



Phase IA Archaeological Documentary Study
New York City Department of Design + Construction SER-002308
Meredith Avenue BMP, Block 2780, Lot 1
Cannon Avenue BMP, Block 2776, Lot 12
Staten Island, Richmond County, New York

LPC No. DDC / LA-CEQR-R

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LPC No. DDC / LA-CEQR-R

Prepared For:



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Prepared By:

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May 2012

MANAGEMENT SUMMARY

SHPO Project Review Number (if available):

Involved State and Federal Agencies: **NYSDEC, NYSDOS, USACOE**

Phase of Survey: **Phase IA Archaeological Documentary Study**

Location Information

Location: **Meredith Avenue BMP, Block 2780, Lot 1, Cannon Avenue BMP, Block 2776, Lot 12.**

Minor Civil Division: **08501, Staten Island**

County: **Richmond**

Survey Area

Length: **varies**

Width: **varies**

Number of Acres Surveyed: **Meredith Avenue BMP site is ca. 2 acres; Cannon Avenue BMP site is ca. 0.5 acre**

USGS 7.5 Minute Quadrangle Map: **Arthur Kill**

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**

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. and Cece Saunders, M.A., R.P.A., Historical Perspectives, Inc.**

Date of Report: **May 2012**

EXECUTIVE SUMMARY

The New York City Department of Design and Construction (DDC) has initiated plans for the installation of storm sewers in the Travis area of western Staten Island, Richmond County, New York (Capital Project SER-002308). The improvements will include streetbed installations, a sewer easement, and two Best Management Practices (BMPs) that entail building a stilling basin, an outfall chamber, a stabilized channel, etc. in land outside the road network (Figures 1, 2a-2b, and 3a-3b). Three parcels outside of roadbeds were identified as locations of the two BMPs and a sewer easement. The BMPs will be located on Block 2780, Lot 1, known as the Meredith Avenue BMP; and Block 2776, Lot 12, known as the Cannon Avenue BMP. The sewer easement will be located on Block 2772, Lot 34, on the southwest side of Price's Lane.

The proposed project will include below-grade impacts within these parcels. Since the proposed project is located in New York City and subject to both City Environmental Quality Review (CEQR) and the State Environmental Quality Review Act (SEQRA), impact assessment guidance from the *New York City Environmental Quality Review Technical Guidance Manual* (CEQR Technical Manual 2010, updated 2012) will be used in the preparation of an environmental review. The environmental review process began with an evaluation of archaeological sensitivity by the New York City Landmarks Preservation Commission (LPC). The LPC responded that:

LPC review of archaeological sensitivity models and historic maps indicates that there is potential for the recovery of remains from Native American occupation for the following Borough, Block and Lot location(s) within the study area: 5027760012, 502780001. Accordingly, the Commission recommends that an archaeological documentary study be performed for these location(s) to clarify these initial findings and provide the threshold for the next level of review, if such review is necessary (see CEQR Technical Manual 2010). There are no further archaeological concerns for the following Borough, Block and Lot location(s) within the study area: 5027720034 (Santucci 2011).

Historical Perspectives, Inc. (HPI) has been contracted by Hazen and Sawyer to complete the requested Phase IA Archaeological Documentary Study for the two BMP sites. This study was prepared to comply with the standards of the LPC and the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) (LPC 2002; CEQR 2010, updated 2012; New York Archaeological Council 1994; NYSOPRHP 2005). Because OPRHP guidelines require both an assessment of precontact and historic period archaeological sensitivity, a brief historic period summary is included in this report as well.

The Area of Potential Effect (APE) is defined as the area that could be affected by project development. Since project plans may still change, the APE includes the entire city lot boundaries of each BMP site. Typically, the BMP final designs will restrict actual construction impacts to more limited areas.

From what is known of precontact period settlement patterns on Staten 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. On Staten Island, precontact archaeological sites often are found on raised hummocks of land overlooking drainages and wetlands. The proposed BMP sites are in an area that both the OPRHP GIS and the Boesch (1994) study indicate has a high sensitivity for precontact archaeological resources. This is undoubtedly because the proposed BMP sites are located in proximity to natural water sources and where numerous precontact sites have been recorded in the past.

Both BMP sites presently are designated wetlands, and historic maps indicate that the sites have been covered with wetlands since at least the nineteenth century. The wet conditions of the sites today argue against a high precontact period archaeological sensitivity. However, there are times that portions of the BMP sites are not inundated with water, and during the precontact period it is possible that these areas were drier than they are today. For these reasons, and because no soil borings have been completed that would indicate actual subsurface conditions, HPI assigns the BMP sites a moderate precontact period archaeological sensitivity.

The proposed BMP sites have never had any historic period development within their boundaries because historically these areas were always wetlands. HPI concludes that the proposed BMP sites contain no historic period archaeological sensitivity.

Based on these conclusions, HPI recommends that a limited program of Phase IB archaeological testing be conducted within the footprints of the final BMP locations within the larger city lots, in order to ascertain the subsurface conditions of the construction areas and to determine whether any precontact period archaeological resources might be located here. Due to the small size of the proposed BMPs (as shown on Figure 3a-3b), this testing likely would be limited to only several shovel tests (STs) at each BMP location. The archaeological testing should be conducted according to applicable archaeological standards (New York Archaeological Council 1994, NYSOPRHP 2005; LPC 2002; CEQR 2010, updated 2012). Professional archaeologists, with an understanding of and experience in comparable archaeological excavation techniques and interpretations, would be required to be part of the archaeological team.

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I. INTRODUCTION

The New York City Department of Design and Construction (DDC) has initiated plans for the installation of storm sewers in the Travis area of western Staten Island, Richmond County, New York (Capital Project SER-002308). The improvements will include streetbed installations, a sewer easement, and two Best Management Practices (BMPs) that entail building a stilling basin, an outfall chamber, a stabilized channel, etc. in land outside the road network (Figures 1, 2a-2b, and 3a-3b). Three parcels outside of roadbeds were identified as locations of the two BMPs and a sewer easement. The BMPs will be located on Block 2780, Lot 1, known as the Meredith Avenue BMP; and Block 2776, Lot 12, known as the Cannon Avenue BMP. The sewer easement will be located on Block 2772, Lot 34, on the southwest side of Price's Lane.

The proposed project will include below-grade impacts within these parcels. Since the proposed project is located in New York City and subject to both City Environmental Quality Review (CEQR) and the State Environmental Quality Review Act (SEQRA), impact assessment guidance from the *New York City Environmental Quality Review Technical Guidance Manual* (CEQR Technical Manual 2010, updated 2012) will be used in the preparation of an environmental review. The environmental review process began with an evaluation of archaeological sensitivity by the New York City Landmarks Preservation Commission (LPC). The LPC responded that:

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The Area of Potential Effect (APE) is defined as the area that could be affected by project development. Since project plans may still change, the APE includes the entire city lot boundaries of each BMP site. Typically, the BMP final designs will restrict actual construction impacts to more limited areas. Figure 3a-3b illustrates the proposed BMP construction limits as of this time.

II. METHODOLOGY

This study entails review of various resources. Because the proposed BMP sites consist of land that was undeveloped during the nineteenth century, many standard resources normally consulted to meet LPC standards were not necessary, as described below.

- Primary and secondary sources concerning the general precontact period and history of Staten Island and specific events associated with the project site were reviewed at the New York Public Library, the Staten Island Historical Society, and using online resources.
- Historic maps and aerial photographs were reviewed at the New York Public Library, the Staten Island Historical Society, the Staten Island Museum, the Staten Island Topographical Bureau, and using various online websites.
- Deeds, tax assessment records, federal census records, and city directories, which are standard resources consulted as part of a documentary study, were not reviewed for this project because the proposed BMP sites were not developed during the nineteenth century.

- There are no Department of Building records for the proposed BMP locations because these sites do not contain buildings.
- Information about previously recorded archaeological sites and surveys in the area was compiled from data available at the OPRHP, which includes data files from the New York State Museum (NYSM), and the LPC.
- Hazen and Sawyer provided various survey maps and site data for the property.
- Last, a site visit to the proposed sites of the BMPs was conducted by Christine Flaherty of HPI on May 2, 2012 to assess any obvious or unrecorded subsurface disturbance (Photographs 1-6; Figures 2a-b).

