Historic Resources Effects Analysis

Bluestone Wind Project

Towns of Windsor and Sanford, Broome County, New York

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NYSOPRHP Project Review Number 17PR01874

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1.0 INTRODUCTION

1.1 Purpose of the Investigation

On behalf of Bluestone Wind, LLC (the Applicant), Environmental Design & Research, Landscape Architecture, Engineering, & Environmental Services, D.P.C. (EDR) prepared an historic resources effects analysis for the proposed Bluestone Wind Project (or the Facility), located in the Towns of Windsor and Sanford, Broome County, New York (see attached Figure 1). The purpose of the effects analysis is to evaluate the Facility's potential effect on historic resources listed or eligible for listing in the State and/or National Register of Historic Places (S/NRHP). The information included in this visual effects analysis is intended to assist the Department of Public Service (DPS), the New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP), and other interested agencies and parties in their review of the proposed Facility in accordance with Article 10 (Certification of Major Electrical Generating Facilities) of the New York State Public Service Law, as well as Section 14.09 of the New York State Parks, Recreation, and Historic Preservation Law and/or Section 106 of the National Historic Preservation Act, as applicable.

All cultural resources studies undertaken by EDR in association with the Facility have been conducted by professionals who satisfy the qualifications criteria per the Secretary of the Interior's Standards for Historic Preservation (36 CFR 61). The historic resources effects analysis was prepared in accordance with the *New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work* (the *SHPO Wind Guidelines*; NYSOPRHP, 2006) and applicable portions of NYSOPRHP's *Phase 1 Archeological Report Format Requirements* (NYSOPRHP, 2005).

1.2 Facility Location and Description

Bluestone Wind, LLC is proposing to construct an up to 124 megawatts (MW) wind powered electric generating Facility located within the Towns of Windsor and Sanford, Broome County, New York (see Figure 1). The Facility will be located on leased private land that is rural in nature. The physical footprint of the proposed Facility components will be located within the leased land, and will enable the landowners to continue with existing land uses, such as forestry operations, mining (quarrying), and hunting.

The proposed Project consists of the following components:

- Up to 33 wind turbines, with a maximum combined generating capacity of up to 124 MW.
- Up to two permanent meteorological (met) towers.
- Approximately 19 miles of 34.5 kilovolt (kV) subsurface collection line.
- Approximately 14 miles of access roads.

- An operation and maintenance (O&M) building.
- A collection substation.
- A point of interconnection (POI) substation, with battery storage.
- A temporary construction staging/laydown yard.
- Concrete batch plant.

The proposed Facility layout is depicted on Figure 2.

Various models of wind turbines are being considered for the Facility. The analyses conducted in this Historic Resources Effects Analysis assume an up to 33-turbine layout consisting of Vestas V150-4.2 MW wind turbines having a 427-foot hub height, 492-foot rotor diameter, and 673-foot total height. These are the largest anticipated turbines being considered for the Facility, thereby ensuring a conservative analysis of potential effects.

2.0 BACKGROUND AND METHODS

2.1 Summary of Previous NYSOPRHP Correspondence

Previous NYSOPRHP correspondence associated with the Facility has included the following:

- A *Phase 1A Historic Architectural Survey Report and Work Plan* (EDR, 2018a) was submitted to NYSOPRHP via the Cultural Resource Information System (CRIS) website on March 21, 2018.
- On April 3, 2018, NYSOPRHP provided a response to the *Phase 1A Historic Architectural Survey Report and Work Plan*, which concurred with the historic architectural survey methodology and area of potential effect (APE) proposed by EDR.
- An historic resources survey for the Facility was conducted (per the SHPO Wind Guidelines) in accordance with the *Phase 1A Historic Architectural Resources Survey and Work Plan* (EDR, 2018a), developed in consultation with and approved by NYSOPRHP staff.
- An *Historic Resources Survey Report* (EDR, 2018b) summarizing the findings of this survey was submitted to NYSOPRHP via the CRIS website on June 4, 2018.
- On July 10, 2018, NYSOPRHP provided a response to the results and recommendations of the *Historic Resources Survey Report*, which included final determinations of eligibility for the S/NRHP for the properties identified in the historic resources survey.

In the July 10th response letter, NYSOPRHP identified "key loci where visual impacts should be carefully assessed," which are the Village of Windsor (specifically the S/NRHP-listed Windsor Village Historic District), and the Village of Deposit. It was also noted that "several of the individual rural agrarian properties will be in the viewshed of a significant number of the proposed towers," and that potential impacts to the viewshed and setting of these properties should be assessed through visual analysis (Bonafide, 2018).

A copy of the July 10th NYSOPRHP correspondence is included as Appendix A.

2.2 Facility's Area of Potential Effect (APE) and Study Area

The Facility's primary potential effect on a given historic property would be a change (resulting from the introduction of wind turbines and other aboveground infrastructure) in the property's visual setting. Therefore, the APE for visual effects on historic resources must include those areas where Facility components (including wind turbines) will be visible and where there is a potential for a significant visual effect. Per the requirements set forth in 16 NYCRR § 1000.2(ar), the study area to be used for analysis of major electric generating facilities is defined as:

> (ar) Study Area: an area generally related to the nature of the technology and the setting of the proposed site. For large facilities or wind power facilities with components spread across a rural landscape, the study area shall generally include the area within a radius of at least five miles from all generating facility components, interconnections and related facilities and alternative location sites. For facilities in areas of significant resource concerns, the size of a study area shall be configured to address specific features or resource issues.

Per the *SHPO Wind Guidelines*, the APE for indirect visual impacts on historic properties for wind projects is defined as those areas within five miles of proposed turbines which are within the potential viewshed of a given project (NYSOPRHP, 2006). The Study Area for the Facility includes parts of the Towns of Colesville, Sanford, Windsor, and parts of the Villages of Windsor and Deposit in Broome County. It also includes parts of the Town of Afton in Chenango County and parts of the Village of Deposit and Towns of Masonville, Deposit and Tompkins in Delaware County. (Note that the Village of Deposit are located in both Broome and Delaware Counties.)

