



MAYFLOWER WIND

Appendix S. Analysis of Visual Effects to Historic Properties

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MAYFLOWER WIND

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Final Analysis of Visual Effects to Historic Properties

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Quality Information

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Acronyms and Abbreviations

Abbreviation or Acronym	Definition
AIS	Air-Insulated Substation
APE	Area of Potential Effect
AVEHP	Assessment of Visual Effects to Historic Properties
BLM	Bureau of Land Management
BOEM	Bureau of Ocean Energy Management
CFR	Code of Federal Regulations
COP	Construction and Operations Plan
DSM	Digital surface model
ECC	Export Cable Corridor
ft	foot/feet
GIS	Gas-Insulated Substation
HDD	Horizontal Directional Drilling
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
km	kilometer
KOP	Key Observation Point
kV	kilovolt
m	meter
MACRIS	Massachusetts Cultural Resource Information System
MVCMA	Martha's Vineyard Camp Meeting Association
Mayflower Wind	Mayflower Wind Energy LLC
MHC	Massachusetts Historical Commission
mi	statute mile
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
nm	nautical mile
NPS	National Park Service
NRHP	National Register of Historic Places
OCS	Outer Continental Shelf
OSP	Offshore Substation Platform
PDE	Project Design Envelope
POI	Point of Interconnection
RIHPHC	Rhode Island Historical Preservation and Heritage Commission
ROW	Right of Way
TCP	Traditional Cultural Property
THPO	Tribal Historic Preservation Office
TRA	Thematic Resource Area
VAF	Visibility Assessment Form
VIA	Visual Impact Assessment

WTG	Wind Turbine Generator
ZTV	Zone of Theoretical Visibility

1.0 Introduction

Mayflower Wind Energy LLC (Mayflower Wind) proposes an offshore wind renewable energy generation project (the Project) located in federal waters off the southern coast of Massachusetts in the Outer Continental Shelf (OCS) Lease Area OCS-A 0521 (Lease Area). The Project will deliver electricity to the regionally administered transmission system via export cables with sea-to-shore transitions and anticipated points of interconnection (POIs) in Massachusetts.

1.1 Project Overview

The Mayflower Wind Project includes a Lease Area located in federal waters south of Martha's Vineyard and Nantucket (Figure 1-1). Wind turbine generators (WTGs) constructed within the Lease Area will deliver power via inter-array cables to the offshore substation platforms (OSPs). Submarine offshore export cables will be installed within offshore export cable corridors (ECCs) to carry the electricity from the OSPs within the Lease Area to the onshore transmission systems via two different ECCs. One ECC will make landfall in Falmouth, Massachusetts and the other will make landfall at Brayton Point, in Somerset, Massachusetts. The offshore export cables will make landfall via horizontal directional drilling (HDD). The proposed Falmouth ECC will extend from the Lease Area through Muskeget Channel into Nantucket Sound to three potential landing location(s) in Falmouth including Shore Street, Central Park, or Worcester Avenue. The proposed Brayton Point ECC will run north and west from the Lease Area through Rhode Island Sound to the Sakonnet River. It will then run north up the Sakonnet River, cross land at Aquidneck Island to Mount Hope Bay, and then north into Massachusetts state waters to Brayton Point. Landfall will be made via HDD at one of two potential landing locations in Somerset on the western side of Brayton Point from the Lee River (preferred) or the eastern side via the Taunton River (alternate).

In Falmouth, the underground onshore export cables will extend from the landfall location(s) to an onshore substation and will be installed within existing paved roadways and shoulder and within municipal grassy open space (Figure 1-2). The new Falmouth onshore substation will step up the voltage to 345 kilovolts (kV) to enable connection to either an overhead transmission line (preferred) or an underground transmission route (alternate). The selected landfall location will determine the route of the underground onshore export cables between the landfall and the new onshore substation. The proposed Falmouth POI to the regional transmission system is an existing switching station (Falmouth Tap). Mayflower Wind anticipates that upgrades to Falmouth Tap will be undertaken by Eversource, as part of a larger reliability project, which is independent of the Mayflower Wind Project. The overhead transmission line will be designed, permitted, and built by Eversource to provide interconnection at Falmouth Tap. The alternate underground transmission route would be constructed within local roadway and/or shoulder extending from the onshore substation to the POI at Falmouth Tap.

As stated above, the Brayton Point ECC includes an overland portion where underground onshore export cables will be installed to cross the northern portion of Aquidneck Island (Figure 1-3). Three route options for the crossing of the island are under consideration, all route options include HDD for entry and exit on/off the island. At Brayton Point, the onshore underground export cables will traverse the site from the landing to the location of a new high voltage direct current (HVDC) converter station (converter station). Underground transmission cable(s) will be constructed from the converter station to the Brayton Point POI, the adjacent existing National Grid substation.

The Falmouth Onshore Project Area includes the landing(s), underground onshore export cables, onshore substation, alternate underground transmission route, and POI at the Falmouth Tap switching station. The Brayton Point Onshore Project Area includes the onshore export cable route options over Aquidneck Island, landing(s) at Aquidneck Island and Brayton Point, the underground onshore export cables, converter station, underground transmission route, and the POI at the National Grid substation. See Figure 1-2 and Figure 1-3 for the Falmouth Onshore Project Area and the Brayton Point Onshore Project Area respectively.

For the purposes of this assessment, the Offshore Project Area includes the Lease Area (including WTGs, OSPs, and inter-array cables), offshore export cable corridors, and the HDD to the landfall location(s).

This assessment addresses only the Offshore and Falmouth Onshore Project Areas. The Brayton Point Onshore Project Area will be addressed via a separate assessment.

1.2 Specific Project Details

Each primary onshore Project component is briefly described below in Table 1-1. Additional details may be found in the Construction and Operations Plan (COP) Section 3 – Description of Proposed Activities.

Table 1-1. Key Project Details

Project Attribute	Description
Landfall Location(s)	<p>Falmouth, MA Three locations under consideration: Worcester Avenue (preferred), Shore Street, and Central Park</p> <p>Brayton Point, Somerset, MA Two locations under consideration: the western (preferred) and eastern (alternate) shorelines of Brayton Point</p> <p>Aquidneck Island, RI Several locations under consideration for intermediate landfall across the island</p>
Onshore Export Cables	<p>Falmouth, MA Anticipated high voltage alternating current (HVAC); Nominal underground onshore export cable voltage: 200 – 345 kV Up to 12 onshore export power cables and up to five communications cables Length: Up to 6.4 statute miles (mi) (10.3 kilometers [km])</p> <p>Brayton Point, Somerset, MA HVDC; Nominal underground onshore export cable voltage: ± 320 kV Up to 4 export power cables and up to 2 communication cables Length: Up to 3,940 feet (ft) (1,200 meters [m]) on Brayton Point</p> <p>Aquidneck Island, RI HVDC; Nominal underground onshore export cable voltage: ± 320 kV Up to 4 onshore export power cables and up to 2 communication cables Up to 3 mi (4.8 km) across Aquidneck Island</p>
Onshore Substation/HVDC Converter Station	<p>Falmouth, MA Type: Step up 275-kV to 345-kV; Air-insulated substation (AIS) or gas-insulated substation (GIS) Location: Two locations under consideration: Lawrence Lynch (preferred), and Cape Cod Aggregates (alternate) Area: Up to 26 acres (10.5 hectares [ha])</p> <p>Brayton Point, Somerset, MA Type: HVDC Converter Station Location: On the Brayton Point property area under consideration Area: Up to 7.5 acres (3.0 ha)</p>
Transmission from Onshore Substation/Converter Station to POI	<p>Falmouth, MA New, 345-kV overhead transmission line along existing utility right of way (ROW) (preferred) (to be designed, permitted, and built by Eversource) Up to 5.1 mi (8.2 km) in length New, 345-kV underground transmission route (alternate) Up to 2.1 mi (3.4 km) in length</p> <p>Brayton Point, Somerset, MA New 345-kV underground transmission route to National Grid substation HVAC; nominal underground transmission cable voltage: up to 345 kV Up to 2,788 ft (850 m) on Brayton Point property</p>

Project Attribute	Description
Point of Interconnection	Falmouth, MA Falmouth Tap (new or upgraded switching station to be designed, permitted, and built by Eversource) Brayton Point, Somerset, MA Existing National Grid substation

1.3 Assessment Objectives

The purpose of this Analysis of Visual Effects to Historic Properties (AVEHP) is to evaluate the Project's potential to visually affect historic properties that are listed in, eligible for listing, or potentially eligible for listing in the National Register of Historic Places (NRHP), are National Historic Landmarks (NHL), or are Traditional Cultural Properties (TCPs) and are located within the Area of Potential Effects (APE). This study only addresses visual effects to above-ground historic architectural properties and is particularly focused on those historic properties where setting is an integral part of the significance.

Below-ground terrestrial archaeological resources, submerged archaeological resources, and geophysical and geotechnical studies are addressed in separate reports (COP Appendix R, Terrestrial Archaeological Resources Assessment Report, COP Appendix Q, Marine Archaeological Resources Assessment and Appendix E, Marine Site Investigation Report).

1.4 Regulatory Context

As a project that requires approval from the Bureau of Ocean Energy Management (BOEM), the Project is considered a federal undertaking and as such, must comply with Section 106 and Section 110 of the National Historic Preservation Act of 1966 (NHPA), as amended, and the National Environmental Policy Act of 1970 (NEPA). This investigation is intended to assist BOEM and the Massachusetts Historical Commission (MHC), serving as the State Historic Preservation Office, as well as Tribal Historic Preservation Offices (THPOs) with identifying historic properties and assessing the potential effects of the Project on those historic properties. The Rhode Island Historical Preservation and Heritage Commission (RIHPHC), the State Historic Preservation Office, will be consulted separately for the Brayton Point Project components. This report addresses visual impacts to historic properties in compliance with Section 106 and Section 110 of the NHPA.

Regulations under Section 106 of the NHPA (36 Code of Federal Regulations [CFR] 800.8(c)) allow the substitution of the NEPA reviews for the Section 106 process. Under this subsection, an agency can use the NEPA process and the documents it produces to comply with Section 106 in lieu of the procedures set forth in 36 CFR 800.3 - 800.6. In 2020, BOEM announced its intention to implement the NEPA substitution process for Section 106 review for renewable energy COPs. Per the available guidance (Advisory Council on Historic Preservation [ACHP] and Council on Environmental Quality, 2013) the NEPA substitution process provides an opportunity for an agency to streamline its overall environmental and historic preservation review process. Consultation with the MHC under Section 106 and Section 110 of the NHPA was initiated by Mayflower Wind on February 14, 2020 in the form of a Project Notification Form containing a preliminary Project description, general schedule, and recommended cultural resources studies. MHC issued a response to the submittal on March 9, 2020. Consultation with MHC is ongoing and will continue as the Project design is refined.

This investigation was conducted in accordance with BOEM's updated *Guidelines for Providing Archaeological and Historic Property Information, Pursuant to 30 CFR Part 585* (BOEM, 2020) and *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* (National Park Service [NPS], 1990). The effects evaluation follows the Criteria of Adverse Effect as outlined in 36 CFR 800.5 of Section 106 of the NHPA, with a specific focus upon visual effects.

1.5 Report Organization

This report is organized to include a description of the methodology (Section 2.0), and the analysis of visual effects (Section 3.0). A summary of the assessment conclusions is provided in Section 4.0, with references provided in Section 5.0. Visual simulations are in Attachment 1 and Photographs are in Attachment 2.