III. CURRENT CONDITIONS AND ENVIRONMENTAL SETTING

A. Current Conditions

Meredith Avenue BMP

The Meredith Avenue BMP site is located at the southern end of the oblong-shaped Lot 1 of Block 2780, which is ca. 2 acres in size (Photograph 1). Meredith Avenue borders the site on the southwest and Bates Avenue, a paper street that was never constructed, marks the eastern boundary of the lot. Neck Creek, a perennial drainage which historically ran through the northern end of the lot in a northeast-southwest direction to the Arthur Kill, was rerouted through the Meredith Avenue BMP site in conjunction with construction of the West Shore Expressway and the widening of Meredith Avenue in the 1970s. It is currently channeled through a box culvert that runs under Meredith Avenue and which has necessitated creation of a soil bank to carry the culvert. The area surrounding the drainage is level, and covered with wetland vegetation. The overall site contains a combination of freshwater and tidal wetlands, although portions of the lot are dry at times.

Cannon Avenue BMP

The Cannon Avenue BMP site is located on the southern end of the irregularly shaped Lot 12 of Block 2776, which is ca. 0.5 acre in size (Photograph 2). Cannon Avenue borders the panhandle section of the lot on the southeast, where a 12-inch steel pipe discharges water into the property (Photograph 3). The DEP Cannon Avenue Pumping Station is located on adjacent Lot 10 to the southwest (Photograph 4). Visibility of this BMP site was limited due to dense foliage bordering Cannon Avenue (Photograph 5). The view from Meredith Avenue toward the BMP indicates a level landform within the interior portion of the lot, with wetland vegetation (Photograph 6). The overall site contains a combination of freshwater and tidal wetlands, although portions of the lot are dry at times.

B. Topography and Hydrology

Historic maps show that prior to the twentieth century, elevations within the BMP sites were at about sea level (U.S.C.S. 1844, 1857 [Figure 5]; Beers 1874 [Figure 6]; Bien and Vermeule 1891 [Figure 7]). In 1911/1912, when the Borough of Richmond created a detailed set of topographical maps, the Meredith Avenue BMP site was noted as at sea level, and the Cannon Avenue BMP site was noted at sea level on the northern end to ca. 2-4 feet above sea level at the southern end nearest the roadway (Borough of Richmond 1911/1912 [Figure 8]).

As noted above, Neck Creek (historically known as Chelsea Creek) was rerouted through the Meredith Avenue BMP site in the 1970s. Prior to that time, both sites contained wetlands and man-made drainage ditches or channels to drain the area.

C. Geology

The BMP sites are within the Coastal Plain Province. As described by Boesch (after Wolfe 1977),

The portion of Staten Island south of a line running from approximately north of Stapleton to Westerleigh and Bloomfield is part of the inner lowland subprovince of the Coastal Plain Province. Generally this province is a broad, low-lying land form that slopes gently towards the Atlantic Ocean. The inner lowland subprovince consists of generally level to gently undulating terrain that is between 20 and 50 feet in elevation....Most of the inner Coastal Plain is underlain with gently southeastward dipping, unconsolidated

marine and fluvial deposits of clay, silt, sand, and gravel of Late Cretaceous and Tertiary age (Wolfe 1977:207). Large area are also covered with interglacial fluvial deposits of Quaternary age (Wolfe 1977: 207) (Boesch 1994: 3)

During the precontact era the woodlands of the Piedmont Lowlands consisted of broadleaf deciduous trees, which provided a habitat for “game birds, small mammals, deer, bear, and during at least a portion of the precontact period, elk” (Boesch 1994: 6). Mixed wetland ecologies provided numerous floral and faunal resources, the most important faunal resources being the shellfish found in saltwater and brackish environments. Freshwater faunal resources include “mussels, fish, certain amphibians and reptiles, migratory fowl, and semi-aquatic mammals. Anadromous fish species would have been present seasonally within Staten Island via streams emptying into the estuary system” (Boesch 1994: 5-6).

D. Soils

Meredith Avenue BMP

The entire footprint of the proposed Meredith Avenue BMP is mapped as Ipswich-Pawcatuck-Matunuck mucky peats (Figure 4), described as:

Low lying areas of tidal marsh that are inundated by salt water twice each day at high tide, with a mixture of very poorly drained soils which vary in the thickness of organic materials over sand (USDA 2005:11).

The different soil series that make up this mapping unit are further described in the table, below.

Name	Soil Horizon Depth	Color	Texture, Inclusions	Slope %	Drainage	Landform
Ipswich Series	<i>Oe1</i> 0-20 in <i>Oe2</i> 20-40 in <i>Oa</i> 40-72 in	10YR 4/3 2.5Y 3/2 5Y 4/1	Mucky peat Mucky peat Mucky peat	0	Very poorly	Tidal marsh
Pawcatuck Series	<i>Oe1</i> 0-8 in <i>Oe2</i> 8-24 in <i>2C</i> 24-72 in	5Y 3/1 2.5Y 4/1 N 4/	Mucky peat Mucky peat LoSa	0	Very poorly	Tidal marsh
Matunuck Series	<i>Oe</i> 0-8 in <i>C1</i> 8-72 in	10YR 2/1 2.5Y 4/1	Mucky peat Sa	0	Very poorly	Tidal marsh

Key: Soils: Lo-Loam, Sa-Sand

No soil borings have been completed for the Meredith Avenue BMP.

Cannon Avenue BMP

The entire footprint of the Cannon Avenue BMP is mapped as Pavement & buildings, wet substratum-Laguardia-Ebbets complex, 0 to 8 percent slopes (Figure 4), described as:

Nearly level to gently sloping urbanized areas filled with a mixture of natural soil materials and construction debris over swamp, tidal marsh, or water; a mixture of anthropogenic soils which vary in coarse fragment content, with up to 80 percent impervious pavement and buildings covering the surface (USDA 2005:12).

The different soil series that make up this mapping unit are further described in the table, below.

Name	Soil Horizon Depth	Color	Texture, Inclusions	Slope %	Drainage	Landform
Laguardia Series	<i>Ap</i> 0-8 in <i>Bw</i> 8-26 in <i>C</i> 26-79 in	10YR 4/3 10YR 4/3 10YR 4/3	GrlSaLo VGrlCoSaLo VGrlCoSaLo	0-8	Well	Anthropogenic urban fill plains
Ebbets Series	<i>A</i> 0-4 in <i>Bw</i> 4-8 in <i>C</i> 8-60 in	10YR 3/2 10YR 4/4 10YR 4/4	Lo GrlSaLo GrlSaLo	0-8	Well	Anthropogenic urban fill plains

Key: Soils: Lo-Loam, Sa-Sand
Other: Grl-Gravelly, V-Very, Co-Coarse, Ext-Extremely, Cob-Cobbly, Fi-Fine

No soil borings have been completed for the Cannon Avenue BMP.

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 on Staten Island from three sources: ethnographic reports, Native American artifact collections, and archaeological investigations.

The Paleo Indian Period (c. 10,500 B.C. - c. 8000 B.C.) represents the earliest known human occupation of Staten Island. Approximately 14,000 years ago the Wisconsin Glacier retreated from the area leading to the emergence of a cold dry tundra environment. Sea levels were considerably lower than modern levels during this period (they did not reach current levels until circa 5,000 B.C., in the Early to Middle Archaic Period). As such, Staten Island was situated much further inland from the Atlantic Ocean shore than today, and was characterized by higher ground amid glacial lakes and rivers (Boesch 1994). The material remains of the Paleo Indians include lithic tools such as Clovis-type fluted projectile points, bifacial knives, drills, graters burins, scrapers, flake cores, and flake tools, although sites generally are represented by limited small surface finds. The highly mobile nomadic bands of this period specialized in hunting large game animals such as mammoth, moose-elk, bison, and caribou and gathering plant foods. It has been theorized that the end of the Paleo-Indian Period arose from the failure of over-specialized, big-game hunting (Snow 1980:150-157). Based on excavated Paleo-Indian sites in the Northeast, there was a preference for high, well-drained areas in the vicinity of streams or wetlands (Boesch 1994). Sites have also been found near lithic sources, rock shelters and lower river terraces (Ritchie 1980). Paleo-Indian materials have been recovered at several sites on Staten Island including Port Mobil, the Cutting site, Smoking Point and along the beach in the Kreischerville area.