Topographic viewshed maps for the proposed turbines were prepared using 2-meter resolution U.S. Geological Survey (USGS) digital elevation model (DEM) data downloaded from New York State's GIS Program Office FTP server, the location and height of all proposed turbines, the tallest proposed substation components (see Figure 2), an assumed viewer height of 1.83 meters, and Environmental Systems Research Institute (ESRI) ArcGIS® software with the Spatial Analyst extension. To evaluate "worst case" potential turbine visibility, two topographic (or DEM) viewshed analyses were conducted, one to illustrate daytime visibility (based on a maximum blade tip height of 205 meters (673 feet) above existing grade, and the other to illustrate potential visibility of Federal Aviation Administration (FAA) obstruction warning lights at night. The nighttime viewshed was based on an estimated FAA warning light height of 131 meters (430 feet) above existing grade, and assumed all turbines are equipped with lights. Viewshed analysis of the proposed collection and POI substations was based on coordinates of the proposed stations and a maximum lightning mast height of 60 feet.

The ArcGIS program defines the viewshed by reading every cell of the DEM data and assigning a value based upon the existence of a direct, unobstructed line of sight to proposed facility location/elevation coordinates from observation points throughout the Study Area. The resulting viewshed maps define the maximum area from which any portion of any turbine in the completed Facility could potentially be seen within the Study Area during both daytime and nighttime hours based on a direct line of sight, and ignoring the screening effects of existing vegetation and structures. A turbine count analysis was also performed to determine how many wind turbines would be potentially visible from any given point within the viewshed. The results of this analysis were then grouped by number of turbines potentially visible and presented on a viewshed map.

Results of the topographic viewshed analysis described above represent a true "worst case" assessment of potential Project visibility. Topographic viewshed maps are very accurate in identifying area where there is no possibility of Project visibility due to topographic interference. However, they are less accurate in identifying areas from which the Project could actually be visible because they do not consider the screening provided by trees and buildings, which can limit or eliminate visibility in areas indicated as having potential Project visibility in the topographic viewshed analysis.

In order to more accurately identify areas with potential Project visibility, a second-level analysis was conducted to incorporate the screening effect of structures and vegetation by utilizing the Federal Emergency Management Agency (FEMA) light detection and ranging (lidar) data for the Susquehanna Basin (2007) and Delaware County (2007). Lidar is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth to generate precise, three-dimensional information about the shape of the Earth and its surface characteristics [National Oceanic and Atmospheric Administration (NOAA), 2017]. A digital surface model (DSM) of the study area was created from these lidar data, which includes the elevations of buildings, trees and other objects large enough to be resolved by lidar technology. However, these lidar datasets only cover approximately 90% of both the visual study area and the expanded visual study area. In areas lacking lidar data, the 2011 USGS National Land Cover Data (NLCD) was used to identify the mapped location of forest land (including the Deciduous Forest, Evergreen Forest and Mixed Forest NLCD classifications) within the visual study area. Potential screening provided by structures and non-forest vegetation (i.e., yard trees, hedgerows, etc.) was not accounted for in these locations because these features are not identifiable in the NLCD or other available data. Based on standard visual assessment practice, the NLCD-mapped locations of forest land were assigned an assumed height of 40 feet and added to the DEM. A new, continuous 2-meter resolution DSM for the expanded visual study area was then created, utilizing the more detailed FEMA lidar data when available and the NLCD forest data (added to the DEM) in the remainder of the study area.

To account for clearing of forest vegetation that would be required for Project construction, the DSM was modified to reflect the bare-earth elevation within an approximated limit of clearing around proposed Project components. This was based on generalized assumptions that areas within 265 feet of turbines would be cleared of forest vegetation, as well as areas within a 100-foot wide corridor along access roads and a 70-foot wide corridor along collection lines. This modified DSM was then used as a base layer for the second-level viewshed analysis. Once the viewshed analysis was complete, a conditional statement was used to set Project visibility to zero in locations where the DSM elevation exceeded the bare earth elevation by six feet or more. This was done for two reasons; 1) because in locations where trees or structures are present in the DSM, the viewshed would reflect visibility from a vantage point on the tree tops or building roofs, which is not the intent of this analysis and 2) to reflect the fact that ground-level vantage points within buildings or areas of vegetation exceeding 6 feet in height will generally be screened from views of the Facility.

As with the topographic viewshed analysis previously described, this second-level DSM viewshed analyses was conducted for the proposed wind turbines twice—once to illustrate daytime visibility (based on the maximum height of 205 meters above existing grade) and the other to illustrate potential visibility of FAA warning lights (based on an approximate FAA warning light height of 131 meters above existing grade and the assumption that all turbines could be equipped with lights). A DSM viewshed analysis was also conducted to further evaluate potential visibility of the proposed substation.

Because it accounts for the screening provided by structures and trees, this second-level analysis is a more accurate representation of potential Project visibility. However, it is worth noting that because certain characteristics of the turbines and substation that may influence visibility (color, narrow profile, distance from viewer, etc.) are not into taken consideration in the viewshed analyses, being located within the DSM viewshed does not necessarily equate to actual Project visibility.

2.3 Summary of Previous Historic Resources Survey

EDR conducted an historic resources survey for the Facility, the results of which were compiled in an *Historic Resources Survey Report* (EDR, 2018b). A total of 46 resources were inventoried as part of the historic resources survey. The results of the survey are as follows:

- Two extant properties listed on the S/NRHP are located within the APE: the State Theater (90NR00089), and the Windsor Village Historic District (90NR00091). Three additional S/NRHP-listed properties were surveyed that were located near or within the five-mile study area but outside of the APE for indirect effects.
- There are eight properties within the APE that were previously recommended S/NRHP-eligible by NYSOPRHP and 17 previously identified properties whose S/NRHP-eligibility was listed in the NYSOPRHP CRIS system as "undetermined." In addition, EDR identified 16 properties within the APE that were not previously surveyed.
- Of the eight previously identified properties determined by NYSOPRHP to be S/NRHP-eligible, all eight were recommended by EDR to be S/NRHP-eligible.
- Of the 17 previously identified properties whose S/NRHP-eligibility was undetermined, six properties are recommended by EDR to be S/NRHP-eligible, while nine properties are recommended to be not S/NRHP-eligible. The potential S/NRHP eligibility of two historic cemeteries could not be determined because they are located on private property without obvious public access.
- Of the 16 newly identified properties, all 16 are recommended by EDR to be S/NRHP-eligible.
- No new potentially S/NRHP-eligible historic districts were identified by EDR.

