HISTORICAL PERSPECTIVES INC.

Phase IA Archaeological Assessment
Reconstruction and Expansion Project
Jamaica Bus Depot, York College Temporary Bus Parking
Block 10159, Part of Lot 3; Block 10160, Lot 1 and a portion of Tuskegee Airmen Way
Jamaica, Queens County, New York

NYSOPRHP 16PR04142

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NYSOPRHP 16PR04142

Prepared For:

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New York, NY 10003

And

New York City Transit
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Prepared By:

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October 2022

MANAGEMENT SUMMARY

SHPO Project Review Number (if available): **16PR04142**

Involved State and Federal Agencies: **MTA New York City Transit (NYCT)**

Phase of Survey: **Phase IA Archaeological Assessment**

Location Information
- Location: **Block 10159, Part of Lot 3; Block 10160, Lot 1; and a portion of Tuskegee Airmen Way**
- Minor Civil Division: **08101**
- County: **Queens**

Survey Area
- Length: **varies**
- Width: **varies**
- Number of Acres Surveyed: **ca. 4**

USGS 7.5 Minute Quadrangle Map: **Jamaica**

Archaeological Survey Overview
- Number & Interval of Shovel Tests: **N/A**
- Number & Size of Units: **N/A**
- Width of Plowed Strips: **N/A**
- Surface Survey Transect Interval: **N/A, urban area**

Results of Archaeological Survey
- Number & name of precontact sites identified: **None**
- Number & name of historic sites identified: **None**
- Number & name of sites recommended for Phase II/Avoidance: **Archaeological Monitoring recommended on Block 10159, Lot 3 adjacent to the First Methodist Church Cemetery abutting the project site**

Report Authors(s): **Julie Abell Horn, M.A., R.P.A., Historical Perspectives, Inc.**

Date of Report: **October 2022**

EXECUTIVE SUMMARY

The Metropolitan Transportation Authority (MTA) New York City Transit (NYCT) proposes the reconstruction and expansion of the Jamaica Bus Depot (JBD), located at 165-18 Tuskegee Airmen Way (formerly South Street and South Road), on Block 10164 in the Jamaica neighborhood of Queens County, New York (Figures 1, 2, and 3). In 2019, the MTA-NYCT completed an Environmental Impact Statement (EIS) for the Jamaica Bus Depot proposed project. As part of that EIS, Historical Perspectives, Inc. (HPI) undertook a Phase IA Cultural Resources Assessment for the proposed project in 2016, which was revised in 2019. The EIS was filed with and accepted by the New York State Historic Preservation Office (SHPO). The Phase IA Cultural Resources Assessment concluded that there was no archaeological sensitivity for the Block 10164 project site and no architectural significance for the existing Jamaica Bus Depot or any buildings within a 400-foot radius.

As the proposed project has moved forward, additional components of the proposed action have been identified that have required a Supplemental Environmental Assessment (SEA) under the New York State Environmental Quality Review Act (SEQRA) be completed. The Draft SEA was completed in February 2022. New project components include:

- Temporary Bus Parking Off-Site (During Construction). As was stated in the 2019 EIS, Section 3.3, "Temporary Bus Storage," there would be a need during the construction of the Proposed Project to have a temporary bus storage location (off-site). NYCT has identified an approximately 3.5-acre parcel of property to the north of the project site at CUNY York College and has secured its use for future temporary bus storage during construction. This proposed off-site parking area includes a portion of Block 10159, Lot 3; Block 10160, Lot 1; and the former roadway of 164th Street/Evergreen Street, which ran north-south between the two blocks and has been discontinued.

- Future Street De-Mapping (Tuskegee Airmen Way). Through ongoing consultation with NYC Department of Transportation (NYCDOT), NYCT has refined the design of depot entry and exit points. To accommodate NYCDOT mandates, a portion of Tuskegee Airmen Way, directly north of and adjacent to the existing bus depot on Block 10164 would be de-mapped and made available for depot operations use.

The present report comprises the Phase IA Archaeological Assessment of the two additional areas of this project: the Temporary Bus Parking on Blocks 10159, 10160, and the former 164th Street/Evergreen Street between them; and the portion of Tuskegee Airmen Way north of the existing JBD slated for de-mapping (Figures 1, 2, and 3). As part of the review process, this Phase IA Archaeological Assessment is required to identify known and potential archaeological resources within the Area of Potential Effect (APE).

The APE for the project site is limited to the locations of proposed and potential ground disturbance, and consists of the areas within Blocks 10159 and 10160, the former location of 164th Street/Evergreen Street, and the locations north of the existing JBD within Tuskegee Airmen Way that will be de-mapped. This report complies with the standards of the New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) (New York Archaeological Council 1994, NYSOPRHP 2005).

The Phase IA archaeological assessment revealed that the Block 10159 and 10160 portion of the project site has been significantly disturbed from multiple episodes of construction, demolition, and earthmoving. Soil borings across these blocks confirm deep fill ranging in depths of 10-22 feet below grade. Although the Tuskegee Airmen Way portion of the project site has not had any soil borings completed to assess disturbance, HPI assumes that roadbed and traffic island construction has been affected as well. As a rule, archaeological studies in New York City have repeatedly determined that roughly the upper 2 vertical feet of roadbeds and underlying materials are disturbed from episodes of road construction, regulating, paving and repaving.

From what is known of precontact period settlement patterns in New York City and Long Island, most habitation and processing sites are found in sheltered, elevated sites close to wetland features, major waterways, and with nearby sources of fresh water. In its natural condition, the project site was located near a small creek. Combined with its generally level terrain, the project site would have represented a favorable location for Native American settlement.

However, as described above, the Block 10159 and 10160 portion of the project site has experienced substantial disturbance that appears to have destroyed much if not all of the soils in the upper reaches of the soil column, where precontact period archaeological sites normally are located. The soil borings indicate that the upper reaches of the present soil column consists entirely of fill, to depths generally below the level of the natural landform. Based on these factors, the Block 10159 and 10160 portion of the project site now is considered to have a low potential for hosting precontact cultural remains.

The Tuskegee Airmen Way portion of the project site simply will be reconfigured to allow bus traffic in and out of the adjacent Jamaica Bus Depot. The reconfiguration of this area will not require excavation to depths below the existing disturbance from the road construction. HPI concludes that precontact period archaeological sensitivity for this area is low.

Given the level of disturbance across the Block 10159 and 10160 project site lots, as described above, HPI concludes that there is little to no historic period archaeological sensitivity related to potential eighteenth and nineteenth occupational use of these areas. However, the proposed temporary bus parking lot parcel on Block 10159 abuts a historic cemetery on Lot 54, which is owned by the First United Methodist Church of Jamaica. This cemetery measures 125 feet on each side and is enclosed by a chain link fence on all four sides. The chain link fence boundary is a modern boundary line which may not have been the same boundary during the nineteenth century. It is possible that there could be either intact burials, or fragmentary or redeposited burials with disarticulated or fragmented bones, below the ground surface along the edge of the fenced cemetery within the proposed bus depot parking lot parcel. Of note, none of the soil borings completed on the project site were situated in close proximity to the cemetery fence line, and so subsurface conditions in these cemetery-abutting areas are unknown. HPI has identified a Sensitivity Area for cemetery resources within the project site measuring 125 feet in length and 20 feet in width along the eastern side of the cemetery, as shown on Figure 18.

The Tuskegee Airmen Way portion of the project site is within an area that was primarily part of the South Street and Merrick Boulevard roadways through the nineteenth century. Several structures overlapped this area during the twentieth century, but should have no archaeological concerns.

Due to the potential of the 125x20 foot Sensitivity Area within the project site to contain historic cemetery resources, HPI recommends that a qualified professional Archaeological Consultant be present during the clearing of brush and trees, and during all subsurface excavations to the depth of the project impacts, within this delineated zone. The Design-Builder will contract with an Archaeological Consultant to perform the required archaeological monitoring on the proposed temporary bus parking property adjacent to the historic cemetery. The Archaeological Consultant will be a Registered Professional Archaeologist and will meet the Secretary of the Interior's Historic Preservation Professional Qualification Standards for Archaeology.

The work performed by the Archaeological Consultant will include preparation of an archaeological monitoring protocol, the archaeological on-site monitoring by one or more professional archaeologists, consultation with an on-call forensic anthropologist if necessary, the documentation and removal of any recovered human remains from the Sensitivity Area, arrangement for temporary storage of any recovered human remains either on site or off site, and consultation with the adjacent cemetery owner (the First United Methodist Church of Jamaica) to arrange reburial of any human remains in the existing cemetery. Permit procedures for the removal and re-interment of any recovered human remains must be in compliance with New York City Department of Health and Mental Hygiene (DOH) law.

The Archaeological Consultant will prepare a technical report documenting the results of the monitoring investigations, which will include an analysis of any cultural remains (including human remains) recovered in the Sensitivity Area. An end-of-fieldwork memorandum may be submitted by the Archaeological Consultant prior to submission of the final report. In conjunction with the archaeological monitoring, the Archaeological Consultant will be required to prepare an Unanticipated Discoveries Plan that will address any unforeseen cultural resources (including human remains) that could be found during the any bus parking lot construction outside the sensitivity area. The Archaeological Consultant will be required to work in tandem with the MTA NYCT to ensure compliance with all local and state regulations pertaining to cultural resources and human remains in New York City.

HPI has determined that there is no precontact or historic period archaeological sensitivity on the remainder of the Block 10159 and 10160 project site, or within the Tuskegee Airmen Way portion of the project site. No additional archaeological investigations are recommended beyond the monitoring zone next to the historic cemetery.

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I. INTRODUCTION

The Metropolitan Transportation Authority (MTA) New York City Transit (NYCT) proposes the reconstruction and expansion of the Jamaica Bus Depot (JBD), located at 165-18 Tuskegee Airmen Way (formerly South Street and South Road)[1], on Block 10164 in the Jamaica neighborhood of Queens County, New York (Figures 1, 2, and 3). In 2019, the MTA-NYCT completed an Environmental Impact Statement (EIS) for the Jamaica Bus Depot proposed project. As part of that EIS, Historical Perspectives, Inc. (HPI) undertook a Phase IA Cultural Resources Assessment for the proposed project in 2016, which was revised in 2019. The EIS was filed with and accepted by the New York State Historic Preservation Office (SHPO). The Phase IA Cultural Resources Assessment concluded that there was no archaeological sensitivity for the Block 10164 project site and no architectural significance for the existing Jamaica Bus Depot or any buildings within a 400-foot radius.

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II. METHODOLOGY

The present study entailed review of various resources.

- Primary and secondary sources concerning the general history of Jamaica, Queens and specific events associated with the project site and vicinity were reviewed using materials at the Archives at Queens Library, the New York Public Library, the library of HPI, and online resources.
- Historic maps and atlases were reviewed using materials at the Archives at Queens Library, the New York Public Library, the library of HPI, and using various online websites. These cartographic sources provided

[1] This report refers to the roadway as Tuskegee Airmen Way when discussing current conditions, but refers to the roadway as South Street or South Road when referencing data from periods prior to the name change. Due to the relatively recent change in the official name, many maps have not yet made the transition to the new designation.

an overview of the topography and a chronology of land usage for the project site. A selection of these maps and atlases has been reproduced for this report.

- The project sponsor provided a Phase I Environmental Site Assessment, a Phase II Environmental Site Investigation, and a Geotechnical Interpretive Report for Blocks 10159 and 10160 (STV 2018a, 2018b, 2019). Soil boring data from the Phase II Environmental Site Investigation and the Geotechnical Interpretive Report are included as Appendices A and B.
- Inquiries about the First Methodist Church of Jamaica[2] Cemetery that abuts the project site on Block 10159 were made to the current owner, the First United Methodist Church of Jamaica; the C. Wesley Christman Archives of the New York Annual Conference of the Methodist Church; and local historian Mary French, author of the New York City Cemetery Project. Neither the First United Methodist Church of Jamaica nor the C. Wesley Christman Archives were able to locate any primary source materials about the cemetery parcel (Francis 10/13/2022; Patkus 10/3/2022). Secondary source materials compiled by historian French are cited in this report (New York City Cemetery Project 2022, French 9/23/2022). Published records of internments at the cemetery are provided in Appendices C and D.
- Historic photographs were reviewed using online materials from the New York City Municipal Archives, the Archives at Queens Library, and the New York Public Library. A selection of these photographs is provided in Appendix E.
- Department of Building records were reviewed using online resources.
- Department of Finance records were reviewed using online resources.
- Information about previously recorded archaeological and historic sites and surveys in the area was compiled from data available at the NYSOPRHP, the New York City Landmarks Preservation Commission (LPC), and the library of HPI.
- Last, HPI conducted a site visit on September 15, 2022 with MTA NYCT personnel (Photographs 1-17; Figure 2).

III. CURRENT CONDITIONS AND ENVIRONMENTAL SETTING

A. Current Conditions

There are two general locations comprising the project site: the proposed temporary bus parking on the CUNY York College property, and the portion of Tuskegee Airmen Way that is proposed to be de-mapped.

CUNY York College: Blocks 10159, 10160 and the former 164th Street/Evergreen Street

The proposed temporary bus parking area presently is a large undeveloped parcel, enclosed on all sides by chain link fencing (Photographs 1-3). It includes the approximate northeastern quadrant of Block 10159 on the west and all of Block 10160 on the east. The blocks formerly were separated by a north-south roadway called 164th Street/ Evergreen Street, which has been discontinued and is no longer visible on the landscape (Photograph 4). The entire project site is covered with grass. There are several catch basins located within both the former 164th Street roadway and the Block 10160 portion of the parcel. In 2018 and 2019, a series of soil borings were completed for the current project (see below and Appendices A and B). Areas where machinery was used to complete the soil boring programs have been disturbed from these activities (Photograph 5). There are a number of monitoring wells visible on the property. At the southeastern side of the project site along 165th Street and Tuskegee Airmen Way, the project site is several feet higher in elevation than the surrounding streets (Photograph 6).

The Block 10159, Lot 3 portion of the project site is bounded by an asphalt-paved surface parking lot used by CUNY York College at the southwest corner of the block. The entrance to the parking lot is on Guy R. Brewer Boulevard (Photograph 7). There is a small attendant's booth structure at the entrance to the parking lot. There are several electric light poles within the parking lot, and a catch basin at its eastern side.

[2] The name of the cemetery is referred to by its historic name, the First Methodist Church of Jamaica cemetery. The name of the current church is the First United Methodist Church of Jamaica, a name that was only adopted in the second half of the twentieth century, well after the cemetery had ceased to be used.

Block 10159 also contains an extant historic cemetery, the First Methodist Church of Jamaica Cemetery, on Lot 54, which abuts the project site and faces Guy R. Brewer Boulevard (Photographs 8-12). The cemetery parcel measures approximately 125 feet on all four sides and is enclosed by chain link fencing on all sides, with entry gates on the east and west sides (Photograph 9). The cemetery parcel is slightly higher in elevation than the sidewalk on Guy R. Brewer Boulevard, and several steps (now overgrown with ivy) lead from the sidewalk up to the level of the cemetery (Photograph 10). There are wooden retaining wall elements around the periphery of the cemetery (Photograph 11). Presently, the cemetery is heavily overgrown with ivy and other understory, as well as mature trees (Photograph 12). A number of tombstones are visible within the understory. Along the eastern side of the cemetery, which abuts the project site, there are visible tombstones as close as approximately 10 feet from the fenced boundary (Photograph 13). The portion of the project site immediately abutting the cemetery contains some of the same understory and trees extending beyond the cemetery fence line. This area also contains modern debris, including some construction materials and office furniture that has been dumped here (Photograph 14).

Tuskegee Airmen Way

The portion of the project site along Tuskegee Airmen Way is located immediately north of the existing Jamaica Bus Depot on Block 10164. This area includes a section of the sidewalk on the south side of the roadway, the roadbed itself, and a raised "island" area that is paved and presently used for automobile parking (Photographs 15-17). The "island" is at the level of the surrounding curb, which is several inches above the surrounding road elevations.

B. Topography and Hydrology

Early maps of Queens recorded the topography and environment of the proposed temporary bus parking lot prior to nineteenth- and twentieth-century development. The earliest detailed maps of the area, the 1837, 1844, and 1891 topographical surveys, depicted the project site as a relatively level area, located to the north of the head of a perennial tributary of Cornell's Creek (U.S.C.S. 1837 [Figure 5], 1844; Bien and Vermeule 1891 [Figure 10]).

In its natural state, the project site was generally level. The earliest recorded numerical elevations were derived from topographic maps and real estate atlases. The 1891 topographical map showed that the project site ranged from approximately 40-50 feet above sea level (Bien and Vermeule 1891 [Figure 10]). The Final Maps of the Borough of Queens from 1935 (Figure 15) indicated that the temporary bus parking lot portion of the project site ranged from 40-45 feet above sea level while the Tuskegee Airmen Way section was approximately 31 feet above sea level. A recently completed topographical survey for the Block 10159/10160 portion of the project indicates that current elevations range from approximately 36-50 feet above sea level (NAVD 88), depending on location (Manhattan Surveying 2018, Figure 3). Presently, the main Block 10159/10160 parcel is several feet higher in elevation than the surrounding streets, with an artificially graded and sloped embankment along portions of Guy R. Brewer Boulevard and Tuskegee Airmen Way.

D. Soils

The USDA soil survey for New York City (Figure 4) indicates that the Block 10159/10160 portion of the project site falls within a large area mapped as 211, "Pavement & buildings-Flatbush-Riverhead complex, 0 to 8 percent slopes." It is described as:

> Nearly level to gently sloping urbanized areas of outwash plains that have been substantially cut and filled, mostly for residential use; a mixture of anthropogenic and gneissic outwash soils, with up to 80 percent impervious pavement and buildings covering the surface (USDA 2005:14).

The Tuskegee Airmen Way portion of the project site falls within an area mapped as "Laguardia-Ebbets-Pavement & buildings complex, 0 to 8 percent slopes." It is described as:

> Nearly level to gently sloping areas filled with a mixture of natural soil materials and construction debris; a mixture of anthropogenic soils which vary in coarse fragment content, with more than 15 percent impervious pavement and buildings covering the surface (USDA 2005:11).

Two sets of soil borings and test pits were reviewed for the Block 10159/10160 portion of the project site. At the time that these soil borings were completed, the proposed project site was larger, and included the present paved parking lot on Block 10159 that fronts on Guy R. Brewer Avenue and abuts the historic cemetery on its southern side. As such, the soil boring data includes more locations than the existing project site.

The first set of soil borings, from 2018, was completed as part of the Phase II Environmental Site Investigation for the current project (STV 2018b). That program included 33 soil borings with depths of 5 to 40 feet, 14 test pits with depths of 5 to 15 feet, and the installation of 7 temporary groundwater monitoring wells. The second set of soil borings was completed as part of a Geotechnical Interpretive Report for the current project (STV 2019). That program included 27 soil borings varying from 42 to 52 feet below ground surface (bgs), installing 6 monitoring wells and recording ground water level during field exploration. The full results, maps, and soil logs are included as Appendices A and B.

Both sets of soil borings and test pits indicated similar subsurface conditions across the proposed temporary bus parking lot on these blocks. The 2019 report summarized the overall site conditions:

> Fill material was encountered at all test boring locations and ranged between 10 to 22 feet thick at exploration locations. Fill material depth varies from 10 feet (El. 39.3 feet) to 22 feet (El. 21.3 feet) at B-01 and B-22 borehole locations, respectively. The fill material consists of sand, silt, gravel, cobble, brick, concrete, metal, wood pieces, plastic material, glass, and debris (STV 2019:10).
>
> Native material consists of dark brown to light brown coarse to fine sand with varying amount of silt and coarse to fine gravel. Top of the stratum varies from 10 feet to 22 feet bgs (El. 39.3 feet to El. 21.3 feet). This stratum extends to the boring termination depth for all borings (STV 2019:11).

Groundwater was recorded at depths ranging from approximately 17-29 feet below grade, or elevations 22.6-21.4 (STV 2019:12).

Results of the soil boring programs indicate that there has been significant grading and filling on the project site, as evidenced by the thick fill stratum in all the borings. The grading and filling appear to be the result of the multiple building and demolition episodes on the property during the nineteenth and twentieth centuries, as well as earthmoving since removal of the former structures in the 1970s.

IV. BACKGROUND RESEARCH/HISTORICAL OVERVIEW

A. Precontact Summary

For this report, the word precontact is used to describe the period prior to the use of formal written records. In the western hemisphere, the precontact period also refers to the time before European exploration and settlement of the New World. Archaeologists and historians gain their knowledge and understanding of precontact Native Americans in the lower Hudson Valley area from three sources: ethnographic reports, Native American artifact collections, and archaeological investigations.

Based on data from these sources, a precontact cultural chronology has been devised for the New York City area. Scholars generally divide the precontact era into three main periods, the Paleo-Indian (c. 14,000-9,500 years ago), the Archaic (c. 9,500-3,000 years ago), and the Woodland (c. 3,000-500 years ago). The Archaic and Woodland periods are further divided into Early, Middle, and Late substages. The Woodland was followed by the Contact Period (c. 500-300 years ago). Artifacts, settlement, subsistence, and cultural systems changed through time with each of these stages. Characteristics of these temporal periods have been well documented elsewhere, and in keeping with guidelines issued by the NYSOPRHP (2005), will not be fully reiterated here.

Scholars often characterize precontact sites by their close proximity to a water source, fresh game, and exploitable natural resources (i.e., plants, raw materials for stone tools, clay veins, etc.). These sites are often separated into three categories: primary (campsites or villages), secondary (tool manufacturing, food processing), and isolated finds (a single or very few artifacts either lost or discarded). Primary sites are often situated in locales that are easily

defended against both nature (weather) and enemies. Secondary sites are often found in the location of exploitable resources (e.g., shell fish, lithic raw materials).

The project site, which was just north of a small perennial stream, in its natural state would have been located in an area hospitable to precontact period occupation.

B. Historic Period Summary

The project site falls within the original boundaries of the Town of Jamaica, chartered in 1660, whose jurisdiction extended from the southern foothills of the moraine, to the meadowlands and shores of Jamaica Bay (Munsell 1882:195). What is now known as Jamaica Avenue was originally a Native American trail, and provided early east-west access through the area; the former Rockaway Turnpike ran north-south from Jamaica Avenue, roughly paralleling Beaver Creek, to Jamaica Bay. Both South Street, as it was originally called, and Merrick Boulevard were in place by the late eighteenth century (Taylor and Skinner 1781).

Historic maps indicate that there may have been one structure within or near the Block 10160 portion of the project site during the late eighteenth century. The Taylor and Skinner 1781 map showed one building on the north side of South Street, in the approximate area of the project site, although the imprecision of the map precluded a definitive placement. The 1837 U.S.C.S. map (Figure 5) showed a structure to the east of the Block 10160 portion of the project site on the north side of South Street, in the area now east of 165th Street. However, the entire Block 10159/10160 portion of the project site was vacant and undeveloped. The 1842 Johnson map (Figure 6) showed three structures in this general location, attributed to James Carpenter. Two of the structures overlapped the southeast corner of the Block 10160 project site. The rest of the project site was vacant. The same structure, east of Block 10160, was shown on the 1844 U.S.C.S. map, the 1849 Sidney map, and the 1852 Conner map, although none of these maps showed any additional structures within the project site. The portion of the project site within Tuskegee Airmen Way was shown as part of the street intersections throughout this time.

Although shown on historic maps as vacant, there was one use on what would become Block 10159 during the first half of the nineteenth century. The First Methodist Church of Jamaica, which was founded in 1807, had its cemetery on the east side of what was then known as New York Avenue (now Guy R. Brewer Boulevard) during this period. This area is now known as Lot 54, and abuts the project site. The burial ground, which as described above measures approximately 125 feet square, was noted as having gravestones dating from 1816-1933 when they were recorded in the 1910s (Frost 1911, Appendix C; Eardeley 1916, Appendix D).

The cemetery plot was gifted to the church on May 3, 1850 by members Obadiah P. and Susan Leech, and Abraham D. and Eliza Snedecker (Cohen 1995; Inskeep 2000:57-58; Walski n.d.; New York City Cemetery Project 2022). The cemetery appears to have begun as a burial ground for several local families, including the Leeches and the Dunns. The 1842 Johnson map (Figure 6) noted that at least part of the land that would become the church cemetery at that time was attributed to "J. Dunn," or John Dunn. This John Dunn likely was John Dunn, Jr., who was married to Obadiah and Susan Leech's daughter Jane Eliza Leech (Duke University Libraries n.d.). John Dunn, Sr. was a founding trustee of the First Methodist Church of Jamaica and may have been the original landowner (New York City Cemetery Project 2022). Several members of the Leech and Dunn families, among others, were buried in the cemetery prior to 1850, as shown in Appendices C and D. As part of the donation of the land to the church, the Leech and Snedecker families reserved lots 2, 11, 12, 13, 16, and 17 for use by their families (Walski n.d.).

After 1850, the First Methodist Church began to relocate bodies from its old burial ground, which was in the churchyard next to their original building on 151st Street, to the new Methodist Cemetery (Walski n.d.). The church continued to inter bodies at the cemetery through the first decades of the 1900s. Appendix C, which is an account of burials in the cemetery through 1911, also contains several handwritten insertions (presumably made by an unknown writer after its initial publication) noting additional burials as late as 1933. After the church discontinued using the cemetery, the conditions deteriorated and the parcel became unkempt (Cohen 1995). The current chain link fencing around the cemetery was constructed by CUNY York College in the late twentieth century.

The 1859 Walling map (Figure 7) was the first historic map to label the burial ground on Block 10159 abutting the project site. On this map it was simply labeled "Cemetery." One structure was shown abutting the project site in the area now covered by the CUNY York parking lot – a building attributed to "H. Bogart." The remainder of the Block

10159/10160 project site was depicted as vacant, although what is now 165th Street (then Puntine Street) had been created by this time. The Tuskegee Airmen Way portion of the project site was shown as mostly within the intersection of several roads and partially overlapping an undeveloped corner of the triangular-shaped block to the north. An update of the 1859 Walling map, from 1863, indicated that the Bogart structure now was attributed to "J. Phraner."

By the early 1870s, two new streets had been laid out that configured the project site blocks. The 1873 Beers atlas (Figure 8) showed that Linden Street had been opened on the north side of the Block 10159/10160 portion of the project site, and Evergreen Street had been opened between the two blocks. With the creation of the new streets, lots were now depicted within the larger blocks. The Bogart/Phraner house on Block 10159 was now attributed to "Teagle." A new dwelling had been constructed on the south side of Linden Street within current Block 10160, labeled "M.P. Carey." The burial ground abutting the project site on New York Avenue was now labeled "M.E. Cemetery." The same information, albeit without the lot lines, was shown on an 1876 Dripps map (Figure 9).

Similar conditions were shown on the 1891 Wolverton atlas (Figure 11), although the section of Puntine Street on the eastern side of Block 10160 now was called Locust Street. On both maps, the portion of the project site within Tuskegee Airmen Way again was shown to be largely within the road intersection, but partially overlapping an undeveloped portion of the triangular-shaped block north of the roadway.

After Queens became a borough of New York City in 1897, development increased within the project site and surrounding areas. The 1897 Sanborn atlas showed that there was now a building labeled "Christbar's Hotel" and an adjacent horse shed at the corner of the triangular-shaped block that now includes the Tuskegee Airmen Way portion of the project site. Within the Block 10159 and abutting the project site immediately south of the cemetery, a new building for the Jamaica Hospital opened in 1898. It was used until 1924 when the facility moved to a new location (Jamaica Hospital Medical Center n.d.).

By the turn of the twentieth century, the portion of Block 10159 abutting the project site and presently covered by the CUNY York College parking lot began to be developed with additional buildings. The 1901 Sanborn atlas showed that in addition to the Jamaica Hospital just south of the cemetery, there were now new dwellings fronting New York Avenue, South Street and Evergreen Street. Similar conditions were shown on the 1909 Bromley atlas (Figure 12), although the former Carey house on Block 10160 now was labeled the Clark Estate.

The 1912 Sanborn atlas (Figure 13) indicated that by this time, additional houses had been constructed on South Street abutting the Block 10159 portion of the project site. There was now a lumber yard with piles of lumber shown on Block 10160 south of the old Carey house, attributed to J.R. Carpenter and Company. A small watch house structure for the lumber yard was located on the west side of the block, facing Evergreen Street. The 1918 Ullitz atlas showed similar conditions, as did a 1924 aerial photograph (Figure 14), although no obvious lumber piles were visible. The 1925 Sanborn atlas showed that by this time, the Jamaica Hospital had been demolished, leaving an empty lot where the north portion of the CUNY York parking lot now is located. Several residences had been constructed within the project site on the south side of Liberty Avenue (formerly Linden Street). The former Carey house on Block 10160 had been removed and the entire block had become a baseball park, with grandstands and bleachers around the periphery of the field.

A number of changes had occurred on the project site blocks by the early 1940s, according to a 1942 Sanborn atlas (Figure 16). On the north side of the project site Liberty Avenue had been widened, taking land from the original northern sections of Blocks 10159 and 10160 to create the new sidewalks and streetbed. On Block 10159, the former Jamaica Hospital lot abutting the project site now contained a warehouse covering the entire lot, labeled Long Island Drug Co., Inc. Several new warehouses also had been built on the west side of Evergreen Street abutting the project site. Two commercial buildings had been erected on the south side of Liberty Avenue, replacing the residences that had previously been located there and which were removed when the street was widened and the lots truncated. A large one-story storage facility had been constructed on the formerly vacant portion of the Block 10159 project site. Block 10160 remained in use as a baseball park, with bleachers at the northeastern corner of the block. Additionally, along Tuskegee Airmen Way a new street intersection configuration had been created by eliminating the eastern end of adjacent Block 10158, which was now shown with a rounded eastern side. At this time, the Tuskegee Airmen Way portion of the project site was no longer part of any abutting blocks and was entirely within roadways.

Tax photographs of many of these buildings were made from 1939-1941, and several lots and buildings were photographed again in 1949-1951. The tax photographs for all the buildings within the APE on Blocks 10159 and 10160 are included as Appendix E.

The 1951 Sanborn map (Figure 17) showed the status of the project site at about the time that the last of the historic photographs were taken. By this time, additional warehouses had been constructed south of earlier ones on the west side of Evergreen Street. The warehouse complex was labeled "Saltser & Weinsier, Inc." The tax photographs (Appendix E) revealed several commercial signs for this company, and clarified that it was a plumbing and heating supply business. By 1951, Block 10160 contained an automobile showroom at the northeast corner of the parcel (noted on the historic photograph as a Lincoln & Mercury car dealership), with two repair structures in the center of that block.

Aerial photographs from 1954 and 1966 and the 1967 Sanborn map indicated no changes to the project site during the remainder of the 1950s and 1960s. In 1969 and 1970 the Block 10159 and 10160 project site parcels were mapped as part of the area for the York College Urban Renewal Stage II (Maps 10801 and 10970). A court order in 1974 officially conveyed these parcels to the City of New York to be used as part of the York College campus (Liber 741:780). In 1972, several demolition permits were filed for buildings on Block 10159, and over the course of the 1970s, all the buildings were razed on Blocks 10159 and 10160. An aerial photograph from 1980 showed that the project site blocks were completely vacant, with no remaining structures. In 1987, the York College property was transferred from the City of New York to the State of New York (Liber 2425:557).