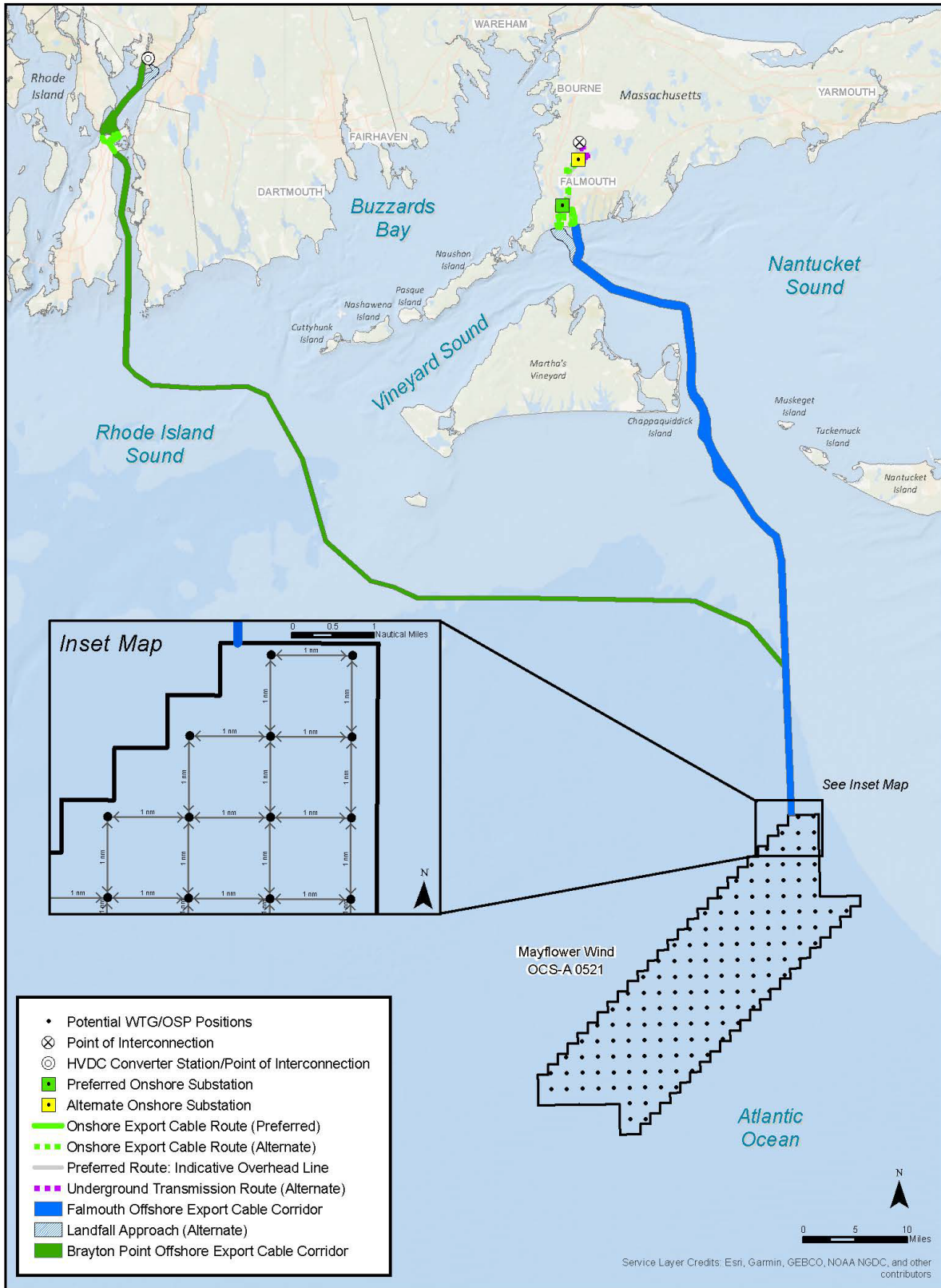


Figure 1-1. Overview of Mayflower Wind Project Area

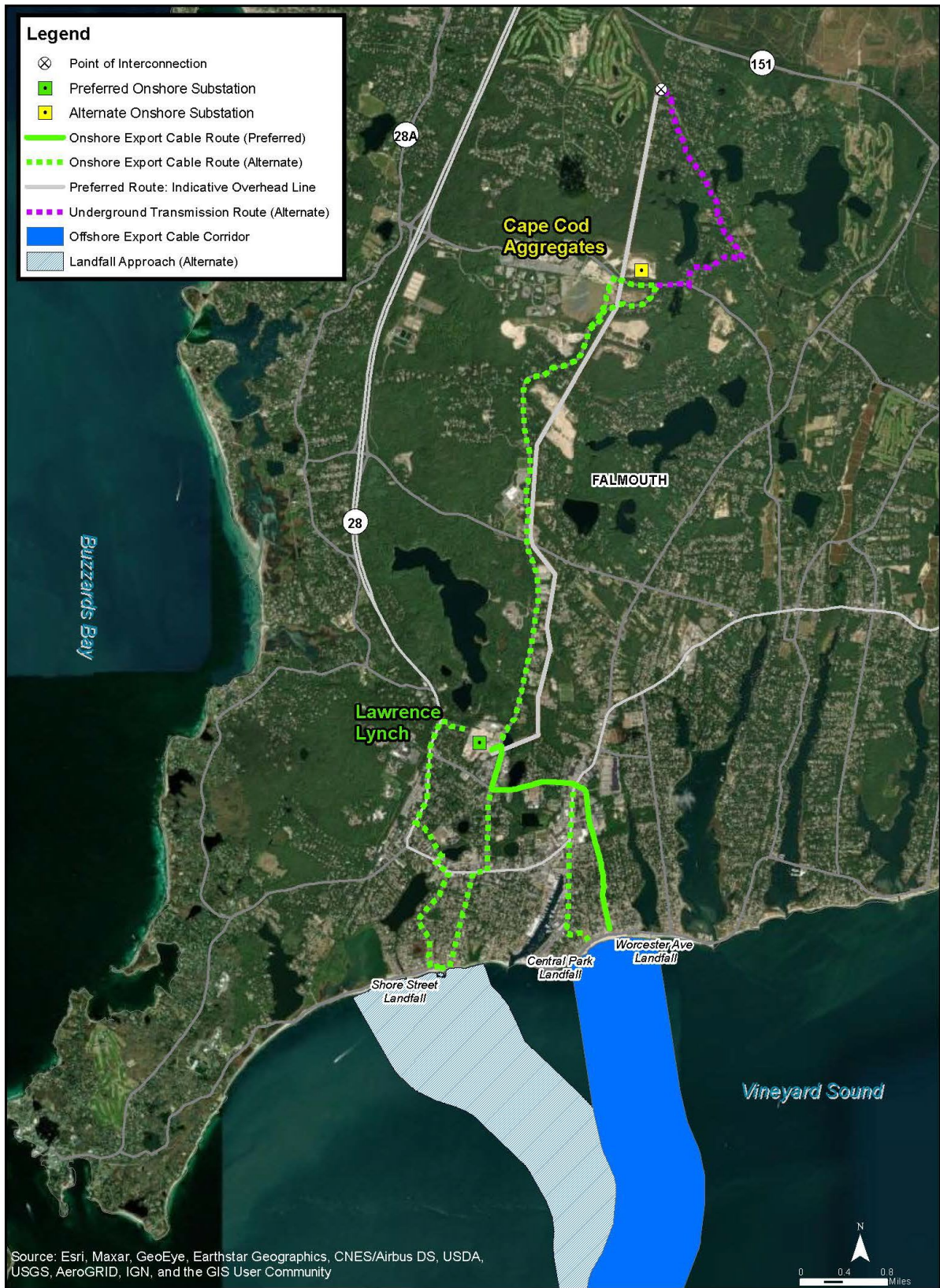


Figure 1-2. Overview of Falmouth Onshore Project Area

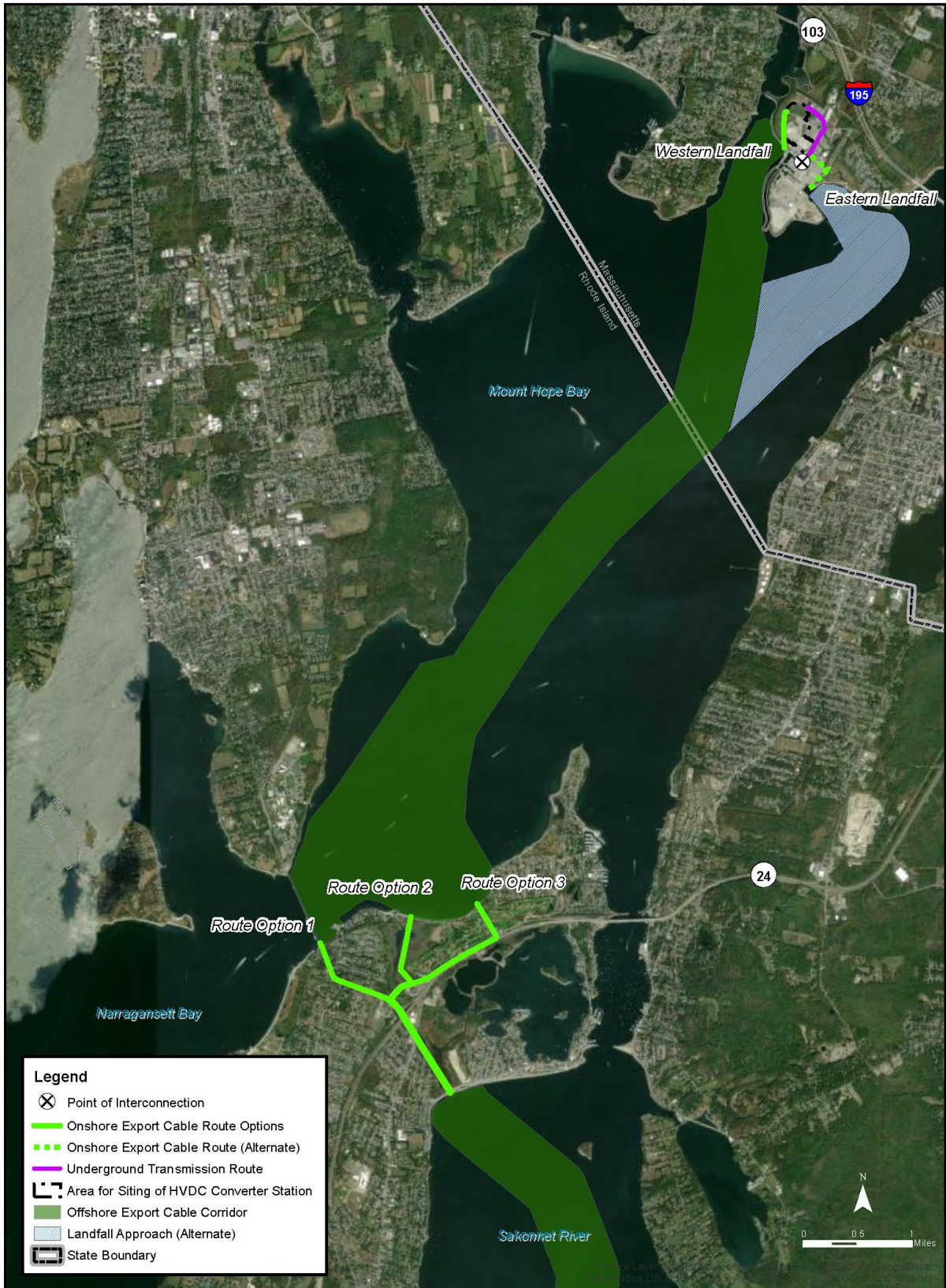


Figure 1-3. Overview of Brayton Point Onshore Project Area

2.0 Methodology

This AVEHP was conducted in close coordination with the separate Visual Impact Assessment (VIA) completed in support of the BOEM NEPA review process and submitted as COP Appendix T, Visual Impact Assessment. The AVEHP drew upon, as well as informed, the VIA process and findings. A detailed description of methods used in the VIA is provided in COP Appendix T.

The AVEHP follows guidelines set forth in BOEM's updated *Guidelines for Providing Archaeological and Historic Property Information, Pursuant to 30 CFR Part 585* (BOEM, 2020) and *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* (NPS, 1990). The effects evaluation follows the Criteria of Adverse Effect as outlined in 36 CFR 800.5 of Section 106 of the NHPA. To accomplish the goals of the investigation, AECOM employed a program of viewshed modeling, background research, field investigation, desktop review, and analysis. Additional detail on the methodology is presented below.

2.1 Defining the APE

The APE for this investigation was developed in tandem with the VIA process. The process began with establishing three Zones of Theoretical Visibility (ZTV), or the areas within which the Project could potentially be seen and contribute a level of visual change within an existing setting. One ZTV was established for the offshore Project components and one each for the onshore substations under consideration within the Falmouth Onshore Project Area. Maximum design heights and bare earth topography (i.e., no benefit of screening from intervening vegetation or other structures) were used to develop a delineation of the ZTV. Using the ZTVs, three digital surface models (DSMs) were built to identify areas of potential visibility. In addition to the maximum design heights of the Project from the ZTV, the DSM also takes into consideration screening from vegetation and buildings.

For the DSMs, a maximum development scenario was established that considered the Project components with the greatest potential for visual impact. Project components with little to no potential for visual impact were not included in the VIA or AVEHP analysis. For the offshore portion, the analysis included the greatest number of WTGs/OSPs and the largest potential size for the offshore Project components. The onshore Project components evaluated in the AVEHP included the preferred (Lawrence Lynch) and alternate (Cape Cod Aggregates) substations. As noted previously, the overhead transmission line from the onshore substation to the Falmouth POI will be designed, permitted and constructed by interconnecting transmission owner, and as such, is not included in this evaluation. The HDD landing(s) of the offshore export cables will be buried underground. The associated transition vaults will include manhole access covers; however, it is expected that the potential visual change will be small and may be avoided or minimized with grading and/or screening. Therefore, the HDD transition vaults are not addressed further in this report. The other offshore and onshore Project infrastructure will be below grade (e.g., inter-array cables, offshore export cables, onshore export cables, and onshore underground transmission lines) and as such, there is no potential for visual impact from these Project components. Therefore, below-grade components are not addressed further in this report.

Three DSMs were produced: one for the offshore Project components and one each for the onshore substations under consideration, Lawrence Lynch (preferred) and Cape Cod Aggregates (alternate). For the purposes of the AVEHP, the APE is the maximum area where historic properties could possibly have a view of the Project components. The DSM was used to establish an initial list of historic properties that was further refined during desktop analysis and field investigation. Historic properties within the APE were visited during field survey to ground truth the limits of Project visibility.

An APE typically encompasses all areas where the Project has the potential to affect historic properties. Effects can result from Project activities that may physically destroy or alter a historic property, or those activities that may introduce visual, atmospheric, or audible elements. This report only addresses potential visual effects to historic properties resulting from the construction and operation of above-ground Project facilities. The introduction of new visual elements that are part of the Project (such as WTGs/OSPs, and the onshore substation) have the potential to cause visual effects; however, effects will only be adverse if the change to the setting has the potential to compromise the characteristics that make a historic property eligible for listing in the NRHP.

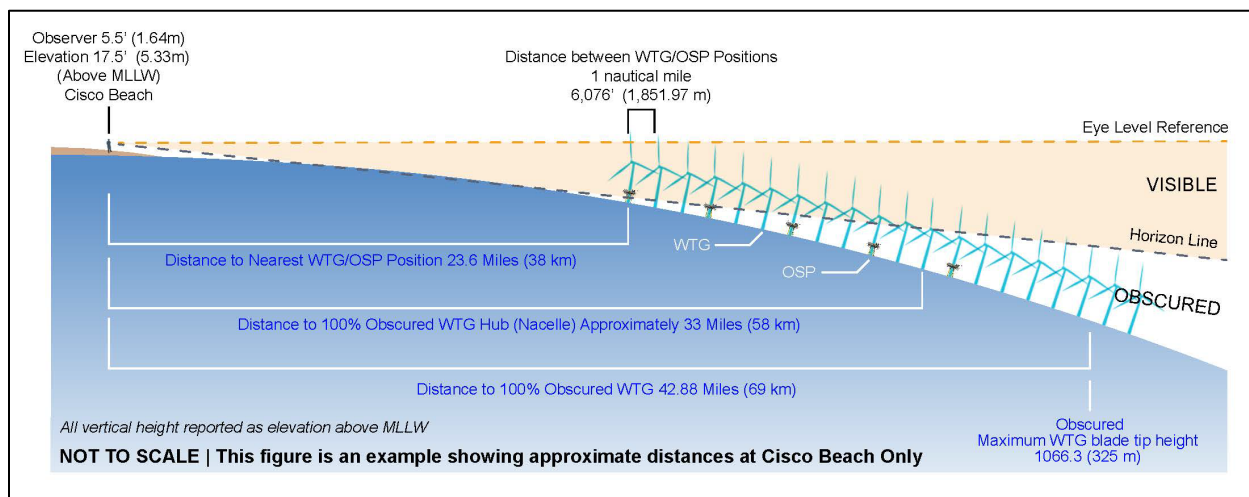
The offshore and onshore APEs are meant to encompass the maximum limits of visibility of all potential Project components. Because the Project design is still under development, there is potential for the APE to be refined as the Project progresses. Any modification to the APE would be determined in consultation with MHC, BOEM, and relevant THPOs.

2.1.1 Offshore APE

The offshore DSM was based on a maximum ZTV of 43 mi (69.2 km). The DSM considered the relationship between land topography, the height of the WTGs above sea level and average eye height of the potential viewer (5.5 ft [1.7 m]; average height of person). The analysis assumed a project design envelope (PDE) with WTGs or OSPs occupying all possible positions in the 1 x 1 nautical miles (nm) (1.9 x 1.9 km) grid layout within the Lease Area. Separate DSMs were evaluated for the WTG hub center and blade edge tip based on a maximum WTG hub center elevation of 605.1 ft (184.4 m), and WTG blade edge tip of 1,066.3 ft (325.0 m) above mean lower low water (MLLW).

Figure 2-1 illustrates the influence of the curvature of the earth on visibility for a viewer located at Cisco Beach. The WTG hubs are potentially visible to a viewer on Nantucket (Cisco Beach) up to 36 mi (57.9 km) from the viewer position. Because of the curvature of the earth, none of the Project components located more than 45.9 mi (73.9 km) from a viewer on Cisco Beach will be visible. Screening by other structures and/or vegetation will reduce or eliminate visibility at certain locations. The offshore APE map is presented in Figure 2-2 and illustrates the maximum potentially visible area extending out from the Lease Area in all directions.

The areas of visibility within the DSM, or the APE, were used to ground-truth visibility from historic properties during the field investigation. Additional desktop review of Google Earth street view images was used to assess potential visibility in areas not accessed by the field team. Visibility was limited by changes in elevation, trees and vegetation, and existing buildings and structures. Through the field investigation and desktop analysis, it was determined that the offshore APE, or the area where the offshore Project components would be potentially visible, extended generally up to 1 mi (1.6 km) of the southern shorelines of both Nantucket Island and Martha's Vineyard.



Note: The APE is conservatively based on the DSM and considers both vegetative and structural screening viewshed analysis and reflects the maximum distances at which the Project features may be visible.

Figure 2-1. Example Curvature of Earth Diagram

2.1.2 Meteorological and Atmospheric Conditions

Meteorological data from the BOEM Meteorological Report (Wood et al., 2014) are summarized below and used to discuss the influence of varying atmospheric conditions on the potential visibility of the WTGs. In the BOEM report (Wood et al., 2014), hourly surface observations were evaluated to determine meteorological condition, visibility, wind speed, and direction. In the report, BOEM evaluated the average number of days that there is visibility to 10 nm (19 km), 20 nm (37 km), and 30 nm (56 km). Table 2-1 discusses the average

number of days where there is clear visibility out to 10 nm (19 km) and 20 nm (37.3 km) from Nantucket and Martha's Vineyard for at least 50 percent and 75 percent of the daylight hours.

The BOEM Report also discusses the frequency of reported visibility from two locations on Martha's Vineyard and Nantucket airports during different times of the day (daylight/night) and during the winter, spring, summer, fall, and the annual average (Wood et al., 2014) (Table 2-2 and Table 2-3). Visibility as reported at these two airport locations exhibits very limited seasonal variation.

Table 2-1. Estimated Visibility to 10 nm (19 km) and 20 nm (37 km)

Location	% of Daylight Hours	Estimated Days per Year >10 nm Visibility	Estimated Days per Year >20 nm Visibility
Nantucket (multiple sites)	50	171	80
	75	103	40
Martha's Vineyard (multiple sites)	50	207	113
	75	117	50

Table 2-2. Estimated Visibility to 10 nm (19 km) or Greater from Martha's Vineyard Airport

Time	Winter	Spring	Summer	Fall	Annual
Day (% of total hours, average)	80	82	80	84	81
Night* (% of total hours, average)	0	0	0	0	0
Total (% of total hours, average)	40	41	40	42	41

Source: Wood et al., 2014

*Unlit objects will not be visible at >10 nm (19 km) at night. The use of ADLS lighting system will reduce expected nighttime lighting to less than 5 minutes/year, which is 0.1 percent of annual nighttime hours and is rounded to 0 percent in this table.

Table 2-3. Estimated Visibility to 10 nm (19 km) or Greater from Nantucket Airport

Time	Winter	Spring	Summer	Fall	Annual
Day (% of total hours, average)	71	71	69	76	72
Night* (% of total hours, average)	0	0	0	0	0
Total (% of total hours, average)	35	36	35	38	36

Source: Wood et al., 2014

*Unlit objects will not be visible at >10 nm (19 km) at night. The use of ADLS lighting system will reduce expected nighttime lighting to less than 5 minutes/year, which is 0.1 percent of annual nighttime hours and is rounded to 0 percent in this table.

2.1.3 Onshore APE

The Lawrence Lynch substation (preferred) DSM was based on a maximum ZTV of 3.5 mi (5.6 km) in either direction from the center point of the substation and includes most of the town of Falmouth. The DSM assumes a maximum height of 80 ft (24.4 m) for the substation lightning protection masts and 40 ft (12.2 m) for the other substation structures.

The Cape Cod Aggregates substation (alternate) DSM was also based on a maximum ZTV of 3.5 mi (5.6 km) in either direction from the center point of the substation. The DSM assumes a maximum height of 80 ft (24.4 m) for the substation lightning protection masts. The DSM includes most of the town of Falmouth, but also small slivers of Mashpee, Sandwich, and Bourne.

As with the offshore Project components, the areas of visibility within the DSM, or the APE, were used to ground-truth visibility from historic properties during the field investigation. Additional desktop review of Google Earth street view images was used to assess potential visibility in areas not accessed by the field team. Visibility was limited by changes in elevation, trees and vegetation, and existing buildings and structures. Through the field investigation and desktop analysis, it was determined that the onshore APE, or the area where the onshore Project components would be potentially visible, did not extend more than 0.10 mi (0.16 km) in all directions from the outer limits of the proposed substation.

The onshore APE map is presented in Figure 2-3 and illustrates the maximum potentially visible area extending out from both substation sites under consideration.

2.2 Baseline Inventory

2.2.1 Historic Property Background Research

To identify historic properties, background research was conducted online to gather information on historic properties in the offshore and onshore APEs, or the limits of potential visibility within the DSMs.

Digital shapefiles showing the locations of all previously documented historic architectural resources recorded in MHC's Massachusetts Cultural Resource Information System (MACRIS) database were gathered. The shapefiles contained polygons and points showing NRHP-listed and eligible historic districts, NRHP-listed and individual resources, NHLs, and TCPs, as well as resources that had been identified, but not formally evaluated for NRHP eligibility. The digital shapefiles were compared with the DSMs and any historic properties determined to be within the viewshed, were compiled into a list. This desktop analysis revealed that there are 88 previously documented historic properties within the offshore APE and 73 previously documented historic properties within the onshore APE. One TCP (Chappaquiddick Island) is in the offshore APE. Two TCPs, Vineyard Sound and Moshup's Bridge, and Nantucket Sound, are within both the offshore and onshore APEs. See Table 2-4. and Table 2-5 below for a list of historic resources within the offshore and onshore APEs.