- EDR recommended that two historic cemeteries that were not visible from the public-right-of-way (Alexander Hill Cemetery in the Town of Windsor and Huggins Cemetery in the Town of Sanford) be further examined for S/NRHP eligibility.

On July 10, 2018, NYSOPRHP provided a response to the results and recommendations of the *Historic Resources Survey Report*, which included final determinations of eligibility for the S/NRHP. Of the 46 resources identified by EDR as part of the historic resources survey, NYSOPRHP determined the following regarding historic properties located within the APE for indirect (visual) effects:

- No change was recommended for the five properties within the five-mile Study Area listed on the S/NRHP.
- A total of 26 properties recommended by EDR to be S/NRHP-eligible were determined by NYSOPRHP to be S/NRHP-eligible.
- In addition, one property recommended by EDR to be S/NRHP-eligible was determined by NYSOPRHP to be not S/NRHP-eligible, and a formal determination of S/NRHP eligibility was not made by NYSOPRHP for three properties recommended by EDR to be S/NRHP-eligible.
- A total of eight properties recommended by EDR to be not S/NRHP-eligible were determined by NYSOPRHP to be not S/NRHP-eligible.
- In addition, a formal determination of S/NRHP eligibility was not made by NYSOPRHP for one property recommended by EDR to be not S/NRHP-eligible.
- The S/NRHP eligibility of two newly identified historic properties is undetermined due to lack of public access.

On July 31, 2018, EDR contacted Erin Czernecki at NYSOPRHP regarding the Windsor Village Cemetery (USN 00747.000066). This resource was misidentified as S/NRHP-eligible in the *Historic Resources Survey Report* (EDR, 2018) and in the July 10th response letter from NYSOPRHP (Bonafide, 2018). Consultation with NYSOPRHP has confirmed that it is a contributing resource to the S/NRHP-listed Windsor Village Historic District, and therefore has been removed from the surveyed properties list. Therefore, a total of 25 properties recommended by EDR to be S/NRHP-eligible have been determined by NYSOPRHP to be S/NRHP-eligible.

A table summarizing these updated eligibility determinations is included as part of Appendix A.

2.4 Summary of Visual Impact Assessment

Existing visual and aesthetic resources within a 5-to-10-mile visual study area were identified as part of a *Visual Impact Assessment* (VIA) report for the Bluestone Wind Project conducted by EDR (EDR, 2018c). According to the requirements of Article 10 (as set forth in 16 NYCRR § 1000.2[ar]) the visual study area to be used for analysis of major

electric generating facilities is defined as "*an area generally related to the nature of the technology and the setting of the proposed site. For large facilities or wind power facilities with components spread across a rural landscape, the study area shall generally include the area within a radius of at least five miles from all generating facility components, interconnections and related facilities and alternative location sites. For facilities in areas of significant resource concerns, the size of a study area shall be configured to address specific features or resource issues*."

Consequently, a 5-mile radius study area and 10-mile radius extended study area were delineated and mapped. Combined, these two study areas constitute the visual study area for the Facility. The 10-mile extended visual study area was used to identify visually sensitive resources (VSRs) of regional and statewide significance. A more comprehensive inventory, including locally significant VSRs, was conducted for the 5-mile study area of the proposed Facility and is summarized in the VIA.

The VIA also includes an evaluation of the potential visibility of the Facility based on viewshed analysis, field verification, and preparation of representative visual simulations. The visual simulations (included in the VIA report and as Appendix B of this report) provide representative views of the potential visual effect of the Facility from a variety of distances and settings within the study area (see Figure 4 for results of viewshed analyses and locations of simulated viewpoints; see Section 3.3 for a discussion of those simulations that address potential impacts to historic resources).

As described in Section 2.2, the viewshed for the proposed Facility was determined by first preparing a bare earth digital terrain model (DTM) derived from lidar data for parts of Broome and Delaware Counties. A DSM of the Study Area was created from lidar and digital elevation model data sets, which includes the elevations of buildings, trees, and other objects large enough to be resolved by lidar technology. Transmission lines that reflected in these lidar data were removed from the resulting DSM to avoid introducing artificial screening by these features. This DSM was then used as a base layer for the viewshed analysis, as described above. After the viewshed analysis was completed, a conditional statement was used to set Facility visibility to zero in locations where the DSM elevation exceed the bare earth elevation by six feet or more. The APE is depicted in Figures 3 and 4.

Field review conducted as part of the VIA confirmed that the area with greatest potential Facility visibility occurs on open hilltops, plateaus and slopes within and adjacent to the Facility Area, and from open agricultural areas within the adjacent valleys. Forested areas, including state forests and several designated trails, offer the least opportunity for open views of the Facility. Field review also indicated the Facility will generally be at least partially screened from most locations in village and hamlet settings by structures and trees. However, partial views of turbines or turbine blades may be available from some open areas and the outskirts of some villages and hamlets, as well as areas with views of elevated portions of the Facility Area from within the Village of Deposit.

3.0 HISTORIC RESOURCES EFFECTS ANALYSIS

3.1 Potential Effect on Historic Resources

Construction of the Facility will not require the demolition or physical alteration of any buildings or other potential historic resources. No direct physical impacts to historic resources will occur as a result of the Facility.