The only changes to the project site areas since the mid-1970s were to create parking locations and to enclose areas with fencing. The current configuration of the informal parking area within Tuskegee Airmen Way was created by the mid-1990s, according to aerial photographs. By 2004, the present CUNY York College parking lot on Block 10159 had been constructed.

C. Archaeological Sites and Surveys

Research conducted using materials from the NYSOPRHP, the LPC, and the library of HPI revealed no precontact archaeological resources specifically mapped within the project site. However, the project site does fall within the large Historic Jamaica Village archaeological site, which is mapped as extending over multiple blocks in the downtown Jamaica area. The boundaries of this area are roughly 108th Avenue on the south, Merrick Boulevard on the east, Sutphin Boulevard on the west, and Hillside Avenue on the north. Several other archaeological sites also have been documented within a one mile radius of the project site. The sites are listed in Table 1, below.

Table 1: Archaeological sites within a one mile radius of the project site

Site Number	Site Name/Description	Location	Site Type/Time Period
NYSM 7460 A08101.000104	Historic Jamaica (BRK 2-2)	Large area of Jamaica Center, includes project site	Historic Village
NYSM 4546	None	Large area north of Jamaica Avenue	Traces of Occupation, unknown precontact
A08101.009571 A08101.000152 Boesch 74	One Jamaica Center Site (Block 10100)/GSA Site	Archer Ave. and Parsons Blvd.	Late 18th – 19th centuries
Boesch 73a	Captain Tilly Park	Captain Tilly Park	Possible Middle Woodland component
Boesch 76	None	Unprovenienced sites near Morris Park	Unknown precontact
Boesch 78	Rufus King Park	Rufus King Park	Unknown precontact in fill deposits

Additionally, Archaeologist/Historian Robert S. Grumet noted the presence of a Native American trail along modern Jamaica Avenue and the former Rockaway Turnpike, both located several blocks from the project site (Grumet 1981). Last, the NYSOPRHP GIS database identifies the project site as within an area of archaeological sensitivity,

based on proximity to other known sites, as does the archaeological sensitivity study of Queens prepared for the LPC (Boesch 1997).

The project site has never been subjected to a site-specific archaeological assessment, although along with most of the Jamaica neighborhood it was included within the boundaries of the very large project area for the Downtown Jamaica Redevelopment Plan (Bergoffen 2006). Other archaeological studies completed within a one mile radius have included the General Services Administration facility at York College (HPI 1996a, 1996b), the One Jamaica Center project (HPI 1998, John Milner Associates 2000), the PS/IS 48 school site (The Louis Berger Group 2007), the 104-65 East 165th Street project (Chrysalis 2007), the 114-01 Sutphin Boulevard project (EBI Consultants 2009), and the recent Jamaica Bus Depot Cultural Resources Assessment (HPI 2019).

V. CONCLUSIONS

A. Disturbance Record

The Block 10159 and 10160 portion of the project site has been significantly disturbed from multiple episodes of construction, demolition, and earthmoving. Soil borings across these blocks confirm deep fill ranging in depths of 10-22 feet below grade. Although the Tuskegee Airmen Way portion of the project site has not had any soil borings completed to assess disturbance, HPI assumes that roadbed and traffic island construction has been affected as well. As a rule, archaeological studies in New York City have repeatedly determined that roughly the upper 2 vertical feet of roadbeds and underlying materials are disturbed from episodes of road construction, regulating, paving and repaving.

B. Precontact Archaeological Sensitivity

From what is known of precontact period settlement patterns in New York City and Long Island, most habitation and processing sites are found in sheltered, elevated sites close to wetland features, major waterways, and with nearby sources of fresh water. In its natural condition, the project site was located near a small creek. Combined with its generally level terrain, the project site would have represented a favorable location for Native American settlement.

However, as described above, the Block 10159 and 10160 portion of the project site has experienced substantial disturbance that appears to have destroyed much if not all of the soils in the upper reaches of the soil column, where precontact period archaeological sites normally are located. The soil borings indicate that the upper reaches of the present soil column consists entirely of fill, to depths generally below the level of the natural landform. Based on these factors, the Block 10159 and 10160 portion of the project site now is considered to have a low potential for hosting precontact cultural remains.

The Tuskegee Airmen Way portion of the project site simply will be reconfigured to allow bus traffic in and out of the adjacent Jamaica Bus Depot. The reconfiguration of this area will not require excavation to depths below the existing disturbance from the road construction. HPI concludes that precontact period archaeological sensitivity for this area is low.

C. Historic Period Archaeological Sensitivity

Given the level of disturbance across the Block 10159 and 10160 project site lots, as described above, HPI concludes that there is little to no historic period archaeological sensitivity related to potential eighteenth and nineteenth occupational use of these areas. However, the proposed temporary bus parking lot parcel on Block 10159 abuts a historic cemetery on Lot 54, which is owned by the First United Methodist Church of Jamaica. This cemetery measures 125 feet on each side and is enclosed by a chain link fence on all four sides. The chain link fence boundary is a modern boundary line which may not have been the same boundary during the nineteenth century. It is possible that there could be either intact burials, or fragmentary or redeposited burials with disarticulated or fragmented bones, below the ground surface along the edge of the fenced cemetery within the proposed bus depot parking lot parcel. Of note, none of the soil borings completed on the project site were situated in close proximity to the cemetery fence line, and so subsurface conditions in these cemetery-abutting areas are

unknown. HPI has identified a Sensitivity Area for cemetery resources within the project site measuring 125 feet in length and 20 feet in width along the eastern side of the cemetery, as shown on Figure 18.

The Tuskegee Airmen Way portion of the project site is within an area that was primarily part of the South Street and Merrick Boulevard roadways through the nineteenth century. Several structures overlapped this area during the twentieth century, but should have no archaeological concerns.

VI. RECOMMENDATIONS

Due to the potential of the 125x20 foot Sensitivity Area within the project site to contain historic cemetery resources, HPI recommends that a qualified professional Archaeological Consultant be present during the clearing of brush and trees, and during all subsurface excavations to the depth of the project impacts, within this delineated zone. The Design-Builder will contract with an Archaeological Consultant to perform the required archaeological monitoring on the proposed temporary bus parking property adjacent to the historic cemetery. The Archaeological Consultant will be a Registered Professional Archaeologist and will meet the Secretary of the Interior's Historic Preservation Professional Qualification Standards for Archaeology.

The work performed by the Archaeological Consultant will include preparation of an archaeological monitoring protocol, the archaeological on-site monitoring by one or more professional archaeologists, consultation with an on-call forensic anthropologist if necessary, the documentation and removal of any recovered human remains from the Sensitivity Area, arrangement for temporary storage of any recovered human remains either on site or off site, and consultation with the adjacent cemetery owner (the First United Methodist Church of Jamaica) to arrange reburial of any human remains in the existing cemetery. Permit procedures for the removal and re-interment of any recovered human remains must be in compliance with New York City Department of Health and Mental Hygiene (DOH) law.

The Archaeological Consultant will prepare a technical report documenting the results of the monitoring investigations, which will include an analysis of any cultural remains (including human remains) recovered in the Sensitivity Area. An end-of-fieldwork memorandum may be submitted by the Archaeological Consultant prior to submission of the final report. In conjunction with the archaeological monitoring, the Archaeological Consultant will be required to prepare an Unanticipated Discoveries Plan that will address any unforeseen cultural resources (including human remains) that could be found during the any bus parking lot construction outside the sensitivity area. The Archaeological Consultant will be required to work in tandem with the MTA NYCT to ensure compliance with all local and state regulations pertaining to cultural resources and human remains in New York City.

HPI has determined that there is no precontact or historic period archaeological sensitivity on the remainder of the Block 10159 and 10160 project site, or within the Tuskegee Airmen Way portion of the project site. No additional archaeological investigations are recommended beyond the monitoring zone next to the historic cemetery.

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FIGURES

Phase IA Archaeological Assessment
Reconstruction and Expansion Project
Jamaica Bus Depot, York College Temporary Bus Parking
Block 10159, Part of Lot 3; Block 10160, Lot 1; and a portion of Tuskegee Airmen Way
Jamaica, Queens County, New York

Figure 1: Project site on *Jamaica, New York* 7.5 Minute Quadrangle (U.S.G.S. 2013).

Phase IA Archaeological Assessment
Reconstruction and Expansion Project
Jamaica Bus Depot, York College Temporary Bus Parking
Block 10159, Part of Lot 3; Block 10160, Lot 1; and a portion of Tuskegee Airmen Way
Jamaica, Queens County, New York

Figure 2: Project site and photograph locations on modern aerial photograph (Google 2022).

F:\Proj\Projects\21812 - Jamaica Bus Depot\DWG\21816 Bus Depot.dwg, 30x42 fs, 6/4/2018 2:51:40 PM

BLOCK 10159 LOT 3
BLOCK 10160 LOT 1
Queens, New York

MONUMENT IN FIELD
N:194888.322
E:1041193.929
H:50.753

CONCRETE SIDEWALK

MONUMENT IN FIELD
N:195193.923
E:1041751.146
H:37.071

LIBERTY AVENUE
(122'-0" WIDE)

STEEL FACED CURB
PROPERTY LINE
CONCRETE SIDEWALK

275'-3"
635'-6¼"
60'-0"
300'-3¼"
46'-10½"
125'-1⅜"
125'-0"
125'-1⅜"
429'-4¼"
408'-10⅝"
338'-2"
246'-0"
247'-2⅝"
78'-11⅜"
63'-5⅝"
270'-7⅛"
128'-2⅛"
159'-1⅛"
17'-5⅝"

MONITORING WELL TOP ELEV. 49.19
MONITORING WELL TOP ELEV. 43.51
MONITORING WELL TOP ELEV. 40.52
MONITORING WELL TOP ELEV. 39.84
MONITORING WELL TOP ELEV. 44.88
MONITORING WELL TOP ELEV. 49.62
MONITORING WELL TOP ELEV. 50.38

CHAIN LINK FENCE
CEMETERY
BLOCK 10159
LOT 3
BLOCK 10160
LOT 1
ASPHALT PARKING LOT
BOOTH
STONE CURB
CATCH BASIN
CATCH BASIN EL. 46.04
CATCH BASIN EL. 41.81
CATCH BASIN EL. 41.40
CATCH BASIN EL. 41.04
PROPERTY LINE
PROPOSED WIDENING
CONCRETE SIDEWALK
STEEL FACED CURB

GUY R. BREWER BOULEVARD
(NEW YORK BOULEVARD)
(88'-0" WIDE)

FORMERLY 164TH STREET
(EVERGREEN STREET)
(60'-0" WIDE)

165TH STREET
(70'-0" WIDE)

THREE STORY BRICK

TUSKEGEE AIRMEN WAY
(SOUTH ROAD)
(80'-0" WIDE)

LEGEND

- MONUMENT IN FIELD
- MONITORING WELL
- CATCH BASIN
- PROPERTY LINE
- PROPOSED WIDENING
- CONTOUR 1 FOOT
- CONTOUR 5 FOOT
- CHAIN LINK FENCE
- PARKING SPACE LINE
- MONUMENTS LINE

Key
Project site

DATUM CONVERTION CHART
(NOT TO SCALE)

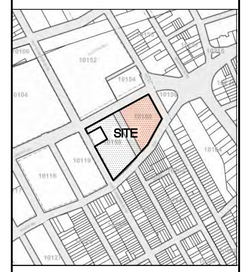
QBP
1.629
2.725
NAVD88
1.096
NAVD29
97.347
NYCTRANSIT

GENERAL NOTES:

1. HORIZONTAL DATUM = NY STATE PLANE COORDINATES SYSTEM LONG ISLAND ZONE (NAVD88)
2. VERTICAL DATUM = NAVD88
3. THIS SURVEY IS NOT FOR TITLE PURPOSES
4. PROPOSED WIDENING SHOWN AS PER ALTERATION MAP No. 4641, SECTION1, FINAL SECTION MAP No. 129

GRAPHIC SCALE
0 12.5' 25' 50' 75'
1" = 25'

VICINITY MAP



NO.	DATE	DESCRIPTION	BY	APPR'D

REVISIONS

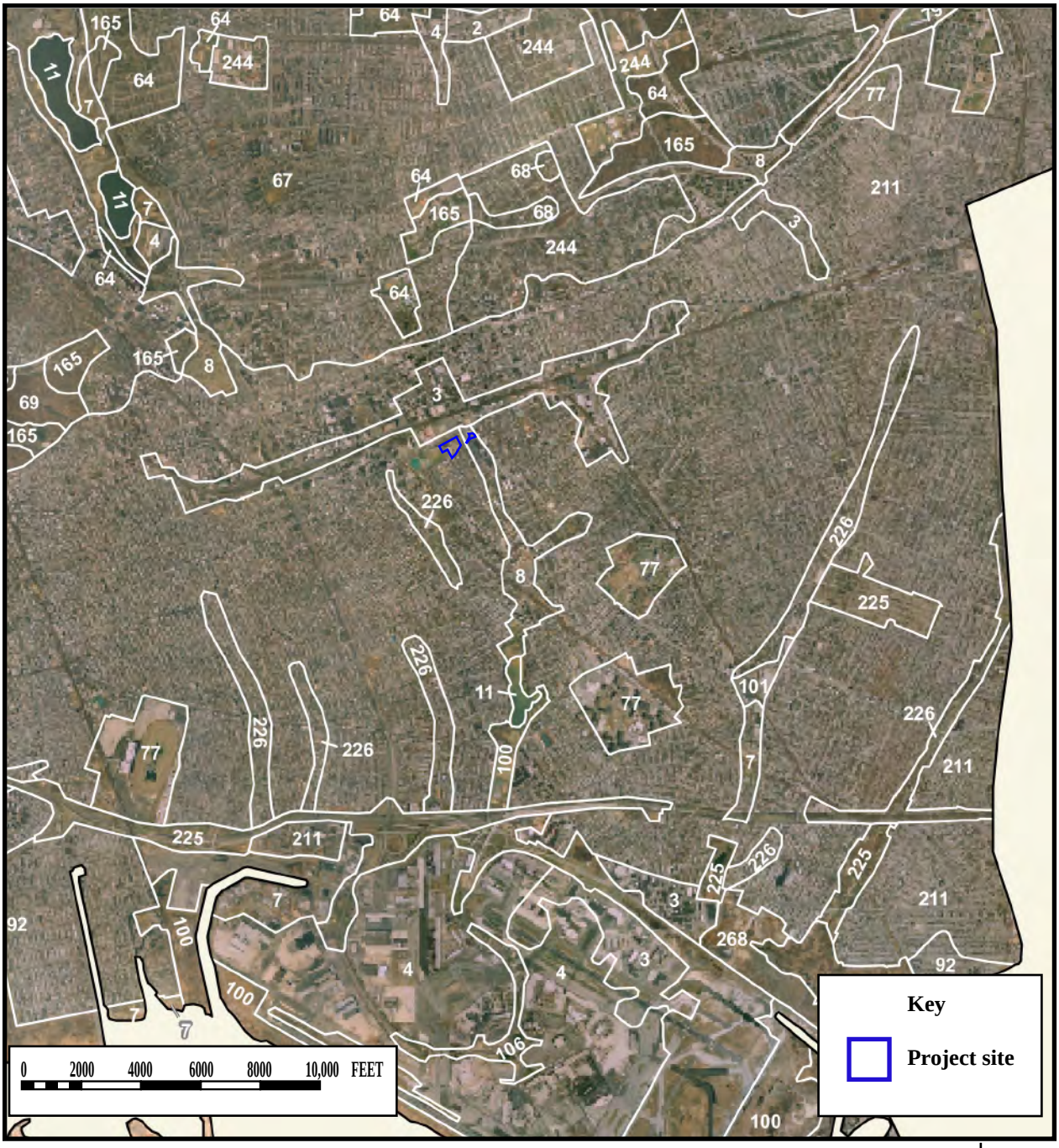
MANHATTAN-SURVEYING
505 8th Avenue, Suite 604
New York, NY 10018

JAMAICA BUS DEPOT
LIBERTY AV. & 165TH ST.

Topographical Survey and Monitoring Well Location

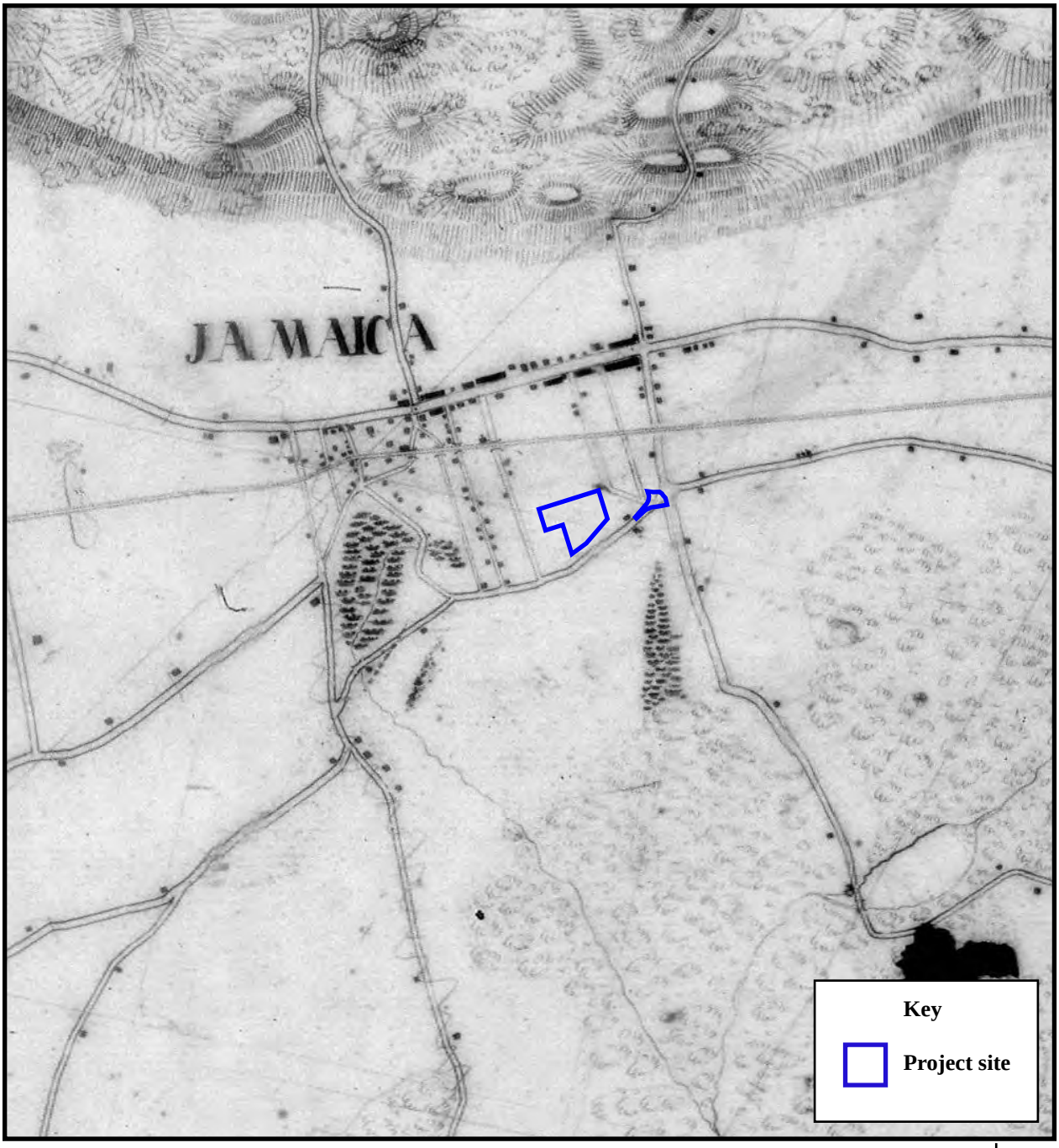
Date	Project No.	Sheet No.
May 11, 2018	21812	1 of 1
Drawn: AC	Approv.: AJF	Scale: 1:25

Figure 3: Blocks 10159 and 10160 portion of the project site on modern topographical survey (HPI 2022 and Manhattan-Surveying 2018).



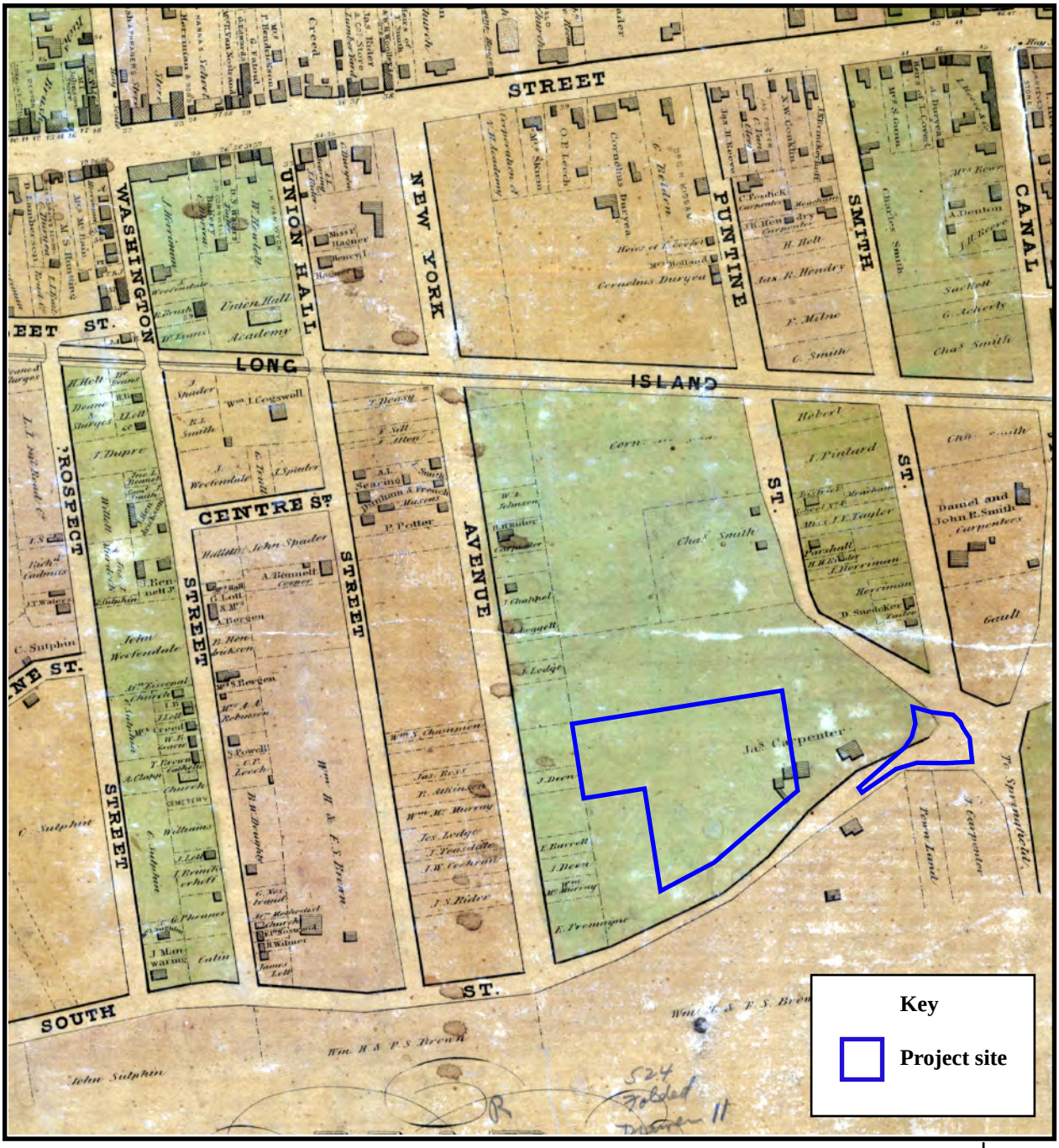
Phase IA Archaeological Assessment
Reconstruction and Expansion Project
Jamaica Bus Depot, York College Temporary Bus Parking
Block 10159, Part of Lot 3; Block 10160, Lot 1; and a portion of Tuskegee Airmen Way
Jamaica, Queens County, New York

Figure 4: Project site on *New York City Reconnaissance Soil Survey* (U.S.D.A. 2006).



Phase IA Archaeological Assessment
Reconstruction and Expansion Project
Jamaica Bus Depot, York College Temporary Bus Parking
Block 10159, Part of Lot 3; Block 10160, Lot 1; and a portion of Tuskegee Airmen Way
Jamaica, Queens County, New York

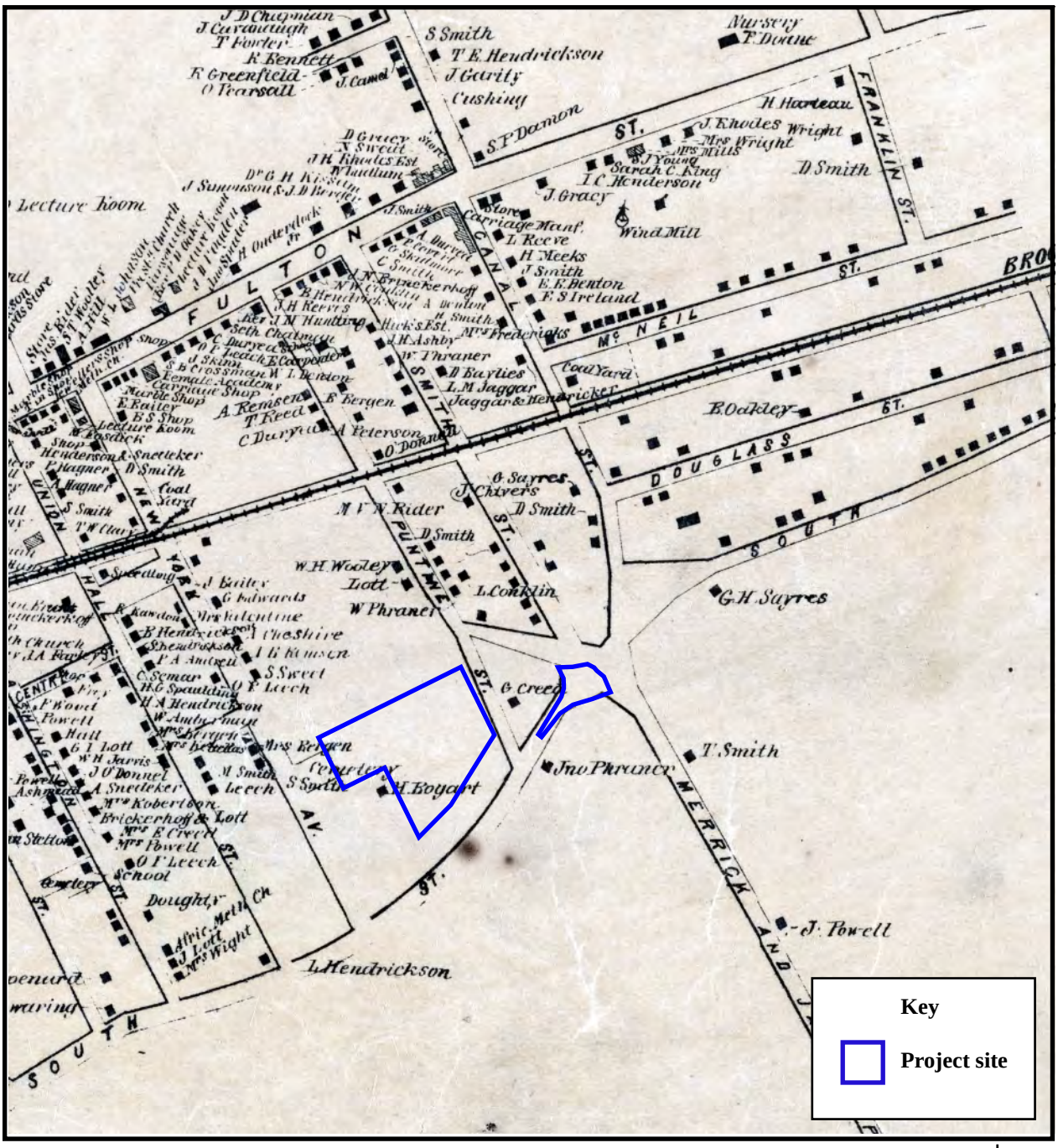
Figure 5: Project site on *U.S. Coast Survey Map of the Interior of Long Island from Brooklyn to Jamaica, New York* (U.S.C.S. 1837).



Phase IA Archaeological Assessment
Reconstruction and Expansion Project
Jamaica Bus Depot, York College Temporary Bus Parking
Block 10159, Part of Lot 3; Block 10160, Lot 1; and a portion of Tuskegee Airmen Way
Jamaica, Queens County, New York

Figure 6: Project site on *Map of the Village of Jamaica, Queens County, Long Island* (Johnson 1842).

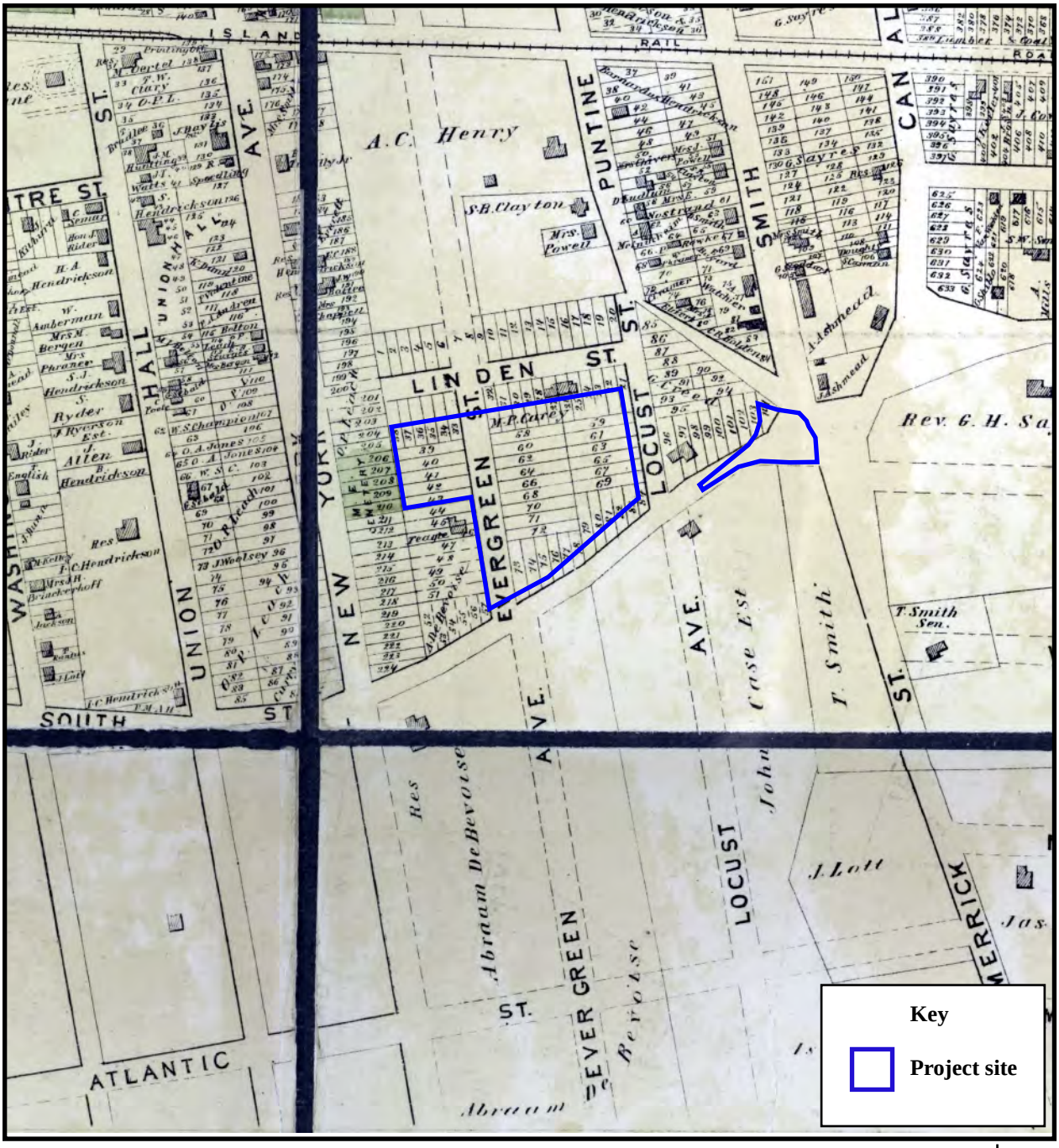
0 200 400 600 800 1000 FEET



Phase IA Archaeological Assessment
Reconstruction and Expansion Project
Jamaica Bus Depot, York College Temporary Bus Parking
Block 10159, Part of Lot 3; Block 10160, Lot 1; and a portion of Tuskegee Airmen Way
Jamaica, Queens County, New York

Figure 7: Project site on *Topographic Map of the Counties of Kings and Queens, New York* (Walling 1859).