During the Archaic Period (c. 8000 B.C. - 1000 B.C.) a major shift occurred in the subsistence and settlement patterns of Native Americans. Archaic period peoples still relied on hunting and gathering for subsistence, but the emphasis shifted from hunting large animal species, which were becoming unavailable, to smaller game and collecting plants in a deciduous forest. The settlement pattern of the Archaic people consisted of small bands that occupied larger and relatively more permanent habitations sites along the coast of Staten Island, its estuaries and streams and inland areas (Boesch 1994). Typically such sites are located on high ground overlooking water courses. This large period has been divided up into four smaller periods, the Early, Middle, Late and Terminal Archaic.

The environment during the Early Archaic (c. 8000 B.C. - 6000 B.C.) displayed a trend toward a milder climate and the gradual emergence of a deciduous-coniferous forest with a smaller carrying capacity for the large game animals of the previous period (Ritchie and Funk 1971). The large Pleistocene fauna of the previous period were gradually replaced by modern species such as elk, moose, bear, beaver, and deer. New species of plant material suitable for human consumption also became abundant. The increasing diversification of utilized food sources is further demonstrated by a more complex tool kit. The tool kit of the Early Archaic people included bifurcated or basally notched projectile points generally made of high quality stone. Tool kits were more generalized than during the

Paleo-Indian period, showing a wider array of plant processing equipment such as grinding stones, mortars and pestles. Although overall evidence of Early Archaic sites on Staten Island is sparse, it should be noted that the Old Place site, located approximately two and a half miles north of the project site, is recognized as one of the most important Early Archaic component sites in the area (Ritchie and Funk 1971; Ritchie 1980; Cantwell and Wall 2001). Other Early Archaic component sites on Staten Island include the Hollowell, Charleston Beach, Wards Point, Travis (or Long Neck), and Richmond Hill sites (Ritchie and Funk 1971; Boesch 1994).

The archaeological record suggests that a population increase took place during the Middle Archaic Period (c. 6000 - c. 4000 B.C.). This period is characterized by a moister and warmer climate and the emergence of an oak-hickory forest. The settlement pattern during this period displays specialized sites and increasing cultural complexity. The exploitation of the diverse range of animal and plant resources continued with an increasing importance of aquatic resources such as mollusks and fish (Snow 1980). In addition to projectile points, the tool kits of Middle Archaic peoples included grinding stones, mortars, and pestles. Such artifacts have been found throughout Staten Island, including the Old Place and Wards Point sites (Boesch 1994).

Late Archaic people (c. 4000 - c. 1000 B.C.) were specialized hunter-gatherers who exploited a variety of upland and lowland settings in a well-defined seasonal round. The period reflects an increasingly expanded economic base, in which groups exploited the richness of the now established oak-dominant forests of the region. It is characterized by a series of adaptations to the newly emerged, full Holocene environments. As the period progressed, the dwindling melt waters from disappearing glaciers and the reduced flow of streams and rivers promoted the formation of swamps and mudflats, congenial environments for migratory waterfowl, edible plants and shellfish. The new mixed hardwood forests of oak, hickory, chestnut, beech and elm attracted white-tailed deer, wild turkey, moose and beaver. The large herbivores of the Pleistocene were rapidly becoming extinct and the Archaic Indians depended increasingly on smaller game and the plants of the deciduous forest. The projectile point types attributed to this period include the Lamoka, Brewerton, Normanskill, Lackawaxen, Bare Island, and Poplar Island. The tool kit of these peoples also included milling equipment, stone axes, and adzes. A large number of Late Archaic Period sites have been found on Staten Island. These include the Pottery Farm, Bowman's Brook, Smoking Point, Goodrich, Sandy Brook, Wort Farm, and Arlington Avenue sites. In addition, the Old Place Site contained a Late Archaic component (Boesch 1994).

During the Terminal Archaic or Transitional Period (c. 1700 B.C. - c. 1000 B.C.), native peoples developed new and radically different broad bladed projectile points, including Susquehanna, Perkiomen and Orient Fishtail types. The use of steatite or stone bowls is a hallmark of the Terminal Archaic Period. Sites on Staten Island from the Terminal Archaic Period include the Old Place site, as well as the Pottery Farm, Wards Point, and Travis (or Long Neck) sites (Boesch 1994).

The Woodland Period (c. 1000 B.C. - 1600 A.D.) is generally divided into Early, Middle and Late Woodland on the basis of cultural materials and settlement-subsistence patterns. Settlement pattern information suggests that the broad based strategies of earlier periods continued with a possibly more extensive use of coastal resources. The Early Woodland was essentially a continuation of the tool design traditions of the Late Archaic. However, several important changes took place. Clay pottery vessels gradually replaced the soapstone bowls during the Early Woodland Period (c. 1000 B.C. to A.D. 1). The earliest ceramic type found on Staten Island is called Vinette 1, an interior-exterior cordmarked, sand tempered vessel. The Meadowood-type projectile point is a chronological indicator of the Early Woodland Period.

Cord marked vessels became common during the Middle Woodland Period (c. A.D. 1 to c. 1000 A.D.). Jacks Reef and Fox Creek-type projectile points are diagnostic of the Middle Woodland. Another characteristic projectile point of the Early to Middle Woodland Period is the Rossville type, named for the site at Rossville where it predominated. It is believed to have originated in the Chesapeake Bay area and is found in New Jersey, southeastern New York and southern New England (Lenik 1989:29). The Early and Middle Woodland periods display significant evidence for a change in settlement patterns toward a more sedentary lifestyle. The discovery of large storage pits and larger sites in general supports this theory. Some horticulture may have been utilized at this point but not to the extent that it was in the subsequent Late Woodland period.

In the Late Woodland period (c. 1000 A.D. - 1600 A.D.), triangular projectile points such as the Levanna and Madison types, were common throughout the Northeast, including Staten Island (Lenik 1989:27). Made both of local and non-local stones, brought from as far afield as the northern Hudson and Delaware River Valleys, these artifacts bear witness

to the broad sphere of interaction between groups of native peoples in the Northeast. Additionally, during this period collared ceramic vessels, many with decorations, made their appearance.

Woodland Period Native Americans in Staten Island and surrounding regions shared common attributes. The period saw the advent of horticulture and with it, the appearance of large, permanent or semi-permanent villages. Plant and processing tools became increasingly common, suggesting an extensive harvesting of wild plant foods. Maize cultivation may have begun as early as 800 years ago. The bow and arrow, replacing the spear and javelin, pottery vessels instead of soap stone ones, and pipe smoking, were all introduced at this time. A semi-sedentary culture, the Woodland Indians moved seasonally between villages within palisaded enclosures and campsites, hunting deer, turkey, raccoon, muskrat, ducks and other game and fishing with dug-out boats, bone hooks, harpoons and nets with pebble sinkers. Their shellfish refuse heaps, called “middens,” sometimes reached immense proportions of as much as three acres (Ritchie 1980:80, 267). Habitation sites of the Woodland Period Indians increased in size and permanence. A large number of Woodland Period archaeological sites have been found on Staten Island in a variety of environmental settings. A favored setting for occupation during this period was well-drained ground near stream drainages and coastal waterways. The Old Place Site, which also had a Woodland component, exhibited all of these locational characteristics. Another such site, dating to the Middle Woodland period and including net and fabric impressed pottery, was discovered within DEP Bluebelt property overlooking Lemon Creek and was excavated in 2009 and 2010 (HPI 2009a, 2009b, 2010a, 2010b).

During the early Contact period (1500 to 1700 A.D.) there was a continuation of the Late Woodland settlement patterns of the coastal Algonquians. By the 17th century the Dutch settlers of lower New York were in frequent contact with the many Native Americans who lived in the vicinity. Historic accounts describe both peaceful and violent interchanges between these two groups (Brasser 1978, Flick 1933). Through at least the 1650s, Native Americans known as the Raritans occupied portions of Staten Island and New Jersey’s Raritan Valley (Ruttenber 1872). The Raritans were but one of many native groups which as a whole were known as the Delaware Indians by the European settlers. As the European population increased, and internecine warfare due to increased competition for trade with the Europeans intensified, the Raritans, and the Delaware in general, retreated inland away from the eastern coast. By the 1800s their migration had scattered them across the Midwest and even into Canada (Weslager 1972), where they have continued living to the present day. Journal accounts by European explorers, settlers, and travelers describe Native settlements and lifeways. However, only a few Historic Contact Period sites have been found on Staten Island. Sites include those at Wards Point, Old Place, Corsons Brook, Travis (or Long Neck), New Springfield, and at the PS56R Site in Woodrow (Boesch 1994; HPI 1996).

