Phase IA Archaeological Documentary Study

Canarsie L Line
New Substation at 5 Maspeth Avenue
Brooklyn, New York 11211
Phase IA Archaeological Documentary Study

Canarsie L Line
New Substation at 5 Maspeth Avenue
Brooklyn, New York 11211

Prepared For:

FPM Group
909 Marconi Avenue
Ronkonkoma, NY

and

New York City Transit
2 Broadway
New York City, New York 10004

Prepared By:

Historical Perspectives, Inc.
P.O. Box 529
Westport, CT 06881

Author:
Julie Abell Horn, M.A., R.P.A.

October 2016
MANAGEMENT SUMMARY

SHPO Project Review Number (if available):

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

Phase of Survey: Phase IA Archaeological Documentary Study

Location Information
Location: Maspeth Avenue roadbed and sidewalks between Humboldt Street and Bushwick Avenue, with additional areas within Bushwick Avenue, Humboldt Street and Metropolitan Avenue roadbeds.
Minor Civil Division: 04701
County: Kings

Survey Area
Length: varies
Width: varies
Number of Acres Surveyed: ca. 1 acre

USGS 7.5 Minute Quadrangle Map: Brooklyn

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: None

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

Date of Report: October 2016
EXECUTIVE SUMMARY

The Metropolitan Transportation Authority (MTA)-New York City Transit (NYCT) is proposing infrastructure improvements to increase service capacity on the Canarsie L Line of the New York City subway system, which extends approximately 10 miles from Eighth Avenue in Manhattan to the Canarsie section of Brooklyn. The proposed infrastructure improvements would increase train service capacity on the L line by approximately 10 percent – allowing for two more trains per hour that could carry an additional 2,200 customers – and improve pedestrian access and circulation at its First Avenue Station in Manhattan and Bedford Avenue Station in Brooklyn.

The proposed improvements to increase L line service capacity by 10 percent include the installation of three additional power substations, which are required to provide adequate power capacity to support the additional train service, and the installation of a new low-resistance contact rail in the Canarsie Tube to maintain adequate voltage between substations. One of the new substations would be located below ground in the street bed in the vicinity of the Canarsie L Line’s Graham Avenue Station (Figures 1, 2, and 3, and Appendix A). Specifically, the substation would be located beneath the Maspeth Avenue roadbed and its sidewalks between Bushwick Avenue and Humboldt Avenue. Subsurface infrastructure associated with the substation would extend into the Maspeth Avenue and Bushwick Avenue intersection, the Maspeth Avenue and Humboldt Street intersection, and the Humboldt Street and Metropolitan Avenue intersection. New subsurface ducts would connect the substation to the existing subsurface subway corridor under Metropolitan Avenue (Appendix A, page 8). The Area of Potential Effect (APE) for this project includes the entire project site boundaries.

At the request of NYCT, Historical Perspectives, Inc. (HPI) has completed a Phase IA Archaeological Documentary Study of the proposed new substation at 5 Maspeth Avenue. The study complies with the standards of the New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) (New York Archaeological Council 1994, NYSOPRHP 2005) and the 2002 standards of the New York City Landmarks Preservation Commission (LPC). The study is in response to a determination of potential archaeological sensitivity by LPC in August 2016 (Pagano 8/25/16, 8/26/16).

The purpose of this Phase IA Archaeological Documentary Study was to determine whether archaeological resources from Native American and historic period occupations could remain on the project site. The following sections outline the conclusions for these resources.

The project site is located at the intersection of several former colonial roads that had begun as Native American trails, as shown on Figure 5. However, research has indicated that Native American settlements in the Williamsburg vicinity were located along local waterways, namely English Kills, Maspeth Creek, and Newtown Creek. The project site is located approximately 2000 feet from the former marshlands surrounding English Kills, and approximately 1200 feet from the former marshland surrounding the inland extent of Bushwick Creek. Newtown Creek is over a mile away. The closest known Native American site was probably located at a Native American place called quandus quaricus about five city blocks, or ca. 2000 feet east of the project site on the west bank of English Kills. Due to the inland location of the project site, with its relatively long distance to potable water, as well as known disturbance to the project site from construction and demolition of buildings and the installation of roadbeds, sidewalks, and subsurface utilities, HPI concludes that there is diminished precontact archaeological sensitivity.

The project site is located within the 1660s Bushwick settlement known by the Dutch as Het Dorp. Woodpoint Road ran through the center of the settlement, and the Kiekeout Road, which formerly ran through the project site, marked the approximate southern end. It is difficult to know what structures were located at Het Dorp during the 17th century; and more specifically on the project site. Although it is possible there were structures in the vicinity, this cannot be confirmed.

In 1711 the first Dutch Reformed Church was constructed northeast of the project site, probably north of and partially overlapping Conselyea Street. It was replaced in 1829 with the second Dutch Reformed Church building, which was situated about 75 feet northeast of the project site in the approximate same location as the first church. Both churches had their entrances facing southeast, along Woodpoint Road. The original cemetery for Bushwick was located on Woodpoint Road at the intersection of Kingsland and Withers Streets, approximately 1000 feet northeast of the project site. The second cemetery for Bushwick was established in 1814 to the north of the first
Dutch Reformed Church and later the second Dutch Reformed Church. Historic accounts and maps (e.g. Ewen 1835, Figure 9; Vieth 1845; Higginson 1868+, Figure 12; Hyde 1904, Figure 14; Hyde 1916) clearly show that the cemetery was situated at the rear, or behind the churches, not in front of them or along the sides. The project site is southeast of the church locations, and would not have been either part of the church property, or in an area that would have contained burials. Historic maps show that the northern extent of the project site is located more than 100 feet south of the former burial ground. Thus, HPI concludes that there is little to no sensitivity for the presence of former burials within the project site.

There is a greater likelihood that 18th and 19th century residential and commercial resources could survive within the project site. Figure 6 shows that there was a hotel and several houses overlapping the project site along the Kiekeout Road during the 18th and early 19th century; other areas of the project site, including those now within Maspeth Avenue, Humboldt Street, and Metropolitan Avenue would have been located in the rear and side yard areas of these buildings, as shown on the 1835 Ewen map and the 1850 Dripps map (Figures 9 and 10). Use of former yard areas under what is now the Metropolitan Avenue corridor would have been discontinued in 1816, when the Williamsburgh and Jamaica Turnpike was created. Use of former yard areas under what is now Humboldt Street (originally Smith Street) would have been discontinued after 1835, when the city grid was extended into East Williamsburgh and the project site vicinity.

After the Kiekeout Road was discontinued in the 1850s, adjacent properties, including those on the project site, used the former roadway as extensions of their yards. Additional residences or extensions of existing buildings were constructed along the Metropolitan Avenue frontage of what had by then become an enclosed block in the 1850s and 1860s (Figure 11). Thus, prior to the construction of Maspeth Avenue from Bushwick Avenue to Humboldt Street in ca. 1870, this entire portion of the project site was used for residences and their yards. Known residents of these buildings during the 1860s included wheelwright Henry Clemens and his family and liquor seller Conrad Peterson and his family. Other working class families may also have been living on the project site during this period.

The early 1870s mark the beginning of the project site’s exclusive use as roadways and sidewalks. With the exception of any cultural materials deposited in the project site as the result of repaving and subsurface utility installations, it is expected that any significant archaeological resources within the Maspeth Avenue portion of the project site could predate the 1870s. Any potential archaeological resources within Humboldt Street could predate the 1840s, and within Metropolitan Avenue, the 1820s. As the Bushwick Avenue intersection appears to have always been used as a roadway, there is less likelihood that significant archaeological resources could be capped in this area. Figure 15 illustrates areas of historic period archaeological sensitivity within the project site.