Table 2-4. Historic Resources within the Offshore APE

MHC #	Resource Name	Town	County	Designation
NAN.D, NAN. F	Nantucket Historic District	Nantucket	Nantucket	NR Listed 11/13/1966 NHL 11/13/1966
NAN.E	Sankaty Head Light*	Nantucket	Nantucket	NR Listed 12/2/2002 TRA 6/15/1987
NAN.G	Coffin Farmstead	Nantucket	Nantucket	Inventoried
NAN.L	Jethro Coffin House	Nantucket	Nantucket	NR Listed 11/24/1968 NHL 11/24/1968
CHL.A	Skiff-Mayhew-Vincent House	Chilmark	Dukes	NR Listed 12/15/2011
CHL.B	Poole, Capt. Ephraim Farm	Chilmark	Dukes	Inventoried

MHC #	Resource Name	Town	County	Designation
CHL.D	Chilmark Town Center	Chilmark	Dukes	Inventoried
CHL.E, TIS.F, WTI.F	Martha's Vineyard American Revolution Battlefield	Chilmark, Tisbury, West Tisbury	Dukes	Inventoried
CHL.1	Tilton, James Norton Brick Barn	Chilmark	Dukes	Inventoried
CHL.4	Mayhew, Simon House	Chilmark	Dukes	Inventoried
CHL.5	Mayhew, Simon House	Chilmark	Dukes	Inventoried
CH.12	Mayhew, E. Elliot House	Chilmark	Dukes	Inventoried
CHL.19	Cottle, Capt. Francis House	Chilmark	Dukes	Inventoried
CHL.23	Tilton, Josiah House	Chilmark	Dukes	Inventoried
CHL.31	William Norton House	Chilmark	Dukes	Inventoried
CHL.32	Flanders, Capt. Richard House	Chilmark	Dukes	Inventoried
CHL.35	Hancock, Capt. Samuel – Mitchell, Capt. West House	Chilmark	Dukes	Inventoried
CHL.36	Mayhew, Experience House	Chilmark	Dukes	Inventoried
CHL.37	Hancock, Priscilla House	Chilmark	Dukes	Inventoried
CHL.38	Hancock, Russell House	Chilmark	Dukes	Inventoried
CHL.39	Smith, Elijah House	Chilmark	Dukes	Inventoried
CHL.49	Tilton, William House	Chilmark	Dukes	Inventoried
CHL.57	Mayhew, Jared – Flanders, Edy C. House	Chilmark	Dukes	Inventoried
CHL.79	Bliss, Elmer J. Farm Manager's House	Chilmark	Dukes	Inventoried
CHL.86	Flanders, Capt. Richard Barn	Chilmark	Dukes	Inventoried
CHL.87	Dunroving Ranch Guest House	Chilmark	Dukes	Inventoried
CHL.803	Abel's Hill Cemetery	Chilmark	Dukes	Inventoried
CHL.903	The Chromlech	Chilmark	Dukes	Inventoried
EDG. A	Edgartown Village Historic District	Edgartown	Dukes	NR Listed 12/09/1983
EDG.C	North Water Streetscape	Edgartown	Dukes	Inventoried
EDG.E	Pease's Point Way Streetscape	Edgartown	Dukes	Inventoried
EDG.F	North Summer Streetscape	Edgartown	Dukes	Inventoried
EDG.G	South Summer Streetscape	Edgartown	Dukes	Inventoried
EDG.H	Cottage Streetscape	Edgartown	Dukes	Inventoried
EDG.I	Simpson's Lane Streetscape	Edgartown	Dukes	Inventoried
EDG.J	Church Streetscape	Edgartown	Dukes	Inventoried
EDG.K	Main Streetscape	Edgartown	Dukes	Inventoried
EDG.501	Martha's Vineyard Airport – Passenger Terminal	Edgartown	Dukes	Inventoried
EDG.900	Cape Poge Light*	Edgartown	Dukes	NR Listed 12/2/2002 TRA 6/15/1987
Unassigned	Chappaquiddick Island TCP	Edgartown	Dukes	NR TCP 2019
GAY.A; GAY.E	Gay Head Aquinnah Town Center HD	Aquinnah	Dukes	NR Listed 2/26/1999; 10/1/2001
GAY.B	Gay Head – Aquinnah Shops Area	Aquinnah	Dukes	Inventoried
GAY.C	Totem Pole Inn	Aquinnah	Dukes	Inventoried
GAY.4	Vanderhoop, Leonard House	Aquinnah	Dukes	Inventoried
GAY.7	Diamond, Abiah House	Aquinnah	Dukes	Inventoried

ANALYSIS OF VISUAL EFFECTS TO HISTORIC PROPERTIES

MHC #	Resource Name	Town	County	Designation
GAY.31	71 Moshup Trail	Aquinnah	Dukes	Inventoried
GAY.35	Attaquin Guest Cottage	Aquinnah	Dukes	Inventoried
GAY.37	Cook, Z. – Cooper, James House	Aquinnah	Dukes	Inventoried
GAY.38	Martha's Vineyard Airport Quonset Hut	Aquinnah	Dukes	Inventoried
GAY.51	Haskins, Theodore House	Aquinnah	Dukes	Inventoried
GAY.52	Gay Head – Aquinnah Coast Guard Station Barracks	Aquinnah	Dukes	Inventoried
GAY.53	Cooper, Tom House	Aquinnah	Dukes	Inventoried
GAY.54	Cooper, George House	Aquinnah	Dukes	Inventoried
GAY.55	Haskins, Theodore House	Aquinnah	Dukes	Inventoried
OAK.B	Vineyard Highlands	Oak Bluffs	Dukes	Inventoried
OAK.C	Oak Bluffs – Oak Bluffs Land and Wharf Development	Oak Bluffs	Dukes	Inventoried
OAK.D	Circuit Avenue	Oak Bluffs	Dukes	Inventoried
OAK.E	Martha's Vineyard Camp Meeting Association (MVCMA)/Martha's Vineyard Campground Historic District/Wesleyan Grove	Oak Bluffs	Dukes	NR Listed 12/14/1978 NHL 4/5/2005
OAK.L	Ocean Park	Oak Bluffs	Dukes	Inventoried
OAK.T	Hart Haven	Oak Bluffs	Dukes	Inventoried
OAK.V	Narragansett Avenue Streetscape	Oak Bluffs	Dukes	Inventoried
OAK.W	Pequot Avenue – Massoit Avenue Streetscape	Oak Bluffs	Dukes	Inventoried
OAK.X	Samsoset Avenue Streetscape	Oak Bluffs	Dukes	Inventoried
OAK.786	Wing, Joseph and William House	Oak Bluffs	Dukes	Inventoried
OAK.787	Wing, Joseph and William House	Oak Bluffs	Dukes	Inventoried
OAK.801	Smith Cemetery	Oak Bluffs	Dukes	Inventoried
OAK.910	Edgartown – Tisbury Boundary Marker	Oak Bluffs	Dukes	Inventoried
TIS.803	Holmes – Dunham Cemetery	Tisbury	Dukes	Inventoried
WTI.A	West Tisbury Village	West Tisbury	Dukes	Inventoried
WTI.B	North Tisbury	West Tisbury	Dukes	Inventoried
WTI.C	Seven Gates Farm	West Tisbury	Dukes	Inventoried
WTI.E	Lamberts Cove	West Tisbury	Dukes	Inventoried
WTI.G	Christiantown	West Tisbury	Dukes	Inventoried
WTI.H	Polly Hill Arboretum Historic District	West Tisbury	Dukes	NR Listed 6/15/2015
WTI.73	Foster, Francis House	West Tisbury	Dukes	Inventoried
WTI.94	Look, Orin House	West Tisbury	Dukes	Inventoried
WTI.114	Luce, Anson House	West Tisbury	Dukes	Inventoried
WTI.136	Manter, Robert House	West Tisbury	Dukes	Inventoried
WTI.139	West, Samuel House	West Tisbury	Dukes	Inventoried
WTI.141	Manter, Daniel Youth Hostel	West Tisbury	Dukes	Inventoried
WTI.142	39 New Ln	West Tisbury	Dukes	Inventoried
WTI.144	Lee, Laura House	West Tisbury	Dukes	Inventoried
WTI.168	Vincent, William Sanford House	West Tisbury	Dukes	Inventoried
WTI.170	Scrubby Neck Schoolhouse	West Tisbury	Dukes	Inventoried
WTI.171	The Old Mill	West Tisbury	Dukes	NR Listed 3/29/1984

MHC #	Resource Name	Town	County	Designation
WTI.802	Mingo Family Burial Ground	West Tisbury	Dukes	Inventoried
EDG.907, NAN.939, FAL.973, MAS.916	Nantucket Sound TCP	N/A	N/A	NR TCP 1/4/2010
Unassigned	Vineyard Sound and Moshup's Bridge TCP	N/A	N/A	NR TCP 1/26/2021

Note:

* Individually listed in the NRHP, but also a part of the NRHP-eligible Lighthouses of Massachusetts Thematic Resource Area (BOU.F), 6/15/1987. A Thematic Resource Area or Multiple Resource Submission is a NRHP is a group listing of resources that share a common theme.

Table 2-5. Historic Resources in the Onshore APE

MHC#	Resource Name	Town	County	Designation/Date
BOU.B	Cape Cod Air Station - Otis Air Force Base	Bourne	Barnstable	Inventoried
FAL.A	Waquoit Village	Falmouth	Barnstable	Inventoried
FAL.AA	Shore Streetscape	Falmouth	Barnstable	Inventoried
FAL.AC	Glenwood Place Streetscape	Falmouth	Barnstable	Inventoried
FAL.AD	Gifford Streetscape	Falmouth	Barnstable	Inventoried
FAL.AE	John Parker Road Streetscape	Falmouth	Barnstable	Inventoried
FAL.AM	Falmouth Village	Falmouth	Barnstable	Inventoried
FAL.AO	Teaticket	Falmouth	Barnstable	Inventoried
FAL.AQ	Falmouth Village Green Historic District	Falmouth	Barnstable	NR Eligible 3/27/1996
FAL.AT	Quisset Harbor Area	Falmouth	Barnstable	Inventoried
FAL.AU	Falmouth Pumping Station	Falmouth	Barnstable	NR Eligible 2/26/1998
FAL.AV	Poor House and Methodist Cemetery	Falmouth	Barnstable	NR Eligible 2/26/1998
FAL.AZ	Coonamessett River Cranberry Bogs	Falmouth	Barnstable	Inventoried
FAL.BA	Tobey Lane	Falmouth	Barnstable	Inventoried
FAL.BB	Belvidere Plains	Falmouth	Barnstable	Inventoried
FAL.BD	Andrews, Tony Farm	Falmouth	Barnstable	Inventoried
FAL.BF	Oak Grove Cemetery	Falmouth	Barnstable	NR Eligible 9/10/2014
FAL.C	Hatchville	Falmouth	Barnstable	Inventoried
FAL.I	Falmouth Heights	Falmouth	Barnstable	Inventoried
FAL.J	Menauhant	Falmouth	Barnstable	Inventoried
FAL.K	Mara Vista	Falmouth	Barnstable	Inventoried
FAL.30	Nye, Timothy - Shiverick, William House	Falmouth	Barnstable	Inventoried
FAL.32	Jones, Thomas House	Falmouth	Barnstable	Inventoried
FAL.134	Bailer, Capt. Nathaniel House	Falmouth	Barnstable	Inventoried
FAL.172	Davis, Timothy L. House	Falmouth	Barnstable	Inventoried
FAL.173	Josiah Tobey House	Falmouth	Barnstable	Inventoried
FAL.174	Crocker, Allen and Lydia- Pinheiro, Francisco Da Rosa House	Falmouth	Barnstable	Inventoried

MHC#	Resource Name	Town	County	Designation/Date
FAL.187	Tobey, Capt. John Jr. House	Falmouth	Barnstable	Inventoried
FAL.195	Smalley, Washington House	Falmouth	Barnstable	Inventoried
FAL.197	Phinney, Thomas J. House	Falmouth	Barnstable	Inventoried
FAL.395	361 Woods Hole Rd	Falmouth	Barnstable	Inventoried
FAL.396	Davis, Capt. William House	Falmouth	Barnstable	Inventoried
FAL.660	Leland, Amory House	Falmouth	Barnstable	Inventoried
FAL.661	Dwight, John E. Carriage House	Falmouth	Barnstable	Inventoried
FAL.676	Baker, Ferdinand House	Falmouth	Barnstable	Inventoried
FAL.695	Valerio, Manuel J. House	Falmouth	Barnstable	Inventoried
FAL.696	Emerald, John House	Falmouth	Barnstable	Inventoried
FAL.699	Baker, Elwood E. House	Falmouth	Barnstable	Inventoried
FAL.702	Shiverick, Watson House	Falmouth	Barnstable	Inventoried
FAL.711	Memorial Library	Falmouth	Barnstable	Inventoried
FAL.713	Saint Patrick's Catholic Church	Falmouth	Barnstable	Inventoried
FAL.714	Saint Anthony's Portuguese National Church	Falmouth	Barnstable	Inventoried
FAL.715	East Falmouth School	Falmouth	Barnstable	Inventoried
FAL.716	Baker, Ferdinand House	Falmouth	Barnstable	Inventoried
FAL.717	Robinson, Joshua Crowell House	Falmouth	Barnstable	Inventoried
FAL.726	Woodbury, Rev. Benjamin House	Falmouth	Barnstable	Inventoried
FAL.727	Octagon House	Falmouth	Barnstable	Inventoried
FAL.728	Parker, Lewis - Gifford, Benjamin House	Falmouth	Barnstable	Inventoried
FAL.731	Jones, Thomas House	Falmouth	Barnstable	Inventoried
FAL.732	Jones, Capt. Silas Sr. House	Falmouth	Barnstable	Inventoried
FAL.733	Nimrod Club	Falmouth	Barnstable	Inventoried
FAL.735	Falmouth Village Grammar School - Red Men's Hall	Falmouth	Barnstable	Inventoried
FAL.738	Lawrence Academy	Falmouth	Barnstable	NR Eligible 2/20/1998
FAL.758	Ripka, Andrew House	Falmouth	Barnstable	Inventoried
FAL.759	Fenno, Edward House - Quisset Campus Offices	Falmouth	Barnstable	Inventoried
FAL.777	Davis, Capt. Francis Jr. House	Falmouth	Barnstable	Inventoried
FAL.802	Saint Patrick's Cemetery	Falmouth	Barnstable	Inventoried
FAL.809	Saint Anthony's Cemetery	Falmouth	Barnstable	Inventoried
FAL.811	East Falmouth Cemetery	Falmouth	Barnstable	Inventoried
FAL.908	Stone Dock Marker	Falmouth	Barnstable	Inventoried
FAL.909	First Settlement Marker	Falmouth	Barnstable	Inventoried
FAL.928	Palmer Avenue Bridge	Falmouth	Barnstable	Inventoried
FAL.947	Falmouth Town Hall Monument	Falmouth	Barnstable	Inventoried
FAL.1002	Belfrey, The - Quisset Campus Office	Falmouth	Barnstable	Inventoried
FAL.1029	Central Fire Station	Falmouth	Barnstable	NR Eligible 2/26/1998
FAL.1032	Falmouth Village Elementary School	Falmouth	Barnstable	Inventoried
FAL.1034	Teaticket School	Falmouth	Barnstable	NR Eligible 2/22/2002

MHC#	Resource Name	Town	County	Designation/Date
FAL.1366	27 King St	Falmouth	Barnstable	Inventoried
FAL.1953	Lawrence, Charles C. House	Falmouth	Barnstable	Inventoried
SDW.T	Camp Edwards - Cantonment Blocks 12 and 13	Sandwich	Barnstable	Inventoried
SDW.1023	Camp Edwards Regimental Chapel	Sandwich	Barnstable	Inventoried
EDG.907, NAN.939, FAL.973, MAS.916	Nantucket Sound TCP	N/A	N/A	NR TCP 1/4/2010
Unassigned	Vineyard Sound and Moshup's Bridge TCP	N/A	N/A	NR TCP 1/26/2021

Once the historic properties were identified, AECOM reviewed documentation such as inventory forms, NRHP nominations, and reports from the MACRIS to gather specific physical and historical information about the resources, as well as their associated NRHP Criteria for Significance (Criteria A, B, C, or D) (36 CFR 60.4). The criteria were used to identify which resources have setting as an integral part of their significance and have the potential to be affected by visual change introduced by Project activities in the APE.

A list of historic resources was provided to the VIA team so that potential visual impacts could be further identified during the field investigation phase. See the following subsections Section 2.2.2 through Section 2.2.5 below for more detail on the VIA methodology.

2.2.2 Baseline Information

Separate from the AVEHP process, the VIA methodology included an extensive collection of baseline information to help analyze the relationship between the existing physical landscape and seascape conditions, identification of key observation points (KOPs), and the sensitivity to change by the key viewers, also called receptors. The baseline data provide a framework that describes existing conditions and allows proposed changes to be measured and evaluated for potential impacts. The results of the baseline studies and the viewshed analysis guided the identification of the KOPs for the field investigation.

2.2.3 KOP Identification

The Vineyard Wind 1 study included an inventory of visually sensitive resources documented within the *Historic Properties Visual Impact Assessment* report (Epsilon, 2018). This study covered a comprehensive inventory of properties located on Martha's Vineyard, Upper Cape Cod and Nantucket. The list of KOPs from the Vineyard Wind 1 report was combined with the data gathered during the historic property background research phase to identify places of visual significance to the communities within the offshore APE, including those on Nantucket, Martha's Vineyard, and Upper Cape Cod. In addition to historic property locations, these KOPs also include significant landscapes, recreation areas, scenic roads, overlooks and vistas, public beaches, town centers, residential communities, and estates. Based on a review completed by AECOM, many of these locations are also relevant to the Mayflower Wind Project. A desktop analysis of the APEs for the Project eliminated some KOPs from an initial list, while others were added to account for differences in the APEs of the Vineyard Wind project and the Mayflower Wind Project. The locations of the KOPs for the offshore and onshore APE are shown in Figure 2-4, Figure 2-5, and Figure 2-6, not all of which are associated with historic properties.