The Federal Regulations entitled "Protection of Historic Resources" (36 CFR Part 800) include in Section 800.5(2) a discussion of potential adverse effects on historic resources. With respect to wind energy projects:

> "Adverse effects on historic properties include, but are not limited to: [items i-iii do not apply]; (iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance; (v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features; [items vi-vii do not apply]."

The implementing regulations for New York State Parks, Recreation and Historic Preservation Law, Section 14.09 (9 NYCRR § 428.7) state:

a. In determining whether an undertaking will have an adverse impact on eligible or registered property, the commissioner shall consider whether the undertaking is likely to cause:
    1. destruction or alteration of all or part of the property;
    2. isolation or alteration of the property's environment;
    3. introduction of visual, audible or atmospheric elements which are out of character with the property or alter its setting;
    4. neglect of the property resulting in its deterioration or destruction.

The Facility's potential effect on a given historic property would be a change (resulting from the introduction of wind turbines) in the property's visual or auditory setting. As it pertains to historic properties, *setting* is defined as "the physical environment of a historic property" and is one of seven aspects of a property's *integrity*, which refers to the "ability of a property to convey its significance" (NPS, 1990:44-45). The other aspects of integrity include location, design, materials, workmanship, feeling, and association (NPS, 1990). The potential effect resulting from the introduction of wind turbines into the visual setting for any historic or architecturally significant property is dependent on a number of factors including distance, visual dominance, orientation of views, viewer context and activity, and the types and density of modern features in the existing view (such as buildings, residences, overhead electrical transmission lines, cellular towers, billboards, highways, and silos). The potential effect resulting from the introduction

of the sound of wind turbines into the setting for any historic or architecturally significant property is likewise dependent on a number of factors including the proximity of an historic property to a turbine, the perceived disruption to the contributing characteristics of the property, and the presence of existing noise levels from modern technology and machinery that is audible (such as highway traffic, industrial or agricultural activities, airports, railyards, or other sources of noise).

3.2 Visual Effects Analysis

3.2.1 Wind Turbines (Five-Mile Study Area)

As described in Section 2.4, the potential visibility and visual impact of the proposed Facility is evaluated in the VIA prepared for the Facility (EDR, 2018c).

The potential visibility of the Facility from historic resources within the Study Area is listed in Table 1 and depicted in Figure 4. As described in Section 2.2, the viewshed was determined by preparing a digital DSM of the Study Area to include the elevations of buildings, trees, and other objects that would potentially screen views of the Facility. The number of turbines potentially visible from each historic property within the study area and distance from each historic resource to the nearest turbine is listed in Table 1.

Table 1. Visual Effects Analysis for S/NRHP-Listed and S/NRHP-Eligible Resources

Survey ID	USN	Address	Name and/or Description	Municipality	County	S/NRHP Eligibility Recommendation (EDR)	S/NRHP Eligibility Recommendation (NYSOPRHP)	Distance to Nearest Turbine (Miles)	Number of Turbines Potentially Visible
1	05NR05519	3500 State Route 79	Harpursville United Methodist Church, a one-story stone church with a central bell tower	Town of Colesville	Broome	S/NRHP-Listed Site	S/NRHP-Listed Site	5.7	0
2	BIN 3349160	Old Bridge Street over Susquehanna River	Center Village Bridge, a Pratt through-truss bridge	Town of Colesville	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	4.7	9
3	00704.000070	2906 State Route 79	Winsor Acres Farms, a farm complex consisting of 12 metal agricultural buildings	Town of Colesville	Broome	Not S/NRHP-Eligible (EDR Recommended)	Not S/NRHP-Eligible (NYSOPRHP Determined)	2.7	7
4	00704.000089	63 Chaffee Street	A two-story Greek Revival residence with clapboard siding	Town of Colesville	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	4.6	10
5	00704.000090	2814 State Route 79	Approximately 0.6-acre cemetery with an estimated 291 headstones, circa 1798 (Harpur Cemetery)	Town of Colesville	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	2.9	3
6	00712.000090	14 Lord Road	Approximately 0.25-acre cemetery with an estimated 12 headstones, circa 1843 (Lord Road Cemetery)	Town of Sanford	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP Eligibility Undetermined	3.3	14
7	00712.000069	395 Clark Road	Historic farmstead consisting of a two-and-one-half-story vernacular residence, a small shed, an historic barn, and a modern pole barn	Town of Sanford	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	2.7	16
8	00712.000091	223 Huggins Road	Approximately 0.4-acre cemetery with an estimated 5 headstones, circa 1900 (Huggins Cemetery)	Town of Sanford	Broome	S/NRHP Eligibility Undetermined	S/NRHP Eligibility Undetermined	1.7	17

Survey ID	USN	Address	Name and/or Description	Municipality	County	S/NRHP Eligibility Recommendation (EDR)	S/NRHP Eligibility Recommendation (NYSOPRHP)	Distance to Nearest Turbine (Miles)	Number of Turbines Potentially Visible
9	02NR04990	Dutchtown Road over Susquehanna River	Ouaquaga Lenticular Truss Bridge, a double-span, lenticular through-truss bridge	Town of Windsor	Broome	S/NRHP-Listed Site	S/NRHP-Listed Site	4.8	0
10	00716.000027	Old New York Route 17 over Occanum Creek	Girder and floor beam bridge, built 1935	Town of Windsor	Broome	Not S/NRHP-Eligible (EDR Recommended)	Not S/NRHP-Eligible (NYSOPRHP Determined)	4.9	2
11	90NR00091	Academy, Chapel, Church, College, Dewey, Elm and Main Streets	Windsor Village Historic District	Town of Windsor	Broome	S/NRHP-Listed Site	S/NRHP-Listed Site	3.7	3
12	00747.000100	21 Maple Street	Two-story Greek Revival residence	Town of Windsor	Broome	Not S/NRHP-Eligible (EDR Recommended)	Not S/NRHP-Eligible (NYSOPRHP Determined)	4.0	2
13	90NR00090	10 Chestnut Street	Jedediah Hotchkiss House, a two-story stone Greek Revival residence with associated stone barn	Town of Windsor	Broome	S/NRHP-Listed Site	S/NRHP-Listed Site	3.3	0
14	00712.000092	585 William Law Road	Approximately 0.2-acre cemetery with an estimated 46 headstones, circa 1848 (Alexander Hill Cemetery)	Town of Windsor	Broome	S/NRHP Eligibility Undetermined	S/NRHP Eligibility Undetermined	0.7	33
15	00712.000093	110 Bryce Road	An historic farmstead consisting of a two-and-one-half-story vernacular residence, a barn, and two small sheds	Town of Sanford	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	0.0[1]	23

[1] This historic structure occurs on a large parcel upon which a wind turbine is proposed, so the distance from the property is to the nearest turbine is given as 0. The distance from the structure to the nearest turbine is 0.6-mile.

