Empire Offshore Wind LLC

Empire Wind 1 Project

Article VII Application

Appendix H

Analysis of Visual Effects to Historic Properties

June 2021

TABLE OF CONTENTS

FIGURES

ATTACHMENTS

ACRONYMS AND ABBREVIATIONS

APE	Area of Potential Effect
AVEHP	Analysis of Visual Effects to Historic Properties
BLM	Bureau of Land Management
BOEM	Bureau of Ocean Energy Management
CFR	Code of Federal Regulations
ConEdison	Consolidated Edison Company of New York, Inc.
COP	Construction and Operation Plan
Empire, or the Applicant	Empire Offshore Wind LLC
EW 1	Empire Wind 1
FAA	Federal Aviation Administration
ft	foot
GBS	gravity-based structure
GIS	geographic information system
GPS	global positioning system
HAT	Highest Astronomical Tide
HVAC	high-voltage alternating current
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
km	kilometer
kV	kilovolt
KOP	Key Observation Point
Lease Area	designated Renewable Energy Lease Area OCS-A 0512
m	meter
MHW	mean high water
mi	mile
nm	nautical mile
MW	Megawatt
NEPA	National Environmental Policy Act
NJ HPO	New Jersey Historic Preservation Office
NPS	National Park Service
NRHP	National Register of Historic Places
NYISO	New York Independent System Operator, Inc.
NYSERDA	New York State Energy Research and Development Authority
NYSHPO	New York State Historic Preservation Office
NYSPSC or Commission	New York State Public Service Commission
OCS	Outer Continental Shelf
PAPE	Preliminary Area of Potential Effect
POI	Point of Interconnection at the Gowanus 345-kV Substation
PSL	New York Public Service Law

Project Area	The submarine export cable corridor, onshore cable corridor and onshore substation facilities within New York State jurisdiction
the Project	EW 1 Project transmission facilities in New York
SBMT	South Brooklyn Marine Terminal
SHPO	State Historic Preservation Office
Tetra Tech	Tetra Tech, Inc.
TP	Transition Piece
USCG	United States Coast Guard
VIA	Visual Impact Assessment
VRM	Visual Resource Management

H.1 Introduction

Tetra Tech, Inc. (Tetra Tech) was contracted by Empire Offshore Wind LLC[1] (Empire, or the Applicant) to prepare an Analysis of Visual Effects to Historic Properties (AVEHP) in support of the development of the Empire Wind 1 (EW 1) Project. Empire proposes to construct and operate the EW 1 Project (**Figure H-1**) as one of two separate offshore wind projects to be located within the Bureau of Ocean Energy Management (BOEM) designated Renewable Energy Lease Area OCS-A 0512 (Lease Area). This assessment is being submitted to the New York State Public Service Commission (NYSPSC or Commission) for the portions of the EW 1 Project transmission system located within the State of New York (collectively the Project) pursuant to Article VII of the New York Public Service Law (PSL).

The Project will interconnect to the New York State Transmission System operated by the New York Independent System Operator, Inc. (NYISO) at the Gowanus 345-kilovolt (kV) Substation (the point of interconnection, or POI). The Gowanus 345-kV Substation is owned by the Consolidated Edison Company of New York, Inc. (ConEdison). The Project's onshore facilities, including the onshore cable route, onshore substation, and the POI, are located entirely within Brooklyn, Kings County, New York.

The Article VII components of the EW 1 Project include:

- Two three-core 230-kV high-voltage alternating-current (HVAC) submarine export cables located within an approximately 15.1-nautical mile (nm, 27.9-kilometer [km])-long, submarine export cable corridor from the boundary of New York State waters 3 nm (5.6 km) offshore to the cable landfall in Brooklyn, New York; and
- A 0.2-mile (mi, 0.3-km)-long onshore cable route and substation including:
    - Two three-core 230-kV HVAC EW 1 onshore export cables buried underground from the cable landfall either directly to the cable terminations or to a vault within the onshore substation;
    - An onshore substation located at the South Brooklyn Marine Terminal (SBMT), which will increase the voltage to 345 kV for the onshore interconnection cables; and
    - Two 345-kV cable circuits, each with three single-core HVAC onshore interconnection cables, buried underground from the onshore substation to the POI.

The purpose of this AVEHP is to assess the potential visual effects of the construction and operation of the Project from above-ground historic properties (e.g., cultural properties, districts, buildings, structures, or objects, that are 50 years old or older and are listed in or eligible to be listed in the National Register of Historic Places [NRHP]) that will have views or partial views of Project components.

[1] Empire is a direct, wholly owned subsidiary of Empire Offshore Wind Holdings LLC ("Empire HoldCo"). Empire HoldCo is jointly owned by (1) an indirect, wholly owned subsidiary of Equinor ASA (collectively, "Equinor"); and (2) an indirect, wholly owned subsidiary of BP Wind Energy North America Inc. ("BP"). BP acquired ownership interest in Empire HoldCo in a transaction that closed on January 29, 2021.

