Brick, trace Concrete; dry (fill).	8, 21, 23, 31		
		Tan to black stained fine to coarse SAND, trace Gravel, trace Brick, trace Concrete; dry (fill)	15, 17, 22, 37	5.2	Slight odor.
		Brown to black stained fine to medium SAND, some Silt, trace Gravel; wet (fill)	2, 2, 1, 1	33.0	
5				4.0	Slight odor.
		Black stained medium to coarse SAND, little Gravel, trace Silt, trace fine Sand; wet (fill)		5.7	Slight odor.
		Brown to green SILT, little Clay, trace fine to coarse Sand, trace Gravel; wet (fill)		2.3	
10		Black stained medium to coarse SAND, little Gravel, trace Silt, trace Brick; wet (fill)		4.7	
		No recovery			
		Dark brown to black stained coarse Sand and Gravel, trace fine Sand, trace Silt; wet (fill)		3.8	
15		Peat and Clay; wet			

Bottom of boring 16 feet below land surface.

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SOIL BORING LOG

WELL NO. CN-6	NORTHING	EASTING		
PROJECT NO./NAME 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION 124-136 2nd Avenue		
APPROVED BY S. Glash	LOGGED BY D.Moss	Brooklyn, New York		
DRILLING CONTRACTOR/DRILLER Aquifer Drilling & Testing, Inc. / J. Simmons		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE 3 7/8 inch / Tri-Cone	BOREHOLE DIAMETER 4-inches	DRILLING EQUIPMENT/METHOD CME-45 / Drive and Wash	SAMPLING METHOD 2" Split Spoon	START-FINISH DATE 2/6/00-2/6/00
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER (Feet BLS)	BACKFILL Cuttings/Bentonite Pellets		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		CONCRETE			
		Black stained fine to medium SAND, trace Silt, trace Gravel, trace Brick, trace Coal Fragments; moist (fill)	20		
			38		
			25	9.7	Slight odor.
			15		
		Dark brown to black stained fine to medium SAND, some Silt; moist (fill)	12		
			7		
		Dark brown to black stained fine SAND, some Silt; moist (fill)	2		
5			2	1.5	5
		Black stained coarse SAND, little Ash, trace Silt, trace Gravel; wet (fill)	3		
			1	2.1	
		No recovery	2		
			1		
			1		
			1		
		No recovery	1		
			1		
			1		
			1		
10					10
		Gray to black stained fine to coarse Sand and Gravel, trace Silt, trace Wood, trace Coal; wet (fill)			
				0.0	
		Black stained coarse Sand and Coal Fragments, trace Glass; wet (fill)	6		
			3		
			3	0.0	
			1		
		Black stained coarse SAND, some Coal Fragments, trace Silt, trace Glass; wet (fill)			
15				2.7	15
		PEAT			

Bottom of boring 16 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
CN-7				
PROJECT NO./NAME: 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION: 124-136 2nd Avenue		
APPROVED BY: S. Glash	LOGGED BY: D.Moss	Brooklyn, New York		
DRILLING CONTRACTOR/DRILLER: Aquifer Drilling & Testing, Inc. / J. Philbin		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE: 3 7/8 inch / Tri-Cone	BOREHOLE DIAMETER: 4-inches	DRILLING EQUIPMENT/METHOD: CME-45 / Drive and Wash	SAMPLING METHOD: 2" Split Spoon	START-FINISH DATE: 2/20/02-2/20/02
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER (Feet BLS)	BACKFILL: Grout		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		CONCRETE			
		GRAVEL			
		Dark brown medium SAND, trace Silt, trace Gravel, trace Brick; moist (fill)			
		Black stained to tan medium SAND, little green Silt, trace Brick; moist (fill)		2.6	
		Black stained medium to coarse SAND, little Silt, trace Gravel; wet (fill)	7		
5			2		5
			2	1.9	
			4		
		Gray to black stained coarse Sand and Gravel, some Coal Fragments, trace Silt; wet (fill)	5		
			1		
			1	0.8	
			1		
		Gray coarse Sand and Gravel, trace Silt, trace Coal Fragments, trace Shell Fragments; wet (fill)			
				2.9	
10					10
		Gray coarse Sand and Gravel, little Silt, trace Coal Fragments, trace Ash; wet (fill)	4		
			2		
			1	2.1	
			1		
		Gray Gravel, little Sand, trace Shell Fragments, trace Ceramic Fragments; wet (fill)	4		
			3		
			2	5.3	
			1		
		Peat and Clay; wet			
15					15

Bottom of boring 16 feet below land surface.

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SOIL BORING LOG

WELL NO. CN-8	NORTHING	EASTING		
PROJECT NO./NAME 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION 124-136 2nd Avenue		
APPROVED BY S. Glash	LOGGED BY D.Moss	Brooklyn, New York		
DRILLING CONTRACTOR/DRILLER Aquifer Drilling & Testing, Inc. / J. Philbin		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE 3 7/8 inch / Tri-Cone	BOREHOLE DIAMETER 4-inches	DRILLING EQUIPMENT/METHOD CME-45 / Drive and Wash	SAMPLING METHOD 2" Split Spoon	START-FINISH DATE 2/8/02-2/8/02
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER (Feet BLS)	BACKFILL Grout		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Gray to brown medium to coarse SAND, trace Gravel, trace Brick, trace Concrete; moist (fill)	8, 16, 17, 26		
		Gray to brown medium to coarse SAND, trace Gravel, trace Brick, trace Concrete; moist (fill)	15, 22, 18, 27		
		Grey coarse SAND, some Gravel, trace Silt; wet (fill)			
5					5
		Grey coarse SAND, some Gravel, some Silt, little Coal Fragments; wet (fill)			
		Grey coarse SAND, some Gravel, some Silt, little Coal Fragments; wet (fill)	1, 1, 1, 1		
10		No recovery			10
		Grey medium to coarse Coal Fragments, little Silt; wet (fill)			
		Grey coarse Sand and Gravel, some Peat, little Clay; wet			
15					15

Bottom of boring 16 feet below land surface.

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SOIL BORING LOG

WELL NO. CNE-3	NORTHING	EASTING		
PROJECT NO./NAME 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION 124-136 2nd Avenue		
APPROVED BY S. Glash	LOGGED BY D.Moss	Brooklyn, New York		
DRILLING CONTRACTOR/DRILLER Aquifer Drilling & Testing, Inc. / Kari Carli		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE 2-in. / Drive Sampler	BOREHOLE DIAMETER 2-inches	DRILLING EQUIPMENT/METHOD / Geoprobe	SAMPLING METHOD 2" Macro-Core	START-FINISH DATE 1/22/02-1/22/02
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER (Feet BLS)	BACKFILL Cuttings/Bentonite Pellets		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, trace Gravel, trace Brick; moist (fill)			
				2.1	
		Brown to black stained fine to coarse SAND, little Silt, trace Gravel; moist (fill)			
5				65.0	Slight odor.
		Black stained fine to coarse SAND, little Brick, little Concrete, trace Silt; moist (fill)		183	
					Trace free product.
		Black stained fine SAND, little Silt, trace Brick; wet (fill)		171	
				320	
10					Odor and trace free product.
				57.4	
		Black stained fine to coarse SAND, trace Silt, trace Gravel; wet (fill)			
				72.4	
		Red to black stained GRAVEL, little Sand, little Silt, trace Wood; wet (fill)			
15				121	Free product.
		No recovery			
20					Bottom of boring 20 feet below land surface.

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SOIL BORING LOG

WELL NO. CW-1 (SB-14)	NORTHING	EASTING		
PROJECT NO./NAME 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION 124-136 2nd Avenue		
APPROVED BY S. Glash	LOGGED BY D.Moss	Brooklyn, New York		
DRILLING CONTRACTOR/DRILLER Zebra Environmental Inc / L. Davis		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE 2-in. / Drive Sampler	BOREHOLE DIAMETER 2-inches	DRILLING EQUIPMENT/METHOD / Geoprobe	SAMPLING METHOD 2" Macro-Core	START-FINISH DATE 1/7/02-1/7/02
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER (Feet BLS)	BACKFILL Cuttings/Bentonite Pellets		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to medium SAND, trace Gravel, trace Brick; dry (fill)			
				8.1	
		Light brown fine to medium SAND, dry (fill)			
5					5
		Black stained fine to medium SAND, trace Gravel, trace Silt; wet (fill)		272	
				63.2	Free product.
		Black stained Sand and Gravel, trace Silt; wet (fill)			
10					10
				37.1	Free product.
		Brown to green SILT, little Sand, trace Gravel; wet			
				75.2	
15					15
		PEAT			

Bottom of boring 16 feet below land surface.

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SOIL BORING LOG

WELL NO. SB-15-SW	NORTHING	EASTING		
PROJECT NO./NAME 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION 124-136 2nd Avenue		
APPROVED BY S. Glash	LOGGED BY D.Moss	Brooklyn, New York		
DRILLING CONTRACTOR/DRILLER Aquifer Drilling & Testing, Inc. / Kari Carli		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE 2-in. / Drive Sampler	BOREHOLE DIAMETER 2-inches	DRILLING EQUIPMENT/METHOD / Geoprobe	SAMPLING METHOD 2" Macro-Core	START-FINISH DATE 1/23/02-1/23/02
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER (Feet BLS)	BACKFILL Grout		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown to tan fine to coarse SAND, trace Gravel, trace Brick; moist (fill)			
				1.8	
		Brown to black stained fine to medium SAND, trace Gravel, trace Silt, trace Brick; moist (fill)			
5				44.7	5
		Green to black stained fine SAND, trace Silt, trace Gravel, trace Brick; moist (fill)			
				134	Odor and trace free product.
		Black stained to green Silt and fine Sand; wet (fill)			Odor and trace free product.
				108	
		Black stained to brown fine SAND, trace Silt, trace Gravel; wet (fill)			
10				73.2	10
		Brown to black stained fine Sand and Silt, trace Gravel; wet (fill)			
				127	
				138	Odor and free product.
15				58.0	15
		Red to black stained fine SAND, some Gravel, trace Silt; wet			
				139	Odor and free product.
		Black stained fine Sand and Silt, trace Gravel; wet (fill)			
				102	
					Free product.
				180	
20					20

Bottom of boring 20 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
DN-2				
PROJECT NO./NAME: 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION: 124-136 2nd Avenue		
APPROVED BY: S. Glash	LOGGED BY: D.Moss	Brooklyn, New York		
DRILLING CONTRACTOR/DRILLER: Aquifer Drilling & Testing, Inc. / Kari Carli		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE: 2-in. / Drive Sampler	BOREHOLE DIAMETER: 2-inches	DRILLING EQUIPMENT/METHOD: / Geoprobe	SAMPLING METHOD: 2" Macro-Core	START-FINISH DATE: 1/23/02-1/23/02
LAND SURFACE ELEVATION: (FT.)	DEPTH TO WATER: (Feet BLS)	BACKFILL: Cuttings/Bentonite Pellets		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown to black stained fine to coarse SAND, trace Gravel, trace Brick; dry (fill)		23.4	
		Grey fine SAND, trace Silt; dry (fill)			
		Tan to black stained fine SAND, trace Ash; moist (fill)		348	
5					5
		Black stained fine SAND; wet (fill)			
		Black stained SILT, some fine Sand, trace Gravel; wet (fill)		291	Free product.
		Black stained fine SAND, trace Silt, trace Gravel; wet (fill)		452	
		Dark green to tan fine Silt and fine Sand, trace Clay, trace Gravel; wet (fill)		88.2	Strong odor and free product.
10					10
				37.8	Free product.
				21.2	
		Green to black stained fine SAND, some Silt, trace Gravel; wet (fill)		78.8	Slight odor and free product.
		Green to tan fine SAND, little Silt; wet (fill)			
15					15
				27.2	
		Black stained fine SAND, some Silt; wet (fill)		237	Slight odor.
				522	
		Green to black stained Sand, and Silt; wet		25.8	
		Black stained fine SAND, trace Silt; wet		179	Trace free product.
20					20
					Bottom of boring 20 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
DS-2				
PROJECT NO./NAME		LOCATION		
92401Y02 / FCRC 2nd Avenue MGP Site		124-136 2nd Avenue		
APPROVED BY	LOGGED BY	Brooklyn, New York		
S. Glash	D.Moss			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
Aquifer Drilling & Testing, Inc. / Kari Carli				
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. / Drive Sampler	2-inches	/ Geoprobe	2" Macro-Core	1/22/02-1/22/02
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	(Feet BLS)	Cuttings/Bentonite Pellets		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown to gray medium to coarse SAND, trace Gravel, trace Ash; moist (fill)			
				12.7	
		Brown to black stained fine SAND, some black fine to medium Sand, little Silt; moist (fill)			Strong odor.
5				12.7	
		Brown SILT, little Sand, trace Gravel; wet (fill)			
				38.7	Trace free product.
		Brown to dark green SILT, little fine Sand; wet (fill)			
10				6.1	Sheen.
		Dark brown to black stained fine SAND, little Silt, trace Gravel; wet (fill)			
				31.7	
15					
		Dark brown fine SAND, little Silt; wet (fill)			
					Trace free product.
20					

Bottom of boring 20 feet below land surface.

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SOIL BORING LOG

WELL NO. GH-21 (SB-8)	NORTHING	EASTING		
PROJECT NO./NAME 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION 124-136 2nd Avenue		
APPROVED BY S. Glash	LOGGED BY D.Moss	Brooklyn, New York		
DRILLING CONTRACTOR/DRILLER Zebra Environmental Inc / L. Davis		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE 2-in. / Drive Sampler	BOREHOLE DIAMETER 2-inches	DRILLING EQUIPMENT/METHOD / Geoprobe	SAMPLING METHOD 2" Macro-Core	START-FINISH DATE 1/4/02-1/4/02
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER (Feet BLS)	BACKFILL Cuttings/Bentonite Pellets		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown medium to coarse SAND, trace Silt, trace Gravel, trace Brick; dry (fill)		0.4	
		Black stained fine stained to coarse Sand and Silt, trace Gravel, trace Roots; moist (fill)		13.3	
5				32.2	5
				20.1	Strong odor.
				59.9	
		Brown fine to medium Sand and Silt, trace Gravel, trace Brick; wet (fill)		19.4	
				38.3	
10		Black stained fine to medium Sand and Silt, trace Gravel, trace Coal Fragments, trace Brick; wet (fill)		10.2	10 Free product.
				55.8	
		Black stained fine to medium Sand and Silt, trace Gravel, trace Coal, trace Brick; wet (fill)		26.5	
				62.5	
				29.9	
15				49.4	15
		PEAT			

Bottom of boring 16 feet below land surface.

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SOIL BORING LOG

WELL NO. SB7-N2	NORTHING	EASTING		
PROJECT NO./NAME 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION 124-136 2nd Avenue Brooklyn, New York		
APPROVED BY S. Glash	LOGGED BY D.Moss			
DRILLING CONTRACTOR/DRILLER Roux Associates Inc / P. Barczak		GEOGRAPHIC AREA		
DRILL BIT DIAMETER/TYPE 2-in. / Drive Sampler	BOREHOLE DIAMETER 2-inches	DRILLING EQUIPMENT/METHOD / Geoprobe	SAMPLING METHOD 2" Macro-Core	START-FINISH DATE 1/9/02-1/9/02
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER (Feet BLS)	BACKFILL Cuttings/Bentonite Pellets		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, trace Gravel, trace Brick; dry (fill)		1.9	
1					1
2					2
3					3
		Black stained fine SAND, some Silt; moist (fill)			
4					4
		Black stained fine to coarse SAND, some Silt, little Gravel, trace Wood; moist (fill)		19.5	Slight odor.
					Slight odor.
5					5
					Refusal at 5 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
SB7-S2				
PROJECT NO./NAME		LOCATION		
92401Y02 / FCRC 2nd Avenue MGP Site		124-136 2nd Avenue		
APPROVED BY	LOGGED BY	Brooklyn, New York		
S. Glash	D.Moss			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
Roux Associates Inc / P. Barczak				
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
2-in. / Drive Sampler	2-inches	/ Geoprobe	2" Macro-Core	1/9/02-1/9/02
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	(Feet BLS)	Cuttings/Bentonite Pellets		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, trace Gravel, trace Brick; dry (fill)			
		Black stained fine SAND, some Silt; moist (fill)		9.4	
		Black stained fine to medium SAND, trace Silt, trace Gravel, trace Brick; dry (fill)			
5				140	Strong odor.
		Brown fine Sand and Silt, trace Gravel; wet (fill)		56.8	
		Gravel and Brick, some gray Silt, some Sand; wet (fill)			
10					
		Brown to green Peat and Clay; wet			
15					

Bottom of boring 16 feet below land surface.

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SOIL BORING LOG

WELL NO. GH-1A	NORTHING	EASTING		
PROJECT NO./NAME 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION 124-136 2nd Avenue Brooklyn, New York		
APPROVED BY S. Glash	LOGGED BY R. Kovacs			
DRILLING CONTRACTOR/DRILLER Aquifer Drilling & Testing, Inc. / D. Pepe		GEOGRAPHIC AREA Gas Holder 1		
DRILL BIT DIAMETER/TYPE 3 7/8 inch / Tri-Cone	BOREHOLE DIAMETER 4-inches	DRILLING EQUIPMENT/METHOD CME-45 / Drive and Wash	SAMPLING METHOD 2" Split Spoon	START-FINISH DATE 3/15/02-3/20/02
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER (Feet BLS)	BACKFILL Grout		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown to dark brown fine to coarse SAND, little Brick; dry (fill)		13.1	
		Brown to dark brown fine to medium SAND, some Brick; dry (fill)		27.7	
		Brown to dark brown fine to medium Sand; dry (fill)		9.8	Odor.
5					5
		Light brown to dark brown fine to medium Sand, some Brick, little Ash; dry (fill)		11.7	
		Brown to reddish brown fine to medium SAND, some Brick, trace Gravel; dry (fill)		12.1	
10					10
		Brown medium SAND, some Brick; dry (fill)		7.3	
		Brown medium SAND, trace Cobbles; dry (fill)		9.2	
		Brown fine to medium SAND, trace Brick; dry (fill)		9.1	
15					15
		Brown fine to medium SAND, some Gravel, some Brick; dry (fill)		10.3	
		CONCRETE			
		Grey fine Sand and Silt, trace Gravel, trace Concrete; wet			
20					20
		Black stained fine SAND, trace Gravel, trace Concrete; wet		179	
					Free product.
		Black stained fine SAND, some Concrete; wet			

Bottom of holder at 24 feet below land surface.

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SOIL BORING LOG

WELL NO. GH-1B	NORTHING	EASTING		
PROJECT NO./NAME 92401Y02 / FCRC 2nd Avenue MGP Site		LOCATION 124-136 2nd Avenue		
APPROVED BY S. Glash	LOGGED BY C. Battista	Brooklyn, New York		
DRILLING CONTRACTOR/DRILLER Aquifer Drilling & Testing, Inc. / S. Miller		GEOGRAPHIC AREA Gas Holder 1		
DRILL BIT DIAMETER/TYPE 4.25-in. / Auger	BOREHOLE DIAMETER 8-inches	DRILLING EQUIPMENT/METHOD Mobile Drill B-61 / HSA	SAMPLING METHOD 2" Split Spoon	START-FINISH DATE 3/18/02-3/18/02
LAND SURFACE ELEVATION (FT.)	DEPTH TO WATER (Feet BLS)	BACKFILL Grout		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, some Gravel, little Brick, little Concrete; dry (fill)			
		Brown fine to coarse SAND, some Gravel, little Brick, little Concrete; dry (fill)			
		Brown fine to coarse SAND, some Gravel, trace Brick, trace Concrete; dry (fill)		6.5	
5					5
		Brown fine to coarse SAND, little Brick, trace Coal Fragments, trace Concrete, trace Gravel; dry (fill)		2.9	
		Brown fine to coarse SAND, little Brick, little Gavel, trace Coal Fragments; dry (fill)		5.2	
10					10
		Brown fine to coarse SAND, little Brick, little Gravel, trace Concrete, trace Coal Fragments; dry (fill)		8.7	
		Brown fine to coarse SAND, some Gravel, little Brick, trace Coal Fragments; dry (fill)		12.3	
		Brown fine to coarse SAND, some Gravel, little Brick, trace Coal Fragments; dry (fill)			
15					15
					Bottom of boring 15 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
GH-1C				
PROJECT NO./NAME		LOCATION		
92401Y02 / FCRC 2nd Avenue MGP Site		124-136 2nd Avenue		
APPROVED BY	LOGGED BY	Brooklyn, New York		
S. Glash	D.Moss			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
Aquifer Drilling & Testing, Inc. / L. Adams		Gas Holder 1		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
3 7/8 inch / Tri-Cone	4-inches	CME-45 / Drive and Wash	2" Split Spoon	3/18/02-3/18/02
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	(Feet BLS)	Grout		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, trace Brick, trace Gravel, trace Concrete; moist (fill)			
		Brown fine to coarse SAND, trace Brick, trace Gravel, trace Concrete; moist (fill)			
5		Brown fine to coarse SAND, trace Brick, trace Gravel, trace Concrete; moist (fill)		2.3	5
		Brown medium to coarse SAND, trace Gravel, trace Brick, trace Silt; moist (fill)		0.0	
		Brown medium to coarse SAND, trace Gravel, trace Brick; moist (fill)		0.0	
10		Brown medium to coarse SAND, trace Silt, trace Gravel, trace Brick, trace Coal Fragments; wet (fill)		0.0	10
		Brown medium to coarse SAND, trace Silt, trace Gravel, trace Brick, trace Coal Fragments; wet (fill)		15.2	
15		Brown to tan fine to coarse SAND, trace Gravel, trace Brick, trace Concrete; wet (fill)		3.7	15
		Tan to black stained fine to coarse SAND, trace Gravel, trace Concrete, trace Brick; wet (fill)		43.1	Odor.

Bottom of soil boring 17.5 feet below land surface.

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SOIL BORING LOG

WELL NO.	NORTHING	EASTING		
GH-3B				
PROJECT NO./NAME		LOCATION		
92401Y02 / FCRC 2nd Avenue MGP Site		124-136 2nd Avenue		
APPROVED BY	LOGGED BY	Brooklyn, New York		
S. Glash	D. Moss			
DRILLING CONTRACTOR/DRILLER		GEOGRAPHIC AREA		
Aquifer Drilling & Testing, Inc. / L. Adams		Gas Holder 3		
DRILL BIT DIAMETER/TYPE	BOREHOLE DIAMETER	DRILLING EQUIPMENT/METHOD	SAMPLING METHOD	START-FINISH DATE
3 7/8 inch / Tri-Cone	4-inches	CME-75 / Drive and Wash	2" Split Spoon	3/15/02-3/19/02
LAND SURFACE ELEVATION	DEPTH TO WATER	BACKFILL		
(FT.)	(Feet BLS)	Grout		

Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown coarse to fine SAND, trace Silt, trace Gravel, trace Brick; dry to wet (fill)			Lithology from 0 to 5 feet interpreted from previous Site investigation.
1					
2					
3					
4					
5		Black stained fine to coarse SAND, some Gravel, little Silt; wet (fill)	4		Odor and free product.
6			4		
		Concrete and 1.5 inches of steel	50/1		
7					
		Wood and Concrete fragments; wet	80		Odor and trace free product.
8			38		
			25		
9			21		
		Peat			Free product in groundwater around sample in split spoon; no product observed within the sample.
10					
11					Bottom of boring 11 feet below land surface.

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LOG OF BORING LB7

SHEET 1 OF 2

PROJECT: Loews @ Gowanus	PROJECT NO.: 1531601
LOCATION: Brooklyn, NY	ELEVATION AND DATUM: approx. el 11 [BBHDD]
DRILLING EQUIPMENT: Davey Kent DK50RA Track Rig	DATE STARTED: 11/19/98; DATE FINISHED: 11/24/98; COMPLETION DEPTH: 77 ft.
SIZE AND TYPE OF BIT: HW and NQ Rock Cores and Tri-Cone Roller Bit	NUMBER OF SAMPLES: DIST. 18; UNDIST. 1; CORE —
CASING DIAMETER (in): 4 1/2" OD 4" ID; CASING DEPTH (ft): 7	WATER LEVEL (ft.): FIRST ▽ ----- ; COMPL. ▼ ----- ; 24 HR. ▼ 6.5
SAMPLER: Standard Solit Spoon (SS) or Shelby Tube (ST)	DRILLING FOREMAN: Gus Suri/Mike Chizmar
SAMPLER HAMMER: WEIGHT (lbs) 140; DROP (in) 30	INSPECTING ENGINEER: Gary L. Gleason

ELEV. (ft)	SAMPLE DESCRIPTION	SAMPLE NUMBER	TYPE	RECOV. (in)	PENETR. RESIST. BL/6in	N-VALUE BLOWS PER FT	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
approx. el 11	5" CONCRETE w/ wire mesh						*New York City BC Classification numbers in parenthesis
	5" CONCRETE						Started coring w/ water
	Inferred miscellaneous FILL (11-65)*						Lost some water D = 1.5'
	Gray/black f.-c. SAND, some silt (11-65)	S1	SS	7	28 47 54 20	101	PID = 400 ppm
							Petroleum like material odor
							On/off rig chatter D = 1.5' - 4.5'
	Black SILT/PETROLEUM LIKE MATERIAL, some c. sand, and white cement fragments, trace f.-m. sand and clay (11-65)	S2	SS	2	4 2 1 50/1"	3	Petroleum like material in wash D = 4.75'
0.0							Spoon refusal 50/1" w/ bouncing D = 6'
							PID = 480 ppm
	Piece of STEEL						A 16" x 4" x 1/4" piece of vertical steel on a 1/2" thick base plate D = 7' w/ 2" wide horizontal pieces of steel, which were cut, at the top inside and bottom outside D = 6' - 7'
	Inferred miscellaneous FILL (11-65)						
0.0	0.5" STEEL	S3					
0.0	CONCRETE						
	Petroleum like material treated WOOD (11-65)						Lost some water D = 8' - 9.25'
	Inferred WOOD (11-65)						Added mud D = 9.25'
	Inferred Brown PEAT, some silt (11-65)	-	SS	0	WOR WOR WOR WOR	WOR	Drilled through WOOD and lost circulation D = 9.75'
							WOR: Weight of rods
							WOR went from D = 10' - 15'
	Inferred Brown PEAT, some silt (11-65)	S4	SS	0	WOH WOH WOH WOH	WOH	WOH: Weight of hammer
							Sample S4 SS lip material
							PID = 590 ppm
							WOH went from D = 15' - 17.5'
	Brown PEAT, some silt (11-65)	T1	ST	24	PUSH PUSH PUSH PUSH	PUSH	
	Brown/gray f. SAND, some silt (8-65)						Visible petroleum like material w/ odor
	Brown f. SAND, some silt (8-65)	S5	SS	19	1 3 3 4	6	Pushing became more difficult D = 19.25'
							Added mud D = 20'
							PID = 920 ppm
	Brown f. SAND, trace silt and clay (8-65)	S6	SS	11	34 42 33 40	75	PID = 700 ppm
							Trace wood fibers in wash D = 27' - 30.5'
							Tight fit for bit D = 27' - 30.5'
	Brown f.-m. SAND, trace silt (7-65)	S8 S7	SS	7	18 19 11 12	30	1" of WOOD FIBERS, trace f.-m. sand w/
							PID = 170 ppm in top of SS
							PID = 750 ppm
							Brown SILT, trace clay and f. sand in SS lip D = 32.5'
	Brown SILT, trace clay and f. sand (10-65)	S10 S9	SS	18	3 3 2 3	5	PP = 0.1 - 0.3 tsf
	Gray CLAY, some silt (9-65)						PID = 640 ppm
							PP = 0.6 - 0.9 tsf
							PID = 320 ppm
	Gray/brown CLAY, some silt, trace f. sand (9-65)	S11	SS	17	WOH 2 2 4	4	PP = 0.4 - 0.65 tsf
							PID > 2000 ppm

Depth scale: 5, 10, 15, 20, 25, 30, 35, 40

BORING 1531601.GPJ LANGANFL.GDT 22/12/98

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LOG OF BORING LB7

SHEET 2 OF 2

PROJECT	PROJECT NO.
Loews @ Gowanus	1531601
LOCATION	ELEVATION AND DATUM
Brooklyn, NY	approx. el 11 (88HDD)

ELEV. (ft)	SAMPLE DESCRIPTION	SYMBOL LOG	DEPTH SCALE	SAMPLE DATA: NUMBER	TYPE	RECOV. (in)	PENETR. RESIST. BLOWS	N-VALUE BLOWS PER 6"	REMARKS (DRILLING FLUID, DEPTH OF CASING, FLUID LOSS, DRILLING RESISTANCE, ETC.)
	Brown CLAY, some silt, trace f. sand (9-65)		45	S12	SS	13	4 4 4 4	8	PP = 0.6 - 0.65 tsf PID = 170 ppm
	Brown f. SAND, trace silt (8-65)		50	S13	SS	14	13 31 23 19	56	PID = 550 ppm Rig chatter D = 52.25' - 53'
	Brown f.-c. SAND, trace silt and f.-m. gravel (6-65)		55	S14	SS	10.5	29 20 24 24	44	PID = 710 ppm Added mud D = 57' - 58' Rig chatter D = 57.5 - 58'
	Red brown f.-c. SAND, trace silt and f.-m. gravel (6-65)		60	S15	SS	8	19 36 31 22	67	PID = 40 ppm On/off rig chatter D = 60' - 65'
	Red brown f.-c. SAND, some f.-m. gravel, trace silt (6-65)		65	S16	SS	8	28 42 22 19	64	PID = 640 ppm On/off rig chatter D = 65' - 70'
	Red brown f.-c. SAND, some f.-m. gravel, trace silt (6-65)		70	S17	SS	7.5	45 26 22 24	46	PID = 20 ppm On/off rig chatter D = 70' - 75'
	Red brown f.-c. SAND, some f.-m. gravel, trace silt (6-65)		75	S18	SS	8	38 28 22 25	50	PID = 540 ppm Borehole grouted upon completion
	Boring terminated D = 77'		80						
			85						
			90						