Survey ID	USN	Address	Name and/or Description	Municipality	County	S/NRHP Eligibility Recommendation (EDR)	S/NRHP Eligibility Recommendation (NYSOPRHP)	Distance to Nearest Turbine (Miles)	Number of Turbines Potentially Visible
16	00712.000094	828 State Route 41	Approximately 0.7-acre cemetery with an estimated 150 headstones, circa 1830 (Sanford Cemetery)	Town of Windsor	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP Eligibility Undetermined	0.6	14
17	00712.000095	171 Big Hollow Road	A two-and-one-half-story vernacular structure with a northern ell and two roof ridge cupolas	Town of Sanford	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	1.1	0
18	00712.000009	166 Big Hollow Road	Historic farmstead with two-story vernacular residence	Town of Sanford	Broome	Not S/NRHP-Eligible (EDR Recommended)	Not S/NRHP-Eligible (NYSOPRHP Determined)	1.1	2
19	02544.000018	60 Wheeler Street	Two-and-one-half-story vernacular residence	Town of Deposit	Delaware	Not S/NRHP-Eligible (EDR Recommended)	Not S/NRHP-Eligible (NYSOPRHP Determined)	1.6	1
20	02544.000019	171 Second Street	Deposit Junior-Senior High School, a two-story Public Works Administration (PWA)-era school building	Town of Deposit	Delaware	S/NRHP-Eligible (EDR Recommended)	Not S/NRHP-Eligible (NYSOPRHP Determined)	1.4	5
21	02544.000012	47 Wheeler Street	Two-story vernacular residence	Town of Deposit	Delaware	Not S/NRHP-Eligible (EDR Recommended)	Not S/NRHP-Eligible (NYSOPRHP Determined)	1.6	2
22	00743.000011	29 Ford Hill Road	A two-story Gothic Revival cottage residence with lancet doorways and decorative gable-end woodwork	Town of Sanford	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	1.6	0
23	00743.000012	21 Center Street	A three-stone pressed cement block apartment building. Keystone above door reads "1915"	Town of Sanford	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	1.6	0
24	02506.000054	129 Second Street	First Presbyterian Church, a one-story brick church with a	Town of Sanford	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	1.7	2

Survey ID	USN	Address	Name and/or Description	Municipality	County	S/NRHP Eligibility Recommendation (EDR)	S/NRHP Eligibility Recommendation (NYSOPRHP)	Distance to Nearest Turbine (Miles)	Number of Turbines Potentially Visible
			four-story cross-gabled bell tower with spire						
25	00743.000013	141 Second Street	First Baptist Church, a one-story brick church with a cross-gabled roof and a four-and-one-half-story bell tower	Town of Deposit	Delaware	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	1.7	3
26	02544.000028	145 Second Street	Deposit Historical Society Museum, a one-story brick building, originally the first bank in the village	Town of Deposit	Delaware	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	1.7	0
27	02544.000029	43 Pine Street	A two-story Federal/Greek Revival transitional style residence	Town of Deposit	Delaware	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	1.8	3
28	02544.000016	32 Pine Street	Two-story Greek Revival residence	Town of Deposit	Delaware	Not S/NRHP-Eligible (EDR Recommended)	Not S/NRHP-Eligible (NYSOPRHP Determined)	1.9	0
29	00743.000003	45 Second Street	Two-and-one-half-story Second Empire residence	Town of Sanford	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	1.7	0
30	02544.000001	20 Main Street	Two-story Greek Revival residence with additions	Town of Deposit	Delaware	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	1.9	1
31	00743.000002	75 Second Street	Two-story Greek Revival with additions	Town of Sanford	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	1.7	1
32	00743.000006	16 Court Street	Two-story vernacular residence with decorative woodwork	Town of Sanford	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	1.7	1

Survey ID	USN	Address	Name and/or Description	Municipality	County	S/NRHP Eligibility Recommendation (EDR)	S/NRHP Eligibility Recommendation (NYSOPRHP)	Distance to Nearest Turbine (Miles)	Number of Turbines Potentially Visible
33	00743.000014	99 Second Street	A two-and-one-half-story residence with elements of Federal, Greek Revival, and Italianate styles	Town of Sanford	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	1.7	1
34	BIN 770220	CSX over Mill Street (County Route 237)	Girder and floor beam railroad bridge, built 1920	Town of Sanford	Broome	Not S/NRHP-Eligible (EDR Recommended)	Not S/NRHP-Eligible (NYSOPRHP Determined)	1.8	2
35	02544.000017	128-132 Front Street	Three-story brick commercial building	Town of Sanford	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	1.8	0
36	02544.000015	159 Front Street	Deposit Free Library, one-story brick building	Town of Sanford	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	1.8	1
37	90NR00089	148 Front Street	State Theater, a one-story Art Deco theater with a glass facade	Town of Sanford	Broome	S/NRHP-Listed Site	S/NRHP-Listed Site	1.8	2
38	02544.000030	228 Front Street	A two-story Greek Revival residence and contemporary addition. Historic marker states the property was the site of the first store in the village, built by Silas Crandall in 1803.	Town of Deposit	Delaware	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	2.0	0
39	02544.000031	1 River Street	Axtell Antiques, a two-story Federal style residence with 12/12 windows and historic iron gate on property. Historic marker states the building was historically known as the "Rookery Tavern" and was constructed in 1799.	Town of Deposit	Delaware	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	2.0	0