Potentially sensitive archaeological resources within the project site could include former foundations or other components from historic buildings, refuse deposits, as well as shaft features, such as privies, wells, and cisterns, from domestic and commercial buildings, as municipal water and sewers were not available in this neighborhood until later in the 19th century. The likelihood of recovering archaeological remains from these resources depends on the level of disturbance, which varies by location within the project site. However, it is not uncommon for significant remains to be found despite the presence of subsurface utilities. For example, a number of important finds have been recovered beneath city streets in downtown Manhattan by Chrysalis Archaeological Consultants. Under Wall Street, sections of early wooden water pipes were found at ca. 4 feet below the existing street grade, and a possible cellar storeroom was found at ca. 7 feet below the existing street grade (Loorya and Ricciardi 2007). Within Fulton Street, among other resources a stone wall was found at ca. 7 feet below the street with a stone well under the wall at ca. 10 feet below street. The well is thought to date to around 1700, before Fulton Street was created and the area was farmland. Christopher Ricciardi, principal at Chrysalis, indicated that excavations beneath Fulton Street, Beekman Street, and Peck Slip have all revealed significant archaeological resources that had not been disturbed by later utility work. Archaeological deposits have been found both within shaft features and as discrete deposits not enclosed by shafts. Ricciardi stressed that the excavation for deeply buried sewers had not eliminated the presence of archaeological resources, as the trenches surrounding the sewers were quite narrow, and archaeological resources were found only a few inches from the sewer trench in Fulton Street (Ricciardi personal communication 1/8/2013). Results of these archaeological investigations indicate that historic period archaeological remains can still be found beneath city streets, even if there is disturbance from later impacts, such as utility lines.

Based on the above conclusions, HPI recommends that archaeological field investigations within the archaeologically sensitive areas of the project site (Figure 15) consist of archaeological monitoring in conjunction
with project construction, rather than pre-construction archaeological testing. Draft guidelines addressing the use of archaeological monitoring on urban sites (NYAC/PANYC 2002), as well as NYSOPRHP (2005) and LPC guidelines (2002) indicate that monitoring is appropriate where archaeological testing is found to be not feasible. Within streetbeds in New York City that have also been identified as having archaeological sensitivity, monitoring has been the preferred method of archaeological field study.

Within the project site, where large amounts of pavement, soil and other overburden may need to be removed before reaching the archaeological resource zone, it will be most practical (and cost effective) to undertake these excavations in tandem with project construction, which can provide the large-scale excavation and soil removal operations necessary, shore up the site to facilitate deep excavation, and provide dewatering equipment if the water table interferes with archaeological resource recovery. OSHA regulations require stepping or shoring if excavations extend below four feet.

Prior to any excavation within the project site, an archaeological monitoring plan should be developed by an archaeologist in consultation with the NYSOPRHP and the LPC. The monitoring plan should be prepared according to applicable archaeological standards (NYAC 1994, NYAC/PANYC 2002; LPC 2002, NYSORPHP 2005). RPA-certified professional archaeologists, with an understanding of and experience in urban archaeological excavation techniques, would be required to be part of the archaeological team.
TABLE OF CONTENTS

MANAGEMENT SUMMARY ........................................................................................................................................ i

EXECUTIVE SUMMARY .......................................................................................................................................... ii

TABLE OF CONTENTS ............................................................................................................................................... v

I. INTRODUCTION .................................................................................................................................................. 1

II. METHODOLOGY .................................................................................................................................................. 1

III. CURRENT CONDITIONS AND ENVIRONMENTAL SETTING .............................................................................. 2
    A. CURRENT CONDITIONS .................................................................................................................................. 2
    B. TOPOGRAPHY AND HYDROLOGY ........................................................................................................... 2
    C. GEOLOGY .................................................................................................................................................... 2
    D. SOILS ............................................................................................................................................................ 3

IV. BACKGROUND RESEARCH/HISTORICAL OVERVIEW ....................................................................................... 3
    A. PRECONTACT SUMMARY .............................................................................................................................. 3
    B. PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES AND SURVEYS .............................................. 5
    C. HISTORIC PERIOD SUMMARY ................................................................................................................ 5

V. CONCLUSIONS ..................................................................................................................................................... 8
    A. PRECONTACT ARCHAEOLOGICAL SENSITIVITY ...................................................................................... 8
    B. HISTORIC PERIOD ARCHAEOLOGICAL SENSITIVITY ............................................................................ 9

VI. RECOMMENDATIONS ...................................................................................................................................... 10

VII. REFERENCES ................................................................................................................................................... 11

FIGURES

PHOTOGRAPHS

APPENDIX A: NEW MASPETH AVENUE SUBSTATION PLANS

APPENDIX B: SOIL BORING DATA
FIGURES

1. Project site on *Brooklyn, N.Y.* 7.5 Minute Topographic Quadrangle (U.S.G.S. 1979).
2. Project site and photograph locations on modern aerial photograph.
3. Project site on New Substation Site Plan (NYCTA 2016).
5. Project site on *Indian Villages, Paths, Ponds and Places in Kings County* (Kelly 1946).
6. Project site and vicinity showing conditions prior to 1829 (Meeker 1864, courtesy New York Public Library).
7. Project site on *Het Dorp, or Bushwick Green* (Stiles 1884).
8. Project site on *Survey of Bushwick Township* (Beadel 1797).
9. Project site on *Map of the Additional Bounds of the Village of Williamsburg, Kings County, Showing the same as permanently laid out into Streets* (Ewen 1835). Filed Map 719.
10. Project site on *Map of the City of Brooklyn, also the Village of Williamsburgh* (Dripps 1850).
11. Project site on *Map of the City of Brooklyn* (Dripps 1869).
15. Project site showing areas of archaeological sensitivity on New Substation Site Plan (NYCTA 2016).
PHOTOGRAPHS
(see Figure 2 for locations)

1. Project site showing Bushwick Avenue in foreground, Maspeth Avenue in center, and line of Humboldt Street in rear. View looking southwest.

2. Project site showing Metropolitan Avenue in foreground and Maspeth Avenue in center background. View looking northeast.

3. Detail of traffic island at intersection of Maspeth Avenue and Humboldt Street. View looking northeast.

4. Block 2897 containing the Memorial Gore pocket park. View looking southwest from Bushwick Avenue.

5. Block 2897 containing the Memorial Gore pocket park. View looking east from Maspeth Avenue and Humboldt Street.

6. Buildings abutting project site on Block 2892. View looking northeast from Maspeth Avenue.

7. St. Francis of Paola Church, located on the approximate former site of the Bushwick Reformed Church property. Not part of the project site. View looking northwest from intersection of Conselyea Street and Woodpoint Road.

8. The second Bushwick Reformed Dutch Church as seen in 1899. Not part of the project site. View looking northwest from Woodpoint Road. Courtesy Brooklyn Public Library.

9. The second Bushwick Reformed Dutch Church as seen in 1905. Not part of the project site. View looking northeast from Humboldt Street. Courtesy Brooklyn Public Library.

10. The second Bushwick Reformed Dutch Church as seen in 1907. Not part of the project site. View looking northeast from Humboldt Street. Courtesy New York Public Library.

11. Rear of the second Bushwick Reformed Dutch Church as seen in 1907. Former cemetery located in area with ground disturbance shown, to rear of church, approximately 200 feet north of the project site. View looking southeast from Humboldt Street. Courtesy New York Public Library.

12. Rear of the second Bushwick Reformed Dutch Church as seen in 1907. Former cemetery located in area with ground disturbance shown, to rear of church, approximately 200 feet north of the project site. View looking southwest from intersection of Woodpoint Road and Skillman Avenue. Courtesy New York Public Library.