2.2.4 Field Investigations and Additional Desktop Review

An AECOM Visual Assessment Team completed the initial field review of KOPs in June 2020, with two follow up visits in July 2020 and November 2020 to complete the analysis of the full list of KOPs as well as to visit some additionally identified KOPs relevant based on Project design. The following actions were completed for each KOP:

- Made detailed observations and notes regarding the KOP to support completion of Parts A and B of the Visibility Analysis Form (VAF). The VAFs are provided in COP Appendix T.
- Photographed the KOP to document seascape/landscape/ocean character, viewer groups, and the visual resource.
- Secured measured, geo-referenced photos were taken, to the extent possible, in clear weather conditions, from the KOPs with potential visibility to the offshore and/or onshore Project components.
- Panoramic images were taken from many sites on Martha's Vineyard and Nantucket for the offshore Project components and on Upper Cape Cod for the onshore Project components.

While the VIA team was able to visit most of the historic resources to capture KOPs and verify visibility, there were some locations that were not accessible, mostly because they were set back from public roads and public access points. In those cases, the nearest KOPs and Google Earth street view images were used to assess the potential visibility of the Lease Area from the historic resource.

Based on the results of the field investigation and desktop studies, the list of historic resources in the APE was refined to include only those locations from which the Project components were likely to be visible. In the offshore APE, there are ten historic resources with a potential view of the Lease Area and in the onshore APE, there is one historic resource with a potential view of the Lawrence Lynch substation. See Table 2-6 for the final list of historic resources with a potential view of the Project components in the APE.

Table 2-6. Historic Resources in the Offshore and Onshore APEs with a Potential View of the Project Components

MHC#	Resource Name	Town	County	Designation/ Date	APE
NAN.D, NAN. F	Nantucket Historic District (includes Nantucket Island, Tuckernuck Island, and Muskeget Island)	Nantucket	Nantucket	NR Listed 11/13/1966 NHL 11/13/1966	Offshore
NAN.E	Sankaty Head Light*	Nantucket	Nantucket	NR Listed 12/2/2002 TRA 6/15/1987	Offshore
EDG.907, NAN.939, FAL.973, MAS.916	Nantucket Sound TCP	N/A	N/A	NR TCP 1/4/2010	Offshore
CHL.E, TIS.F, WTI.F	Martha's Vineyard American Revolution Battlefield	Chilmark, Tisbury, West Tisbury	Dukes	Inventoried	Offshore
CHL.35	Capt. Samuel Hancock –Capt. West Mitchell House	Chilmark	Dukes	Inventoried	Offshore
CHL.38	Russell Hancock House	Chilmark	Dukes	Inventoried	Offshore
CHL.39	Elijah Smith House	Chilmark	Dukes	Inventoried	Offshore
WTI.170	Scrubby Neck Schoolhouse	West Tisbury	Dukes	Inventoried	Offshore
Unassigned	Chappaquiddick Island TCP	Edgartown	Dukes	NR TCP 2019	Offshore
Unassigned	Vineyard Sound and Moshup's Bridge TCP	N/A	N/A	NR TCP 1/26/2021	Offshore
FAL.BF	Oak Grove Cemetery	Falmouth	Barnstable	NR Eligible 9/10/2014	Onshore

2.2.5 Visual Simulations and Analysis

Based on observations made during the field visits to KOPs, the visibility analysis identified areas that likely will have visual exposure to the Project. It includes data, such as distance, number of facilities visible, and mitigating factors (i.e. partial screening).

Photo-realistic renderings were created using Autodesk's 3ds Max design program as described in COP Appendix T, Visual Impact Assessment. These simulations were used to rate the level of Visual Change, which when considered in conjunction with Visual Sensitivity is used to characterize the potential for visual impact. As described in COP Appendix T, a modified visual contrast rating, adapted from the Bureau of Land Management (BLM, 1986) and a study "Offshore Wind Turbine Visibility and Visual Impact Threshold Distances" (Sullivan et al. 2013), was used. A rating between *Visibility Level 1* and *Visibility Level 6* to each simulation indicate the visual contrast and level of dominance of offshore and onshore Project components within the context of the viewer setting. The rating scale is summarized as follows:

Visibility Level 1. Visible only after extended, close viewing. Otherwise invisible.

Visibility Level 2. Visible when scanning in the general direction of the study subject, otherwise likely to be missed by casual observers.

Visibility Level 3. Visible after a brief glance in the general direction of the study subject and unlikely to be missed by casual observers.

Visibility Level 4. Plainly visible, so could not be missed by casual observers, but does not strongly attract attention or dominate the view because of its apparent (small) size.

Visibility Level 5. Strongly attracts the visual attention of views in the general direction of the study subject. Attention may be drawn by strong contrast in form, line, color, texture, luminance, or motion.

Visibility Level 6. Dominates the view because the study subject fills most of the visual field for views in its general direction. Strong contrasts in form, line, color, texture, luminance, or motion may contribute to view dominance.

For the VIA, Visual Change was characterized by aggregate *Visibility Levels* for each KOP where *Visibility Levels 5* and *6* indicate strong contrast, *Visibility Levels 3* and *4* indicate moderate contrast, and *Visibility Levels 1* or *2* indicate weak contrast.

The analysis compared the proposed Project illustrated in the simulation against the existing conditions image. The two images are compared using the elements of form, line, color, texture, horizontal scale, vertical scale, motion, and lighting against physical characteristic of landform, ocean (offshore only), enclosed waterbodies, vegetation, and structures. The *Visibility Level* ratings (above) as applied and are intended to reflect the experience of a sensitive viewer reflecting the viewer context at each KOP, and compatibility of Project features in the viewer context. A range of *Visibility Level* ratings was provided for each KOP simulation communicates a range of potential Visual Change for that KOP and other similar locations represented by the selected KOP.

For the AVEHP, visual simulations were produced for most historic properties that fell within the APE and based on the field investigation and KOPs, would likely have a view of the Project components, and may result in an adverse effect. Simulations are provided in Attachment 1 and Photographs are provided in Attachment 2.