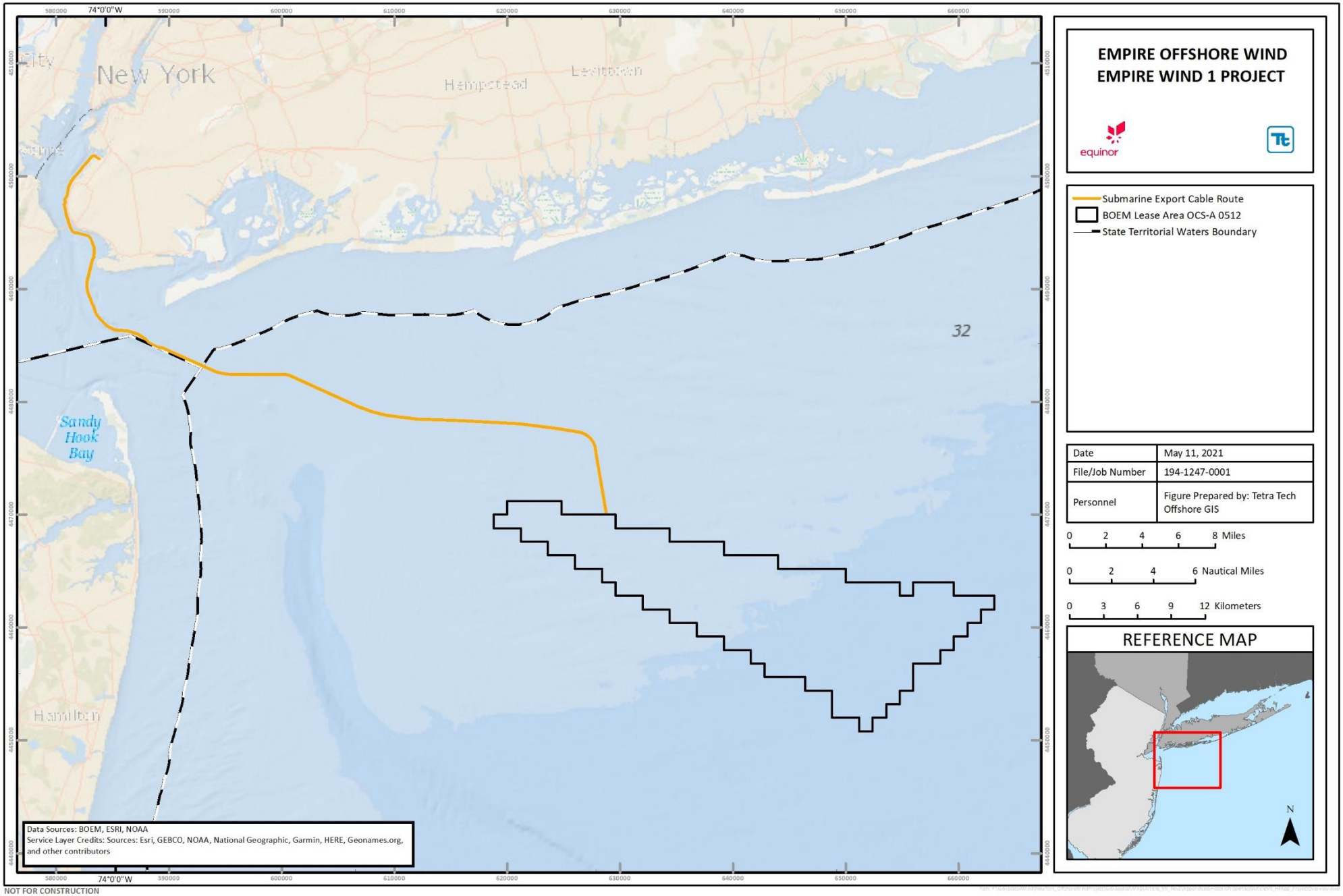

Figure H-1 Project Area

In contrast to the Visual Impact Assessment (VIA) (**Appendix I Visual Impact Assessment**), the AVEHP is not an observer-based study. Project components occur in direct relationship to the built environment (of which historic properties are a subset) rather than mediated by a human observer. This difference is a subtle shift in perspective between these two related studies, in which the AVEHP emphasizes the physical and historical contents of the landscape, while the VIA exposes a more abstract, visual character of the Project that relates specifically to human experience.

This AVEHP focuses on above-ground historic properties and architectural properties that may be potentially affected by the construction and operation of the Project. The set of cultural resources includes all NRHP-listed and -eligible properties (i.e, historic properties) plus all unevaluated properties 50 years old or older that potentially may be eligible for listing (i.e. potential historic properties, also called architectural properties) located within the Project's Area of Potential Effect (APE). Historic properties are defined as properties listed on the NRHP or determined NRHP-eligible. Architectural property is the term used here to denote an above-ground building, structure or object, 50 years old or older, that has not been evaluated for NRHP eligibility or that has been determined not eligible for the NRHP.

This AVEHP focuses on the APE for the onshore Project facilities associated with the onshore substation (Onshore AVEHP APE). Only three cultural resources within the Onshore AVEHP APE may have a view of an onshore Project component. The submarine export cables and onshore cables will be entirely submerged under water and buried underground; therefore, these Project components will not be addressed further in this analysis.

This AVEHP includes a detailed description of the Project components evaluated (Section H.2 Project Description); a summary of the regulatory framework driving the analyses herein (Section H.1.1 Regulatory Context); a detailed discussion of the methods used to identify the Study Area and the APE (i.e. locations of NRHP-listed and eligible resources potentially affected by the construction and operation of the Project) (Section H.4 Architectural Property Survey Methodology); environmental and cultural contexts of the Project Area (Sections H.3.1 and H.3.2); preliminary APE (PAPE), APE description and descriptions of historic properties that may be impacted (Section H.4.1.3 Onshore APE); and a summary of recommendations (Section H.5 Summary and Conclusions).

This analysis also relies upon assessments reported in a separate VIA developed for the Project and presented in a report detailing onshore visual effects (**Appendix I**).

H.1.1 Regulatory Context

Several federal, state, and local agencies have regulatory authority over the Project, based on the location of the different Project components. Onshore facilities, including the onshore substation, will be located in Brooklyn, New York.

The Project is subject to regulation by BOEM under provisions of the Outer Continental Shelf Renewable Energy Program authorized by the Energy Policy Act of 2005 (42 United States Code [U.S.C.] §13201 *et seq.*). Assessments of effects on historic architectural resources are required to support BOEM's National Environmental Policy Act (NEPA) review process and the review performed under Section 106 of the National Historic Preservation Act (54 U.S.C. §306108). In its Construction and Operations Plan (COP) Guidelines, BOEM provides recommended approaches for assessing historic architectural resources during the permitting phase of offshore wind projects (BOEM 2017). BOEM directs that an AVEHP should be conducted in a manner acceptable to the relevant State Historic Preservation Office (SHPO) for the state with the onshore viewshed.

In 2016, BOEM executed a Programmatic Agreement with the SHPOs of New Jersey and New York, the Shinnecock Indian Nation, and the Advisory Council on Historic Preservation to formalize agency jurisdiction and coordination for the review of offshore renewable energy development regarding cultural resources (BOEM 2016). The Programmatic Agreement recognized that issuing renewable energy leases on the OCS constituted an undertaking subject to Section 106 of the National Historic Preservation Act. BOEM, as the lead federal agency in this process, has authority to initiate consultations with the SHPOs, and to consult with interested Native American Tribes.

The scope and approach to this AVEHP were supported through engagement with federal and state agencies. Empire met with BOEM and the National Park Service (NPS) on August 29, 2018 to discuss approaches to the historic architectural survey and visual impact analysis. Empire initiated discussions with the New York State Historic Preservation Office (NYSHPO) via a letter dated December 13, 2018. The N SHPO concurred with the approach in a letter dated December 27, 2018. As the Project evolved, Empire provided NYSHPO a Project Update letter on August 22, 2019 and met with NYSHPO on September 26, 2019 to describe the most recent preferred locations for the onshore electrical systems.

Discussion of New York policies relative to visual analysis is further provided in the VIA in **Appendix I**.

H.2 Project Description

The Project proposes to interconnect at an onshore location in Brooklyn, New York, where the renewable electricity generated will be transmitted to the electric grid. The transition from submarine export cables to the EW 1 onshore export cables will occur at the export cable landfall. One onshore substation location at South Brooklyn Marine Terminal (SBMT) in Brooklyn, New York was being considered at the time this AVEHP was prepared. The location for the onshore facilities is shown on **Figure H-2**.

The onshore substation is located at the north end of the SBMT in the Sunset Park neighborhood of Brooklyn, New York, adjacent to 2nd Ave. SBMT is located on the east side of Upper Bay within New York Harbor. While there are several existing buildings located within SBMT, including a recycling center and warehouses, there are no buildings on the portion of the site where the onshore substation would be located. The site is bisected at the northern end by an existing railroad track that turns and runs along the southeastern boundary of the site. Beyond the railroad track to the southeast are parking lots; to the south is a warehouse and parking lot; and to the west is a recycling center and Gowanus Bay.