13. Project site and vicinity in 1937. View looking northeast from intersection of Maspeth Avenue, Humboldt Street, and Metropolitan Avenue. Courtesy New York Public Library.
I. INTRODUCTION

The Metropolitan Transportation Authority (MTA)-New York City Transit (NYCT) is proposing infrastructure improvements to increase service capacity on the Canarsie L Line of the New York City subway system, which extends approximately 10 miles from Eighth Avenue in Manhattan to the Canarsie section of Brooklyn. The proposed infrastructure improvements would increase train service capacity on the L line by approximately 10 percent – allowing for two more trains per hour that could carry an additional 2,200 customers – and improve pedestrian access and circulation at its First Avenue Station in Manhattan and Bedford Avenue Station in Brooklyn.

The proposed improvements to increase L line service capacity by 10 percent include the installation of three additional power substations, which are required to provide adequate power capacity to support the additional train service, and the installation of a new low-resistance contact rail in the Canarsie Tube to maintain adequate voltage between substations. One of the new substations would be located below ground in the street bed in the vicinity of the Canarsie L Line’s Graham Avenue Station (Figures 1, 2, and 3, and Appendix A). Specifically, the substation would be located beneath the Maspeth Avenue roadbed and its sidewalks between Bushwick Avenue and Humboldt Avenue. Subsurface infrastructure associated with the substation would extend into the Maspeth Avenue and Bushwick Avenue intersection, the Maspeth Avenue and Humboldt Street intersection, and the Humboldt Street and Metropolitan Avenue intersection. New subsurface ducts would connect the substation to the existing subsurface subway corridor under Metropolitan Avenue (Appendix A, page 8). The Area of Potential Effect (APE) for this project includes the entire project site boundaries.

II. METHODOLOGY

The present study entailed review of various resources.

- Primary and secondary sources concerning the general precontact period and history of Bushwick and Williamsburg (historically spelled Williamsburgh) and specific events associated with the project site and vicinity were reviewed at the Brooklyn Historical Society, the library of HPI, and using online resources.
- Historic maps and photographs, and images were reviewed at the New York Public Library, the Brooklyn Historical Society, the Brooklyn City Clerk’s Office, the New York City Municipal Archives, the library of HPI, and using various online websites. These maps, photographs, and images provided an overview of the topography and a chronology of land usage for the project site. A selection has been reproduced for this report.
- Land records were reviewed at the Brooklyn Historical Society and selected deeds were reviewed at the Brooklyn City Register’s Office and familysearch.com, focusing on the 18th and 19th centuries.
- Tax assessment records were reviewed at the New York City Municipal Archives. These records include data from the late 1840s for Williamsburgh and data from 1867 through the end of the 19th century for Brooklyn. No tax records are available for the original Town of Bushwick.
- Selected city directories and federal census records were reviewed.
- Department of Building records do not exist for the project site because there are no longer any buildings present.
- Information about previously recorded archaeological sites and surveys in the area was compiled from data available at the NYSOPRHP, the LPC, and the library of HPI.
- Several soil boring logs were provided by NYCT.
- Last, a site visit was conducted by David C. Martin, PhD, of HPI to assess any obvious or unrecorded subsurface disturbance (Photographs 1-7; Figure 2).
III. CURRENT CONDITIONS AND ENVIRONMENTAL SETTING

A. Current Conditions

The project site consists of the roadbeds and sidewalks of Maspeth Avenue between Bushwick Avenue and Humboldt Street, and portions of the roadbeds of Bushwick Avenue, Humboldt Street, and Metropolitan Avenue (Photographs 1-2; see also Figure 3 and Appendix A). The roadbeds are paved with asphalt and the sidewalks are paved with concrete. Two traffic islands are located in the Maspeth Avenue and Humboldt Street intersection (Photograph 3). One has plantings and the other contains bollards. There are various subsurface utilities that run under the streets and sidewalks, as shown in Appendix A, page 8. These include water, sewer, gas, electricity, and cable lines. The Canarsie L subway line runs under Metropolitan Avenue and marks the southern boundary of the project site.

Block 2897 abuts the project site on the south (Photographs 4 and 5). It is a small triangular-shaped block that was truncated to its present shape when Maspeth Avenue was extended from Bushwick Avenue to Humboldt Street in the 1870s. It contains a New York City “pocket park,” named the “Memorial Gore”. It is a memorial to neighborhood soldiers who died in World War I. The block has been owned by the City of New York since 1894.

Block 2892 abuts the project site on the north. It contains three extant buildings with basements, and one building under construction (Photograph 6). The buildings are not in the APE but some of the buildings have sidewalk vaults that extend under the Maspeth Avenue sidewalk. The northern sub-block of Block 2892, on the north side of Conselyea Street, contains the St. Francis of Paola Church complex, which is located on the approximate former site of the Bushwick Reformed Church property (Photograph 7).

B. Topography and Hydrology

The project site and vicinity are within a relatively level portion of Brooklyn with minimal change in elevation. By the time the first topographical maps were made during the 19th century, the project site vicinity had already been occupied by Native Americans for thousands of years and colonial and American residents for over 200 years, all of whom may have contributed to changes in the natural topography. Thus, it is difficult to determine the degree to which the natural landform has been altered. One of the earliest topographical maps that indicated elevations (U.S.G.S. 1891) showed the entire site vicinity to be between 20-40 feet above sea level. The earliest available Sanborn map, from 1888 (see Figure 13) indicates the project site was approximately 39 feet above sea level. Elevations have not changed significantly since that time.

The project site is located approximately 2,000 feet west of the edge of the former marshland surrounding a perennial waterway known as the west branch of Maspeth Creek, or English Kills, which flows north to empty into Newtown Creek, which in turn flows west to empty into the East River. The project site is also approximately 1,200 feet southeast from the former marshland surrounding the inland extent of Bushwick Creek, which ran northwest and emptied into the East River.

C. Geology

Long Island is the top of a Coastal Plain ridge formation that is covered with glacial drift, in reality an elevated sea bottom demonstrating low topographic relief and extensive marshy tracts. In the last million years, as glaciers advanced and receded three times, the surficial geology of the island, including the project site, was profoundly altered. “The glacier was an effective agent of erosion, altering the landscape wherever it passed. Tons of soil and stone were carried forward, carving and planing the land surface. Massive accumulations of glacial debris were deposited at the margins of the ice sheet, forming a series of low hills or terminal moraines (Eisenberg 1978:19). Circa 18,000 years ago, the last ice sheet reached its southern limit, creating the Harbor Hill moraine that traverses the length of Long Island. The moraine lies several miles south of the project site. North of the moraine, the complex rising and subsidence of the coastal plain, relieved of its glacial burden, and the rising sea level, caused by the volume of melting ice, created the coastline of embayed rivers and estuaries, with extensive marsh tracts, which stabilized approximately 3,000 years ago (Schuberth 1968:195,199).
D. Soils

According to the soil survey for New York City, the project site falls within soil mapping unit 2, known as “Pavement & buildings, till substratum, 0 to 5 percent slopes” and described as:

Nearly level to gently sloping, highly urbanized areas with more than 80 percent of the surface covered by impervious pavement and buildings, over glacial till; generally located in urban centers (USDA 2005:11).

There have been five soil borings completed within and adjacent to the project site (Appendix B). Boring B-1 was located within the east sidewalk of Humboldt Street, approximately 50 feet south of Conselyea Street. Borings B-2 and B-3 were located within the south sidewalk of Maspeth Avenue, adjacent to Block 2897/Memorial Gore Park. Borings B-4 and B-5 were located within the north sidewalk of Maspeth Avenue, adjacent to Block 2892.