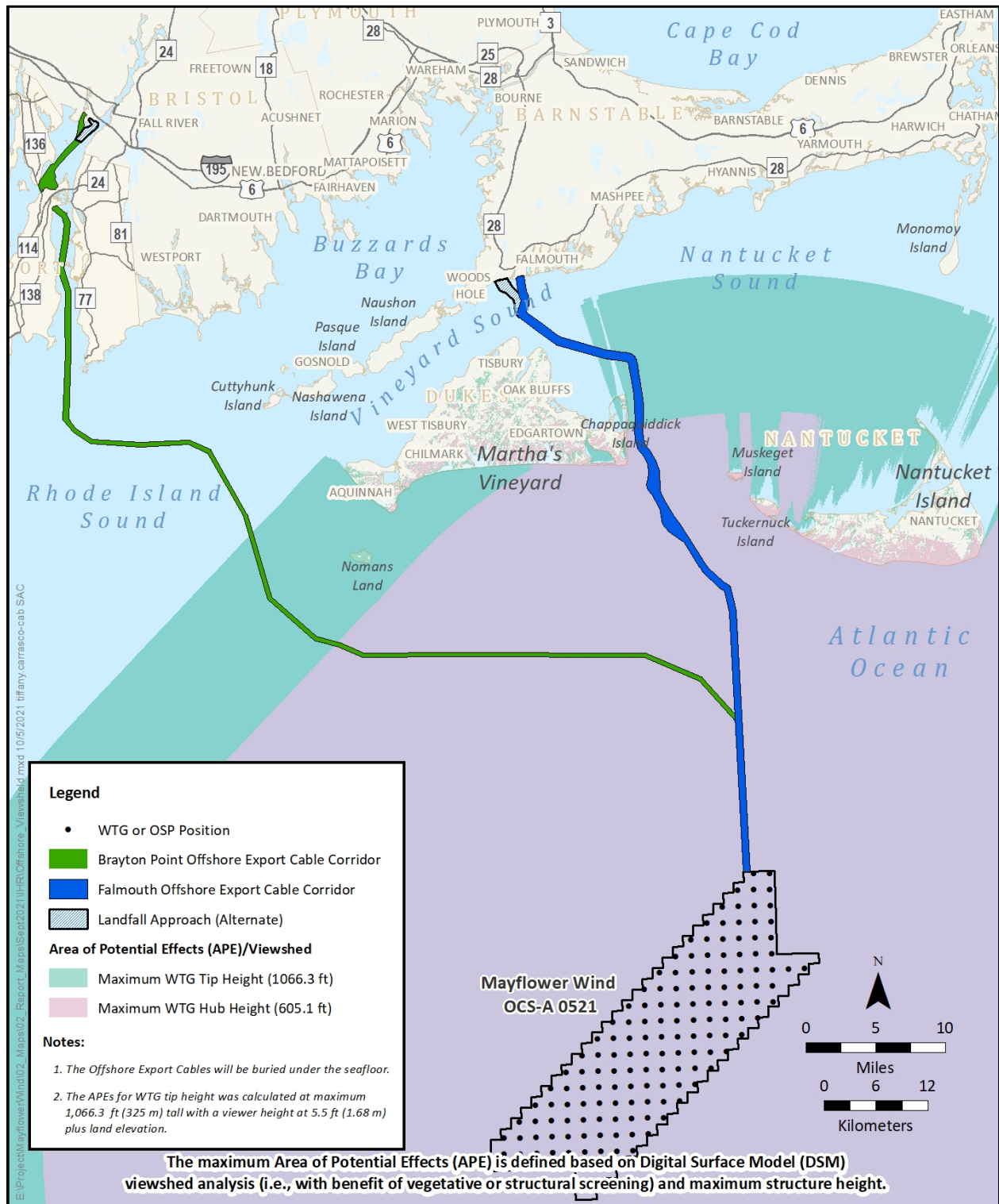


Figure 2-2. Mayflower Wind Offshore APE

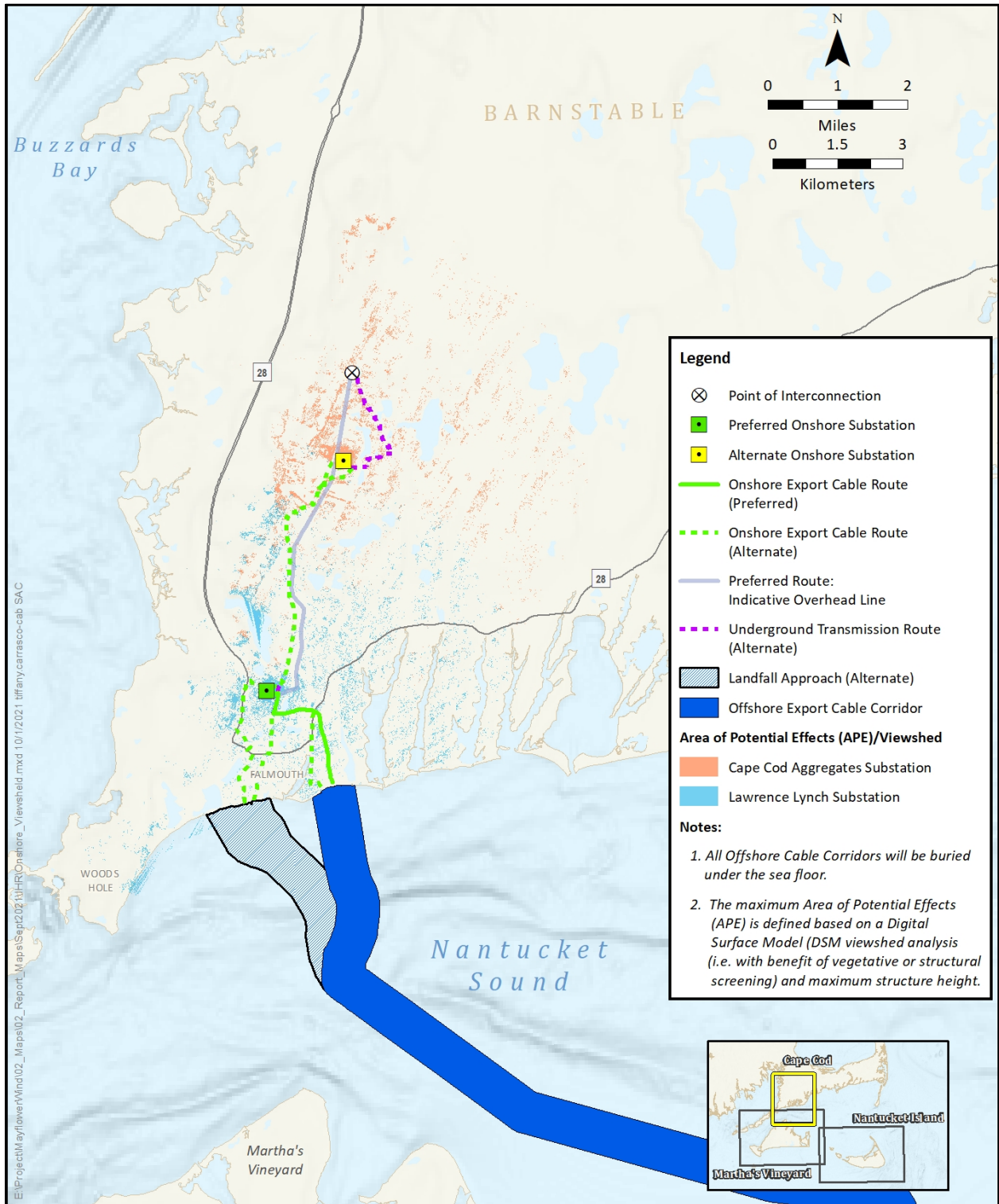


Figure 2-3. Mayflower Wind Onshore APE

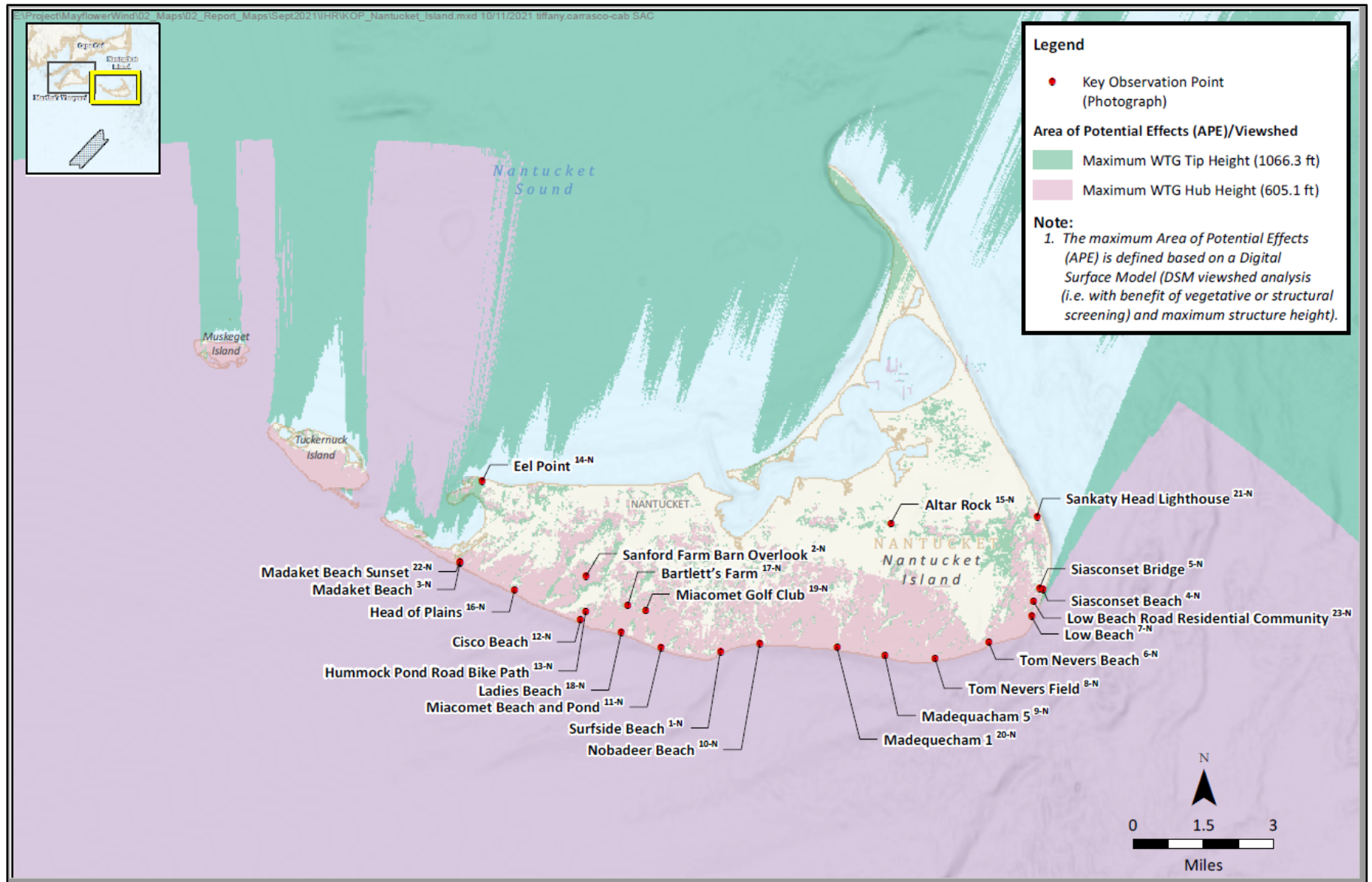


Figure 2-4. Nantucket KOPs

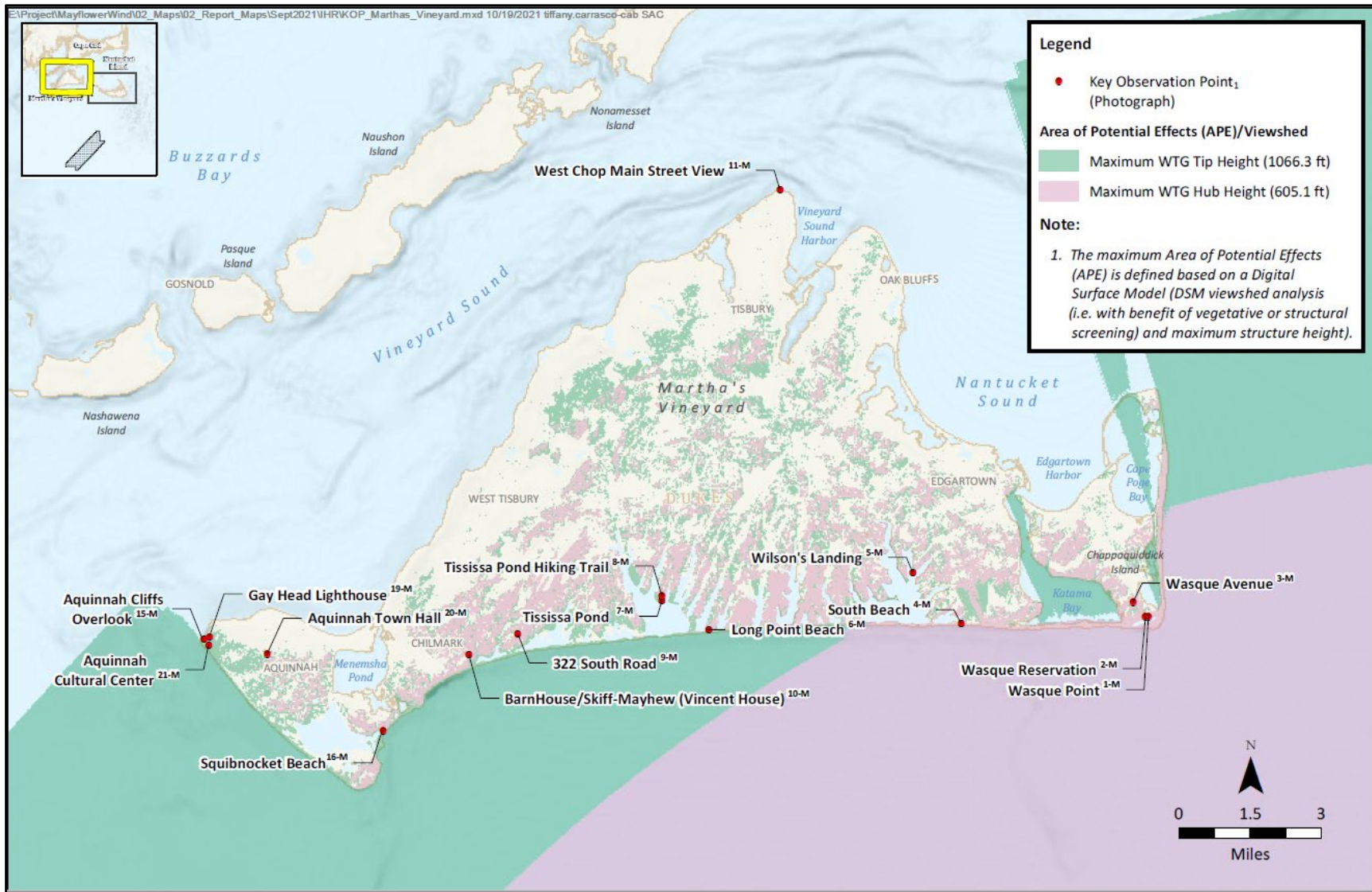


Figure 2-5. Martha's Vineyard KOPs

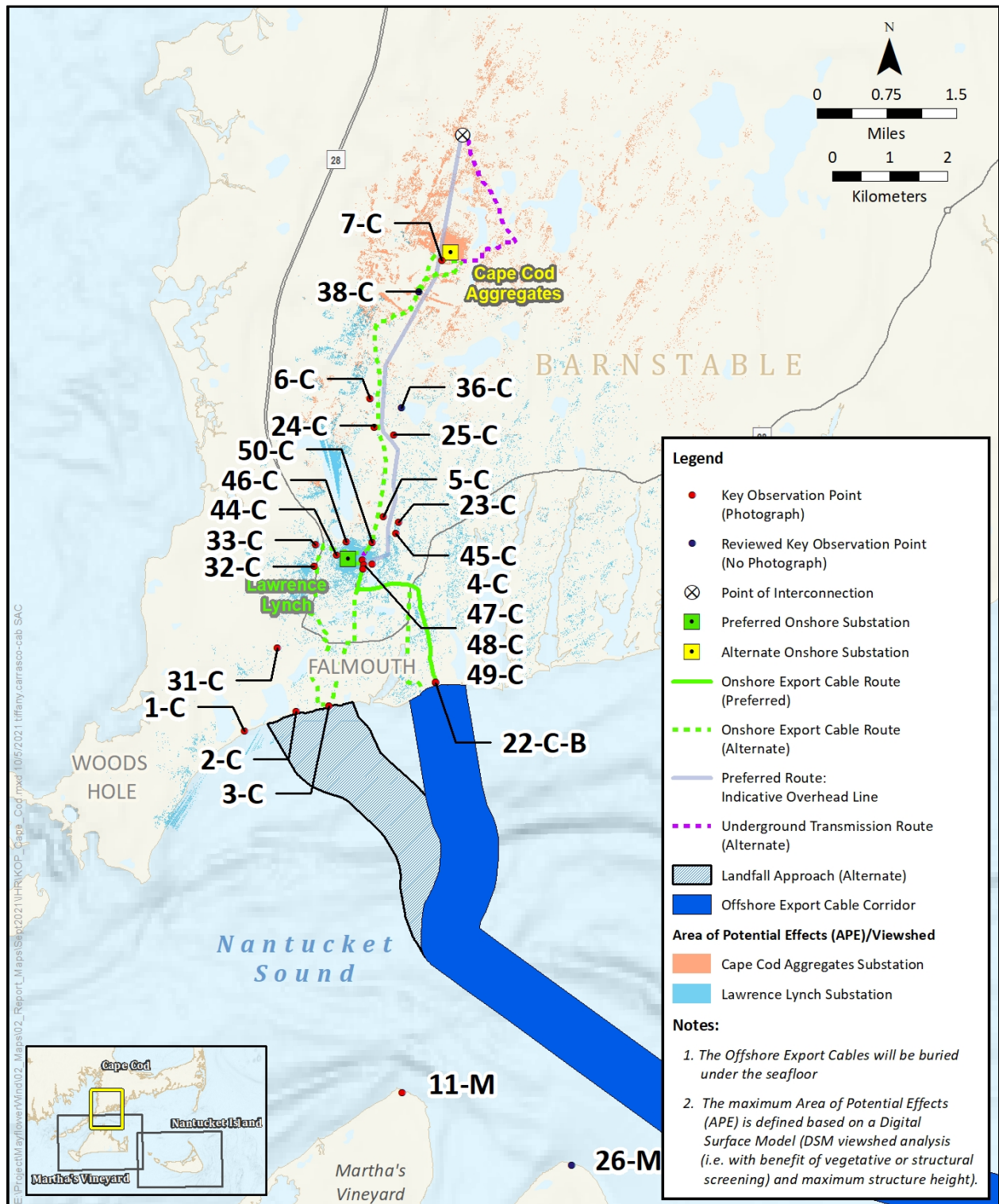


Figure 2-6. Cape Cod KOPs

3.0 Analysis of Visual Effects

This section contains an analysis of visual effects to historic properties within the offshore and onshore APEs. According to Section 106 of the NHPA, historic properties are defined as:

“...any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria” (36 CFR 800.16 (l)(1)).

Five historic resources within the APE that have a potential view of Project components do not have formal NRHP-eligibility determinations. For the purposes of this study, all five are considered eligible for listing in the NRHP and therefore, are historic properties for the purposes of Section 106. Additional information on significance and integrity is provided below.

Since this study addresses potential visual effects to historic properties from new above-ground facilities (such as the offshore WTGs/OSPs and the substation) it was critical to determine which properties have a setting that is a characteristic feature of their significance, which is also addressed in the following sections.

The effects of a project or other undertaking on cultural resources are evaluated according to the Definition of Effect (36 CFR 800.4(d)) and the Criteria of Adverse Effect (36 CFR 800.5) as established by Section 106 of the NHPA. A project is considered to have a positive or negative effect if it “causes or may cause a change in the quality of the characteristics that qualify the property to meet the criteria for listing in the National Register of Historic Places” (36 CFR 800.16(i)).

This report addresses potential visual effects to historic properties resulting from the construction and operation of above-ground Project facilities. Components like the offshore export cables, inter-array cables, onshore export cables, and underground transmission cables are not anticipated to create visual effects to historic properties and therefore are not addressed in this report. Based on the nature of the onshore and offshore Project activities, physical or audible effects are not anticipated. If other historic properties are identified in consultation with the Tribes and MHC, they will be addressed as a supplement to this report, as well as in other reports intended to comply with Section 106 and Section 110.

Potential visual effects to historic properties may result from a change to a historic property’s setting. In the case of historic properties within the offshore APE, if some of their significance was derived from an unobstructed ocean view, then the introduction of WTGs/OSPs to the setting has the potential to compromise the characteristics that make it eligible for the NRHP; and therefore, may result in an adverse effect. Similarly, some onshore historic properties, particularly those that may be within a historic district, where setting is an integral part of the significance, may be visually affected by the introduction of a new substation in the setting.

The assessment of effects was also informed by the findings of the VIA (COP Appendix T). Visibility of the Project from historic properties was determined by field investigation, desktop analysis, and the development of the visual simulations and were assigned a rating that indicates the degree of Visual Change associated with the Project. The visibility ratings were used in combination with the Criteria of Adverse Effect and the simulations to determine the level of visual change and whether it had the potential to alter the characteristics that make the historic properties eligible for listing in the NRHP. In general, it was determined that the Project would likely adversely affect a historic property with a setting that was integral to its significance where the Visual Change was rated as *Visibility Level 5-6 (Medium to Strong)*. Detailed effects assessments for each of the historic properties are located in the following sections. Visual simulations are provided in Attachment 1 for those properties that fall within the APE and would likely have a view of the onshore or offshore Project components.

For a summary of the effects to historic properties in the offshore and onshore APE, see Table 3-1 below.

3.1 Offshore APE

The most northern point of the Lease Area is located approximately 30 mi (48 km) southeast of the southern shore of Martha's Vineyard and 23 mi (37 km) south of the southern shore of Nantucket. The offshore APE for the Project includes all areas where the Project components are visible as determined by the field investigations and desktop analysis. Generally, the Lease Area is visible up to 1 mi (1.6 km) inland from the southern shoreline of the island of Nantucket, as well as up to 1 mi (1.6 km) inland on the adjacent outlying islands of Tuckernuck and Muskeget. Similarly, the Lease Area is also visible up to 1 mi (1.6 km) inland from the southern shoreline of Martha's Vineyard and Chappaquiddick Island.

Within the offshore APE there are a total of ten historic properties: two on Nantucket, five on Martha's Vineyard and three TCPs. See Figure 3-1 and Figure 3-2 showing the locations of all historic properties within the offshore APE.

Of the ten historic properties, six have settings that are an integral part of their significance and also appear to have a view of the offshore or onshore Project components. However, views of the Lease Area from most historic properties would be minimized by distance, curvature of the earth, vegetation, and existing buildings. Introduction of new visual elements to the offshore APE, in particular the WTGs/OSPs, has the potential to cause a visual intrusion to the setting to one property that could compromise the characteristics that make it eligible for listing in the NRHP, as an NHL, or as a TCP.

The analysis has determined that the offshore Project components will be visible from multiple KOPs and associated use areas from much of the southern portion of Nantucket Island and from the southeastern part of Martha's Vineyard. While the WTGs will be placed at a considerable distance from both islands, factors contributing to visibility include the large size and number of WTGs, spinning blades and, flashing aviation warning lights. Offshore Project facilities will be visible to the casual observer on the horizon line from multiple viewpoints, atmospheric conditions permitting.

Distance is a key factor in the visibility of the offshore Project components. Due to the curvature of the earth, Project features begin to "recede" over the horizon before the first line of WTGs, and approximately the rear (west) half of WTGs will not be visible from shore. Elevation of the viewer makes some difference, with higher land-based viewpoints allowing a more distant horizon to be in view.

Based on the visual modeling and impact assessment, offshore Project facilities may result in an adverse effect to one historic property: Nantucket Historic District. See Table 3-1 below for a summary of potential visual effects. Descriptions of the historic properties and detailed effects assessments are contained in the subsections below.

Table 3-1. Analysis of Visual Effects on Historic Properties in the Offshore and Onshore APEs

MHC#	Resource Name	Town	County	Designation and Date	Distance to WTGs/ OSPs (mi/km)	Significant Setting	Visual Simulation (see Attachment 1)	Visual Contrast Rating	Effects Finding
NAN.D, NAN. F	Nantucket Historic District	Nantucket	Nantucket	NR Listed 11/13/1966 NHL 11/13/1966	22.3 mi (35.9 km)	Yes	6-N, 8-N, 11-N, 12-N, 13-N	Level 2-3 (8-N); Level 3-4 (6-N and 11-N); and Level 4-5 (12-N [both clear and overcast skies] and 13-N)	Adverse Effect
NAN.E	Sankaty Head Light*	Nantucket	Nantucket	NR Listed 12/2/2002 TRA 6/15/1987	28.8 mi (46.3 km)	Yes	21-N	Level 1-2	No Adverse Effect
EDG.907, NAN.939, FAL.973, MAS.916	Nantucket Sound TCP	N/A	N/A	NR TCP 1/4/2010	28.19 mi (45.3 km)	Yes	1-MV, 2-MV, 3-MV	Level 2-3 (1-MV and 2-MV) Level 3-4 (3-MV)	No Adverse Effect
CHL.E, TIS.F, WT1.F	Martha's Vineyard American Revolution Battlefield	Chilmark, West Tisbury	Dukes	Inventoried	36.73 mi (59.10 km)	No	9-MV	Level 1-2	No Adverse Effect
CHL.35	Capt. Samuel Hancock – Capt. West Mitchell House	Chilmark	Dukes	Inventoried	35.57 mi (57.24 km)	No	6-MV (1.8 mi/2.9 km southeast)	Level 2-3	No Adverse Effect
CHL.38	Russell Hancock House	Chilmark	Dukes	Inventoried	36 mi (57.93 km)	No	6-MV (2.57 mi/4.13 km) east, 9-M (1.53 mi/2.46 km) west	Level 2-3 (6-MV) Level 1-2 (9-MV)	No Adverse Effect
CHL.39	Elijah Smith House	Chilmark	Dukes	Inventoried	36.92 mi (59.42 km)	No	16-MV (0.25 mi/0.40 km southwest)	Level 1-2	No Adverse Effect
WT1.170	Scrubby Neck Schoolhouse	West Tisbury	Dukes	Inventoried	34.73 mi (55.89 km)	No	6-MV (0.49 mi/0.79 km southeast)	Level 2-3	No Adverse Effect
Unassigned	Chappaquiddick Island TCP	Edgartown	Dukes	NR TCP 2019	30 mi (48.2 km)	Yes	1-MV, 2-MV, 3-MV	Level 2-3 (1-MV and 2-MV) Level 3-4 (3-MV)	No Adverse Effect
Unassigned	Vineyard Sound and Moshup's Bridge TCP	Multiple	Multiple	NR TCP 1/26/2021	31.43 mi (50.59 km)	Yes	16-MV	Level 1-2	No Adverse Effect
FAL.BF	Oak Grove Cemetery	Falmouth	Barnstable	NR Eligible 9/10/2014	0.10 mi (0.2 km) (LL) 3.34 mi (5.38 km) (CCA)	Yes	44-C	Level 4-5	Adverse Effect

3.1.1.1 Nantucket Historic District (NAN.D, NAN.F)

Nantucket Historic District is located 22.3 mi (35.9 km) north of the Lease Area. Nantucket Historic District includes Tuckernuck Island, Muskeget Island and Nantucket Island. Nantucket Island is a well-preserved New England seaport which retains intact buildings dating to the eighteenth and nineteenth century, when the whaling industry provided the primary source of commerce in the town. Economic decline on the island is largely responsible for the survival of excellent and intact architectural resources from the Colonial, Federal, Greek Revival, and Victorian periods. Preservation of these resources, and the island's location off the coast of Cape Cod, led to its additional significance as an early vacation resort, which has proved a challenge to the protection of the island as a resource. Tuckernuck Island contains a small collection of nineteenth and twentieth century buildings. Like Nantucket, it is largely known for its nineteenth century architecture and benefited from the rise of the whaling industry. Muskeget Island is largely devoid of structures with only one building, a circa 1910 former Coast Guard boathouse, which is used as a summer residence. Topography of the Historic District includes dense residential development from the era of whaling and more currently, as a tourist destination, grassy public parcels and lawns, as well as undeveloped barren areas with grasslands, heathlands and salt marshes, scrub oak, deciduous trees, and barrens of pitch pine barrens that are up to 40 feet (12.2 m) tall.

Nantucket Historic District was determined to be an NHL on November 13, 1966 and listed in the NRHP on November 19, 1966. On October 16, 2012, the NHL nomination was updated and the historic district boundaries were expanded from just Nantucket Island to include all Tuckernuck and Muskeget Islands as well. The district is significant under NRHP Criterion A/NHL Criterion 1 for its association with the whaling industry in New England; NRHP Criterion C/NHL Criterion 4 for the array of well-preserved resources reflecting a range of architectural styles and eras; and NRHP Criterion D for important cultural and historical data it has yielded or may yield. The period of significance begins in 1650 with the origination of the whaling industry and extends until its demise in 1849 then spans to 1975 to include the period in which it emerged and thrived as a summer resort and the decline of the whaling industry (Chase-Herrill, 2012). Character-defining features of Nantucket Historic District include the collection of well-preserved buildings from Colonial, Federal, Greek Revival, and Victorian periods; the maritime setting of the district as an important whaling center with a high concentration of buildings, both simple and elaborate, oriented toward shorelines, harbors, and ocean vistas; and unobstructed views of the ocean from locations throughout the island. As a collection of resources that are united historically and aesthetically by plan and physical development, setting is an important character-defining feature of the historic district's integrity.