The onshore substation would be developed within an approximately 4.8-acre (ac, 1.9-hectare [ha]) parcel of land, with a maximum main building height of 49 ft (15 m). Outside electrical equipment will be situated in the central portion of the substation site. The onshore substation is 0.35 mi (0.65 km) from the Gowanus POI, owned by ConEdison. Additional information on the indicative substation layout is provided in the VIA in **Appendix I**.

From the cable landfall, the EW 1 onshore export cables will be pulled to a cable termination or vault within the onshore substation. The onshore interconnection cables will originate at the new onshore substation and terminate at the existing POI. As these onshore cables will be located underground and will not be visible once installed, the onshore cables are not discussed in great detail in this document.

Figure H-2 Onshore Substation Site and Onshore Cable Route

H.3 Environmental and Historical Context

H.3.1 Environmental Setting

The AVEHP Study Area is defined as the area of maximum theoretical visibility of the EW 1 onshore substation extending to a 4-mi (6.4 km) radius from SBMT, and encompassing western Brooklyn, the southern tip of Manhattan, the waterfronts of Jersey City and Bayonne, New Jersey, and the northeastern margin of Staten Island (see Section H.4.1.2). The AVEHP Study Area is situated at the northernmost extent of the Atlantic Coastal Plain physiographic province, a region of low relief and diverse ecological habitats.

H.3.2 Cultural Context

The historical record of the 400-year European-American presence in the Project vicinity can be viewed as three eras of broad social transformations. These eras represent the *Colonial Period* (1600-1776), which entailed the arrival of Europeans and the demise of pre-contact Native American lifeways; *American Independence and Internal Development* (1776-1860), representing the transfer of sovereignty from George III to American rule as well as the rise of canals and railroads, and expansion of agricultural production; and, *Urban Expansion and Rural Decline* (1860-1960), in which New York City was the financial and manufacturing capital of the world and its Long Island and New Jersey vicinities transformed from agrarian societies to an urban mass culture.

H.3.2.1 The Colonial Period (1600-1776)

Dutch, Italian, and English mariners visited the Atlantic seaboard during the late sixteenth century lured by furs, fish, and other trade items. While employed by the Dutch East India Company to search for a northwest passage to Asia, the English mariner Henry Hudson sailed along the New Jersey-New York coastline in 1609 and wrote the first detailed descriptions of its people. Landfalls at Sandy Hook and New York Harbor brought Hudson and his men ashore and in direct contact with members of eastern Lenape bands. The Dutch established fortified trading posts on Manhattan Island in 1612 and at Fort Orange near Albany in 1614 but were slow to settle the lands west of the Hudson River. The slow pace of westward settlement, which was the result of Native American resistance and the hierarchical structure of Dutch governance, hindered Dutch control of their New Netherland holdings. The Dutch established settlements on western Long Island at Brooklyn in 1636, followed by Flatbush in 1651, New Utrecht in 1657, and Bushwick in 1660 (Munsell 1882, 23). Although the Dutch claimed sovereignty over all Long Island, they were unable to halt English settlement in central and eastern Long Island. English settlers established towns at Newtown in 1642, Flushing in 1643, and Hempstead in 1644, all located in what would become Queens County (Burrows and Wallace 1999, 40). The first permanent Dutch settlement in New Jersey was organized at Bergen (now part of Jersey City) in 1660 and played no noticeable role when the English seized the colony in 1664 (Ellis 1885; Taylor 2001).

Seventeenth century settlements along the southern coast of Long Island tended to be small, isolated farmsteads or hamlets situated on the drainage headlands, or necks, that extend into the marshes and bays between the marine barrier islands and the coast. Early farming on Long Island was primarily subsistence based, with grains serving as the principal crops. Among the first grains cultivated on seventeenth century farms were corn, rye, and wheat. Later, oats, flax barley, buckwheat, and, in some places, potatoes and tobacco were grown (Moss 1993, 6). In addition to crops, livestock raising was important to the livelihood of many settlers. Salt hay, growing along the south shore and barrier island, was used as fodder for herds of cattle, sheep, and pigs. The Hempstead Plains, a large prairie environment, was utilized for livestock foraging. Fishing and shellfishing were important supplements to income and diet for farming families.

The Dutch transported the first enslaved Africans to New Amsterdam shortly after its establishment in the 1620s, using them to clear land, build roads and structures, and work farms. By 1664, an estimated 25 percent

of New Amsterdam's 1,500 residents were slaves. The English continued and greatly expanded the institution of slavery after their takeover of the colony, and by 1698 Long Island (the counties of Kings, Queens, and Suffolk) contained 1,053 enslaved Africans, or 12 percent of the population. A 1712 slave revolt in New York City was violently suppressed, and rumors of a slave revolt in 1741 led to the execution of dozens of enslaved people in the city (Singer 2007, 165-167).

As the number of enslaved Africans in New York and New Jersey increased through the seventeenth and eighteenth centuries, Native American communities were in decline. Harassed and exploited by European settlers, the Lenape found themselves exposed to foreign diseases, hemmed in by loss of traditional hunting lands, and overwhelmed by more powerful tribes to the north and west. After a brief period of intense fighting with Europeans in 1655 during the so-called Peach War, the Lenape's hold on western Long Island was broken and by the early 1670s they were largely dispersed from the region (Burrows and Wallace 1999, 68-69). In similar manner, Lenape bands in New Jersey began to move west of the Delaware River during this period, and in 1758 the Treaty of Easton formalized sale of all Munsee lands to the provincial governor (Kraft 1986, 230).

H.3.2.2 American Independence and Internal Development (1776-1860)

On the eve of the American Revolution, western Long Island contained around 14,000 inhabitants in a largely rural setting of dispersed farms, hamlets, and a few small towns. As New York City grew from about 7,250 people in 1723 to almost 22,000 in 1771 (O'Callaghan 1849:693, 697), agricultural production in the agrarian periphery expanded to meet the food demands of urban dwellers and the province's increasing trade with the British West Indies. In addition to food staples, agricultural products of economic importance in the region were flax, wool, timber, and beeswax (O'Callaghan 1849:729, 761). Richmond County (Staten Island) contained around 2,800 people, in 1771.

Loyalty to the British Crown ran high on Long Island and across the bay in Monmouth County, New Jersey. When British forces defeated the Americans at the Battle of Brooklyn in late August 1776, towns across Long Island defied the Continental Congress and supported English rule. It appears that a majority in Kings and Queens counties backed the loyalist cause with as many as 2,000 men joining royal militias (McNamara 1995, 184). Promised freedom for their allegiance and aid to the British, thousands of slaves from the metropolitan area ran away from their masters and sought protection under the crown (Burrows and Wallace 1999, 248).

Before and after the Revolutionary War, slaveholding was commonplace in the economic life of New Yorkers and was, in large measure, a reflection of Dutch attitudes toward slavery. In the old Dutch strongholds of the Hudson Valley and western Long Island, more than one in three families owned slaves in 1790, proportionally more than in most of the South, though numbers were far fewer in these northern contexts (White 1995). In 1790, enslaved Africans accounted for 14.4 percent of a total population of 16,014 in Queens County, 31.9 percent of Kings County's 4,495 residents, and 7.1 percent of New York City's 33,131 inhabitants (U.S. Census Bureau 1908). The New York legislature acted to limit slavery in 1799 and abolished the practice in 1827. Still, the 1825 state census enumerated 3,849 enslaved persons in Kings and Queens counties, around 11 percent of the population. In contrast, New York City became a haven of sorts for African Americans after the Revolution, reaching more than 10,000 in number by 1820, of whom 95 percent were freedmen.