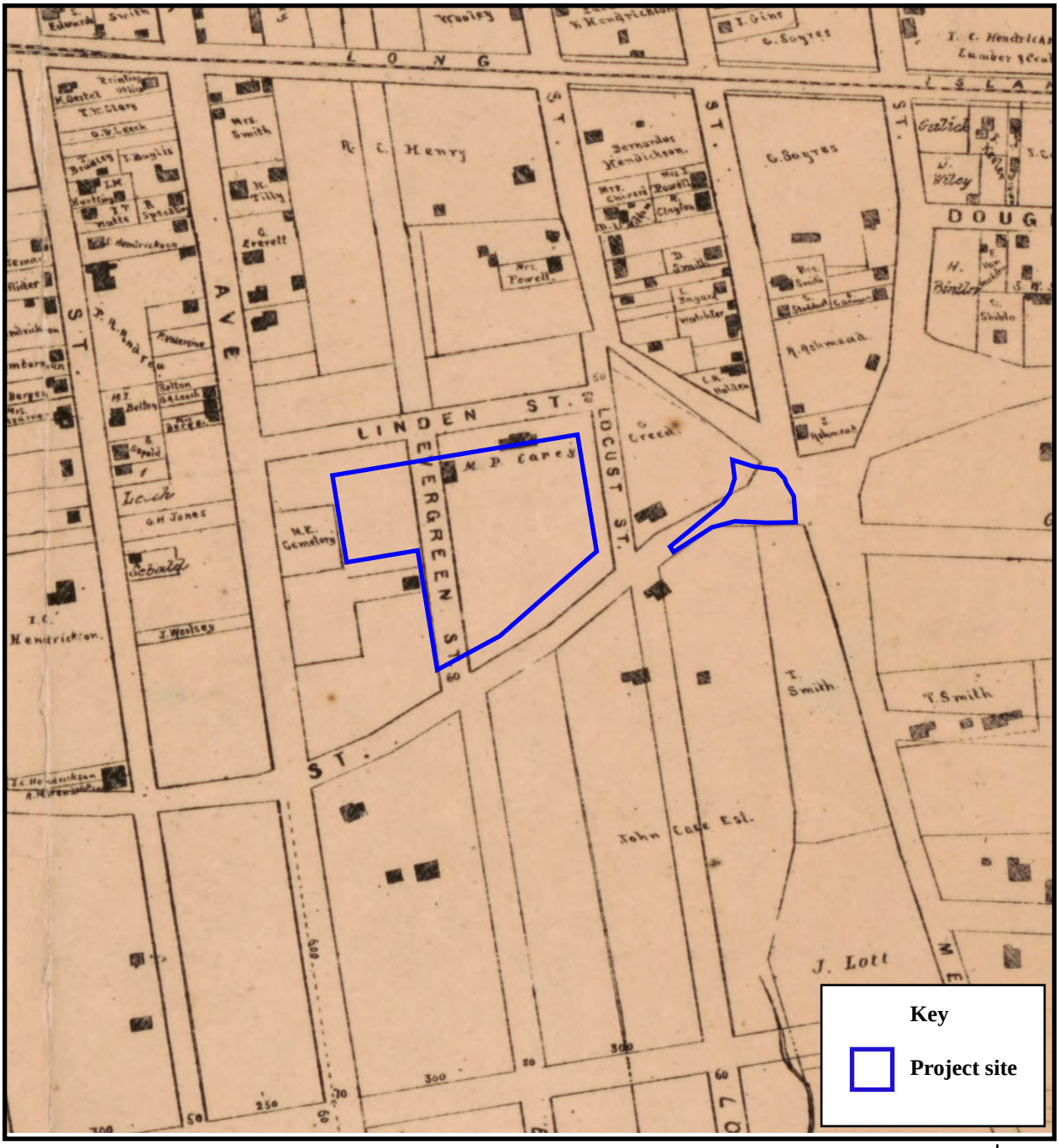
0 250 500 750 1000 1250 FEET



Phase IA Archaeological Assessment
Reconstruction and Expansion Project
Jamaica Bus Depot, York College Temporary Bus Parking
Block 10159, Part of Lot 3; Block 10160, Lot 1; and a portion of Tuskegee Airmen Way
Jamaica, Queens County, New York

Figure 8: Project site on *Atlas of Long Island, New York* (Beers 1873).

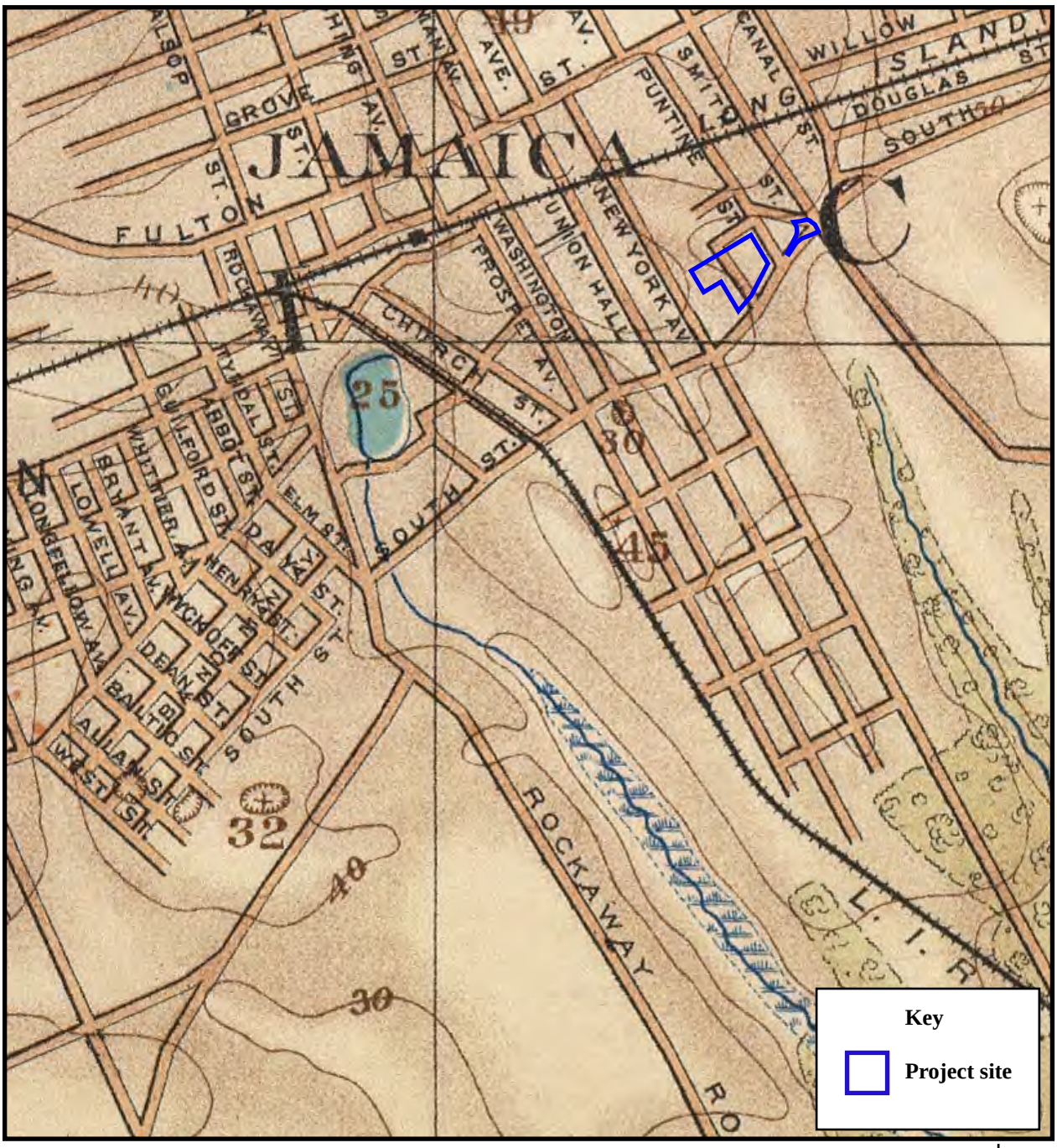
0 200 400 600 800 1000 FEET



Phase IA Archaeological Assessment
Reconstruction and Expansion Project
Jamaica Bus Depot, York College Temporary Bus Parking
Block 10159, Part of Lot 3; Block 10160, Lot 1; and a portion of Tuskegee Airmen Way
Jamaica, Queens County, New York

Figure 9: Project site on *Map of the Village of Jamaica, Queens County, N.Y.* (Dripps 1876).

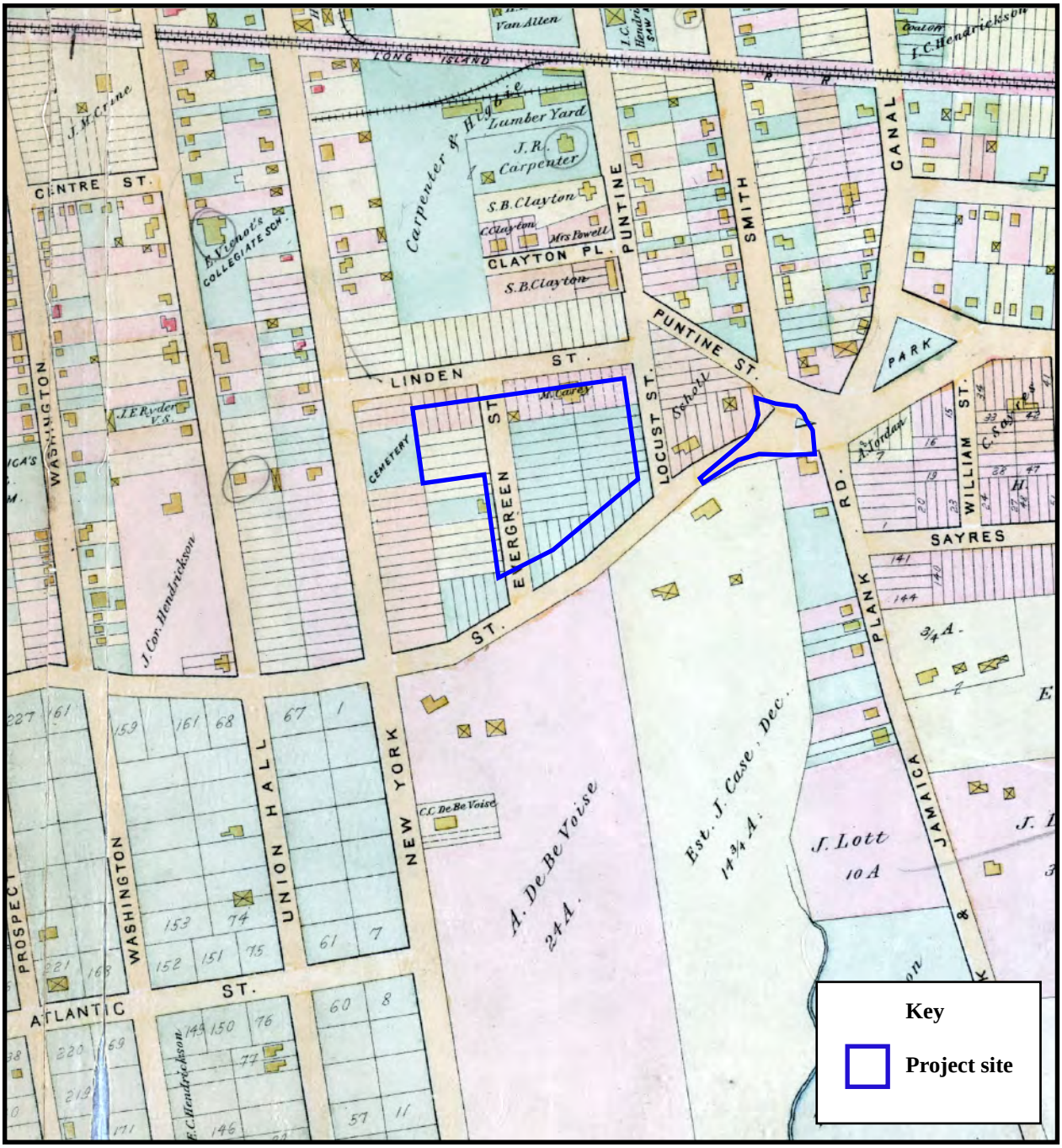
0 200 400 600 800 1000 FEET



Phase IA Archaeological Assessment
Reconstruction and Expansion Project
Jamaica Bus Depot, York College Temporary Bus Parking
Block 10159, Part of Lot 3; Block 10160, Lot 1; and a portion of Tuskegee Airmen Way
Jamaica, Queens County, New York

Figure 10: Project site on *Atlas of the Metropolitan District and adjacent country...* (Bien and Vermeule 1891).

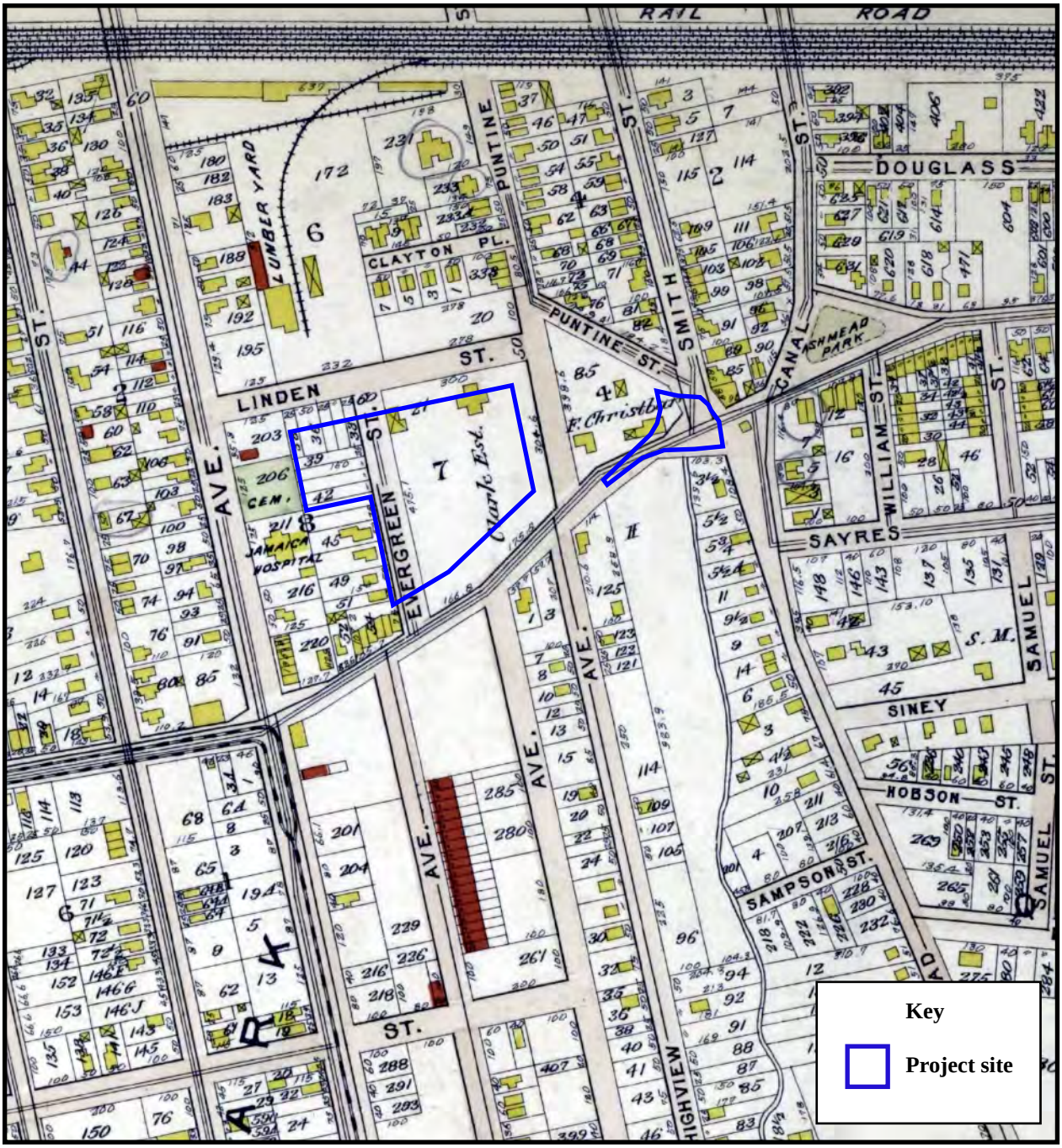
0 500 1000 1500 2000 2500 FEET



Phase IA Archaeological Assessment
Reconstruction and Expansion Project
Jamaica Bus Depot, York College Temporary Bus Parking
Block 10159, Part of Lot 3; Block 10160, Lot 1; and a portion of Tuskegee Airmen Way
Jamaica, Queens County, New York

Figure 11: Project site on *Atlas of Queens County, Long Island, New York* (Wolverton 1891).

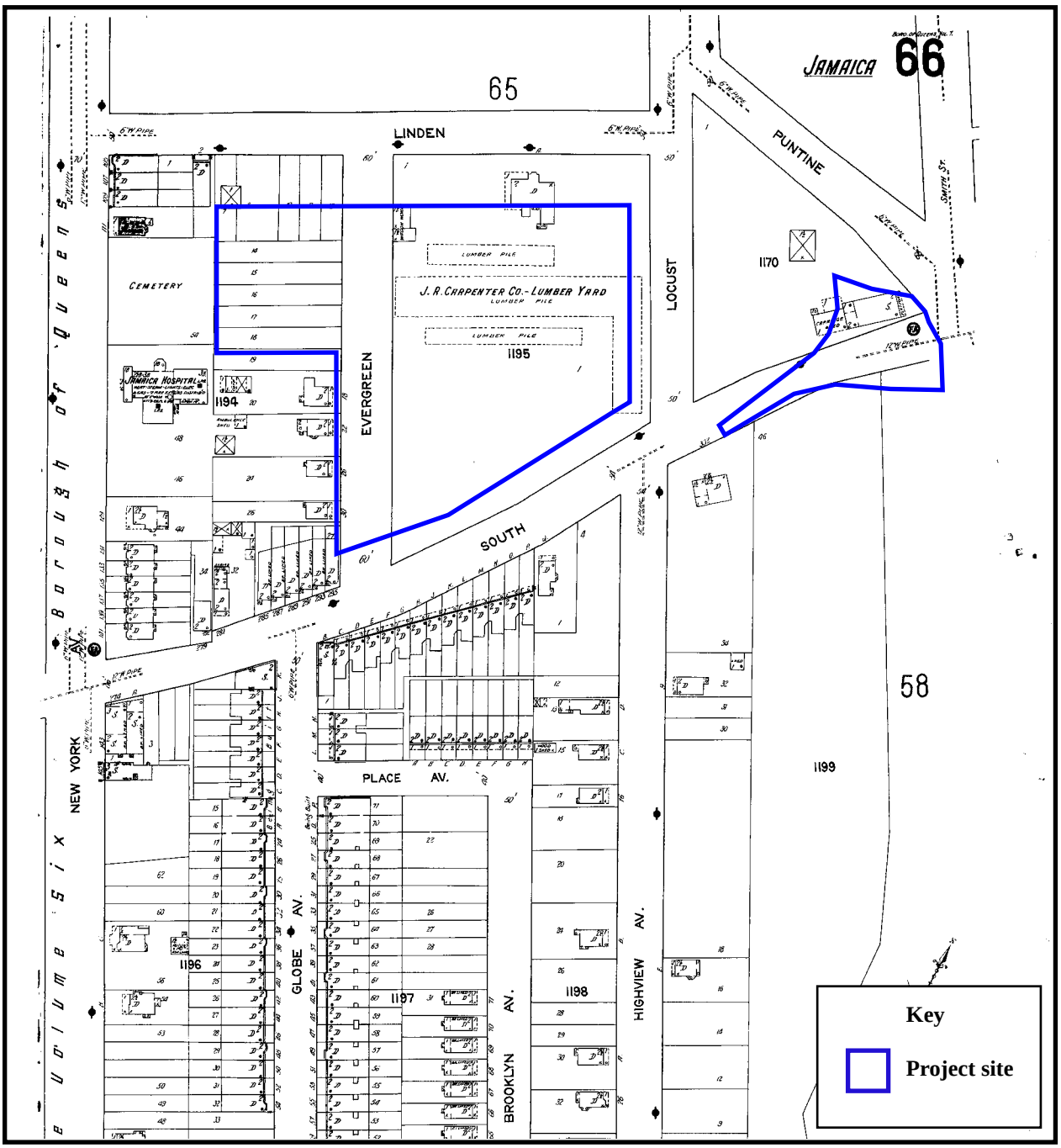
0 200 400 600 800 1000 FEET



Phase IA Archaeological Assessment
Reconstruction and Expansion Project
Jamaica Bus Depot, York College Temporary Bus Parking
Block 10159, Part of Lot 3; Block 10160, Lot 1; and a portion of Tuskegee Airmen Way
Jamaica, Queens County, New York

Figure 12: Project site on *Atlas of the City of New York* (Bromley 1909).

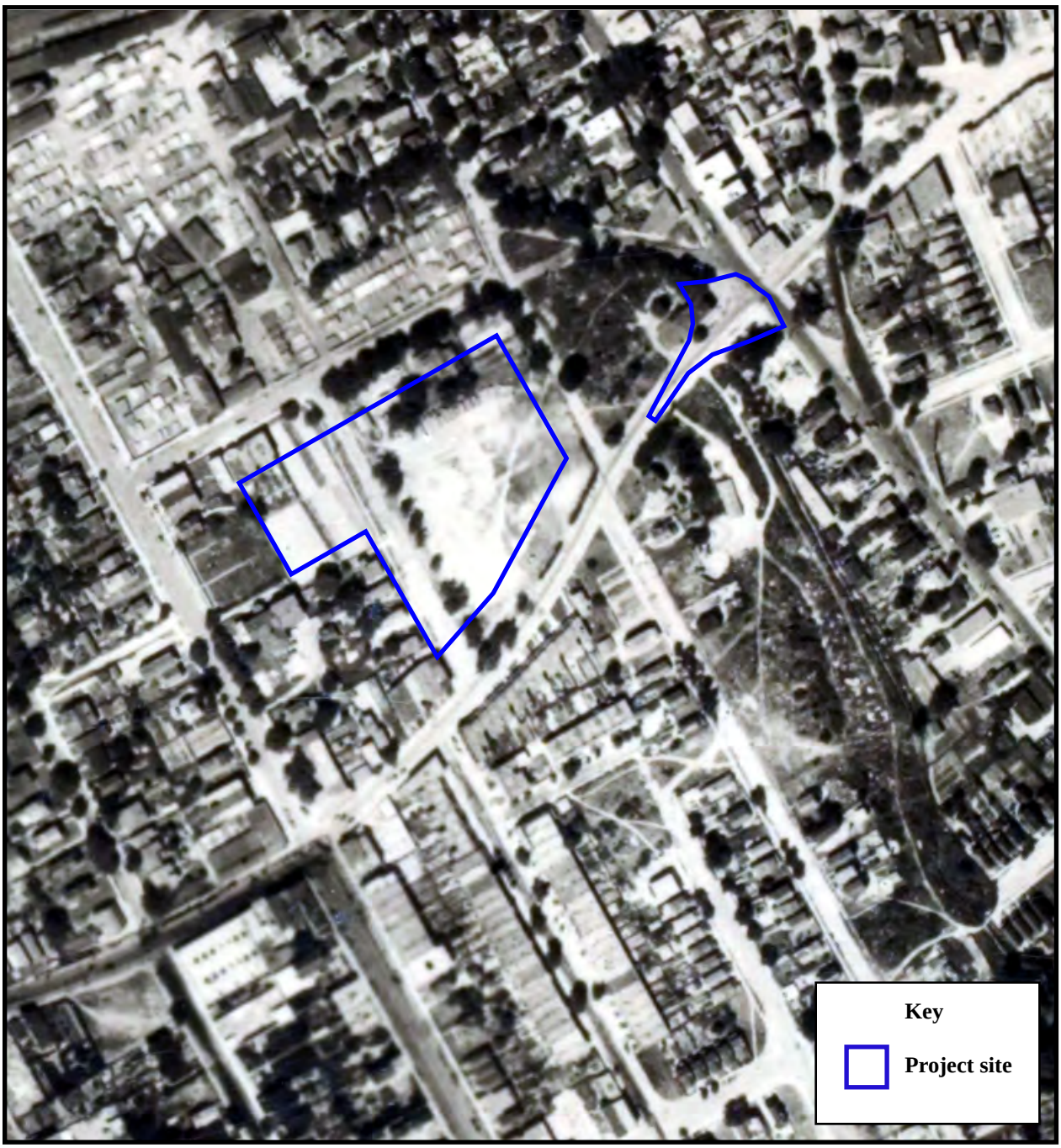
0 200 400 600 800 1000 FEET



Phase IA Archaeological Assessment
Reconstruction and Expansion Project
Jamaica Bus Depot, York College Temporary Bus Parking
Block 10159, Part of Lot 3; Block 10160, Lot 1; and a portion of Tuskegee Airmen Way
Jamaica, Queens County, New York

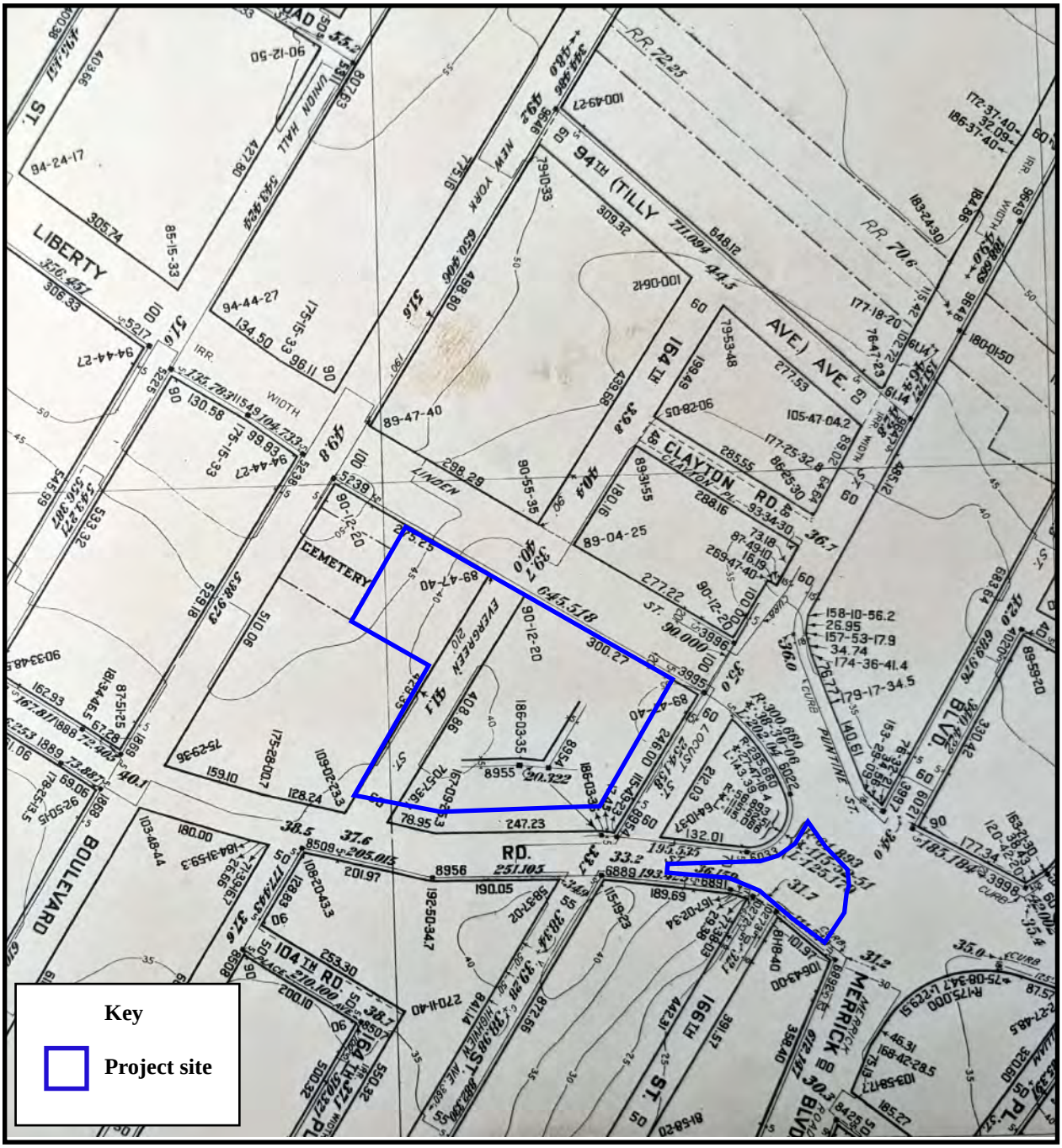
Figure 13: Project site on *Insurance Maps of the Borough of Queens, New York* (Sanborn 1912).