BORING 1531601.GPJ LANGANFL.GDT 22/12/98

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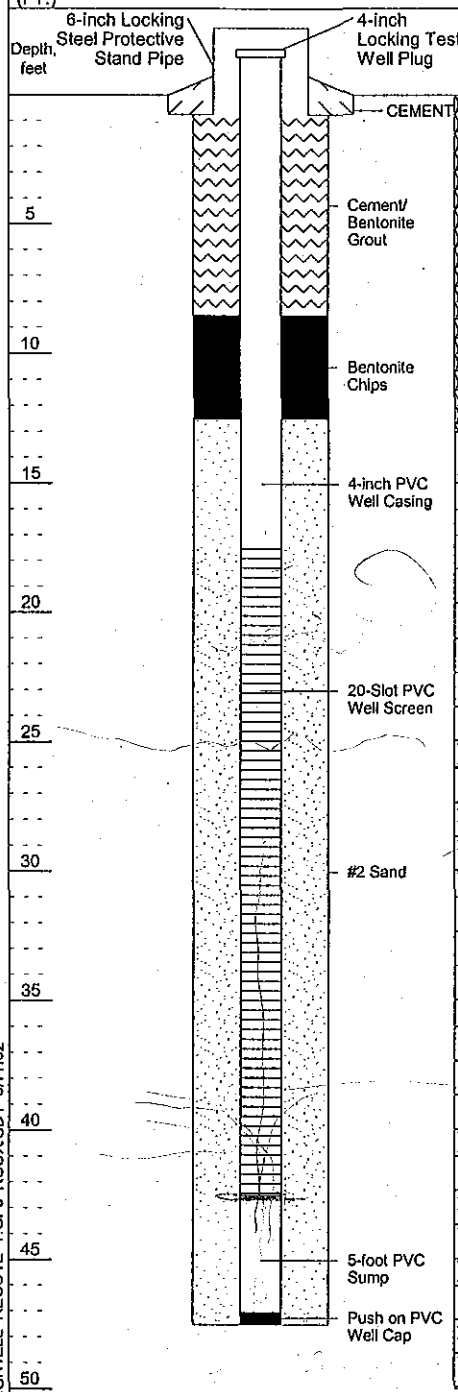
Environmental Consulting & Management

1377 Motor Parkway
Islandia, NY 11749
Telephone: 631-232-2600
Fax: 631-232-9898

WELL CONSTRUCTION LOG

WELL NO. **RW-1**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **C. Battista**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / S. Miller**		GEOGRAPHIC AREA **On Site Along 12th Street**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **Mobile Drill B-61 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **3/18/02-4/1/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, some Gravel, trace Brick; dry to wet (fill)			
5					Strong odor
		Brown fine to coarse SAND, some Silt, little Gravel, trace Brick; dry to wet (fill)		21.8	Sheen and strong odor
		No recovery			
10					
		Brown to dark brown fine to coarse Sand, and Gravel, little Silt, little Wood; wet (fill)		29.3	Sheen and strong odor
		Brown to red fine to coarse SAND, some Silt, little Gravel, trace Brick, trace Concrete; wet (fill)		13.7	
15		Green to grey PEAT; moist			Thickness of peat interval interpreted from previous Site investigation
		Dark gray Silt and fine Sand; wet		4.5	Strong odor
20					
		Dark gray Silt and fine Sand; wet		5.8	
25					
		Dark gray Silt and fine Sand, trace Gravel; wet		10.4	
30					
		Brown Silt and fine Sand; wet			Sheen and strong odor
35					
		Brown Silt and fine Sand; wet		79.4	Sheen and strong odor
40					
		Brown Silt and fine Sand; wet			Trace free product
45					
		Brown Silt and fine Sand; wet		30.1	
50					Bottom of well 47.5 feet below land surface

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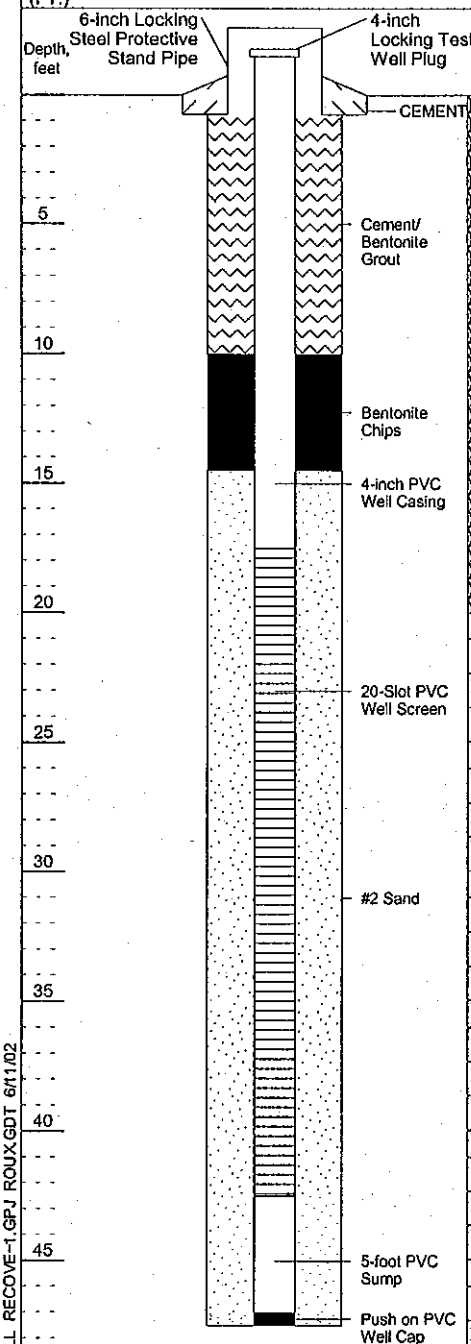
WELL CONSTRUCTION LOG

WELL NO. **RW-2**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **C. Battista**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / S. Miller**		GEOGRAPHIC AREA **On Site Along Pathmark Wall**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **Mobile Drill B-61 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **3/21/02-3/29/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	Brown fine to coarse SAND, little Gravel, trace Silt, trace Brick, trace Coal Fragments; dry to wet (fill)			
5				5
10				10
	Brown fine to coarse SAND, trace Silt, trace Gravel; wet (fill)		0.3	
	Brown fine to medium SAND, trace Silt, trace Gravel; wet (fill)		0.3	
15	Brown fine to medium SAND, trace Silt, trace Gravel; wet (fill)		0.6	15
	Brown fine to medium SAND, trace Silt, trace Gravel, trace Wood; wet (fill)		0.1	
	Brown fine to medium SAND, trace Silt, trace Gravel, trace Wood; wet (fill)		0.1	
20	Brown Silt and fine Sand, little coarse Gravel; wet			20 Strong odor
			126	
25	Brown Silt and fine Sand, little Gravel; wet			25 Strong odor
			303	
30	Brown Silt and fine Sand, little Gravel; wet			30 Trace free product
			493	
			274	
35	Brown Silt and fine Sand, little Gravel; wet			35 Free product
			311	
40	Brown Silt and fine Sand, little Gravel; wet			40 Free product
			893	
45	Dark gray to brown fine SAND, little Silt; wet			45 Free product
			>2000	
50				50 Bottom of well 47.5 feet below land surface

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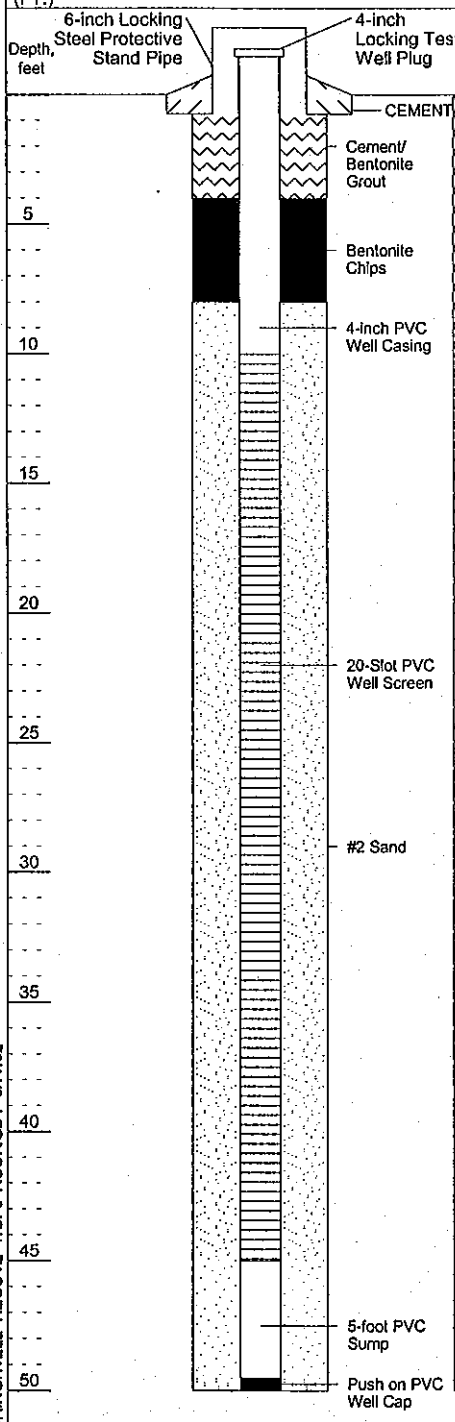
WELL CONSTRUCTION LOG

WELL NO. **RW-3**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along Pathmark Wall**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **3/21/02-3/28/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted** MAT. **SCH 40 PVC** TOTAL LENGTH **35.0** DIA. **4-inch** SLOT SIZE **20-Slot**			
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE	GRAVEL PACK **#2**



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	Brown fine to coarse SAND, trace Gravel, trace Brick; wet at 5 (fill)			
5				
10				
	Brown fine to coarse SAND, little Gravel, little Brick, trace Silt; wet (fill)		0.0	
	Brown fine to coarse SAND, little Gravel, little Brick, trace Silt; wet (fill)		0.0	
15	Brown fine to coarse SAND, trace Gravel, trace Silt; wet (fill)		1.4	
	Brown fine to medium SAND, trace Silt, trace Gravel; wet (fill)		5.7	Strong odor and trace free product
20	Brown fine to medium SAND, trace Silt, trace Gravel; wet (fill)		1.4	Trace free product
	Brown fine to coarse SAND, little Silt; wet		27.4	Odor
25	Brown fine to coarse SAND, little Silt, trace Gravel; wet		15.1	Odor
30	Brown fine to coarse SAND, little Silt, trace Gravel; wet		152	Free product
35	Brown SILT, some fine Sand, trace coarse Sand; wet		98.1	Odor and free product
40	Brown fine SAND, little Silt, trace Gravel; wet		237	Odor and free product
45	Brown fine SAND, little Silt, trace Gravel; wet		1681	Free product
50				Bottom of well 50 feet below land surface

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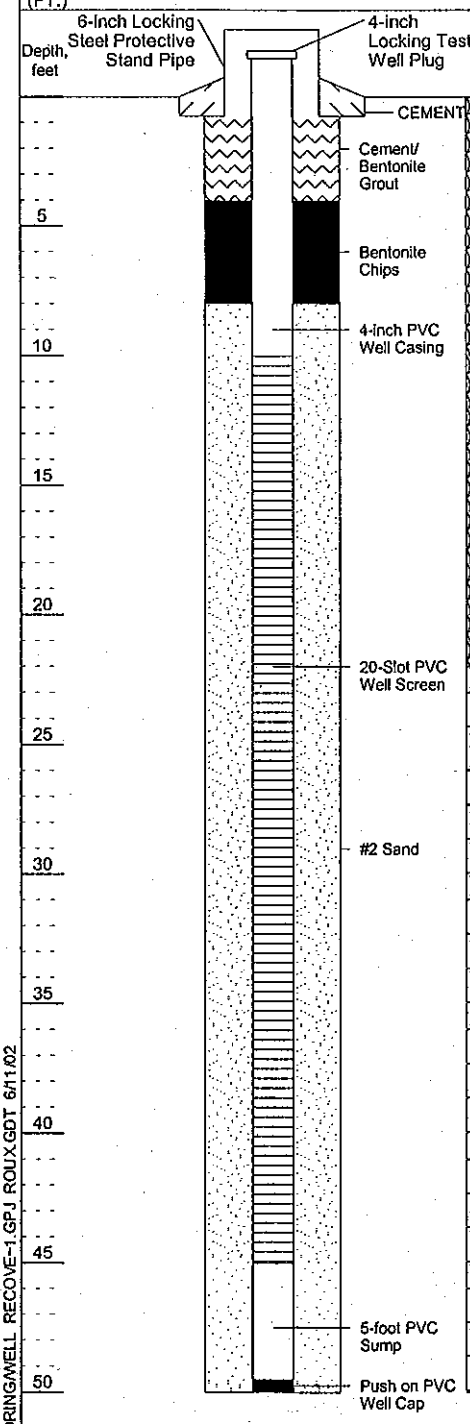
WELL CONSTRUCTION LOG

WELL NO. **RW-4**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along Pathmark Wall**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **3/21/02-3/28/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC**	TOTAL LENGTH **35.0**	DIA. **4-inch** SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, trace Brick, trace Silt, trace Gravel; wet at 5 (fill)			
5					
10					
		Brown fine to coarse SAND, trace Brick, trace Silt, trace Gravel; wet (fill)		0.1	
		Brown fine to coarse SAND, trace Brick, trace Silt, trace Gravel; wet (fill)		1.6	Odor
15		Brown fine to coarse SAND, trace Brick, trace Silt, trace Gravel; wet (fill)		1.6	Odor
		Brown fine to coarse SAND, trace Brick, trace Silt, trace Gravel; wet (fill)		0.9	Slight odor
20		Brown fine to medium SAND, trace Gravel, trace Silt; wet		1.9	
		Brown fine to medium SAND, trace Gravel; wet (fill)		4.7	
		Gray fine SAND, little Wood; wet (fill)			Black staining and strong Odor
		Brown fine to coarse SAND, little Silt, trace Gravel; wet		26.8	
25					
		Brown fine to coarse SAND, some Silt, trace Gravel; wet		7.2	Odor and trace free product
30					
		Brown fine to coarse SAND, some Silt, trace Gravel; wet		5.6	Odor and trace free product
35					
		Brown fine to coarse SAND, some Silt, trace Gravel; wet		14.9	Odor and trace free product
40					
		Brown fine to coarse SAND, some Silt, trace Gravel; wet		35.1	Free product
45					
		Brown fine to coarse SAND, some Silt, trace Gravel; wet		87.4	Free product
50					Bottom of well 50 feet below land surface

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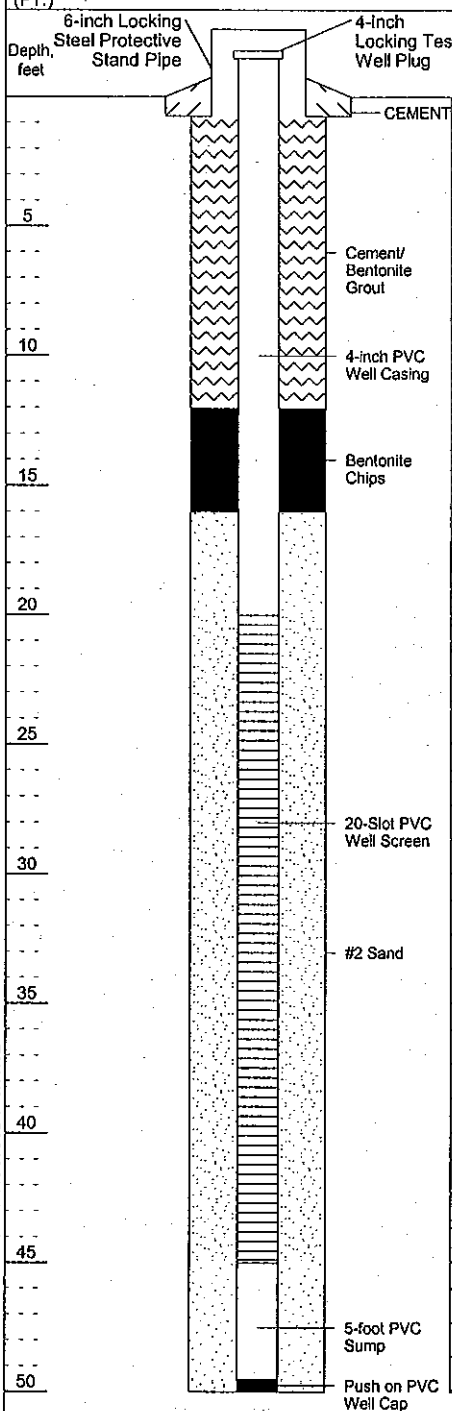
WELL CONSTRUCTION LOG

WELL NO. **RW-5**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **C. Battista**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / S. Miller**		GEOGRAPHIC AREA **On Site Along Pathmark Wall**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **Mobile Drill B-61 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **3/21/02-3/27/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown coarse to fine SAND, trace Gravel, trace Brick, trace Silt; dry to wet (fill)			
5					5
10		Brown fine SAND, trace Silt, trace Gravel; wet (fill)		0.0	10
		Brown fine SAND, trace Silt, trace Gravel; wet (fill)		3.3	
15		Brown fine SAND, little Silt, trace Gravel; wet (fill)		9.5	Black staining 15
		No recovery			
		Green to gray Peat and Clay, trace Sand; wet		14.6	Thickness of peat interval interpreted from previous Site investigation
20					20
		Brown fine to coarse SAND, little Silt, little Gravel; wet		2.6	Strong odor
25		Brown fine to coarse SAND, some Silt; wet		1.7	Strong odor 25
30		Brown fine to coarse SAND, some Silt, trace Gravel; wet		106	Strong odor 30
35		Brown fine to coarse SAND, some Silt, trace Gravel; wet		134	Trace free product 35
40		Brown fine to coarse SAND, some Silt; wet		281	Free product 40
45		Brown Silt and fine Sand; wet		375	Odor and free product 45
50					50

Bottom of well 50 feet below land surface

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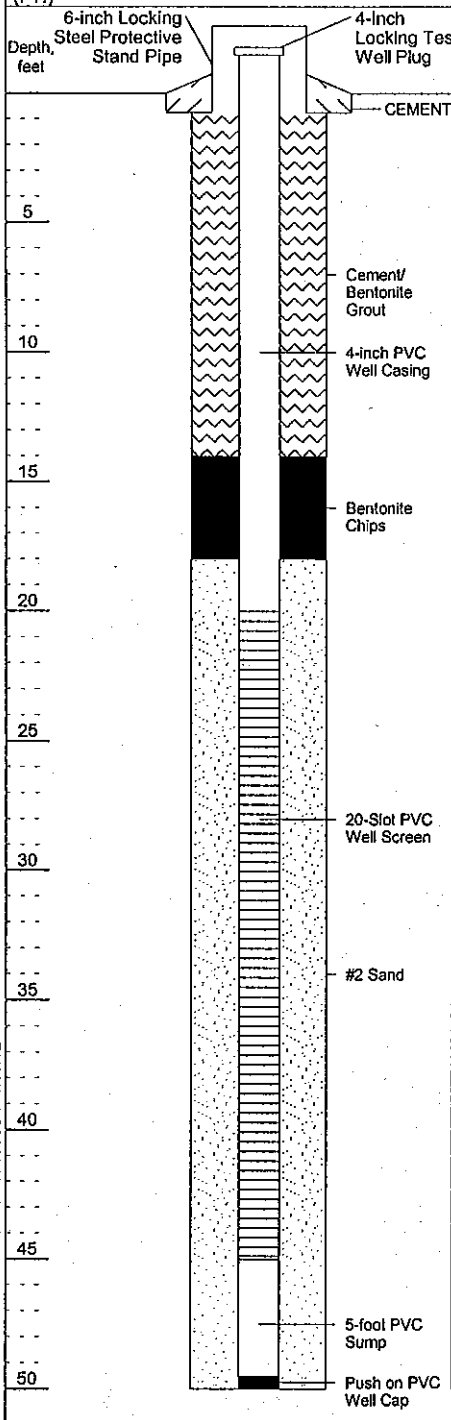
WELL CONSTRUCTION LOG

WELL NO. **RW-6**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along Pathmark Wall**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **3/21/02-3/25/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
5	Brown fine to coarse SAND, trace Gravel, trace Brick, trace Silt; dry to wet (fill)			
10	Brown fine SAND, little Silt, trace Brick; wet (fill)		1.6	Odor and Black Staining
	Green to gray Peat and Clay, trace brown Sand; moist		7.3	
15	Fine SAND, trace Gravel, trace Silt; wet		5.9	Thickness of peat interval interpreted from previous Site investigation Black staining Odor
20	Gray fine SAND, little Silt, trace Gravel; wet		1.9	Black staining Odor
25	Gray fine SAND, little Silt, trace Gravel; wet		4.7	Slight Odor
30	Grey SILT, Some fine Sand; wet		156	Odor
35	Brown to green fine SAND, some Silt; wet		350	Odor
40	Brown to green fine SAND, some Silt; wet		1254	Odor
45	Brown to green fine SAND, some Silt; wet		1824	Odor
50				Bottom of well 50 feet below land surface

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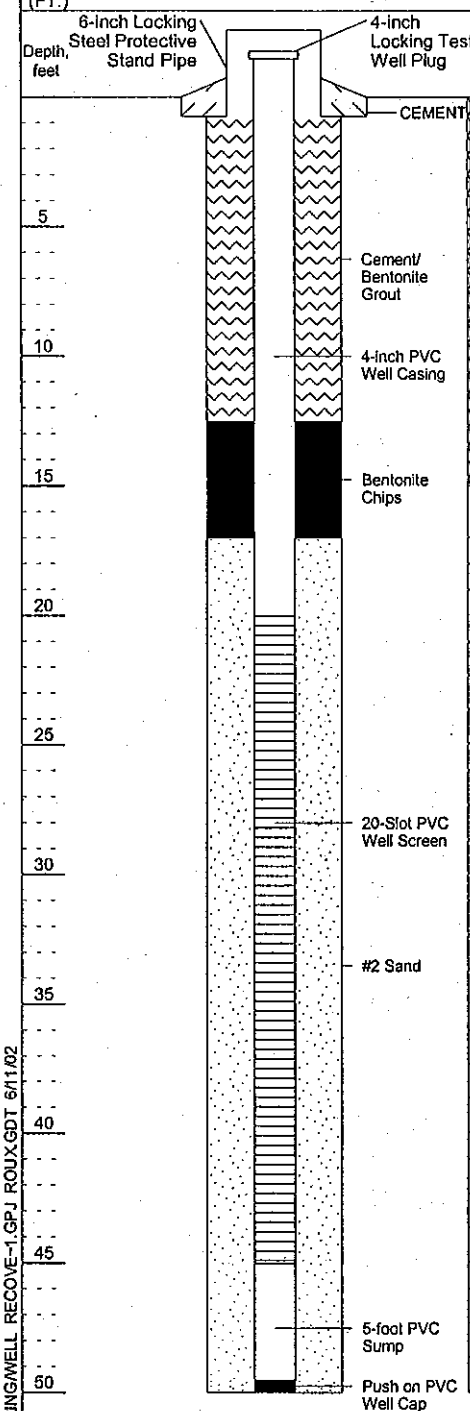
WELL CONSTRUCTION LOG

WELL NO. **RW-7**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **C. Battista**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / S. Miller**		GEOGRAPHIC AREA **On Site Along Pathmark Wall**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **Mobile Drill B-61 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **3/21/02-3/25/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	Brown fine to coarse SAND, trace Gravel, trace Brick, trace Silt; dry to wet (fill)			
5				5
	No recovery			
10				10
	Fine SAND, some Gravel, trace Silt; wet (fill)		0.7	Black staining
	Brown fine SAND, little Silt; wet (fill)		1.4	Black staining
	Brown fine SAND, little Silt; wet (fill)		1.9	Odor and black staining
15				15
	Green to gray Peat and Clay; wet		7.3	Odor
				Thickness of peat interval interpreted from previous Site Investigation
	Brown fine to coarse SAND, some Silt, trace Gravel; wet			
20				20
	Brown fine to coarse SAND, some Silt, trace Gravel; wet		10.2	Odor
25				25
	Brown fine to coarse SAND, some Silt, trace Gravel; wet		11.7	Odor
30				30
	No recovery			
35				35
	Dark Gray fine to medium SAND, some Silt; wet		27.1	
40				40
	Dark Gray fine to medium SAND, some Silt, little Gravel; wet		21.0	Odor
45				45
	Dark gray Silt and fine Sand; wet		30.6	Sheen and odor
50				50
				Bottom of well 50 feet below land surface

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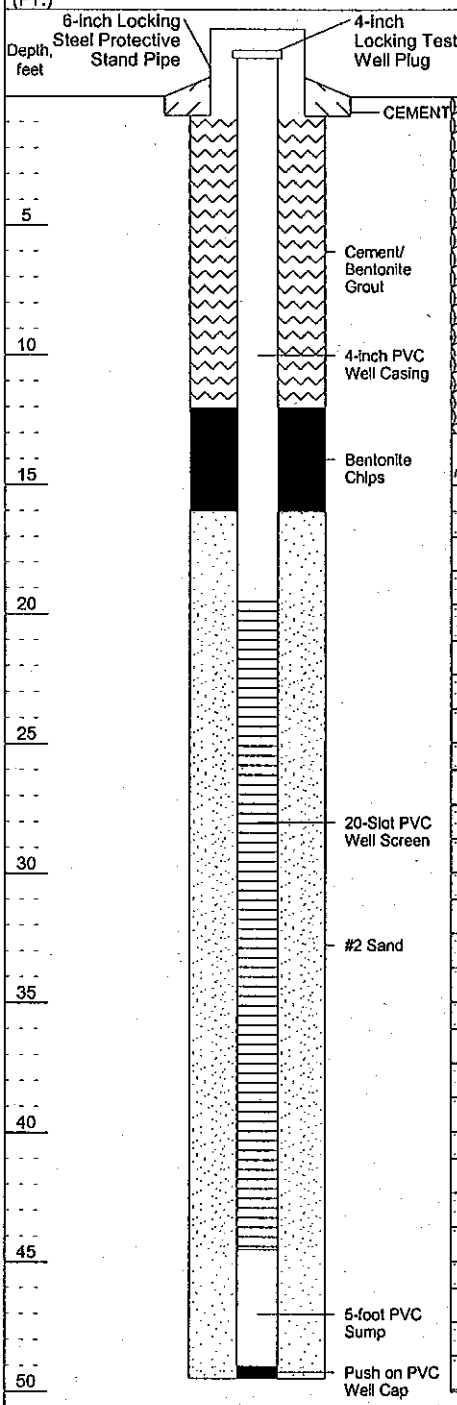
WELL CONSTRUCTION LOG

WELL NO. **RW-8**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **C. Battista**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / S. Miller**		GEOGRAPHIC AREA **On Site Along 12th Street**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **Mobile Drill B-61 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **3/22/02-4/2/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse fine SAND, trace Gravel, trace Brick, trace Silt; dry to wet (fill)			
5					5
10		Brown fine to coarse SAND, trace silt, trace concrete; wet (fill)			10
		Brown fine to medium SAND, trace Silt; wet (fill)			Black staining and trace free product
15		Brown PEAT; wet			Thickness of peat interval interpreted from previous Site investigation 15
		Brown fine to coarse SAND, little Silt, trace Gravel; wet		38.5	
20		Brown fine to coarse SAND, little Silt; wet		17.1	Strong odor and trace free product Slight odor and Sheen 20
25		Brown fine to coarse SAND, little Silt, trace Gravel; wet		0.0	Slight odor and Sheen 25
30		Brown to dark gray fine to medium SAND, some Silt, little Clay; wet		333	Odor 30
35		Brown to dark gray fine to medium SAND, some Silt, little Clay; wet		235	Odor 35
40		Dark gray to brown fine SAND, little Silt; wet		427	Odor 40
45		Dark gray to brown fine SAND, little Silt; wet		236	Odor 45
50					Bottom of well 49.5 feet below land surface 50

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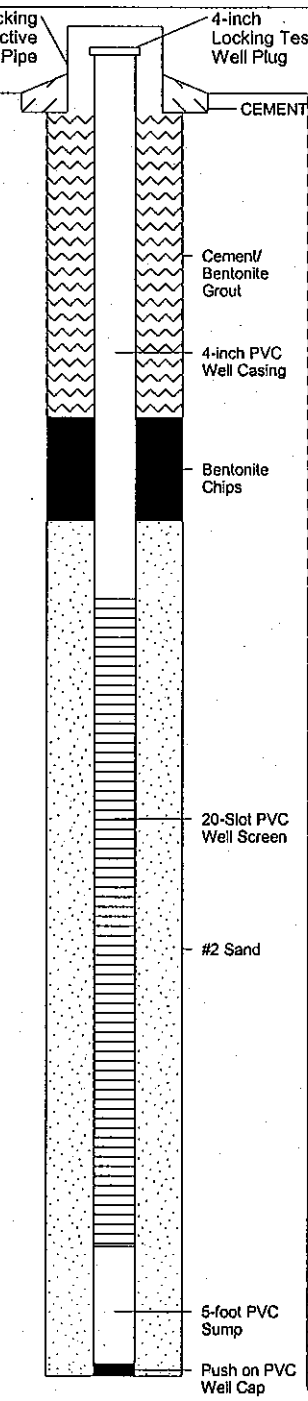
WELL CONSTRUCTION LOG

WELL NO. **RW-9**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along 12th Street**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **3/22/02-4/2/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	Brown fine to coarse SAND, trace Gravel, trace Brick, trace Silt; dry to wet (fill)			
5				5
10	Brown WOOD; wet (fill)		120	Free product
	Brown fine SAND, little Silt, trace Gravel; wet (fill)		180	Black staining Odor and free product
15	Green to tan fine to medium SAND, little Silt; wet (fill)		109	Trace free product
	Green to brown fine SAND, some Silt, trace Peat; wet (fill)		57.6	
20	Brown PEAT; moist			Thickness of peat interval interpreted from previous Site investigation
	Black fine to coarse SAND, little Gravel; wet		84.9	Odor and free product
25	Black fine to coarse SAND, some Silt, trace Gravel; wet		28.5	Black staining Trace free product
30	Black to gray SILT, little fine Sand; wet		66.8	Black staining Odor and trace free product
35	Brown Silt and fine Sand, trace coarse Sand; wet		28.2	Odor and sheen
40	Brown Silt and fine Sand, trace coarse Sand; wet		19.7	Odor and sheen
45	Brown Silt and fine Sand, trace coarse Sand; wet		27.1	Odor and sheen
50				Bottom of well 49.5 feet below land surface