All of the soil borings recorded an upper stratum of fill, ranging from 5-10 feet in extent depending on location. The fill was described as brown to gray sand with varying amounts of silt and gravel. One boring noted a brick inclusion, but the others did not record any other materials in the fill. Beneath the fill were natural soils, described similarly as the fill, but denser and with more clay content with depth. The soil borings were excavated to depths ranging from 67-92 feet below grade. None of the soil borings reached bedrock. The water table ranged from 20-25 feet below grade in the borings.

IV. BACKGROUND RESEARCH/HISTORICAL OVERVIEW

A. Precontact Summary

The precontact era in the coastal New York region can be divided into three time periods, based on human precontact adaptation to changing environmental conditions. These are generally known as the Paleo-Indian (c.12,000 to 10,000 years ago), the Archaic (c.10,000 to 2,700 years ago) and the Woodland (c.2,700 to 300 years ago). In order to be able to assess the project site's potential for precontact exploitation, it is first necessary to review these time periods and their associated settlement patterns.

Paleo-Indian Period (c. 12,000 Y.A. - 10,000 Y.A.)

Toward the end of the Wisconsin Glaciation, during the Late Pleistocene Epoch, humans wandered across the exposed land bridge which connected Siberia and Alaska. These small groups of hunters were probably following the roaming herds of megafauna which were their chief prey. The distinctive weapon in their chipped stone tool kit was the fluted point, which has been found in association with mammoth, mastodon, bison and horse remains at various sites in the southwestern United States. Although none of these “kill sites” is located east of the Mississippi, the discovery of campsites such as that at Port Mobil, Staten Island, suggest a scattered, highly mobile population in bands of approximately 20 individuals, who ranged across a vast area necessary to support lifeways organized around the hunting of migratory game (Ritchie 1980:1-3, 13).

The fluted, lanceolate points, two to five inches in length with concave bases and channelled or fluted faces, presumably to facilitate hafting, exhibit a considerable range in shape and size. They were usually made from a high-grade silicious stone, often exotic to the region in which they are recovered, a function of their makers’ seasonal migrations. Other artifacts in the Paleo-Indian tool kit include scrapers, knives, borers and gravers, tools which indicate extensive handiwork in wood, bone and leather (Ritchie 1980:3, 6).

From the locations of recorded sites in the Northeast, Paleo-Indians exhibited a marked preference for well-elevated situations. However, 30% of sites were found on or near the margins of swampy ground. Environmental characteristics which appear to have been attractive to Paleo-Indians include the proximity of major waterways, large fertile valleys and the coastal plain, where the densest population of desired food animals was supported (Ritchie 1980:7). However since 10,000 years ago, the rise in sea level estimated to be from 75 to 80 feet, has submerged large numbers of these sites.
The retreat of ice from the project area vicinity approximately 18,000 years ago and a global warming trend circa 14,000 years before present, encouraged Paleo-Indian settlement in the Northeast. The post-glacial environment of spruce and pine underwent a gradual modification in favor of deciduous hardwoods such as oak and hickory, which have greater importance in terms of nutritional value to both animals and humans than do conifers. By 8,000 B.C., these deciduous species dominated forests along the eastern seaboard. In addition, the megafauna on which Paleo-Indian diet was based “were rapidly becoming extinct, and were being replaced by the temperate-climate fauna that are indigenous today” (Gwynne 1982:190-191).

Archaic Period (c.10,000 y.a. - 2,700 y.a.)

The warming trend at the end of the last glaciation completely transformed the Northeastern coastal environment from tundra and conifer-dominated forests, to the present deciduous woodlands with generally modern distributions of fauna. Due to the dwindling contribution of meltwater from disappearing glaciers, the reduced flow of streams and rivers promoted the formation of swamps and mudflats. These wetlands created a congenial environment for migratory waterfowl, and a host of edible plant species and shellfish. The new mixed hardwood forests of oak, hickory, chestnut, beech and elm attracted such mast-eating fauna as white-tailed deer, wild turkey, moose and beaver.

Although the Archaic diet was still based on hunting and gathering, due to the greater variety of plants available and exploited, excavated Archaic sites yield a wide array of plant processing tools, including grinding stones, mortars and pestles. The diagnostic tool was the grooved axe. In the coastal areas of New York, have been found numerous, small “nearly always multi-component sites variously situated on tidal inlets, coves and bays, particularly at the heads of the latter, and on fresh-water ponds” (Ritchie 1980:143). By the Late Archaic, these areas provided shellfish, small game, fish, salt hay and tuberous grasses, making larger more permanent settlements possible. Semi-nomadic life is still indicated, but wandering occurred within well-defined territorial limits, with seasonal movements between camps near exploitable resources. A dietary shift to shellfish in coastal New York near the end of the Archaic suggests a scarcity of large game, and a change from the early Archaic inland adaptation of forest hunting. Coastal sites show a principal reliance upon shellfish, especially oysters, hard and soft shell clams and bay scallops, which were readily available in the waters of the East River and Long Island Sound. Characteristic of the Late Archaic were “fish-tailed” projectile points and soapstone bowls (Ritchie 1980:142,166, 167, 171). In contrast to conditions during the Paleo-Indian, Early and Middle Archaic, “by Late Archaic times sea level was so close to present levels that its subsequent small rise has failed to obliterate much of what remains on Long Island from that period” (Gwynne 1982:192). Hence the Late Archaic Wading River complex, four sites on the north shore of Suffolk County, was found at the edge of a salt marsh, on dry ground ranging only two to seven feet above mean high water (Wyatt 1982:71).

Woodland and Contact Periods (c.2,700 y.a. - 300 y.a.)

From approximately 3,000 years ago until the arrival of the first Europeans, Native Americans of southern New York shared common attributes of the Woodland Stage: the advent of horticulture, extensive trade networks, large permanent or semi-permanent villages, pipe smoking, the bow and arrow and the production of clay vessels. The habitation sites of the Woodland Indians increased in size and permanence as they became ever more efficient in extracting food from their environment. The archaeological evidence from Woodland Period sites indicates a strong preference for large-scale habitation sites to be in close proximity to a major fresh water source, e.g., a river, a lake or an extensive wetland; and smaller scale sites for extractive operations, e.g., butchering stations, shell gathering loci and quarrying sites, to be situated at other resource locales. Late Woodland Stage sites of the East River Tradition in southern New York have been noted on the “second rise of ground above high water level on tidal inlets,” and situated on “tidal streams or coves” and “well-drained sites” (Ritchie 1980:16). Carlyle S. Smith, who studied and analyzed the distribution of precontact ceramics in coastal New York, stated that “village sites” are found on the margins of bays and tidal streams” (Smith 1950:130).

Woodland Period tool kits show some minor variations as well as some major additions from previous Archaic tool kits. Plant processing tools became increasingly common and their presence seems to indicate an intensive harvesting of wild plant foods that may have approached the efficiency of horticulture, which itself appeared during the second half of the Woodland Period. The advent of horticulture is tied in with the introduction of ceramic containers which allowed for more efficient cooking of certain types of food and may also have functioned as
storage for surplus food resources. Despite the advent of agriculture, shellfish and small game remained an important component of the Woodland diet. Shellfish refuse heaps, termed “middens,” reached immense proportions, covering from one to over three acres. Deer, turkey, raccoon, muskrat, ducks and other game were stalked with bow and arrows, replacing the spear and javelin, while dug-out boats, bone hooks, harpoons and nets with pebble sinkers were employed in fishing (Ritchie 1980:179-180,267).

Historical narratives written by European travelers and settlers provide us with our only first-hand descriptions of Native American daily life and customs during the 17th century. Johannes de Laet, in his New World, or Description of West India, published in Holland in 1625, wrote that the Native Americans:

- are divided into many nations and languages, but differ little in manners. They dress in the skins of animals. Their food is maize, crushed fine and baked in cakes, with fish, birds and wild game. Their weapons are bows and arrows, their boats are made from the trunks of trees hollowed out by fire.
- Some lead a wandering life, others live in bark houses, their furniture mainly mats and wooden dishes, stone hatchets, and stone pipes for smoking tobacco (Bolton 1972:16).