0 100 200 300 400 500 FEET



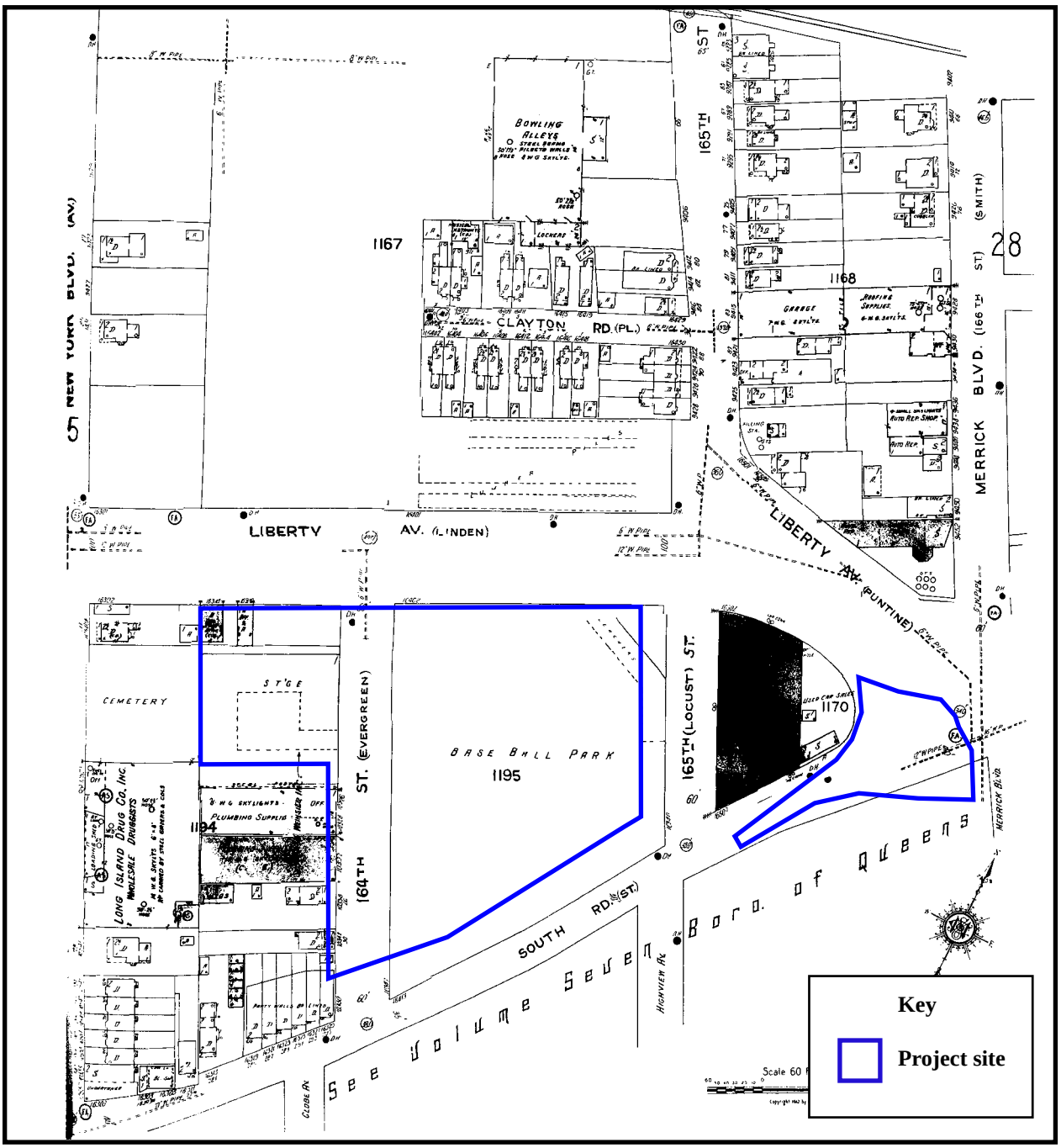
Phase IA Archaeological Assessment
Reconstruction and Expansion Project
Jamaica Bus Depot, York College Temporary Bus Parking
Block 10159, Part of Lot 3; Block 10160, Lot 1; and a portion of Tuskegee Airmen Way
Jamaica, Queens County, New York

Figure 14: Project site on *Sectional Aerial Maps of the City of New York* (Bureau of Engineering 1924).



Phase IA Archaeological Assessment
Reconstruction and Expansion Project
Jamaica Bus Depot, York College Temporary Bus Parking
Block 10159, Part of Lot 3; Block 10160, Lot 1; and a portion of Tuskegee Airmen Way
Jamaica, Queens County, New York

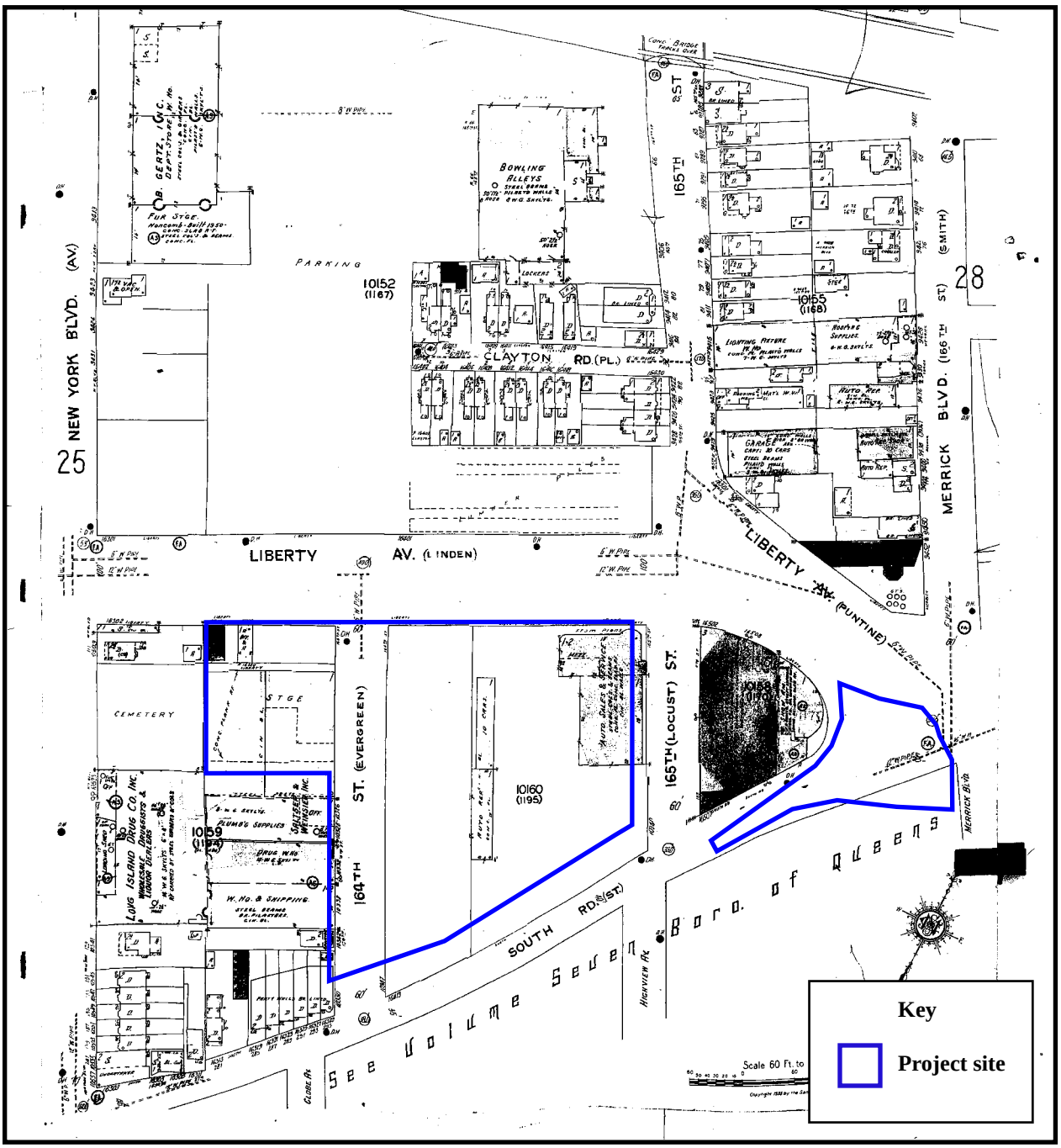
Figure 15: Project site on *Final Maps of the Borough of Queens, New York* (Topographical Bureau 1935).



Phase IA Archaeological Assessment
Reconstruction and Expansion Project
Jamaica Bus Depot, York College Temporary Bus Parking
Block 10159, Part of Lot 3; Block 10160, Lot 1; and a portion of Tuskegee Airmen Way
Jamaica, Queens County, New York

Figure 16: Archaeological APE on *Insurance Maps of the Borough of Queens, New York* (Sanborn 1942).

0 100 200 300 400 500 FEET



Phase IA Archaeological Assessment
Reconstruction and Expansion Project
Jamaica Bus Depot, York College Temporary Bus Parking
Block 10159, Part of Lot 3; Block 10160, Lot 1; and a portion of Tuskegee Airmen Way
Jamaica, Queens County, New York

Figure 17: Project site on *Insurance Maps of the Borough of Queens, New York* (Sanborn 1951).

0 100 200 300 400 500 FEET

F:\Proj\Projects\21812 - Jamaica Bus Depot\DWG\21816 Bus Depot.dwg, 30x42 fs, 6/4/2018 2:51:40 PM

BLOCK 10159 LOT 3
BLOCK 10160 LOT 1
Queens, New York

MONUMENT IN FIELD
N:194888.322
E:1041193.929
H:50.753

CONCRETE SIDEWALK

MONUMENT IN FIELD
N:195193.923
E:1041751.146
H:37.071

LIBERTY AVENUE
(122'-0" WIDE)

STEEL FACED CURB
PROPERTY LINE
CONCRETE SIDEWALK
635'-6¼"
275'-3"
60'-0"
300'-3¼"
46'-10½"
89°47'40"
90°12'20"
125'-1⅜"
125'-0"
CHAIN LINK FENCE
CEMETERY
BLOCK 10159
LOT 3
BLOCK 10160
LOT 1
MONITORING WELL
TOP ELEV. 49.19
MONITORING WELL
TOP ELEV. 43.51
MONITORING WELL
TOP ELEV. 40.52
CATCH BASIN
EL. 41.81
CATCH BASIN
EL. 41.40
CATCH BASIN
EL. 41.04
CATCH BASIN
EL. 46.04
MONITORING WELL
TOP ELEV. 49.62
MONITORING WELL
TOP ELEV. 39.84
MONITORING WELL
TOP ELEV. 44.88
MONITORING WELL
TOP ELEV. 50.38
BOOTH
STONE CURB
ASPHALT PARKING LOT
CATCH BASIN
PROPERTY LINE
PROPOSED WIDENING
338'-2"
429'-4¼"
408'-10⅝"
246'-0"
115°49'23"
165°3'58"
17'-5⅛"
247'-2¾"
157°9'23"
109°2'21"
70°57'39"
78'-11⅜"
63'-5⅝"
270'-7⅛"
175°28'1"
128'-2⅛"
159'-1⅛"
70°29'39"

GUY R. BREWER BOULEVARD
(NEW YORK BOULEVARD)
(88'-0" WIDE)

FORMERLY 164TH STREET
(EVERGREEN STREET)
(60'-0" WIDE)

165TH STREET
(70'-0" WIDE)

THREE STORY BRICK

TUSKEGEE AIRMEN WAY
(SOUTH ROAD)
(80'-0" WIDE)

LEGEND

- MONUMENT IN FIELD
- MONITORING WELL
- CATCH BASIN
- PROPERTY LINE
- PROPOSED WIDENING
- CONTOUR 1 FOOT
- CONTOUR 5 FOOT
- CHAIN LINK FENCE
- PARKING SPACE LINE
- MONUMENTS LINE

Key

Project site

Archaeological monitoring zone (125 feet long x 20 feet wide)

DATUM CONVERTION CHART
(NOT TO SCALE)

QBP
1.629
2.725
NAVD88
1.096
NAVD29
97.347
NYCTRANSIT

GRAPHIC SCALE
0 12.5' 25' 50' 75'
1" = 25'

GENERAL NOTES:

1. HORIZONTAL DATUM = NY STATE PLANE COORDINATES SYSTEM LONG ISLAND ZONE (NAVD88)
2. VERTICAL DATUM = NAVD88
3. THIS SURVEY IS NOT FOR TITLE PURPOSES
4. PROPOSED WIDENING SHOWN AS PER ALTERATION MAP No. 4641, SECTION1, FINAL SECTION MAP No. 129

VICINITY MAP

NO.	DATE	DESCRIPTION	BY	APPR'D

REVISIONS

MANHATTAN-SURVEYING
505 8th Avenue, Suite 604
New York, NY 10018

JAMAICA BUS DEPOT
LIBERTY AV. & 165TH ST.

Topographical Survey
and
Monitoring Well Location

Date	Project No.	Sheet No.
May 11, 2018	21812	1 of 1
Drawn: AC	Approv.: AJF	Scale: 1:25

Figure 18: Project site showing location of proposed archaeological monitoring on modern topographical survey (HPI 2022 and Manhattan-Surveying 2018).

PHOTOGRAPHS

Photograph 1. The project site on Block 10160, behind fencing. View looking southwest from Liberty Avenue and 165th Street.

Photograph 2. The interior of the project site on Block 10160. View looking northeast towards Liberty Avenue and 165th Street.

Photograph 3. The portion of the project site on Block 10159. The historic cemetery is behind the trees in the center background. View looking southwest.

Photograph 4. The former line of 164th Street within the project site, which is no longer visible. View looking northwest.

Photograph 5. Recent disturbance on Block 10159 from soil borings and monitoring well installation. View looking northeast.

Photograph 6. The rise in elevation from Tuskegee Airmen Way on the left and the project site (behind the fencing) on the right. View looking southwest.

Photograph 7. The CUNY York parking lot on the right, abutting the project site. View looking northwest along Guy R. Brewer Boulevard.


Photograph 8. The northeast corner of the First Methodist Church of Jamaica historic cemetery behind the chain link fence on the right, with the project site in the background. View looking southeast.

Photograph 9. The gate to the First Methodist Cemetery of Jamaica cemetery from the project site. View looking southwest.

Photograph 10. The gate to the First Methodist Church of Jamaica historic cemetery from Guy R. Brewer Boulevard. There are stone steps leading from the sidewalk to the level of the cemetery. Note the wood retaining walls on either side of the gate. View looking northeast.

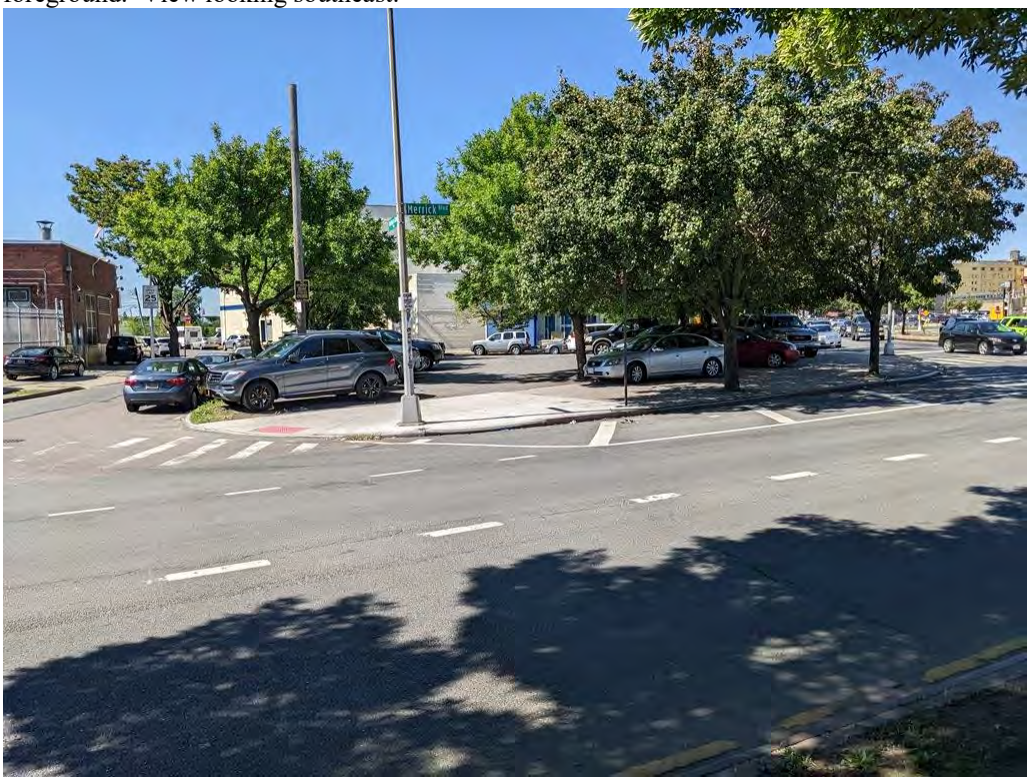
Photograph 11. Detail of the wooden retaining wall at the northeast corner of the First Methodist Church of Jamaica historic cemetery. View looking southeast.

Photograph 12. The interior of the First Methodist Church of Jamaica historic cemetery. Note tombstones located within the dense ivy ground cover. View looking northwest.

Photograph 13. The western end of the First Methodist Church of Jamaica historic cemetery, with tombstones located near the fence line that separates the cemetery from the project site. View looking northwest.

Photograph 14. The project site abutting the First Methodist Church of Jamaica historic cemetery (behind the fence), showing dumped construction materials and furniture. View looking southwest.

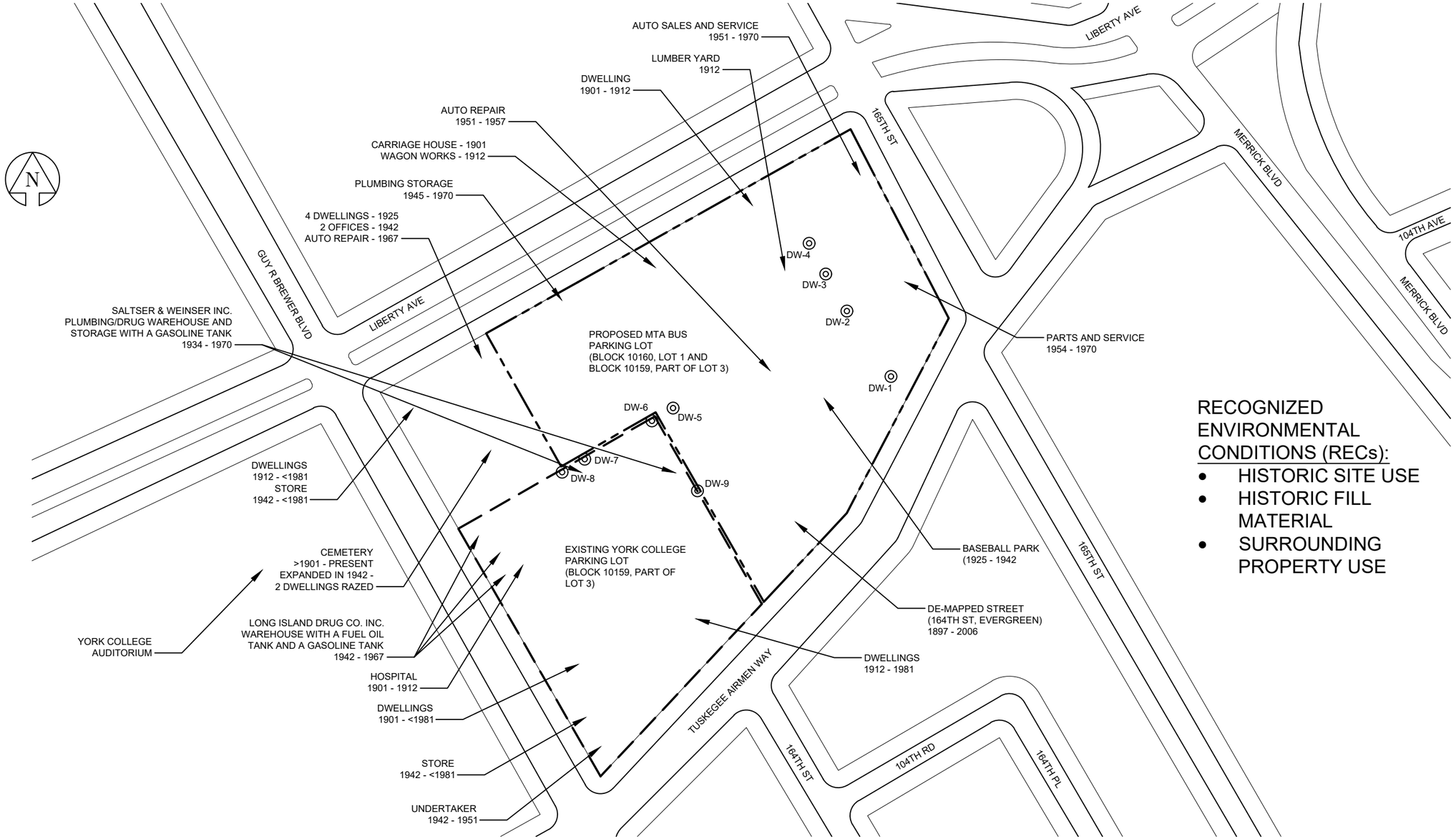
Photograph 15. The entrance to the Jamaica Bus Depot, with the portion of Tuskegee Airmen Way in the foreground. View looking southeast.



Photograph 16. The roadbed island portion of the project site, at the intersection of Merrick Boulevard (foreground) Tuskegee Airmen Way (left), and Liberty Avenue (right). View looking southwest.

Photograph 17. Detail of the roadbed island portion of the project site. View looking northeast from Tuskegee Airmen Way.

APPENDIX A: PHASE II ENVIRONMENTAL SITE INVESTIGATION SOIL TESTING PROGRAM RESULTS (STV 2018)



RECOGNIZED ENVIRONMENTAL CONDITIONS (RECs):

- HISTORIC SITE USE
- HISTORIC FILL MATERIAL
- SURROUNDING PROPERTY USE

LEGEND (SYMBOLS NOT TO SCALE):

- FUTURE MTA BUS PARKING LOT BOUNDARY
- COLLEGE PARKING LOT BOUNDARY
- EXISTING DRY WELL

0 125 250

APPROX. SCALE
1" = 125'-0"

STV 100 Years
225 PARK AVENUE SOUTH, NY, NY 10003

PROPOSED BUS PARKING AT YORK COLLEGE SITE 9
164-26 LIBERTY AVE, JAMAICA, NEW YORK 11433
BLOCK 10160, LOT 1 AND BLOCK 10159, PART OF LOT 3

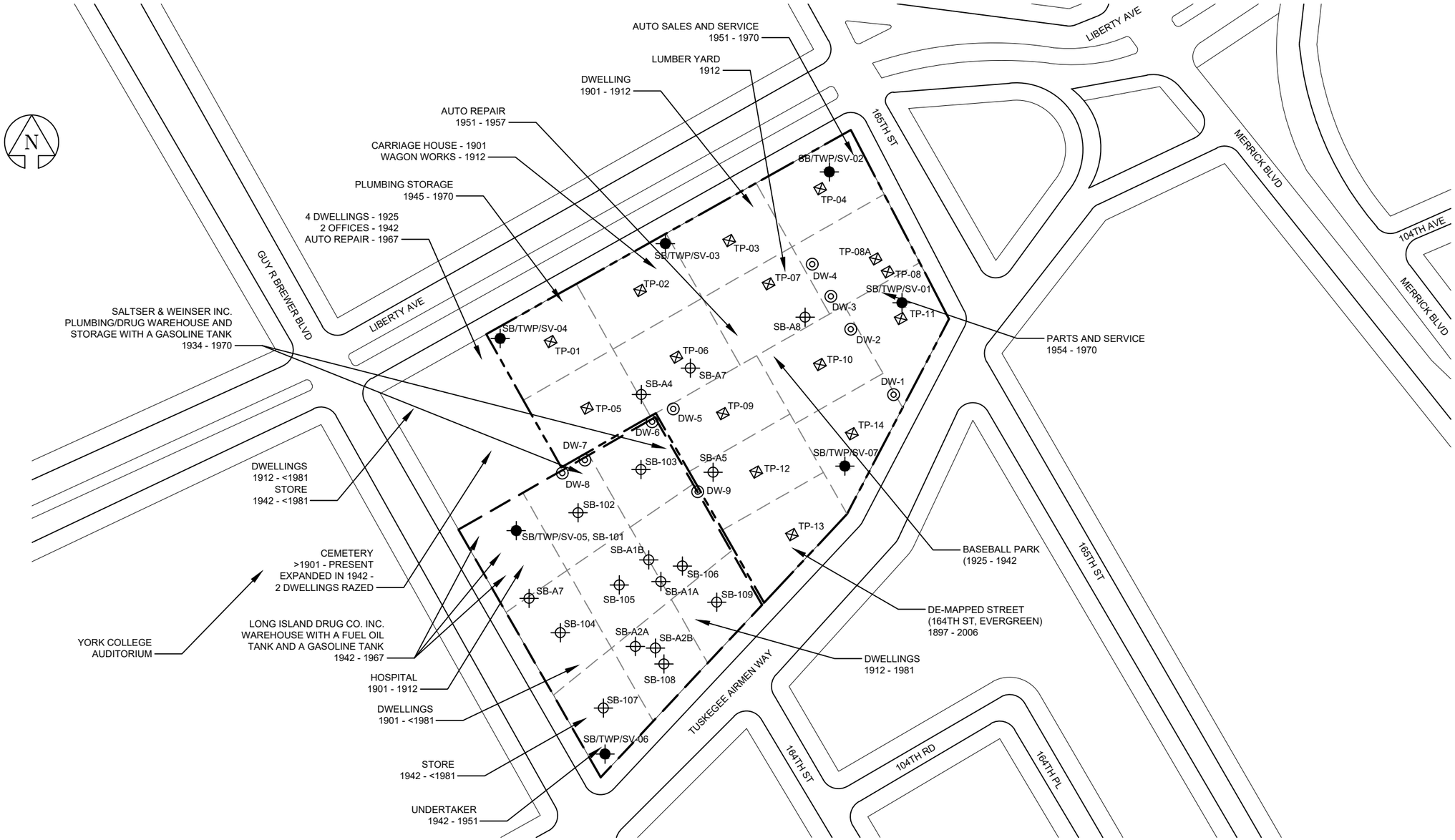
NEW YORK CITY TRANSIT

SITE PLAN

DATE: JUNE 2018

SCALE: AS SHOWN

SHEET NO: FIGURE 2



LEGEND (SYMBOLS NOT TO SCALE):

- FUTURE MTA BUS PARKING LOT BOUNDARY
- COLLEGE PARKING LOT BOUNDARY
- TEST PIT LOCATION
- SOIL BORING LOCATION
- SOIL BORING LOCATION / TEMPORARY WELL POINT / SOIL VAPOR POINT

0 125 250

APPROX. SCALE
1" = 125'-0"

STV 100 Years

225 PARK AVENUE SOUTH, NY, NY 10003

PROPOSED BUS PARKING AT YORK COLLEGE SITE 9
164-26 LIBERTY AVE, JAMAICA, NEW YORK 11433
BLOCK 10160, LOT 1 AND BLOCK 10159, PART OF LOT 3

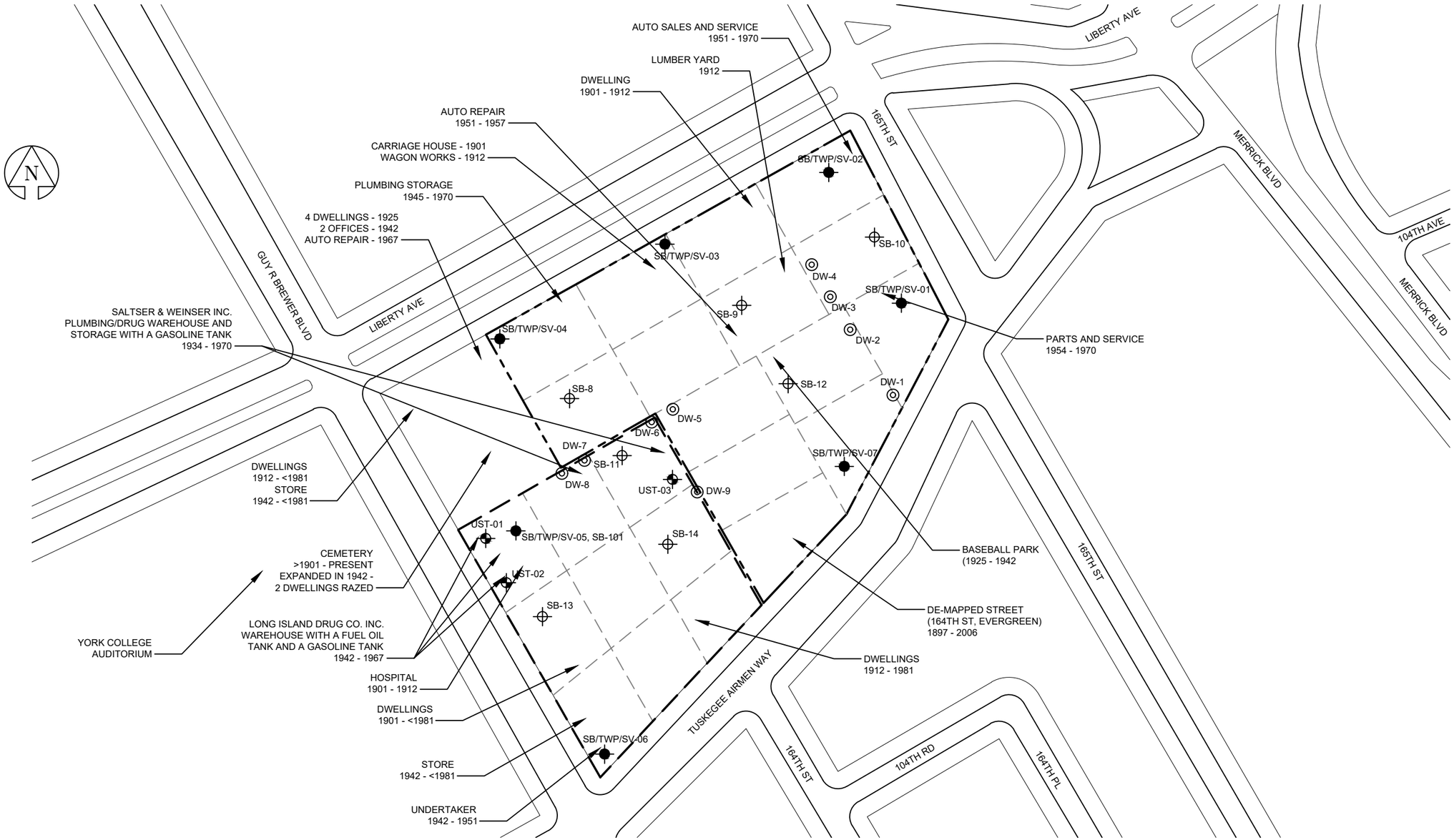
NEW YORK CITY TRANSIT

SAMPLE LOCATION PLAN - HISTORIC FILL

DATE: JUNE 2018

SCALE: AS SHOWN

SHEET NO: FIGURE 3A



LEGEND (SYMBOLS NOT TO SCALE):