BORING/WELL RECOVE~1.GPJ ROUX.GDT 6/11/02

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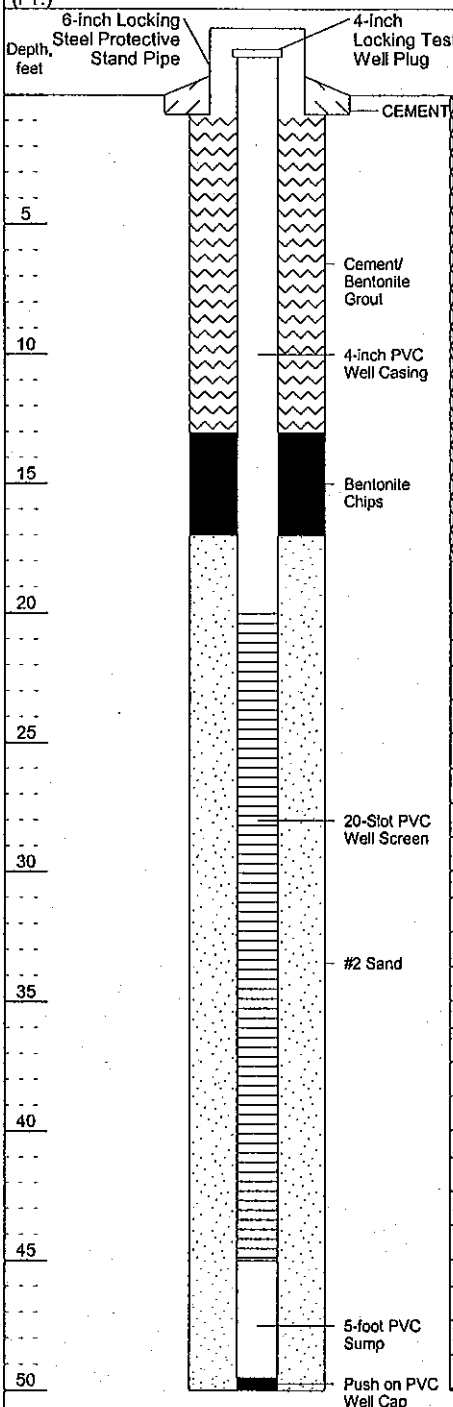
Telephone: 631-232-2600
Fax: 631-232-9898

WELL CONSTRUCTION LOG

WELL NO. **RW-10**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **R. Kovacs**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along 12th Street**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **3/22/02-4/1/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, trace Gravel, trace Silt, trace Brick; dry to wet (fill)			
5					5
10		Green to brown fine SAND, little Silt, trace Gravel; wet (fill)		8.2	Black staining
		Green to brown fine SAND, little Silt; wet (fill)		8.1	Black staining Slight Odor
15		Green to brown fine SAND, little Silt; wet (fill)		6.0	Black staining
		Green to brown fine to coarse SAND, little Silt, little Peat at 18; wet (fill)		8.7	Black staining
		Brown PEAT; moist		54.0	Thickness of peat interval interpreted from previous Site investigation
20					20
		Brown to light brown fine SAND, some Silt; wet		59.0	Odor and sheen
25		Brown to reddish brown fine to medium SAND, some Silt; wet		96.5	Free product
30		Brown to light brown fine to medium SAND, some Silt; wet		219	Odor and free product
35		Brown fine to medium SAND, some Silt; wet		110	Odor and free product
40		Brown SILT, some medium Sand; wet		172	Odor and free product
45		Brown SILT, some fine to medium Sand; wet		162	Odor and free product
50					Bottom of well 50 feet below land surface

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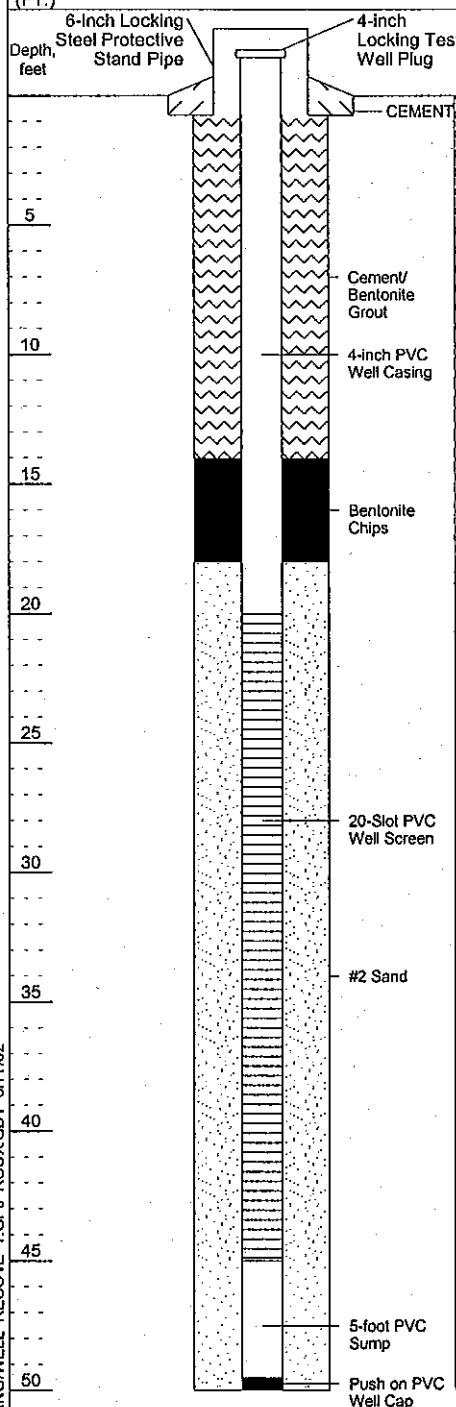
WELL CONSTRUCTION LOG

WELL NO. **RW-11**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along 12th Street**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **3/22/02-3/29/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, little Gravel, trace Brick, trace Silt; wet at 6 (fill)			
5					5
10		Brown fine to coarse SAND, little Gravel, trace Brick, trace Silt; wet (fill)		50.0	Black staining
		Brown fine to coarse SAND, little Gravel, trace Brick, trace Silt; wet (fill)		71.9	Black staining
15		Brown fine to medium SAND, little Gravel, little Silt; wet (fill)		43.9	
		Brown fine to coarse SAND, trace Gravel, trace Silt, trace Brick; wet (fill)		31.2	
		Brown PEAT; moist		138	Thickness of peat interval interpreted from previous Site investigation
20					
		Brown fine to coarse SAND, little Silt, trace Gravel; wet		7.2	
25		Brown fine to coarse SAND, some Silt; wet		7.2	Odor and trace free product
30		Brown fine to coarse SAND, some Silt; wet		23.2	Trace free product
35		Brown fine to coarse SAND, some Silt; wet		17.6	Trace free product
40		Brown Silt and fine Sand, trace coarse Sand, trace Gravel; wet		1124	Trace free product
45		Brown Silt and fine Sand, trace coarse Sand, trace Gravel; wet		280	
50					Bottom of well 50 feet below land surface

BORING/WELL RECOVE-1.GPJ ROUX.GDT 6/11/02

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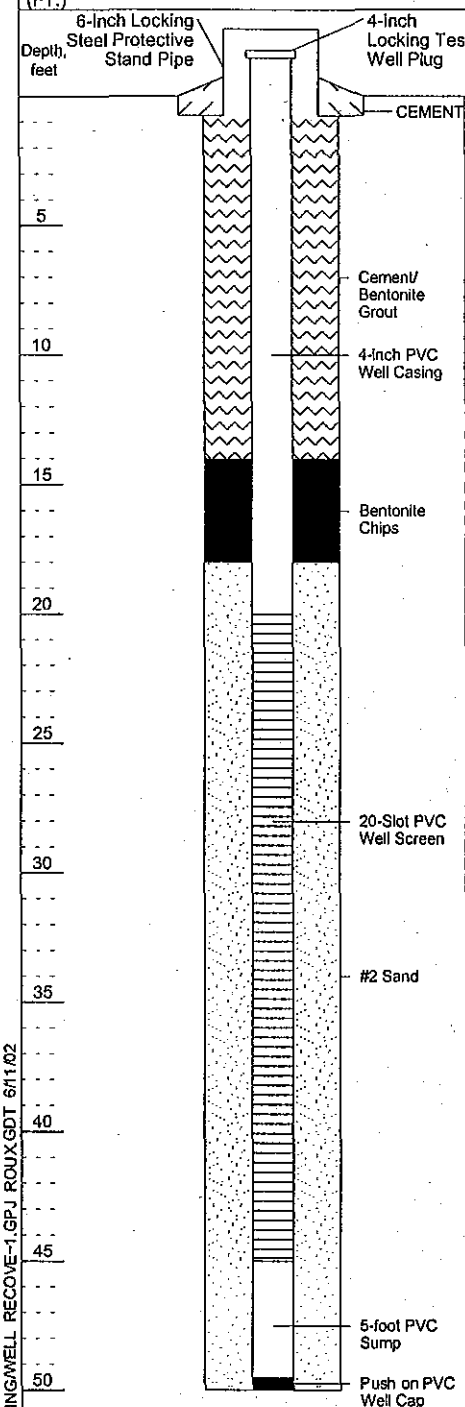
WELL CONSTRUCTION LOG

WELL NO. **RW-12**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along 12th Street**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **3/22/02-3/27/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, trace Gravel, trace Silt, trace Brick; dry to moist (fill)			
5		BRICK; dry (fill)			
		Brown fine to coarse SAND, some Gravel, trace Brick, trace Silt; wet at 7 (fill)			
10		Brown fine to coarse SAND, little Silt, trace Gravel; wet (fill)			Sheen and odor
		Brown fine to coarse SAND, little Silt, little Gravel; wet (fill)		55.3	Slight odor
15		Brown fine to coarse SAND, little Silt, little Gravel; wet (fill)		72.2	Slight odor
		Brown fine to coarse SAND, some Gravel, little Silt; wet (fill)		74.9	
		Brown PEAT; moist		1.7	Thickness of peat interval interpreted from previous Site investigation
20		Brown fine to coarse SAND, some Silt, trace Gravel; wet		11.7	
25		Brown fine to coarse SAND, some Silt, trace Gravel; wet		19.3	
30		Brown fine to coarse SAND, some Silt, trace Gravel; wet		4.1	
35		Brown fine to coarse SAND, some Silt, trace Gravel; wet		35.1	Odor
40		Brown fine to coarse SAND, some Silt, trace Gravel; wet		174	Odor and trace free product
45		Brown fine to coarse SAND, some Silt, trace Gravel; wet		294	Odor and trace free product
50					Bottom of well 50 feet below land surface

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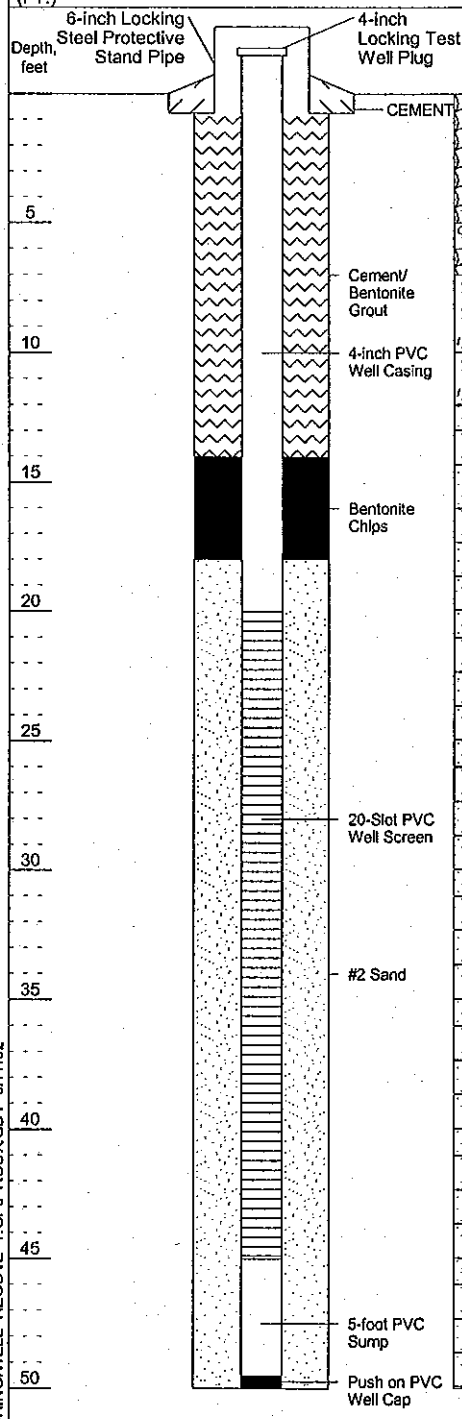
WELL CONSTRUCTION LOG

WELL NO. **RW-13**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along 12th Street**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **3/22/02-3/26/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, trace Gravel, trace Silt, trace Brick; dry to moist (fill)			
5		Brick and Concrete; dry (fill)			
		Brown fine to coarse Sand and Brick; wet (fill)		80.8	Black staining
		Brown PEAT; moist			
		Brown PEAT; moist			
10		Brown PEAT; moist		73.9	
		Fine SAND, some Silt, trace Gravel; wet			Black staining
				21.7	Odor
15		Brown to green fine SAND, some Silt; wet			Odor
				17.1	
20		Brown fine SAND, little Silt; wet			Slight odor
				9.7	
25		Brown SILT, little fine Sand, trace Gravel; wet			Odor and trace free product
				118	
30		Brown SILT, little fine Sand, trace Gravel; wet			Odor and trace free product
				15.6	
35		Brown fine SAND, some Silt; wet			Odor
				5.3	
40		Brown to green SILT, little fine Sand; wet			Odor and trace free product
				459	
45		Brown SILT, some Sand; wet			Odor
				154	
50					Bottom of well 50 feet below land surface

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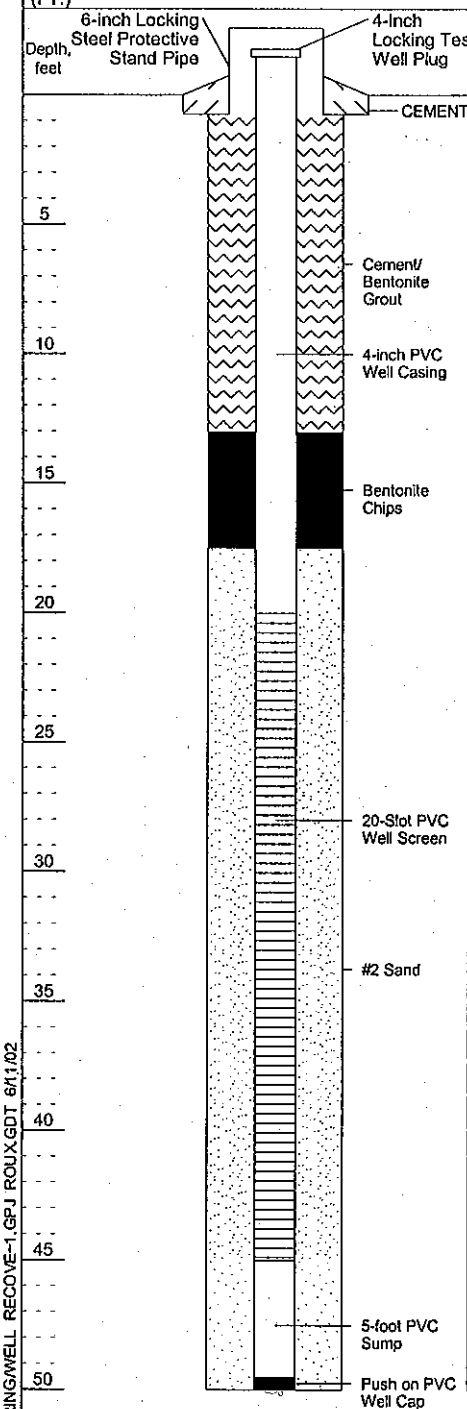
WELL CONSTRUCTION LOG

WELL NO. **RW-14**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **C. Battista**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / S. Miller**		GEOGRAPHIC AREA **On Site Along 12th Street**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **Mobile Drill B-61 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **3/22/02-3/26/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, little Gravel, trace Silt; dry (fill)			
5		Brown fine to coarse SAND, little Gravel, trace Silt; dry to moist (fill)		49.5	5
		Brown fine to coarse SAND, little Gravel, trace Silt; wet (fill)		45.9	
		Brown PEAT; moist			
10		Brown PEAT; moist to wet			10
				1.3	
15		Dark brown SAND, some Silt, trace Peat; wet			15
				2.7	
20		Dark brown PEAT; moist to wet			20
				125	
25		Dark brown fine SAND, little Silt; wet			25 Odor and trace free product
				147	
30		Dark brown fine SAND, little Silt; wet			30 Sheen
				413	
35		Dark brown fine SAND, little Silt; wet			35 Trace free product
				475	
40		Dark brown fine SAND, little Silt; wet		>2000	40 Sheen
45		Dark brown fine SAND, little Silt; wet		524	45
50					50 Bottom of well 50 feet below land surface

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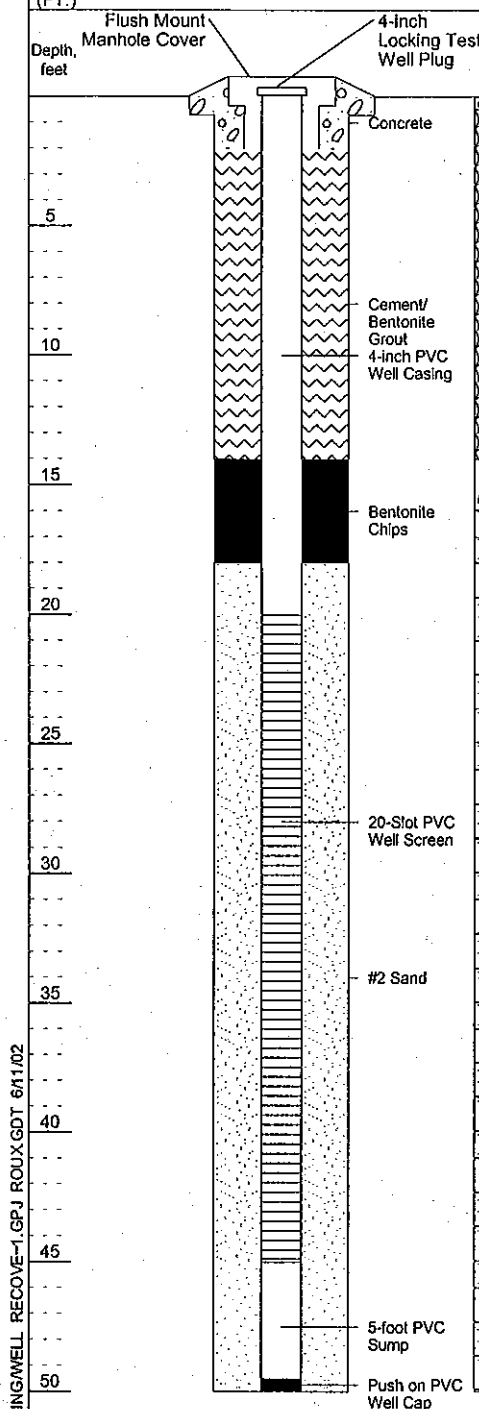
WELL CONSTRUCTION LOG

WELL NO. **RW-15**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **Off Site 12th Street Sidewalk**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **4/4/02-4/4/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	CONCRETE			
	Brown fine to coarse SAND, trace Gravel, trace Brick, trace Silt; dry to wet (fill)			
5				5
	Brown to green fine SAND, little Silt, trace Gravel, trace Brick, trace Concrete; wet (fill)		73.7	Odor and sheen
10	Brown fine SAND, little Silt, trace coarse SAND, trace Gravel; wet (fill)		147	10
	Brown fine to coarse SAND, little Silt, trace Gravel; wet (fill)		51.8	
	Brown fine SAND, some Silt, trace coarse SAND; wet (fill)		7.1	
15	Brown PEAT; moist			15
				Thickness of peat interval interpreted from previous Site investigation
	Brown fine SAND, little Silt, trace coarse Sand; wet		29.2	
20				20
	Brown fine Sand and Silt, trace coarse Sand; wet		89.7	Slight odor
25				25
	Brown fine SAND, little Silt, trace coarse Sand; wet		154	Slight odor
30				30
	Brown fine SAND, little Silt, trace Coarse Sand; wet		243	
35				35
	Brown fine SAND, little Silt, trace Coarse Sand; wet		172	Trace free product
40				40
	Brown fine SAND, little Silt, trace Coarse Sand; wet		612	Trace free product
45				45
	Brown fine Sand and Silt; wet		684	Odor and trace free product
50				50
				Bottom of well 50 feet below land surface

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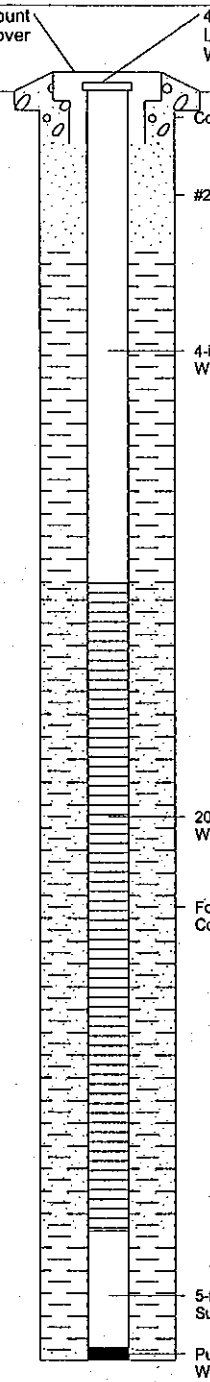
WELL CONSTRUCTION LOG

WELL NO. **RW-16**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **C. Battista**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **Off Site 12th Street Sidewalk**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **4/5/02-4/5/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted** MAT. **SCH 40 PVC** TOTAL LENGTH **25.0** DIA. **4-inch** SLOT SIZE **20-Slot**			
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	CONCRETE			
	Brown to dark brown fine to coarse SAND, some Gravel, trace Silt; wet at 4 (fill)			
5	Dark gray fine to coarse Sand and Gravel, little Silt; wet (fill)		7.9	Slight odor
10	Brown to dark gray GRAVEL, some fine to coarse Sand, trace Silt, trace Ash, trace Cinders; wet (fill)		5.8	
	Brown to dark gray fine to coarse SAND, trace Silt, trace Gravel; wet (fill)		4.1	
15	Brown fine to coarse SAND, trace Silt, trace Gravel; wet (fill)		26.4	
	Brown PEAT; moist			Thickness of peat interval interpreted from previous Site investigation
20	Brown Silt and fine Sand, little Gravel; wet			
25	Brown Silt and fine Sand, little Gravel; wet		11.5	odor
30	Brown Silt and fine Sand, little Gravel; wet		6.1	odor
35	Brown Silt and fine Sand, little Gravel; wet		10.0	odor
40	Dark gray fine SAND, some Silt, little Clay; wet		62.3	
45	Dark gray fine SAND, some Silt, little Clay, little Gravel; wet		4.4	Trace free product
50				Bottom of well 49 feet below land surface

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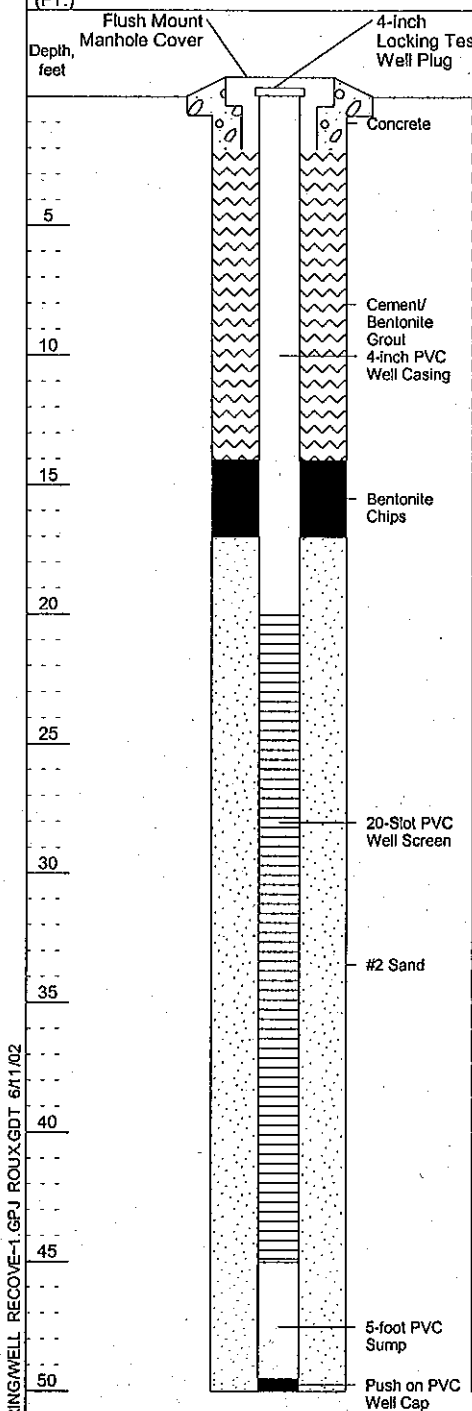
WELL CONSTRUCTION LOG

WELL NO. **RW-17**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **R. Kovacs**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **Off Site 12th Street Sidewalk**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **4/9/02-4/9/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	CONCRETE			
	Brown to dark brown fine to coarse SAND, some Silt; wet (fill)		13.0	Slight odor
5	Brown to dark brown fine to medium SAND, some Silt; wet (fill)		14.0	Slight odor
10	Brown to dark brown fine Sand and Silt; wet (fill)		22.3	Slight odor
	Brown fine to medium SAND; wet (fill)		12.7	
	Brown fine Sand and Silt; wet (fill)		12.3	Slight odor
15	Brown to reddish brown fine to medium SAND; wet (fill)		10.7	Slight odor
	Brown PEAT; moist		7.4	Thickness of peat interval interpreted from previous Site investigation
	Brown fine to medium SAND; wet			Slight odor
20	Brown to dark brown fine SAND; wet		10.7	Slight odor
25	Brown to dark brown fine SAND; wet		11.9	Slight odor
30	Brown to dark brown fine SAND; wet		14.9	Slight odor
35	Brown fine to medium SAND; wet		9.7	Slight odor
40	Brown fine to medium SAND; wet		47.3	Odor and trace free product
45	Brown fine to medium SAND; wet		59.9	Odor and trace free product
50				Bottom of well 50 feet below land surface

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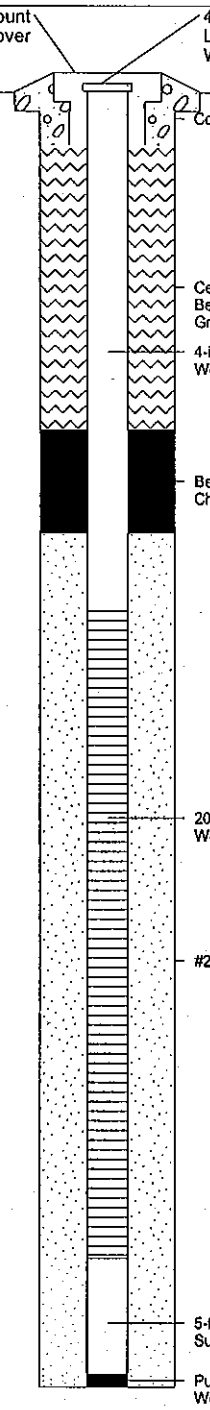
WELL CONSTRUCTION LOG

WELL NO. **RW-18**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **C. Battista**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **Off Site 12th Street Sidewalk**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **4/19/02-4/19/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	CONCRETE			
	Brown fine to coarse SAND, little Silt, trace Brick, trace Gravel; wet at 4 (fill)			
5				5
10				10
	Brown fine to coarse SAND, little Silt, trace Brick, trace Gravel; wet (fill)		0.0	
	Brown fine to coarse SAND, little Silt, trace Brick, trace Gravel; wet (fill)		0.0	
	Brown PEAT; moist		8.3	Strong organic odor
15				Thickness of peat interval interpreted from previous Site Investigation; 15
	Brown fine to coarse SAND, some Peat, little Silt, trace Gravel; wet		0.0	
20				20
	Brown fine to coarse SAND, some Peat, some Silt, trace Gravel; wet		0.0	
25				25
	Brown fine to coarse SAND, some Silt, trace Peat, trace Gravel; wet		0.0	
30				30
	Brown fine to coarse SAND, some Silt, trace Peat, trace Gravel; wet		0.5	
35				35
	Brown to dark gray fine SAND, little Silt, trace Gravel; wet			
40				40
	Brown to dark gray fine SAND, little Silt, trace Gravel; wet		5.8	
45				45
	Brown to dark gray fine SAND, little Silt, trace Gravel; wet		0.0	
50				50
				Bottom of well 50 feet below land surface

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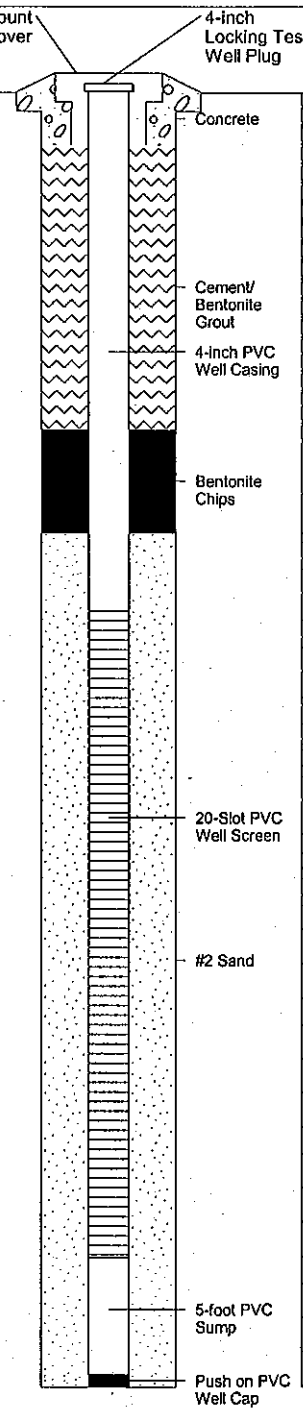
WELL CONSTRUCTION LOG

WELL NO. **RW-19**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D.Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **Off Site 12th Street Sidewalk**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **4/18/02-4/18/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	Concrete			
	Brown fine to coarse SAND, little Silt, trace Brick, trace Gravel; wet at 4 (fill)			
5				5
10				10
	Brown fine SAND, trace Silt, trace coarse Sand, trace Gravel; moist (fill)		0.9	
	Brown fine SAND, trace Silt; wet (fill)		0.7	
15	Peat and green-grey CLAY; moist			Thickness of peat interval intrepreted from previous Site investigation 15
	Brown fine SAND, little Silt, trace Gravel; wet		1.8	
20				20
	Brown fine SAND, little Silt; wet		0.0	
25				25
	Brown fine SAND, little Silt; wet		0.0	Odor
30				30
	Brown fine SAND, little Silt, trace coarse Sand; wet		0.7	Odor
35				35
	Brown fine SAND, little Silt, trace coarse Sand; wet		0.0	Odor
40				40
	Brown fine SAND, little Silt; wet		0.0	Odor
45				45
	Brown fine SAND, little Silt; wet		0.0	Odor
50				50
				Bottom of well 50 feet below land surface

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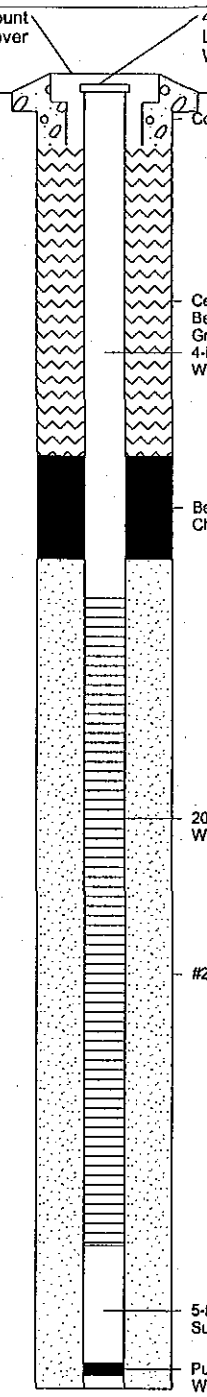
WELL CONSTRUCTION LOG

WELL NO.	NORTHING	EASTING		
RW-20				
PROJECT NO./NAME: 92401Y03 / FC Gowanus former MGP Site		LOCATION: 124-136 2nd Avenue, Brooklyn, New York		
APPROVED BY: G. Tyers	LOGGED BY: C. Battista			
DRILLING CONTRACTOR/DRILLER: Aquifer Drilling & Testing, Inc. / L. Adams		GEOGRAPHIC AREA: Off Site 12th Street Sidewalk		
DRILL BIT DIAMETER/TYPE: 6.25-in. / Auger	BOREHOLE DIAMETER: 10-inches	DRILLING EQUIPMENT/METHOD: CME-75 / HSA	SAMPLING METHOD: 2" Split Spoon	START-FINISH DATE: 4/17/02-4/17/02
CASING MAT./DIA.: SCH 40 PVC / 4-inch	SCREEN: TYPE Slotted	MAT. SCH 40 PVC	TOTAL LENGTH 25.0	DIA. 4-inch SLOT SIZE 20-Slot
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK #2



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	CONCRETE			
	Dark brown fine to coarse SAND, trace Gravel, trace Brick, trace Silt; dry to wet (fill)			
5				5
				Odor
			13.3	
10				10
	Brown to dark green fine to coarse SAND, little Gravel, trace Silt, trace Brick; wet (fill)		11.4	
	Brown fine to coarse SAND, little Gravel, trace Silt, trace Brick; wet (fill)		12.0	
15	Brown PEAT; moist			15
				Thickness of peat interval interpreted from previous Site investigation
	Brown medium to coarse SAND, little Silt, trace Gravel, trace Peat; wet		10.5	
				Slight odor
20				20
	Brown fine SAND, little Silt; wet			
			6.5	
25				25
	Brown fine SAND, little Silt; wet			Odor
			21.9	
30				30
	Brown fine SAND, little Silt; wet			
			3.8	
35				35
	Brown fine SAND, little Silt, trace Gravel; wet			
			6.4	
40				40
	Dark gray to light brown fine to medium SAND; wet			
			4.3	
45				45
	Dark gray to light brown fine to medium SAND, trace Silt, trace Gravel; wet			
			5.2	
50				50
				Bottom of well 49.5 feet below land surface.