Survey ID	USN	Address	Name and/or Description	Municipality	County	S/NRHP Eligibility Recommendation (EDR)	S/NRHP Eligibility Recommendation (NYSOPRHP)	Distance to Nearest Turbine (Miles)	Number of Turbines Potentially Visible
40	02544.000032	CSX over Delaware River	CSX over the Delaware, a metal lattice through truss railroad bridge, circa 1880.	Town of Deposit	Delaware	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	1.9	7
41	02544.000033	Southwest corner of Orchard and Laurel Bank Avenue	An approximately 0.5-acre cemetery with an estimated 102 headstones, circa 1793 (Revolutionary War Cemetery)	Town of Deposit	Delaware	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	2.1	0
42	02544.000034	27 Oak Street	Approximately 8.9-acre cemetery with an estimated 2101 headstones, circa 1882 (Laurel Hill Cemetery).	Town of Deposit	Delaware	Not S/NRHP-Eligible (EDR Recommended)	S/NRHP Eligibility Undetermined	2.0	13
43	00716.000087	941 State Route 79	Outlook Farm, an historic farmstead consisting of a two-and-one-story Queen Anne residence, a carriage house with an attached shed, and a barn.	Town of Sanford	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	3.4	9
44	00716.000088	623 State Route 79	Approximately 0.25-acre cemetery with an estimated 100 headstones, circa 1780 (Old South Windsor Cemetery, also known as Wake Cemetery).	Town of Windsor	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP Eligibility Undetermined	3.6	15
45	00712.000096	591 Oquaga Lake Road	Approximately 243-acre camping resort consisting of six houses, two barns, two large camp lodges, two support buildings, a lake house, and a tennis court.	Town of Sanford	Broome	S/NRHP-Eligible (EDR Recommended)	S/NRHP-Eligible (NYSOPRHP Determined)	4.5	9

Based on the viewshed analysis, two of the five S/NRHP-listed properties within the APE for indirect effects are anticipated to have views of up to three new wind turbines. The State Theater (90NR00089) is located approximately 1.8 miles from the nearest turbine in the Village of Deposit. From this location, the visual setting associated with the property would include views of up to two wind turbines. The S/NRHP-listed Windsor Village Historic District (90NR00091) is located approximately 3.7 miles from the nearest turbine. From the location with the most Project visibility (Viewpoint 2, see Insets 1-2), the visual setting associated with the historic district would include views of up to three wind turbines. Field review indicates that views of these two resources will be partially screened by intervening topography, vegetation, and structures.[2] The Facility will not be visible from the remaining three S/NRHP-listed properties within the Study Area (the Harpursville Methodist Church (05NR05519), the Oquaga Lenticular Truss Bridge (02NR04990), and the Jedediah Hotchkiss House (90NR00090)). These resources are located between 3.3 and 5.7 miles from the nearest turbine, and views of the Facility from these properties will be screened by intervening vegetation, topography and/or buildings (see Table 1).

Based on the viewshed analysis, of the 25 properties within the APE determined by NYSOPRHP to be S/NRHP-eligible:

- Fourteen S/NRHP-eligible properties will have potential views of between 1 and 15 turbines. These properties are located between 1.7 and 4.7 miles from the nearest turbine. Of the 14 properties, nine will have potential views of between 1 and 3 turbines.
- Two S/NRHP-eligible properties will have views of between 16 and 23 turbines. These properties are located approximately 0.0 and 2.7 miles from the nearest turbine, respectively.
- Nine S/NRHP-eligible properties will have no views of the Facility.
- No S/NRHP-eligible properties will have views of more than 23 turbines.

The field review conducted as part of the historic resources survey indicated that existing buildings, street trees, yard vegetation, utility poles, and other objects screen views of the Facility from the Villages of Windsor and Deposit, and other areas of concentrated settlement within the Study Area. Potential views of the Facility from within the village were limited to the edges of the developed areas, where gaps between buildings allow for more partial and/or distant views toward the Facility. Based on viewshed analysis and field review, it can be concluded that the effect on the visual setting associated with historic resources in the villages and hamlets located within the Study Area will be greatest in areas closest to the wind turbines and will decrease the greater the distance between an historic resource and the nearest wind turbine.

[2] A more in-depth analysis of potential views of the Facility from the Windsor Village Historic District is provided in Section 3.3 below.

It is worth noting that per the NYSDEC Visual Policy, simple visibility of the Facility from any of the viewing locations does not imply detrimental effect to the beauty or structure. The policy specifically states "Aesthetic impact occurs when there is a detrimental effect on the perceived beauty of a place or structure. Significant aesthetic impacts are those that may cause a diminishment of the public enjoyment and appreciation of an inventoried resource, or one that impairs the character or quality of such a place. Proposed large facilities by themselves should not be a trigger for declaration of significance. Instead, a project by virtue of its siting in a visual proximity to an inventoried resource may lead staff to conclude that there may be a significant impact" (NYSDEC, 2000).