Recommended Determination – Adverse Effect

Introduction of WTGs/OSPs into the seascape horizon of the NHL-listed Nantucket Historic District, would likely result in an adverse visual effect upon the viewshed and setting. The visibility of the WTGs/OSPs is shown in the Nantucket Visual Simulations in Attachment 1. Simulated conditions, particularly along the south shore of the island at historic locations such as Tom Nevers Field (KOP 8-N) has a **Weak to Moderate** Visual Change reflected by a rating of *Visibility Levels 2 to 3*. While Tom Nevers Beach (KOP 6-N) and Miacomet Beach (KOP 11-N), were rated with a **Moderate** Visual Change (*Visibility Levels 3 to 4*). Cisco Beach (KOP 12-N) under both clear and overcast skies, as well as Hummock Pond Road Bike Path (13-N) were rated as a **Moderate to Strong** Visual Change rating (*Visibility Levels 4 to 5*). The range of ratings as assigned to different simulations is intended to reflect the influence of blade movement, differing atmospheric conditions, and lighting, all of which may influence the apparent level of Visual Change as well as the dominance or prominence of the introduced structures in the view. Based on this assessment, introduction of the WTGs/OSPs would result in a change to the unobstructed ocean viewshed of the district, potentially compromise the setting of the resource, which is one of its key character-defining features. As a result, the Project would likely result in an adverse effect to Nantucket Historic District.

3.1.1.2 Sankaty Head Light (NAN.E)

Sankaty Head Light is located on a 90-ft (27-m) high bluff overlooking the Atlantic Ocean on the east side of Nantucket and provides a beacon to vessels approaching from the Southern Shoals. The surrounding terrain is grassland and tightly groomed golf courses as well as parcel boundaries defined by scrub oaks and loosely groomed shrubs. It is approximately 1.5 mi (2.4 km) north of Siconset and within 2 mi (3.2 km) of four golf courses. The 1870 cylindrical brick and granite lighthouse is 70 ft (21 m) tall and was electrified in 1933, then

automated in 1965. It is owned by the Siconset Trust and was moved 400 ft (122 m) northwest of its original and eroding location in October 2007. The resource is also part of the NRHP-eligible Lighthouses of Massachusetts Thematic Resource Area (TRA) (listed June 15, 1987). It is eligible under Criterion A for association with maritime navigation in the state, and Criterion C for its architecture (Fox, 1981b). Character-defining features include the shape and massing of the lighthouse; its prominent location on the high cliffs of the island's east shore, making it a scenic viewpoint throughout the island; and the unobscured view of the lighthouse toward the ocean, which is integral to its function as a beacon for vessels as they approach land. As a light house, the setting, and views to the sea are key characteristic features.

Sankaty Light Station is also a contributing resource to the Lighthouses of Massachusetts (BOU.F), which was determined to be NRHP eligible on June 15, 1987. A TRA is a multiple property submission consisting of individually documented and listed NRHP resources which are linked by a thematic context. The Lighthouses of Massachusetts TRA consists of forty-two lighthouses from the eighteenth, nineteenth, and twentieth centuries located along the coastline of Massachusetts in Essex, Suffolk, Norfolk, Plymouth, Bristol, Barnstable, Dukes, and Nantucket counties. The Lighthouses of Massachusetts TRA is significant under Criteria A, B, and C based upon the NRHP criteria established for each of the individual lighthouses (Tait and Fox, 1987). A Multiple Property Documentation Form (MPDF) with a listing of all lighthouses in the nation, as well as a comprehensive description of significance, character-defining features, setting, and integrity was accepted by the NRHP on December 2, 2002 (Clifford, 2002).

Recommended Determination – No Adverse Effect

One KOP was captured from approximately 500 ft southeast of Sankaty Light Station. A view from the light station toward the Lease Area is illustrated in KOP 21-N in Attachment 1. This location was assigned a visual contrast rating of Level 1-2 representing a **Weak** Visual Change. Visibility Level 1 is when the Project is visible only after extended, close viewing, but is otherwise invisible. Visibility Level 2 is when the Project is visible when scanning in the general direction of the Project, otherwise likely to be missed by casual observers. As a navigational structure, unobstructed views of the ocean are key characteristic feature of Sankaty Head Light's significance. However, it is located on the eastern side of the island, and the WTGs/OSPs will be located 28.8 (46.3 km) to the south. A direct view from the light station to the Lease Area will be dominated by land and will almost entirely be obstructed by grasslands, vegetation and the built environment. Introduction of the WTGs/OSPs would result in no change to the unobstructed ocean viewshed of the lighthouse, one of the key character-defining features of the historic property. As a result, the Project would result in no adverse effect to Sankaty Light Station.

3.1.1.3 Nantucket Sound (EDG.907, NAN.939, FAL.973, MAS.916)

Nantucket Sound is located 28.19 mi (45.3 km) north of the Lease Area. It is a triangular and shallow marine basin whose edges are formed by the islands of Nantucket, Martha's Vineyard and Monomoy, the submerged shoals associated with these islands, and by the south and southeastern shores of Cape Cod (US Dept of Commerce, Coast, and Geodetic Survey, 1970). The shoreline features coastal vegetation and native grasses as well as areas of rocky cliffs and sandy shoreline, while inland are salt marshes, scrub oaks, deciduous trees, dense brush.

Nantucket Sound was determined to be eligible for listing in the NRHP on January 4, 2010 as a TCP and as an historic and archaeological property associated with and has the potential to yield valuable information about the Native American exploration and settlement of Cape Cod and the Islands (Shull, 2010). The resource is significant "under Criterion A for its associations with the ancient and historic period Native American exploration and settlement of Cape Cod and the Islands, and with the central events of the Wampanoags' stories of Maushop and Squant/Squannit; Criterion B for its association with Maushop and Squant/Squannit; Criterion C as a significant and distinguishable entity integral to Wampanoags' folklife traditions, practices, cosmology, religion, material culture, foodways, mentoring, and narratives; and, Criterion D for the important cultural, historical, and scientific information it has yielded and/or may be likely to yield through archeology, history, and ethnography about access to resources, patterns of settlement, mobility, and land use prior to and after 6,000 years ago as a result of the inundation of the Sound (BOEM, 2019)."

Setting is a key characteristic feature of Nantucket Sound, particularly under Criterion A. The importance of the setting and views to the ocean were described in the Wampanoag Tribal Historic Preservation Officer's September 17, 2009 opinion letter:

We are the Wampanoag People, 'The People of the First Light or Dawn', this is how we identify ourselves and how other tribes recognize us. The unobstructed view of this expanse of water, bordered by the south shore of Cape Cod on its north side, by Nantucket on the southern side and Martha's Vineyard on its western side is of utmost importance to the Wampanoag People. The WTHPO asserts that the eastern vista viewshed is essential to the Wampanoag People for our cultural beliefs, identity and spirituality. The viewshed is one of the places where our People historically had, and continue, to have a connection in practicing our cultural ceremony and traditions.

Recommended Determination – No Adverse Effect

The southeast corner and southern edge of Nantucket Sound TCP is within the Offshore APE and would potentially have a view of the WTGs/OSP(s) from just above the horizon line between Martha's Vineyard and Muskeget Island. The nearest KOPs to Nantucket Sound are KOPs from Wasque Point (1-MV), Wasque Reservation (2-MV), and Wasque Avenue (3-MV), captured on Chappaquiddick Island and presented in Attachment 1. KOPs 1-MV and 2-MV were assigned a visual contrast rating of Level 2-3 representing a **Weak to Moderate** Visual Change. Visibility Level 2 is when the Project is visible when scanning in the general direction of the Project, otherwise likely to be missed by casual observers. Level 3 is when the Project is visible only after a brief glance in the direction of the Project facilities. KOP 3-MV was assigned a visual contrast rating of Level 3-4, representing a **Medium** Visual Change. The Sound's setting and viewshed are considered integral to site eligibility as a TCP, and as a result, the property's sensitivity to visual effects is high. However, the 2009 nomination, which cites characteristics of the setting that are important to the resource, suggests that the eastern vista viewshed is most important, and does not consider views to the south, where the Lease Area would be located. In addition, based on the distance to the Lease Area and mitigating factors such as the curvature of the earth, the view would not compromise the characteristics that make the historic property eligible for listing in the NRHP. As a result, the Project would result in no adverse effect on Nantucket Sound TCP.

3.1.1.4 Martha's Vineyard American Revolution Battlefield (CHL.E, TIS.F, WTI.F)

Martha's Vineyard American Revolution Battlefield is located 36.64 mi (58.9 km) northwest of the Lease Area at its closest point. The battlefield consists of a long swath of land starting at the intersection of Middle Road, South Road, and Menemsha Crossroad in Chilmark. The resource boundary follows South Road northeast through Chilmark into West Tisbury, where the road becomes State Road and travels northeast into Tisbury. The resource boundary continues to follow that road northeast until it reaches Nantucket Sound. The setting varies between dense tree growth and a rural residential landscape in Chilmark and West Tisbury to a dense residential area in Tisbury. The resource boundary was dictated by the route the British took during a raid on the area during the Revolutionary War.

Martha's Vineyard American Revolution Battlefield is recorded in MACRIS as an "inventoried" resource that has not been formally evaluated for NRHP eligibility. While parts of the route followed by the British during its raid has sustained alterations, much of the march line remains intact. The raid was the most significant event of the American Revolution on the island of Martha's Vineyard, and while it had little effect on the overall war, the island sustained damages that shaped its development for several years following the raid. Though there is some modern infrastructure, the district retains integrity of location, design, setting, material, workmanship, feeling, and association. Martha's Vineyard American Revolution Battlefield is considered eligible for the purposes of this Project under Criterion A for its association with the important event of the 1778 raid of the British on the island, and Criterion C as a collection of intact historic properties dating from the eighteenth century. Although the rural and agricultural setting along the route may be a character-defining feature, there is no indication that unobstructed views off the southern coast of the island are integral to the significance (Burdick, 2001).

Recommended Determination – No Adverse Effect

One KOP was captured from the southeastern portion of CHL.E in the vicinity of South Road. Views from the resource toward the Project are represented in Martha's Vineyard Visual Simulations KOP 9-MV in

Attachment 1. This location was assigned a visual contrast rating of Level 1-2 representing a **Weak** Visual Change. Visibility Level 1 is when the Project is visible only after extended, close viewing, but is otherwise invisible. Visibility Level 2 is when the Project is visible when scanning in the general direction of the Project, otherwise likely to be missed by casual observers. Since unobstructed ocean views are not an important characteristic to the resource and there would be a minimal change to the viewshed, introduction of the Project would not compromise the characteristics that make Martha's Vineyard American Revolution Battlefield eligible for listing in the NRHP. As a result, the Project would result in no adverse effect to Martha's Vineyard American Revolution Battlefield.

3.1.1.5 Capt. Samuel Hancock-Capt. West Mitchell House (CHL.35)

The Capt. Samuel Hancock-Capt. West Mitchell House is located 35.35 mi (56.89 km) north of the Lease Area. The Hancock-Mitchell House is a 108.7-acre (43.9-hectare) property on Quansoo Road in Chilmark which includes a Cape Cod-style dwelling, shed, and outhouse. The dwelling's main block was constructed as early as circa 1655, with kitchen, cellar, pantry, and roof extension additions likely in the 1680s and enlarged to the full house size ca. 1766. Much research has been completed on the resource, but the exact construction dates of the dwelling still remain unclear. Character-defining features include the wood exterior, distinct building sections, brick chimneys, and secluded location.

The Capt. Samuel Hancock-Capt. West Mitchell House is recorded in MACRIS as an "inventoried" resource that has not been formally evaluated for NRHP eligibility. The house was recently restored in 2015 and continues to retain integrity of location, design, setting, material, workmanship, feeling, and association. The Hancock-Mitchell house is considered eligible for the purposes of this Project under Criterion A for its association with the maritime history of Martha's Vineyard, and Criterion C as a rare, intact example of early timber-frame architecture. As a historic property that is significant for its architectural merit, the setting of the resource is not a key characteristic feature of the building's integrity (Arcuti and Otteson, 1998a).

Recommended Determination – No Adverse Effect

The closest KOP to the Capt. Samuel Hancock-Capt. West Mitchell House is KOP 6-MV, which was captured 1.8 mi (2.9 km) southeast of the historic property near Long Point Beach. The Hancock-Mitchell House is situated approximately 800 ft (243.8 m) north of Black Point Pond and based on aerial images, appears to have an unobstructed view of the ocean beyond the pond. Views from the resource toward the Project are represented in Martha's Vineyard Visual Simulations KOP 6-MV in Attachment 1. This location was assigned a visual contrast rating of Level 2-3 representing a **Weak to Moderate** Visual Change. A **Weak to Moderate** rating indicates that the Project may often be visible only after scanning the horizon and could be missed by the casual observer. However, under certain lighting and atmospheric conditions documented in the simulations, the Project may be visible after a brief glance in the general direction of the Project; unlikely to be missed by casual observers. The Project would not be visually dominant due primarily to viewing distance from the KOP to the Project and the apparent small scale of the structures at such distances. Since unobstructed ocean views are not an important characteristic to the resource and there would be a minimal to moderate change to the viewshed, introduction of the Project would not compromise the characteristics that make the Hancock-Mitchell House eligible for listing in the NRHP (Arcuti and Otteson, 1998b). As a result, the Project would result in no adverse effect on the Hancock-Mitchell House.

3.1.1.6 Russell Hancock House (CHL.38)

The Russell Hancock House is located 35.82 mi (57.65 km) north of the Lease Area. The Russell Hancock House is a 59.9-acre (24.2-hectare) property on Quenams Road which includes a circa 1842 Greek Revival-style dwelling. The setting of the resource is open rural fields lined by mature trees and dense vegetation, with the dwelling set approximately 1.5 miles (2.4 km) from the road.

The Russell Hancock House is recorded in MACRIS as an "inventoried" resource that has not been formally evaluated for NRHP eligibility. Character defining features of the dwelling include its 6/6 wood windows, shake shingle exterior, corner pilasters, granite foundation, wood shingle roof, and thick cornice. The Russell Hancock House is considered eligible for the purposes of this Project under Criterion C as a representative and intact example of rural Greek Revival architecture on Martha's Vineyard. As a historic property that is

significant for its architectural merit, the setting of the resource is not a key characteristic feature of the building's integrity (Arcuti and Otteson, 1998c).

Recommended Determination – No Adverse Effect

The Russell Hancock House is situated approximately 0.25 mi (0.40 km) north of Quenames Cove and based on aerial images, may possibly have an unobstructed view of the ocean beyond the pond. The closest KOPs to the Russell Hancock House are KOP 6-MV and 9-MV, but both are a significant distance away and may not accurately represent a view from the historic property. KOP 9-MV is 1.53 mi (2.46 km) west and 6-MV is approximately 2.57 mi (4.13 km) east of the historic property. KOP 9-MV was assigned a visual contrast rating of Level 1-2 representing a **Weak** Visual Change. Visibility Level 1 is when the Project is visible only after extended, close viewing, but is otherwise invisible. Visibility Level 2 is when the Project is visible when scanning in the general direction of the Project, otherwise likely to be missed by casual observers. KOP 6-MV was assigned a visual contrast rating of Level 2-3 representing a **Weak to Moderate** Visual Change. A **Weak to Moderate** rating indicates that the Project may often be visible only after scanning the horizon and could be missed by the casual observer. However, under certain lighting and atmospheric conditions documented in the simulations, the Project may be visible after a brief glance in the general direction of the Project; unlikely to be missed by casual observers. The Project would not be visually dominant due primarily to viewing distance from the KOP to the Project and the apparent small scale of the structures at such distances. Despite these ratings, an unobstructed ocean view to the south is not an important characteristic of the significance of the history property and a minimal to moderate change to the viewshed would not compromise the characteristics that make the Russell Hancock House eligible for listing in the NRHP. As a result, the Project would result in no adverse effect to the historic property.

3.1.1.7 Elijah Smith House (CHL.39)

The Elijah Smith House is located 36.92 mi (59.42 km) northwest of the Lease Area. The Elijah Smith House is a 1-acre (0.40-hectare) property on Quitsa Lane which includes a circa 1770 Colonial Cape Cod dwelling. The setting of the resource is an open grassy area immediately surrounding the dwelling, with some mature trees and lined by mature trees and dense vegetation, with the dwelling set near the road.

The Elijah Smith House is recorded in MACRIS as an “inventoried” resource that has not been formally evaluated for NRHP eligibility. Character defining features of the dwelling include its 2/2 wooden windows, wood shingle exterior, stone foundation, central chimney, and wood cornice. The Elijah Smith House is considered eligible for the purposes of this Project as an example of an eighteenth-century Colonial Cape Cod dwelling (Criterion C). Although an MHC inventory form from 1998 cites Smith's association with Grey's Raid in 1778 during the Revolutionary War as the tax collector when British troops raided the town coffers, that association does not appear to warrant significance under Criterion A. Therefore, as a historic property that is significant for its architectural merit, an unobstructed view to the ocean is not a key characteristic feature.