- FUTURE MTA BUS PARKING LOT BOUNDARY
- COLLEGE PARKING LOT BOUNDARY
- EXISTING DRY WELL
- SOIL BORING LOCATION
- SOIL BORING LOCATION / TEMPORARY WELL POINT / SOIL VAPOR POINT
- UNDERGROUND STORAGE TANK SOIL BORING LOCATION

0 125 250

APPROX. SCALE
1" = 125'-0"

STV 100 Years

225 PARK AVENUE SOUTH, NY, NY 10003

PROPOSED BUS PARKING AT YORK COLLEGE SITE 9
164-26 LIBERTY AVE, JAMAICA, NEW YORK 11433
BLOCK 10160, LOT 1 AND BLOCK 10159, PART OF LOT 3

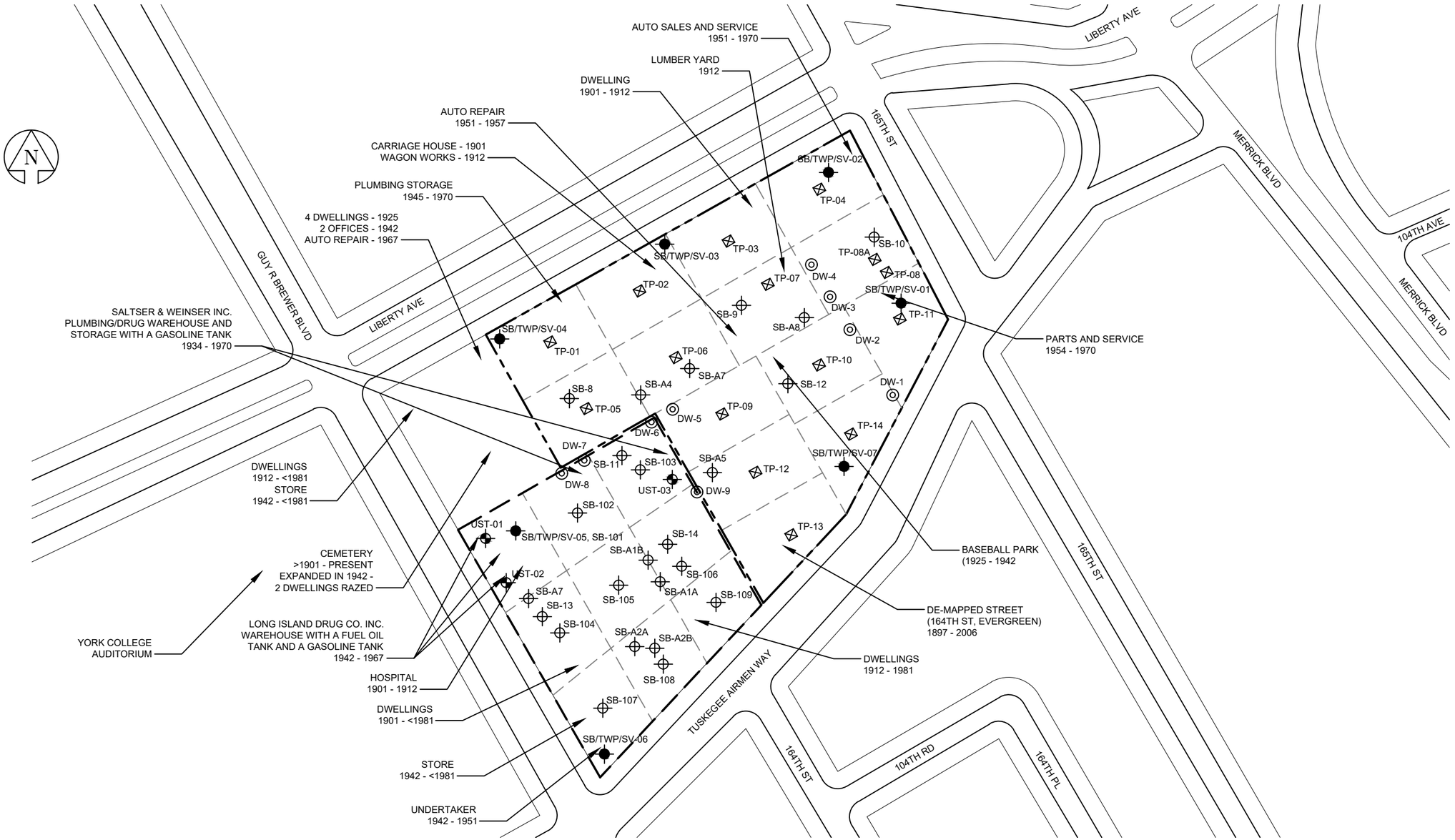
NEW YORK CITY TRANSIT

SAMPLE LOCATION PLAN - HISTORIC SITE USE

DATE: JUNE 2018

SCALE: AS SHOWN

SHEET NO: FIGURE 3B



LEGEND (SYMBOLS NOT TO SCALE):

- FUTURE MTA BUS PARKING LOT BOUNDARY
- COLLEGE PARKING LOT BOUNDARY
- EXISTING DRY WELL
- PROPOSED TEST PIT
- SOIL BORING LOCATION
- SOIL BORING LOCATION / TEMPORARY WELL POINT / SOIL VAPOR POINT
- UNDERGROUND STORAGE TANK SOIL BORING LOCATION

0 125 250

APPROX. SCALE
1" = 125'-0"

STV 100 Years

225 PARK AVENUE SOUTH, NY, NY 10003

PROPOSED BUS PARKING AT YORK COLLEGE SITE 9
164-26 LIBERTY AVE, JAMAICA, NEW YORK 11433
BLOCK 10160, LOT 1 AND BLOCK 10159, PART OF LOT 3

NEW YORK CITY TRANSIT

SAMPLE LOCATION PLAN

DATE: JUNE 2018

SCALE: AS SHOWN

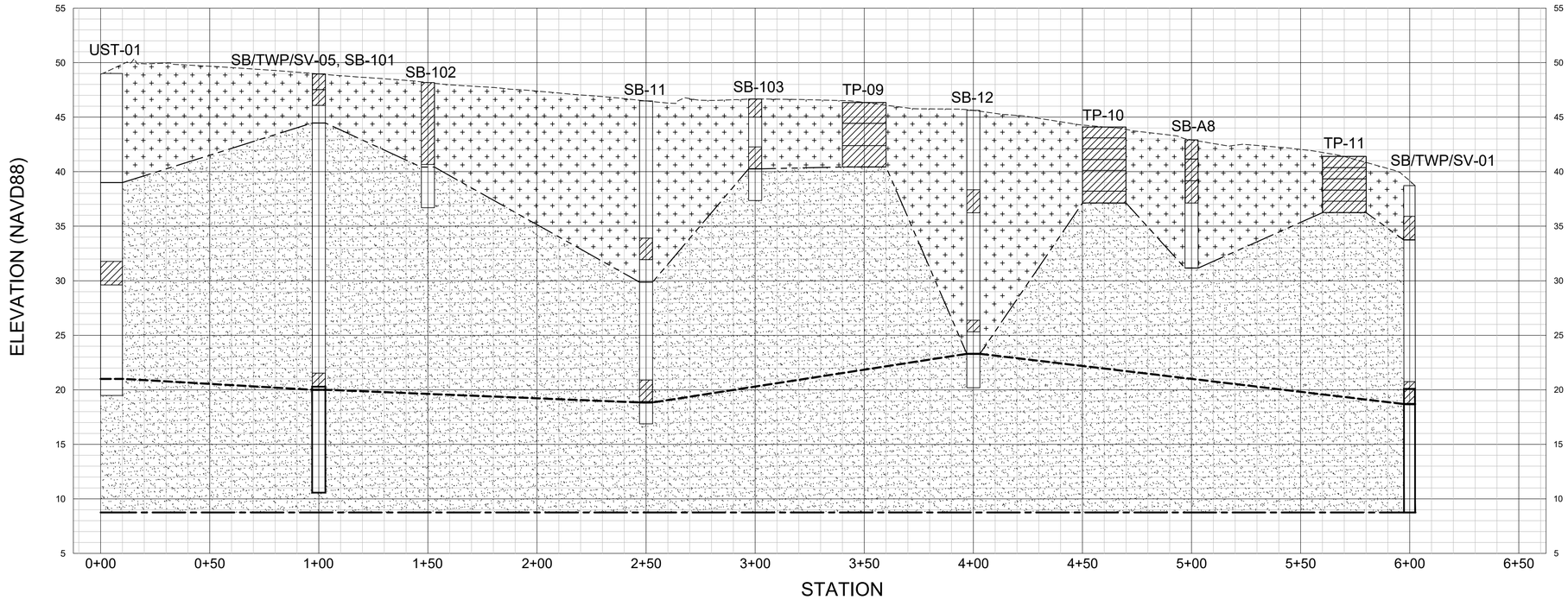
SHEET NO: FIGURE 3C

LEGEND

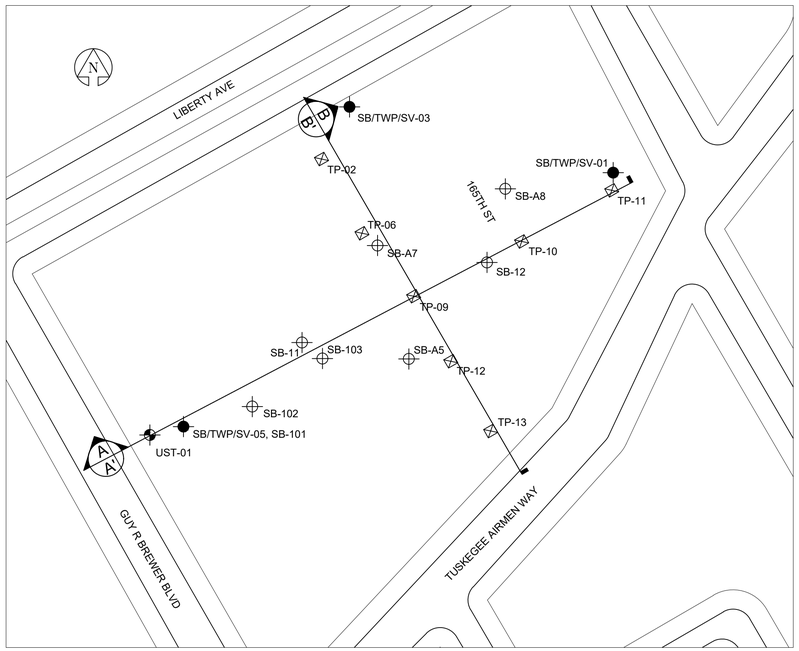
- HISTORIC FILL
- NATIVE MATERIAL
- SAMPLE INTERVAL
- HAZARDOUS LEAD
- GROUNDWATER SURFACE
- EXISTING GRADE
- EXISTING BOTTOM OF HISTORIC FILL
- EXTENT OF OBSERVED NATIVE MATERIAL
- WELL SCREEN

NOTES:

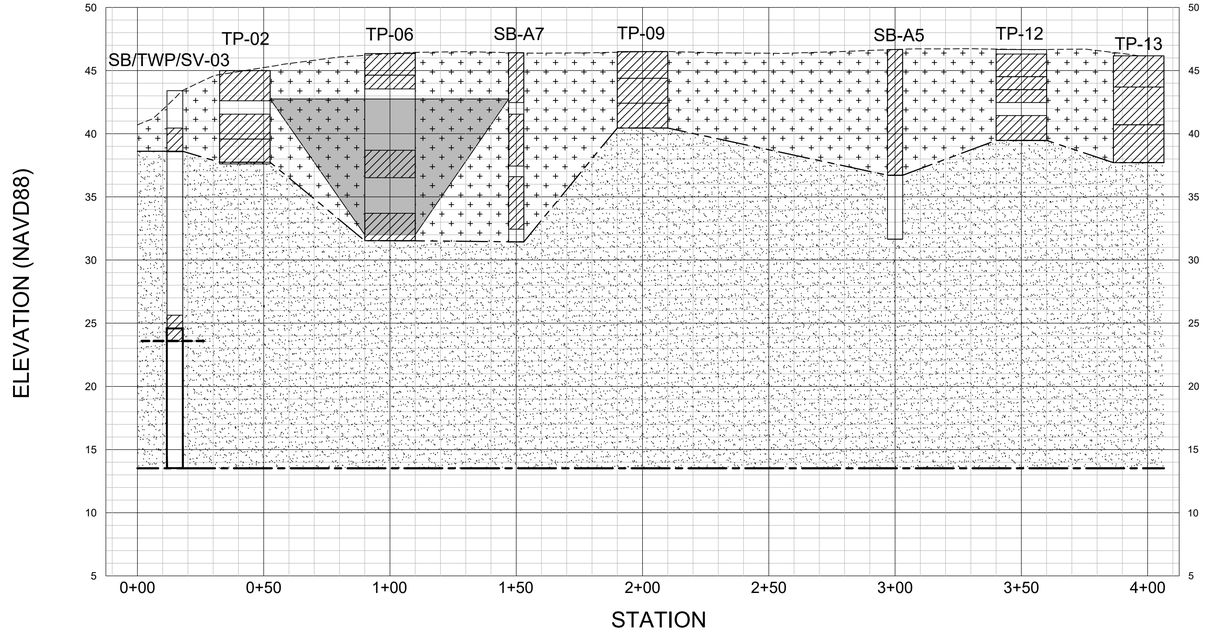
1. SAMPLE TP-06 (X-Y') CONTAINED TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP)-LEAD AT A CONCENTRATION EXCEEDING THE HAZARDOUS WASTRE REGULATORY LEVEL (5 MG/L). ADJACENT SAMPLING LOCATIONS DID NOT HAVE THE POTENTIAL TO EXHIBIT THE HAZARDOUS WASTE CHARACTERISTICS OF TOXICITY FOR LEAD OR DID NOT CONTAIN TCLP LEAD ABOVE 5 MG/L.



SECTION A-A'
HORIZ 1"=30'
VERT 1"=4'



KEY PLAN
NOT TO SCALE



SECTION B-B'
HORIZ 1"=30'
VERT 1"=4'

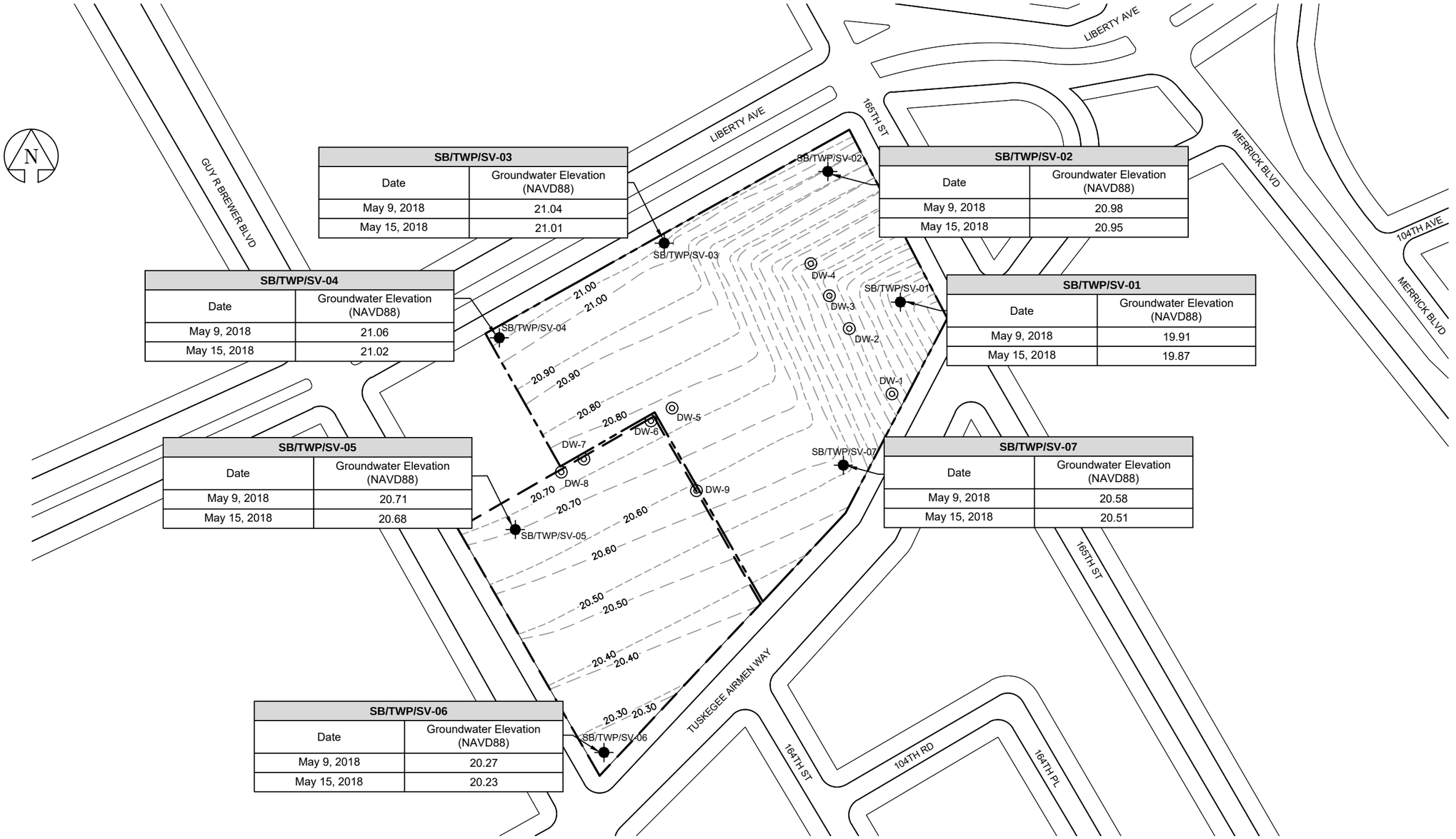
STV 100 Years
225 PARK AVENUE SOUTH, NY, NY 10003

PROPOSED BUS PARKING AT YORK COLLEGE SITE 9
164-26 LIBERTY AVE, JAMAICA, NEW YORK 11433
BLOCK 10160, LOT 1 AND BLOCK 10159, PART OF LOT 3

NEW YORK CITY TRANSIT

GEOLOGICAL CROSS SECTIONS
LIMITS OF HISTORIC FILL AND HAZARDOUS WASTE

DATE: JUNE 2018
SCALE: AS SHOWN
SHEET NO: FIGURE 4



SB/TWP/SV-03	
Date	Groundwater Elevation (NAVD88)
May 9, 2018	21.04
May 15, 2018	21.01

SB/TWP/SV-02	
Date	Groundwater Elevation (NAVD88)
May 9, 2018	20.98
May 15, 2018	20.95

SB/TWP/SV-04	
Date	Groundwater Elevation (NAVD88)
May 9, 2018	21.06
May 15, 2018	21.02

SB/TWP/SV-01	
Date	Groundwater Elevation (NAVD88)
May 9, 2018	19.91
May 15, 2018	19.87

SB/TWP/SV-05	
Date	Groundwater Elevation (NAVD88)
May 9, 2018	20.71
May 15, 2018	20.68

SB/TWP/SV-07	
Date	Groundwater Elevation (NAVD88)
May 9, 2018	20.58
May 15, 2018	20.51

SB/TWP/SV-06	
Date	Groundwater Elevation (NAVD88)
May 9, 2018	20.27
May 15, 2018	20.23

LEGEND:

- FUTURE MTA BUS PARKING LOT BOUNDARY
- COLLEGE PARKING LOT BOUNDARY
- GROUNDWATER ELEVATION CONTOUR (MAY 9, 2018)
- GROUNDWATER ELEVATION CONTOUR (MAY 15, 2018)
- XX.XX — CONTOUR ELEVATION LABEL
- EXISTING DRY WELL
- SOIL BORING LOCATION / TEMPORARY WELL POINT / SOIL VAPOR POINT

0 125 250

APPROX. SCALE
1" = 125'-0"

GROUNDWATER FLOW

STV 100 Years
225 PARK AVENUE SOUTH, NY, NY 10003

PROPOSED BUS PARKING AT YORK COLLEGE SITE 9
164-26 LIBERTY AVE, JAMAICA, NEW YORK 11433
BLOCK 10160, LOT 1 AND BLOCK 10159, PART OF LOT 3

NEW YORK CITY TRANSIT

GROUNDWATER SURFACE ELEVATION CONTOUR MAP

DATE: JUNE 2018
SCALE: AS SHOWN
SHEET NO: FIGURE 5

APPENDIX C

TEST PIT LOGS

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	**TEST PIT LOG**	TEST PIT: TP-01 SHEET: 1 OF
JOB NAME/ CLIENT York Phase II/NYC Transit	PROJECT NO. 4017555-0002	EQUIPMENT excavator / Backhoe	
ADDRESS 164-26 Liberty Ave. Blk 10160, Lot 1; Blk 10159, Part Lot 3, Queens, NY		INSPECTOR DC, ES	
START DATE 4/20/18	END DATE 4/20/18	WATER LEVEL (if applicable) N/A	

DEPTH (FEET)	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little sm - some	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
0 2	light brown mf sand, some mf gravel	TP-01(0-2)@0935 TP-01(2-6)@0945 N/S, N/O
2 15	dark brown sand and cmf gravel. debris (metal pipes, concrete blocks)	TP-01(6-10)@0952 TP-01(10-15)@1004 N/S, N/O
	End of Test Pit at 15 feet bgs	

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	**TEST PIT LOG**	**TEST PIT:** TP-02 **SHEET:** 1 OF 1
JOB NAME/ CLIENT York Phase II/NYC Transit	**PROJECT NO.** 4017555-0002	**EQUIPMENT** excavator / Backhoe	
ADDRESS 164-26 Liberty Ave. Blk 10160, Lot 1; Blk 10159, Part Lot 3, Queens, NY		**INSPECTOR** DC (ES)	
START DATE 4/19	**END DATE** 4/19	**WATER LEVEL (if applicable)** N/A	

DEPTH (FEET)	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little sm - some	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
0	Medium brown SAND, trace Silt, some cmt gravel. Debris (tires, plastic, large wooden plank)	N/S, N/O TP-02 (0-2) @ 1045
7		TP-02 (3-5) @ 1057 TP-02 (5-7) @ 1103
	End of Test Pit at 7 feet bgs	

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	**TEST PIT LOG**	TEST PIT: TP-03 SHEET: 1 OF 1
JOB NAME/ CLIENT York Phase II/NYC Transit	PROJECT NO. 4017555-0002	EQUIPMENT excavator / backhoe	
ADDRESS 164-26 Liberty Ave. Blk 10160, Lot 1; Blk 10159, Part Lot 3, Queens, NY		INSPECTOR DC (ES)	
START DATE 4/17/18	END DATE 4/17/18	WATER LEVEL (if applicable) N/A	

DEPTH (FEET)	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little sm - some	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
0 3	dark brown silty SAND, little cmf gravel. Debris up to 7' diameter (old rail tie?).	TP-03 (0-3) @ 0941 N/S, N/O
3 9	light brown silty SAND, little ~~grout~~ cmf gravel.	TP-03 (3-6) @ 0955 TP-03 (6-9) @ 1002 N/S, N/O
	End of Test Pit at 9 feet bgs	

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	**TEST PIT LOG**	**TEST PIT:** TP-04 **SHEET:** 1 OF 1
JOB NAME/ CLIENT York Phase II/NYC Transit	**PROJECT NO.** 4017555-0002	**EQUIPMENT** excavator / backhoe	
ADDRESS 164-26 Liberty Ave. Blk 10160, Lot 1; Blk 10159, Part Lot 3, Queens, NY		**INSPECTOR** DC (ES)	
START DATE 4/17/18	**END DATE** 4/17/18	**WATER LEVEL (If applicable)** N/A	

DEPTH (FEET)	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little sm - some	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Stroog Odor
0	Medium brown silty SAND, some gravel, debris	N/S, N/O
8	(i.e. brick fragments, tire, rubber, cans)	TP-04(0-3)@0841 TP-04(3-6)@0847 TP-04(6-8)@0855
	End of Test Pit at 8 feet bgs	

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	**TEST PIT LOG**	TEST PIT: TP-05 SHEET: 1 OF 1
JOB NAME/ CLIENT York Phase II/NYC Transit	PROJECT NO. 4017555-0002	EQUIPMENT excavator / backhole	
ADDRESS 164-26 Liberty Ave. Blk 10160, Lot 1; Blk 10159, Part Lot 3, Queens, NY		INSPECTOR DC, ES	
START DATE 4/20	END DATE 4/20	WATER LEVEL (If applicable) N/A	

DEPTH (FEET)	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little sm - some	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
0 9	dark brown sand, some cmf gravel, debris (tires, concrete blocks, bricks (rubble fragments) trash, Metal, wood).	N/S, N/O. TP-05 (0-3) @ 1115 TP-05 (3-6) @ 1127 TP-05 (6-9) @ 1137
	End of Test Pit at 9 feet bgs	

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	**TEST PIT LOG**	TEST PIT: TP-06 SHEET: 1 OF 1
JOB NAME/ CLIENT York Phase II/NYC Transit	PROJECT NO. 4017555-0002	EQUIPMENT excavator/backhoe	
ADDRESS 164-26 Liberty Ave. Blk 10160, Lot 1; Blk 10159, Part Lot 3, Queens, NY		INSPECTOR DC, (ES)	
START DATE 4/19/18	END DATE 4/19/18	WATER LEVEL (if applicable) N/A	

DEPTH (FEET)	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ld - little sm - some	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
0	dark brown SAND, trace silt, cmf gravel.	TP-06 (0-2)@ 0840
2		N/S N/O
2	black SAND, trace silt, cmf gravel. Debris	
3	(wood chips (odor), former pipes)	25.1 ppm - SO TP-06 (2-3)@ 0910
3	black SAND, trace silt, cmf gravel. Debris	
7	(tires, 10' old railroad, metal parts, plastic, blankets, large concrete structures, former pipes, wire, metal chain link fence, asphalt fragments, wood chips.)	18.5 ppm - MO
7		TP-06 (8-10)@ 0920
11	SAA	12.0 ppm - MO
11		TP-06 (13-15)@ 0925
15	SAA	10.2 ppm - MO
	End of Test Pit at 15 feet bgs	

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	**TEST PIT LOG**	**TEST PIT:** TP-07 **SHEET:** 1 OF 1
JOB NAME/ CLIENT York Phase II/NYC Transit	**PROJECT NO.** 4017555-0002	**EQUIPMENT** Excavator / backhoe	
ADDRESS 164-26 Liberty Ave. Blk 10160, Lot 1; Blk 10159, Part Lot 3, Queens, NY		**INSPECTOR** DC, ES	
START DATE 9/20/18	**END DATE** 9/20/18	**WATER LEVEL (if applicable)** N/A	

DEPTH (FEET)	**DESCRIPTION OF SOILS** (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace lil - little sm - some	**REMARKS** (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
0 5	SAND, some cmf gravel (debris: wooden pole, rubber tires, metal, rebar, trash).	N/S, N/O
		TP-07 (0-2) @ 1220 TP-07 (2-4) @ 1228 TP-07 (4-5) @ 1239
	End of Test Pit at 5 feet bgs	

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	**TEST PIT LOG**	**TEST PIT:** TP-08 **SHEET:** 1 OF 1
JOB NAME/ CLIENT York Phase II/NYC Transit	**PROJECT NO.** 4017555-0002	**EQUIPMENT** excavator / Backhoe	
ADDRESS 164-26 Liberty Ave. Blk 10160, Lot 1; Blk 10159, Part Lot 3, Queens, NY		**INSPECTOR** DC, (ES)	
START DATE 4/16/18	**END DATE** 4/16/18	**WATER LEVEL (if applicable)** N/A	

DEPTH (FEET)	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little sm - some	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
0 2	dark brown silty SAND, cmf gravel.	N/S, N/O
2 3	light brown silty SAND, tr cm gravel and debris. (~4' diameter).	SAA
4 5	dark brown silty SAND, cmf gravel	SAA
5	large concrete plate encountered encompassing the entire L x W of Test Pit. - Refusal @ 5' - No Samples	SAA
	End of Test Pit at 5 feet bgs	

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	**TEST PIT LOG**	TEST PIT: TP-08A SHEET: 1 OF 1
JOB NAME/ CLIENT York Phase II/NYC Transit	PROJECT NO. 4017555-0002	EQUIPMENT Excavator / Backhoe	
ADDRESS 164-26 Liberty Ave. Blk 10160, Lot 1; Blk 10159, Part Lot 3, Queens, NY		INSPECTOR DC (ES)	
START DATE 4/16/18	END DATE 4/16/18	WATER LEVEL (if applicable) N/A	

DEPTH (FEET)	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little sm - some	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
0 3	~~tight~~ Medium brown silty SAND, cmf gravel. (Debris ~5' diameter; concrete)	N/S, N/O TP-08A (0-3) @ 1345
3 6	dark brown silty SAND, cmf gravel (Debris (SAA)).	N/S, N/O TP-08A (3-6) @ 1351
6 8.5	SAA (less debris).	N/S, N/O TP-08A (6-8) @ 1358
	End of Test Pit at 8.5 feet bgs	

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	**TEST PIT LOG**	TEST PIT: TP-09 SHEET: 1 OF 1
JOB NAME/ CLIENT York Phase II/NYC Transit	PROJECT NO. 4017555-0002	EQUIPMENT excavator / backhoe	
ADDRESS 164-26 Liberty Ave. Blk 10160, Lot 1; Blk 10159, Part Lot 3, Queens, NY		INSPECTOR DC, ES	
START DATE 4/18/18	END DATE 4/18/18	WATER LEVEL (If applicable) NA	

DEPTH (FEET)	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little sm - some	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
0 6	dark brown SAND, some cmf gravel and debris (trash, pipes, concrete + brick fragments)	N/S, N/O
		TP-09 (0-2) @ 1345 TP-09 (2-4) @ 1352 TP-09 (4-6) @ 1405
	End of Test Pit at 6 feet bgs	

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	**TEST PIT LOG**	**TEST PIT:** TP-10 **SHEET:** 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.	EQUIPMENT
York Phase II/NYC Transit	4017555-0002	Excavator/Backhoe
ADDRESS		**INSPECTOR**
164-26 Liberty Ave. Blk 10160, Lot 1; Blk 10159, Part Lot 3, Queens, NY		DC, (ES)
START DATE	**END DATE**	**WATER LEVEL (if applicable)**
4/17/18	4/17/18	N/A

DEPTH (FEET)	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little sm - some	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
0	Medium brown SAND, some cm gravel	TP-10 (0-1) @ 1240 TP-10 (2-3) @ 1246
6	Debris throughout (~1-4' diameter)	N/S, N/O
6	Black cmf gravel, asphalt-like	TP-10 (4-6) @ 1251 TP-10 (6-7) @ 1320
7		N/S, N/O
	End of Test Pit at 7 feet bgs	

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	**TEST PIT LOG**	TEST PIT: TP-11 SHEET: 1 OF 1
JOB NAME/ CLIENT York Phase II/NYC Transit	PROJECT NO. 4017555-0002	EQUIPMENT excavator/backhoe	
ADDRESS 164-26 Liberty Ave. Blk 10160, Lot 1; Blk 10159, Part Lot 3, Queens, NY		INSPECTOR DC (ES)	
START DATE 4/16/18	END DATE 4/16/18	WATER LEVEL (if applicable) NA	