3.2.2 Collection and POI Substations (One-Mile Study Area)

The potential visual effect of the Facility's proposed collection and POI substations was not explicitly addressed in the *Historic Resources Survey Report*. However, the VIA (EDR, 2018c) prepared for the Facility, which was included as an appendix of the Article 10 Application and summarized in Exhibit 24, does address the visibility and visual impact of the collection and POI substations. The historic properties identified in *Historic Resources Survey Report* are included as a category of visually sensitive sites that are considered in the VIA (see Section 3.6 and Figure 5 in the VIA report). In addition, the VIA report includes a discussion (included below), viewshed map (included as Figure 5 of this report) and visual rendering (Figure 10 of the VIA report) that address the potential visibility and visual effect of the collection and POI substations:

> *Substations*
>
> As described in Section 2 of this VIA, the Project includes construction of a collection substation and POI substation adjacent to the existing NYSEG Afton-Stilesville 115 kV transmission line in the Town of Deposit.
>
> Field review indicates that the proposed substation is well screened by surrounding vegetation and topography and is located at the end of a lightly used dirt road. There is one residence adjacent to the site at approximately 1,200 feet that will have views of the substations from their yard and driveway. However, because of the screening provided by adjacent vegetation, views from the home will not be available. The site is set into a small valley that consists of only Big Hollow Road and the Afton-Stilesville transmission corridor. Views from adjacent roadways, such as Lumber Road and County Route 248 (North Sanford Road) are fully blocked by the valley walls. Thus, visibility and viewer exposure at this site are anticipated to be minimal. Engineering designs for the substations have not yet been finalized. However, based on an assumed maximum structure (lightning mast) height of 60 feet, viewshed analysis confirmed that substation visibility will be very limited within 1 mile of the proposed stations. In addition, co-location of the collection substation with the POI substation directly adjacent to an existing overhead transmission line minimizes the overall contrast presented by the proposed facilities. Consequently, visibility and visual impact of the proposed substations is anticipated to be localized and minor. To illustrate the potential appearance of the collection and POI substations a visual simulation was produced from Big Hollow Road (EDR, 2018c: 122).

No S/NRHP-eligible properties are located within one mile or the viewshed of the proposed collection and POI substations (see Figure 5). The nearest S/NRHP-eligible property to the collection and POI substations (171 Big Hollow Road, USN 00712.000095) is located 2.1 miles south. Based on the viewshed analysis depicted in Figure 5, no historic properties will have views of the collector and POI substations, and therefore no historic properties will be impacted by the proposed substations.

3.3 Visual Simulations

16 NYCRR § 1001.24 (Exhibit 24: Visual Impacts) describes the necessary components of a VIA that must be conducted as part of the Article 10 application. The VIA must include "identification of visually sensitive resources, viewshed mapping, confirmatory visual assessment fieldwork, visual simulations (photographic overlays), cumulative visual impact analysis, and proposed visual impact mitigation." In addition, the regulation requires that "the applicant shall confer with municipal planning representatives, DPS, DEC, OPRHP, and where appropriate, APA in its selection of important or representative viewpoints." 6 NYCRR § 1001.24(b)(4).[3]

In accordance with the requirements set forth in 16 NYCRR § 1000.24(b)(4) as well as the Article 10 Preliminary Scoping Statement (PSS) for the Project dated August 2017, the Applicant conducted a systematic program of public outreach to assist in the identification of visually sensitive resources. Outreach included town and village historians in addition to other stakeholders relevant to historic properties (town supervisors, mayors, business owners, etc.) Copies of the correspondence sent by the Applicant as part of this process, as well as responses received from stakeholders, are included in the VIA. This outreach included the following:

- The Applicant distributed a request on January 19, 2018 to the appropriate municipal planning representatives and State of New York interested parties for feedback regarding the identification of important aesthetic resources and representative viewpoints in the Project vicinity to inform field review efforts and the eventual selection of candidate viewpoints for the development of visual simulations. The materials provided as part of this submission to interested stakeholders included: a summary of the purpose and necessity of consultation per the requirements of Article 10; a definition, explanation, and map of the visual study area; a preliminary inventory and map of visually sensitive resources identified in accordance with the NYSDEC Visual Policy; a preliminary viewshed (visibility) analysis; a discussion of anticipated subsequent steps, including additional consultation regarding the eventual selection of viewpoints for development of visual simulations; and a request for feedback regarding additional visually sensitive resources to be included in the analysis.

[3] Note: "DPS" is the New York State Department of Public Service, "DEC" is the New York State Department of Environmental Conservation, "OPRHP" is the New York State Office of Parks, Recreation, and Historic Preservation, and "APA" is the Adirondack Park Agency.

- On January 23, 2018, Karen Gaidasz, NYSDEC Division of Environmental Permits, provided an e-mail response requesting that electronic copies of the material be provided.
- On January 23, 2018, Lynne VanValkenburg, historian of the Town of Tompkins, provided an e-mail response to the Applicant's January 19, 2018 preliminary analysis. She recommended visiting the Trout Street Schoolhouse during the sensitive sites analysis.
- On January 30, 2018, EDR received e-mail responses from Diana Carter, Assistant Division Director for Planning, and John Bonafide, Director of Technical Preservation Services Bureau, New York State Parks, Recreation, and Historic Preservation, which recommended including the following resources in the sensitive sites analysis:
    - Oquaga Creek State Park viewpoints
        - Beach, campground loops, main roadways
        - "Main use" areas
- On February 19, 2018, Carolyn Price, Supervisor of the Town of Windsor, provided an e-mail response to the Applicant's January 19, 2018 preliminary analysis, which recommended including the following visual resources:
    - 5-mile visual study area
        - Cemeteries
            - Doolittle, Stowe, Small Family, East Windsor, Ostrander, Windsor Village, South Windsor, new South Windsor
    - 10-mile visual study area
        - Cemeteries
            - Flowers, Blatchley, Mountain View, West Windsor, Riley Farm, Highley Family
    - State game lands near Hawkins Pond
    - Note that parts of Route 17 are also I-86
- On February 23, 2018, EDR received an e-mail response from Al Dauthinais, Chairman of the Colesville Planning Board. The following resources were recommended to be included in the sensitive sites analysis:
    - Nathaniel Cole Park
    - Coles Hill Cemetery

A set of 19 visual simulations were prepared for the Facility's VIA report (also prepared as part of the Article 10 process) to assess the visual impacts of the turbines.[4] These simulations provide representative views of the proposed Facility from a variety of landscape settings, directions, and viewing distances from within the Facility's visual Study Area. Although most of these simulations do not necessarily represent the views of or from specific historic properties, the simulations do provide representative depictions of the Facility's potential effect on the visual settings associated with historic properties within the Study Area. Full size images of all of the simulations are included in the VIA report (EDR, 2018c) and included here as Appendix B. The simulations that best represent the potential visual effect on two of the "key loci" identified by NYSOPRHP as part of consultation for the Facility (Bonafide, 2018) include the simulations from Viewpoint 2 (Windsor Village Historic District), Viewpoint 12 (Village of Deposit) and Viewpoints 61 and 104 (rural agrarian properties), which are included as insets in the discussion below. The evaluation of the Facility's potential visual effect at each of these locations, as presented in the VIA (EDR, 2018c), is summarized below.