Through the early nineteenth century Kings and Queens counties remained primarily rural districts. Aside from the Town of Brooklyn which contained 10,800 inhabitants in 1825, the other towns in Kings County were modest in size, ranging from about 400 to 1,000 persons, and many of those inhabitants lived on dispersed farmsteads. Queens County had no large towns on the order of Brooklyn and was characterized by a far lower population density than Kings County. The completion of the Erie Canal in 1825 placed New York City and environs at the crux of a vast trade network that linked the interior and Great Lakes with burgeoning

transatlantic commerce. New York City had already, by 1810, surpassed Philadelphia as the largest city in the United States, and in the second quarter of the century superseded Mexico City as the largest metropolis in the Americas. The introduction of steamships and railroads in the 1830s and 1840s enhanced New York's position as the continent's pre-eminent port and manufacturing center. The lure of jobs in New York in concert with failed revolutions and failed crops in Europe stimulated massive immigration from Germany, Ireland, Scandinavia, and elsewhere. In 1825 New York contained 166,000 residents; by 1860 the New York metropolitan area was home to more than one million people (Burrows and Wallace 1999).

Key agricultural products for the region were cattle, wheat, rye, corn, oats, and butter. Grain processing facilities were some of the earliest and most important manufacturing sites in the region. In Kings County this activity took the form of liquor distilling, with nine distilleries producing more than 3.3 million gallons of liquor in 1840. In contrast, grain processing in Queens County involved 41 grist mills in 1840 (U.S. Census Bureau 1842, 138, 140). Neither the liquor nor flour produced in Kings and Queens counties was intended for local consumption alone; county populations simply were not large enough for the amounts produced. Canal and railroad construction from the 1820s to the 1850s connected new farming districts with the urban and overseas markets. The Long Island Rail Road opened its line from Brooklyn to Hicksville in 1837, running through the towns of Hempstead and Oyster Bay, and completing a branch line to the village of Hempstead in 1839. By 1855 Hempstead was the most populous town in Queens County (NYSL 2019). Railroads were rather late in connecting to Monmouth County.

H.3.2.3 Urban Expansion and Rural Decline (1860-1960)

With access to inlands provided by canals and railroads, Long Island farmers by mid-nineteenth century were not able to compete with midwestern grain prices and turned to supplying New York City with market garden produce, including potatoes, beans, peas, and other vegetables (Burrows and Wallace 1999, 431). By 1880, Kings and Queens counties led New York State in the value of market garden production. Nassau County (following its separation from Queens County in 1899) ranked eighth among U.S. counties in market garden acreage in 1900 (9,010 acres [3,646 hectares]) and led the nation in cabbage acreage (U.S. Census Bureau 1902, 320-321). Queens County, with 7,148 acres (2,893 hectares) of garden acreage, ranked 11th nationwide in 1900.

Contributing to the transformation of Long Island's economy was oystering along the South Shore. With the completion of the Southern Railroad in 1865, large quantities of oysters were shipped daily to New York City. The rail service also accelerated development of seaside resorts in Long Beach and Rockaway, bringing them within reach of urban dwellers (Munsell 1882, 150-151, 172). The Long Island Rail Road started to promote Long Island as a resort destination in the 1870s, offering excursion trains to Fire Island, Babylon, and Patchogue (Kass 2004/2005, 81). In 1929, New York State built the Wantagh Causeway to Jones Beach, along with bathhouses and parking, inaugurating public access and use of Jones Beach State Park. In its first year, Jones Beach drew 1.5 million visitors (Fasanella 1994, 107).

Long Island's essential character remained largely unchanged until 1910 when the East River rail tunnels and Pennsylvania Station were built, providing direct access from Long Island to Manhattan. City workers could now commute from new suburban developments across Long Island, beginning the transformation of the island from a rural enclave to a bedroom community. From 1905 to 1915 Nassau County's population nearly doubled, and from 1915 to 1925 nearly doubled again. A second, deeper expansion of suburban development occurred after the Second World War, when highway construction and widespread automobile ownership fostered the growth of new bedroom communities built on the flat agricultural lands across the region.

H.4 Architectural Property Survey Methodology

Coastal New York is an area with extensive historical value and a tradition of historical commemoration resulting in numerous cultural resources that are listed in and determined to be eligible for the NRHP (i.e. historic properties), some within the Onshore APE. For the purposes of this assessment, the evaluated project impact area described by the New York State Historic Preservation Act of 1980, Section 14.09 is the APE as defined by 36 Code of Federal Regulations (CFR) § 800.16(d), or "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist". This AVEHP focuses on historic properties and architectural properties within the Onshore APE that may be affected by construction and operation of the Project.

The NPS maintains the NRHP and defines four criteria for evaluating a cultural resource to be eligible to the NRHP (NPS 1997). A cultural resource must meet at least one of the following criteria for NRHP-eligibility.

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history;
B. That are associated with the lives of persons significant in our past;
C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; and
D. That have yielded, or may be likely to yield, information important in prehistory or history. (NPS 1997:2)

In addition to meeting at least one of the criteria, properties must also retain sufficient integrity to convey their significance. Integrity is assessed on the following aspects: location, design, setting, materials, workmanship, feeling, and association (NPS 1997:44).

The New York State Historic Preservation Act of 1980, the state counterpart to the National Historic Preservation Act (NHPA), establishes the New York State Register of Historic Places. Designated State Register properties and National Register properties overlap and are not distinguished in the New York Cultural Resource Information System within the Project APE. Therefore, the focus on historic properties covers both state and federally-recognized properties.

This section is organized to highlight the step-wise approach taken to define the Onshore APE. The APE is described, as are the steps taken to identify and assess the historic properties and potential historic properties that occur within it.

H.4.1 Defining the APE

The APE is the area, on land or sea, where views of the Project's components will be visible. The process of defining the APE involved establishing a study area and models of preliminary viewsheds. The APE, in turn, was refined to resolve Project visibility to a more fine-grained and realistic degree, resulting in a more acute computer-generated viewshed model through observation of real conditions in the field (i.e., ground truthing). This refinement resulted in development of the PAPE. Further analysis and field assessment of the PAPE modeled views then resulted in the definition of the Onshore AVEHP APE.

H.4.1.1 Onshore Facilities

The Project proposes to develop one onshore substation in Brooklyn, New York. The onshore cables will be located underground and will not be visible once installed; therefore, these facilities were not discussed in detail in this document.

Short-term visual effects to historic properties would occur during construction of the onshore substation and would result from construction activities and the presence of construction equipment and work crews. Construction activities associated with the construction and installation of the onshore substation will include surveying, clearing and grubbing the construction site, stockpiling top soil, grading, forming and construction of substation equipment foundations, placement and erection of buildings and electrical equipment, placement of perimeter security fencing, and restoration and landscaping installation (if required).