By the 17th century western Long Island was inhabited by Native Americans of the Delaware group, speaking a Munsee dialect, when the first Europeans arrived. The impact of the European colonization of Long Island drastically altered the lifestyles of Native Americans.

B. Previously Recorded Archaeological Sites and Surveys

The archaeological site file inventories from the New York State Museum (NYSM) and the NYSOPRHP indicate that one archaeological site has been recorded within a one-mile radius of the project site. This is the Vander End--Onderdonk House Site, located approximately one mile to the southeast just over the Queens County border on Flushing Avenue at Onderdonk Street. The site is also listed on the State and National Registers of Historic Places.

Beyond a one-mile radius, files indicate that two NYSM sites have been recorded along Newtown Creek. NYSM 3613, noted as “traces of occupation,” is mapped along the Newtown Creek shore near the East River. A precontact period camp site, known as NYSM 4536, has been recorded at the head of Newtown Creek near the confluence of Maspeth Creek, in Queens County.

Additionally, although not formally recorded as an archaeological site, historic accounts note a Native American place name called quandus quaricus located along the west branch of Maspeth Creek, also known as the English Kills, in the northeastern section of Williamsburg (Grumet 1981:42). This site would have been located along the western banks of the creek and its surrounding marshlands, approximately 2000 feet east of the project site. Last, the colonial roads that formerly surrounded the project site, including Woodpoint Road, the Kiekeout Road, and the road to Newtown, now roughly the location of Metropolitan Avenue, were believed to be Native American trails that were appropriated for use by the colonists. Figure 4 shows the locations of former Native American paths and place names in relation to these roads, as well as the approximate location of quandus quaricus here labeled Quandqequarecus.

There have only been a few archaeological studies completed within a one-mile radius of the project site, and none have documented any new archaeological sites (e.g. Historical Perspectives 1992, 2013; City/Scape 1997; Bergoffen 2005).

C. Historic Period Summary

The project site falls within the colonial boundaries of the Town of Bushwick, and the 19th-century Village and City of Williamsburgh. The first purchase of land that would become Bushwick was in 1638 by the West India Company; the first European settlers came to the area in the 1640s, a scattered group of Swedes, Norwegians, and Dutch. In 1661, the village center of what would become known as Bushwick was laid out with 22 house lots, north of the intersection of what is now Bushwick and Metropolitan Avenues. The Dutch called the settlement Het Dorp, or village center. Several colonial roads, as noted above probably once Native American trails, demarcated the hamlet. The southern border was the road to Newtown, near the approximate location of Metropolitan Avenue. The
Woodpoint Road, a portion of which still survives immediately northeast of the project site as an extension of Bushwick Avenue, ran northeast through the center of the settlement to Maspeth and Newtown creeks. The Kiekeout Road, so called because it ran west to the Kieke, or lookout, that had been built at the foot of South Fourth Street for colonial fortification, was a continuation of the road to Newtown and marked the remaining boundary (Stiles 1884; Armbruster 1912; Bushwick Savings Bank 1923). The Kiekeout Road passed through the project site and the adjacent block to the north; the former alignment of this road accounts for the diagonal angles of the irregular lot boundaries on that block.

The Bushwick village center contained a number of structures. The anchor of the settlement was the Reformed Dutch Church, which was constructed about 1711 and endured until about 1829, before being replaced with a second church in the same location. The initial church was an octagonal structure, in the shape of a skep or haystack. It had a communal space in which members brought their own seats. The entrance to the church faced southeast, toward the Woodpoint Road. At the intersection of the Woodpoint Road, the road to Newtown, and the Kiekeout Road were several other buildings. On the northeast corner of Woodpoint Road and the road to Newtown was a “Town House”, said to be the first municipal building on Long Island. A hotel was situated at the southwestern corner of this same intersection, and several houses were located at the entrance to the Kiekeout Road. Stiles describes these small residences as “one-story Dutch cottages, with their long curved sloping roofs” (Stiles 1884:15). An image of this intersection, drawn from memory by local resident Cornelia Meeker and published in 1864 (Figure 6), shows the road intersections, the church, the hotel, and the residences, albeit depicted with peaked rather than sloped roofs. The buildings were located at what is now the southeastern corner of Block 2892 to the north of the project site, and overlapping the modern Maspeth Avenue streetbed within the project site. A map by Stiles (1884; Figure 7) shows the locations of some of the principal buildings within Het Dorp, including the church, a school house, the Town House, and the original Bushwick village burial ground, located on Woodpoint Road at the intersection of Kingsland and Withers Streets, approximately 1000 feet northeast of the project site. A survey of Bushwick Township from 1797 (Figure 8) illustrates the location of the church amid the various local roads.

The project site was located at the edge of the Het Dorp settlement, and included portions of the Kiekeout Road. It is unclear whether there were any structures on the project site itself during the colonial period. The project site probably was part of a large tract owned prior to the Revolutionary War by Daniel Bordet, whose holdings extended as far east as Bushwick Avenue. As Stiles recounts, this large tract, which constituted nearly a third of the City of Williamsburgh, was noted on late 18th century maps “as lands of John Devoe, William P. Powers, Abraham Meserole, James Scholes, Abraham Remsen, Andrew Conselyea, McKibbin and Nichols, and others” (Stiles 1884:6).

Tracing the ownership of the project site during the 17th and 18th centuries is difficult, due to the large size of the property tracts during this period and the inability to match many old property boundaries to the landmarks on the modern city grid. There are also a number of gaps and omissions in the title records. However, it does appear that those portions of the project site not within colonial roadways were not owned by the town or the church, but rather were privately held. The southwestern portion of the project site, along with adjacent lands, was owned by the Gilbert family during the 1790s through the mid-1830s (Liber 7:138; Liber 45:526). The Gilbert holdings were cut through in 1816, when the Williamsburgh and Jamaica Turnpike was laid out, which ran east-west and connected the two villages. Today this route is known as Metropolitan Avenue.

In 1826 Margaret Gilbert (widow of original landowner Ebenezer Gilbert) sold her land to local resident John Devoe (or Devoe) (Liber 41:362). One of the parcels that resulted from the creation of the Williamsburg and Jamaica Turnpike included the southwestern part of the project area. The crescent-shaped parcel was bounded on the south by the turnpike, on the north by the highway leading from Bushwick to the Lookout (the Kiekeout Road), and on the east by the highway leading from the cross roads to the Wood Point (or Woodpoint Road). A dozen years later in 1834, after Margaret Gilbert had died, her estate executors sold another parcel, just north and west of the project site, to Noah Waterbury, a well-known Williamsburgh resident (Liber 45:526). This was only one year before the Williamsburgh city grid was extended east to Bushwick Avenue. A filed map from 1835 (Figure 9) illustrates the Devoo and Waterbury properties in relation to the colonial era Kiekeout Road, the early 19th-century Williamsburgh and Jamaica Turnpike, the newly surveyed city streets, and the church property. The project site straddled the Devoo property, the turnpike (now Metropolitan Avenue), the Kiekeout Road, and the intersection of Bushwick Avenue and Woodpoint Road. Humboldt Street (originally Smith Street) had not yet been cut through the Devoo
property, although its location was shown. Two structures are shown within the Devoo property, within and overlapping the project site and one structure is shown within the Waterbury property abutting the project site.