Recommended Determination – No Adverse Effect

The closest KOP to the Elijah Smith House is 16-MV located 0.25 mi (0.40 km) southwest of the historic property. Views from the resource toward the Project are represented in Martha's Vineyard Visual Simulations KOP 16-MV in Attachment 1. This location was assigned a visual contrast rating of Level 1-2 representing a **Weak** Visual Change. Visibility Level 1 is when the Project is visible only after extended, close viewing, but is otherwise invisible. Visibility Level 2 is when the Project is visible when scanning in the general direction of the Project, otherwise likely to be missed by casual observers. Based on aerial images, it appears the Elijah Smith House would not have a clear view of the Lease Area due to dense vegetation along the southeast side of Quitsa Lane, which would likely prevent a view to the Lease Area, which is located to the southeast. Furthermore, a minimal change to the viewshed would not compromise the characteristics that make the Elijah Smith House eligible for listing in the NRHP. As a result, the Project would result in no adverse effect on the historic property.

3.1.1.8 Scrubby Neck Schoolhouse (WTI.170)

The Scrubby Neck Schoolhouse is located 34.52 mi (55.55 km) north of the Lease Area. It is a vernacular, one room schoolhouse constructed circa 1830 located on Long Point Reservation. The setting of the schoolhouse is a small open field surrounded by dense mature tree growth, between several bodies of water. Though the schoolhouse is now used as a storage shed.

The Scrubby Neck Schoolhouse is recorded in MACRIS as an “inventoried” resource that has not been formally evaluated for NRHP eligibility. The building retains integrity of location, design, setting, material, workmanship, feeling, and association as one of the last surviving examples of its type. The Scrubby Neck Schoolhouse is considered eligible for the purposes of this Project under Criterion A for its association with the development of the public-school system on the island, and under Criterion C as a significant and unaltered example of a typical early to mid-nineteenth century one room schoolhouse on Martha’s Vineyard. Character defining features of the schoolhouse include its one-room structure, 6/9 wood windows, and wood shake shingle exterior. As a historic property that is significant for its architectural merit and association with the school system, the setting of the resource is not a key characteristic feature of the building’s integrity (Bouck, 1985).

Recommended Determination – No Adverse Effect

The closest KOP to the Scrubby Neck Schoolhouse is KOP 6-MV, which is located approximately 0.50 mi (0.80 km) southeast of the historic property. Views from the resource toward the Project are represented in Martha’s Vineyard Visual Simulations KOP 6-MV in Attachment 1. This location was assigned a visual contrast rating of Level 2-3 representing a **Weak to Moderate** Visual Change. A **Weak to Moderate** rating indicates that the Project may often be visible only after scanning the horizon and could be missed by the casual observer. However, under certain lighting and atmospheric conditions documented in the simulations, the Project may be visible after a brief glance in the general direction of the Project; unlikely to be missed by casual observers. The Project would not be visually dominant due primarily to viewing distance from the KOP to the Project and the apparent small scale of the structures at such distances. Since unobstructed ocean views are not an important characteristic to the resource and there would be a minimal to moderate change to the viewshed, introduction of the Project would not compromise the characteristics that make the Scrubby Neck Schoolhouse eligible for listing in the NRHP. As a result, the Project would result in no adverse effect to the Scrubby Neck Schoolhouse.

3.1.1.9 Chappaquiddick Island TCP (Unassigned)

Chappaquiddick Island TCP is located 30 mi (48.2 km) north of the Lease Area. Chappaquiddick Island is at the eastern end of Martha’s Vineyard and is connected to the main island by a narrow barrier beach that is often breached by storms and winds. The landscape of this undeveloped island is largely scrub oak, pitch pines, oak trees, and red cedars that are up to approximately 20 ft (6.1 m) tall. The Chappaquiddick branch of the Wampanoag Indian Tribe inhabited the island into the nineteenth century and currently are settled on a 100-acre (40-hectare) reservation within the island’s brush land interior. In May and June 2019, the non-federally recognized Chappaquiddick Wampanoag Tribe notified BOEM of potential impacts to Chappaquiddick Island resulting from the Vineyard Wind project. As a result, Chappaquiddick Island was determined by BOEM to be potentially eligible for listing in the NRHP as a TCP. The designation does not contain specific boundaries, but would roughly encompass the Island of Chappaquiddick, including the Chappaquiddick Lots at North Neck; Chappaquiddick Lots of Edgartown, Cape Poge Lighthouse, Norton Point and Katama Bay, Poucha Pond, and Sampson Hill. The Island is considered eligible under Criterion A for its association with and importance in maintaining the continuing cultural identity of the community (BOEM, 2019). Character-defining features include the island’s location and topography which allow for clear and unobstructed views of the sunrise and sunset; the close proximity to water, from which sea creatures are fished by the local tribe; areas of high elevation that serve as a lookout for storms, fire, tidal changes, constellations, and whales; and the native plantings, berries, and herbs that are regularly harvested by local tribes, residents, and tourists.

Recommended Determination – No Adverse Effect

Observations made during the field investigation determined that the Lease Area is potentially visible from the southern portion of Chappaquiddick Island. The setting of the island is integral to its value as a TCP for the

Chappaquiddick Wampanoag Tribe, and it holds several traditional sites that “include (but are not limited to) ceremonial viewsheds associated with sunrise and sunset activities, morning and full moon ceremonies; and ceremonies for hunting of marine and land mammals” (BOEM, 2019). Views from the island toward the Project are represented in Martha’s Vineyard Visual Simulations KOPs from Wasque Point (1-MV), Wasque Reservation (2-MV), and Wasque Avenue (3-MV) in Attachment 1. KOPs 1-MV and 2-MV were assigned a visual contrast rating of Level 2-3 representing a **Weak to Moderate** Visual Change. Visibility Level 2 is when the Project is visible when scanning in the general direction of the Project, otherwise likely to be missed by casual observers. Level 3 is when the Project is visible only after a brief glance in the direction of the Project facilities. KOP 3-MV was assigned a visual contrast rating of Level 3-4, representing a **Medium** Visual Change. The site is sensitive to visual effects; however, mitigating factors, such as distance and the curvature of the earth, limit visibility of the Project components, making them less intrusive to viewers. As a result, the Project will result in no adverse effect to Chappaquiddick Island TCP.

3.1.1.10 Vineyard Sound and Moshup’s Bridge (Unassigned)

Vineyard Sound and Moshup’s Bridge TCP is a culturally significant resource located within the lands and waters that encompass Vineyard Sound, the Elizabeth Islands, the Gay Head Cliffs, and Nomans Island. The inland area consists of an open canopy of scrub oaks, evergreens, and deciduous trees with dense brush undergrowth. Grasses and native coastal vegetation line the shoreline. Also included are the associated shallow water shoals that are found along the southwestern and western shores of Martha’s Vineyard. The resource was identified based on consultation with the THPO of the Wampanoag Tribe of Gay Head (Aquinnah) in February 2021 by BOEM for the Vineyard Wind project, and was determined to be eligible for listing in the NRHP under all four Criteria (A-D): It is significant under Criterion A for association with ancient and historic Native American events, including exploration and settlement of Aquinnah and formation of the land’s character; under Criterion B as a significant figure in Aquinnah oral and written traditions; under Criterion C as a significant component of Aquinnah life and cultural practices; and under Criterion D for the potential information it may yield. The boundary of this TCP is flexible in order to allow for future additions based on internal discussions among tribal stakeholders (BOEM, 2021).

Recommended Determination - No Adverse Effect

In March 2021, Vineyard Wind issued a “Supplement to the Finding of Adverse Effect of the Vineyard Wind 1 Project, Construction and Operations Plan” to address the NRHP-eligible Vineyard Sound and Moshup’s Bridge TCP. Based on the location of the TCP in relation to the Vineyard Wind 1 Project, BOEM determined that “the proposed undertaking (Vineyard Wind 1) would have a direct adverse visual effect on the newly identified Vineyard Sound and Moshup’s Bridge TCP. With the introduction of new visual elements, the undertaking would affect the character of the TCP’s setting that contributes to its traditional significance, thus affecting its NRHP eligibility under Criterion C.” BOEM did, however, determine that due to the distance and open viewshed, the integrity of the TCP would not be so diminished as to disqualify it from NRHP eligibility. The document also noted that the majority of the inland portion of the TCP would have no view of the undertaking due to topographic changes and mature vegetation.

In the case of the Mayflower Wind Project, the Lease Area would only be visible from the southern shoreline of the island. One KOP was captured from the southeastern portion of the TCP at Squibnocket Beach. Views from the resource toward the Project are represented in Martha’s Vineyard Visual Simulations KOP 16-MV in Attachment 1. This location was assigned a visual contrast rating of Level 1-2 representing a **Weak** Visual Change. Visibility Level 1 is when the Project is visible only after extended, close viewing, but is otherwise invisible. Visibility Level 2 is when the Project is visible when scanning in the general direction of the Project, otherwise likely to be missed by casual observers. While the Lease Area may be visible from such points as Squibnocket Beach, visibility is significantly diminished by distance (31.43 mi (50.59 km)) and curvature of the earth. Based on these factors it is likely that views of the Project would be minimal and would not impact the characteristics that make the historic property significant and eligible. As a result, the Project would result in no adverse effect on Vineyard Sound and Moshup’s Bridge TCP.

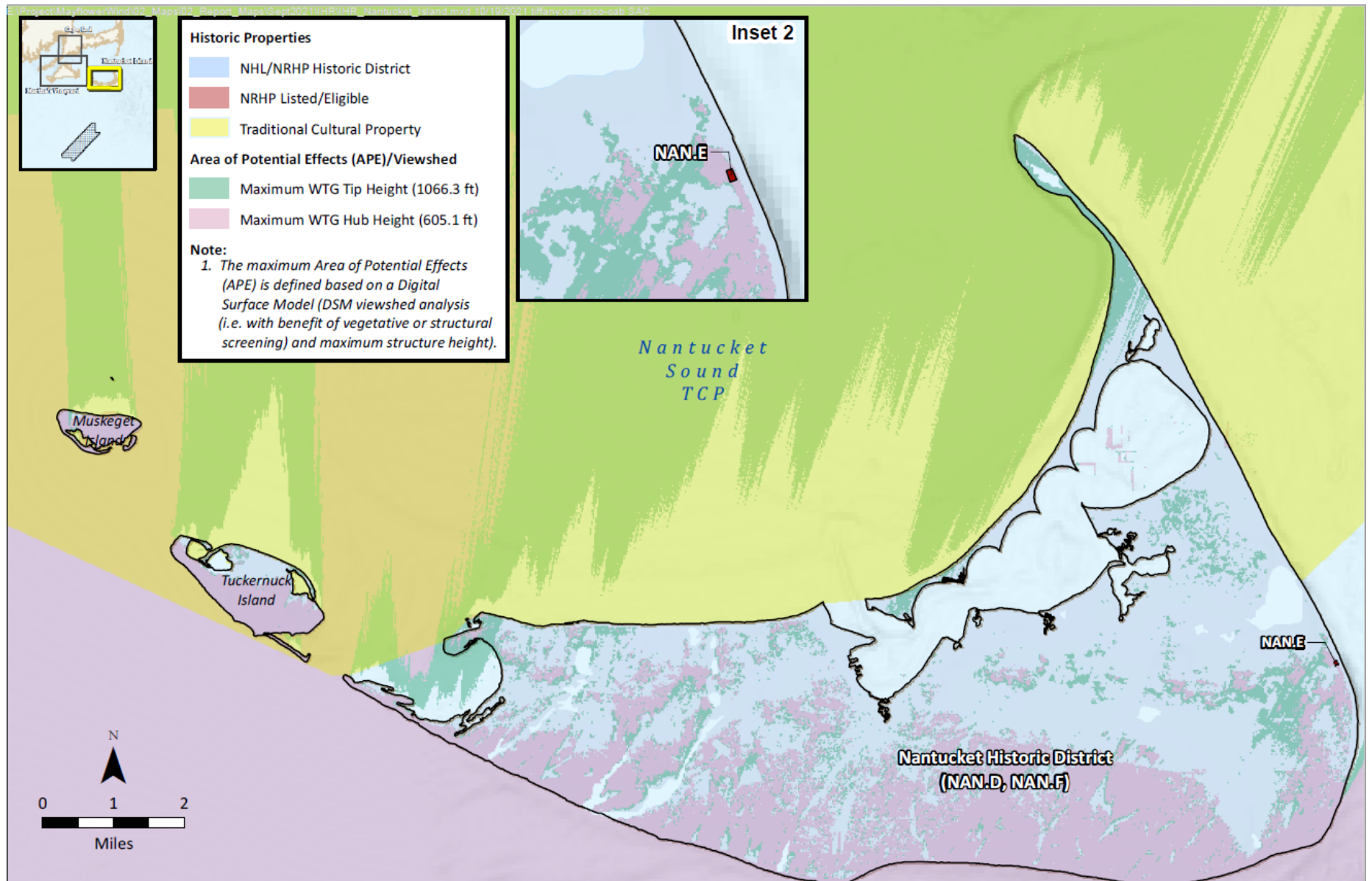


Figure 3-1. Historic Properties in Offshore APE – Nantucket

ANALYSIS OF VISUAL EFFECTS TO HISTORIC PROPERTIES

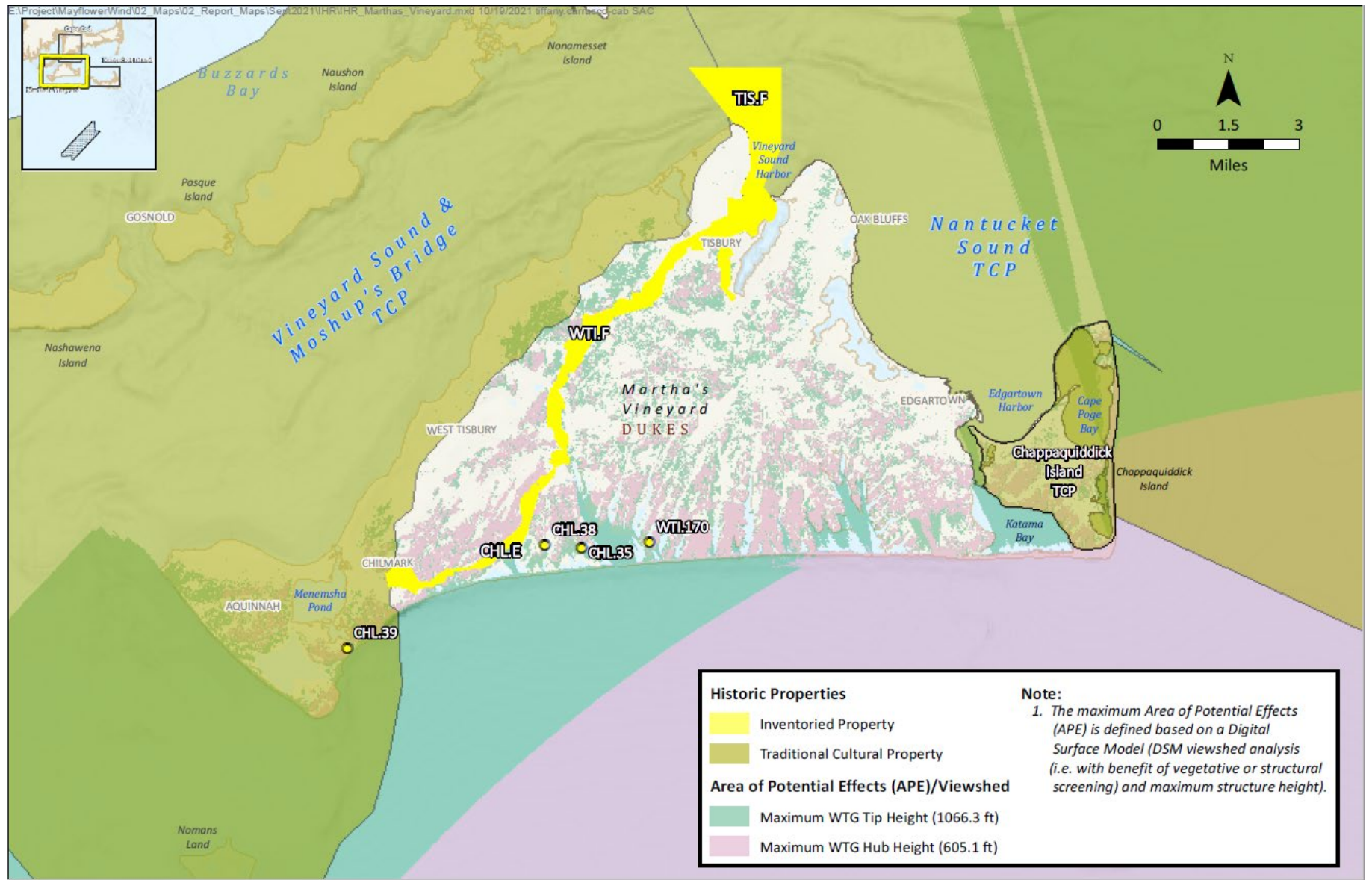


Figure 3-2. Historic Properties within the Offshore APE – Martha's Vineyard

3.2 Historic Properties within the Onshore APE

The onshore APE for the Project includes all areas where the Project components are potentially visible as determined by the field investigations and desktop analysis. The only onshore Project components that have the potential to introduce a visual change are the proposed substation options, Lawrence Lynch (preferred) and Cape Cod Aggregates (alternate). Generally, the proposed substation would be visible up to 0.10 mi (0.16 km) in all directions from the outer limits of the substation. The APE for the Lawrence Lynch substation (preferred) assumes a maximum height of 80 ft (24.4 m) for the substation lightning protection masts and 40 ft (12.2 m) for the other substation structures; the APE for the Cape Cod Aggregates substation (alternate) assumes a maximum height of 80 ft (24.4 m) for the substation lightning protection masts.

There is one historic property in the onshore APE, the Oak Grove Cemetery. The cemetery has a setting that is an integral part of its significance and will have a view of the preferred substation that would likely cause a visual effect. Based on the visual modeling and impact assessment, onshore Project activities associated with the construction of the onshore substation will likely result in an adverse effect to the Oak Grove Cemetery. See Figure 3-3 for the location of the Oak Grove Cemetery within the onshore APE and Table 3-1 for a summary of potential visual effects. Detailed effects assessments are contained in the following subsections. See Figure 3-3 which shows the location of all historic properties within the onshore APE.