B. Previously Recorded Archaeological Sites and Surveys

Records on file at the OPRHP and the NYSM as well as the Boesch (1994) *Archaeological and Sensitivity Assessment of Staten Island, New York* indicate that numerous precontact sites have been documented within one mile of the proposed BMP sites, and due to the vagueness of mapping, some are shown overlapping the BMP sites. Grumet (1981) also notes that Cannon Avenue and the original alignment of Victory Boulevard were former Native American trails. The following table summarizes archaeological sites that have been documented by the NYSM, the OPRHP, and by Boesch (1994) within a one mile radius of the proposed BMP sites. In some cases, the sites appear to have been recorded duplicate times, often obtaining several different site number designations. Where the duplication was obvious, the sites and their attributes are combined into one listing in the table. Of note, NYSM site locations and descriptions often are vague, due to the fact that many of these sites were documented based on early or non-professional records (such as information from local landowners, avocational collectors, or historic accounts); descriptions of these sites from the project site are given based on available mapping and other data, but should not be considered definitive.

Site # and Site Name	Location	Time Period	Site Type
Boesch 38 Travis Site	Travis Area	Early Archaic to Contact	Camp
NYSM #4598 Boesch #39, 80 Long Neck Sites	Large area including most of Travis Area	Unknown Precontact	Camps? Hamlets? Middens?

Site # and Site Name	Location	Time Period	Site Type
NYSM #4596	Large area northwest of Victory Boulevard	Unknown Precontact	Precontact camps and traces of occupation
NYSM #4599 Boesch 72	Both sides of West Shore Expressway south of Wild Avenue	Unknown Precontact	Precontact camps and middens
NYSM #4627 Boesch #70, 71 Chelsea 2	North of Chelsea Road	Unknown Precontact	Camps
NYSM #7324	Large area on both sides of Bloomfield Road	Transitional period	Isolated point
NYSM #8323	Large area on both sides of Meredith Avenue	Unknown Precontact	Unknown
NYSM #8501	North of Chelsea Road	Unknown Precontact	Camp
NYSM #8502	Near Route 440 and Travis Avenue	Unknown Precontact	Traces of occupation
NYSM #6976	Large area on both sides of South Avenue	Unknown Precontact	Village
NYSM #746, 4597; Chelsea Burying Ground OPRHP 08501.000135	Bloomfield Road north of Chelsea Road	Archaic? Transitional?	Burying Ground
Boesch 31 Corson's Brook	New Springville along Corson's Brook	Woodland/Contact	Shell middens and human burials
OPRHP 08501.002901 Meredith Avenue Historic Sites	Western terminus of Meredith Avenue	Nineteenth century	Domestic yard deposits

Several of the archaeological sites listed in the table are worth describing in further detail.

Travis and/or Long Neck sites

The entire Long Neck peninsula, within which the BMP project sites are located, has a well-documented history of precontact site activity. However, archaeologists have differed as to how to record and name site locations. Boesch (1994) reports that Skinner (1909) and Parker (1922) record a site called "Travis," which he notes "is located in the area bounded by Glen Avenue, Cannon Avenue, and the Arthur Kill." However, review of both the Skinner and Parker publications (the Parker document is essentially a reprint of the Skinner document) indicates neither author referred to a site specifically as "Travis," although both recorded sites on the north and south sides of Long Neck (or Linoleumville), which later was numbered site #4598 by the NYSM. It appears that the "Travis" site was not recorded by the NYSM, but rather was documented by local archaeologists and collectors from Staten Island. Boesch (1994) writes "It was reportedly one of the largest sites on Staten Island and has drawn the attention of collectors for over half a century. The Staten Island Institute [Museum] has catalogued in its collection over 1,140 artifacts from the site most of which came from the area that was the former location of the Richmond County Airport." The former Richmond County Airport was located along the shore of the Arthur Kill, north of Victory Boulevard and east of the modern West Shore Expressway (Route 440). Mid-twentieth century publications on the "Travis" site include Burger (1941) and Anderson (1961).

It is unclear whether the Long Neck sites (NYSM #4598) recorded by Skinner and Parker may have overlapped the proposed BMP sites, as none of these sites appear to have had distinct boundaries. Skinner (1909) notes that there was a dune “with relics between Chelsea and Travisville.” He also describes the Long Neck sites as having “scattered lodges” and a shell heap with pits, and additionally notes that “relics are found all over the end of the Neck, but nowhere abundant” (Skinner 1909:9).

Surveys

In addition to the previously documented archaeological sites, a number of cultural resource investigations have occurred within a one or two mile radius of the BMP sites, although the parcels themselves have never been subjected to an archaeological survey.

Although the archaeological studies in the BMP sites vicinity were completed for a variety of clients in a range of locational settings, several issues were addressed repeatedly in these reports and are worth reiterating here. Most importantly, archaeologists working in this part of Staten Island knew definitively that the area was once highly sensitive for precontact period sites. The sheer number of sites recorded in this vicinity is a testament to this fact. However, pinpointing the locations of precontact sites that had been previously recorded by amateur archaeologists, on the basis of historic accounts, or using data from early twentieth century scholars such as Skinner or Parker proved to be difficult, and sometimes impossible. Often, locations or vicinities where sites were supposed to have been situated yielded no precontact materials, even where disturbance to the ground surface was minimal (e.g. Roberts and Stehling 1988). In other cases, modern construction and other earthmoving activities associated with recent development in the area rendered project sites too disturbed to recover any precontact resources, even if they had existed (e.g. Lenik 1983; Hunter and Liebeknecht 2003). Lenik (1983:63-64) summed up the frustrations of trying to pinpoint the location of the Bloomfield and Bulls Head sites this way:

In summary, the early twentieth century survey reports, which are often cited in cultural resource management studies, must be examined critically and with a great deal of skepticism. These early reports are often vague as to location, and frequently refer to collections long since gone or dispersed, or to hearsay reports. Such data must be carefully cross-checked and correlated with historical maps and present-day maps. The names, places, roads and sites often change or disappear entirely as time passes by.

In general, the only locations where precontact sites or artifacts in an undisturbed context have been documented on the northwest shore of Staten Island have been north of Old Place Creek, where development through the late twentieth century has been less intense and intact soil horizons have survived (e.g. Payne and Baumgardt 1986; Louis Berger Group 2007). In nearly all cases, these areas were upland landforms (generally terraces or hummocks) in close proximity to waterways.

C. Historic Period Summary

Staten Island was the most sparsely settled portion of New York City during early Euro-American settlement. In 1630, while under Dutch rule, Michael Pauw purchased land from the Native Americans. Five years later, he sold it to the Dutch West India Company, which sold land rights to Pietersz De Vries in 1639. Native hostilities and Governor Kieft’s War forced the abandonment of these settlements in 1643. In 1657, the Dutch repurchased the island. However, when the British gained control of the island in 1664, only a small group of settlers were present at South Beach on the northeastern shore. Labadist missionaries traveling through Staten Island in 1679 observed that “there are now about a hundred families on the island, of which the English constitute the least portion, and the Dutch and French divide between them about equally the greatest portion. They have neither church nor minister and live rather far from each other” (Dankers and Sluyter 1867:142). In a 1690 treaty English Governor Lovelace extinguished all Native American rights to Staten Island (Leng and Delavan 1924; Leng and Davis 1930).

The BMP sites and what would later become the hamlet of Travis are located on the north side of Long Neck, a peninsula of land bordered on the north and south by marshlands associated with Neck Creek and Fresh Kills, respectively. According to a reconstructed map of colonial patents, the wetlands north of Long Neck that include the BMP sites, along with numerous other wetland areas in the vicinity, were granted to F. Vincent on September 1, 1708 (Skene 1907). Historic maps from the late eighteenth century, including the Anglo-Hessian map of 1780-1783

and the Taylor and Skinner map from 1781 indicate that the BMP sites were vacant and covered by wetlands, although Cannon Avenue, one of the earliest roads on Long Neck, was shown clearly on these maps. Similar conditions were shown on maps from the first half of the nineteenth century; the 1835 and 1844 U.S.C.S. maps both show the sites as under water, and Cannon Avenue as the sole roadway bordering the sites.

By ca. 1850, what is now known as Meredith Avenue had been constructed, crossing from Cannon Avenue on the southeast, across the wetlands to the hamlet of Chelsea on the northwest. The road, which over time had various names, including Travisville Road and Chelsea Avenue, was depicted on all subsequent nineteenth-century historic maps beginning in 1850 (Dripps 1850; Butler 1853; U.S.C.S. 1857 [Figure 5]; Walling 1860; Dripps 1872; Beers 1874 [Figure 6]; Beers 1887; U.S.C.S. 1891; Bien and Vermeule 1891 [Figure 7]). Those historic maps that indicated topographical conditions in addition to roadways and development, noted that the BMP sites were within wetland areas and undeveloped.