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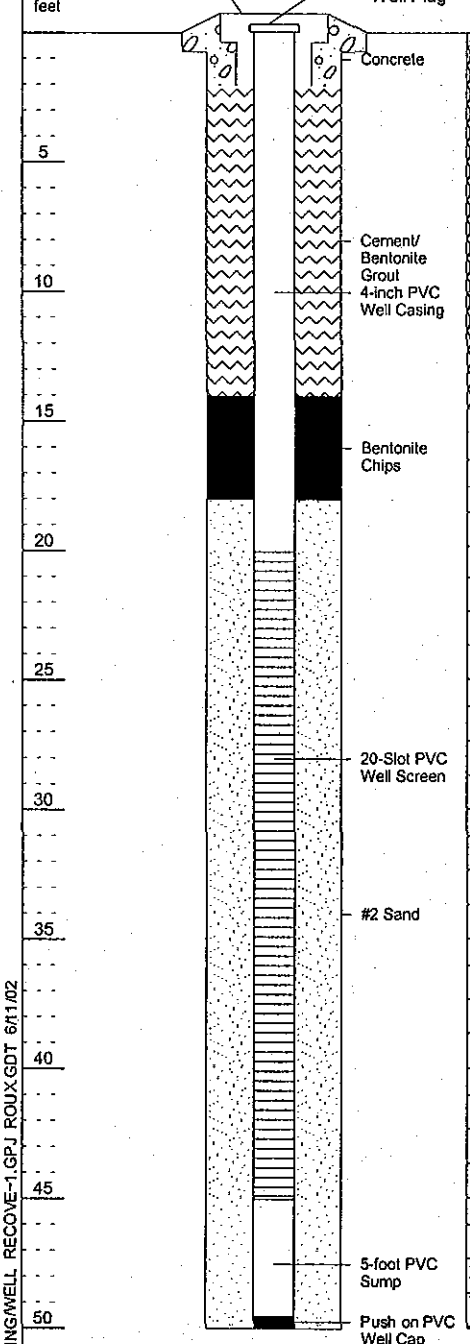
WELL CONSTRUCTION LOG

WELL NO. **RW-21**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **Off Site 12th Street Sidewalk**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **4/16/02-4/16/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	CONCRETE			
	Brown fine to coarse SAND, trace Gravel, trace Brick, trace Silt; dry to wet (fill)			
5				5
10				10
	Brown fine SAND, little Silt, trace coarse Sand; wet (fill)		32.1	
	Brown fine to coarse SAND, trace Silt, trace Gravel; wet (fill)		11.6	
15				15
	Brown Peat and green to gray Silt and Clay; moist		5.0	Thickness of peat interval interpreted from previous Site investigation
	Brown fine SAND, little Silt; wet			
20				20
	Brown fine SAND, little Silt, trace coarse Sand; wet		10.8	
25				25
	Brown fine SAND, little Silt; wet		52.9	Strong odor
30				30
	Brown fine SAND, little Silt; wet		87.4	Strong odor
35				35
	Brown fine SAND, little Silt; wet		28.6	Slight odor
40				40
	Brown fine SAND, little Silt; wet		18.8	Slight odor
45				45
	Brown fine SAND, little Silt; wet		16.4	Slight odor
50				50
				Bottom of well 50 feet below land surface

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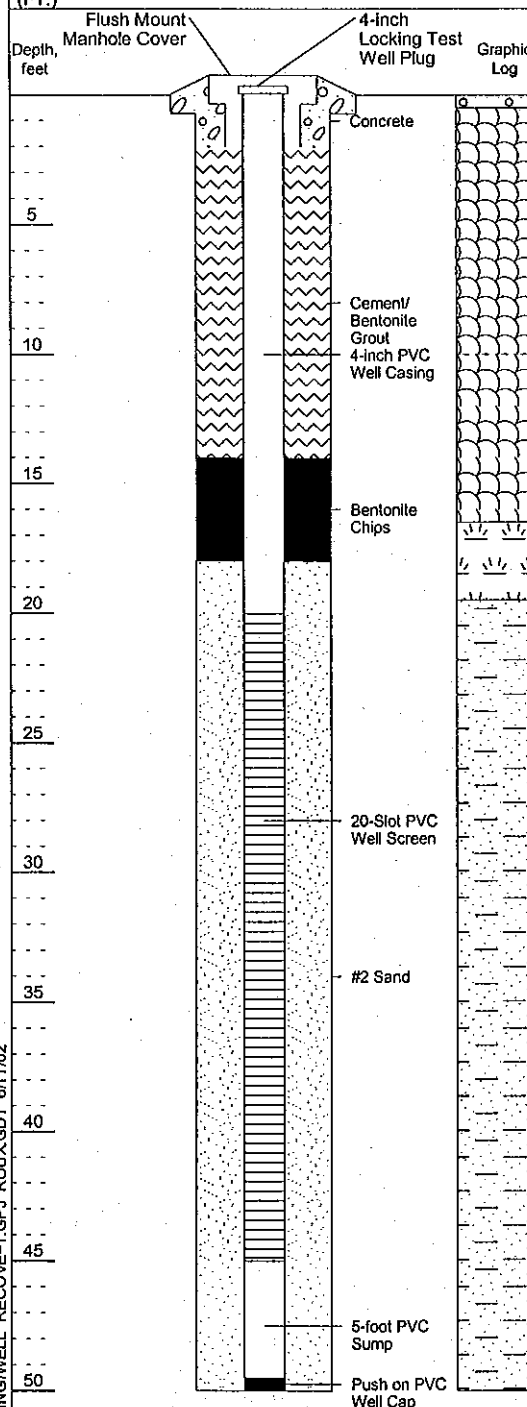
WELL CONSTRUCTION LOG

WELL NO. **RW-22**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **Off Site 12th Street Sidewalk**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **4/15/02-4/15/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	Concrete			
	Brown fine to coarse SAND, trace silt, trace Brick, trace Concrete, trace Gravel; dry to wet (fill)			
5				5
10	Brown fine SAND, trace Silt; wet (fill)		699	10
	Brown fine to coarse SAND, trace Silt; wet (fill)		>2000	Odor and black staining
15	Brown fine to coarse SAND, little silt; wet (fill)		5.7	15
	Brown fine SAND, little Silt; wet (fill)		3.7	
	PEAT, Green-Gray Clay and fine Sand		27.8	Thickness of peat interval interpreted from previous Site investigation
20	Brown to gray fine SAND, little Silt, trace coarse Sand, trace Gravel; wet		0.0	20
25	Brown to gray fine SAND, little Silt, trace coarse Sand, trace Gravel; wet		11.9	25
30	Brown to gray fine SAND, little Silt, trace coarse Sand, trace Gravel; wet		0.0	30
35	Brown to gray fine SAND, little Silt, trace coarse Sand, trace Gravel; wet		0.0	35
40	Brown fine SAND, little silt; wet		2.1	40
45	Brown fine SAND, little silt; wet		0.0	45
50				50

Bottom of well 50 feet below land surface

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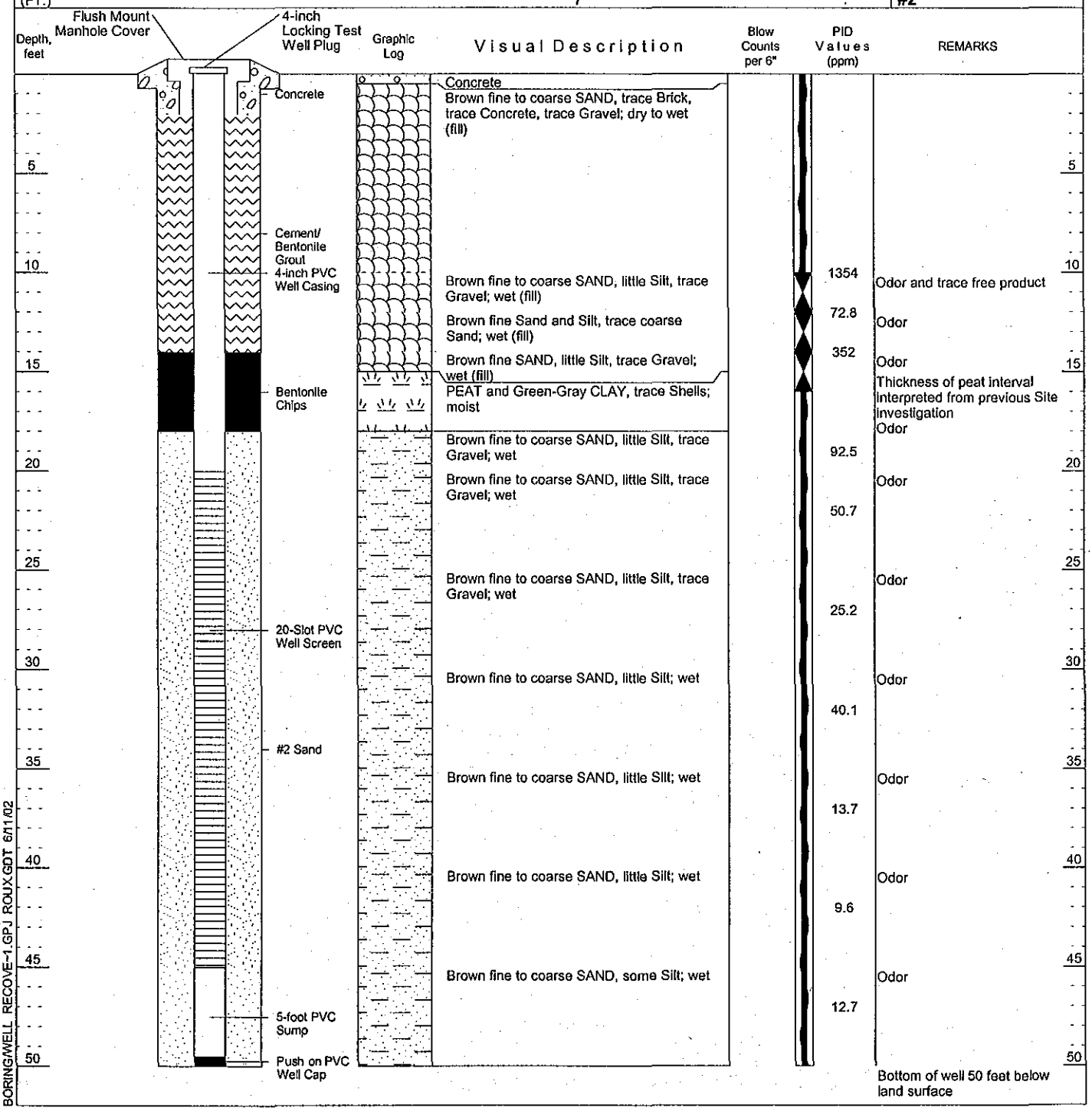
WELL CONSTRUCTION LOG

WELL NO. **RW-23**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **Off Site 12th Street Sidewalk**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **4/10/02-4/10/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



BORING/WELL RECOVE~1.GPJ ROUX.GDT 6/11/02

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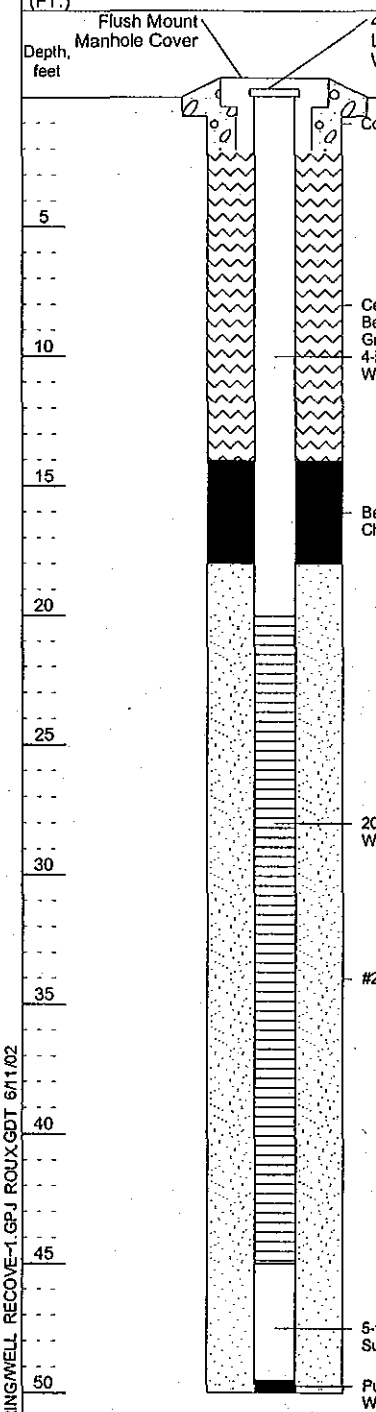
WELL CONSTRUCTION LOG

WELL NO. **RW-25**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **Off Site 12th Street Sidewalk**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **4/11/02-4/11/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	Concrete			
	Brown fine to coarse SAND, trace Brick, trace Concrete, trace Gravel; dry to wet (fill)			
5				5
10	Brown fine SAND, little Silt, trace Gravel; wet (fill)		8.1	10
	Brown fine to coarse SAND, little Silt, trace Gravel; wet (fill)		198	Odor
15	Brown fine to coarse SAND, little Silt, trace Gravel; wet (fill)		478	Odor 15
	PEAT and Green-Gray CLAY; moist			Odor
				Thickness of peat interval interpreted from previous Site investigation
20	Brown fine to coarse SAND, little Silt, trace Gravel; wet		518	20
	Brown fine to coarse SAND, little Silt, trace Gravel; wet		610	Odor
25	Brown fine to coarse SAND, little Silt; wet		31.4	25
30	Brown fine to coarse SAND, little Silt; wet		231	30 Odor
35	Brown fine SAND, little Silt, trace coarse Sand; wet		315	35 Odor
40	Brown fine SAND, some Silt, trace coarse Sand; wet		136	40 Odor
45	Brown fine Sand and Silt; wet		246	45 Odor
50				50

Bottom of well at 50 feet below land surface

BORING/WELL RECOVE-1.GPJ ROUX.GDT 6/11/02

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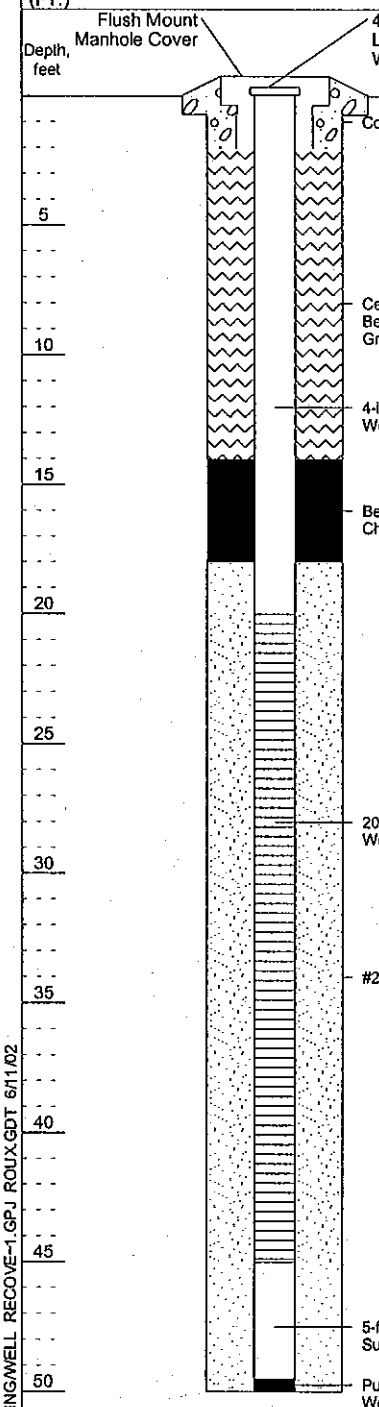
WELL CONSTRUCTION LOG

WELL NO. **RW-27**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **Off Site 12th Street Sidewalk**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **4/12/02-4/12/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	Concrete			
	Brown fine to coarse SAND, trace Brick, trace Concrete, trace Gravel; dry to wet (fill)			
5				5
10	Brown fine to coarse SAND, little Gravel; wet (fill)		1.7	10
	Brown fine to coarse SAND, little Gravel; wet (fill)		6.9	
15	Brown fine to coarse SAND, little Gravel, trace Silt; wet (fill)		3.1	15
	PEAT and Green-Gray CLAY; moist		2.7	Thickness of peat interval interpreted from previous Site investigation
20	Brown fine SAND, little Silt, trace Gravel, trace coarse Sand; wet			20
	Brown fine to coarse SAND, little Silt, trace Gravel; wet		17.7	
25	Brown fine SAND, little Silt; wet		32.4	25
30	Brown fine SAND, little Silt, trace coarse Sand; wet		3.8	30
35	Brown fine SAND, little Silt, trace coarse Sand; wet		5.2	35
40	Brown fine SAND, some Silt; wet		3.8	40
45	Brown fine SAND, some Silt; wet		7.1	45
50				50

Bottom of well 50 feet below land surface

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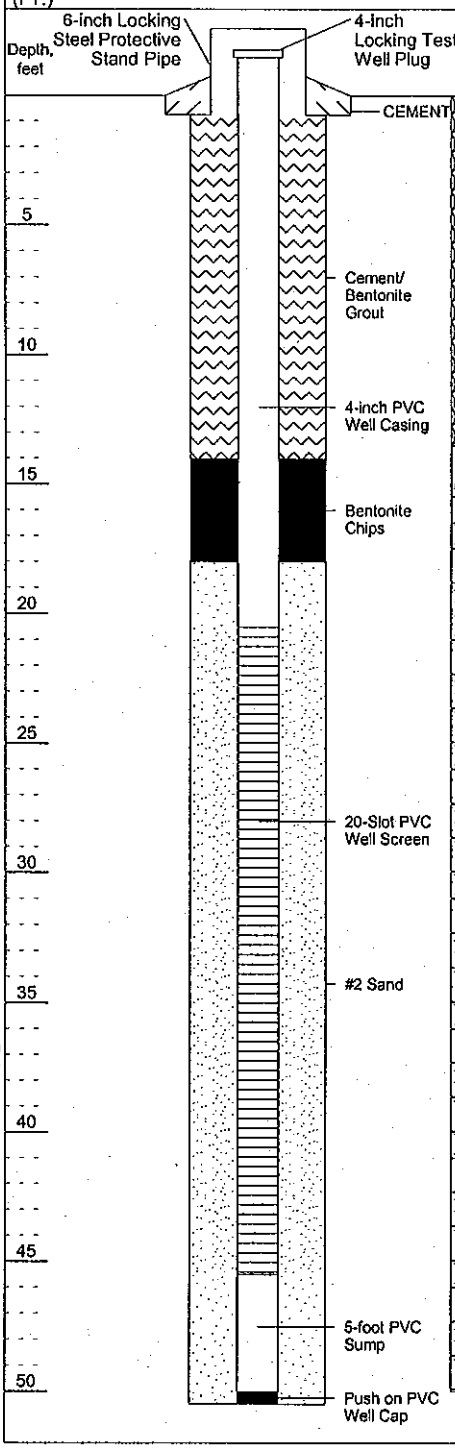
WELL CONSTRUCTION LOG

WELL NO. **RW-29**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along Pathmark Wall**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **4/25/02-4/25/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	Brown coarse to fine SAND, trace Silt, trace Brick, trace Gravel; dry to moist (fill)			
5	Black fine to coarse SAND, little Wood, trace Gravel; moist to wet (fill)		301	Odor and black staining
10	CONCRETE and WOOD; wet (fill)			Black staining
	Brown fine to medium SAND, little Silt, trace Gravel, wet (fill)		12.8	Black staining
15	Green to gray CLAY and PEAT; moist			Thickness of peat interval interpreted from previous Site investigation
	Gray fine SAND, little Silt, little Wood; wet		44.4	Black staining
20	Gray fine to coarse SAND, little Silt, trace Wood; wet		17.6	Odor and black staining
25	Gray fine SAND, some Silt, trace coarse SAND; wet		12.5	Odor and black staining
30	Gray to brown fine SAND, little Silt; wet		6.0	Odor
35	Gray to brown fine SAND, little Silt; wet		459	Odor
40	Brown fine to medium SAND, some Silt; wet		762	Odor and trace free product
45	Brown fine SAND, little Silt; wet		314	Odor
50				Bottom of well 50.5 feet below land surface

BORING/WELL RECOVE~1.GPJ ROUX.GDT 6/11/02

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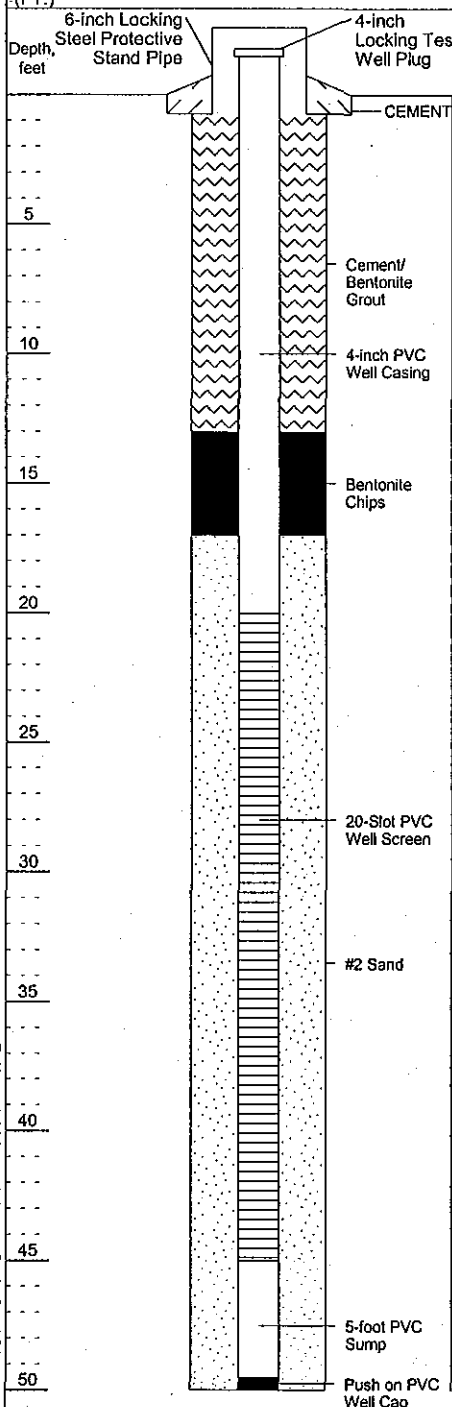
WELL CONSTRUCTION LOG

WELL NO. **RW-30**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along Pathmark Wall**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **4/26/02-4/26/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown coarse to fine SAND, trace Silt, trace Brick, trace Gravel; dry to moist (fill)			
5		Brown coarse to fine SAND, little Gravel; moist (fill)		228	Odor and black staining
10		Brown fine to coarse SAND, little Gravel, trace Wood, trace Brick; wet (fill)		5.7	
		Brown fine to medium SAND, trace Gravel, trace Silt; wet (fill)		6.2	
15		Brown fine SAND, little Silt, trace Gravel; wet (fill)		8.9	Odor and black staining
		Brown fine SAND, little Silt, trace Gravel; wet (fill)		8.7	Odor and black staining
		Gray fine to medium SAND, trace Silt, trace Peat; wet		10.4	Odor and black staining
20		Fine SAND, trace Silt; wet		22.2	Black staining
		Brown PEAT; moist			
		Brown fine SAND, little Silt; wet		13.3	Odor and black staining
25		Gray fine SAND, trace Silt; wet		12.7	Odor and black staining
30		Brown fine SAND, little Silt; wet		17.1	Odor and trace free product
35		Fine SAND, little Silt; wet		728	Odor, black staining, and free product
40		Fine SAND, little Silt; wet		1067	Odor, black staining, and free product
45		Fine SAND, little Silt; wet		840	Odor, black staining, and free product
50					Bottom of well 50 feet below land surface

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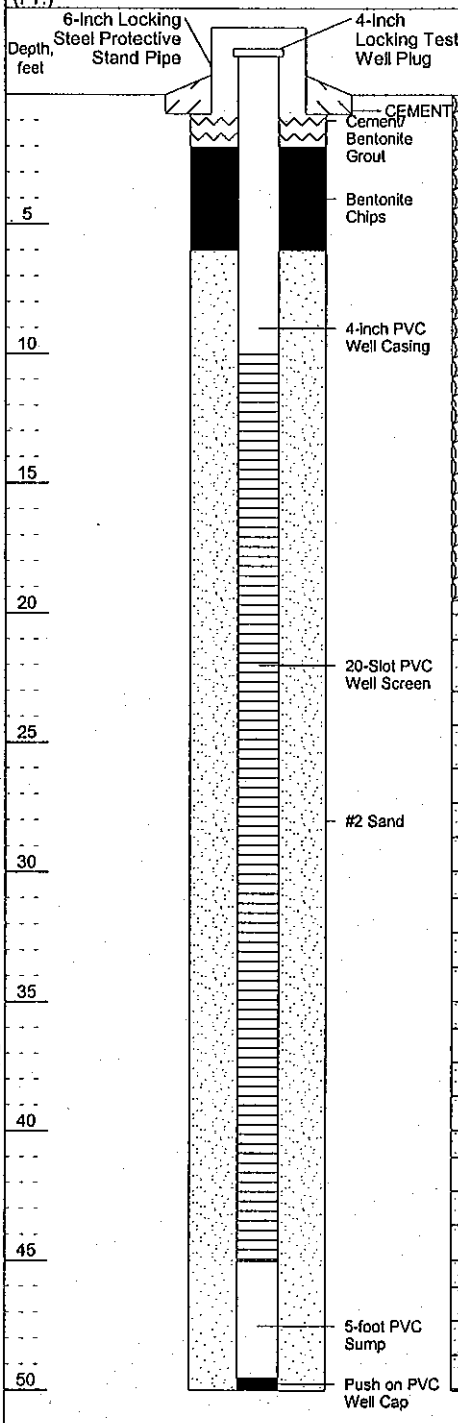
Fax: 631-232-9898