DEPTH (FEET)	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little sm - some	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Stroog Odor
0 5	light brown/dark brown silty SAND, cm gravel, debris (i.e. concrete, brick fragments, pipes, plastic, etc.)	N/S, N/O TP-11 (0-1) @ 1105 TP-11 (2-3) @ 1108 TP-11 (4-5) @ 1115
	End of Test Pit at 5 feet bgs	

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	**TEST PIT LOG**	**TEST PIT:** TP-12 **SHEET:** 1 OF 1
JOB NAME/ CLIENT York Phase II/NYC Transit	**PROJECT NO.** 4017555-0002	**EQUIPMENT** Excavator / backhoe	
ADDRESS 164-26 Liberty Ave. Blk 10160, Lot 1; Blk 10159, Part Lot 3, Queens, NY		**INSPECTOR** DC (ES)	
START DATE 4/18	**END DATE** 4/18	**WATER LEVEL (if applicable)** N/A	

DEPTH (FEET)	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little sm - some	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
0 2	Black SAND, some cmf gravel (i.e. concrete, & brick fragments, 6" dia. gravel)	TP-12 (0-2) @ 1235 N/S, N/O TP-12 (2-3) @ 1241
2 7	light brown SAND, Mf rounded and angular gravel (up to 18" diam. gravel). (concrete & brick fragments).	TP-12 (3-4) @ 1246 TP-12 (5-7) @ 1258 N/S, N/O
	End of Test Pit at 7 feet bgs	

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	**TEST PIT LOG**	**TEST PIT:** TP-13 **SHEET:** 1 **OF** 1
JOB NAME/ CLIENT York Phase II/NYC Transit	**PROJECT NO.** 4017555-0002	**EQUIPMENT** Excavator / Backhoe	
ADDRESS 164-26 Liberty Ave. Blk 10160, Lot 1; Blk 10159, Part Lot 3, Queens, NY		**INSPECTOR** DC (ES)	
START DATE 4/18/18	**END DATE** 4/18/18	**WATER LEVEL (if applicable)** N/A	

DEPTH (FEET)	**DESCRIPTION OF SOILS** (SAA = Same As Above) f - floe m - medium c - coarse lt - light dk - dark tr - trace ltl - little sm - some	**REMARKS** (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
0	dark brown sand, some cmf gravel. large gravel up to 1" diameter	N/S, N/O.
3		TP-13 (0-3) @ 1125
6		TP-13 (3-6) @ 1136
9		TP-13 (6-9) @ 1142
	End of Test Pit at 9 feet bgs	

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	**TEST PIT LOG**	TEST PIT: TP-14 SHEET: 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.	EQUIPMENT
York Phase II/NYC Transit	4017555-0002	Excavator / Backhoe
ADDRESS		**INSPECTOR**
164-26 Liberty Ave. Blk 10160, Lot 1; Blk 10159, Part Lot 3, Queens, NY		DC (ES)
START DATE	**END DATE**	**WATER LEVEL (if applicable)**
4/18/18	4/18/18	N/A

DEPTH (FEET)	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little sm - some	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
0	dark brown SAND, mf gravel. Gravel up to 1' diam. (debris - Metal, rubber, old pipes)	TP-14(0-1) @ 0940 TP-14(2-3) @ 0943 N/S, N/O
5.5		
5.5	black SAND, and gravel Resembles asphalt.	TP-14(4-5.5) @ 0947 TP-14(5.5-6.5) @ 0950 N/S, N/O
6.5		
	End of Test Pit at 6.5 feet bgs	

APPENDIX D

SOIL BORING LOGS

Combined borings SB-5 / SB-101

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-5 / SB-101 SHEET 1 OF 1
JOB NAME/ CLIENT: York Phase II / NYC Transit	PROJECT NO.: 4017555-0002		~4' above street grade
ADDRESS: 164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY		GPS Coordinates	
DRILLING CONTRACTOR: Aquifer, Drilling and Testing (ADT)	DRILLER: Aarco (Tim)	INSPECTOR: BC/ES	
DRILLING RIG: Geoprobe 7822DT	TYPE/SIZE BIT	START DATE: 4/17/18 11:35	END DATE: 4/17/18
SAMPLER TYPE: 5' macrocore	HAMMER WEIGHT/DROP: NA	TOTAL DEPTH: 39' BEG	WATER LEVEL: 29.5' BEG

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS) (BEG)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace lt - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	30"	0-5		asphalt surface dry, N/O silt, sand, gravel, rock fragments	FILL	SB-101 (0-2) @ 1140 SB-101 (2-4) @ 1150 PID = 1.0
2	21"	5-10		brown f-m SAND, dry, N/O	SP	SB-5 (0-2) @ 1100 PID = 2.8
3	20"	10-15		SAA, trace gravel, dry, N/O	SP	PID = 0.0
4	32"	15-20		SAA	SP	PID = 0.0
5	32"	20-25		SAA	SP	PID = 0.0
6	38"	25-30	▽	SAA, grades coarser, wet at 29.5' BEG	SP/SW	SB-5 (22-24) @ 1215 GW @ 29.5' BEG
7	35"	30-35		tan F-C SAND, few gravel, wet	SW	
8	40"	35-40		SAA	SW	B.O.B.C 39' BEG
9		40-45				

Instructions:
Indicate depth to groundwater
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remerks column.

install temp well - screened 29' - 39' BEG

install SV-05 to 5' BEG

Sample depth SB-101 is BEG

Sample depth SB-5 is ~~BGS~~ BSG all other measurements BEG

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-102 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~ Aarco	Tim Kelly	DC (ES)

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
GeoProbe	2" sleeve	4/24	4/24

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macro core		10'	NA

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	3	0-5		Black SAND, some gravel and concrete debris	FILL	N/S, N/O
2	3	5-10		5-7 SAA	FILL	SB-102(0-7)@1100
				7-10 Native Material: cmf sand and gravel	SP	N/S, N/O
3				Minimal recovery		
4				END: 10' Native Material: 7'		
5						
6						
7						
8						
9						

Instructions:
Indicate depth to groundweter.
Indicate bottom of boring.
Indicate Sample IDs with intervels in the Remarks column.

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-103 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~ Aarco	Tim Kelly	DC, (ES)

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
GeoProbe	2" Sleeve	4/23	4/23

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macro Core		10' BEG	N/A

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	2	0-5		Black SAND, some mf gravel, debris (concrete & brick frag.)	FILL	SB-103 (0-2) @ 1335 N/S, N/O
2	2	5-10		5-7 SAA	FILL	SB-103 (5-7) @ 1342
				7-10 Native Material	SP	N/S, N/O
3				Native Material @ 7' BEG		
4				END Boring @ 10' BEG		
5						
6						
7						
8						
9						

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column.

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-104 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~ Aarco	Tim Kelly	DC, ES

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
GeoProbe	2" sleeve	4/25	4/25

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macro Core		10'	NA

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	2	0-5		Black SAND, trace silt and gravel (concrete and brick) fragments	FILL	SB-104 (0-2) @ 1035 SB-104 (4-6) @ 1042 N/S, N/O
2	3	5-10		SAA	FILL	SB-104 (8-10) @ 1051 SAA
3				Native Material @ 10' BEG	SP	SAA
4				END 10'		
5				Native : 10'		
6						
7						
8						
9						

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column.

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-105 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~ Aarco	Tim Kelly	DC, (ES)

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
GeoProbe	2" sleeves	4/24	4/24

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macro Core		10'	NA

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	4	0-5		Black SAND and cmf gravel (concrete & brick fragments)	FILL	SB-105(0-2)@1310 N/S, N/O
2	3	5-10		SAA	FILL	SB-105(4-6)@1325 SB-105(8-10)@1331 N/S, N/O
3				Native Material @ 10' BEG END boring @ 10' BEG		
4						
5						
6						
7						
8						
9						

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column.

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-106 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~ Aarco	Tim Kelly	DC, ES

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
Geoprobe	2" sleeve	4/23	4/23

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macro Core		15'	N/A

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	4	0-5		Black SAND, little silt, mf gravel, debris (concrete fragments, wood chips)	FILL	SB-106 (0-2) @ 1129 N/S, N/O
2	4	5-10		SAA	FILL	SB-106 (8-10) @ 1138 SAA
3	3	10-15		light brown sand appears similar to Native w/ brick + concrete fragments	FILL	SB-106 (13-15) @ 1146 SAA
4	1	15-17		Native Material: light brown cmf sand and gravel	SP	
5				Refusal @ 17' BEG Native Material @ 15' BEG		
6				END Boring @ 17' BEG		
7						
8						
9						

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column.

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-107 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~ Aarco	Tim Kelly	DC (ES)

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
GeoProbe	2" Sleeves	4/23/18	4/23/18

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macro Core	N/A	20' BEG	N/A

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	3	0-5		black Sand, trace silt, trace mf gravel	FILL	SB-107 (0-2) @ 0835 N/S, N/O
2	4	5-10		SAA	FILL	SB-107 (9-11) @ 0846 SAA
3	0	10-15		N/A	N/A	N/A
4	1	15-18		SAA	FILL	SB-107 (16-18) @ 0854 SAA
5	2	18-20		Native Material @ 18' BEG		
6				END of Boring @ 20'		
7						
8						
9						

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-108 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~ Aarco	Tim Kelly	DC. (ES)

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
GeoProbe	2" sleeves	4/23	4/23

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macro Core		15	N/A

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	3	0-5		Black SAND, trace silt, mf gravel, debris (brick & concrete frag.)	FILL	SB-108(0-2)@0931 N/S, N/O
2	4	5-10		SAA	FILL	SB-108(4-6)@0940 SB-108(8-10)@0949 SAA
3	4	10-15		Native Material @ 10' BEG	SP	SAA
4				END of Boring @ 15' BEG		
5						
6						
7						
8						
9						

Instructions:
Indicate depth to groundweter.
Indicate bottom of boring.
Indicate Semple IDs with intervels in the Remarks column.

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-109 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~ Aarco	Tim Kelly	DC, (ES)

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
GeoProbe		4/23	4/23

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macro Core		15'	N/A

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	3	0-5		Black Sand, trace silt, mf gravel, debris (brick & concrete fragments, trash, wood chips)	FILL	SB-109 (0-2)@ 1008 N/S, N/O
2	4	5-10		SAA	FILL	SB-109 (4-6)@ 1019 SAA
3	3	10-15		10-11 SAA	FILL	SB-109 (9-11)@ 1027 SAA
				11-15 Native Material	SP	
4				Native Material @ 11' BEG		
5				END Boring @ 15' BEG		
6						
7						
8						
9						

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column

STV 100 Years

STV Inc.
225 Park Avenue South
New York, NY 10003
(212) 777-4400

BORING LOG

BORING SB-1
SHEET 1 **OF** 1

JOB NAME/ CLIENT	**PROJECT NO.**
York Phase II / NYC Transit	4017555-0002

~3' above street grade

ADDRESS: 164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY

GPS Coordinates

DRILLING CONTRACTOR	**DRILLER**	**INSPECTOR:**
~~Aquifer Drilling and Testing (ADT)~~	Aaron (Tim)	DC ES
DRILLING RIG	**TYPE/SIZE BIT**	**START DATE** 4/18/18 08:15 **END DATE** 4/18/18
Geoprobe 7822 DT		
SAMPLER TYPE	**HAMMER WEIGHT/DROP**	**TOTAL DEPTH** 30' BEG **WATER LEVEL** 20' BEG
5' macrocore	N/A	

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS) (BEG)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace lti - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	38"	0-5		silt, sand, gravel, rock frags, brick frags N/O	FILL	PID = 2.0
2	30"	5-10		tan F-m SAND, dry, N/O	SP	SB-1 (0-2) @ 0820 PID = 0.0
3	28"	10-15		SAA, dry, N/O	SP	PID = 0.0
4	31"	15-20	▽	tan F-m SAND, grades coarser at base, wet at base	SP	PID = 0.0 SB-1 (15-17) @ 0840
5	36"	20-25		tan F-c SAND, core F-m gravel, wet	SW	GW @ 20' BEG
6	37"	25-30		SAA	SW	B.O.B. @ 30' BEG
7		30-35				
8		35-40				
9		40-45				

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column

Install temp well - screened 20'-30' BEG

Install SV-01 to 5' BEG

Sample depths are ~~BGS~~ BSG, all other measurements BEG

STV 100 Years

STV Inc.
225 Park Avenue South
New York, NY 10003
(212) 777-4400

BORING LOG

BORING SB-2
SHEET 1 OF 1

JOB NAME/ CLIENT	**PROJECT NO.**
York Phase II / NYC Transit	4017555-0002
ADDRESS:	**GPS Coordinates**
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	~3' above street grade
DRILLING CONTRACTOR	**DRILLER** / **INSPECTOR:**
~~Aquifer Drilling and Testing (ADT)~~	Marco (Tim) / (DC) ES
DRILLING RIG	**TYPE/SIZE BIT** / **START DATE** 4/18/18 09:30 / **END DATE** 4/18/18
Geoprobe 7822DT	
SAMPLER TYPE	**HAMMER WEIGHT/DROP** / **TOTAL DEPTH** 30' BEG / **WATER LEVEL** 19' BEG
5' Macrocore	NA

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS) (BEG)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	33"	0-5		Silt, sand, gravel, brick frags, dry N/O	FILL	PID = 2.4
2	28"	5-10		tan F-m SAND, dry, N/O	SP	SB-2(0-2)@0950 PID = 0.0
3	31"	10-15		SAA, dry, N/O	SP	PID = 0.0
4	32"	15-20	▽	tan f-m SAND, few f-m gravels grades coarser at bsm, wet @ 19' BEG	SP	SB-2(14-16)@1020 GW @ 19' BEG
5	34"	20-25		tan f-c SAND w/ some gravel, wet	SW	
6	60"	25-30		SAA, increased gravel content	SW	B.O.B. @ 30' BEG
7		30-35				
8		35-40				
9		40-45				

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column.

install temp well - screened 20'-30' BEG
install SV-02 @ 5' BEG
Sample depths are BGS, all other measurements BEG
BSG

STV 100 Years

STV Inc.
225 Park Avenue South
New York, NY 10003
(212) 777-4400

BORING LOG

BORING SB-3
SHEET 1 OF 1

JOB NAME/ CLIENT	**PROJECT NO.**
York Phase II / NYC Transit	4017555-0002
ADDRESS:	**GPS Coordinates**
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	~3' above street grade
DRILLING CONTRACTOR	**DRILLER** / **INSPECTOR:**
~~Aquifer Drilling and Testing (ADT)~~	Aarco (Tim) / SC/ES
DRILLING RIG	**TYPE/SIZE BIT** / **START DATE** 4/18/18 11:47 / **END DATE** 4/18/18
Geoprobe 7822 DT	
SAMPLER TYPE	**HAMMER WEIGHT/DROP** / **TOTAL DEPTH** 30' BEG / **WATER LEVEL** 20' BEG
5' macrocore	NA

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS) (BEG)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace lil - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	30"	0-5		silt, sand, gravel, trace brick frags, dry, N/O	FILL	PID = 3.5
2	24"	5-10		brown silty SAND, dry, N/O	SM	SB-3(0-2) @ 1155 PID = 1.1
3	33"	10-15		tan f-m SAND, dry, N/O	SP	PID = 0.0
4	36"	15-20	▽	SAA, dry, N/O	SP	SB-3(15-17) @ 1225 GWE 20' BEG
5	18"	20-25		tan f-c SAND, trace gravel, wet	SW	
6	42"	25-30		brown f-c SAND, some gravel, wet	SW	B.O.B. @ 30' BEG
7		30-35				
8		35-40				
9		40-45				

Instructions:
Indicate depth to groundwater
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column.

install temp well - screened 20'-30' BEG
install SV-03 to 5' BEG
Sample depths are ~~BGS~~ BSG all other measurements BEG

STV 100 Years

STV Inc.
225 Park Avenue South
New York, NY 10003
(212) 777-4400

BORING LOG

BORING SB-4
SHEET 1 **OF** 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

~4' above street grade

ADDRESS: 164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY

GPS Coordinates

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~	Aarco (Tim)	(DC) ES

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
Geoprobe 7822 DT		4/17/18 09:20	4/17/18

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macrocore	NA	39' BEG	29' BEG

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS) (BEG)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	32"	0-5		silt, sand, gravel, brick fragments, dry N/O	FILL	PID = 2.2
2	17"	5-10		SAA, dry, N/O	FILL	SB-4(0-2) @ 0930 PID = 2.3
3	21"	10-15		SAA to 13' BEG, then ten f-m SAND, dry, N/O	SP	PID = 2.0
4	33"	15-20		ten f-m SAND, dry, N/O	SP	PID = 0.0
5	51"	20-25		SAA, grades coarser, few gravels	SP/SW	PID = 0.0
6	60"	25-30	▽	ten f-m SAND, wet @ 29' BEG	SP	SB-4(23-25) @ 1000 GW @ 29' BEG
7	40"	30-35		ten f-c SAND, some gravels, wet	SW	
8	51"	35-40		SAA, wet	SW	B.O.B. @ 39' BEG
9		40-45				

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column.

install temp well - screened 29' - 39' BEG
install SV-04 to 5' BEG
Sample depths are BGS, all other measurements BEG
BSG

Combined borings SB-5 / SB-101

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-5 / SB-101 SHEET 1 OF 1
JOB NAME/ CLIENT: York Phase II / NYC Transit	PROJECT NO.: 4017555-0002		~4' above street grade
ADDRESS: 164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY		GPS Coordinates	
DRILLING CONTRACTOR: Aquifer, Drilling and Testing (ADT)	DRILLER: Aarco (Tim)	INSPECTOR: BC/ES	
DRILLING RIG: Geoprobe 7822DT	TYPE/SIZE BIT	START DATE: 4/17/18 11:35	END DATE: 4/17/18
SAMPLER TYPE: 5' macrocore	HAMMER WEIGHT/DROP: NA	TOTAL DEPTH: 39' BEG	WATER LEVEL: 29.5' BEG

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS) (BEG)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace lt - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	30"	0-5		asphalt surface dry, N/O silt, sand, gravel, rock fragments	FILL	SB-101 (0-2) @ 1140 SB-101 (2-4) @ 1150 PID = 1.0
2	21"	5-10		brown f-m SAND, dry, N/O	SP	SB-5 (0-2) @ 1100 PID = 2.8
3	20"	10-15		SAA, trace gravel, dry, N/O	SP	PID = 0.0
4	32"	15-20		SAA	SP	PID = 0.0
5	32"	20-25		SAA	SP	PID = 0.0
6	38"	25-30	▽	SAA, grades coarser, wet at 29.5' BEG	SP/SW	SB-5 (22-24) @ 1215 GW @ 29.5' BEG
7	35"	30-35		tan F-C SAND, few gravel, wet	SW	
8	40"	35-40		SAA	SW	B.O.B.C 39' BEG
9		40-45				

Instructions:
Indicate depth to groundwater
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remerks column.

install temp well - screened 29' - 39' BEG

install SV-05 to 5' BEG

Sample depth SB-101 is BEG

Sample depth SB-5 is ~~BGS~~ BSG all other measurements BEG

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-6 SHEET 1 OF 1
JOB NAME/ CLIENT: York Phase II / NYC Transit	PROJECT NO.: 4017555-0002		~8' above street grade
ADDRESS: 164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY		GPS Coordinates	
DRILLING CONTRACTOR: ~~AquaTest Drilling and Sampling (ADE)~~	DRILLER: Adarco (Tim)	INSPECTOR: DC/ES	
DRILLING RIG: Geoprobe 7822 DT	TYPE/SIZE BIT	START DATE: 4/17/18 14:10	END DATE: 4/17/18
SAMPLER TYPE: 5' macrocore	HAMMER WEIGHT/DROP: N/A	TOTAL DEPTH: ~~50~~ 40' BEG	WATER LEVEL: 30 ~~30.5~~ 'BEG

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS) (BEG)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	38"	0-5		asphalt surface silt, sand, gravel, brick frags, dry., N/O	FILL	PID = 4.4
2	32"	5-10		SAA, dry, N/O	FILL	PID = 3.2
3	38"	10-15		tan f-m SAND, trace f gravel dry, N/O	SP	SB-6(0-2) @ 1420 PID = 0.0
4	38"	15-20		SAA, dry, N/O	SP	PID = 0.0
5	37"	20-25		SAA w/ lenses of f dark SAND dry, N/O	SP	PID = 0.0
6	40"	25-30	▽	SAA, wet at base (30' BEG)	SP	SB-6(20-22) @ 1435 GWC 30' BEG
7	35"	30-35		tan f-c SAND, few gravel, wet	SW	
8	30"	35-40		SAA	SW	B.O.B.C 40' BEG
9	[illegible]	40-45'				

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column.

install temp will. screened 30'-40' BEG

install SV-06 to 5' BEG

Sample depths are ~~BGS~~, all other measurements BEG

BSG

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-7 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.	
York Phase II / NYC Transit	4017555-0002	~7' above street grade
ADDRESS: 164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	GPS Coordinates	
DRILLING CONTRACTOR ~~Aquifer Drilling and Testing (ADT)~~	DRILLER Marco (Tim)	INSPECTOR: DC/ES
DRILLING RIG Geoprobe 7822 DT	TYPE/SIZE BIT	START DATE 4/19/18 08:00 END DATE 4/19/18
SAMPLER TYPE 5' Macrocore	HAMMER WEIGHT/DROP NA	TOTAL DEPTH 35' BEG WATER LEVEL 24.5' BEG

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS) BEG	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	40"	0-5		silt, sand, gravel, brick fragments dry, N/O	FILL	PID = 3.5
2	30"	5-10		SAA, dry, N/O	FILL	SB-7(0-2)@0815 PID = 3.0
3	35"	10-15		fine f-m SAND, dry, N/O	SP	PID = 0.0
4	38"	15-20		SAA, grades to reddish color, trace gravel, dry, N/O	SP	PID = 0.0
5	38"	20-25	▽	SAA, grades coarser, wet at 24.5' BEG	SP/SW	SB-7(15.5-17.5)@0830 GW @ 24.5' BEG
6	36"	25-30		fine F-c SAND, trace gravel,	SW	
7	55"	30-35		SAA	SW	B.O.B. @ 35' BEG
8		35-40				
9		40-45				

Instructions:
Indicate depth to groundwater
Indicate bottom of boring
Indicate Sample IDs with intervals in the Remarks column.

Install temp well - screened 25-35' BEG

install SV-07 to 5' BEG

Sample depths are BGS, all other measurements BEG

BSG

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB 8 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.	
York Phase II / NYC Transit	4017555-0002	~4' above street grade

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~	Accuco (Tim)	DC/ES

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
Geoprobe 7822 DT		4/17/18 0810	4/17/18

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macrocore	N/A	30' BEG	29' BEG

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS) (BEG)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	36"	0-5		silt, sand, gravel, rocks, brick frags dry, MD	FILL	PID= 1.2
2	36"	5-10		SAA to 8' bgs then brown silty SAND, trace gravel, trace wood debris	SM	SB-8(0-2)@0810 PID=0.0
3	48"	10-15		tan f-m SAND, trace F gravel, dry N/O	SP	PID=0.0
4	40"	15-20		SAA, dry, N/O	SP	PID=0.0
5	40"	20-25		SAA, grades coarser at base, dry N/O	SP/SW	PID=0.0
6	39"	25-30	▽	SAA, wet at 29' BEG	SP/SW	SB-8(19-21)@0840 GW@29' BEG
7		30-35				B.O.B.@30' BEG
8		35-40				
9		40-45				

Instructions:
Indicate depth to groundwater
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column.

Sample depths are BGS, all other measurements BEG

BSG

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-9 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.	
York Phase II / NYC Transit	4017555-0002	~4' above street grade

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~	Marco (Tim)	DC, ES

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
Geoprobe 7822DT		4/16/18 11:20	4/16/18

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macro	N/A	25' BEG	22' BEG

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS) (BEG)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	36"	0-5		silt, sand, gravel, brick fragments dk, N/O	FILL	PID = 3.3
2	26"	5-10		tan m-SAND, trace gravel, dk, N/O	SP	SB-9(0-2)@1130 PID = 1.0
3	40"	10-15		SAA, dk, N/O	SP	PID = 0.0
4	33"	15-20		SAA, [redacted] dk, N/O	SP	PID = 0.0
5	27"	20-25	▽	SAA, grades to f-c sand @22' BEG wet at 22' BEG	SP/SW	SB-9(18-19)@1150 GW @ 22' BEG
6		25-30				B.O.B. @ 25' BEG
7		30-35				
8		35-40				
9		40-45				

Instructions:
Indicate depth to groundwater
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column

Sample depths are BGS, all other measurements BEG

BSG

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-10 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.	
York Phase II / NYC Transit	4017555-0002	~3' above street grade

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:	
~~Aquifer Drilling and Testing (ADT)~~	Aaron (TM)	DC, ES	
DRILLING RIG	**TYPE/SIZE BIT**	**START DATE**	**END DATE**
Geoprobe 7822 DT		4/16/18	4/16/18
SAMPLER TYPE	**HAMMER WEIGHT/DROP**	**TOTAL DEPTH**	**WATER LEVEL**
5' MACRO CORE	NA	25' BEG	20' BEG

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS) (BEG)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	35"	0-5		Si M, sand, gravel, brick fragments, dry, MO	FILL	PID = 2.0
2	25"	5-10		silty SAND, w/ some gravel, dry, N/O	SM	SB-10(0-2)@1035 PID = 0.0
3	24"	10-15		SAA, dry, NO	SM	PID=0.0
4	20"	15-20	▽	SAA to 17' BEG then grades to F-C SAND, wet at 20' BEG	SM/SW	PID=0.0 GW @ 20' BEG
5	40"	20-25				SB-10(16-17)@1050 B.O.B. @ 25' BEG
6		25-30				
7		30-35				
8		35-40				
9		40-45				

Instructions:
Indicate depth to groundwater
Indicate bottom of boring
Indicate Sample IDs with intervals in the Remarks column.

Sample depths are BGS, all other measurements BEG

BSG

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING ~~SB-13~~ SB-11 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~ Geo	Tim Kelly	DC, ES

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
GeoProbe	2" Sleeve	4/24	4/24

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5" Macrocore		30' BEG	28' BEG

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace lit - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	2	0-5		light brown SAND and silt, mf gravel and concrete fragments	FILL	N/S, N/O.
2	3	5-10		SAA	FILL	SAA
3	3	10-15		10-11' SAA	FILL	
				11-15' Native: cmf SAND and gravel	SP	SAA SB-11 (0-2) @ 1145
4	4	15-20		SAA	SP	SAA
5	1	20-25		SAA	SP	SAA
6	3	25-30	▽	SAA. GW @ 28' BEG	SP	SAA
					SW	SB-11 (25-27) @ 1205
7				END: 30'		
8				Native: 11'		
9						

Instructions:
Indicate depth to groundwater
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column.

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-12 SHEET 1 OF 1
JOB NAME/ CLIENT: York Phase II / NYC Transit	PROJECT NO.: 4017555-0002		~7' above street grade
ADDRESS: 164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY		GPS Coordinates	
DRILLING CONTRACTOR: ~~Aquifer, Drilling and Testing (ADT)~~	DRILLER: Marco (Tim)	INSPECTOR: DC/ES	
DRILLING RIG: Geoprobe 7822DT	TYPE/SIZE BIT	START DATE: 4/16/18 12:48	END DATE: 4/16/18
SAMPLER TYPE: 5' macrocore	HAMMER WEIGHT/DROP: NA	TOTAL DEPTH: 25' BEG	WATER LEVEL: 22' BEG

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS) (BEG)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace lt - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	48"	0-5		silt, sand, gravel, trace brick frags, dry, S/O	FILL	PID = 5.8
2	32"	5-10		tan F- sand w/ brick fragments, dry S/O	FILL	SB-12(0-2)@1335 PID = 4.4
3	15"	10-15		wood debris fiber board, brick fragments, dry S/O	FILL	PID = 4.1
4	17"	15-20		brick fragments, plastic garbage, metal debris, wood debris	FILL	SB-12(12-13)@1350 PID = 1.2
5	5"	20-25	▽	poor recovery, wood debris only wet at base of macrocore (22' BEG)	FILL	GW @ 22' BEG B.O.B. @ 25' BEG
6	~~5"~~ 0"	25-30				
7		30-35				
8		35-40				
9		40-45				

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column.

1st attempt - encountered refusal @ 18' BEG offset ~3' and reattempt

Sample depths are BGS, all other measurements BEG BSG

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-13 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~ Aarco	Tim Kelly	DC (ES)

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
Geo Probe	2" sleeve	4/25	4/25

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macro core		30'	29'

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	3	0-5		black sand, silt, cmf gravel (concrete fragments)	FILL	N/S, N/O
2	1	5-7		Refusal @ 7'	FILL	SAA
temp 1 / temp 2 3	3	0-5		SAA	FILL	SAA
4	3	5-10		SAA	FILL	SAA
5	4	10-15		Native @ 12' BEG (0' BSG) cmf sand and gravel	FILL / SP	SB-13 (0-2) @ 0945 SAA
6	3	15-20		SAA	SP	SAA
7	3	20-25		SAA	SP	SAA
8	3	25-30	▽	SAA. GW @ 29' BEG (17' BSG)	SP / SW	SB-13 (15-17) @ 1005 SAA
9				END: 30' BEG Native: 12' BEG		

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column.

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-14 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017655-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:	
~~Aquifer Drilling and Testing (ADT)~~ Darco	TIM KELLY	DC, (ES)	
DRILLING RIG	**TYPE/SIZE BIT**	**START DATE**	**END DATE**
GeoProbe	2" sleeves	4/23	4/23
SAMPLER	**HAMMER WEIGHT/DROP**	**TOTAL DEPTH**	**WATER LEVEL**
5" Macrocore		35' BEG	

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace lt - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	3	0-5		black sand, silt, gravel	FILL	N/S. N/O
2	3	5-10		5-8' SAA	FILL	SB-14 (0-2) @ 1245 SAA
				8-10 Native: fmc. sand trace gravel	SP	
3	4'	10-15		SAA	SP	SAA
4	4'	15-20		SAA	SP	SAA
5	4'	20-25		SAA	SP	SAA
6	2'	25-30	▽	SAA: ~~FW~~ @	SP	SAA
7	2'	30-35	▽	SAA: FW @ 35' BEG	SP	SB-14 (25-28) @ 1300 SAA
8						
9						

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column.

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING UST-01 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~ Aarco	TIM KELLY	DC (ES)

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
GeoProbe	2" sleeve	4/21	4/21

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macro core		30' BEG	@ 28' BEG

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - madium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	2	0-5		brown SAND, trace silt, little cmf gravel (brick & concrete frag.)	FILL	N/S, N/O
2	1	5-10		SAA	FILL	SAA
3	3	10-15		Native Material: cmf SAND, trace gravel.	SP	SAA
4	3	15-20		SAA	SP	UST-01 (18-20)@0831 SAA
5	3	20-25		SAA	SP	SAA
6	4	25-30	▽	SAA: Groundwater at 28'	SP/SW	SAA
7				END: 30'		
8				Native: 10'		
9						

Instructions:
- Indicate depth to groundwater.
- Indicate bottom of boring.
- Indicate Sample IDs with intervals in the Remarks column.