3.2.1 Historic Properties in Falmouth

3.2.1.1 Oak Grove Cemetery (FAL.BF)

The Oak Grove Cemetery, established around 1850, encompasses 18.9 acres (7.6 hectares) and has 35 contributing resources. The landscape of the space includes manicured lawns and native plantings under an open canopy of deciduous and evergreen trees that are up to 40 ft (12.2 m) tall. The cemetery exhibits a mix of the ideals of the rural/garden cemetery movement and the more geometric configuration of formal nineteenth century community cemeteries. The Oak Grove Cemetery was determined to be NRHP-eligible on September 10, 2014. The cemetery is significant under Criterion A for its association with the history of the town of Falmouth as the town's largest nineteenth century cemetery and Criterion C as a well-preserved local example of both a nineteenth century rural and formal cemetery. The period of significance of the resource area is 1850 to 1964 (Dray, 2014). Character-defining features of the cemetery include its layout and landscape, greenspace, and myriad of markers. As a cemetery that is significant for its association with the rural cemetery movement, which sought to create a pastoral park-like environment, the setting is an important characteristic feature of the resource.

Recommended Determination – Adverse Effect

The Oak Grove Cemetery is located immediately west (0.1 mi (0.2 km)) of the Lawrence Lynch substation site (preferred) and 3.34 mi (5.38 km) from the Cape Cod Aggregates Substation site (alternate). Distance, vegetation, and other buildings prevent a view of the Cape Cod Aggregates Substation site from the cemetery. Though there is some vegetation between the historic property and the Lawrence Lynch substation site, the historic property is immediately adjacent and would have a view of the building. As a rural, garden-style cemetery that was designed to provide a natural sanctuary for mourners, setting is a key characteristic of its significance. Views from the historic property toward the Project are represented in Cape Cod Visual Simulations KOP 44-C in Attachment 1. This location was assigned a **Moderate to Strong** Visual Change rating (*Visibility Levels 4 to 5*). Level 4 is when the Project is plainly visible, but not dominant and Level 5 is when the Project strongly attracts visual attention, is dominant. The introduction of a new visual element has the potential to compromise the rural and contemplative setting, a characteristic feature of the historic property, impacting its ability to convey significance. As a result, the Project would likely have an adverse effect on the Oak Grove Cemetery.

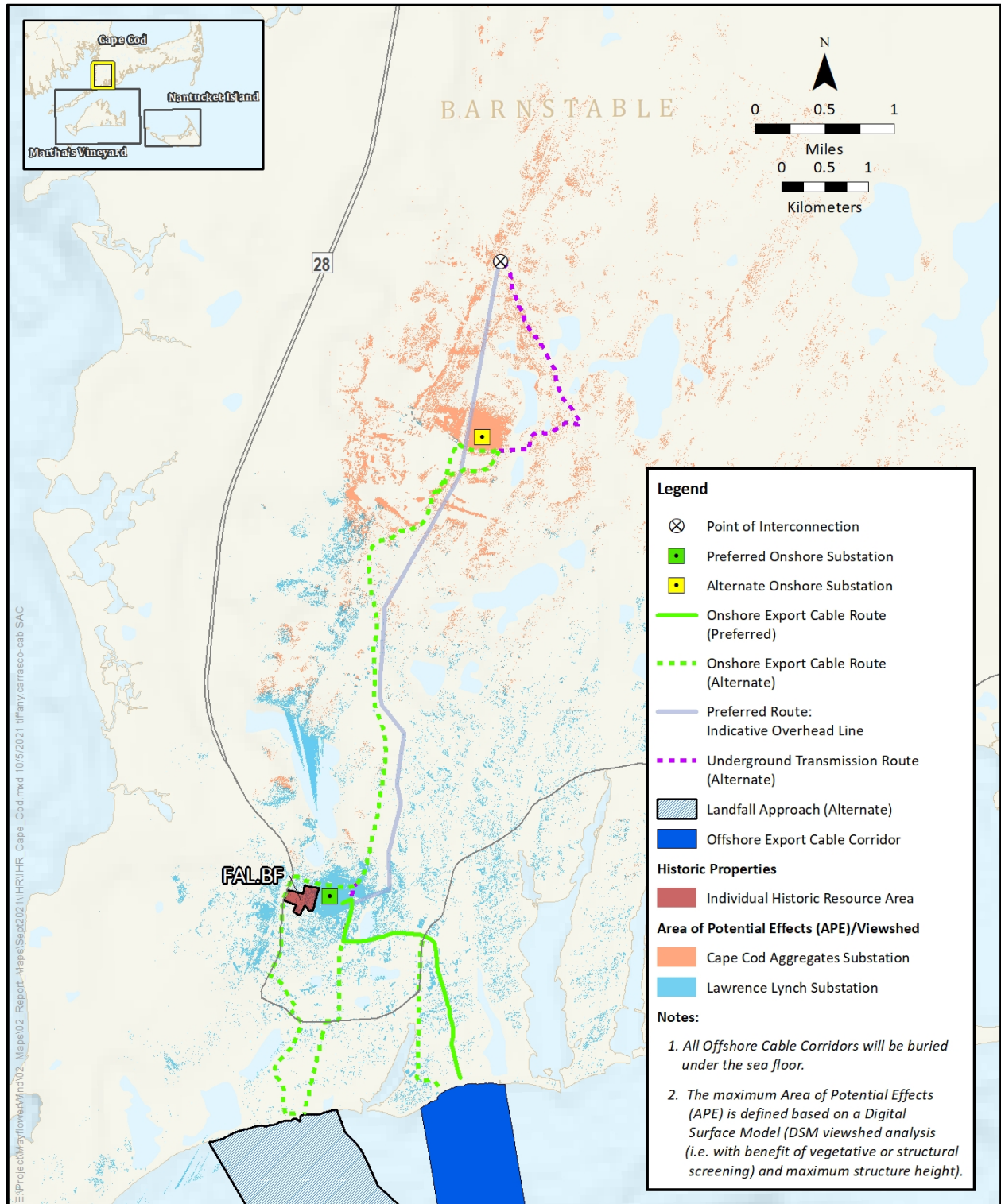


Figure 3-3. Historic Properties within the Onshore APE - Cape Cod

4.0 Conclusions

The purpose of this study was to identify historic properties within the offshore and onshore APEs that are listed in, eligible for listing in, or potentially eligible for listing in the NRHP, are NHLs, or TCPs, and to assess if those historic properties have the potential to be visually affected by the Project. Components like the offshore export cables, inter-array cables, onshore export cables, and underground transmission cables are not anticipated to cause visual effects; therefore, they are not addressed in this report. The introduction of new visual elements (such as WTGs/OSPs and the onshore substation) have the potential to cause visual effects to historic properties.

Desktop analysis determined there are 10 historic properties (NRHP-listed, NRHP eligible, potentially NRHP eligible, NHL, or TCP) within the offshore APE and one historic property within the onshore APE. Of those, there is one in the offshore APE and one in the onshore APE that have a setting that is an integral part of their significance and are likely to have a view of the WTGs/OSPs or the onshore substation that would compromise the characteristics that make them eligible for the NRHP. Visibility of the WTGs/OSPs is based on a variety of factors including distance, atmospheric elements, topography, vegetation, and development. Applying the Criteria of Adverse Effect, it is anticipated that the Project would result in an adverse effect to two historic properties in the offshore and onshore APEs: Nantucket Historic District and Oak Grove Cemetery.

4.1 Offshore APE

The Project facilities that have the most chance of introducing a new visual element are the WTGs and OSPs that will be constructed approximately 23 mi (37 km) south of Nantucket and 30 mi (49 km) southeast of Martha's Vineyard. The greatest potential for visual impact is from points along the southern shore of Nantucket and from the southeastern shore of Martha's Vineyard. Visual effects would occur when new elements introduced into a setting or viewshed have the potential to compromise the characteristics that make a historic property significant and eligible. In the case of the offshore resources, the part of their significance is derived from an unobstructed ocean view. There are six historic properties in the offshore APE where an unobstructed view of the ocean is a character-defining feature. However, in most cases, mitigating factors such as distance, vegetative buffers, topography, atmospheric conditions, and earth's curvature eliminates the possibility of a substantial change in the viewshed that might compromise the characteristics that make the historic properties significant for the NRHP. There is only one historic property where the visual change would be significant enough to compromise the properties' integrity, resulting in an adverse effect: Nantucket Historic District.

It is not anticipated that the offshore export cables or inter-array cables have the potential to result in visual impacts to above-ground historic properties.

4.2 Onshore APE

The onshore Project components that are most likely to introduce a new visual element is the onshore substation. Onshore historic properties, particularly those that may be within a historic district where setting is an integral part of the significance, may be visually affected by the introduction of a new substation in the viewshed. There is one historic property in the onshore APE where setting is a character-defining feature: Oak Grove Cemetery. Construction of the Lawrence Lynch substation (preferred) would introduce a new visual element that is not compatible with the historic character of the historic property. As such, the Project would result in an adverse effect to the Oak Grove Cemetery.

It is not anticipated that the onshore export cables or underground transmission cables have the potential to result in visual impacts to above-ground historic properties.

4.3 Mitigation Measures

During the preliminary design phases of the Project, potential visibility of above-ground Project facilities was taken into consideration. Previously disturbed sites were chosen for the onshore substation locations

during the siting phase to limit the impact to nearby resources to the extent practicable. This was a conscious decision to avoid selection of greenfield sites, which would constitute a significantly higher impact by introducing yet another impact to the landscape and other natural and cultural resources. By co-locating the Project within areas of previous disturbance (e.g., using industrial site for the proposed substation), Mayflower Wind is minimizing impacts to the maximum extent practicable. As the Project design progresses, these and other avoidance and minimization efforts will be considered to reduce impacts to historic properties.

If, through the Section 106 and Section 110 processes, it is determined by MHC that the Project will result in adverse effects to historic properties, Mayflower Wind will consult with BOEM, MHC, THPOs, and consulting parties as necessary.

4.4 Procedural Recommendations

This analysis was conducted in support of the BOEM NEPA review process and in close coordination with the separate VIA report, both provided as appendices to the COP (see COP Appendix T, Visual Impact Assessment). The purpose of this document was to evaluate the potential visual effects of the Project on historic properties within the APE. The analysis contained in this report was based on preliminary Project designs and may require revisions to the APE, historic properties within the APE, and the effects findings as the Project continues to develop. In addition to the studies required for NEPA, additional studies may be required to comply with Section 106 and Section 110 of the NHPA. Coordination and consultation with MHC are ongoing.

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ATTACHMENT 1 – Visual Simulations

Note: High-resolution images of visual simulations provided in support of COP Appendix T, Visual Impact Assessment.

ATTACHMENT 2 – Photographs



Photo 1. Nantucket Historic District (NAN.D, NAN.F) at Tom Nevers Field (KOP 8-N), view northwest. (Google Earth 2016)



Photo 2. View south from Nantucket Historic District (NAN.D, NAN.F) at Tom Nevers Field (KOP 8-N), toward Lease Area. (Google Earth 2016)



Photo 3. Nantucket Historic District (NAN.D, NAN.F) at Miacomet Beach (KOP 11-N), view northwest. (Google Earth 2018)



Photo 4. View southwest from Nantucket Historic District (NAN.D, NAN.F) from Miacomet Beach (KOP 11-N) toward Lease Area. (Google Earth 2018)



Photo 5. Nantucket Historic District (NAN.D, NAN.F) at Cisco Beach (KOP 12-N), view northeast. (Google Earth 2016)



Photo 6. View southwest from Nantucket Historic District (NAN.D, NAN.F) from Cisco Beach (KOP 12-N) toward Lease Area. (Google Earth 2016)



Photo 7. Nantucket Historic District (NAN.D, NAN.F) at Hummock Pond Road Bike Path (KOP 13-N), view northwest. (Google Earth 2008)



Photo 8. View southwest from Nantucket Historic District (NAN.D, NAN.F) from Hummock Pond Road Bike Path (KOP 13-N) toward Lease Area. (Google Earth 2008)



Photo 9. Sankaty Head Light (NAN.E), view east. (Google Earth 2019)



Photo 10. View southwest from Sankaty Head Light (NAN.E) toward Lease Area. (Google Earth 2019)



Photo 11. Nantucket Sound TCP, view northeast from Wasque Point (1-MV)(Google Earth 2016)



Photo 12. View southeast from Nantucket Sound toward the Lease Area (Google Earth 2016)



Photo 13. View northwest along South Road in Martha's Vineyard American Revolution Battlefield (CHL.E) (Google Earth 2009)



Photo 14. View southwest from Martha's Vineyard American Revolution Battlefield (CHL.E) toward Lease Area. (Google Earth 2009)

No views of Capt. Samuel Hancock – Capt. Mitchell West House (CHL.35) available.

No views of the Elijah Smith House (CHL.38) available.



Photo 15. View south from State Road and Quitsa Road toward the Elijah Smith House (CHL.39) (Google Earth 2009)

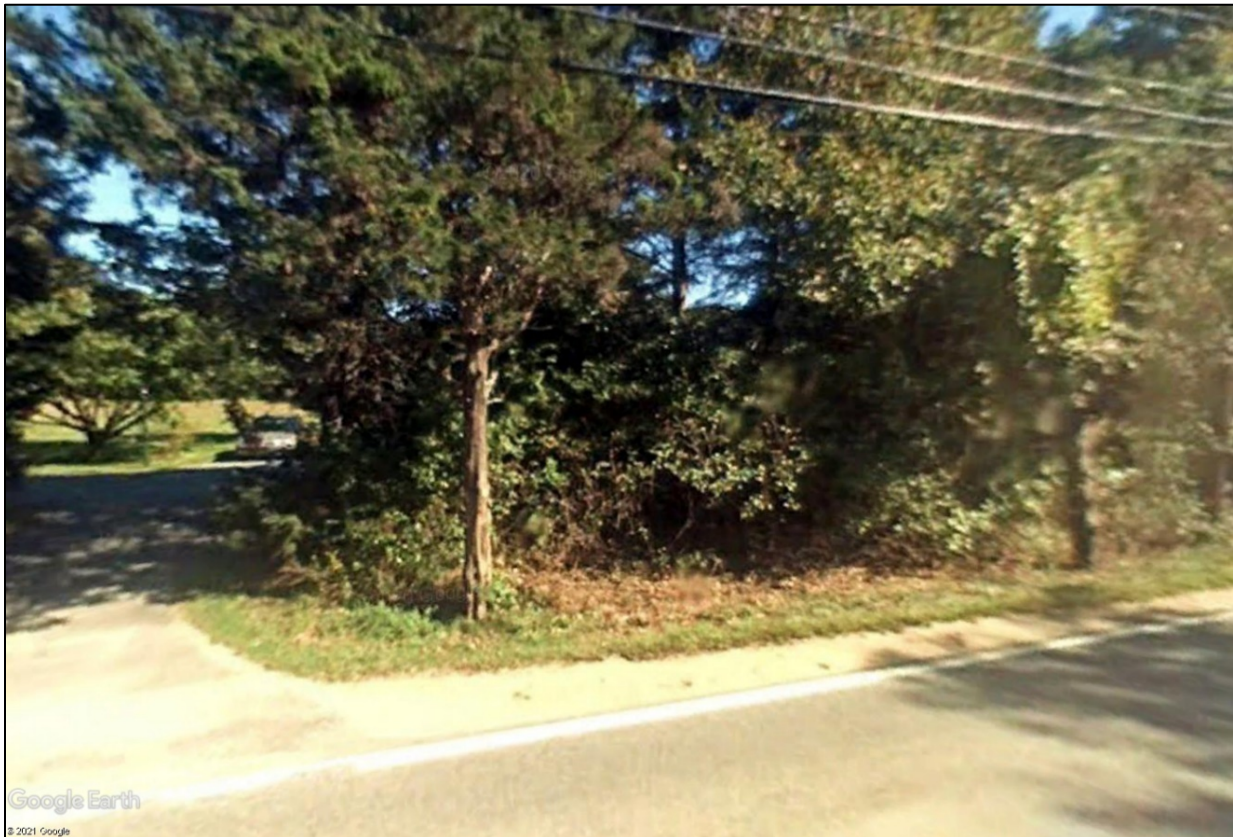


Photo 16. View southeast from State Road and Quitsa Road near the Elijah Smith House toward Lease Area CHL.39 (Google Earth 2009)



Photo 17. View northwest of the Scrubby Neck Schoolhouse (WTI.170) (Google Earth 2015)



Photo 18. View southwest from the Scrubby Neck Schoolhouse (WTI.170) toward the Lease Area (Google Earth 2015)



Photo 19. Chappaquiddick Island TCP from Wasque Point (KOP 1-MV), view north. (Google Earth 2015)



Photo 20. View south from Chappaquiddick Island TCP, near Wasque Point (KOP 1-MV), toward Lease Area. (Google Earth 2015)



Photo 21. Vineyard Sound and Moshup's Bridge TCP, near Aquinnah Cliffs Overlook (KOP 15-M), view north. (Google Earth 2015)



Photo 22. View south from Vineyard Sound and Moshup's Bridge TCP near Aquinnah Cliffs Overlook (KOP 15-M) toward Lease Area. (Google Earth 2015)



Photo 23. Nantucket Sound TCP (EDG.907, NAN.939, FAL.973, MAS.916), from Jefferson Avenue on Nantucket Island, view north. (Google Earth 2019)



Photo 24. View southwest from Nantucket Sound TCP (EDG.907, NAN.939, FAL.973, MAS.916) at Jefferson Avenue on Nantucket Island toward Lease Area. (Google Earth 2019)



Photo 25. Oak Grove Cemetery (FAL.BF), view southeast. (Google Earth 2019)



Photo 26. View northeast from Oak Grove Cemetery (FAL.BF) toward the Lawrence Lynch substation site. (Google Earth 2019)