It is anticipated that contrast would be introduced during Project construction of the onshore substation primarily for viewers associated with residential areas in proximity to the substation where the presence of construction equipment, materials, and crews would be dominant in the foreground. However, these visual effects will be short-term because construction equipment and crews would be removed once construction is complete. Views of Project construction from areas not immediately adjacent to the onshore substation site would be mostly screened by residential, commercial or industrial buildings, vegetation and/or topography. Visual effects to these viewers will be mostly limited to seeing construction traffic on local roads.

Other onshore Project components, namely onshore cable trenches and laydown yards, will occur at-grade, and will offer temporary views of construction equipment only to areas immediately adjacent to the construction.

It is anticipated that proposed lighting associated with the onshore Project components (i.e., onshore substation) will include emergency and exterior lighting. Emergency lighting would most likely include lighting installed on the static masts and/or buildings and would be directed downward toward outdoor electrical equipment. Emergency lights would only be turned on during emergency repairs. Exterior lighting would consist of security lighting at building entrances and access gates. The lights would be directed downward and will be motion sensor activated. Potential impacts associated with nighttime lighting for onshore Project components is discussed in **Appendix I**.

H.4.1.2 Onshore Study Area

The area encompassed by a computer-generated viewshed indicated that the onshore substation would have a maximum theoretical visibility up to 4 mi (6.4 km) away, including portions of Brooklyn, Manhattan, Staten Island, and New Jersey. This 4-mile (6.4 km) radius was designated as the Onshore Study Area (see **Figure H-3**).

The Study Area contains 384 historic properties (NRHP-listed and -eligible [including NYSRHP, as described in Section H.4]), largely located in Brooklyn and Manhattan, with a small number in Staten Island and Jersey City. Each of the 384 historic properties in the Study Area was subjected to a bare-earth viewshed analysis, resulting in 82 properties with potential views. Street-level and in-field analyses were performed to establish the presence of actual Project views, starting with properties in proximity to the substation and proceeding outward with greater distance. In this manner, 30 historic properties were assessed at distances up to 2 mi (3.2 km) from the onshore substation (Attachment H-1), allowing an onshore PAPE to be defined. The analyses indicated that Project visibility became attenuated beyond the blocks immediately surrounding the onshore substation.

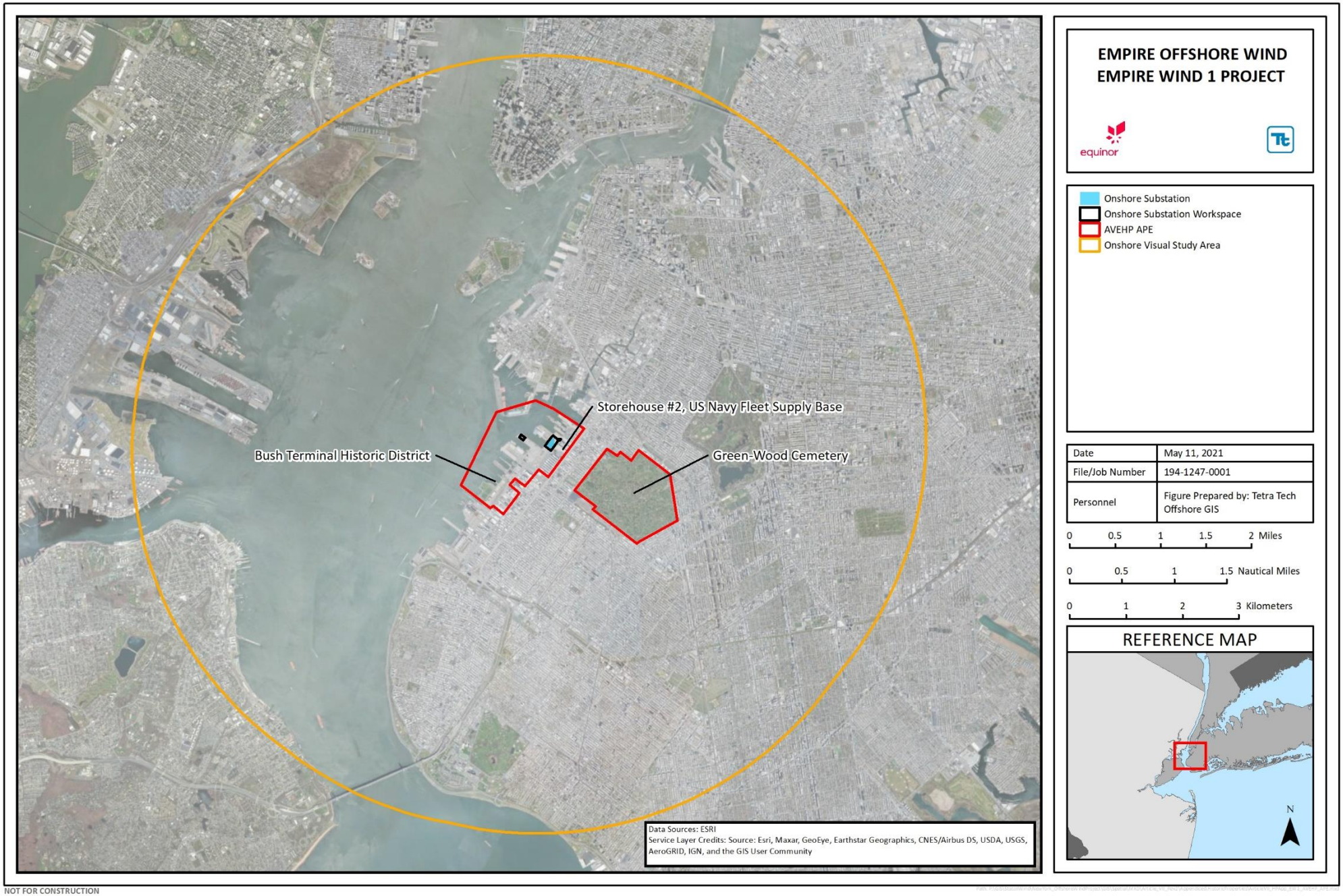

Figure H-3 AVEHP APE

H.4.1.3 Onshore PAPE

The Onshore PAPE was defined as the zone within the Study Area that was likely to contain views of the onshore substation area, based on analysis of screening by building elevations, desktop street-level analysis, and a field visit on February 4, 2021. The PAPE is an approximately 2 mi (3.2 km) radius around the onshore substation. The PAPE encompasses the elevated terrain of the Harbor Hill glacial moraine, the highest point in Brooklyn. Historic properties with modeled Project views that were situated outside of the PAPE were determined to lack lines of sight to the Project, based on further desktop study, and were not further evaluated.

H.4.1.4 Onshore APE

The Onshore APE represents the areas from which actual views of the proposed onshore substation would be visible. Field and desktop analysis of the 30 PAPE historic properties resulted in the identification of three properties (Bush Terminal Historic District, U.S. Navy Storehouse #2, and Green-Wood Cemetery) that possess true views of the onshore substation. These properties constitute the Onshore APE. While only some perspectives from Bush Terminal Historic District and Green-Wood Cemetery contained unobstructed views of the substation, the Onshore APE encompasses the entire extent of the district and the cemetery (**Figure H-3**).