WELL CONSTRUCTION LOG

WELL NO. **RW-31**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along Pathmark Wall**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **4/29/02-4/29/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **35.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown coarse to fine SAND, trace Silt, trace Brick, trace Gravel; dry to moist (fill)			
5		Fine SAND, trace Silt; wet (fill)		945	Odor, black staining, and sheen
10					
		Brown fine to medium SAND, trace Silt, trace Brick, trace Gravel, trace Wood, trace Coal Fragments; wet (fill)		35.9	
15		Brown fine to medium SAND, some Silt, trace Gravel; wet (fill)		26.3	
		Brown fine to coarse SAND, little Silt, trace Gravel; wet (fill)		>2000	Odor
		Brown fine to coarse SAND, little Silt, trace Gravel; wet (fill)		886	Odor, black staining, and trace free product
20		Brown PEAT; moist		>2000	Odor and free product
		Brown fine to coarse SAND, little Silt, trace Gravel; wet			
		Brown fine SAND, little Silt; wet		1349	
25		Gray to brown fine SAND, little Silt, trace coarse SAND; wet		257	Odor and trace free product
30		Gray to brown fine SAND, little Silt, trace coarse SAND; wet		192	Odor and trace free product
35		Gray to brown fine SAND, little Silt, trace coarse SAND; wet		254	Odor and trace free product
40		Gray to brown fine SAND, little Silt, trace coarse SAND; wet		415	Odor and trace free product
45		Gray to brown fine SAND, some Silt; wet		785	Odor and trace free product
50					Bottom of well 50 feet below land surface

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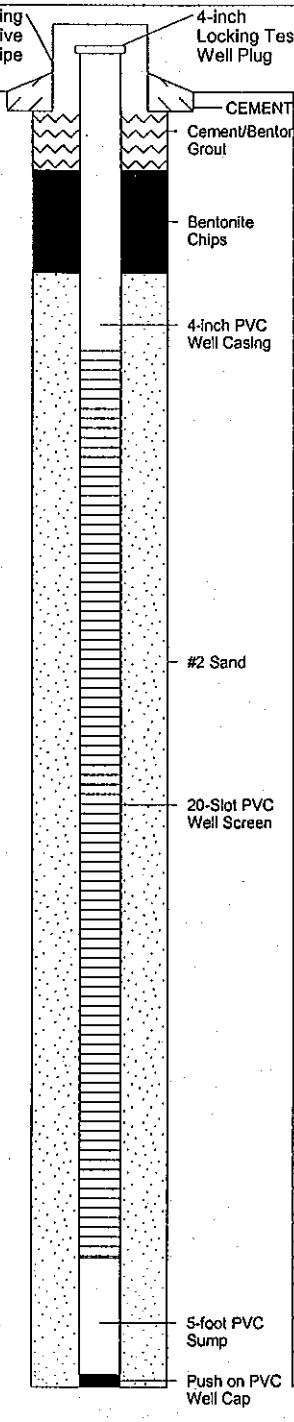
WELL CONSTRUCTION LOG

WELL NO. **RW-32**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along Pathmark Wall**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **4/30/02-4/30/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **35.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown coarse to fine SAND, trace Silt, trace Brick, trace Gravel; dry to moist (fill)			
5		Gray-brown fine to coarse SAND, trace Silt, trace Gravel; moist (fill)		21.1	
10		Gray-brown medium SAND, trace Silt, trace Gravel, trace coarse Sand; moist (fill)		13.8	Odor, sheen
15		Brown coarse to fine Sand, little Silt, trace Gravel; moist (fill)		6.5	Odor, trace black staining
		Brown fine to medium SAND, little Silt, trace coarse Sand; wet (fill)		7.3	Odor
		Brown fine to coarse SAND, little Silt; wet		15.3	
20		Gray-brown fine SAND, little Silt, trace coarse Sand; wet		36.0	Odor, sheen
25		Gray-brown fine SAND, little Silt, trace coarse Sand; wet		87.4	Odor, sheen
30		Gray-brown fine SAND, little Silt, trace coarse Sand; wet		118	Odor, sheen
35		Brown fine SAND, some Silt; wet		67.4	Odor
40		Brown fine to medium SAND, little Silt; wet		107	Odor
45		Brown fine SAND, some Silt; wet		68.9	Odor
50					Bottom of well 50 feet below land surface

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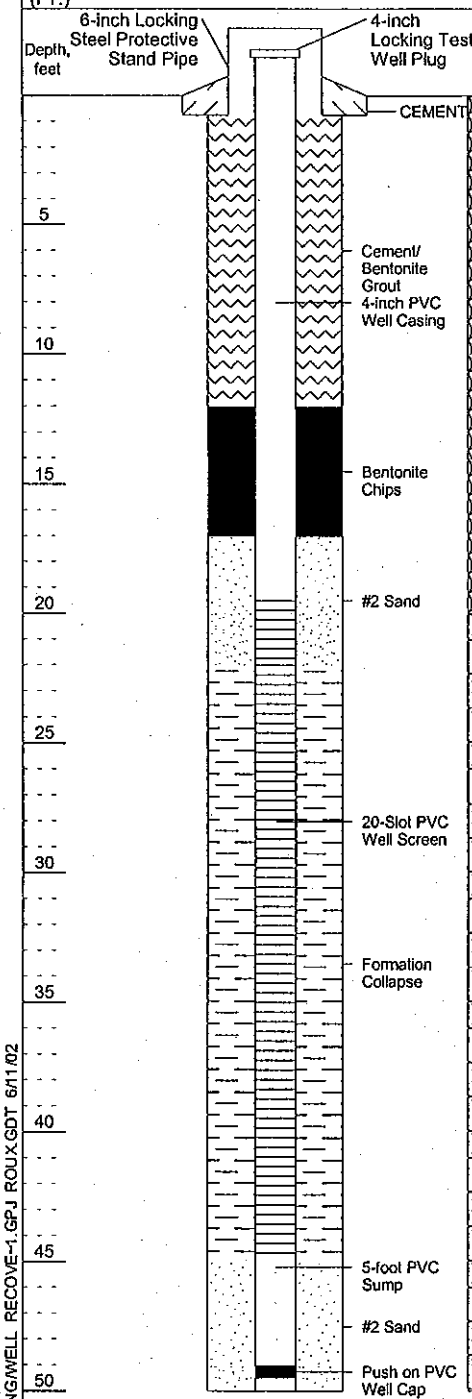
WELL CONSTRUCTION LOG

WELL NO. **RW-33**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along Pathmark Wall**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **5/1/02-5/1/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	Brown coarse to fine SAND, trace Silt, trace Brick, trace Gravel; dry to moist (fill)			
5	Brown fine to coarse SAND, little Silt; wet (fill)		0.0	
10	Brown fine SAND, some Silt; wet (fill)		1.3	
15	Brown fine SAND, some Silt, trace coarse Sand, trace Gravel; wet (fill)		8.3	
	Brown to Black stained fine to coarse SAND, trace Gravel; wet (fill)		0.0	Trace free product
20	Gray-brown fine to medium SAND, little Silt, trace Gravel; Wet		0.0	
25	Brown fine SAND, little Silt, trace coarse Sand; wet		439	Odor
30	Brown fine SAND, little Silt, trace coarse Sand; wet		7.2	Odor
35	Brown fine SAND, some Silt; wet		18.4	
40	Brown fine SAND, some Silt; wet		79.5	Odor
45	Brown fine SAND, some Silt, trace coarse Sand; wet		194	Odor
50				Bottom of well 49.5 feet below land surface

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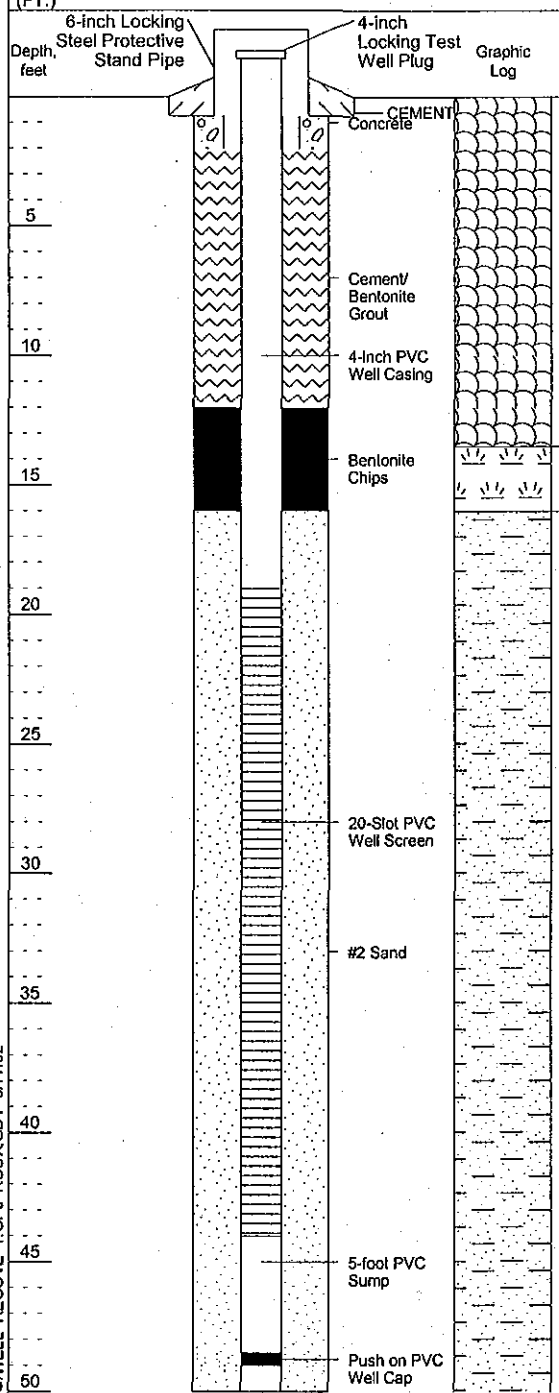
WELL CONSTRUCTION LOG

WELL NO. **RW-34**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along 12th Street**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **5/3/02-5/3/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, little Silt, trace Gravel; moist to wet at appoximately 7 ft bls (fill)			
5				31.2	
10		Brown fine to coarse SAND, trace Silt, trace Gravel; wet (fill)		10.3	
		Brown fine sand, little Silt, trace coarse Sand; wet (fill)		17.1	
15		Green-gray CLAY and PEAT; moist		47.4	Thickness of peat interval interpreted from previous Site investigation
		Brown fine SAND, little Silt, trace coarse Sand; wet			Odor
20		Gray-brown fine SAND, little Silt, trace Gravel; wet		26.9	Odor, sheen
25		Gray-brown fine SAND, some Silt; wet		16.6	Odor
30		Gray-brown fine SAND, some Silt; wet		24.3	Odor
35		Gray-brown fine SAND, some Silt, trace coarse Sand; wet		107	Odor, sheen
40		Brown fine SAND, little Silt; wet		126	Odor
45		Brown fine SAND, little Silt; wet		134	Odor
50					Bottom of well 49 feet below land surface

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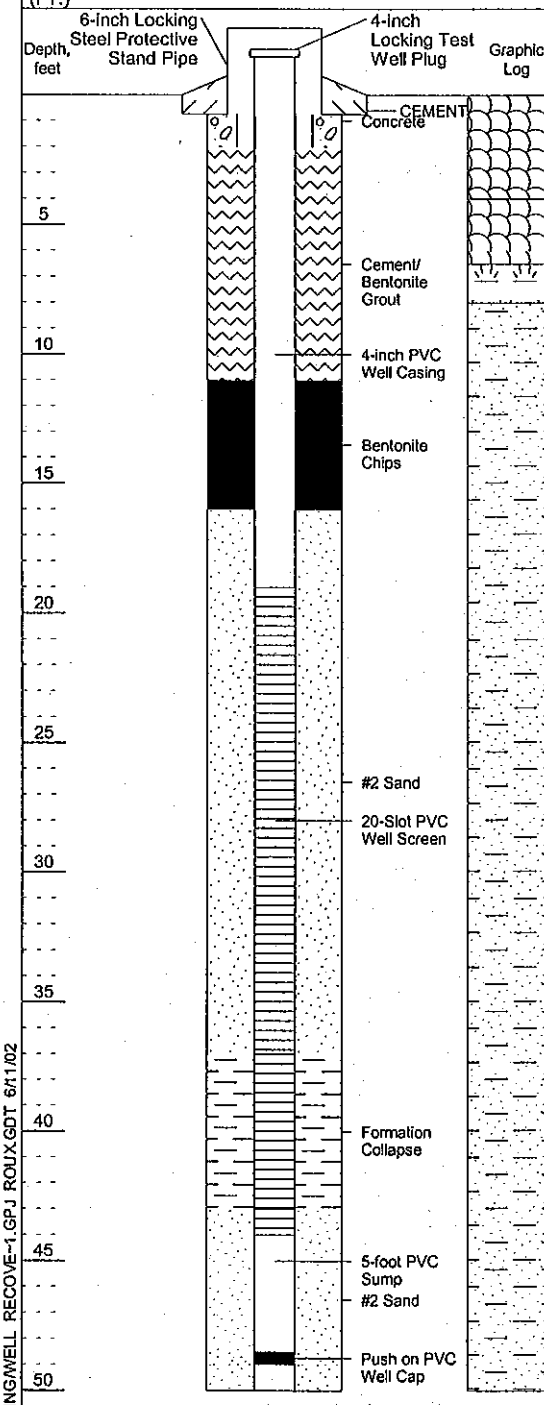
WELL CONSTRUCTION LOG

WELL NO. **RW-35**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along 12th Street**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **5/6/02-5/8/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, trace silt, trace gravel, trace brick; moist (fill)			
5		Black fine SAND, trace Silt; moist to wet at approximately 5.5 ft bls (fill)		>2000	Odor, trace free product
		Black fine SAND, little Silt; wet (fill)		>2000	Odor, free product
		Green-gray CLAY and PEAT; moist			
		Black to brown fine SAND and SILT; wet		872	Odor, free product
10					
		Brown to black fine SAND, some Silt, trace coarse Sand; wet			
15				272	Odor
20		Gray-brown fine SAND, little Silt, trace Clay, trace Peat; wet		311	
25		Brown fine SAND, little Silt; wet		182	Odor
30		Brown fine SAND, little Silt; wet		158	Odor
35		Brown fine SAND, little Silt, trace coarse Sand; wet		552	Odor, trace free product
40		Gray-brown fine to medium SAND, little Silt; wet		918	Trace free product
45		Gray-brown fine to medium SAND, little Silt; wet		723	Trace free product
50					Bottom of well 49 feet below land surface

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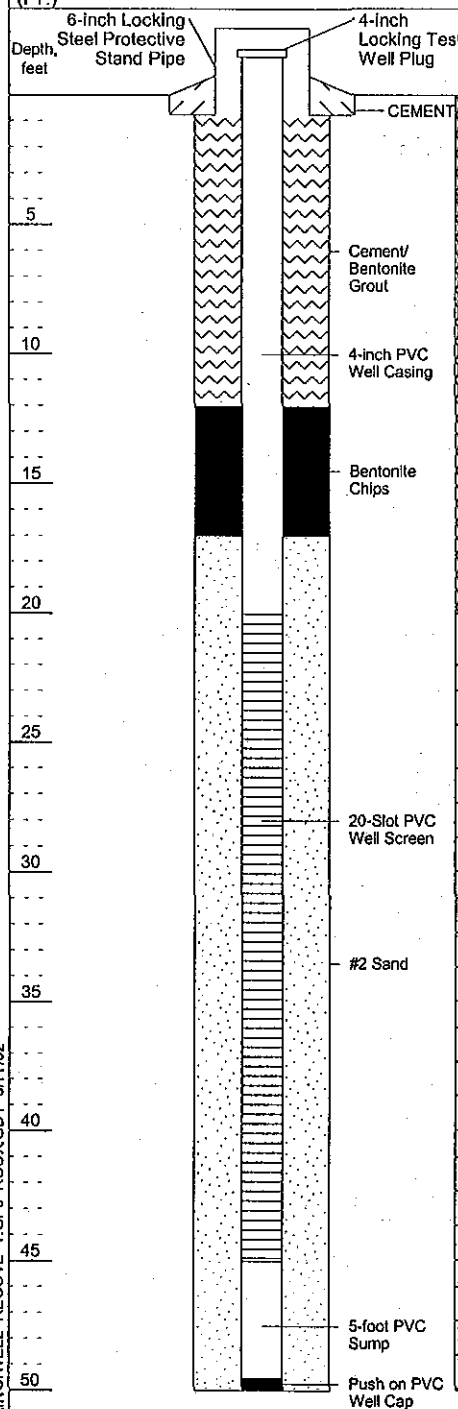
WELL CONSTRUCTION LOG

WELL NO. **RW-36**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along 12th Street**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **5/6/02-5/7/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, trace silt, trace gravel, trace brick; moist (fill)			
5		Black fine SAND, some Silt; wet (fill)		94.3	Odor
		Brown to black fine SAND, some Silt, trace Clay, trace Coal, trace Shells, trace Gravel; wet (fill)		199	Odor
		Black fine SAND, little silt; wet(fill)		8.7	Odor, trace free product
10					
		Brown to black fine to coarse SAND, little Silt, trace Gravel; wet (fill)		35.0	Odor, trace free product, sheen
		Brown to black fine SAND, little Silt, trace Wood; wet (fill)		51.2	
15		Brown to black fine to medium SAND, little Silt; wet (fill)		109	Odor
		Grey-brown fine SAND, some Silt; wet (fill)		22.9	Odor
20		Brown fine to coarse SAND; wet (fill)		5.0	
		Green-grey CLAY and PEAT; moist			Thickness of peat interval interpreted from previous Site Investigation
		Grey to black fine to coarse SAND, little Silt, trace Gravel; wet		>2000	Odor, trace free product
25		Grey to black fine to coarse SAND, little Silt, trace Gravel; wet		111	Odor, trace free product
30		Grey-brown fine to coarse SAND, little Silt, trace Gravel; wet		>2000	Odor, trace free product
35		Grey-brown fine to coarse SAND, little Silt, trace Gravel; wet		>2000	Odor, trace free product
40		Brown fine SAND, little Silt, trace coarse Sand; wet		1785	Odor, trace free product
45		Brown to light brown fine SAND, some Silt; wet		708	Odor, free Product
50					Bottom of well 50 feet below land surface

BORING/WELL RECOVE~1.GPJ ROUX.GDT 6/11/02

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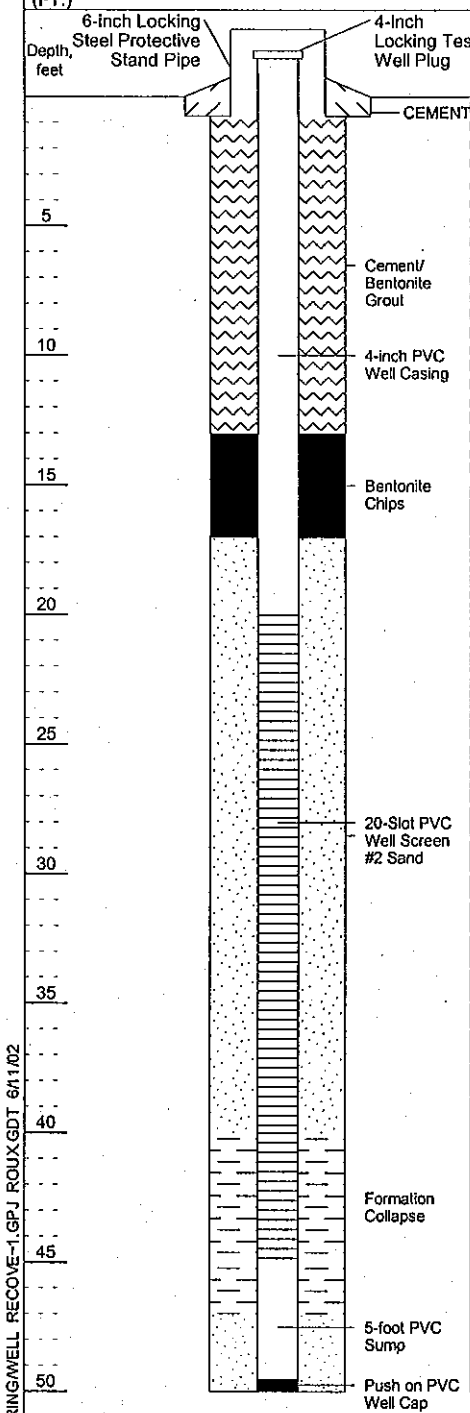
WELL CONSTRUCTION LOG

WELL NO. **RW-37**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along 12th Street**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **5/9/02-5/9/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, trace Gravel, trace Silt, trace Brick; moist to wet (fill)			
5					
		Brown to black fine to medium SAND, little Silt, trace Gravel, trace Coal; wet (fill)		1271	Odor
10		Brown-green to black fine SAND, little Silt, trace Gravel, trace Wood; wet (fill)		1197	Odor
		Brown fine to medium SAND, trace Gravel, trace Silt; wet (fill)		380	
15		Brown-green fine SAND, some Silt; wet (fill)		158	
		Green-grey CLAY and PEAT; moist		252	Thickness of peat interval interpreted from previous Site investigation
20		Brown fine SAND, little Silt, trace coarse SAND, trace Gravel; wet			
		Brown fine SAND, little Silt, trace coarse SAND; wet		207	Odor
25		Brown fine SAND, little Silt, trace coarse SAND; wet		664	Odor
30		Brown fine SAND, little Silt; wet		775	Odor
35		Brown fine SAND, little Silt; wet		1345	Odor
40		Brown fine SAND, little Silt; wet		1489	Odor, trace free product
45		Brown fine SAND, little Silt; wet		1183	Odor, trace free product
50					Bottom of well at 50 ft bls

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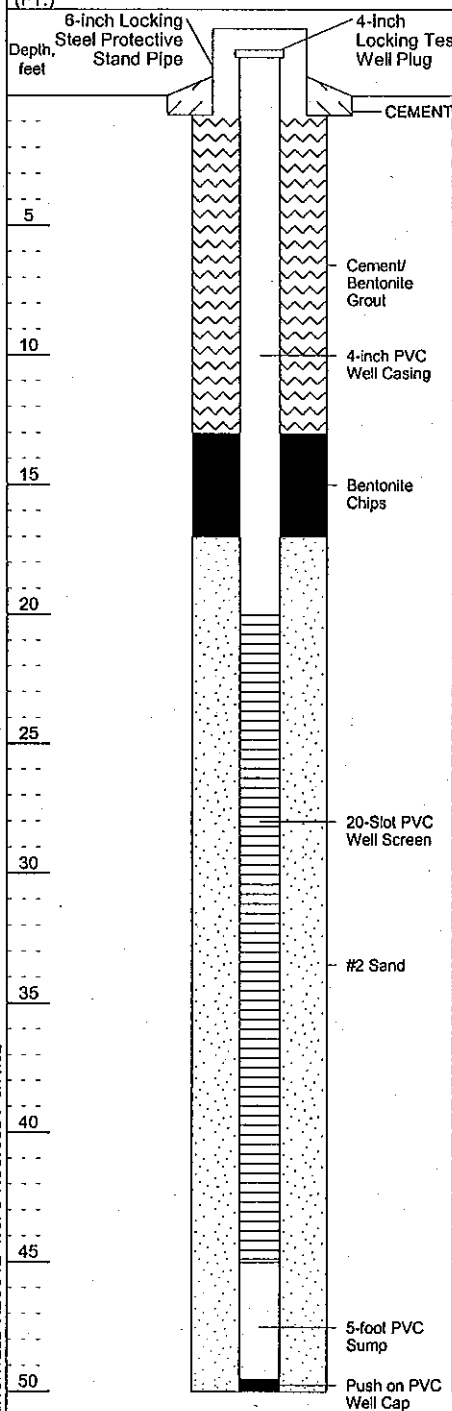
WELL CONSTRUCTION LOG

WELL NO. **RW-38**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along 12th Street**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **5/10/02-5/10/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted** MAT. **SCH 40 PVC** TOTAL LENGTH **25.0** DIA. **4-inch** SLOT SIZE **20-Slot**			
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown fine to coarse SAND, trace Gravel, trace Silt, trace Brick; moist (fill)			
5					
10		Brown fine to coarse SAND, little Silt, trace Gravel; moist (fill)		35.4	Odor
		Brown fine to coarse SAND, little Silt, trace Gravel; moist (fill)		867	Odor
15		Brown fine SAND, little Silt, trace coarse Sand; wet (fill)		>2000	Odor
		Brown fine SAND, little Silt, trace coarse Sand; wet (fill)		6.9	
		Green-gray CLAY and PEAT; moist			Thickness of peat interval interpreted from previous Site investigation
20		Gray-brown fine to coarse SAND, little Silt, trace Gravel; wet		96.6	Odor
25		Gray-brown fine to coarse SAND, little Silt, trace Gravel; wet		381	Odor
30		Gray-brown fine to coarse SAND, little Silt, trace Gravel; wet		874	Odor
35		Gray-brown fine to medium SAND, little Silt; wet		1341	Odor
40		Brown fine SAND, some Silt; wet		1033	Odor, trace free product
45		Gray-brown fine to medium SAND, little Silt; wet		1271	Odor, trace free product
50					Bottom of well 50 feet below land surface

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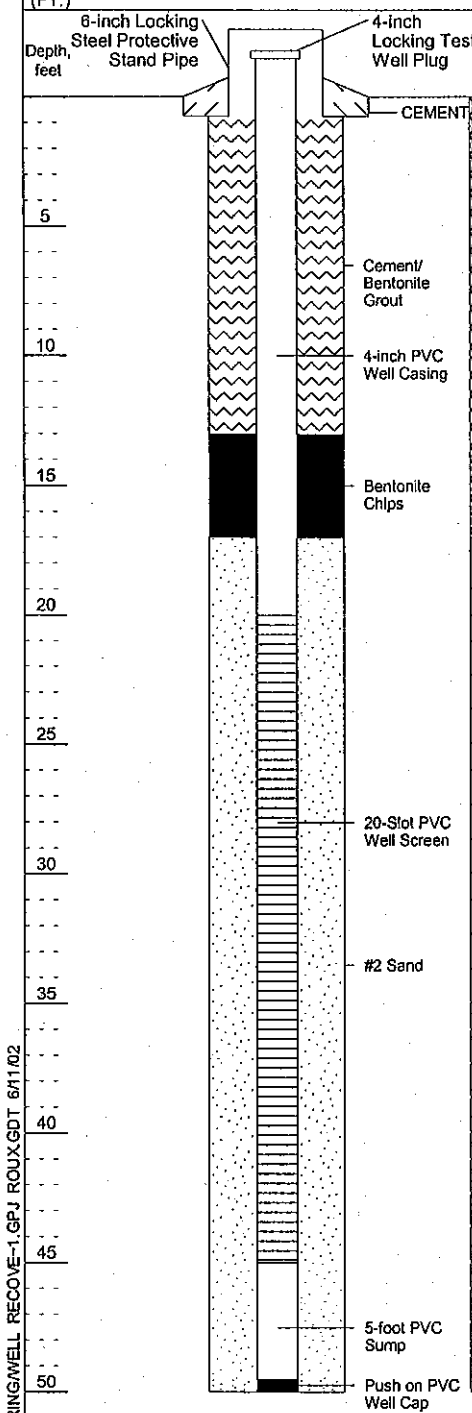
WELL CONSTRUCTION LOG

WELL NO. **RW-39**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **R. Kovacks**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along 12th Street**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **5/13/02-5/13/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown coarse to fine SAND, trace Gravel, trace Silt, trace Brick, trace Cobbles; moist (fill)			
5					
10		Brown medium to fine SAND, trace Silt, trace Gravel; moist (fill)		19.9	Slight odor
		Brown to reddish brown fine SAND, some Silt; moist (fill)		762	Slight odor
15		Brown to reddish brown fine SAND, some Silt; wet (fill)		659	Odor
		Brown to reddish brown fine SAND, some Silt, trace coarse SAND; wet (fill)			Odor
		Peat			Thickness of peat interval interpreted from previous Site investigation
20		Gray to brown medium SAND, some Silt; wet			Odor
25		Gray-brown fine SAND, some Silt; wet		129	Odor
30		Gray-brown fine SAND, some Silt; wet		421	Odor
35		Gray-brown fine SAND, some Silt; wet		>2000	Odor
40		Gray-brown fine SAND, some Silt; wet		1200	Odor, trace free product
45		Gray-brown fine SAND, trace Silt, trace Gravel; wet		1421	Trace free product
50					Bottom of well 50 feet below land surface

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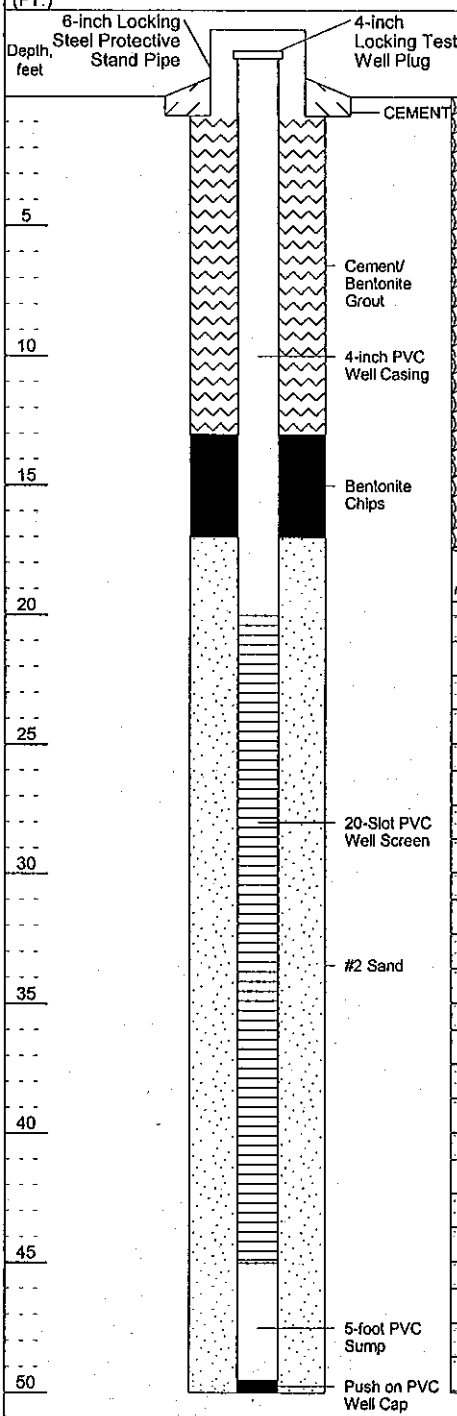
WELL CONSTRUCTION LOG