In about 1829, after over a hundred years of use, the original octagonal church was razed and a new rectangular shaped church was erected in its place, with the same orientation and entrance on the southeast facing Woodpoint Road. An 1835 survey map clearly shows the location of the new rectangular Bushwick Reformed Dutch Church and its associated cemetery. The cemetery to the north of the church was established in 1814, when the first interments occurred. Historic accounts and maps clearly indicate that the cemetery was located behind the church, or to the north, and did not extend to the front, or south side, of the church; the project site is located ca. 200 feet south of the former burial ground (Vieth 1845; Higginson 1868+, Figure 12; Hyde 1904, Figure 14; Hyde 1916). In 1879 the original Bushwick burying ground on the Woodpoint Road at the intersection of Kingsland and Withers Street was closed and the bodies reinterred under the second Bushwick Church (Stiles 1884; Armbruster 1912). The cemetery north of the Bushwick Reformed Dutch Church remained in use through the 19th century, but by the 1890s, plans were underway to remove the burials, which occurred during the first decades of the 20th century (Land Records). The Bushwick Church itself was razed in the 1910s in order to extend Conselyea Street from Humboldt Street through to Woodpoint Road (Bushwick Savings Bank 1923). Historic Photographs 8-12 depict the second Bushwick Reformed Dutch Church at about the turn of the 20th century, and prior to its demolition and during removal of burials in the associated cemetery in ca. 1907.

John Devoo and his family owned the property north of Metropolitan Avenue within the project site from 1826 until the early-mid 1860s (Land Records). The Devoo holdings were extensive in this neighborhood, the project site parcel being just one of their many properties. It is likely that the family did not occupy the buildings on the project site, but rather rented to others. In 1849, tax assessment records for Williamsburgh attribute a house on the east side of Smith Street (now Humboldt Street) at the corner of North 2nd Street (now Metropolitan Avenue) to John Devoe. The 1850 Dripps map (Figure 10) shows that there were two structures north of Metropolitan Avenue between Humboldt Street and Bushwick Avenue at the time, with the Kiekeout Road still in place within the project site.

City directories that included Williamsburgh indicate that the project site and vicinity were home to a variety of working class residents by at least the 1850s, although it is difficult to determine specific residents of the project site because city directories from this period through the early 1870s did not use specific addresses, only street names. A sampling of listings from Smith’s Brooklyn Directory for 1856 (Williamsburg had become part of Brooklyn by 1855) includes these residents on Smith Street, North 2nd Street, and Bushwick Avenue, some of whom probably were living with their families in the project site.

Pereyne Henry, peddler, Smith, n. N. 2d
Bennett Abraham, policeman, h. Bushwick av. n. North Second st.
King John S. harnessmaker, 30 S. 7th, h. Bushwick av. cor. n. Second
Heakim James, (Beals & Meakim), h. Bushwick av. n. N. Second st.
Baner Henry, shoemaker, h. Bushwick av. n. N. 2d st.
Cornell Henry, liquors, Bushwick av. cor. N. 2d, h. Smith, cor. Ainslie
Luyster Daniel, ald. 18th ward, Bushwick av. cor. N. 2d st.
Smith Henry, ropemaker, h. Bushwick av. n. N. 2d st.
Strompager Peter, basketmaker, h. Bushwick av. n. N. 2d st.

Federal census records from 1850 and 1860 indicate similar listings of working class families in the neighborhood, although again because addresses were not given it is not possible to pinpoint which families were living on which lots.

The Kiekeout Road likely endured until at least the early 1850s, and then was absorbed into the surrounding city blocks. Historic maps no longer depict an active road after about 1854 (Hayward 1854, Higginson 1854, U.S.C.S. 1863). In 1862 and 1864, the estate of John Devoo sold two parcels of land within the project site to new owners Henry Clemens and Conrad Peterson, respectively (Liber 598:454, Liber 634:397). Both deeds indicated that the land included one half of the Kiekeout Road (the other half went to the owners on the north side of the road). Henry Clemens purchased the 25-foot wide parcel of land bounded by Smith Street and North 2nd Street, and Conrad Peterson purchased the remaining irregularly shaped parcel bounded by North 2nd Street and Bushwick Avenue, and which now includes much of the Memorial Gore Park.
City directories note that Henry Clemens was a wheelwright, and was noted as living on North 2\textsuperscript{nd} Street at the corner of Smith Street from 1862-1870. Conrad Peterson (or Petersohn) lived and sold liquors at the corner of North 2\textsuperscript{nd} Street and Bushwick Avenue from 1864-1885. Tax assessment records for Brooklyn, from 1867-1870, show that Henry Clemens had a two-story house on his lot, and William Peterson (the official landowner after 1864, although not a resident) had two, two-story houses on his lot (one was noted as a “double house” starting in 1868).

The 1869 Dripps map (Figure 11) shows the layout of the project site after the Kiekeout Road had been discontinued and the block enclosed around it, and depicts structures all along the Metropolitan Avenue frontage as well as overlapping the former Kiekeout Road footprint. However, that same year the Common Council for the City of Brooklyn began proceedings to extend Maspeth Avenue from Bushwick Avenue (then the city line) to the east side of Smith Street (now Humboldt Street). Tax Assessment records note that between 1870 and 1873 the extension of Maspeth Avenue was constructed. Henry Clemens’ house was razed and his property was all but eliminated after this time and William Peterson’s property was truncated, likely also necessitating demolition of some of his buildings. The Higginson map (dated 1868 but almost certainly an update from a later year, as it illustrates the route of Maspeth Avenue in place, Figure 12) shows the new configuration of the project site, including the one building still standing at the corner of Metropolitan Avenue and Bushwick Avenue, now part of the Memorial Gore Park.

The creation of Maspeth Avenue from Bushwick Avenue to Humboldt Street in ca. 1870 marked the end of the project site’s use as building lots, and the beginning of its exclusive use as roadways. Historic maps from the remainder of the 19\textsuperscript{th} century (Bromley 1880; Hopkins 1880; Robinson 1886; Sanborn 1888, Figure 13; Ulitz 1898) show no change to the project site, although the building at the corner of Bushwick Avenue and Metropolitan Avenue (in what is now Memorial Gore Park) was expanded to cover nearly the entire triangular-shaped parcel by the 1880s (Sanborn 1888, Figure 13).

As noted earlier, the City of New York purchased what is now Memorial Gore Park in 1894. The 1904 Hyde map (Figure 14) noted that it was once called simply Woodpoint Park, after the adjacent roadway. After World War I, the present sculpted shaft tower in the park was created and the park’s name changed to Memorial Gore to honor those who died in the war. Today, the park is enclosed with a wrought iron fence and contains plantings.

All of the changes to the project site itself since 1870 have consisted of installation of new subsurface utilities and lamp posts, and the change in pavement from stone blocks to asphalt. An image of the project site from 1937 (Photograph 13) illustrates the conditions before the streets were repaved with the current asphalt surface. Historic maps from the twentieth century indicate no further alterations to the project site (Sanborn 1907, 1933, 1951).

V. CONCLUSIONS

The purpose of this Phase IA Archaeological Documentary Study was to determine whether archaeological resources from Native American and historic period occupations could remain on the project site. The following sections outline the conclusions for these resources.