Although the nineteenth-century historic maps generally did not illustrate detailed site conditions, the 1911/1912 Borough of Richmond topographical map (Figure 8), which was the most detailed map drawn to date, did indicate that wetlands within the BMP sites and the vicinity, were criss-crossed with drainage ditches which had been constructed to channel water through the marshy areas and into local creeks, which in turned discharged into the Arthur Kill. It is likely that at least some of these ditches existed during the nineteenth century as well, but were not depicted on maps. These ditches can be clearly seen on aerial photographs taken during the twentieth century as well (New York City Bureau of Engineering 1924; historicaerials.com). By the 1930s, the pump house, which pumps sanitary waste water to nearby a treatment plant, had been built on the lot next to the Cannon Avenue BMP site (Robinson 1907; Bromley 1917; Sanborn 1917, 1937). As noted above, construction of the West Shore Expressway and the widening of Meredith Avenue occurred in the 1970s, at which time Neck Creek was rerouted from its original location along the northern end of the Meredith Avenue BMP site as shown on Figure 8, through the center of the lot as shown on Figure 2a.

V. CONCLUSIONS

A. Precontact Archaeological Sensitivity and Disturbance Record

From what is known of precontact period settlement patterns on Staten 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. On Staten Island, precontact archaeological sites often are found on raised hummocks of land overlooking drainages and wetlands. The proposed BMP sites are in an area that both the OPRHP GIS and the Boesch (1994) study indicate has a high sensitivity for precontact archaeological resources. This is undoubtedly because the proposed BMP sites are located in proximity to natural water sources and where numerous precontact sites have been recorded in the past.

Both BMP sites presently are designated wetlands, and historic maps indicate that the sites have been covered with wetlands since at least the nineteenth century (U.S.C.S. 1844, 1857 [Figure 5]; Beers 1874 [Figure 6]; Bien and Vermeule 1891 [Figure 7]; Borough of Richmond 1911/1912 [Figure 8]). The wet conditions of the sites today argue against a high precontact period archaeological sensitivity. However, there are times that portions of the BMP sites are not inundated with water, and during the precontact period it is possible that these areas were drier than they are today. For these reasons, and because no soil borings have been completed that would indicate actual subsurface conditions, HPI assigns the BMP sites a moderate precontact period archaeological sensitivity.

B. Historic Period Archaeological Sensitivity and Disturbance Record

The proposed BMP sites have never had any historic period development within their boundaries because historically these areas were always wetlands. HPI concludes that the proposed BMP sites contain no historic period archaeological sensitivity.

VI. RECOMMENDATIONS

Based on these conclusions, HPI recommends that a limited program of Phase IB archaeological testing be conducted within the footprints of the final BMP locations within the larger city lots, in order to ascertain the

subsurface conditions of the construction areas and to determine whether any precontact period archaeological resources might be located here. Due to the small size of the proposed BMPs (as shown on Figure 3a-3b), this testing likely would be limited to only several shovel tests (STs) at each BMP location. The archaeological testing should be conducted according to applicable archaeological standards (New York Archaeological Council 1994, NYSOPRHP 2005; LPC 2002; CEQR 2010, updated 2012). Professional archaeologists, with an understanding of and experience in comparable archaeological excavation techniques and interpretations, would be required to be part of the archaeological team.

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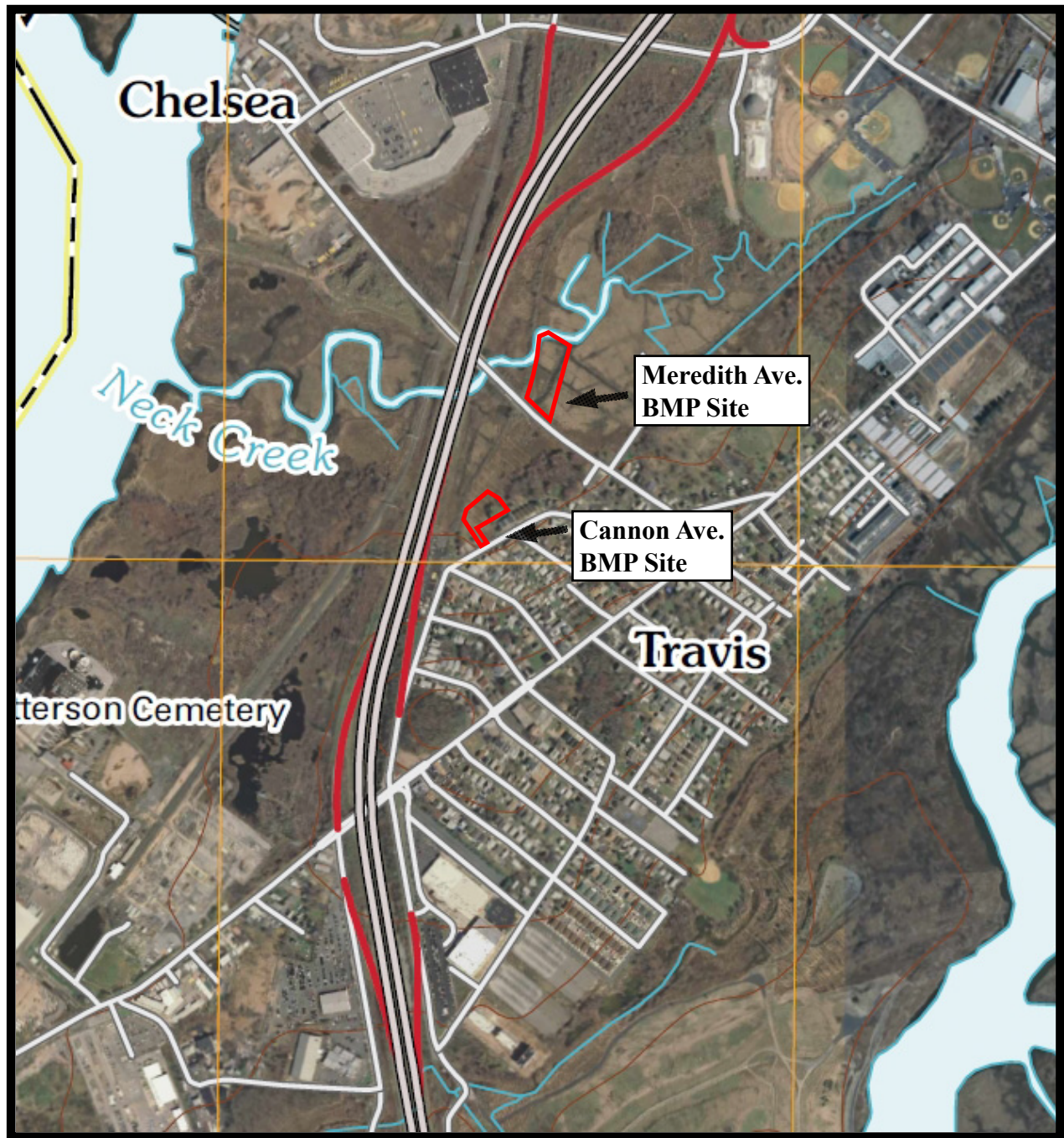
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Phase IA Archaeological Documentary Study
 Meredith Avenue BMP, Block 2780, Lot 1
 Cannon Avenue BMP, Block 2776, Lot 12
 Staten Island, Richmond County, New York