WELL NO. **RW-40**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **On Site Along 12th Street**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **5/14/02-5/14/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown to black stained fine to medium SAND, little Silt, trace coarse SAND, trace Gravel; wet (fill)		17.1	
5					Odor
10		Gray-brown fine SAND, some Silt; wet (fill)		10.1	Odor
15		Brown fine to medium SAND, little Silt; wet (fill)		22.8	Odor
		Brown fine to coarse SAND, little Silt; wet (fill)		21.3	Odor
		Green-gray CLAY and PEAT; moist			Thickness of peat interval interpreted from previous Site investigation
20		Gray-brown fine to medium SAND, little Silt; wet		29.2	Odor
25		Gray-brown fine SAND, some Silt; wet		35.1	
30		Grey-brown fine SAND, some Silt; wet		65.2	Odor
35		Grey-brown fine SAND, some Silt; wet		149	Odor
40		Grey-brown fine SAND, some Silt; wet		78.1	Odor, trace free product
45		Brown fine SAND, little Silt; wet		522	Odor, trace free product
50					Bottom of well 50 feet below land surface

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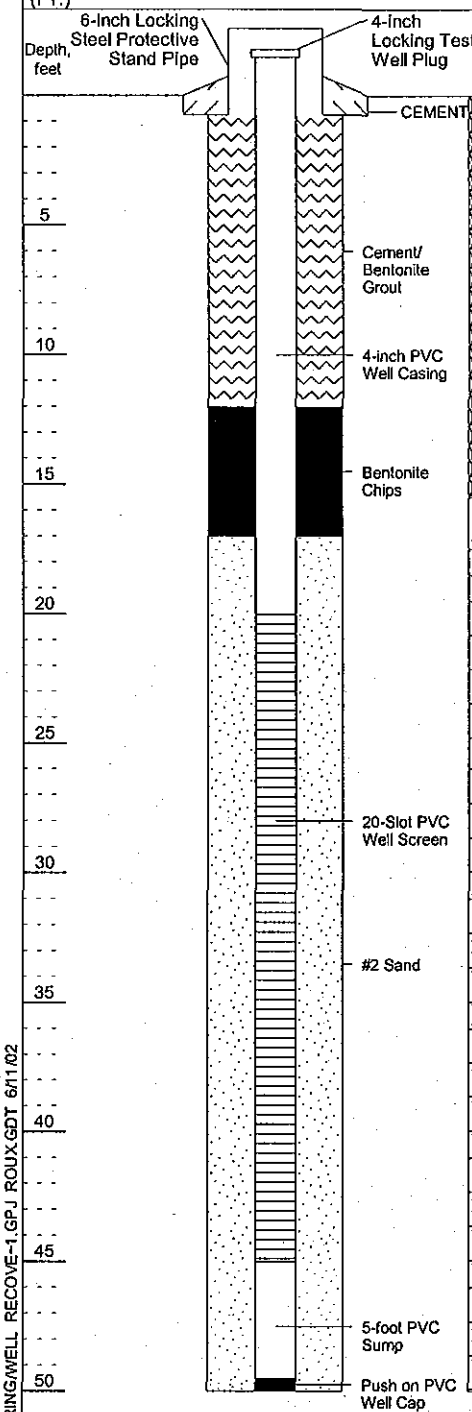
WELL CONSTRUCTION LOG

WELL NO. **RW-41**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **Off Site 12th Street Sidewalk**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **5/16/02-5/16/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Brown to black stained fine to medium SAND, little Silt, trace coarse SAND, trace Gravel; wet (fill)			
5					
10		Brown fine to coarse SAND, trace Silt, trace Gravel; wet (fill)		166	Odor
		Brown fine to coarse SAND, trace Silt, trace Gravel; wet (fill)		1526	Odor
15		Brown fine to coarse SAND, trace Silt; wet (fill)		713	Odor
		Green-gray CLAY and PEAT; moist			Thickness of peat interval interpreted from previous Site Investigation
20		Brown fine SAND, little Silt, trace coarse Sand; wet		23.5	Odor
25		Brown to black fine SAND, little Silt, trace coarse Sand; wet		1029	Odor
30		Brown fine SAND, little Silt, trace coarse Sand; wet		1785	Odor, trace free product
35		Brown fine SAND, little Silt, trace coarse Sand; wet		>2000	Odor, trace free product
40		Brown fine to medium SAND, little Silt; wet		1527	Odor, trace free product
45		Brown fine to medium SAND, little Silt; wet		>2000	Odor, trace free product
50					Bottom of well 50 feet below land surface

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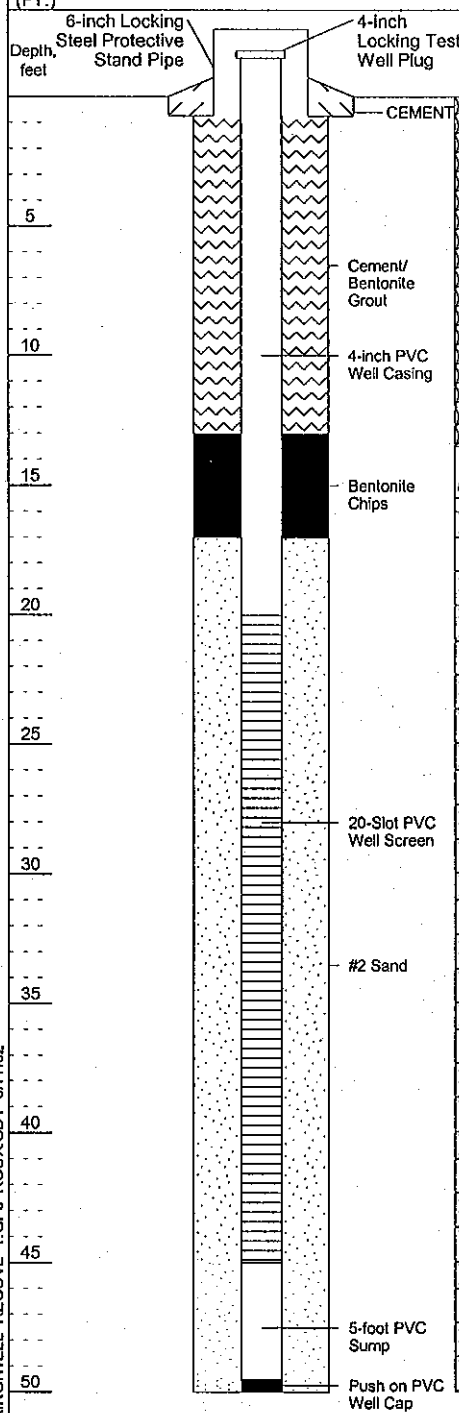
WELL CONSTRUCTION LOG

WELL NO. **RW-42**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **Off Site 12th Street Sidewalk**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **5/17/02-5/17/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC**	TOTAL LENGTH **25.0**	DIA. **4-inch** SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN **/**	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	Brown to black stained fine to medium SAND, little Silt, trace coarse SAND, trace Gravel; wet (fill)			
5				5
10				10
	Brown to black fine to medium SAND, trace Gravel, trace Silt, trace Coarse Sand; wet (fill)		>2000	Odor
15	PEAT; moist			Thickness of peat interval interpreted from previous Site investigation 15
	Brown fine to coarse SAND, trace Silt, trace Gravel; wet		>2000	
20	Gray-brown fine to medium SAND, little Silt, trace coarse Sand; wet		>2000	Odor 20
25	Gray-brown fine to medium SAND, little Silt, trace coarse Sand; wet		520	Odor 25
30	Gray-brown fine to medium SAND, little Silt, trace coarse Sand; wet		54.9	Odor, free product 30
35	Gray-brown fine SAND, little Silt, trace coarse Sand; wet		280	Odor, free product 35
40	Gray-brown fine to coarse SAND, little Silt; wet		>2000	Odor, free product 40
45	Gray-brown fine to coarse SAND, little Silt; wet		>2000	Odor, free product 45
50				Bottom of well 50 feet below land surface 50

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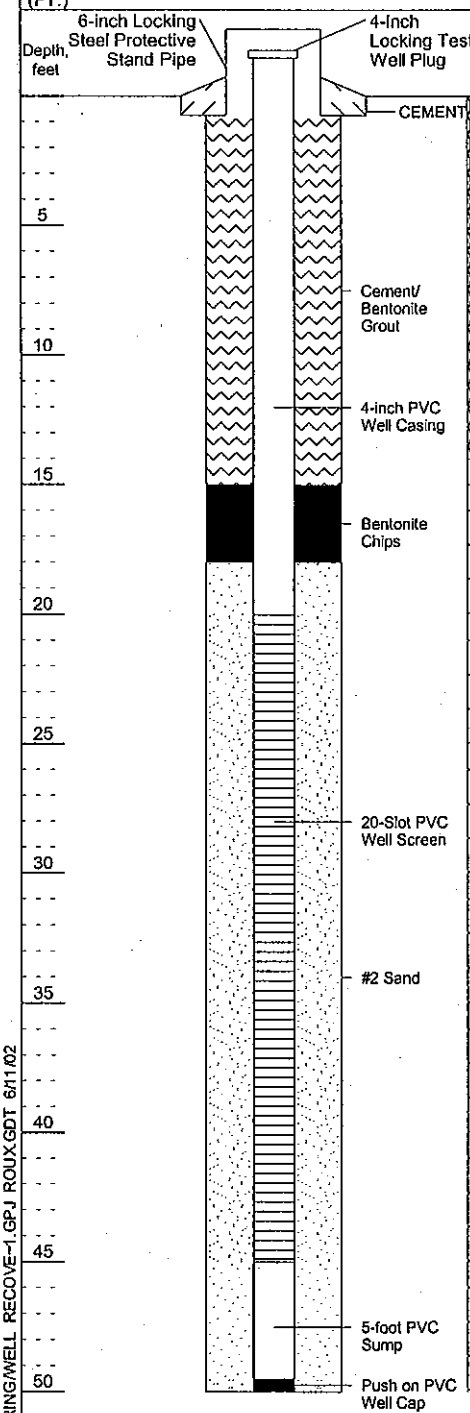
WELL CONSTRUCTION LOG

WELL NO. **RW-43**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **M. Kroll**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **Off Site 12th Street Sidewalk**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **5/20/02-5/20/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted**	MAT. **SCH 40 PVC** TOTAL LENGTH **25.0**	DIA. **4-inch**	SLOT SIZE **20-Slot**
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN **/**	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
5		Brown to black stained fine to medium SAND, little Silt, trace coarse SAND, trace Gravel; wet (fill)			
10					
		Grey to light brown fine to medium SAND, some Silt, little Clay; wet		268	Slight odor, some staining
15		PEAT		>2000	Slight odor, some staining
		Brown fine to coarse SAND, some Silt; wet		>2000	
20		Brown fine to medium Sand and Silt, some Clay, trace Gravel; wet		907	Odor
25		Brown fine to medium Sand and Silt, some Clay, trace Gravel; moist		1235	Odor
30		Brown fine to coarse SAND, some Silt and Clay; wet		>2000	Odor
35		Brown fine to coarse SAND, some Silt and Clay; wet		1226	Odor
40		Brown fine to coarse SAND, some Silt and Clay; wet		>2000	Odor
45		Brown fine to coarse SAND, some Silt and Clay; wet		>2000	Odor
50					Bottom of well 50 feet below land surface

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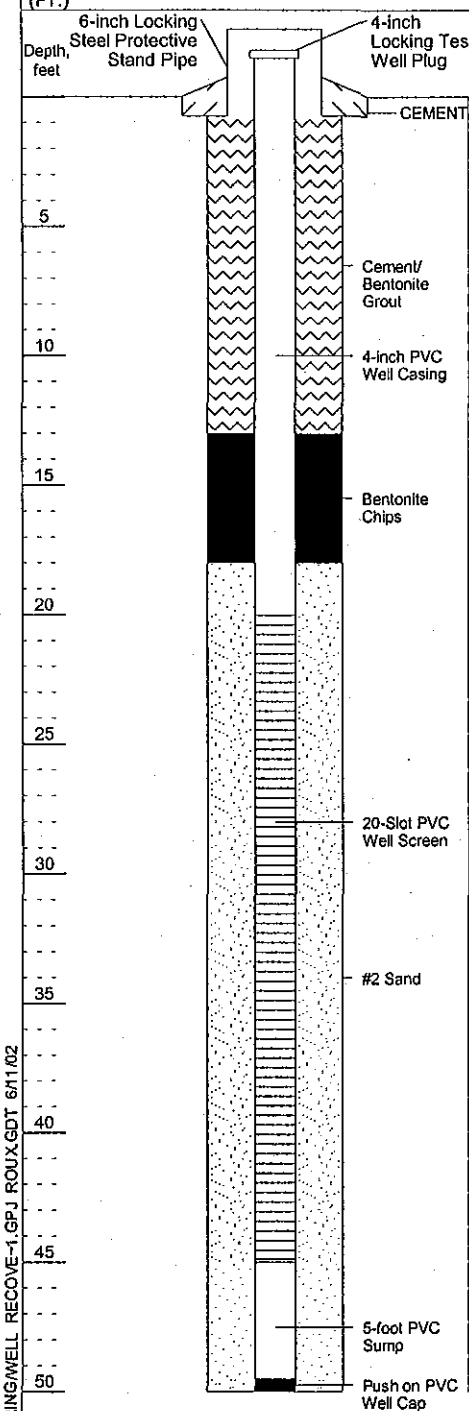
WELL CONSTRUCTION LOG

WELL NO. **RW-44**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **Off Site 12th Street Sidewalk**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **5/21/02-5/21/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted** MAT. **SCH 40 PVC** TOTAL LENGTH **25.0** DIA. **4-inch** SLOT SIZE **20-Slot**			
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	Brown fine to coarse SAND, trace Silt and Gravel; wet (fill)		32.7	
5				
10				
	Brown gray fine to medium SAND, little Silt; wet		0.0	
15				
	Brown PEAT and green-gray Clay			
	Brown fine SAND, some Silt, trace coarse Sand and Gravel; wet		3.7	
20				
25	Brown fine SAND, some Silt, trace coarse Sand and Gravel; wet		41.7	
30	Brown fine SAND, some Silt; wet		45.3	Organic odor
35	Brown fine SAND, little silt, trace coarse Sand; wet		77.2	Odor
40	Brown fine SAND, some Silt; wet		137	Odor
45	Brown fine SAND, some Silt; wet		87.6	Odor, free product
50				Bottom of well 50 feet below land surface

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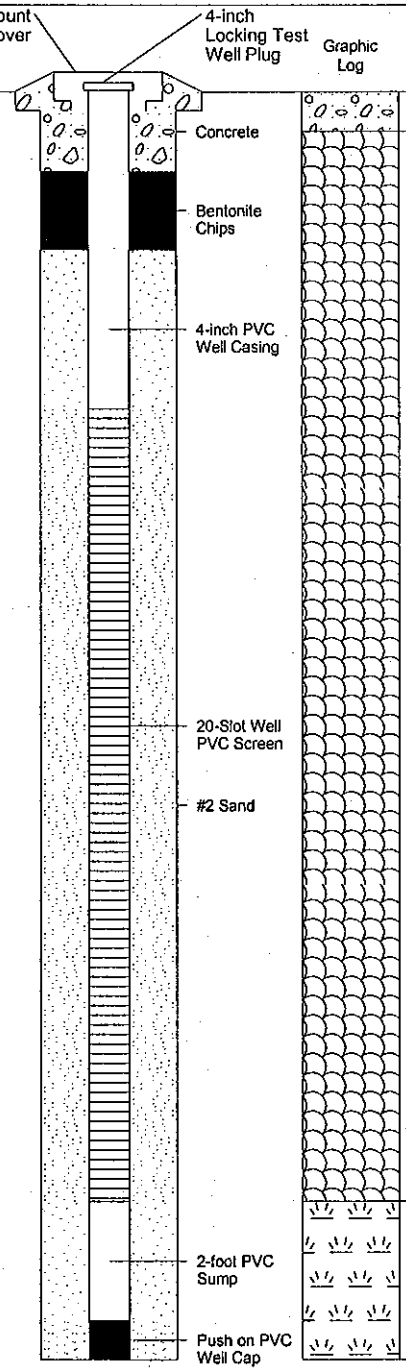
WELL CONSTRUCTION LOG

WELL NO. **RW-1S**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **Off Site 12th Street Sidewalk**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **4/22/02-4/22/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted** MAT. **SCH 40 PVC** TOTAL LENGTH **10.0** DIA. **4-inch** SLOT SIZE **20-Slot**			
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
		Concrete			
		Brown fine to coarse SAND, little Silt, trace Gravel, trace Concrete; dry to wet at 3 feet (fill)			
5		Brown fine to coarse SAND, little Silt, trace Gravel; wet (fill)			5
				12.1	Odor
10		Brown fine to coarse SAND, little Silt, trace Gravel; wet (fill)			10
				23.8	Odor
15		PEAT and green-grey CLAY; moist			15
					Bottom of well at 16 feet below land surface

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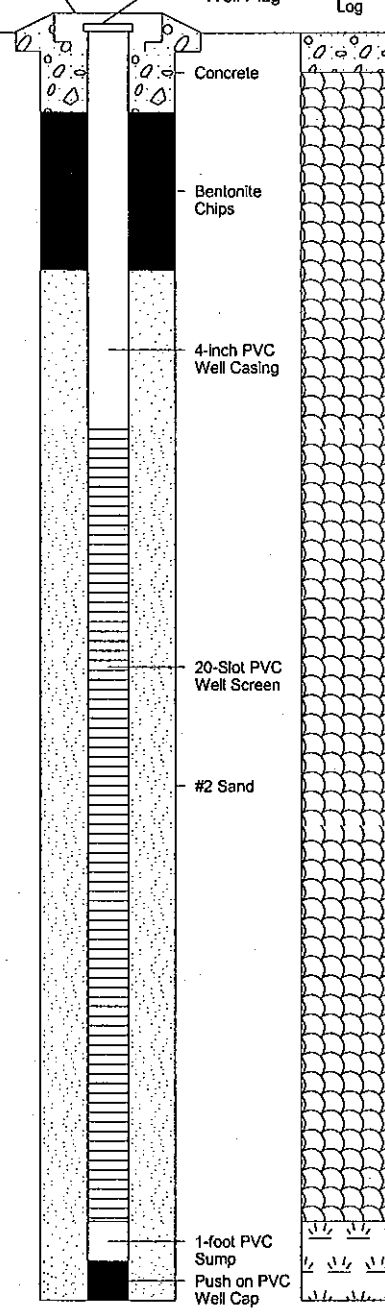
WELL CONSTRUCTION LOG

WELL NO. **RW-2S**	NORTHING	EASTING		
PROJECT NO./NAME **92401Y03 / FC Gowanus former MGP Site**		LOCATION **124-136 2nd Avenue**		
APPROVED BY **G. Tyers**	LOGGED BY **D. Moss**	**Brooklyn, New York**		
DRILLING CONTRACTOR/DRILLER **Aquifer Drilling & Testing, Inc. / L. Adams**		GEOGRAPHIC AREA **Off Site 12th Street Sidewalk**		
DRILL BIT DIAMETER/TYPE **6.25-in. / Auger**	BOREHOLE DIAMETER **10-inches**	DRILLING EQUIPMENT/METHOD **CME-75 / HSA**	SAMPLING METHOD **2" Split Spoon**	START-FINISH DATE **4/22/02-4/22/02**
CASING MAT./DIA. **SCH 40 PVC / 4-inch**	SCREEN: TYPE **Slotted** MAT. **SCH 40 PVC** TOTAL LENGTH **10.0** DIA. **4-inch** SLOT SIZE **20-Slot**			
ELEVATION OF: (FT.)	GROUND SURFACE	TOP OF WELL CASING	TOP & BOTTOM SCREEN /	GW SURFACE / GRAVEL PACK **#2**



Depth, feet	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
	Concrete			
	Brown fine to coarse SAND, little Silt, little Gravel, trace Concrete; dry to wet at 3 feet (fill)			
5	Brown fine to coarse SAND, little Silt, little Gravel; wet (fill)		28.6	
10	Brown fine to coarse SAND, little Silt, little Gravel; wet (fill)		27.2	Odor and sheen
15	PEAT and green-grey CLAY; moist			

Bottom of well at 16 feet below land surface

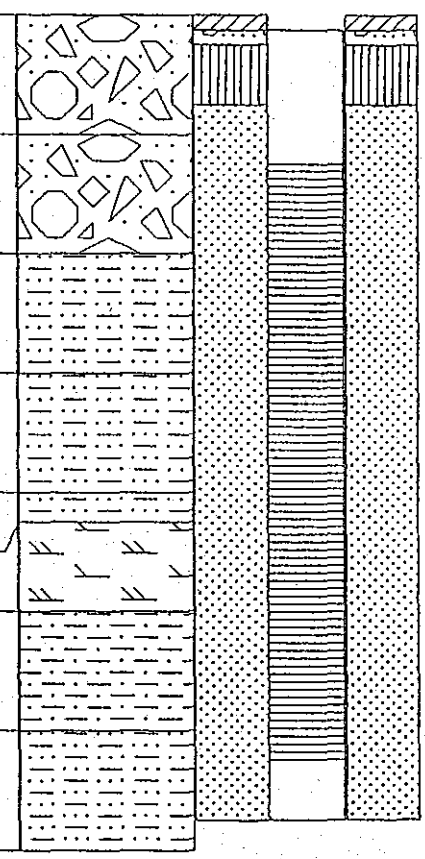
AKRF Engineering Logs – 2001

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER MW-2/DP-1

PROJECT NUMBER:	80030-0002	FIELD BOOK NO:	301
PROJECT NAME:	124-136 SECOND AVENUE	TOTAL DEPTH:	28 Feet
LOCATION:	BROOKLYN, NEW YORK	GROUND SURFACE ELEVATION:	0.0
DRILLING CO:	FENLEY & NICOL		
DRILLING METHOD:	HOLLOW STEM AUGER/GEOPROB		
FIELD PARTY:	CHRIS BOSS		
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	12/14/2000 DATE COMPLETED: 12/14/2000		

STATIC WATER LEVEL (BLS)		
Depth (ft)	5.3	
Time	12:35	
Date	12/22/2000	

DEPTH (ft)	SAMPLE NUMBER	BLOWS COUNT	PID/ppm	REMARKS	DESCRIPTION	LITHOLOGY	WELL INSTALLATION
0.0	1		ND		FILL: concrete and red brick fragments, ash, gray silty sand.		
	2		ND		FILL: concrete and red brick fragments, ash, gray silty sand.		
10.0	3		ND		SILTY SAND		
	4		ND		SILTY SAND		
	5		ND		SILTY SAND		
					PEAT: clay		
20.0	6		ND		SILT		
	7		ND		SILTY SAND		



AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER DP-2

PROJECT NUMBER:	80030-0002	FIELD BOOK NO:	301
PROJECT NAME:	124-136 SECOND AVENUE	TOTAL DEPTH:	28 Feet
LOCATION:	BROOKLYN, NEW YORK	GROUND SURFACE ELEVATION:	0.0
DRILLING CO:	FENLEY & NICOL		
DRILLING METHOD:	GEOPROBE		
FIELD PARTY:	CHRIS BOSS/JAY SEALE		
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	12/14/2000 DATE COMPLETED: 12/14/2000		

STATIC WATER LEVEL (BLS)		
Depth (ft)	5.0	
Time	10:10	
Date	12/14/2000	

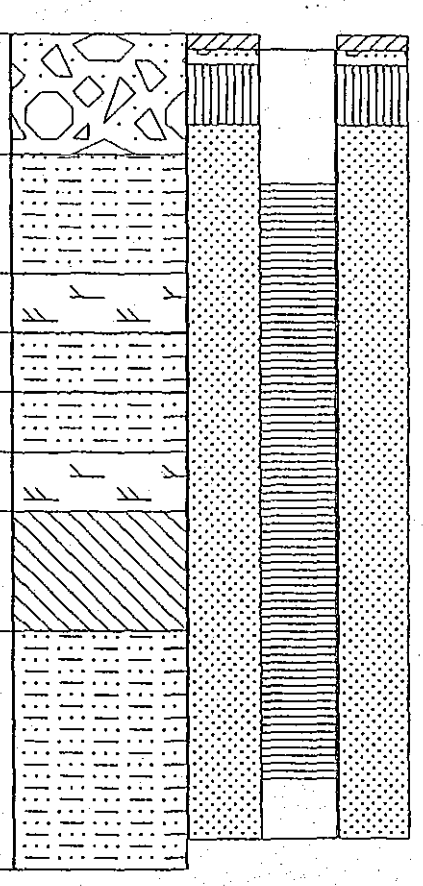
DEPTH (ft)	SAMPLE NUMBER	BLOWS COUNT	PID/ppm	REMARKS	DESCRIPTION	LITHOLOGY	WELL INSTALLATION
0.0	1		ND		FILL: concrete and red brick fragments, ash, black silty sand.		
	2		83	Strong odor			
10.0	3		4				
	4		ND		PEAT: With Clay		
	5		36				
20.0	6		40		SILT: Brownish gray to gray SILT		
	7		ND				
					SAND: Fine to medium SAND		

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER MW-4/DP-3

PROJECT NUMBER:	80030-0002	FIELD BOOK NO:	301
PROJECT NAME:	124-136 SECOND AVENUE	TOTAL DEPTH:	28 Feet
LOCATION:	BROOKLYN, NEW YORK	GROUND SURFACE ELEVATION:	0.0
DRILLING CO:	FENLEY & NICOL		
DRILLING METHOD:	HOLLOW STEM AUGER/ GEOPROBE		
FIELD PARTY:	CHRIS MIGLIORE/JAY SEAL		
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	12/13/2000 DATE COMPLETED: 12/13/2000		

STATIC WATER LEVEL (BLS)		
Depth (ft)	3.0	
Time	12:15	
Date	12/23/2000	

DEPTH (ft)	SAMPLE NUMBER	BLOWS COUNT	PID/ppm	REMARKS	DESCRIPTION	LITHOLOGY	WELL INSTALLATION
0.0	1		ND		FILL: Coal and red brick fragments, ash, gray silty sand.		
	2		14	Strong odor	SILTY SAND: Black		
	3				PEAT: CLAY		
10.0			17	Free Product	SILTY SAND: Black		
	4		2	Strong odor	SILTY SAND: Brown		
					PEAT: CLAY		
	5		20		CLAY: Very dense		
20.0	6		45		SILTY SAND: Dark gray		
			452	Free product			
	7						



AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER DP- 4

PROJECT NUMBER:	80030-0002	FIELD BOOK NO:	301
PROJECT NAME:	124-136 SECOND AVENUE	TOTAL DEPTH:	18 Feet
LOCATION:	BROOKLYN, NEW YORK	GROUND SURFACE ELEVATION:	0.0
DRILLING CO:	FENLEY & NICOL		
DRILLING METHOD:	HOLLOW STEM AUGER		
FIELD PARTY:	CHARLIE GUZZARDO		
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	12/1/2000	DATE COMPLETED:	12/1/2000

STATIC WATER LEVEL (BLS)		
Depth (ft)	6.0	
Time	1:30	
Date	12/1/2000	

DEPTH (ft)	SAMPLE NUMBER	BLOWS COUNT	PID/ppm	REMARKS	DESCRIPTION	LITHOLOGY	WELL INSTALLATION
0.0	1				FILL: Red brick fragments, ash, woo black silty sand.		
	2		250	Strong odor			
	3		200	Strong odor			
	4		50		CLAY: Little ash		
10.0	5		10		No Recovery		
	6		ND				
	7		ND		CLAY: With little Silt		
	8		20		PEAT		

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER DP-6

PROJECT NUMBER:	80030-0002	FIELD BOOK NO:	301
PROJECT NAME:	124-136 SECOND AVENUE	TOTAL DEPTH:	18 Feet
LOCATION:	BROOKLYN, NEW YORK	GROUND SURFACE ELEVATION:	0.0
DRILLING CO:	FENLEY & NICOL		
DRILLING METHOD:	HOLLOW STEM AUGER		
FIELD PARTY:	CHARLIE GUZZARDO		
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	11/30/2000 DATE COMPLETED: 11/30/2000		

STATIC WATER LEVEL (BLS)		
Depth (ft)	6.0	
Time	10:40	
Date	11/30/2000	

DEPTH (ft)	SAMPLE NUMBER	BLOWS COUNT	PID/ppm	REMARKS	DESCRIPTION	LITHOLOGY	WELL INSTALLATION
0.0							
	1		ND		FILL: Red brick and concrete fragments, ash, wood, black silty sand.		
	2		25	Strong odor			
	3		389	Strong odor			
	4		243		SILTY SAND		
10.0	5		97				
	6		20				
	7		24				
	8		24	Bottom of the gas holder (Refusal) @18 Feet			

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER DP-7

PROJECT NUMBER:	80030-0002	FIELD BOOK NO:	301
PROJECT NAME:	124-136 SECOND AVENUE	TOTAL DEPTH:	18 Feet
LOCATION:	BROOKLYN, NEW YORK	GROUND SURFACE ELEVATION:	0.0
DRILLING CO:	FENLEY & NICOL		
DRILLING METHOD:	HOLLOW STEM AUGER		
FIELD PARTY:	CHARLIE GUZZARDO		
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	11/30/2000 DATE COMPLETED: 11/30/2000		

STATIC WATER LEVEL (BLS)		
Depth (ft)	6.0	
Time	10:40	
Date	11/30/2000	

DEPTH (ft)	SAMPLE NUMBER	BLOWS COUNT	PID/ppm	REMARKS	DESCRIPTION	LITHOLOGY	WELL INSTALLATION
0.0					FILL: Red brick and concrete fragments, ash, wood, black silty sand.		
	1		ND				
	2		ND		SILTY SAND: With some Gravel an Wood		
	3		ND				
	4		75	Strong odor			
10.0	5		161	Strong odor			
	6		82	Strong odor			
	7		166	Free product			
	8		84	Free product			