Descriptions of the historic properties in the Onshore APE are provided below. Photo documentation of the Onshore APE historic properties is presented in Attachment H-2.

Bush Terminal Historic District (USN No. 04701019392)

Bush Terminal Historic District is NRHP-eligible under criteria A and C, and is located in Brooklyn, Kings County. The property is listed as "the first American example of the complete integration of the commercial and industrial functions of manufacturing and warehousing with both rail and water transportation in one terminal under a unified management." Observations made by the Project team in 2019 indicate that Bush Terminal Historic District currently retains its significance and integrity.

Storehouse #2, U.S. Navy Fleet Supply Base (NR No. 13000026)

Storehouse #2, U.S. Navy Fleet Supply Base was listed in the NRHP in 2013 under Criteria A and C and is located in Brooklyn, Kings County. The property is listed both for its role in supplying the military and for its Classical Revival style design. Observations made by the Project team in 2019 indicate that Storehouse #2 currently retains its significance and integrity.

Green-Wood Cemetery (NR No. 97000228)

Green-Wood Cemetery was listed in the NRHP in 1997 under Criterion C and is located in Brooklyn, Kings County. The property was listed for the outstanding merits of the landscape design of David Bates Douglass, the cemetery architecture of Richard Upjohn & Sons, and the sculptural quality of the monuments. The cemetery was designated a National Historic Landmark in 2006. Elements of the cemetery have been NYC-landmarked, including: the 25th Street gates in 1966; the Weir Greenhouse in 1982; the Fort Hamilton Parkway Gate in 2016; and the Green-Wood Cemetery Chapel in 2016. Green-Wood Cemetery is one of the earliest and most elaborate examples of landscaped rural, or "garden" cemeteries that gained popularity in the United States and elsewhere in the mid-nineteenth century. The 478-acre cemetery contains more than 600,000 burials including telegraphy inventor Samuel F.B. Morse, former New York Governor DeWitt Clinton, composer Leonard Bernstein, and painter Jean-Michel Basquiat. Observations made by the Project team in 2019 indicate that Green-Wood Cemetery currently retains its significance and integrity.

H.5 Summary and Conclusions

Tetra Tech defined a Study Area that encompassed the maximum theoretical extent of Project visibility, extending in a 4-mi (6.3 km) radius from the EW 1 onshore substation. The Study Area contains 384 NRHP historic properties, with 82 of those historic properties having a potential Project view based on modeled viewshed analysis. The geographic extent of this potential visibility was defined as the PAPE. A refined analysis of the PAPE took advantage of a site visit and Google Earth street views to assess 30 of these historic properties that are located within 2-mi (3.2 km) of the EW 1 onshore substation. The refined analysis identified three historic properties (Bush Terminal Historic District, Storehouse #2-U.S. Navy Fleet Supply Base, and Green-Wood Cemetery) that had actual views of the Project. The NRHP boundaries of these three historic properties were defined as the Onshore APE, extending from approximately 0.1 mi (0.2 km) in the vicinity of the U.S. Navy Storehouse #2 to approximately 1.6 mi (2.5 km) to encompass the entirety of Green-Wood Cemetery National Historic Landmark.

Tetra Tech has researched the effects of the Project on those historic properties with actual Project views. The Onshore APE occurs within a dense urban setting that has witnessed multiple episodes of construction and demolition, creating a complex mosaic of property use, architectural styles, and building massing. Tetra Tech concludes that the character-defining qualities that qualify each historic property to be NRHP-listed or eligible, will not be adversely affected by the introduction of the Project.

H.6 References

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Attachment H-1
Photo Documentation of Historic Properties EW 1 Onshore PAPE

Historic Architecture Property Form – Eighth Avenue (14th Regiment) Armory, Brooklyn, New York

NR No.: 94NR00539

County: Kings

Build Date: 1893

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Listed (NRIS # 94000367)

NRHP Criterion: A, C

Project Effects: No adverse effects

View northeast (CRIS).

View east to project (Google Earth).

Historic Architecture Property Form –9th Avenue Subway Station (Dual System BRT), Brooklyn, New York

View east (CRIS).

CRIS USN: 04701.015593

County: Kings

Build Date: 1914-1916

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Listed (NRIS # 050000676)

NRHP Criterion: A, C

Project Effects: No adverse effects

View northwest to project (Google Earth).

Historic Architecture Property Form – 15th Street, Prospect Park Subway Station (IND), Brooklyn, New York

View southeast (CRIS).

NR No.: 04NR05369

County: Kings

Build Date: 1933

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Listed (NRIS # 05000748)

NRHP Criterion: A, C

Project Effects: No adverse effects

View west to project (Google Earth).

Historic Architecture Property Form –68th Police Precinct Station House and Stable, Brooklyn, Kings, New York

View northwest (CRIS).

CRIS USN: 04701.001609

County: Kings

Build Date: 1886

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Listed (NRIS # 82003359)

NRHP Criterion: C

Project Effects: No adverse effects

View northwest to project (Google Earth).

Historic Architecture Property Form –Beard Store and Warehouse Pier, 421 – 573 Beard Street, Brooklyn, New York

View west (CRIS).

CRIS USN.: 04701.000082

County: Kings

Build Date: 1869-1880

Modeled View of Nearest Project Turbine: Possible View

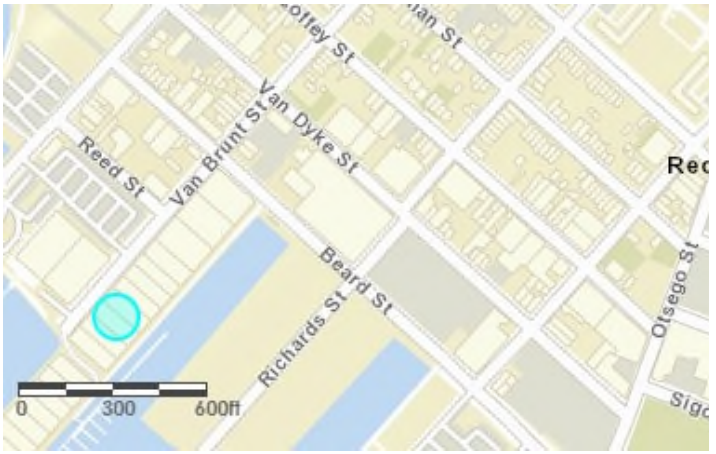
Actual View: Probable view

NRHP Status: Eligible

NRHP Criterion: A, C

Project Effects: No adverse effects

View south to project (Google Earth).



Historic Architecture Property Form – Boerum Hill Historic District, Brooklyn, New York

View northwest (CRIS).

NR No.: 90NR01315

County: Kings

Build Date: 1850s

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Listed (NRIS # 83001686)

NRHP Criterion: C

Project Effects: No adverse effects

View south to project (Google Earth).

Historic Architecture Property Form – Brooklyn Heights Historic District, Brooklyn, New York

NR No.: 90NR01325

County: Kings

Build Date: 1820

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Listed (NRIS # 66000524)

NRHP Criterion: C

Project Effects: No adverse effects

View northeast (Google).