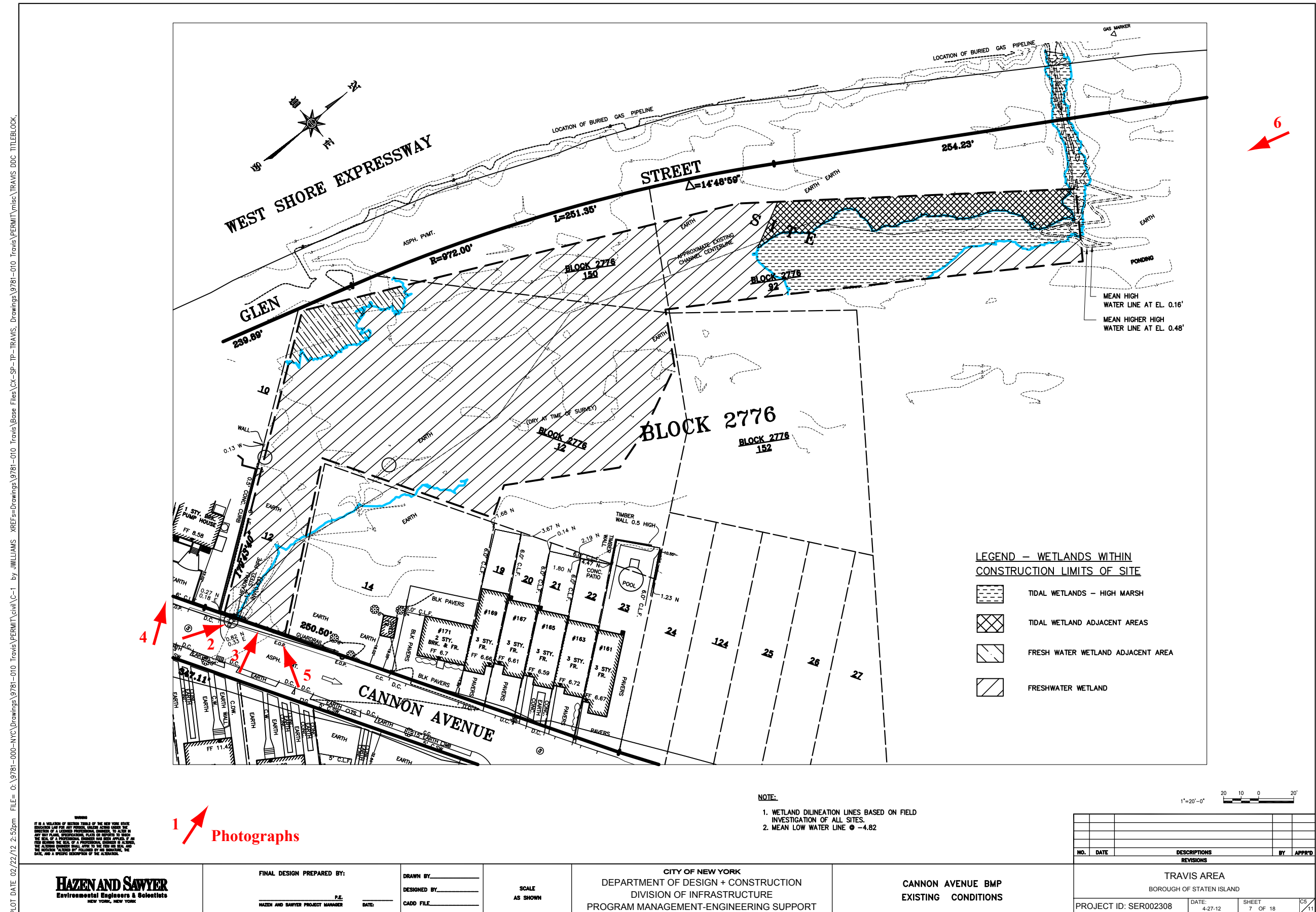
Figure 1: BMP locations on *Arthur Kill*, N.Y.-N.J. topographic quadrangle (U.S.G.S. 2011).

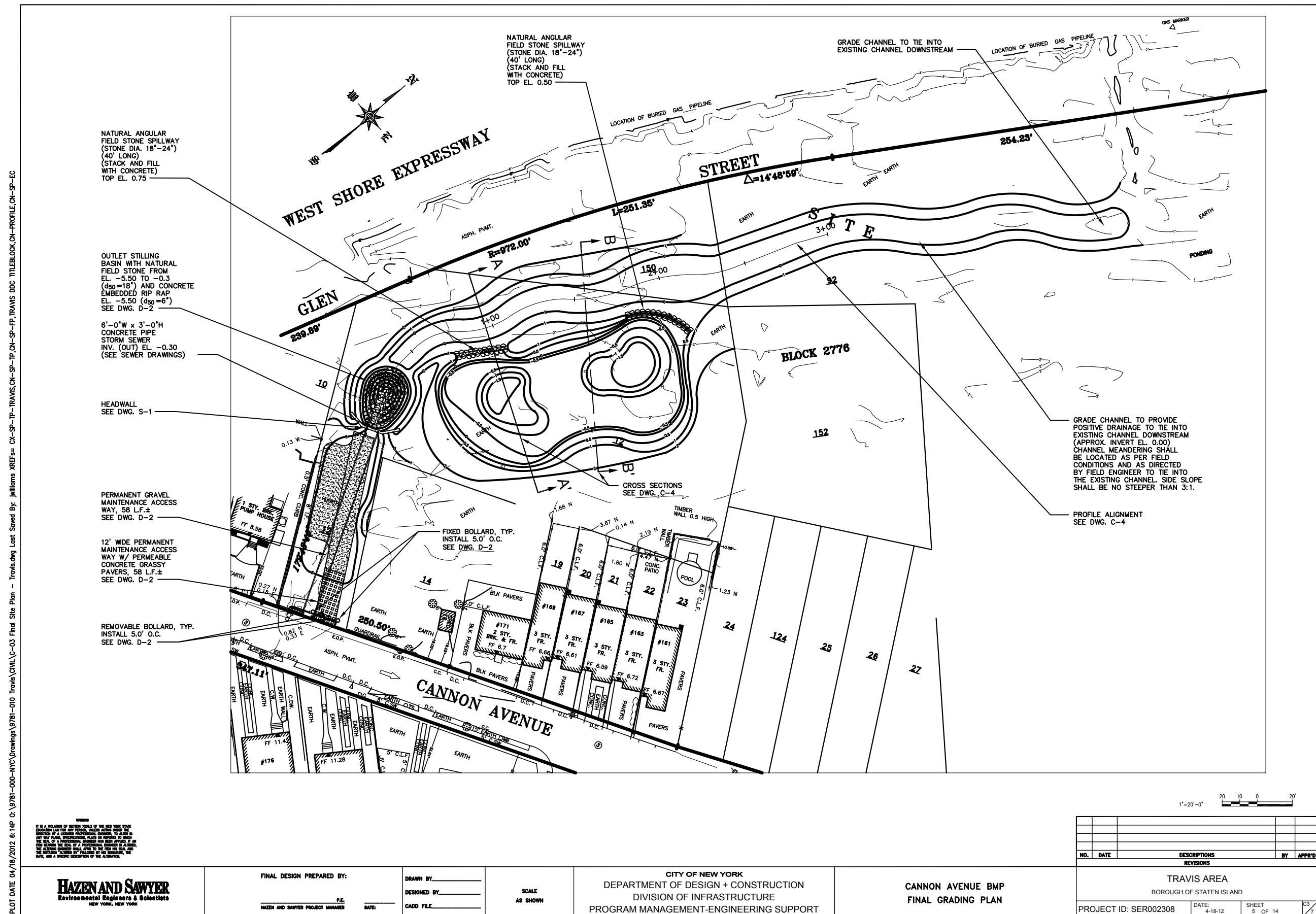
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Figure 2a: Meredith Avenue BMP site location and photographs on existing conditions map (Hazen and Sawyer 2012).