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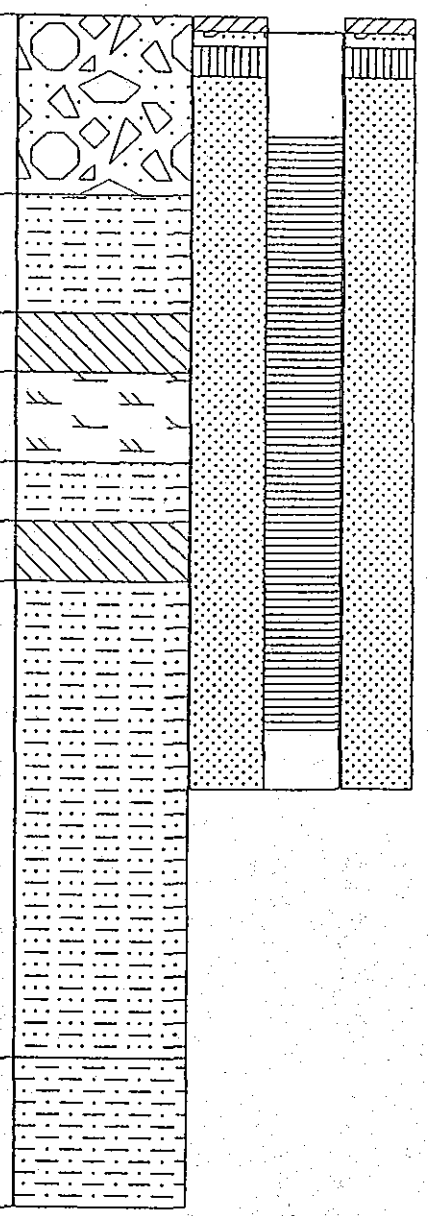
FIELD BOREHOLE LOG

BOREHOLE NUMBER: MW-3/DP-9

PROJECT NUMBER:	80030-0002	FIELD BOOK NO:	301
PROJECT NAME:	124-136 SECOND AVENUE	TOTAL DEPTH:	40 FEET
LOCATION:	BROOKLYN, NEW YORK	GROUND SURFACE ELEVATION:	0.0
DRILLING CO:	FENLEY & NICOL		
DRILLING METHOD:	HOLLOW STEM AUGER/GEOPROBE		
FIELD PARTY:	JAY SALE		
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	12/12/2000 DATE COMPLETED: 12/12/2000		

STATIC WATER LEVEL (BLS)		
Depth (ft)	5.15	
Time	11:20	
Date	12/23/2000	

DEPTH (ft)	SAMPLE NUMBER	BLOWS COUNT	PID/ppm	REMARKS	DESCRIPTION	LITHOLOGY	WELL INSTALLATION
0.0	1		9		FILL: red brick and coal fragments, ash, black silty sand.		
	2		7		SILTY SAND: dark black		
10.0	3		ND		CLAY		
	4		ND		PEAT: Clay		
					SILTY SAND		
	5		ND		CLAY		
20.0	6		ND		SILTY SAND		
	7		43	Strong odor, free product			
30.0	8		94				
	9		10	slight petroleum odor			
	10		13	slight petroleum odor	SILT: Dense reddish brown silt		
40.0							



AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER DP- 10

PROJECT NUMBER:	80030-0002	FIELD BOOK NO:	301
PROJECT NAME:	124-136 SECOND AVENUE	TOTAL DEPTH:	28 Feet
LOCATION:	BROOKLYN, NEW YORK	GROUND SURFACE ELEVATION:	0.0
DRILLING CO:	FENLEY & NICOL		
DRILLING METHOD:	GEOPROBE		
FIELD PARTY:	JAY SEALE		
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	12/13/2000 DATE COMPLETED: 12/13/2000		

STATIC WATER LEVEL (BLS)		
Depth (ft)	5.0	
Time	10:10	
Date	12/13/2000	

DEPTH (ft)	SAMPLE NUMBER	BLOWS COUNT	PID/ppm	REMARKS	DESCRIPTION	LITHOLOGY	WELL INSTALLATION
0.0	1		ND		FILL: concrete and red brick fragments, ash, black silty sand.		
	2		89	Strong odor	SILTY SAND: Gray Silty Sand changed to reddish brown Silty SAnd		
	3		26	Strong odor	SILY SAND: Reddish brown Silty Sand with some pebbles		
10.0	4				SILTY SAND: Black		
					CLAY: Dense		
	5		40	Free product	CLAY: With little SAND		
			27	Free product	CLAY: Dense		
20.0	6		45	Free product	Refusal: Location moved 15 feet north		
					CLAY: Dense		
	7		189	Free Product	SILT: Reddish Brown SILT		
					SAND: Fine to medium SAND		

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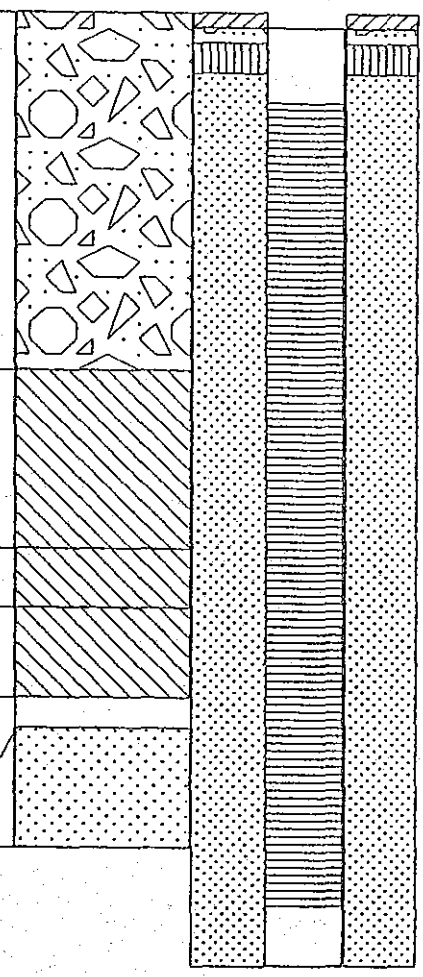
FIELD BOREHOLE LOG

BOREHOLE NUMBER
MW-5/DP-11

PROJECT NUMBER:	80030-0002	FIELD BOOK NO:	301
PROJECT NAME:	124-136 SECOND AVENUE	TOTAL DEPTH:	32 Feet
LOCATION:	BROOKLYN, NEW YORK	GROUND SURFACE ELEVATION:	0.0
DRILLING CO:	FENLEY & NICOL		
DRILLING METHOD:	HOLLOW STEM AUGER/GEOPROBE		
FIELD PARTY:	CHRIS MIGLIORE/JAY SEAL		
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	12/08/200	DATE COMPLETED:	12/08/2000

STATIC WATER LEVEL (BLS)		
Depth (ft)	5.3	
Time	2:45	
Date	12/22/2000	

DEPTH (ft)	SAMPLE NUMBER	BLOWS COUNT	PID/ppm	REMARKS	DESCRIPTION	LITHOLOGY	WELL INSTALLATION
0.0	1		202	strong odor	FILL: Coal and red brick fragments, ash, black silty sand.		
	2		ND				
10.0	3		ND				
	4		ND		CLAY: With little Silt		
	5		ND		CLAY: With little Peat		
20.0	6		ND		CLAY		
			ND		SANDY CLAY		
	7				SAND		
30.0							

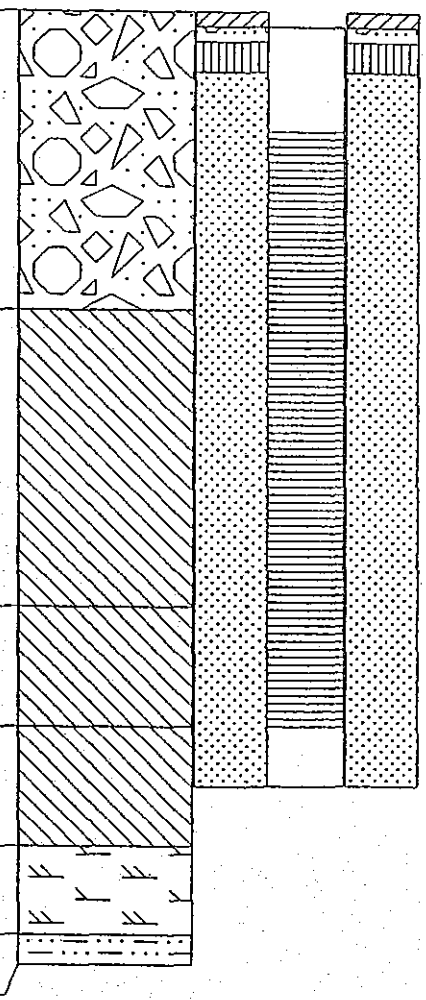


AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER MW-6/DP-12

PROJECT NUMBER:	80030-0002	FIELD BOOK NO:	301
PROJECT NAME:	124-136 SECOND AVENUE	TOTAL DEPTH:	32 Feet
LOCATION:	BROOKLYN, NEW YORK	GROUND SURFACE ELEVATION:	0.0
DRILLING CO:	FENLEY & NICOL		
DRILLING METHOD:	HOLLOW STEM AUGER/GEOPROBE		
FIELD PARTY:	CHRIS MIGLIORE/JAY SEAL		
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	12/6/2000	DATE COMPLETED:	12/6/2000

STATIC WATER LEVEL (BLS)		
Depth (ft)	4.95	
Time	10:30	
Date	12/23/2000	

DEPTH (ft)	SAMPLE NUMBER	BLOWS COUNT	PID/ppm	REMARKS	DESCRIPTION	LITHOLOGY	WELL INSTALLATION
0.0	1		ND		FILL: Coal and red brick fragments, ash, black silty sand.		
	2		ND				
10.0	3		ND		CLAY: With little Silt		
	4		ND				
	5		ND				
20.0	6		ND		GLAY: Shell fragments		
			ND				
	7				CLAY: With little Silt		
30.0			ND		PEAT: With Clay		
			200	Free product	SILTY SAND		

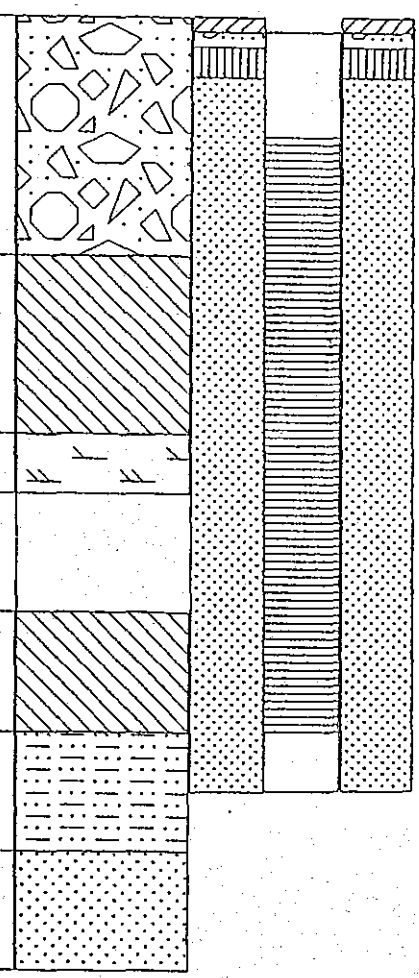


AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER MW-7/DP-13

PROJECT NUMBER:	80030-0002	FIELD BOOK NO:	301
PROJECT NAME:	124-136 SECOND AVENUE	TOTAL DEPTH:	32 Feet
LOCATION:	BROOKLYN, NEW YORK	GROUND SURFACE ELEVATION:	0.0
DRILLING CO:	FENLEY & NICOL		
DRILLING METHOD:	HOLLOW STEM AUGER/GEOPROBE		
FIELD PARTY:	CHRIS MIGLIORE/JAY SEAL		
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	12/06/2000 DATE COMPLETED: 12/06/2000		

STATIC WATER LEVEL (BLS)		
Depth (ft)	2.8	
Time	1:15	
Date	12/22/2000	

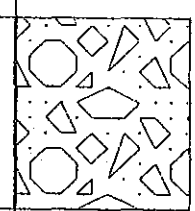
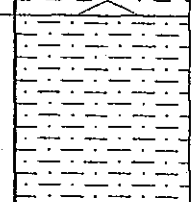
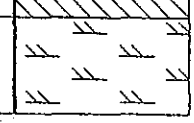
DEPTH (ft)	SAMPLE NUMBER	BLOWS COUNT	PID/ppm	REMARKS	DESCRIPTION	LITHOLOGY	WELL INSTALLATION
0.0	1		ND		FILL: Coal and red brick fragments, ash, black silty sand.		
	2		ND				
10.0	3		ND		CLAY		
	4		ND		PEAT		
	5		ND		No Recovery		
20.0	6		ND		CLAY: With Peat		
	7		ND		SILTY SAND		
30.0	8		ND		SAND: Medium to coarse brown SAND with some Gravel		



AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-1

PROJECT NUMBER:	80030-0003	START TIME	0930
PROJECT NAME:	124-136 Second Ave. (Gowanus)	END TIME	1045
LOCATION:	Brooklyn, NY	GROUND SURFACE ELEVATION:	0
DRILLING CO:			
DRILLING METHOD:	GeoProbe		
FIELD PARTY:			
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	02/16/01	DATE COMPLETED:	02/16/01

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

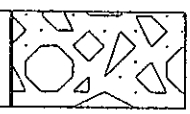
DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/42	ND		fill: red bricks and concrete fragments; brownish red silty sand	
8.0	GP1	48/48	17		silt: dark gray to reddish brown silt; wet at -8ft.	
12.0		48/36	ND		clay: dark gray clay	
					peat	
16.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-2

PROJECT NUMBER: 80030-0003
PROJECT NAME: 124-136 Second Ave. (Gowanus)
LOCATION: Brooklyn, NY
DRILLING CO:
DRILLING METHOD: GeoProbe
FIELD PARTY:
GEOLOGIST: MOHAMED AHMED
DATE BEGUN: 02/16/01 DATE COMPLETED: 02/16/01

START TIME 1115
END TIME 1125
GROUND SURFACE ELEVATION: 0

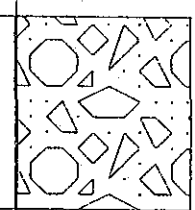
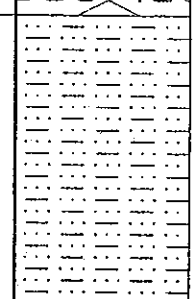
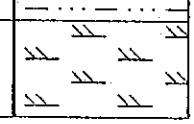
STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0				refusal at -8 ft.; location moved two times; third attempt was 20 ft towards 11th St.	fill, not sampled	
4.0		48/24				
	GP2		197	FREE PRODUCT	fill: free product, fill, brick fragments, black silty sand	
8.0						
12.0						
16.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-3

PROJECT NUMBER:	80030-0003	START TIME	1130
PROJECT NAME:	124-136 Second Ave. (Gowanus)	END TIME	1220
LOCATION:	Brooklyn, NY	GROUND SURFACE ELEVATION:	0
DRILLING CO:			
DRILLING METHOD:	GeoProbe		
FIELD PARTY:			
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	02/16/01	DATE COMPLETED:	02/16/01

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0				refusal at -12 ft.; location moved 12 ft. towards 11th St.	fill, not sampled	
4.0		48/24	15.3		fill: black sandy silt, odor	
8.0	GP3	48/15	218	FREE PRODUCT	silty sand: dark black silty sand, free product	
12.0		48/30	36	FREE PRODUCT		
					peat	
16.0						

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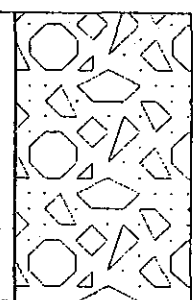
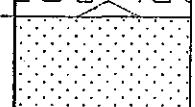
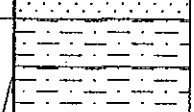
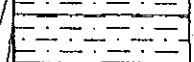
FIELD BOREHOLE LOG

BOREHOLE NUMBER: GP-6

PROJECT NUMBER:	80030-0003	START TIME	0850
PROJECT NAME:	124-136 Second Ave. (Gowanus)	END TIME	0925
LOCATION:	Brooklyn, NY	GROUND SURFACE ELEVATION:	0
DRILLING CO:			
DRILLING METHOD:	GeoProbe		
FIELD PARTY:			
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	02/21/01	DATE COMPLETED:	02/21/01

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0				refusal at -11 ft.; three attempts made; refusal at 7 ft. and 4 ft.; sampling location 5 ft. SE of flag	fill: light brown medium coarse sand and gravel	
4.0						
			0.5		sand: black/dark brown medium sand and silt; wet at -6 ft.	
8.0	GP6				silt: black/dark brown silt and medium coarse sand with small cobbles	
					silt: brown/tan silt and medium coarse sand with small cobbles	
12.0			1.9		silt: black silt and medium coarse sand with small cobbles	
16.0						

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FIELD BOREHOLE LOG

BOREHOLE NUMBER: GP-15

PROJECT NUMBER:	80030-0003	START TIME	0900
PROJECT NAME:	124-136 Second Ave. (Gowanus)	END TIME	0930
LOCATION:	Brooklyn, NY	GROUND SURFACE ELEVATION:	0
DRILLING CO:			
DRILLING METHOD:	GeoProbe		
FIELD PARTY:			
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	02/22/01	DATE COMPLETED:	02/22/01

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

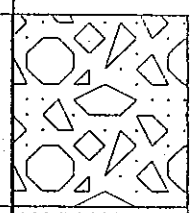
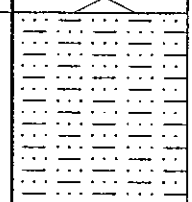
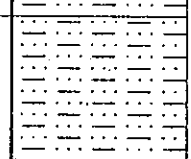
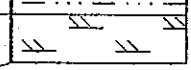
DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/36	8.0	FREE PRODUCT	fill: coal fragments, loose, stained with free product	
8.0	GP15	48/12	21.0	FREE PRODUCT	fill: coal fragments, loose, stained with free product	
12.0		48/24	9.0	FREE PRODUCT	silty sand: fill, black silty sand, loose, free product	
					peat: dark brown peat	
16.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-16

PROJECT NUMBER: 80030-0003
PROJECT NAME: 124-136 Second Ave. (Gowanus)
LOCATION: Brooklyn, NY
DRILLING CO:
DRILLING METHOD: GeoProbe
FIELD PARTY:
GEOLOGIST: MOHAMED AHMED
DATE BEGUN: 02/22/01 DATE COMPLETED: 02/22/01

START TIME 0945
END TIME 1030
GROUND SURFACE ELEVATION: 0

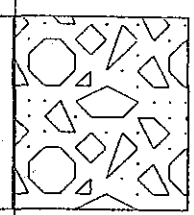
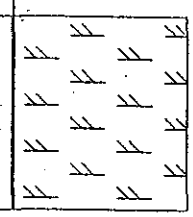
STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/32	3.5	stained with FREE PRODUCT	fill: dark black silty sand, stained with free product	
8.0	GP16	48/48	12.5	FREE PRODUCT	silty sand: black silty sand, dense free product	
12.0		48/24	63.0	FREE PRODUCT	silty sand: black silty sand, free product	
16.0					peat	

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-17

PROJECT NUMBER:	80030-0003	START TIME	1045
PROJECT NAME:	124-136 Second Ave. (Gowanus)	END TIME	1130
LOCATION:	Brooklyn, NY	GROUND SURFACE ELEVATION:	0
DRILLING CO:			
DRILLING METHOD:	GeoProbe		
FIELD PARTY:			
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	02/22/01	DATE COMPLETED:	

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/4	8		fill: ash, brick fragments	
8.0		48/0		no recovery	(no recovery)	
12.0	GP17	48/36			peat: dark brown peat	
16.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-18

PROJECT NUMBER: 80030-0003
PROJECT NAME: 124-136 Second Ave. (Gowanus)
LOCATION: Brooklyn, NY
DRILLING CO:
DRILLING METHOD: GeoProbe
FIELD PARTY:
GEOLOGIST: MOHAMED AHMED
DATE BEGUN: 02/22/01 DATE COMPLETED: 02/22/01

START TIME 1135
END TIME 1215
GROUND SURFACE ELEVATION: 0

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/42	16.0		fill: red bricks, coal fragments, ash, black silty sand	
8.0	GP18	48/20	2.5	FREE PRODUCT	silty sand: black silty sand, free product	
12.0		48/24	7.0	FREE PRODUCT	silty sand: brownish gray silty sand	
16.0					peat	

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FIELD BOREHOLE LOG

BOREHOLE NUMBER: GP-19

PROJECT NUMBER:	80030-0003	START TIME	1330
PROJECT NAME:	124-136 Second Ave. (Gowanus)	END TIME	1415
LOCATION:	Brooklyn, NY	GROUND SURFACE ELEVATION:	0
DRILLING CO:			
DRILLING METHOD:	GeoProbe		
FIELD PARTY:			
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	02/22/01	DATE COMPLETED:	02/22/01

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/40	3.0		fill: ash, coal fragments, red bricks, black to brownish gray silty sand	
8.0		48/36	2.5			
12.0	GP19	48/36	3.0			
16.0					peat	

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-20

PROJECT NUMBER:	80030-0003	START TIME	1420
PROJECT NAME:	124-136 Second Ave. (Gowanus)	END TIME	1515
LOCATION:	Brooklyn, NY	GROUND SURFACE ELEVATION:	0
DRILLING CO:			
DRILLING METHOD:	GeoProbe		
FIELD PARTY:			
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	02/22/01	DATE COMPLETED:	02/22/01

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0						
4.0		48/48			fill: coal fragments, ash, red bricks, black silty sand	
8.0		48/36			silty sand: brownish gray silty sand, dense, peat at tip of sampler	
12.0	GP20	48/48			clay and peat: dense peat and clay	
16.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-21

PROJECT NUMBER:	80030-0003	START TIME	0815
PROJECT NAME:	124-136 Second Ave. (Gowanus)	END TIME	0830
LOCATION:	Brooklyn, NY	GROUND SURFACE ELEVATION:	0
DRILLING CO:			
DRILLING METHOD:	GeoProbe		
FIELD PARTY:			
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	02/27/01	DATE COMPLETED:	02/27/01

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/46	2		fill: red brick fragments, ash, coal fragments	
8.0		48/24	12		fill: red brick fragments, ash, coal fragments, free product in lower 6 in.	
	GP21			FREE PRODUCT		
12.0		48/42	9		clay: very dense gray clay	
					silt: dense brownish grey silt, peat at tip of liner	
16.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-22

PROJECT NUMBER: 80030-0003
PROJECT NAME: 124-136 Second Ave. (Gowanus)
LOCATION: Brooklyn, NY
DRILLING CO:
DRILLING METHOD: GeoProbe
FIELD PARTY:
GEOLOGIST: MOHAMED AHMED
DATE BEGUN: 02/27/01 DATE COMPLETED: 02/27/01

START TIME 0835
END TIME 0850
GROUND SURFACE ELEVATION: 0

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0	GP22	48/42	65	FREE PRODUCT	fill: ash, coal fragments, black silty sand, loose, free product	
8.0		48/36	11	FREE PRODUCT	fill: ash, coal fragments, black silty sand, loose, free product	
12.0		48/48	ND		clay and peat: very dense clay and peat	
16.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-23

PROJECT NUMBER:	80030-0003	START TIME	0852
PROJECT NAME:	124-136 Second Ave. (Gowanus)	END TIME	0905
LOCATION:	Brooklyn, NY	GROUND SURFACE ELEVATION:	0
DRILLING CO:			
DRILLING METHOD:	GeoProbe		
FIELD PARTY:			
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	02/27/01	DATE COMPLETED:	02/27/01

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

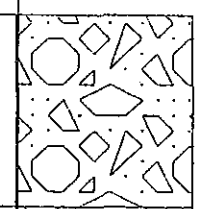
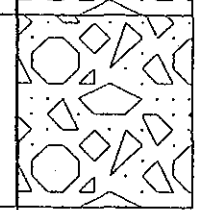
DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0	GP23	48/44	173	FREE PRODUCT	fill: brick and concrete fragments	
8.0		48/46	118	FREE PRODUCT	silt: brownish gray dense silty sand with free product	
					silt: light gray dense silt with free product	
12.0		48/48	60		clay and peat: dense clay and peat	
16.0					clay: dense clay	

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-24

PROJECT NUMBER: 80030-0003
PROJECT NAME: 124-136 Second Ave. (Gowanus)
LOCATION: Brooklyn, NY
DRILLING CO:
DRILLING METHOD: GeoProbe
FIELD PARTY:
GEOLOGIST: MOHAMED AHMED
DATE BEGUN: 02/27/01 DATE COMPLETED: 02/27/01

START TIME 0915
END TIME 0950
GROUND SURFACE ELEVATION: 0

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill; not sampled	
4.0		48/46	36	FREE PRODUCT	fill: red bricks, wood, silty sand, free product	
8.0	GP24	48/10	57	FREE PRODUCT	fill: red bricks, wood, silty sand, free product	
12.0		48/0		no recovery		
16.0				refusal		

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-25

PROJECT NUMBER: 80030-0003
PROJECT NAME: 124-136 Second Ave. (Gowanus)
LOCATION: Brooklyn, NY
DRILLING CO:
DRILLING METHOD: GeoProbe
FIELD PARTY:
GEOLOGIST: MOHAMED AHMED
DATE BEGUN: 02/27/01 DATE COMPLETED: 02/27/01

START TIME 1000
END TIME 1045
GROUND SURFACE ELEVATION: 0

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/46	55	FREE PRODUCT	fill: ash, coal fragments, wood, black silty sand stained with free product	
8.0		48/36	22	FREE PRODUCT	fill: ash, coal fragments, wood, black silty sand stained with free product	
12.0	GP25	48/48	76		silt: brownish gray dense silt	
				FREE PRODUCT	clay and peat: dense clay and peat	
16.0					silty sand: black silty sand with free product	

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-26

PROJECT NUMBER:	80030-0003	START TIME	1050
PROJECT NAME:	124-136 Second Ave. (Gowanus)	END TIME	1120
LOCATION:	Brooklyn, NY	GROUND SURFACE ELEVATION:	0
DRILLING CO:			
DRILLING METHOD:	GeoProbe		
FIELD PARTY:			
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	02/27/01	DATE COMPLETED:	02/27/01

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

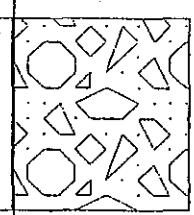
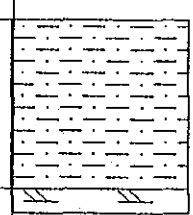
DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/40	61	FREE PRODUCT	fill: ash, wood, black silty sand with free product	
8.0		48/47	14	FREE PRODUCT	silt: dense dark black silt with free product	
12.0		48/48	109		clay and peat: dense clay and peat	
				FREE PRODUCT	silty sand: black silty sand with free product	
16.0	GP26					

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-27

PROJECT NUMBER: 80030-0003
PROJECT NAME: 124-136 Second Ave. (Gowanus)
LOCATION: Brooklyn, NY
DRILLING CO:
DRILLING METHOD: GeoProbe
FIELD PARTY:
GEOLOGIST: MOHAMED AHMED
DATE BEGUN: 02/27/01 DATE COMPLETED: 02/2701

START TIME 1130
END TIME 1215
GROUND SURFACE ELEVATION: 0

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/24	ND		fill: red bricks, concrete [and] coal fragments, ash	
8.0		48/0		no recovery	(no recovery, void)	
12.0		48/48	ND		silt: light gray dense silt; peat at tip of sampler	
16.0					peat	

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-28

PROJECT NUMBER:	80030-0003	START TIME	1230
PROJECT NAME:	124-136 Second Ave. (Gowanus)	END TIME	1255
LOCATION:	Brooklyn, NY	GROUND SURFACE ELEVATION:	0
DRILLING CO:			
DRILLING METHOD:	GeoProbe		
FIELD PARTY:			
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	02/27/01	DATE COMPLETED:	02/27/01

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/46	ND		fill: red brick, concrete, ash, wood;	
8.0		48/48	ND		silt: brownish gray to light gray dense silt	
12.0		48/48	14			
	GP28				clay and peat: dense clay and peat	
16.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-29

PROJECT NUMBER:	80030-0003	START TIME	1330
PROJECT NAME:	124-136 Second Ave. (Gowanus)	END TIME	1345
LOCATION:	Brooklyn, NY	GROUND SURFACE ELEVATION:	0
DRILLING CO:			
DRILLING METHOD:	GeoProbe		
FIELD PARTY:			
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	02/27/01	DATE COMPLETED:	02/27/01

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0	GP29	48/48	25		fill: ash, concrete fragments, wood	
					silt: dark black to gray silt	
					peat: dense layer of peat	
8.0		48/48	ND		clay: dense clay	
12.0				end of boring		
16.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-30

PROJECT NUMBER:	80030-0003	START TIME	1305
PROJECT NAME:	124-136 Second Ave. (Gowanus)	END TIME	1320
LOCATION:	Brooklyn, NY	GROUND SURFACE ELEVATION:	0
DRILLING CO:			
DRILLING METHOD:	GeoProbe		
FIELD PARTY:			
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN: 02/27/01	DATE COMPLETED: 02/27/01		

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/48	ND		fill: brick, concrete, wood	
					clay and peat: dense clay and peat	
8.0		48/46	ND		clay and peat	
12.0				end of boring		
16.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-31

PROJECT NUMBER:	80030-0003	START TIME	1345
PROJECT NAME:	124-136 Second Ave. (Gowanus)	END TIME	1425
LOCATION:	Brooklyn, NY	GROUND SURFACE ELEVATION:	0
DRILLING CO:			
DRILLING METHOD:	GeoProbe		
FIELD PARTY:			
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	02/21/01	DATE COMPLETED:	02/21/01

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/30	1.8		sand: medium coarse brown sand	
					sand and silt: fine to medium sand [with] some silt; lt. red/tan/brown	
8.0	GP31	48/24	74.1	odor, staining	sand: black fine to medium sand some silt; odor staining	
					sand and silt: dark brown fine to medium sand some silt	
12.0		48/42	0.3		sand and silt: dark brown sand and silt	
16.0					peat: dark brown tan peat	

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-32

PROJECT NUMBER:	80030-0003	START TIME	1255
PROJECT NAME:	124-136 Second Ave. (Gowanus)	END TIME	1345
LOCATION:	Brooklyn, NY	GROUND SURFACE ELEVATION:	0
DRILLING CO:			
DRILLING METHOD:	GeoProbe		
FIELD PARTY:			
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	02/21/01	DATE COMPLETED:	02/21/01

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0				2 ft. NW of flag--refusal at -4 ft.; [sampling location] 3 ft. SW of flag	fill, not sampled	
4.0	GP32	48/42	382	odor; sheen on liner	sand: black sand--strong odor, some dark brown sand and silt at -4 ft., fine gravel at -8 ft.; sheen on liner	
8.0		48/12	63.8	odor	sand: black sand--odor	
12.0		48/48	0		sand and silt: silt and fine to medium sand, black	
					peat: tan peat	
16.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-33