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING UST-02 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR ~~Aquifer Drilling and Testing (ADT)~~ Aarco	DRILLER Tim Kelly	INSPECTOR: DC. (ES)	
DRILLING RIG GeoProbe	TYPE/SIZE BIT 2" sleeve	START DATE 4/24	END DATE 4/24
SAMPLER TYPE 5' Macro core	HAMMER WEIGHT/DROP	TOTAL DEPTH 30' BEG	WATER LEVEL 30' BEG

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - derk tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	4	0-5		0-3 black sand, little cmf gravel (wood chips) 3-5 light brown silt, little sand, trace clay, trace mf gravel	FILL	N/S, N/O
2	2	5-10		SAND, little cmf gravel (concrete fragments)	FILL	N/S, N/O
3	1	10-15		SAA	FILL	N/S, N/O
4	2	15-20		SAA	FILL	N/S, N/O
5	4	20-25		Native material: cmf sand, trace gravel	SP	N/S, N/O
6	4	25-30	▽	SAA GW @ 30' BEG	SP	UST-02(28-30)@0958 N/S, N/O
7				END: 30'		
8				Native Material: 20'		
9						

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING UST-03 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~ Aarco	Tim Kelly	DC, (ES)

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
GeoProbe	2" sleeve	4/23	4/23

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macro Core		30'	NA

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	2	0-5		Black sand, mf gravel some silt	FILL	N/S, N/O
2	3	5-6		SAA	FILL	N/S, N/O
3	3	6-10		Native Material: Fine SAND, Trace fine gravel ↓ light brown	SP	SAA
4	3'/ sleeve	10-30	▽	SAA, ▽ @ 28' BEG	SP / SW	UST-03 (14-16)@ 1405 SAA
5				END: 30'		
6				Native Material: 6'		
7						
8						
9						

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column.

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-A1A SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS: 164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY

GPS Coordinates

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~ Aarco	Tim Kelly	DC (ES)

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
GeoProbe	2" Sleeve	4/25	4/25

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macro Core		20'	N/A

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	3	0-5		Black/Brown sand, little silt, cmf gravel (concrete, brick frag)	FILL	SB-A1A (0-4)@1410 N/S, N/O
2	3	5-10		SAA	FILL	SB-A1A(6-10)@1417 SAA
3	1	10-15		SAA	FILL	SB-A1A(13-17)@1425 SAA
4	2	15-20		15'-17' SAA 17'-20' Native Material: light brown cmf sand & gravel	FILL SP	SAA
5				END: 20'		
6				Native @ 17' BEG		
7						
8						
9						

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-A1B SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~ Geo	TIM Kelly	DC. ES

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
GeoProbe	2" sleeve	4/26	4/26

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5" Macrocore		15	

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	4	0-5		Black SAND, cmf gravel (glass pieces, debris/trash, brick frag.)	FILL	SB-A1B (0-2) @0905 N/S N/O SB-A1B (2-4) @0915
2	3	5-10		5'-7' SAA	FILL	SB-A1B (5-7) @0935 SAA
				7'-10' Native: cmf sand, gravel	SP	
3	3	10-15		SAA.	SP	SAA
4				END: 15'		
5				Native: 7'		
6						
7						
8						
9						

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column.

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-A2A SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~ Aarco	Tim Kelly	DC, ES

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
GeoProbe	2" Sleeve	4/25	4/25

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macro Core		15'	NA

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	4	0-5		black SAND, trace silt and mf gravel (concrete + brick frag., wood chips)	FILL	SB-A2A(0-2)@1305 SB-A2A(4-6)@1315 N/S, N/O Ø PID=5.2 ppm
2	4	5-10		SAA	FILL	SB-A2A(9-11)@1325 N/S, N/O PID=8.1 ppm
3	4	10-15		10'-11' SAA	FILL	N/S, N/O PID: 5.5 ppm
				11'-15' Native Material @ 11' BEG	SP	N/S, N/O
4				END 15'		
5				Native: 11'		
6						
7						
8						
9						

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring
Indicate Sample IDs with intervals in the Remarks column.

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-A2B SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~ Aarco	Tim Kelly	DC (ES)

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
GeoProbe	2" sleeve	4/25	4/25

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macro Core		15'	N/A

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	4	0-5		Black SAND, trace silt and mf gravel (concrete + brick frag.) wood chips	FILL	SB-A2B(0-2)@1345 SB-A2B(2-4)@1350 N/S, N/O PID=2.2
2	4	5-10		5'-6' SAA	FILL	SB-A2B(4-6)@1353
				6'-10' Native Material @ 6' BEG	SP	N/S, N/O
3	4	10-15		Native: cmf sand and gravel	SP	N/S, N/O
4				END: 15'		
5				Native: 6'		
6						
7						
8						
9						

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column.

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-A3 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT).~~ AARCO	Tim Kelly	DC, (ES)

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
GeoProbe	2" sleeve	4/26	4/26

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macro Core		15'	NA

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	3	0-5		black SAND and silt, trace gravel (concrete & brick) frag.	FILL	SB-A3 (0-3)@ 1110 N/S, N/O
2	3	5-10		SAA Attempt #2: refusal @ 10' BEG Attempt #3. refusal @ 12' BEG	FILL	SB-A3 (3-6) @1120 SAA
3	2	10-15		SAA Attempt #1: refusal @ 15' BEG	FILL	SB-A3(9-12)@1135 SAA
4				END: 15'		
5						
6						
7						
8						
9						

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-A4 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing~~ Parratt-Wolff (ADT)	Tim Kelly	DC, ES

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
GeoProbe	2" Sleeve	4/26	4/26

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macro Core		15'	NA

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	3	0-5		black/brown SAND and gravel. (large concrete structures) Refusal @ 5' BEG	FILL	N/S, N/O SB-A4 (0-4) @ 1235
2	4	5-10		5'-8' SAA ~~Na~~ 8-10' Native - cmf SAND & gravel	FILL SP	SB-A4 (4-8) @ 1247 SAA
3	5	10-15		SAA	SP	SAA
4				END: 15'		
5				Native: 8'		
6						
7						
8						
9						

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column.

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-A5 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT).~~ Parzo	TIM Kelly	DC, ES

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
GeoProbe	2" Sleeve	4/26	4/26

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macro Core		15'	NA

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	2'	0-5		black/ brown SAND and cmf gravel (glass + concrete debris).	FILL	N/S, N/O SB-A5 (0-10) @ 1320
2	0.25'	5-10		SAA	FILL	SAA
3	1	10-15		Native Material: CMf SAND and gravel	SP	SAA
4				END: 15'		
5				Native: 10'		
6						
7						
8						
9						

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column

STV 100 Years	STV Inc. 225 Park Avenue South New York, NY 10003 (212) 777-4400	BORING LOG	BORING SB-A7 SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS:	GPS Coordinates
164-28 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY	

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (ADT)~~ Navo	Tim Kelly	DC (ES)

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
GeoProbe	2" Sleeve	4/26	4/26

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5" Macrocore		15'	NA

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	3	0-5		black SAND and silt, trace gravel (concrete & brick frag.)	FILL	SB-A7(0-4) 0850 N/S, N/O
2	3	5-10		SAA attempt #2: refusal @ 10' BEG	FILL	SB-A7(5-9) 0859 SAA
3	2	10-15		SAA attempt #1: refusal @ 15' BEG	FILL	SB-A7(10-11) 0912 SAA
4				~~cave~~	FILL	
5				attempt #3: refusal @ 12' BEG		
6				END: 15'		
7						
8						
9						

Instructions.
Indicate depth to groundwater
Indicate bottom of boring.
Indicate Sample IDs with intervals in the Remarks column.

STV 100 Years

STV Inc.
225 Park Avenue South
New York, NY 10003
(212) 777-4400

BORING LOG

BORING SB-A8
SHEET 1 OF 1

JOB NAME/ CLIENT	PROJECT NO.
York Phase II / NYC Transit	4017555-0002

ADDRESS: 164-26 Liberty Ave. Block 10160, Lot 1; Block 10159, Part Lot 3, Queens, NY

GPS Coordinates

DRILLING CONTRACTOR	DRILLER	INSPECTOR:
~~Aquifer Drilling and Testing (AD&T)~~ Parco	Tim Kelly	DC (ES)

DRILLING RIG	TYPE/SIZE BIT	START DATE	END DATE
GeoProbe	2" Sleeve	9/27	9/27

SAMPLER TYPE	HAMMER WEIGHT/DROP	TOTAL DEPTH	WATER LEVEL
5' Macro Core		15'	

SAMPLES NUMBER	SAMPLES RECOVERY (FEET)	DEPTH (FEET BGS)	GW DEPTH	DESCRIPTION OF SOILS (SAA = Same As Above) f - fine m - medium c - coarse lt - light dk - dark tr - trace ltl - little s - some	USCS SYMBOL	REMARKS (PID, STAINING, ODORS, ETC.) FP = Free Product N/S = No Staining, N/O = No odors SO = Slight Odor, MO = Moderate Odor STO = Strong Odor
1	5	0-5		Black SAND and cmt gravel (brick + concrete frag)	FILL	SB-A8(0-2)@ 1005 N/S, N/O
2	5	5-10		5-6 SAA 6-8 concrete structure/ 8-10 Native - cmt sand & gravel	FILL SP	SB-A8(2-4)@ 1015 SB-A8(4-6)@ 1022 SAA
3	4	10-15		SAA	SP	SAA
4				END BORING - 15'		
5				Native - 8'		
6						
7						
8						
9						

Instructions:
Indicate depth to groundwater.
Indicate bottom of boring.
Indicate Sample IDs with Intervals in the Remarks column

APPENDIX B: GEOTECHNICAL SOIL TESTING PROGRAM RESULTS (STV 2019)

3. SITE EXPLORATION PROGRAM

This section summarizes the subsurface explorations and laboratory testing program performed in June and August 2019. In addition, a summary of site explorations performed during environmental assessment studies from April 2018 is presented to provide a better understanding of the site. The locations of these explorations are shown in Figure 2 and Figure 3, respectively.

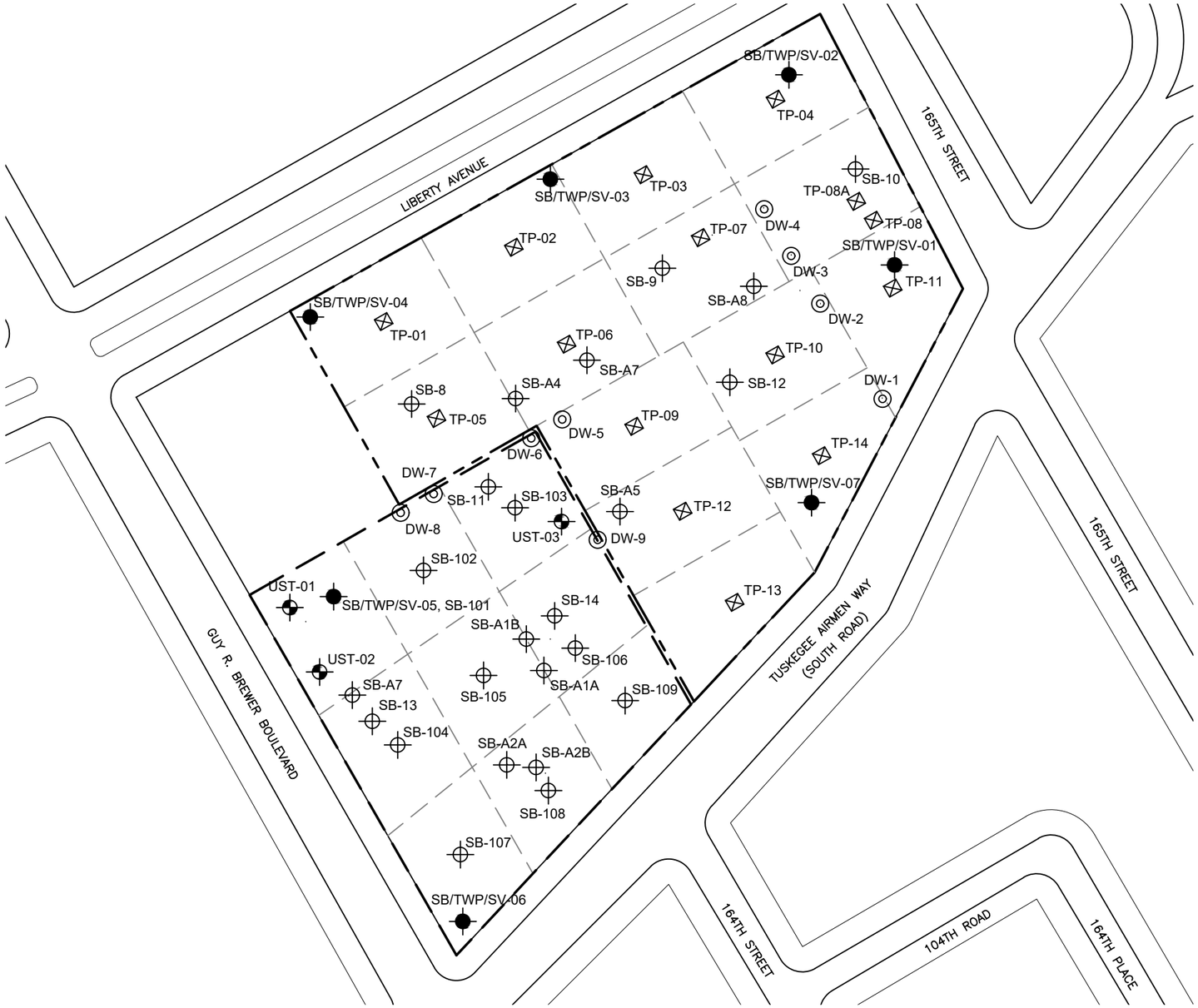
3.1 Historic Data

As part of the 2018 site environmental study, a site exploration program consisting of a geophysical survey, a topographical survey, collection of two rounds of synoptic ground water level measurements, 33 soil borings with depths of 5 to 40 feet, 14 test pits with depths of 5 to 15 feet, installation of 7 temporary monitoring wells, installation of temporary soil vapor probes, and collection and environmental laboratory test analysis of ground water and soil samples. These studies indicate the following:

- Geophysical surveys were conducted throughout the site including electromagnetic (EM-31), time domain electromagnetic (EM-61), metal detection (TW-6), and ground penetrating radar (GPR) surveys. The results of the geophysical surveys identified several anomalies throughout the site indicating the existence of subsurface metallic features, metallic debris, reinforced concrete slab, void locations, and/or nonmetallic area of fill material. Test pits TP-06, TP-08, and TP-08A, located close to these anomalies identify fill material consists of sand, silt, gravel, and debris (tires, old railroad ties, metal parts, plastic, large concrete structures, pipes, wire metal chain link fence, asphalt fragments, wood chips) to a depth of 15 feet below ground surface (bgs). Figure 4 shows few photos of test pits TP-06, TP-08, and TP-08A.
- Ground water depth varies between 18 to 30 feet bgs.
- Historic fill was observed consisting of sand, silt, gravel, concrete, plastic material, and brick fragments. The depth of historic fill ranges from the surface to 18 feet bgs. Native material consisted of fine to medium sands with gravel was observed below the fill material to the termination depth of the borings (40 feet).

3.2 Subsurface Exploration Program

The site exploration program included drilling and sampling 27 soil borings varying from 42 to 52 feet bgs, installing 6 monitoring wells and recording ground water level during field exploration, performing standard penetration test continuously up to 20 feet and thereafter at 5-foot intervals, and conducting slug tests at the six observation wells.



LEGEND (SYMBOLS NOT TO SCALE):

- FUTURE MTA BUS PARKING LOT BOUNDARY
- APPROXIMATE COLLEGE PARKING LOT BOUNDARY
- HISTORIC EXISTING DRY WELL
- HISTORIC TEST PIT
- HISTORIC SOIL BORING LOCATION
- HISTORIC SOIL BORING LOCATION / TEMPORARY WELL POINT / SOIL VAPOR POINT
- HISTORIC UNDERGROUND STORAGE TANK

100' 50' 0' 100'

APPROXIMATE SCALE

STV 100 Years

225 PARK AVENUE SOUTH, NY, NY 10003

CUNY/YORK COLLEGE SITE 9
GEOTECHNICAL EXPLORATION
164-26 LIBERTY AVE, JAMAICA, NEW YORK 11433
BLOCK 10160, LOT 1 AND BLOCK 10159, PART OF LOT 3

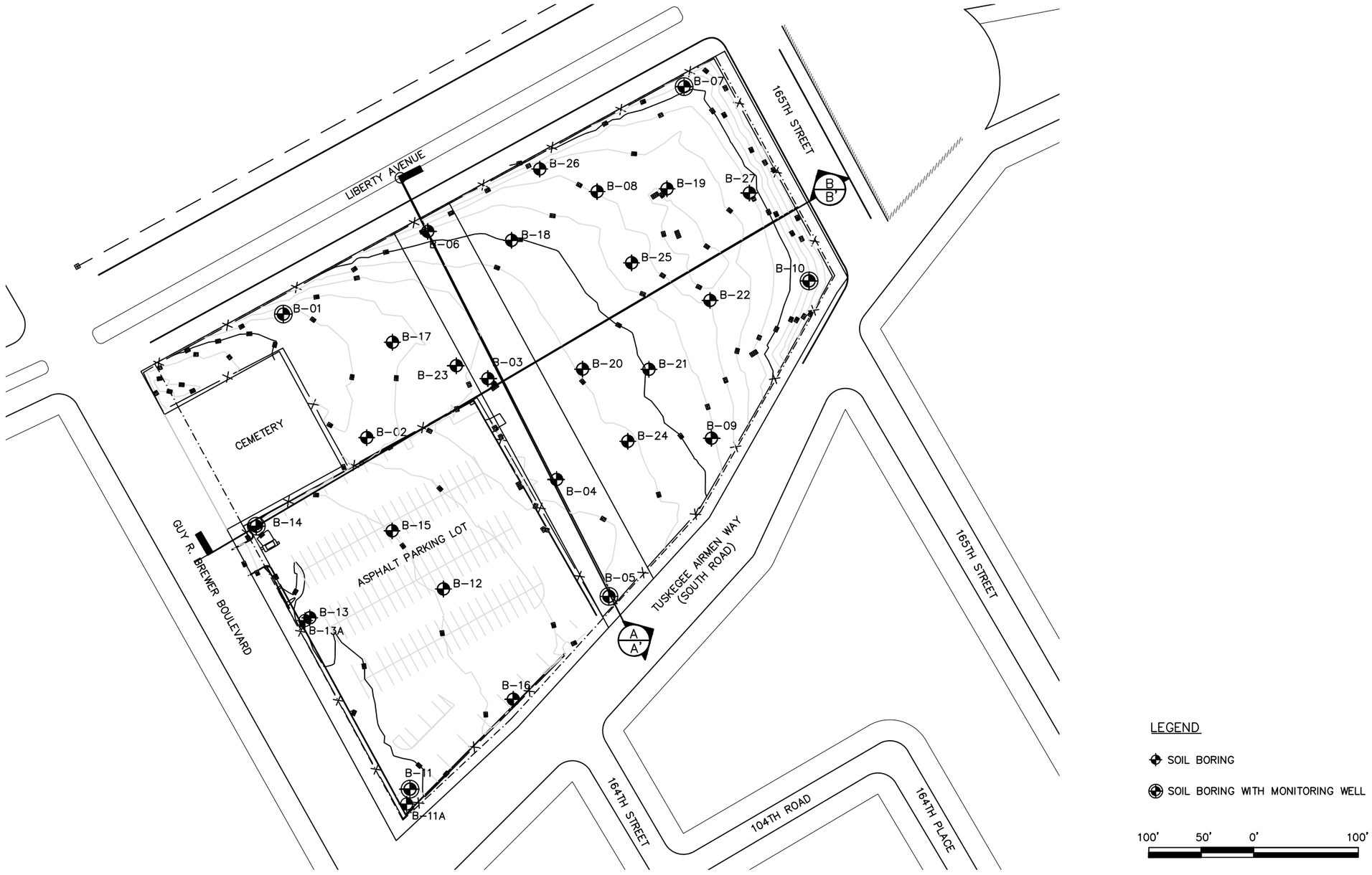
NEW YORK CITY TRANSIT

HISTORICAL SUBSURFACE EXPLORATION LOCATION PLAN

DATE: SEPTEMBER 2019

SCALE: AS SHOWN

SHEET NO: FIGURE 2



STV 100 Years

225 PARK AVENUE SOUTH, NY, NY 10003

CUNY/YORK COLLEGE SITE 9
GEOTECHNICAL EXPLORATION
164-26 LIBERTY AVE, JAMAICA, NEW YORK 11433
BLOCK 10160, LOT 1 AND BLOCK 10159, PART OF LOT 3

NEW YORK CITY TRANSIT

SUBSURFACE EXPLORATION LOCATION PLAN

DATE: SEPTEMBER 2019

SCALE: AS SHOWN

SHEET NO: FIGURE 3

TP-06

TP-08/08A

TP-08/08A

TP-08/08A

Figure 4: Photos of Test Pits TP-06, TP-08/08A

3.3 Laboratory Testing

Laboratory tests were performed on sixty-three (63) selected soil samples. The laboratory testing program consists of particle size distribution (sieve and hydrometer tests), Atterberg Limits, Moisture Content, Modified Proctor, and California Bearing Ratio (CBR) tests.

3.4 Subsurface Conditions

Subsurface soil conditions were interpreted from the test borings conducted as part of this study along with the existing subsurface data and our understanding of the local geology. Test borings drilled across the site, both previous and recent, typically encountered topsoil, fill and native material.

The extent and relationship of the subsurface strata are shown on subsurface profiles that extend in North-South and East-West direction, as shown in Figure 5 and Figure 6, respectively.

3.4.1 Fill Material

Fill material was encountered at all test boring locations and ranged between 10 to 22 feet thick at exploration locations. Fill material depth varies from 10 feet (El. 39.3 feet) to 22 feet (El. 21.3 feet) at B-01 and B-22 borehole locations, respectively. The fill material consists of sand, silt, gravel, cobble, brick, concrete, metal, wood pieces, plastic material, glass, and debris. No soil index testing was performed on fill materials. A summary of fill material depth and elevation at each test boring location is presented in Table 1.

During soft dig, obstructions were encountered at 9 borehole locations (B-02, B-06, B-08, B-11, B-13, B-17, B-21, B-24, B-25). The borehole locations were offset two or three times to reach the required soft dig depth. The material observed at these depths mainly consisted of bricks, rock fragments, concrete, and wood. In addition, during drilling encountered obstruction at two borehole locations (B-11A and B-13A) in paved area, at depths of 10 and 12 feet. Refer to the boring logs in the GDR for additional information including offset direction and distance.

Figure 7 and Figure 8 show SPT N-value variation in this layer, 10^{th}, 25^{th}, 50^{th}, 75^{th}, 90^{th} percentiles, and recommended SPT N-value for the existing and proposed temporary parking lots, respectively. SPT N-values in this layer range from 6 to more than 100 blows per foot with an average (μ) and standard deviation (σ) SPT N-value of 35 and 26, respectively. As SPT N-values are scattered, SPT N-value of 17 corresponding to 25^{th} percentile value is recommended for Fill material.

Table 1: Fill Material Depth and Elevation

ID	Northing (feet)	Easting (feet)	Surface Elev. (feet)	Fill Bottom Depth (feet)	Fill Bottom Elev. (feet)
B-01	194843	1041391	49.3	10	39.3
B-02	194725	1041470	48.6	20	28.6
B-03	194781	1041586	46.8	10	36.8
B-04	194685	1041651	47	10	37
B-05	194573	1041701	46.9	12	34.9
B-06	194922	1041528	44.5	18	26.5
B-07	195060	1041773	39.6	10	29.6
B-08	194960	1041690	43.2	12	31.2
B-09	194724	1041799	44.3	10	34.3
B-10	194874	1041892	39.3	10	29.3
B-11A*	194375	1041508	50.7	-	-
B-11	194389	1041511	50.2	14	36.2
B-12	194580	1041543	49	22	27
B-13A*	194550	1041411	50	-	-
B-13	194553	1041416	50	18	32
B-14	194640	1041365	49.8	10	39.8
B-15	194636	1041494	49	10	39
B-16	194475	1041610	48.6	18	30.6
B-17	194816	1041495	48.2	16	32.2
B-18	194913	1041608	45	10	35
B-19	194962	1041757	42.6	10	32.6
B-20	194790	1041676	45.9	20	25.9
B-21	194790	1041740	44.9	22	22.9
B-22	194856	1041798	43.3	22	21.3
B-23	194794	1041556	47.3	10	37.3
B-24	194721	1041719	46	16	30
B-25	194892	1041723	43.7	16	27.7
B-26	194981	1041635	42.8	16	26.8
B-27	194958	1041835	41.2	20	21.2

* Encountered obstruction at B-11A and B-13A locations at depths of 10 feet and 12 feet, respectively.

3.4.2 Native Material

Native material consists of dark brown to light brown coarse to fine sand with varying amount of silt and coarse to fine gravel. Top of the stratum varies from 10 feet to 22 feet bgs (El. 39.3 feet to El. 21.3 feet). This stratum extends to the boring termination depth for all borings.

SPT N-values vary from 11 to 38 in the existing parking lot. Figure 9 shows SPT N-value variation in this stratum, 10^{th}, 25^{th}, 50^{th}, 75^{th}, 90^{th} percentiles.

SPT N-values vary from 13 to 73 with an average SPT N-value of 29 and the material can be characterized as medium to very dense for the proposed temporary parking lot. SPT N-value of 27 corresponding to 50^{th} percentile value is recommended for Native material. Figure 10 shows SPT value variation in native material, 10^{th}, 25^{th}, 50^{th}, 75^{th}, 90^{th} percentiles, and recommended SPT N-value for 21 boreholes (B-01 to B-10 and B-17 to B-27).

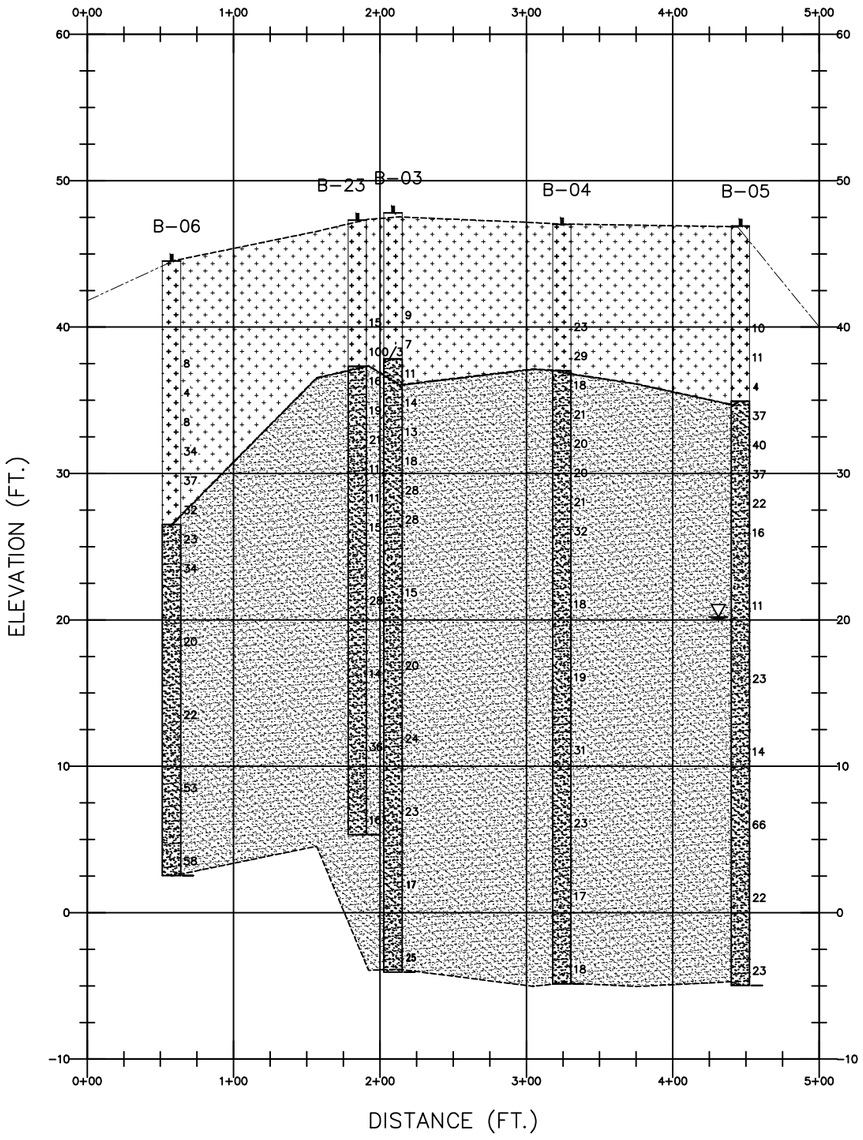
The USCS classification symbols in this stratum includes SP (poorly graded sand), SM (Silty sand), SP-SM (Poorly Graded Sand-Silty Sand), and SW-SM (Well Graded Sand-Silty Sand). These soils are non-plastic, with 0-12%, 81-97%, and 0-15% of fine, sand, and gravel, respectively.

3.5 Groundwater Level

Six observation wells were installed, and the ground water levels were recorded during the field exploration program. A summary of groundwater data is presented in Table 2. For design purposes, the higher ground water depth of 17 feet corresponding to elevation of 22 feet is recommended.

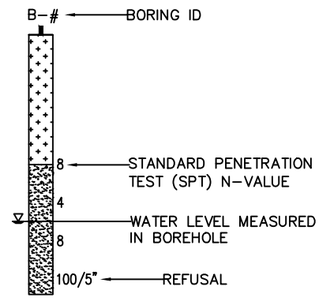
Table 2: Average Groundwater Table Readings

No.	Well ID	Ground Surface Elevation (feet)	No. of Readings	Readings Duration	Ground Water Depth (feet)	Ground Water Elevation(feet)
1	B-01	49.32	15	6/14/19-6/27/19	26.96	22.36
2	B-05	46.88	15	6/13/19-6/27/19	25.50	21.38
3	B-07	39.60	17	6/12/19-6/27/19	16.99	22.61
4	B-10	38.90	17	6/12/19-6/27/19	16.92	21.98
5	B-11	50.7	7	6/21/19-6/27/19	28.76	21.94
6	B-14	49.82	8	6/20/19-6/27/19	27.91	21.91



LEGEND

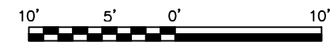
- HISTORIC FILL
- NATIVE MATERIAL
- EXISTING GROUND SURFACE
- APPROXIMATE STRATA BREAK
- APPROXIMATE EXISTING GROUND SURFACE FROM FENCE LINE TO STREET LEVEL



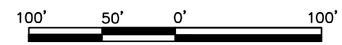
NOTES:

1. VERTICAL DATUM REFERENCED TO NORTH AMERICAN VERTICAL DATUM (NAVD88).
2. STREET LEVEL ELEVATION ESTIMATED FROM MAP NO. 4641: A CHANGE IN THE STREET SYSTEM HERETOFORE LAID OUT INCLUDING THE LAYOUT OF STREET EASEMENTS. DOCUMENTS FROM THE CITY OF NEW YORK, BOROUGH OF QUEENS, OFFICE OF THE PRESIDENT.