A. Precontact Archaeological Sensitivity

The project site is located at the intersection of several former colonial roads that had begun as Native American trails, as shown on Figure 5. However, research has indicated that Native American settlements in the Williamsburg vicinity were located along local waterways, namely English Kills, Maspeth Creek, and Newtown Creek. The project site is located approximately 2000 feet from the former marshlands surrounding English Kills, and approximately 1200 feet from the former marshland surrounding the inland extent of Bushwick Creek. Newtown Creek is over a mile away. The closest known Native American site was probably located at a Native American place called \textit{quandus quaricus} about five city blocks, or ca. 2000 feet east of the project site on the west bank of English Kills. Due to the inland location of the project site, with its relatively long distance to potable water, as well as known disturbance to the project site from construction and demolition of buildings and the installation of roadbeds, sidewalks, and subsurface utilities, HPI concludes that there is diminished precontact archaeological sensitivity.
B. Historic Period Archaeological Sensitivity

The project site is located within the 1660s Bushwick settlement known by the Dutch as Het Dorp. Woodpoint Road ran through the center of the settlement, and the Kiekeout Road, which formerly ran through the project site, marked the approximate southern end. It is difficult to know what structures were located at Het Dorp during the 17th century; and more specifically on the project site. Although it is possible there were structures in the vicinity, this cannot be confirmed.

In 1711 the first Dutch Reformed Church was constructed northeast of the project site, probably north of and partially overlapping Conselyea Street. It was replaced in 1829 with the second Dutch Reformed Church building, which was situated about 75 feet northeast of the project site in the approximate same location as the first church. Both churches had their entrances facing southeast, along Woodpoint Road. The original cemetery for Bushwick was located on Woodpoint Road at the intersection of Kingsland and Withers Streets, approximately 1000 feet northeast of the project site. The second cemetery for Bushwick was established in 1814 to the north of the first Dutch Reformed Church and later the second Dutch Reformed Church. Historic accounts and maps (e.g. Ewen 1835, Figure 9; Vieth 1845; Higginson 1868+, Figure 12; Hyde 1904, Figure 14; Hyde 1916) clearly show that the cemetery was situated at the rear, or behind the churches, not in front of them or along the sides. The project site is southeast of the church locations, and would not have been either part of the church property, or in an area that would have contained burials. Historic maps show that the northern extent of the project site is located more than 100 feet south of the former burial ground. Thus, HPI concludes that there is little to no sensitivity for the presence of former burials within the project site.

There is a greater likelihood that 18th and 19th century residential and commercial resources could survive within the project site. Figure 6 shows that there was a hotel and several houses overlapping the project site along the Kiekeout Road during the 18th and early 19th century; other areas of the project site, including those now within Maspeth Avenue, Humboldt Street, and Metropolitan Avenue would have been located in the rear and side yard areas of these buildings, as shown on the 1835 Ewen map and the 1850 Dripps map (Figures 9 and 10). Use of former yard areas under what is now the Metropolitan Avenue corridor would have been discontinued in 1816, when the Williamsburgh and Jamaica Turnpike was created. Use of former yard areas under what is now Humboldt Street (originally Smith Street) would have been discontinued after 1835, when the city grid was extended into East Williamsburgh and the project site vicinity.

After the Kiekeout Road was discontinued in the 1850s, adjacent properties, including those on the project site, used the former roadway as extensions of their yards. Additional residences or extensions of existing buildings were constructed along the Metropolitan Avenue frontage of what had by then become an enclosed block in the 1850s and 1860s (Figure 11). Thus, prior to the construction of Maspeth Avenue from Bushwick Avenue to Humboldt Street in ca. 1870, this entire portion of the project site was used for residences and their yards. Known residents of these buildings during the 1860s included wheelwright Henry Clemens and his family and liquor seller Conrad Peterson and his family. Other working class families may also have been living on the project site during this period.

The early 1870s mark the beginning of the project site’s exclusive use as roadways and sidewalks. With the exception of any cultural materials deposited in the project site as the result of repaving and subsurface utility installations, it is expected that any significant archaeological resources within the Maspeth Avenue portion of the project site could predate the 1870s. Any potential archaeological resources within Humboldt Street could predate the 1840s, and within Metropolitan Avenue, the 1820s. As the Bushwick Avenue intersection appears to have always been used as a roadway, there is less likelihood that significant archaeological resources could be capped in this area. Figure 15 illustrates areas of historic period archaeological sensitivity within the project site.

Potentially sensitive archaeological resources within the project site could include former foundations or other components from historic buildings, refuse deposits, as well as shaft features, such as privies, wells, and cisterns, from domestic and commercial buildings, as municipal water and sewers were not available in this neighborhood until later in the 19th century. The likelihood of recovering archaeological remains from these resources depends on the level of disturbance, which varies by location within the project site. However, it is not uncommon for significant remains to be found despite the presence of subsurface utilities. For example, a number of important finds have been recovered beneath city streets in downtown Manhattan by Chrysalis Archaeological Consultants. Under Wall Street, sections of early wooden water pipes were found at ca. 4 feet below the existing street grade, and
a possible cellar storeroom was found at ca. 7 feet below the existing street grade (Loorya and Ricciardi 2007). Within Fulton Street, among other resources a stone wall was found at ca. 7 feet below the street with a stone well under the wall at ca. 10 feet below street. The well is thought to date to around 1700, before Fulton Street was created and the area was farmland. Christopher Ricciardi, principal at Chrysalis, indicated that excavations beneath Fulton Street, Beekman Street, and Peck Slip have all revealed significant archaeological resources that had not been disturbed by later utility work. Archaeological deposits have been found both within shaft features and as discrete deposits not enclosed by shafts. Ricciardi stressed that the excavation for deeply buried sewers had not eliminated the presence of archaeological resources, as the trenches surrounding the sewers were quite narrow, and archaeological resources were found only a few inches from the sewer trench in Fulton Street (Ricciardi personal communication 1/8/2013). Results of these archaeological investigations indicate that historic period archaeological remains can still be found beneath city streets, even if there is disturbance from later impacts, such as utility lines.

VI. RECOMMENDATIONS

Based on the above conclusions, HPI recommends that archaeological field investigations within the archaeologically sensitive areas of the project site (Figure 15) consist of archaeological monitoring in conjunction with project construction, rather than pre-construction archaeological testing. Draft guidelines addressing the use of archaeological monitoring on urban sites (NYAC/PANYC 2002), as well as NYSOPRHP (2005) and LPC guidelines (2002) indicate that monitoring is appropriate where archaeological testing is found to be not feasible. Within streetbeds in New York City that have also been identified as having archaeological sensitivity, monitoring has been the preferred method of archaeological field study.

Within the project site, where large amounts of pavement, soil and other overburden may need to be removed before reaching the archaeological resource zone, it will be most practical (and cost effective) to undertake these excavations in tandem with project construction, which can provide the large-scale excavation and soil removal operations necessary, shore up the site to facilitate deep excavation, and provide dewatering equipment if the water table interferes with archaeological resource recovery. OSHA regulations require stepping or shoring if excavations extend below four feet.

Prior to any excavation within the project site, an archaeological monitoring plan should be developed by an archaeologist in consultation with the NYSOPRHP and the LPC. The monitoring plan should be prepared according to applicable archaeological standards (NYAC 1994, NYAC/PANYC 2002; LPC 2002, NYSORPHP 2005). RPA-certified professional archaeologists, with an understanding of and experience in urban archaeological excavation techniques, would be required to be part of the archaeological team.
VII. REFERENCES


Assessed Valuation of Real Estate for Brooklyn 1867 On microfilm at the New York City Municipal Archives. -1888

Assessed Valuation of Real Estate for Williamsburgh 1849 On microfilm at the New York City Municipal Archives.

Badel, Henry 1797 Survey of Bushwick Township in Kings County ... Oct. 28, 1797. On file at the Brooklyn Historical Society.

Bergoffen, Celia 2005 Phase 1B Archeological Testing Report, 90 Havemeyer Street, B 2368 L 27, 28.


Bushwick Savings Bank 1923 Memoirs of Bushwick (Boswijk), 1637-1923. Bushwick Savings Bank, Brooklyn, N.Y.


City/Scape 1997 Block 3070, Lot 10-14, 140 Johnson Ave., Williamsburg, Brooklyn. Stage 1A Literature Review and Archaeological and Historic Sensitivity Evaluation.