View south to project (Google Earth).

Historic Architecture Property Form – Brooklyn Public Library, Brooklyn, New York

View southeast (CRIS).

NR No.: 01NR01809

County: Kings

Build Date: 1941

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Listed (NRIS # 01001446)

NRHP Criterion: C

Project Effects: No adverse effects

View southwest to project (Google Earth).

Historic Architecture Property Form – Carroll Gardens Historic District, New York, New York

View west (CRIS).

NR No.: 90NR01316

County: Kings

Build Date: 1860-1880

Modeled View of Nearest Project Turbine: Possible View

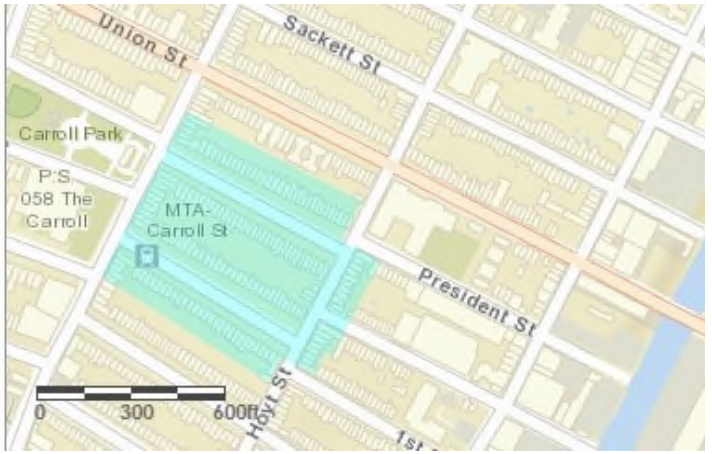
Actual View: No view

NRHP Status: Listed (NRIS # 83001687)

NRHP Criterion: A, C

Project Effects: No adverse effects

View southwest to project (Google Earth).



Historic Architecture Property Form –Cobble Hill Historic District, New York, New York

View northwest (CRIS).

NR No.: 90NR01286

County: Kings

Build Date: 1830

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Listed

NRHP Criterion: C

Project Effects: No adverse effects

View south to project (Google Earth).

Historic Architecture Property Form – Eastern Parkway, Brooklyn, New York

View west (CRIS).

NR No.: 01NR01809

County: Kings

Build Date: 1870-1874

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Listed (NRIS # 83001689)

NRHP Criterion: C

Project Effects: No adverse effects

View southwest to project (Google Earth).

Historic Architecture Property Form –Firehouse Engine Co. 228, 436 39th Street, Brooklyn, New York

View south (CRIS).

CRIS USN: 04701.000154

County: Kings

Build Date: 1889

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

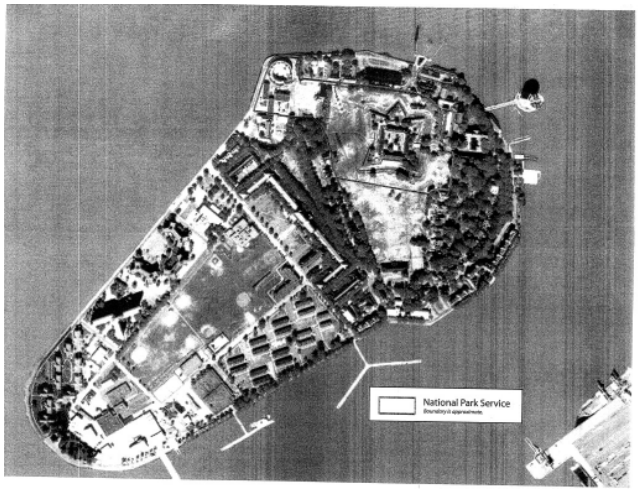
NRHP Status: Eligible

NRHP Criterion: N/A

Project Effects: No adverse effects

View northwest to project (Google Earth).

Historic Architecture Property Form – Governor's Island, New York, New York



Aerial View (CRIS).

NR No.: 90NR00618

County: New York

Build Date: circa 1800 to 1930s

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

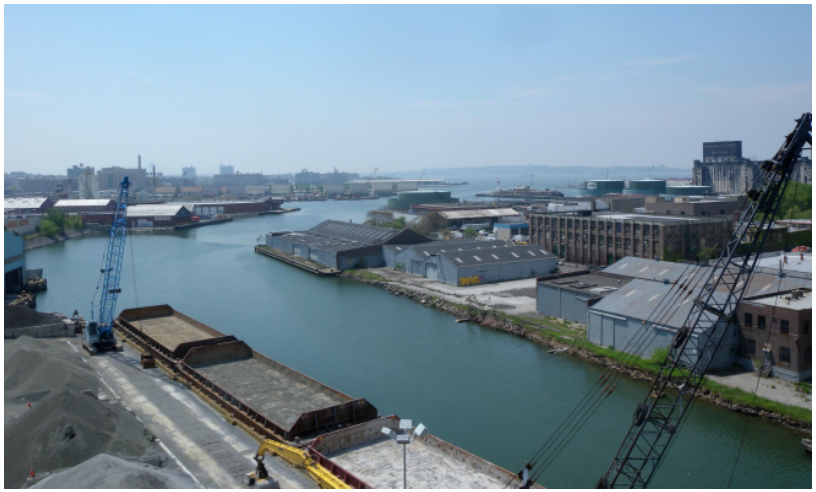
NRHP Status: NHL

NRHP Criterion: A, C

Project Effects: No adverse effects

View south to project (Google Earth).

Historic Architecture Property Form – Gowanus Canal, Brooklyn, New York



View southwest (Wikimedia).

CRIS USN: 04701.000001

County: Kings

Build Date: 1868-1911

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Eligible

NRHP Criterion: A, C

Project Effects: No adverse effects

View south to project (Google Earth).

Historic Architecture Property Form – Greenwood Baptist Church, Brooklyn, New York

NR No.: 15NR00069

County: Kings

Build Date: 1900-1901

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Listed (NRIS # 16000017)

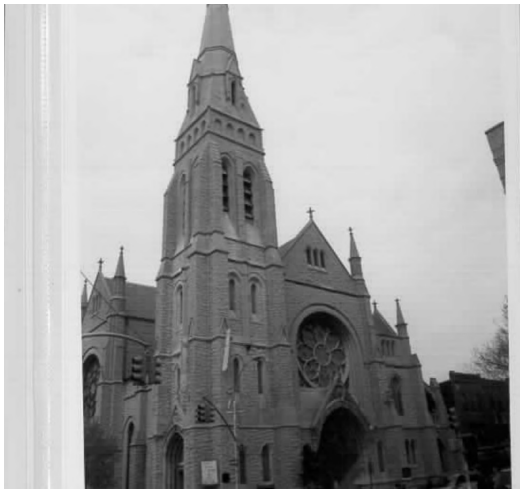
NRHP Criterion: A, C

Project Effects: No adverse effects

View northwest (CRIS).

View southwest to project (Google Earth).

Historic Architecture Property Form – Old First Reformed Church, Brooklyn, New York



View west (CRIS).