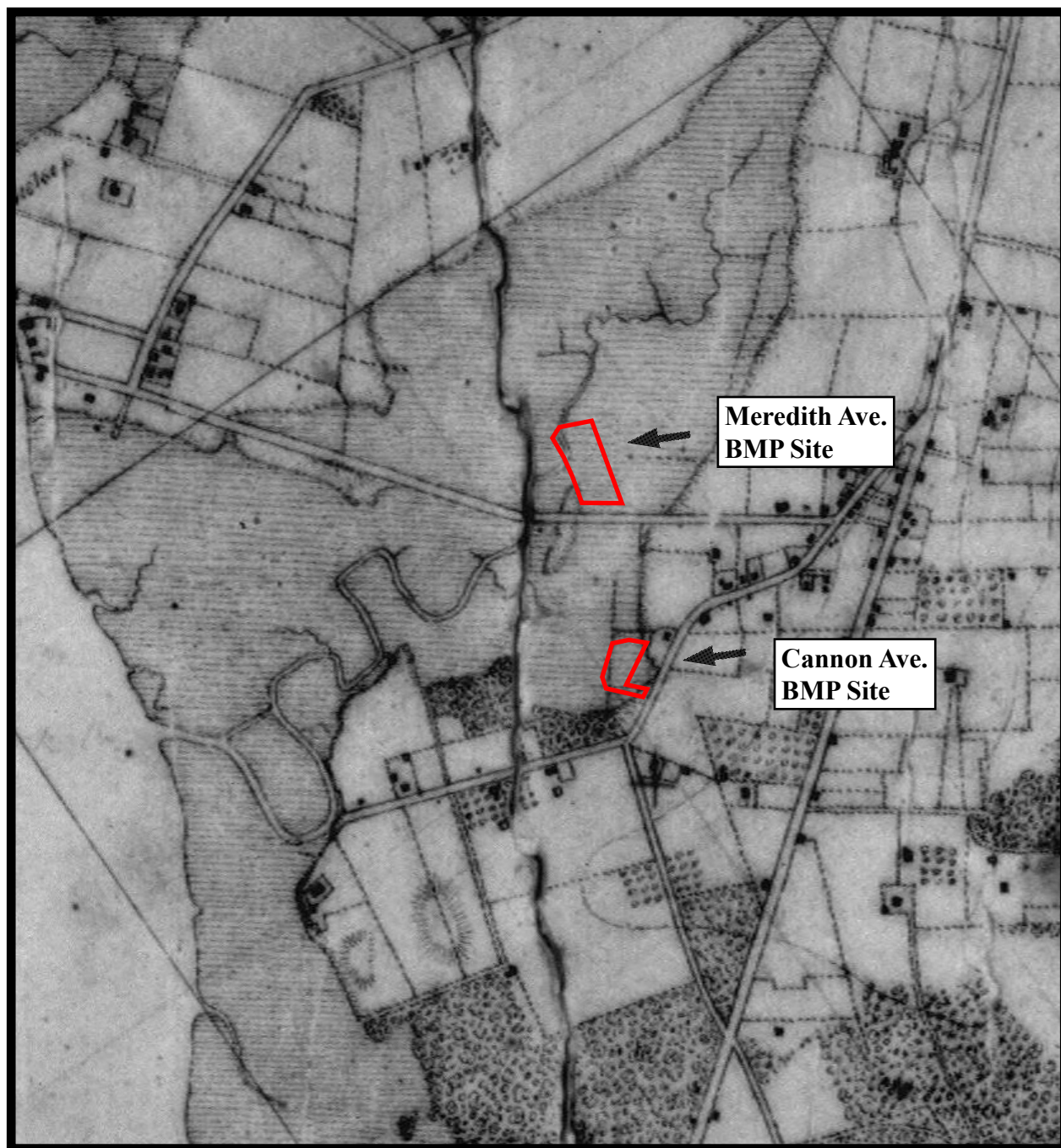


Phase IA Archaeological Documentary Study
 Meredith Avenue BMP, Block 2780, Lot 1
 Cannon Avenue BMP, Block 2776, Lot 12
 Staten Island, Richmond County, New York



Figure 4: BMP locations on *New York City Reconnaissance Soil Survey* (USDA 2005).

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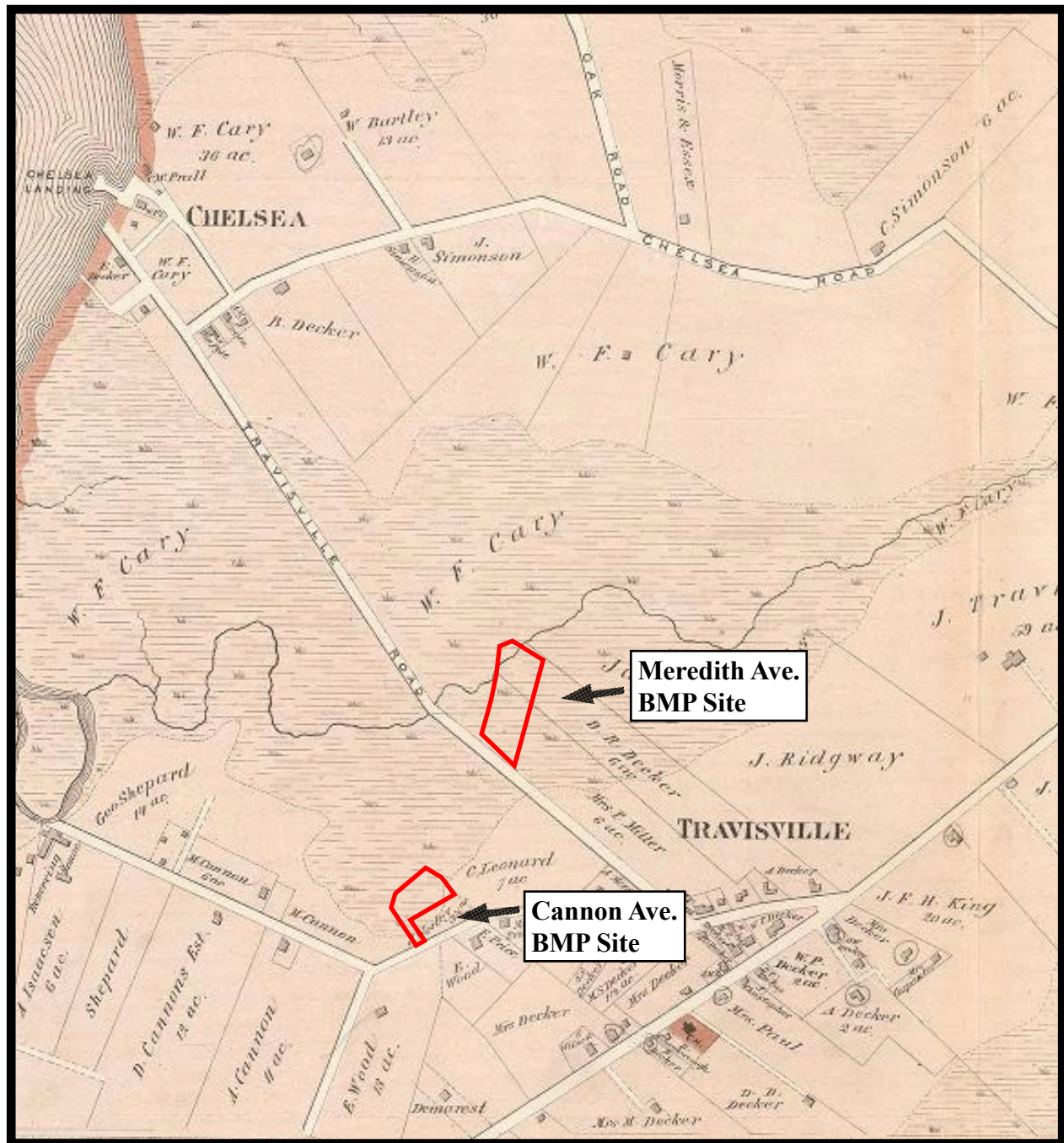


Phase IA Archaeological Documentary Study
 Meredith Avenue BMP, Block 2780, Lot 1
 Cannon Avenue BMP, Block 2776, Lot 12
 Staten Island, Richmond County, New York



Figure 5: BMP locations on *Northwest Part of Staten Island and Bergen Point* (Whiting and Dorr 1857).