Dripps, Matthew 1850 Map of the City of Brooklyn, also the Village of Williamsburgh.

1869 Map of the city of Brooklyn: being the former cities of Brooklyn & Williamsburgh and the town of Bushwick, as consolidated January 1st, 1855 by an act of the legislature of the State of New York ... showing also a part of the City of New York.


Ewen, D. 1835 Map of the Additional Bounds of the Village of Williamsburg, Kings County, Showing the same as permanently laid out into Streets. City of Brooklyn Filed Map 719.


Gwynne, Gretchen Anderson

Hayward, George
1854 Hayward’s Map of the Consolidated City of Brooklyn, Comprising the City of Brooklyn, City of Williamsburgh, and Town of Bushwick, Kings County, Long Island.

Higginson, J.H.
1854 New Map of Brooklyn, Williamsburgh, Bushwick and Green Point as United in One City, November 1853.
1868+ Higginson’s Insurance Maps of the City of Brooklyn, L. I. Updated to post-1870 conditions.

Historical Perspectives, Inc. (HPI)
1992 Phase IA Archaeological Assessment Scholes Street Urban Renewal Area Housing Site. For: The New York City Department of Housing Preservation and Development, Office of Development.
2013 Phase IA Archaeological Documentary Study, 1 Maspeth Avenue, Brooklyn, New York 11211, Block 2892, Lot 1 (former Lots 2, 3, and 6). Prepared for Ocher Realty, LLC.

Hopkins, G.M.
1880 Detailed estate and old farm line atlas of the city of Brooklyn.

Hyde, E.B.

Kelly, James A.
1946 Indian Villages, Paths, Ponds and Places in Kings County.

Kings County Land Conveyances
As cited in the text.

Landmarks Preservation Commission (LPC)

Loorya, Alyssa and Christopher Ricciardi

New York Archaeological Council (NYAC)

New York Archaeological Council (NYAC) and Professional Archaeologists of New York City (PANYC)

New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP)
Pagano, Daniel
2016  Bushwick Reformed Dutch Cemetery Project Documents Record (updated 8/25/16). NA Bushwick Dutch Colonial Village, Farms, Mill; Post Glacial Lake; Cemetery Project Documents Record (updated 8/26/16). Landmarks Preservation Commission.

Ricciardi, Christopher
2013  Personal telephone communication, Christopher Ricciardi, Chrysalis Archaeological Consultants with Cece Saunders.

Ritchie, William A.

Robinson, E.

Sanborn Map Company

Schuberth, Christopher J.

Smith, Carlyle Shreve

Stiles, Henry R.
1884  A History of the Town of Bushwick, Kings County, N.Y. Reprinted from *The Illustrated History of Kings County,* edited by Dr. H. R. Stiles, and published by W. W. Munsell & Co., Brooklyn, N.Y.

Ulitz, Hugo

United States Department of Agriculture (USDA)

United States Coastal Survey (U.S.C.S.)
1863  *Williamsburg and Brooklyn.*

United States Geological Survey (U.S.G.S.)
1891  *Brooklyn, N.Y.* 15 Minute Topographic Quadrangle.
1979  *Brooklyn, N.Y.* 7.5 Minute Topographic Quadrangle.

Vieth, Isaac
1845  *A Map of the Village of Williamsburgh, Kings County, N.Y.*

Wyatt, Ronald J.
Figure 1: Project site on Brooklyn, N.Y. 7.5 Minute Topographic Quadrangle (U.S.G.S. 1979).
Phase IA Archaeological Documentary Study
New Substation at 5 Maspeth Avenue
Brooklyn, New York 11211

Figure 2: Project site and photograph locations on modern aerial photograph.
Figure 4: Project site on *New York City Reconnaissance Soil Survey* (U.S.D.A. 2006).
Figure 5: Project site on *Indian Villages, Paths, Ponds and Places in Kings County* (Kelly 1946).
Figure 6: Project site and vicinity showing conditions prior to 1829 (Meeker 1864, courtesy New York Public Library).
Phase IA Archaeological Documentary Study
New Substation at 5 Maspeth Avenue
Brooklyn, New York 11211

Figure 7: Project site on *Het Dorp, or Bushwick Green* (Stiles 1884).
Phase IA Archaeological Documentary Study
New Substation at 5 Maspeth Avenue
Brooklyn, New York 11211

Figure 8: Project site on Survey of Bushwick Township (Badel 1797).
Figure 9: Project site on *Map of the Additional Bounds of the Village of Williamsburg, Kings County, Showing the same as permanently laid out into Streets* (Ewen 1835). Filed Map 719.
Figure 10: Project site on *Map of the City of Brooklyn, also the Village of Williamsburgh* (Dripps 1850).
Phase IA Archaeological Documentary Study
New Substation at 5 Maspeth Avenue
Brooklyn, New York 11211

Figure 11: Project site on Map of the City of Brooklyn (Dripps 1869).
Figure 12: Project site and APE on *Higginson’s Insurance Maps of the City of Brooklyn, L. I.* (Higginson 1868+). Updated to post-1870 conditions.
Phase IA Archaeological Documentary Study
New Substation at 5 Maspeth Avenue
Brooklyn, New York 11211

Figure 13: Project site on Insurance Maps of Brooklyn, New York (Sanborn 1888).
Phase IA Archaeological Documentary Study
New Substation at 5 Maspeth Avenue
Brooklyn, New York 11211

Figure 14: Project site on *Atlas of the Brooklyn of Borough, City of New York* (Hyde 1904).
Photograph 1: Project site showing Bushwick Avenue in foreground, Maspeth Avenue in center, and line of Humboldt Street in rear. View looking southwest.

Photograph 2: Project site showing Metropolitan Avenue in foreground and Maspeth Avenue in center background. View looking northeast.
Photograph 3: Detail of traffic island at intersection of Maspeth Avenue and Humboldt Street. View looking northeast.

Photograph 4: Block 2897 containing the Memorial Gore pocket park. View looking southwest from Bushwick Avenue.
Photograph 5: Block 2897 containing the Memorial Gore pocket park. View looking east from Maspeth Avenue and Humboldt Street.

Photograph 6: Buildings abutting project site on Block 2892. View looking northeast from Maspeth Avenue.
Photograph 7: St. Francis of Paola Church, located on the approximate former site of the Bushwick Reformed Church property. Not part of the project site. View looking northwest from intersection of Conselyea Street and Woodpoint Road.

Photograph 8: The second Bushwick Reformed Dutch Church as seen in 1899. Not part of the project site. View looking northwest from Woodpoint Road. Courtesy Brooklyn Public Library.
Photograph 9: The second Bushwick Reformed Dutch Church as seen in 1905. Not part of the project site. View looking northeast from Humboldt Street. Courtesy Brooklyn Public Library.

Photograph 10: The second Bushwick Reformed Dutch Church as seen in 1907. Not part of the project site. View looking northeast from Humboldt Street. Courtesy New York Public Library.
Photograph 1: Rear of the second Bushwick Reformed Dutch Church as seen in 1907. Former cemetery located in area with ground disturbance shown, to rear of church, approximately 200 feet north of the project site. View looking southeast from Humboldt Street. Courtesy New York Public Library.

Photograph 12: Rear of the second Bushwick Reformed Dutch Church as seen in 1907. Former cemetery located in area with ground disturbance shown, to rear of church, approximately 200 feet north of the project site. View looking southwest from intersection of Woodpoint Road and Skillman Avenue. Courtesy New York Public Library.
Photograph 13: Project site and vicinity in 1937. View looking northeast from intersection of Maspeth Avenue, Humboldt Street, and Metropolitan Avenue. Courtesy New York Public Library.