VERTICAL SCALE (FT.)



HORIZONTAL SCALE (FT.)



A-A'
FIG. 3

SUBSURFACE PROFILE- SECTION A-A'

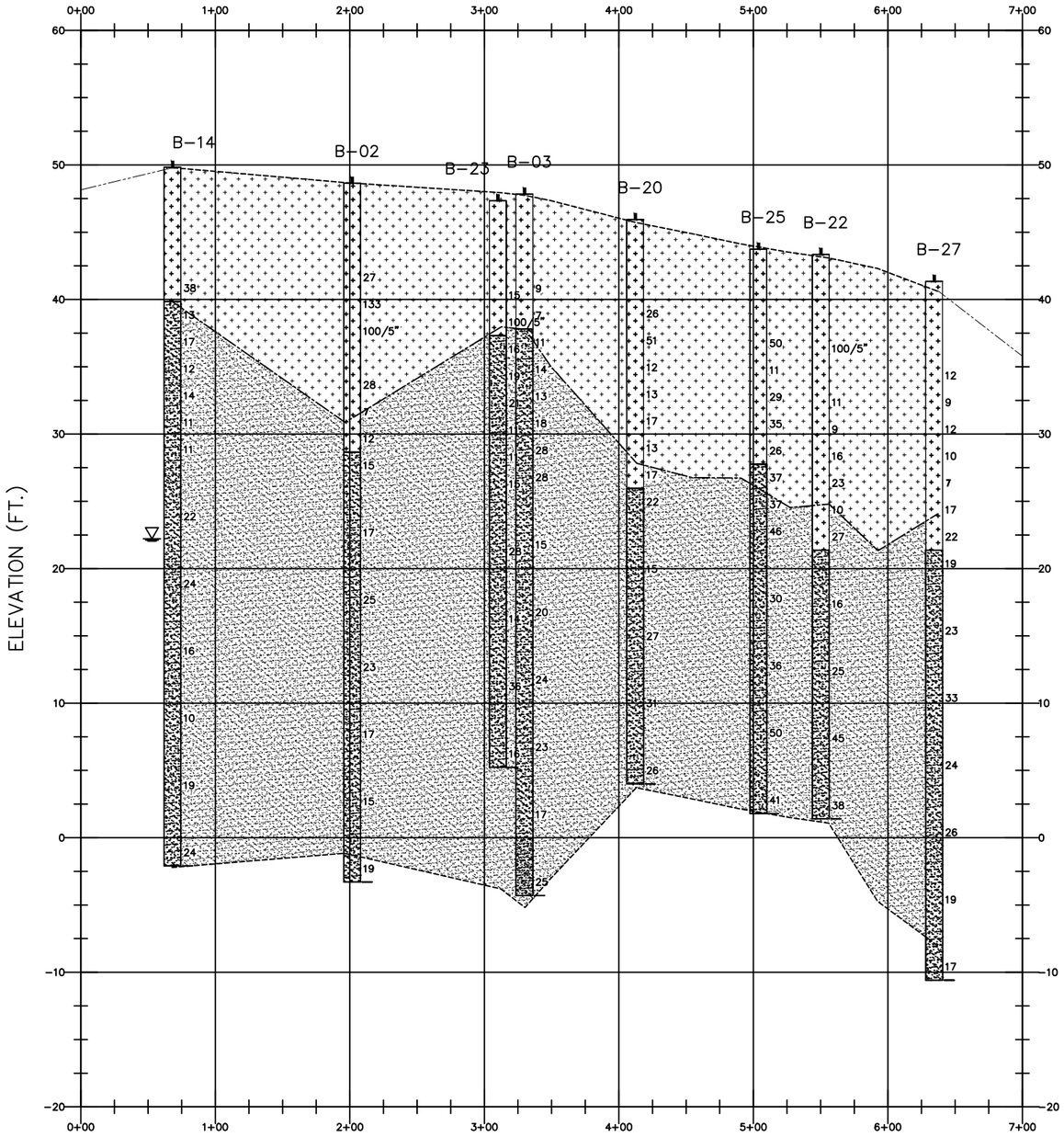
STV 100 Years
225 PARK AVENUE SOUTH, NY, NY 10003

CUNY/YORK COLLEGE SITE 9
GEOTECHNICAL EXPLORATION
164-26 LIBERTY AVE, JAMAICA, NEW YORK 11433
BLOCK 10160, LOT 1 AND BLOCK 10159, PART OF LOT 3

NEW YORK CITY TRANSIT

SUBSURFACE PROFILE A-A'

DATE: SEPTEMBER 2019
SCALE: AS SHOWN
SHEET NO: FIGURE 5

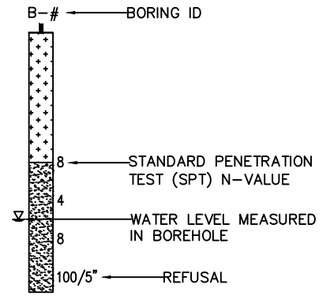


B-B'
FIG. 3

SUBSURFACE PROFILE– SECTION B–B'

LEGEND

- HISTORIC FILL
- NATIVE MATERIAL
- EXISTING GROUND SURFACE
- APPROXIMATE STRATA BREAK
- APPROXIMATE EXISTING GROUND SURFACE FROM FENCE LINE TO STREET LEVEL



NOTES:

1. VERTICAL DATUM REFERENCED TO NORTH AMERICAN VERTICAL DATUM (NAVD88).
2. STREET LEVEL ELEVATION ESTIMATED FROM MAP NO. 4641: A CHANGE IN THE STREET SYSTEM HERETOFORE LAID OUT INCLUDING THE LAYOUT OF STREET EASEMENTS. DOCUMENTS FROM THE CITY OF NEW YORK, BOROUGH OF QUEENS, OFFICE OF THE PRESIDENT.

VERTICAL SCALE (FT.)

10' 5' 0' 10'

HORIZONTAL SCALE (FT.)

100' 50' 0' 100'

STV 100 Years

225 PARK AVENUE SOUTH, NY, NY 10003

CUNY/YORK COLLEGE SITE 9
GEOTECHNICAL EXPLORATION
164-26 LIBERTY AVE, JAMAICA, NEW YORK 11433
BLOCK 10160, LOT 1 AND BLOCK 10159, PART OF LOT 3

NEW YORK CITY TRANSIT

SUBSURFACE PROFILE B–B'

DATE: SEPTEMBER 2019
SCALE: AS SHOWN
SHEET NO: FIGURE 6

APPENDIX C: *INSCRIPTIONS FROM METHODIST CEMETERY AT JAMAICA, NEW YORK, VOLUME 15* (FROST 1911)

INSCRIPTIONS

FROM

METHODIST CEMETERY

Union Hall AT South & Liberty Ave

JAMAICA

NEW YORK

V. 15

Copied by
Josephine C. Frost
(Mrs. Samuel Knapp Frost)
Aug. 1911

Page 1 - 8
Page 8 Index - Back of Book
Includes Cemetery inscriptions from Grace Episcopal church yard p 9

Leech, Obadiah Paul Leech, born April 17, 1792, died July 4, 1881

Leech, Holland, Susan Holland, wife of Obadiah Paul Leech, born April 26, 1788, died Jan. 17,1868

Leech, Charles Leech, born Jamaica, May 11, 1796, died in Brooklyn, Jan. 5, 1887

Leech, Margaret Leech, born April 17, 1794, died Feb. 28, 1876

Leech, Maria Leech, born May 19, 1799, died Jan. 7, 1865

Leech, Abraham, son of Obadiah and Sarah Leech, died March 16, 1844. Age 57 years, 2 months and 1 day

Leech, Obadiah Leech, died Oct. 19, 1842. Age 89 years, 5 months and 10 days

Leech, Sarah, wife of Obadiah Leech, died Feb. 7 1834. Age 75 years, 8 months, 18 days

Holland, M. Michael. P. Holland, died Jan. 24, 1859. Age 54yrs

Holland, Brush, Fannie R. Brush, wife of M. P. Holland, died June 8, 1893. Age 76 years, 7 months

Holland, Infant children of M. P. and Fannie R. Holland: Caleb and Wessel, also Mary Louisa and Sarah, twins

Holland, Thomas B. son of M. P. and Fanny R. Holland died Dec. 11, 1872. Age 29 years, 5 months, 17 days

Lefferts, Susan Lefferts, born Oct. 26, 1845, died May 23, 1896

Holland, Edward Price Holland, born Sep. 4, 1801, died March 23, 1837, also Susan Jane, infant child of E. P. Holland

Foote, John H. Foote, 1835-1904

Lamberson, Foote, Anna M. Lamberson, wife of John H. Foote, 1845 (No death date)

Lamberson, Terry, Ann M. Lamberson, widow of Daniel Terry, died Sep. 15, 1888. Age 89 years, 3 months, 22 days

Lamberson, Richard, son of John and Ann M. Lamberson, died Jan. 2, 1852 in his 32nd year

Martin, Abram D. Martin, died Dec. 10, 1879. Age 34 years, 7 months
In memory of Ella, widow of the late Abram D. Martin died Feb 4 1912 aged 82 yrs

Youngs, Elizabeth, widow of the late Henry Youngs, died April 20, 1882. Age 63 years, 10 months and 4 days

Crawford, Mary E. Crawford, born Oct. 16, 1864, died Sep. 28, 1903

Duell, Mamie E. Duell, died May 20, 1890. Age 2 years, 11 months and 3 days

Duell, Ella Duell, died Oct. 3, 1879. Age 6 years, 1 month, 20 days

Mitchell Youngs. Julia Ann Youngs, wife of George Cornell Mitchell, born Mar 2. 1844 died Jul. 12. 1919.

Mitchell, George C. Mitchell, born May 28, 1835, died Dec. 15, 1898

Holland, Charles H. Holland, died Nov. 7, 1871. Age 23 years, 7 months

Holland, Ann S. wife of Joseph V. Holland, born April 16, 1821, died March 19, 1892

Holland, Joseph V. Holland, born Oct. 18, 1823, died Dec. 27, 1896

Holland, John W. Holland, died Oct. 17, 1824. Age 34 years, 6 months, 7 days

Holland, Sarah, wife of John W. Holland, born June 18, 1793, died May 16, 1874

Holland, Richard, son of John W. and Sarah Holland died Nov. 13, 1868. Age 55 years, 7 months and 19 days

Holland, Mary Ann, dear child of R. and A. M. Holland. (No dates)

Van Wicklen, Mary, wife of Foster Van Wicklen, died Feb 18, 1869. Age 51 years, 4 mos. 8 dys

Kneechel, Louis, son of Johannes and Wilhelmine Kneechel, died June 21, 1862. Age 5 years, 17 days

Knowles, Anna J. Knowles, born Sep. 18, 1835, died March 12, 1903

Charlotte Woodruff born Oct 16th 1848. died Feb. 14th. 1925. ae 77y

Woodruff, Henry O. Woodruff, Sergt. Co. I. 90th N.Y. Vol. Inf. died July 24, 1896. Age 64yrs

Smith Carman sr. born 29 Apr. 1820. died 31 Jan. 1912

Carman, Amanda E. wife of Smith Carman, born Feb. 28, 1831, died July 4, 1901

Yerkes, Hester A. Yerkes, born July 4, 1814, died Dec. 5, 1898

Schierhorst, Caroline Schierhorst, born Jan. 3, 1808, died Oct. 15, 1868

Skelly, John Skelly, died May 3, 1862. Age 42 yrs

Skelly, Margaret Skelly, died Dec. 8, 1901. Age 77 years

Skelly, Hannah E. daughter of John and Margaret Skelly, died May 15, 1868. Age 7 years and 15 days

Skelly, Adline, daughter of John and Margaret Skelly, died May 3, 1866. Age 6 yrs. 6 dys

Hunter, John W. Hunter, born April 2, 1888, died Jan. 23, 1894 (A small stone marked "Ann W." right at foot of this grave)

Wallace, William Wallace, died Aug. 18, 1863. Age 73 years

Wallace, Ann, wife of William Wallace, died June 20 1877. Age 75 years

Wallace, John G. Wallace, died July 23, 1863. Age 29 years. (A small stone near-by marked "John G.")

Hunter, (A wooden cross marked "Johnnie Hunter, 1894")

Barto, Parmelia, wife of E. Barto, died July 20, 1857. Age 64 years

Ratcliff, Charles Ratcliff, died Oct. 24, 1855. Age 38 years, 5 months, 27 days

Lewry, Lizzie E. daughter of Charles and Fanny Lewry, died July 24, 1863. Age 3 yrs. 5 months, 22 days

Hunter, Annie E. Hunter (No dates)

Bonney, Mary E. daughter of George and Elsie Bonney died Aug. 20, 1857. Age 11 mos. 20 dys

Frances, William S. son of William M. and Rachel J. Frances, died April 8, 1842. Age 1 year, 6 months, 4 days

French, Sarah Ann, wife of John French, died July 18, 1840. Age 25 years, 7 mos. 28 days

French, Henrietta Maria, daughter of John and Sarah Ann French, died Feb. 11, 1839. Age 1 year, 1 month and 6 days

Weeks, Louisa, wife of Jarvis P. Weeks, died May 24, 1875. Age 36 years, 5 months, 7 dys

Benedict, Crawford, Susan A. Benedict, daughter of Charles and Mary Crawford, born May 12, 1812, died Nov. 20, 1861

Weeks, Charles Y. son of Jarvis and Louisa Weeks born April 28, 1866, died Aug. 1,1868

Rost, Mary Emma, daughter of William and Matilda Rost, died Dec. 12, 1863.Age 9ms.17ds

Barto, Eliza Jane, daughter of Alfred and Mary Barto, died Aug. 29, 1856(?) Age 7 months and 24 days

C. V. C. V. (No dates) Footstone.

G. R. G. R. (No dates) Footstone.

Mohr, Henry Mohr, died May 6, 1876.Age 2 years

Campbell, Richard Campbell, Co. B. 15th N. Y. Vol. Engineers, born May 1, 1837, died Feb. 1, 1882

Ploss, John Ploss, born Dec. 9, 1814, died March 10, 1887

Ploss, Maria, wife of John Ploss. Age 78 years (No dates)

England, Elizabeth, wife of William England, died Aug. 7, 1868. Age 40 years, 4 months, 28 days (Near this grave are three small stones marked "W. E" "W. E." "W. E.")

Duryea, William Duryea, died March 7, 1852. Age 55 years

Barto, Elkanah Barto, born Feb. 18, 1794, died Oct. 6, 1880

Barto, Van Wickleyn } Sarah S. Van Wickley, wife of Elkanah Barto, born March 16, 1838, died Aug. 13, 1901 (Close by is a small stone marked "Our Babes")

Barto ----(?) Florence, our little pet, born Nov. 9,1896 died April 30, 1900

Campbell, John Campbell, born Nov. 8, 1827, died July 16, 1893

Campbell, Smedes, Phebe Jane Smedes, wife of John Campbell, born Oct. 17, 1829, died Sep. 30,1889

Campbell, John Addison Campbell, died Sep. 3,1861. Age 8 months and 16 days

Campbell, Louisa, daughter of John and Phebe J. Campbell, died Feb. 6, 1860. Age 20 days

Dunn, John, son of John and Deborah Dunn, born June 16, 1796, died May 13, 1851

Dunn, Leech. Jane Eliza, wife of John Dunn, born Aug. 16 1817, died Oct. 3, 1868

Dunn, Keys, Minnie Keys, daughter of John and Jane Eliza Dunn, born Sep. 6, 1851, died Oct. 12, 1870

Dunn, Hardenbrook Abigail, wife of Kendall Dunn and daughter of A. W. Hardenbrook, died May 14, 1865 in her 78th year

Dunn, Kendall Dunn, born Sep. 29, 1789, died March 5, 1872

Dunn, Alexander, son of John and Deborah Dunn, died Nov. 5, 1821. Age 30 years

Dunn, Deborah, wife of John Dunn, died Jan. 9 1816. Age 48 years, 8 months, 27 days

Dunn, John Dunn, died Sep. 26, 1827. Age 65 years

Dunn, Mary Louisa Ayres Dunn, died March 10, 1883. Age 43 years

Dunn ayres. Cheshire, Cemantha A. daughter of Andrew and Charlotte Cheshire, died May 6, 1850. Age 5 years and 10 months

Wood, William R. Wood, Born Jan. 13, 1812, died Oct. 29, 1866

Wood, Charlotte M. wife of William R. Wood, born Dec. 13, 1816, died Oct. 27, 1890

Wood, Sarah M. wife of William R. Wood, born Aug 30, 1812, died Aug. 16, 1850
"Farewell loved husband I must go,
And leave you in this world of woe
Dear children too, your mother kind
Must go and leave you here behind."

Wood, William W. Wood, corporal Co. F. 107th Reg N. Y. Inf. born June 18, 1844, died June 29, 1867

Hull, Uriah R. Hull, born Feb. 26, 1824, died Sep. 23, 1854
"This tablet to a brother's love
Is reared by kindred left
His soul in bliss is now above
His friand on earth bereft."

Lewis, Jacob H. Lewis, Co. C. 15th Reg. N. Y. Vol. Engineers, born Jan. 23, 1834, died Sep. 23, 1893

Allen. John G. Allen. born Sept 25. 1833. died Nov. 29. 1894
Esther A. wife of John G Allen, born Feb. 20 1835 died Feb. 14. 1911

Windle. Bernice Windle. born Sept. 29. 1893. died May 18. 1920.

Lewis. Christopher Lewis. (no dates.)

Lewis In loving memory of Kate M. Lewis died May 22. 1933.

Lewis. Catherine, wife of Jacob H. Lewis, died Jan. 29. 1911. ae 69.

Clark. Alfred H. Clark. New York. Pvt 190 Aero Sq. Oct. 11. 1918

Inscriptions 100
Earliest
Latest

APPENDIX D: *CEMETERIES IN KINGS AND QUEENS COUNTIES, LONG ISLAND, NEW YORK, 1753-1913*. VOLUME 1 (EARDELEY 1916)

V O L U M E . O N E .

C E M E T E R I E S . I N . K I N G S . and . Q U E E N S . C O U N T I E S . L O N G . I S L A N D . N E W . Y O R K. 1 7 5 3 - - - 1 9 1 3 .

W I L L I A M . A P P L E B I E . E A R D E L E Y . M.A.

B R O O K L Y N . N E W . Y O R K .
M A R C H . 1 9 1 6 .

250. Jamaica,Queens County,Long Island,New York : First Methodist Church Cemetery : on New York Avenue near Linden Avenue : next to the Jamaica Hospital : 105 stones : 1816 - 1912 : well laid out and well kept : The Church is located on Fulton Street corner of Puntine Street,Jamaica : organized A.D.,1807 : erected A.D.,1811 : second building erected A.D.,1846 : This building erected A.D.,1873 : copied Monday 25 May 1914 by William A. Eardeley : assisted by Mr.Frank Emil Rapp : both of Brooklyn, New York

1. Allen — John G _ _ _ _ : born 25 September 1833 : died 25 November 1894
2. — Esther A _ _ _ _ : his wife : born 20 February 1835 : died 14 February 1911
   these two are on the same stone
3. — John A _ _ _ _ CAMPBELL : born 8 November 1827 : died 16 July 1893
4. — Phebe Jane SMEDES : his wife : born 17 October 1829 : died 30 September 1889
   3 and 4 are on the same stone
5. — Louisa CAMPBELL : died 6 February 1860 :aged 20 years:a daughter of John and Phebe J _ _ _ _ _
6. — John Addison CAMPBELL : died 3 September 1861:aged 8 mos.16 days : 1 per 6 are in the same plot

_ Ayres — see Dunn 28 and 29

7. Barto — Elkanah:born 18 Feb.1794:died 6 Oct.1880:a Flag
8. — Sarah S _ _ _ _ VAN WICKLEN : his widow: born 16 March 1838 : died 13 August 1901
9. — " our Babes " : no more here
10. — Florence : born 9 November 1896 : died 30 November 1900 : " Our Little Pet ": 7 per 10 are in a plot

__ Brush — see Holland 51

11. Barto — Elizabeth Jane : died 29 August 1856 : aged 7 months 24 days:daughter of Alfred S _ _ _ _ and Mary

12. Benedict — Susan A _ _ _ _ : born 12 May 1812 : died 26 March 1861

13. Barto — " Parnelia : wife of E _ _ _ _ Barto": died 29 July 1857 : aged 64 years

14. Bonney — Mary E _ _ _ _ : died 20 August 1857 : aged 11 mos. and 20 days : a daughter of George and Elsie

250. Jamaica, Queens County, Long Island, New York : First Methodist Church Cemetery 1816-1912.

15. Cheshire — "Cemantha A _ _ _ _ ": died 6 May 1856:aged 5-10-0 :daughter of Andrew and Charlotte Cheshire

16. Campbell — Richard M _ _ _ _ : born 1 May 1837 : died 1 February 1862:Company B: 15 th.New York:Engineers

17. Carman — Smith:Sr.:born 29 April 1825:died 31 January 1912
18. — Amanda E _ _ _ _ :his wife : born 28 February 1831 : died 4 July 1904
these two are on a monument

19. Cranford — Mary E _ _ _ _ : born 16 October 1864 : died 28 September 1903

__ Campbell — see Allen 3 and 5 and 6

20. Dunn — John : died 26 September 1827 : aged 65 years
21. — Mrs. Deborah : wife of Mr.John Dunn : died 9 January 1816 : aged 48 years,8 months,and 27 days
22. — a heavy stone : fallen
23. — John : born 16 June 1791 : died 13 May 1831
24. — Alexander :died 5 November 1821 : aged 30 years
these two are the sons of John and Deborah Dunn
25. — Jane Elizabeth : wife of John Dunn : born 16 August 1817:died 3 October 1868: "Our Mother "
26. — "Minnie Keys": born 6 September 1851 : died 12 October 1870:daughter of John and Jane Eliza Dunn
27. — Abigail : wife of Kendall DUNN : died 14 May 1865 aged in her 78 th.year : daughter of A _ _ _ _ _ W _ _ _ _ _ HARDENBROOK
28. — Mary Louise AYRES :died 10 March 1883:aged 43 yrs
29. — Mary Dunn AYRES :wife of Daniel AYRES of New York: died 27 July 1838:aged 38 years,2 months,2 days : a daughter of John and Deborah DUNN : 20 per 29 are in a plot

30. Duryea — William H _ _ _ _ :died 7 March 1852:aged 55 yrs.

31. Duell — "Mamie":died 20 May 1890: aged 2 - 11 - 3
32. — Ella: died 3 October 1879: aged 6 - 1 - 23

33. England — Elizabeth : wife of William : died 7 August 1868 aged 40 years, 4 months, and 28 days

34' "L.E." — no more here
35. "M.E." — no more here
36. "W.E." — no more here

250. Jamaica, Queens County, Long Island, New York :
First Methodist Church Cemetery 1816-1912.

37. French Sarah Ann : wife of John French : died 18 July 1840 : aged 25 years, 7 months, and 23 days
38. Henrietta Maria : their daughter : died 11 February 1839 : aged one year, one month, 6 days

39. Frances William S _ _ _ _ : died 8 April 1842 : aged 1-6-4 : son of William M _ _ _ _ and Rachel J _ _ _ _

40. Foote John H _ _ _ _ born _ _ _ 1835:died _ _ _ 1904:no more
41. Anna M _ _ _ _ LAMBERSON : his wife : born _ _ _ _ _ _ 1845 : no more dates here:these two are on the same stone
42. Holland Joseph :born 18 October 1823:died 27 December 1896
43. Ann S _ _ _ _ :his wife : born 16 April 1821 : died 19 March 1892
44. Charles H _ _ _ _:died 7 November 1871:aged 23-7-0

__ Hardenbrook see Dunn 27

45. Holland John W _ _ _ _died 17 October 1824: aged 3-4-6-7 days
46. Sarah : his wife : born 18 June 1798 : died 16 May 1874 1868
47. Richard : their son : died 13 November 1868: aged 55 years, 7 months, and 19 days
48. Maria Ann : infant of R _ _ _ _ and A _ _ _ _ M _ _ _ Holland:no dates here: 45 per 48 are in a plot

49. Hull Uriah R _ _ _ _ : born 26 February 1824 : died 23 September 1851

50. Holland M _ _ _ _ P _ _ _ _ _ :died 24 January 1859:aged 54 yrs
51. Fanny R _ _ _ _ BRUSH : his wife : died 8 June 1898 : aged 76 years, and 7 months
52. Caleb : no dates here
53. Wessel : no dates here
54. Maria Louise : twin : no dates here
55. Sarah Alice : twin : no dates here
52 per 55 are the infant children of 50 and 51
56. Edward Price HOLLAND : born 4 September 1801 : died 23 March 1837
57. Susan Jane : "infant child of E _ _ _ _ P _ _ _ _ " Holland:no more:56 and 57 are on the same stone
58. Thomas B _ _ _ _ :died 11 December 1872:aged 29-5-17 son of M _ _ _ _ P _ _ _ _ and Fanny Holland
59. Susan LEFFERTS : born 26 October 1854:died 23 May 1896
50 per 59 are on a monument and in a plot

250. Jamaica, Queens County, Long Island, New York : First Methodist Church Cemetery 1816-1912.

60. Hunter — Annie E _ _ _ _ : no dates here

61. Knowles — Anna I _ _ _ _ : born 18 September 1835 : died 12 March 1903

__ Hunter — see Wallace 94

62. Knoechel — Louis : died 21 June 1862 : aged 5 years, 17 days : son of Johannes and " Welhelmine " Knoechel

63. Lewry — "Lizzie E _ _ _ _": died 21 July 1863: aged 3 years 5 months, 22 days: daughter of Charles S _ _ _ _ and Fanny Lewry

64. Lewis — Jacob H _ _ _ _: born 23 January 1834: died 23 September 1892: "At Rest": American Flag here: Company C :15 th. Regiment, New York, Engineer Volunteers

65. — Catharine: his wife: died 29 January 1911: aged 69

__ Lamberson — see Foote 41

66. Leech — Obadiah Paul : born 17 April 1792 : died 4 July 1881 : " G. A. R. "

67. — Susan: his wife: born 26 April 1788: died 17 Jan. 1868

68. — Charles : born in Jamaica, New York, 11 May 1796: died in Brooklyn, New York, 5 January 1887

69. — Margaret: born 17 April 1794: died 28 February 1876

70. — Maria: born 19 May 1799: died 7 January 1865

71. — Obadiah: died 19 October 1842: aged 89- 5- 10 days

72. — Sarah : his wife: died 7 February 1834: aged 75-8-18

73. — Abraham : their son : died 16 March 1844 : aged 57 years, 2 months, and one day

66 per 73 are in a plot

74. Lamberson — Anna M _ _ _ _ : died 15 September 1888: aged 89 yrs 3 months, 22 days: widow of Daniel TERRY

__ Lefferts — see Holland 59

75. Lamberson — Richard : died 2 January 1852 : aged in his 32 nd. year : a son of John and Ann M _ _ _ _ Lamberson

76. Martin — Abram D _ _ _ _ died 10 December 1879: aged 34-7-0

77. — Ella: his widow: died 4 February 1912: aged 62 years

78. Mitchell — George C _ _ _ _ : born 28 May 1885 : died 15 December 1898

250. Jamaica, Queens County, Long Island, New York :
First Methodist Church Cemetery 1816 - 1912.

79. Mohr — Henry : died 6 May 1876 : aged 26 years

80. Ploss — John : born 9 December 1814 : died 10 December 1887 : " My Husband "

81. — Maria : died aged 78 years: no more dates here these two are on the same stone which says "At Rest"

82. Ratcliff — Charles : died 24 October 1835:aged 68-5-27 days

83. Rost — Mary Emma : died 12 December 1863: aged 9 months, 17 days:daughter of William and Matilda Rost

84. Schierhorst — Caroline:born 3 January 1808:died 15 October 1868

85. Skelly — John : died 3 May 1862 : aged 42 years

86. — Margaret:died 8 December 1901:aged in her 77 th.yr.

87. — Hannah E _ _ _ _: died 15 May 1868: aged 7-0-15

88. — "Adline": died 3 May 1869 : aged 6 - 0 - 6 days
87 and 88 are daughter of J _ _ _ _ and M _ _ _ _
85 per 88 are on a monument

__ Smedes — see Allen 4

__ Terry — see Lamberson 74

89. Van Wicklen — Mary : wife of Foster Van Wicklen : died 18 February 1869 : aged 51 years,4 months,and 8 days

90. " O.V." — no more here

__ Van Wicklen — see Barto 8

91. Wallace — William : died 18 August 1863 : aged 73 years

92. — Ann :his wife : died 20 June 1877: aged 75 years

93. — John G _ _ _ _:died 23 July 1863: aged 29 years

94. — John W _ _ _ _ HUNTER : born 2 April 1888 : died 23 January 1894 : these four are in a plot

95. Weeks — Charles Y _ _ _ _ : born 28 April 1866 : died 1 August 1868 : a son of Jarvis and Louisa Weeks

96. — Louisa : wife of Jarvis P _ _ _ _ Weeks : died 24 May 1875 : aged 36 years,5 months, and 7 days

97. Wood — Sarah M _ _ _ _ : wife of William M _ _ _ _ Wood : born 30 August 1812 : died 16 August 1850

250. Jamaica, Queens County, Long Island, New York : First Methodist Church Cemetery 1816 - 1912.

98. Wood — William R _ _ _ _ : born 13 January 1812 : died 29 October 1866

99. — Charlotte M _ _ _ _ : his wife : born 13 December 1816 : died 27 October 1890

100. — William W _ _ _ _ : born 18 June 1844 : died 29 June 1867 : Corporal : Company " F " : 107 th. Regiment : New York, Infantry

101. Woodruff — Henry : died 24 July 1896 : aged 64 years : Sergeant : Company " I " : 90 th.: New York : Volunteers : " G. A. R. "

102. Yerkes — Hester A _ _ _ _ : born 4 July 1814 : died 5 December 1898

103. Youngs — Elizabeth : wife of late Henry Youngs : died 20 April 1882 : aged 63 years,10 months,and 4 days

104. " Nelly " no more here

105. " George " no more here

.

The oldest stone is # 21. Deborah Dunn 9 January 1816.

The latest stone is # 77. Ella Martin 4 February 1912.

This copy finished Thursday 11 June 1914.

APPENDIX E: HISTORIC PHOTOGRAPHS OF THE PROJECT SITE

Block 10159, former Lot 7 on Liberty Avenue in 1939-1941. View looking south from Liberty Avenue.

Block 10159, former Lot 14 on Liberty Avenue in 1949-1951. View looking southwest from Liberty Avenue and 164th Street.


Block 10160, Lot 1 on Liberty Avenue in 1949-1951. View looking southwest from Liberty Avenue and 165th Street.