0 250 500 750 1000 1250 Ft

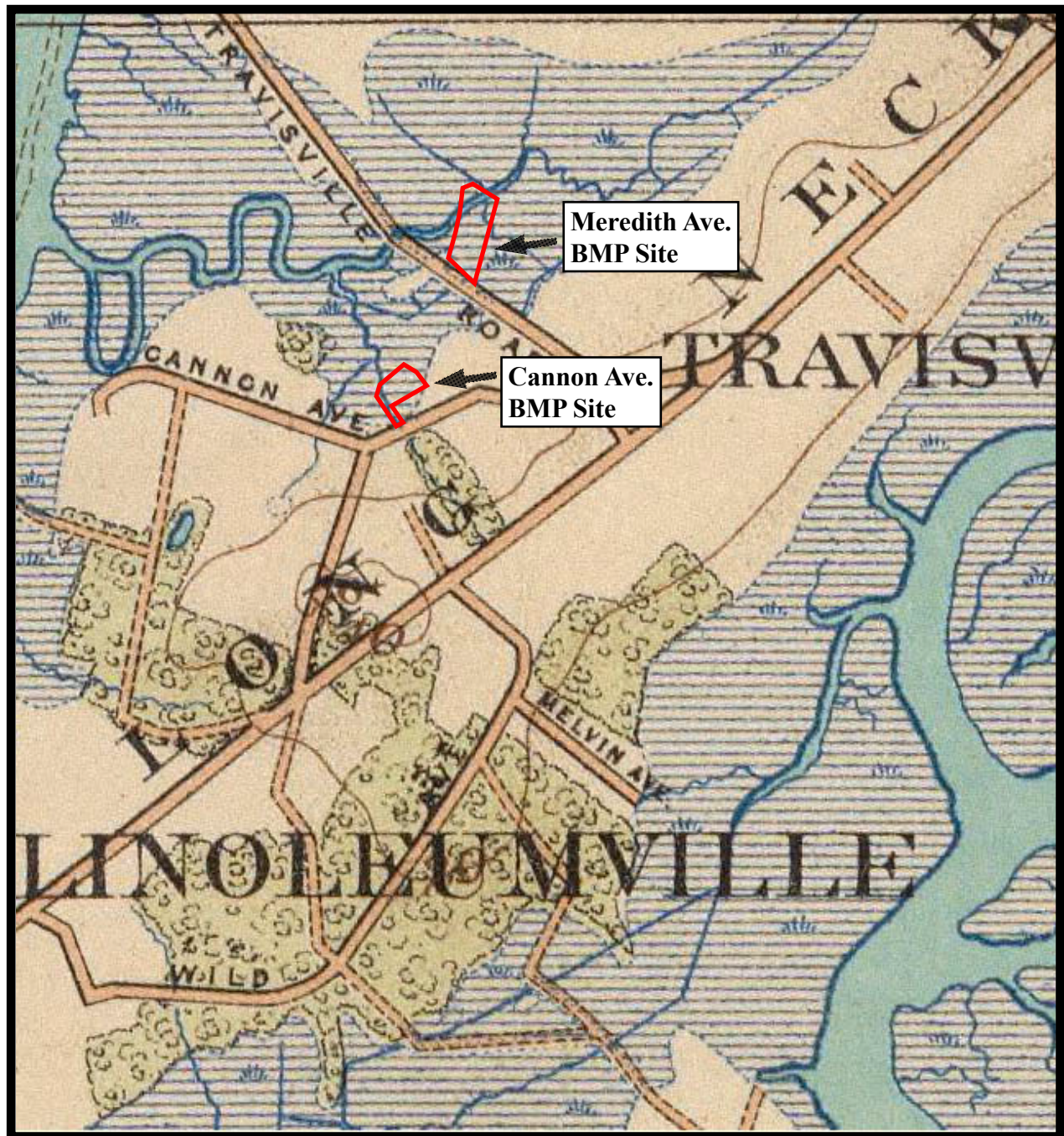


Phase IA Archaeological Documentary Study
 Meredith Avenue BMP, Block 2780, Lot 1
 Cannon Avenue BMP, Block 2776, Lot 12
 Staten Island, Richmond County, New York



Figure 6: BMP locations on *Atlas of Staten Island, Richmond County, New York* (Beers 1874).

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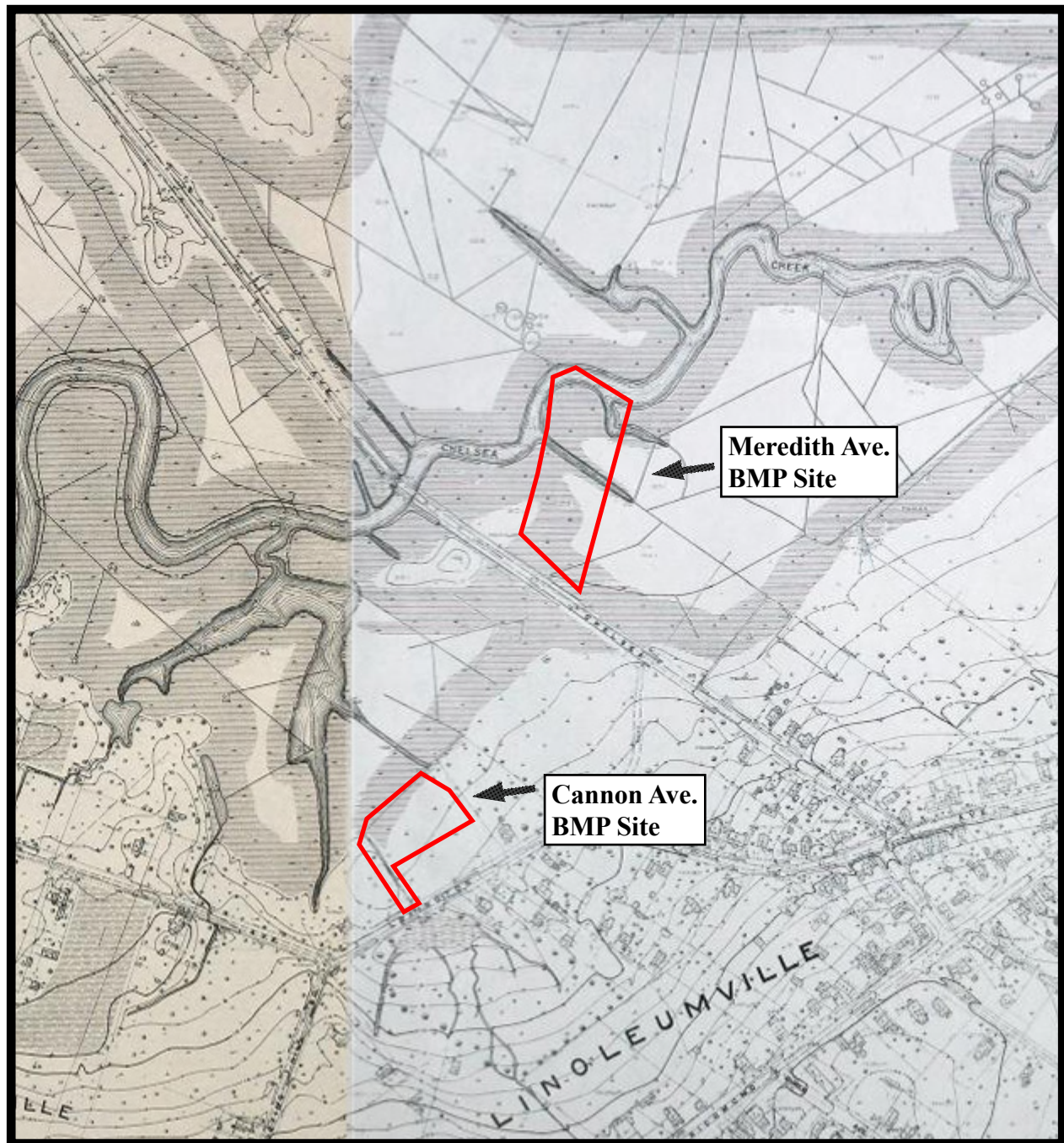


Phase IA Archaeological Documentary Study
 Meredith Avenue BMP, Block 2780, Lot 1
 Cannon Avenue BMP, Block 2776, Lot 12
 Staten Island, Richmond County, New York



Figure 7: BMP locations on *Atlas of the Metropolitan District and adjacent country...* (Bien and Vermeule 1891).

1000 0 1000 2000 3000 4000 FEET



Phase IA Archaeological Documentary Study
Meredith Avenue BMP, Block 2780, Lot 1
Cannon Avenue BMP, Block 2776, Lot 12
Staten Island, Richmond County, New York



Figure 8: BMP locations on *Borough of Richmond, Topographical Survey Sheets 19 and 36* (Borough of Richmond 1911 and 1912).

0 100 200 300 400 500 Ft



Photograph 1: Meredith Avenue BMP site with rerouted Neck Creek drainage. Proposed BMP would be located on right side of drainage. View looking northeast from Meredith Avenue.



Photograph 2: Cannon Avenue BMP site. Foliage in center marks edge of BMP site. View looking northeast from Cannon Avenue.



Photograph 3: Cannon Avenue BMP site showing drainage emptying into parcel from Cannon Avenue behind guard rail. View looking northeast from Cannon Avenue.



Photograph 4: DEP Cannon Avenue Pumping Station located adjacent to Cannon Avenue BMP site, on the southwest. View looking north from Cannon Avenue.



Photograph 5: Cannon Avenue BMP site showing dense foliage. View looking northwest from Cannon Avenue.



Photograph 6: Cannon Avenue BMP site interior portion in background (guard rail in foreground is edge of Meredith Avenue). View looking southwest from Meredith Avenue.