PROJECT NUMBER:	80030-0003	START TIME	1215
PROJECT NAME:	124-136 Second Ave. (Gowanus)	END TIME	1250
LOCATION:	Brooklyn, NY	GROUND SURFACE ELEVATION:	0
DRILLING CO:			
DRILLING METHOD:	GeoProbe		
FIELD PARTY:			
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	02/21/01	DATE COMPLETED:	02/21/01

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0				[sampling location] 3 ft. SE of flag	fill, not sampled	
4.0	GP33	48/48	14	staining	sand: dark brown sand; some staining at 6 ft.; 2 in of wet peat or other organic at -6 ft.	
					sand: medium coarse sand and fine gravel	
8.0		48/12	4.4		gravel: gray/black fine gravel and sand	
12.0		48/30	1.9			
					peat: brown/tan peat	
16.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-41

PROJECT NUMBER:	80030-0003	START TIME	1300
PROJECT NAME:	124-136 Second Ave. (Gowanus)	END TIME	1345
LOCATION:	Brooklyn, NY	GROUND SURFACE ELEVATION:	0
DRILLING CO:			
DRILLING METHOD:	GeoProbe		
FIELD PARTY:			
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	03/01/01	DATE COMPLETED:	03/01/01

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/36	ND		fill: red brick, gray silty sand	
					fill: cinders, ash, coal fragments, black silty sand	
8.0		48/48	ND			
					silt: reddish briown dense silt	
12.0		48/24	ND			
16.0		48/40	ND			
					clay and peat: dense clay and peat	
					peat	
20.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-42

PROJECT NUMBER:	80030-0003	START TIME	1400
PROJECT NAME:	124-136 Second Ave. (Gowanus)	END TIME	1405
LOCATION:	Brooklyn, NY	GROUND SURFACE ELEVATION:	0
DRILLING CO:			
DRILLING METHOD:	GeoProbe		
FIELD PARTY:			
GEOLOGIST:	MOHAMED AHMED		
DATE BEGUN:	03/01/01	DATE COMPLETED:	03/01/01

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

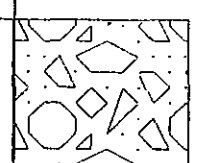
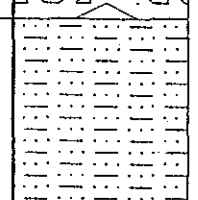
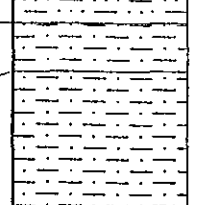
DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/24	ND		fill: cinders, ash, coal fragments	
8.0		48/24	ND		fill: black silty sand, red bricks	
12.0		48/10	ND		silt: reddish brown loose silt	
16.0		48/40	ND		clay and peat	
					peat	
20.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-44

PROJECT NUMBER: 80030-0003
PROJECT NAME: 124-136 Second Ave. (Gowanus)
LOCATION: Brooklyn, NY
DRILLING CO:
DRILLING METHOD: GeoProbe
FIELD PARTY:
GEOLOGIST: MOHAMED AHMED
DATE BEGUN: 03/01/01 DATE COMPLETED: 03/01/01

START TIME 1440
END TIME
GROUND SURFACE ELEVATION: 0

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/20	9.0		fill: red brick, glass, ash, gray silty sand	
				FREE PRODUCT	silty sand: black silty sand, free product	
8.0	GP44	48/46		FREE PRODUCT		
			30			
					silt: gray loose silt	
12.0		48/46	1.6	FREE PRODUCT	silt: reddish brown silt, free product; peat at tip of liner	
16.0					peat	

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-45

PROJECT NUMBER: 80030-0003
PROJECT NAME: 124-136 Second Ave. (Gowanus)
LOCATION: Brooklyn, NY
DRILLING CO:
DRILLING METHOD: GeoProbe
FIELD PARTY:
GEOLOGIST: MOHAMED AHMED
DATE BEGUN: 03/02/01 DATE COMPLETED: 03/02/01

START TIME
END TIME
GROUND SURFACE ELEVATION: 0

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/44	ND		fill: ash, red bricks, gray silty sand	
8.0		48/42	ND		silt: reddish brown loose silt	
12.0		48/48	ND			
16.0		48/48	ND			
					clay and peat	
20.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-46

PROJECT NUMBER: 80030-0003
PROJECT NAME: 124-136 Second Ave. (Gowanus)
LOCATION: Brooklyn, NY
DRILLING CO:
DRILLING METHOD: GeoProbe
FIELD PARTY:
GEOLOGIST: MOHAMED AHMED
DATE BEGUN: 03/01/01 DATE COMPLETED: 03/01/01

START TIME
END TIME
GROUND SURFACE ELEVATION: 0

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0	GP46	48/46	46		fill: concrete, ash , red bricks	
					sand: black to reddish gray silty sand	
8.0		48/42	ND		silt: reddish brown loose silt; peat at lower 3 in.	
12.0		48/24	ND			
16.0		48/24	ND			
20.0					peat	

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-47

PROJECT NUMBER: 80030-0003
PROJECT NAME: 124-136 Second Ave. (Gowanus)
LOCATION: Brooklyn, NY
DRILLING CO:
DRILLING METHOD: GeoProbe
FIELD PARTY:
GEOLOGIST: MOHAMED AHMED
DATE BEGUN: 03/02/01 DATE COMPLETED: 03/02/01

START TIME
END TIME
GROUND SURFACE ELEVATION: 0

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

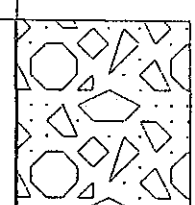
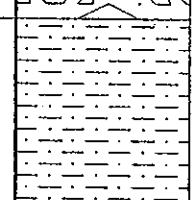
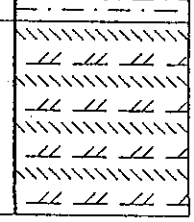
DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/42	ND		fill: concrete, ash, red brick, yellow silt	
8.0		48/30	ND		silt: gray loose silt	
12.0		48/15	ND		silt: reddish brown loose silt	
16.0		48/48	ND		clay and peat	
20.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-48

PROJECT NUMBER: 80030-0003
PROJECT NAME: 124-136 Second Ave. (Gowanus)
LOCATION: Brooklyn, NY
DRILLING CO:
DRILLING METHOD: GeoProbe
FIELD PARTY:
GEOLOGIST: MOHAMED AHMED
DATE BEGUN: 03/02/01 DATE COMPLETED: 03/02/01

START TIME
END TIME
GROUND SURFACE ELEVATION: 0

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/46	ND		fill: cinders, ash, wood, red bricks, concrete chips	
8.0		48/46	ND		silt: reddish brown loose silt	
12.0		48/44	ND		clay and peat	
16.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-49

PROJECT NUMBER: 80030-0003
PROJECT NAME: 124-136 Second Ave. (Gowanus)
LOCATION: Brooklyn, NY
DRILLING CO:
DRILLING METHOD: GeoProbe
FIELD PARTY:
GEOLOGIST: MOHAMED AHMED
DATE BEGUN: 03/02/01 DATE COMPLETED: 03/02/01

START TIME
END TIME
GROUND SURFACE ELEVATION: 0

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/48	ND		fill: concrete chips, ash, gray silty sand	
					clay: dense clay; peat at tip of sampler	
8.0		48/48	ND		clay and peat	
12.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-50

PROJECT NUMBER: 80030-0003
PROJECT NAME: 124-136 Second Ave. (Gowanus)
LOCATION: Brooklyn, NY
DRILLING CO:
DRILLING METHOD: GeoProbe
FIELD PARTY:
GEOLOGIST: MOHAMED AHMED
DATE BEGUN: DATE COMPLETED:

START TIME
END TIME
GROUND SURFACE ELEVATION: 0

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/30	ND		fill: concrete, red brick, black silty sand	
8.0		48/36	ND			
12.0		48/36	ND		silt: reddish/brown loose silt	
16.0		48/40	ND		clay and peat	
20.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-51

PROJECT NUMBER: 80030-0003
PROJECT NAME: 124-136 Second Ave. (Gowanus)
LOCATION: Brooklyn, NY
DRILLING CO:
DRILLING METHOD: GeoProbe
FIELD PARTY:
GEOLOGIST: MOHAMED AHMED
DATE BEGUN: 03/02/01 DATE COMPLETED: 03/02/01

START TIME
END TIME
GROUND SURFACE ELEVATION: 0

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

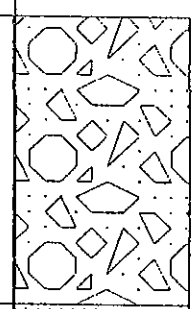
DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/36	ND		fill: concrete, red brick, ash, gray silty sand	
8.0		48/48	ND		silt: reddish brown loose silt	
12.0		48/24	ND			
16.0		48/48	ND		clay: dense clay	
					clay and peat	
20.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-53

PROJECT NUMBER: 80030-0003
PROJECT NAME: 124-136 Second Ave. (Gowanus)
LOCATION: Brooklyn, NY
DRILLING CO:
DRILLING METHOD: GeoProbe
FIELD PARTY:
GEOLOGIST: MOHAMED AHMED
DATE BEGUN: DATE COMPLETED:

START TIME
END TIME
GROUND SURFACE ELEVATION: 0

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0		48/48	ND		fill: concrete chips, cinder, ash, gray silty sand	
8.0		48/48	ND			
					clay and peat	
12.0						
16.0						

AKRF, INC. Environmental Consultants	FIELD BOREHOLE LOG	BOREHOLE NUMBER GP-54

PROJECT NUMBER: 80030-0003
PROJECT NAME: 124-136 Second Ave. (Gowanus)
LOCATION: Brooklyn, NY
DRILLING CO:
DRILLING METHOD: GeoProbe
FIELD PARTY:
GEOLOGIST: MOHAMED AHMED
DATE BEGUN: 03/02/01 DATE COMPLETED: 03/02/01

START TIME
END TIME
GROUND SURFACE ELEVATION: 0

STATIC WATER LEVEL (BLS)		
Depth (ft)	NA	
Time	NA	
Date	NA	

DEPTH (ft)	SAMPLE NUMBER	RECOVERY(in) [driven/recovered]	PID(ppm)	REMARKS	DESCRIPTION	LITHOLOGY
0.0					fill, not sampled	
4.0	GP54	48/46	324	FREE PRODUCT	silty sand: dark black silty sand, fill, red brick, free product	
8.0		48/24	159	FREE PRODUCT	silty sand: dark black silty sand, fill, red brick, free product	
12.0		48/24	227	FREE PRODUCT	silty sand: dark black silty sand, fill, red brick, free product	
16.0						

Nelson, Pope and Voorhis Logs – 1999

TEST BORING / PROBE LOG

CODE: SP-1

Site Location:	Brooklyn Commons	**Installer:**	Impact Environmental
Job Number:	99.001	**Installation Method:**	Geoprobe
Client:	Nelson, Pope & Voorhis	**Date Begin/End:**	06/10/1999
Client Contact:	C. Voorhis	**Surface Elevation:**	
Boring Code:		**Depth to Water:**	~10 feet BEG
Location Description:	DMU-	**Total Depth:**	
Geologist:	R. Parrish, P.G./Franzen	**Page #:**	1

Depth Below Grade [feet]	Color [Munsell]	Recovery	PID Reading [ppm]	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0							CONCRETE	
3	Very dark grayish-brown 10YR 3/2		1.0		SM		Poorly sorted fine sand & silt with some gravel Some solid waste debris noted	
6			12.4					
9	Gley Greenish-black 2.5/10Y		9.1		OH		Organic clay; high plasticity Presence of coal fragments mixed with clam/oyster shell	99-240-SP-1 @ 8-10
10	End Probe							
12								
15								

TEST BORING / PROBE LOG

CODE: SP-2

Site Location:	Brooklyn Commons	**Installer:**	Impact Environmental
Job Number:	99.001	**Installation Method:**	Geoprobe
Client:	Nelson, Pope & Voorhis	**Date Begin/End:**	06/10/1999
Client Contact:	C. Voorhis	**Surface Elevation:**	
Boring Code:		**Depth to Water:**	~10 feet BEG
Location Description:	DMU-	**Total Depth:**	
Geologist:	R. Parrish, P.G./Franzen	**Page #:**	2

Depth Below Grade [feet]	Color [Munsell]	Recovery	PID Reading [ppm]	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0								
3	Very dark grayish-brown 10 YR 3/2		1.1		SM		Poorly sorted fine sand + silt with some gravel Some solid waste debris noted	
6			3.9					
9	Gley Greenish-black 2.5/10Y		2.1		SC		Sand- clay mixture Clayey Soil some debris	99-240-SP-1 @ 8-10
10	End Probe							
12								
15								

TEST BORING / PROBE LOG

CODE: SP-3

Site Location:	Brooklyn Commons	**Installer:**	Impact Environmental
Job Number:	99.001	**Installation Method:**	Geoprobe
Client:	Nelson, Pope & Voorhis	**Date Begin/End:**	06/10/1999
Client Contact:	C. Voorhis	**Surface Elevation:**	
Boring Code:		**Depth to Water:**	~10 feet BEG
Location Description:	DMU-	**Total Depth:**	
Geologist:	R. Parrish, P.G./Franzen	**Page #:**	3

Depth Below Grade [feet]	Color [Munsell]	Recovery	PID Reading [ppm]	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0							CONCRETE	
3	Very dark grayish-brown 10YR 3/2		1.0		SM		Poorly sorted fine sand + silt with some gravel Some solid waste debris noted	
			13.2					
6								
9	Gley Greenish-black 2.5/10Y		5.4		SC		Sand- clay mixture Clayey Soil some debris	99-240-SP-1 @ 8-10
10	End Probe							
12								
15								

TEST BORING / PROBE LOG

CODE: SP-4

Site Location:	Brooklyn Commons	**Installer:**	Impact Environmental
Job Number:	99.001	**Installation Method:**	Geoprobe
Client:	Nelson, Pope & Voorhis	**Date Begin/End:**	06/10/1999
Client Contact:	C. Voorhis	**Surface Elevation:**	
Boring Code:		**Depth to Water:**	~10 feet BEG
Location Description:	DMU-	**Total Depth:**	
Geologist:	R. Parrish, P.G./Franzen	**Page #:**	

Depth Below Grade [feet]	Color [Munsell]	Recovery	PID Reading [ppm]	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0							CONCRETE	
3	Very dark grayish-brown 10 YR 3/2		2.1		SM		Poorly sorted fine sand & silt with some gravel Some solid waste debris noted	
6								
9	Gley Greenish-black 2.5/10Y				SC		Clayey sand Large chips of coal, High volume of clam/oyster shells	99-240-SP-1 @ 8-10
10	End Probe							
12								
15								

TEST BORING / PROBE LOG

CODE: SP-5

Site Location:	Brooklyn Commons	**Installer:**	Impact Environmental
Job Number:	99.001	**Installation Method:**	Geoprobe
Client:	Nelson, Pope & Voorhis	**Date Begin/End:**	06/10/1999
Client Contact:	C. Voorhis	**Surface Elevation:**	
Boring Code:		**Depth to Water:**	~10 feet BEG
Location Description:	DMU-	**Total Depth:**	
Geologist:	R. Parrish, P.G./Franzen	**Page #:**	5

Depth Below Grade [feet]	Color [Munsell]	Recovery	PID Reading [ppm]	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0							CONCRETE	
3	Very dark grayish-brown 10 YR 3/2		1.1		SM		Poorly sorted fine sand & silt with some gravel Some solid waste debris noted	
6								
9	Gley Greenish-black 2.5/10Y		0.0		OH		Organic clay Coalchips	99-240-SP-1 @ 8-10
10	End Probe							
12								
15								

TEST BORING / PROBE LOG

CODE: SP-6

Site Location:	Brooklyn Commons	**Installer:**	Impact Environmental
Job Number:	99.001	**Installation Method:**	Geoprobe
Client:	Nelson, Pope & Voorhis	**Date Begin/End:**	06/10/1999
Client Contact:	C. Voorhis	**Surface Elevation:**	
Boring Code:		**Depth to Water:**	~10 feet BEG
Location Description:	DMU-	**Total Depth:**	
Geologist:	R. Parrish, P.G./Franzen	**Page #:**	6

Depth Below Grade [feet]	Color [Munsell]	Recovery	PID Reading [ppm]	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0							CONCRETE	
3	Very dark grayish-brown 10 YR 3/2		1.1		SM		Poorly sorted fine sand & silt with some gravel Some solid waste debris noted	
6								
9	2.5Y Olive brown 4/3		6.0		SP		Petroleum scent Poorly graded sand with some gravel	99-240-SP-1 @ 8-10
10	End Probe							
12								
15								

Nelson, Pope and Voorhis Logs – 1997

TEST BORING / PROBE LOG

CODE: SP-7

Site Location:	Brooklyn	Installer:	Impact Environmental
Job Number:	97-070	Installation Method:	Geoprobe
Client:	Brooklyn	Date Begin/End:	4/24/97
Client Contact:	Charles Voorhis	Surface Elevation:	
Boring Code:	SP-7	Depth to Water:	
Location Description:		Total Depth:	7 feet
Geologist:	James Mulvey	Page #:	1

Depth Below Grade [feet]	Color [Munsell]	Recovery	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0						Asphalt	
2	10YR 2/2 Very Dark Brown					Fine to Medium	
3	10YR 3/3 Dark Brown					Fine to Medium	
4	10YR 2/1 Black					Fine to Medium Strong Odor	
5	10YR 2/1 Black					Fine to Medium Strong Odor	

Note: USCS (Unified Soil Classification System)

TEST BORING / PROBE LOG

CODE: SP-8

Site Location:	Brooklyn	Installer:	Impact Environmental
Job Number:	97-070	Installation Method:	Geoprobe
Client:	Brooklyn	Date Begin/End:	4/24/97
Client Contact:	Charles Voorhis	Surface Elevation:	
Boring Code:	SP-8	Depth to Water:	
Location Description:		Total Depth:	7 feet
Geologist:	James Mulvey	Page #:	1

Depth Below Grade [feet]	Color [Munsell]	Recovery	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0						Asphalt	
2	10YR 2/2 Very Dark Brown					Fine to Medium	
3	10YR 3/3 Dark Brown					Fine to Medium	
4	10YR 2/1 Black					Fine to Medium Strong Odor	
5	10YR 2/1 Black					Fine to Medium Strong Odor	

Note: USCS (Unified Soil Classification System)

TEST BORING / PROBE LOG

CODE: SP-9

Site Location:	Brooklyn	Installer:	Impact Environmental
Job Number:	97-070	Installation Method:	Geoprobe
Client:	Brooklyn	Date Begin/End:	4/24/97
Client Contact:	Charles Voorhis	Surface Elevation:	
Boring Code:	SP-9	Depth to Water:	
Location Description:		Total Depth:	7 feet
Geologist:	James Mulvey	Page #:	1

Depth Below Grade [feet]	Color [Munsell]	Recovery	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0						Asphalt	
2	10YR 2/2 Very Dark Brown					Fine to Medium	
3	10YR 3/3 Dark Brown					Fine to Medium	
4	10YR 2/1 Black					Fine to Medium Strong Odor	
5	10YR 2/1 Black					Fine to Medium Strong Odor	

Note: USCS (Unified Soil Classification System)

TEST BORING / PROBE LOG

CODE: SP-10

Site Location:	Brooklyn	Installer:	Impact Environmental
Job Number:	97-070	Installation Method:	Geoprobe
Client:	NPV	Date Begin/End:	5/7/97
Client Contact:	Charles Voorhis	Surface Elevation:	
Boring Code:	SP-10	Depth to Water:	
Location Description:		Total Depth:	7.5 feet
Geologist:	James Mulvey	Page #:	1

Depth Below Grade [feet]	Color [Munsell]	Recovery	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0						Asphalt	
2	10YR 2/2 Very Dark Brown					Fine to Medium Brick Fines	
3	10YR 2/2 Very Dark Brown					Fine to Medium Brick Fines	
4	10YR 2/2 Very Dark Brown					Fine to Medium Brick Fines	
5	10YR 2/1 Black					Fine to Medium	
6	10YR 2/1 Black					Fine to Medium	
7	10YR 2/1 Black					Fine to Medium	
8	10YR 2/1 Black					Fine to Medium	

Note: USCS (Unified Soil Classification System)

TEST BORING / PROBE LOG

CODE: SP-11

Site Location:	Brooklyn	Installer:	Impact Environmental
Job Number:	97-070	Installation Method:	Geoprobe
Client:	NPV	Date Begin/End:	5/7/97
Client Contact:	Charles Voorhis	Surface Elevation:	
Boring Code:	SP-11	Depth to Water:	
Location Description:		Total Depth:	10 feet
Geologist:	James Mulvey	Page #:	1

Depth Below Grade [feet]	Color [Munsell]	Recovery	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0						Asphalt	
2	10YR 2/2 Very Dark Brown					Fine to Medium Brick Fines	
3	10YR 2/2 Very Dark Brown					Fine to Medium Brick Fines	
4	10YR 2/2 Very Dark Brown					Fine to Medium Brick Fines	
5	10YR 2/1 Black					Fine to Medium	
6	10YR 2/1 Black					Fine to Medium	
7	10YR 2/1 Black					Fine to Medium	
8	10YR 2/1 Black					Fine to Medium	
9	10YR 2/2 Very Dark Brown					Fine to Medium	
10	10YR 2/2 Very Dark Brown					Fine to Medium	

Note: USCS (Unified Soil Classification System)

TEST BORING / PROBE LOG

CODE: SP-12

Site Location:	Brooklyn	Installer:	Impact Environmental
Job Number:	97-070	Installation Method:	Geoprobe
Client:	NPV	Date Begin/End:	5/7/97
Client Contact:	Charles Voorhis	Surface Elevation:	
Boring Code:	SP-12	Depth to Water:	
Location Description:		Total Depth:	10 feet
Geologist:	James Mulvey	Page #:	1

Depth Below Grade [feet]	Color [Munsell]	Recovery	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0						Asphalt	
2	10YR 5/6 Yellowish Brown					Brick Fines	
3	10YR 5/6 Yellowish Brown					Brick Fines	
4	10YR 5/6 Yellowish Brown					Brick Fines	
5	10YR 5/6 Yellowish Brown					Brick Fines	
6	10YR 4/8 Red					Hard Red Clay	
7	10YR 2/2 Very Dark Brown					Fine to Medium Strong Odor	
8	10YR 2/1 Black					Fine to Medium Strong Odor	
9	10YR 2/1 Black					Fine to Medium Strong Odor	
10	10YR 2/2 Very Dark Brown					Fine to Medium Strong Odor	

Note: USCS (Unified Soil Classification System)

TEST BORING / PROBE LOG

CODE: SP-13

Site Location:	Brooklyn	Installer:	Impact Environmental
Job Number:	97-070	Installation Method:	Geoprobe
Client:	NPV	Date Begin/End:	5/7/97
Client Contact:	Charles Voorhis	Surface Elevation:	
Boring Code:	SP-13	Depth to Water:	
Location Description:		Total Depth:	10 feet
Geologist:	James Mulvey	Page #:	1

Depth Below Grade [feet]	Color [Munsell]	Recovery	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0						Asphalt	
2	10YR 5/6 Yellowish Brown					Brick Fines	
3	10YR 5/6 Yellowish Brown					Brick Fines	
4	10YR 5/6 Yellowish Brown					Brick Fines	
5	10YR 5/6 Yellowish Brown					Brick Fines	
6	10YR 4/8 Red					Hard Red Clay	
7	10YR 2/2 Very Dark Brown					Fine to Medium Strong Odor	
8	10YR 2/1 Black					Fine to Medium Strong Odor	
9	10YR 2/1 Black					Fine to Medium Strong Odor	
10	10YR 2/2 Very Dark Brown					Fine to Medium Strong Odor	

Note: USCS (Unified Soil Classification System)

TEST BORING / PROBE LOG

CODE: SP-16

Site Location:	Brooklyn	Installer:	Impact Environmental
Job Number:	97-070	Installation Method:	Geoprobe
Client:	Brooklyn	Date Begin/End:	5/5/97
Client Contact:	Charles Voorhis	Surface Elevation:	
Boring Code:	SP-16	Depth to Water:	
Location Description:		Total Depth:	8 feet
Geologist:	James Mulvey	Page #:	1

Depth Below Grade [feet]	Color [Munsell]	Recovery	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0						Asphalt	
2	10YR 2/2 Very Dark Brown					Fine to Medium	
3	10YR 2/2 Very Dark Brown					Fine to Medium	
4	10YR 2/1 Black					Fine to Medium Strong Odor	
5	10YR 2/1 Black					Fine to Medium Strong Odor	
6	10YR 2/1 Black					Fine to Medium Strong Odor	
7	10YR 2/1 Black					Fine to Medium Strong Odor	
8	10YR 2/1 Black					Fine to Medium Strong Odor	

Note: USCS (Unified Soil Classification System)

TEST BORING / PROBE LOG

CODE: SP-17

Site Location:	Brooklyn	Installer:	Impact Environmental
Job Number:	97-070	Installation Method:	Geoprobe
Client:	Brooklyn	Date Begin/End:	5/5/97
Client Contact:	Charles Voorhis	Surface Elevation:	
Boring Code:	SP-17	Depth to Water:	
Location Description:		Total Depth:	7 feet
Geologist:	James Mulvey	Page #:	1

Depth Below Grade [feet]	Color [Munsell]	Recovery	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0						Asphalt	
2	10YR 2/2 Very Dark Brown					Fine to Medium	
3	10YR 3/3 Dark Brown					Brick Fines	
4	10YR 2/1 Black					Anthrocite pieces	
5	10YR 2/1 Black					Anthrocite pieces	
6	2 Clay 3/1 Dark Blueish Gray					Fine to Medium	
7	10R 4/6 Red					Fine to Medium	

Note: USCS (Unified Soil Classification System)

TEST BORING / PROBE LOG

CODE: SP-18

Site Location:	Brooklyn	Installer:	Impact Environmental
Job Number:	97-070	Installation Method:	Geoprobe
Client:	Brooklyn	Date Begin/End:	5/5/97
Client Contact:	Charles Voorhis	Surface Elevation:	
Boring Code:	SP-18	Depth to Water:	
Location Description:		Total Depth:	7 feet
Geologist:	James Mulvey	Page #:	1

Depth Below Grade [feet]	Color [Munsell]	Recovery	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0						Asphalt	
2	10YR 2/2 Very Dark Brown					Brick Fines	
3	10YR 2/1 Black					Brick Fines	
4	10YR 2/2 Very Dark Brown					Brick Fines	
5	10YR 2/2 Very Dark Brown					Brick Fines	
6	2 Clay 5/1 Blueish Gray					Clay	
7	10R 4/6 Red					Medium to course Gravel	

Note: USCS (Unified Soil Classification System)

TEST BORING / PROBE LOG

CODE: SP-19

Site Location:	Brooklyn	Installer:	Impact Environmental
Job Number:	97-070	Installation Method:	Geoprobe
Client:	Brooklyn	Date Begin/End:	5/5/97
Client Contact:	Charles Voorhis	Surface Elevation:	
Boring Code:	SP-19	Depth to Water:	
Location Description:		Total Depth:	7 feet
Geologist:	James Mulvey	Page #:	1

Depth Below Grade [feet]	Color [Munsell]	Recovery	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0						Asphalt	
2	10YR 6/2 Gray to Light Brown					Brick Fines	
3	10YR 6/2 Gray to Light Brown					1/4" Blue Gravel Stone	
4	10YR 3/3 Dark Brown					Medium to fine	
5	10YR 4/6 Dark Yellowish Brown					Fine to Medium	
6	10YR 5/8 Yellowish Brown					Fine to Medium Sandy Material	
7	10YR 5/8 Yellowish Brown					Fine to Medium Sandy Material	

Note: USCS (Unified Soil Classification System)

TEST BORING / PROBE LOG

CODE: SP-20

Site Location:	Brooklyn	Installer:	Impact Environmental
Job Number:	97-070	Installation Method:	Geoprobe
Client:	Brooklyn	Date Begin/End:	5/5/97
Client Contact:	Charles Voorhis	Surface Elevation:	
Boring Code:	SP-20	Depth to Water:	
Location Description:		Total Depth:	4 feet
Geologist:	James Mulvey	Page #:	1

Depth Below Grade [feet]	Color [Munsell]	Recovery	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0	10YR 1/1 Black					Asphalt 1/4 " Blue Gravel Stone	
3							
4	10YR 1/1 Black					Pieces of Anthrocite	
	REFUSAL						

Note: USCS (Unified Soil Classification System)

TEST BORING / PROBE LOG

CODE: SP-21

Site Location:	Brooklyn	Installer:	Impact Environmental
Job Number:	97-070	Installation Method:	Geoprobe
Client:	Brooklyn	Date Begin/End:	5/5/97
Client Contact:	Charles Voorhis	Surface Elevation:	
Boring Code:	SP-21	Depth to Water:	
Location Description:		Total Depth:	7 feet
Geologist:	James Mulvey	Page #:	1

Depth Below Grade [feet]	Color [Munsell]	Recovery	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0						Asphalt	
3	10YR 2/2 Very Dark Brown					Medium to Fine Wood Chips/Brick Fines	
4	10YR 2/1 Black					Strong odor/ Wet Black Staining on Gloves	
5	10YR 2/1 Black					Strong odor/ Wet Black Staining on Gloves	
6	10YR 2/1 Black					Strong odor/ Wet Black Staining on Gloves	
7	10YR 2/2 Very Dark Brown					Medium to Fine	

Note: USCS (Unified Soil Classification System)

TEST BORING / PROBE LOG

CODE: SP-22

Site Location:	Brooklyn	Installer:	Impact Environmental
Job Number:	97-070	Installation Method:	Geoprobe
Client:	NPV	Date Begin/End:	5/5/97
Client Contact:	Charles Voorhis	Surface Elevation:	
Boring Code:	SP-22	Depth to Water:	
Location Description:		Total Depth:	7 feet
Geologist:	James Mulvey	Page #:	1

Depth Below Grade [feet]	Color [Munsell]	Recovery	FID Reading [ppm]	Description [USCS]	Lithology	Description	Sample
0						Asphalt	
3	10YR 2/2 Very Dark Brown					Very Coarse to Coarse Soil	
4	10YR 2/2 Very Dark Brown					Fine to Medium Pieces of Anthrocite	
5	10YR 2/1 Black					Fine to Medium Pieces of Anthrocite	
6	10Y 6/3 Pale Brown					Very Fine to Fine Sandy Material	
7	10YR 2/1 Black					Medium to fine 1/2" Coke	

Note: USCS-(Unified Soil Classification System)