NR No.: 97NR01247

County: Kings

Build Date: 1888-1891

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Listed (NRIS # 98000316)

NRHP Criterion: C

Project Effects: No adverse effects

View southwest to project (Google Earth).

Historic Architecture Property Form – Park Slope Historic District, New York, New York

View south (CRIS).

NR No.: 90NR01341

County: Kings

Build Date: 1860-1880

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Listed (NRIS # 80002636)

NRHP Criterion: C

Project Effects: No adverse effects

View east to project (Google Earth).

Historic Architecture Property Form – Pier 41, 175 Van Dyke Street, Brooklyn, New York

View north (CRIS).

CRIS USN: 04701.000085

County: Kings

Build Date: 1869-1904

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Eligible

NRHP Criterion: A, C

Project Effects: No adverse effects

View southeast to project (Google Earth).

Historic Architecture Property Form – Prospect Hall, 263 Prospect Avenue, Brooklyn, New York

View northeast (Google Earth).

CRIS USN: 04701.013523

County: Kings

Build Date: 1901-1903

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Listed (NRIS # 99000460)

NRHP Criterion: A, C

Project Effects: No adverse effects

View west to project (Google Earth).

Historic Architecture Property Form –Prospect Heights Historic District 2015 Boundary Expansion, Brooklyn, New York

NR No.: 15NR00068

County: Kings

Build Date: 1869

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Listed

NRHP Criterion: C

Project Effects: No adverse effects

View southeast (CRIS).

View southwest to project (Google Earth).

Historic Architecture Property Form – Prospect Heights Historic District, Brooklyn, New York

NR No.: 90NR01309

County: Kings

Build Date: 1860-1870

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Listed (NRIS # 83001698)

NRHP Criterion: C

Project Effects: No adverse effects

View southeast (CRIS).

View southwest to project (Google Earth).

Historic Architecture Property Form – Prospect Park, Brooklyn, New York

NR No.: 90NR01313

County: Kings

Build Date: 1867-1870

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Listed (NRIS # 80002637)

NRHP Criterion: C

Project Effects: No adverse effects

View southwest (CRIS).

View east to project (Google Earth).

Historic Architecture Property Form – South Congregational Church, Brooklyn, New York

NR No.: 90NR01333

County: Kings

Build Date: 1857

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Listed (NRIS # 82001183)

NRHP Criterion: C

Project Effects: No adverse effects

View northwest (CRIS).

View southwest to project (Google Earth).

Historic Architecture Property Form – Sunset Park and Play Center, Brooklyn, New York

View northwest (Google Earth).

CRIS USN: 04701.000491

County: Kings

Build Date: 1930

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Eligible

NRHP Criterion: A, B, C

Project Effects: No adverse effects

View north to project (Google Earth).

Historic Architecture Property Form – Sunset Park Historic District, Brooklyn, New York

View southeast (CRIS).

CRIS USN: 04701.000491 **NR No.**: 90NR01310

County: Kings

Build Date: 1890

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Listed (NRIS # 88001464)

NRHP Criterion: C

Project Effects: No adverse effects

View northwest to project (Google Earth).

Historic Architecture Property Form – The Block House, Manhattan, New York

View southeast (CRIS).

NR No.: 90NR00792

County: New York

Build Date: 1843

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

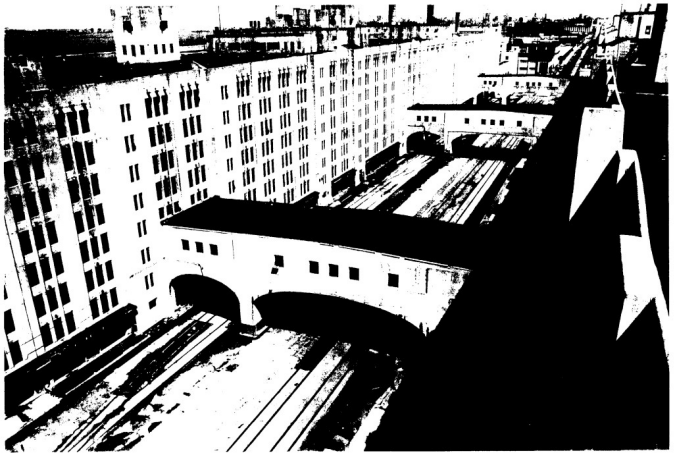
NRHP Status: Listed

NRHP Criterion: C

Project Effects: No adverse effects

View southwest to project (Google Earth).

Historic Architecture Property Form – U.S. Army Military Ocean Terminal, Brooklyn, New York



View southwest (CRIS).

NR No.: 90NR01314

County: Kings

Build Date: 1918-1919

Modeled View of Nearest Project Turbine: Possible View

Actual View: No view

NRHP Status: Listed (NRIS # 83001702)

NRHP Criterion: A, C

Project Effects: No adverse effects

View north to project (Google Earth).

Attachment H-2
Photo Documentation of Historic Properties within Onshore APE

Historic Architecture Property Form – Bush Terminal Historic District, Brooklyn, New York

CRIS USN: 04701.019392

County: Kings

Build Date: 1915

Modeled View of Nearest Project Turbine: Possible View

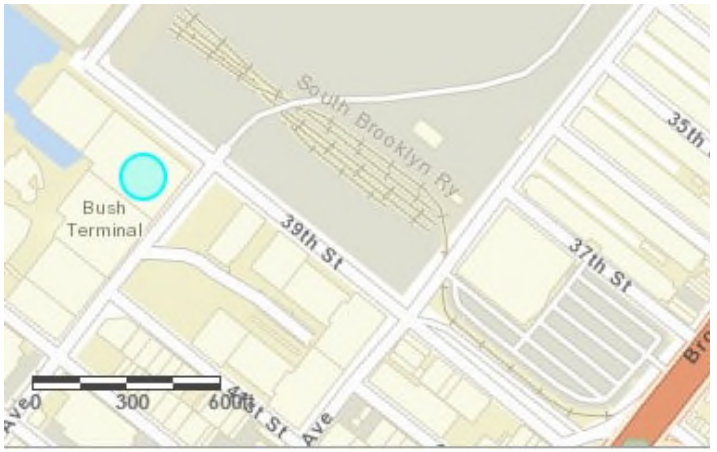
Actual View: View

NRHP Status: Eligible

NRHP Criterion: A, C

Project Effects: No adverse effects

View north (CRIS).



View northeast to project (Google Earth).

Historic Architecture Property Form – Green-Wood Cemetery, Brooklyn, New York

NR No.: 94NR00549

County: Kings

Build Date: 1838-1840

Modeled View of Nearest Project Turbine: Possible View

Actual View: View

NRHP Status: Listed (NRIS # 97000228)

NRHP Criterion: C

Project Effects: No adverse effects

View south (CRIS).

View northwest to project (Tetra Tech).

Historic Architecture Property Form – Storehouse #2, U.S. Navy Fleet Supply Base, Brooklyn, New York

View west (CRIS).

NR No.: 12NR06399

County: Kings

Build Date: 1914

Modeled View of Nearest Project Turbine: Possible View

Actual View: View

NRHP Status: Listed (NRIS # 13000026)

NRHP Criterion: A, C

Project Effects: No adverse effects

View northwest to project (Google Earth).