In addition, for some views, wireframe renderings were prepared to illustrate the potential effect of vegetation, topography, or other screening features in photographs where the proposed Facility would either not be visible, or be substantially screened from view. In these wireframe renderings, portions of the proposed turbines that will be screened by vegetation (or other landscape features) are shown in a bright green color (for illustrative purposes). For the purposes of this report, wireframe renderings were prepared for the explicit purpose of illustrating the effects of screening from a specific viewpoint of concern, where a full visual simulation was not prepared due to lack of Facility visibility. Select wireframe renderings are included below as insets to support the discussion of potential Facility visibility.

3.3.1 Village of Windsor/Windsor Village Historic District

The Windsor Village Historic District (90NR00091) is located in the Village of Windsor, in the southeastern portion of the Study Area. The Windsor Village Historic District is comprised of 80 buildings and two landscaped areas. A total of 69 structures and both landscape areas are contributing resources to the historic district. The district is comprised of Academy, Chapel, Church, College, Dewey, Elm, and Main Streets encompassing 55 acres in the Village of Windsor in the Town of Windsor. The district is significant as an example of the development of a southern tier New York village since the early-nineteenth century, as illustrated through the variety of building styles throughout the Village of Windsor (Breyer, 1979). The district was listed in the S/NRHP in 1980.

[4] In addition, a simulation was prepared for the collector and POI substations (included in the VIA as Figure 10). However, as summarized in Section 3.2.2, no S/NRHP-eligible resources are located within one mile of the collector or POI substations, and therefore there will be no indirect (visual) impact from the substations. Therefore, the discussion of visual simulations in this report is limited to simulations prepared for wind turbines only.

The inventory nomination form for the district describes the significance of the contributing resources as a concentrated settlement. The character of the surrounding countryside and visual setting are not mentioned in the nomination. It is noted that village streets remain aligned to the original platting, and that the significance of the historic district is found in the "quality, variety, and interrelationship of buildings within the district" (Breyer, 1979). Therefore, views of the surrounding rural landscape (where the Facility is proposed to be located) are not identified as contributing to the historic setting for the Windsor Village Historic District or the qualities that made it eligible for listing in the S/NRHP.

Viewpoint 2 is located on Chapel Street within the Windsor Village Historic District in the Village of Windsor. It is approximately four miles from the nearest proposed turbine that would be visible in views from the Village to the east (toward the proposed Facility). The foreground of the existing view consists of elements that make up the residential portion of the historic district, including houses of similar scale, street-side vegetation, and utility lines (see Inset 1).

Inset 1. Existing view from S/NRHP-listed Windsor Village Historic District (90NR00091) located in the Village of Windsor, view to the east.

This representative view from one of the small patches of visibility within the Windsor Village Historic District demonstrates the combination of vegetation, residences, and utilities that partial obstruct views to the nearby ridgeline and the surrounding countryside.

Typical of the rural villages and hamlets in the study area, the homes are a mix of traditional architectural styles with additions and accessory structures added over the years. Modern infrastructure such as telephone poles and overhead transmission cables are ubiquitous. Located beyond the end of the line of sight is the intersection of Chapel Street (County Route 28) with Main Street (State Route 79). The colors in this view are muted due to the time of year and the largely overcast/snow-covered conditions. Due to the concentrated nature of the residential streets and the topography of the village and its surroundings, the scenic quality of the Windsor Village Historic District is moderate.

Based on review of the wireframe visual simulation from Viewpoint 2 (see Inset 2), the Facility will be screened from view from within the Windsor Village Historic District. Concentrated along Main Street are commercial buildings, which are clustered on the east side of Main Street along the edge of a steep bank which divides the area form the floodplain of the Susquehanna River, obscuring potential views of the Facility. The ridgelines to the east provide a backdrop to the village and obscure views of the Facility. Although the viewshed analysis in Figure 4 indicates small patches of visibility at the west end of the village near the Windsor Village Cemetery, it was concluded from field review that views of the Facility will typically be screened due to intervening buildings and vegetation.

Inset 2. Wireframe simulation (leaf-off) from S/NRHP-listed Windsor Village Historic District (90NR00091) located in the Village of Windsor, view to the east.

Note that the wind turbines are generally obscured by the intervening topography and are located behind the ridgeline.

3.3.2 Village of Deposit

The Village of Deposit is located approximately 1 mile (at its northwestern border) from the nearest turbine. The village is characterized by dense residential and commercial development concentrated along Front Street and Second Street (State Route 315). The primary commercial district of the village is located along Front Street and includes just over two blocks of late-nineteenth and early-twentieth century commercial buildings, and the S/NRHP-listed State Theater (90NR00089). Although the viewshed analysis in Figure 4 (Sheet 7) indicates pockets of partial Facility visibility within the village, field review indicates that potential views from the Village of Deposit toward the Facility would be partially screened by intervening vegetation, buildings and existing modern infrastructure (see Inset 3).

Inset 3. Existing view to the northeast toward Facility from the intersection of Monument Street and Second Street (State Route 315) in the Village of Deposit.

This representative view toward the Facility from the Village of Deposit illustrates the partial views of the surrounding topography from inside the village, near the S/NRHP-eligible First Presbyterian Church (USN 02506.000054).

Viewpoint 12 is centrally located in the Village of Deposit at the intersection of Second (State Route 315) and Monument Streets, near the border between Broome and Delaware Counties. It is approximately 1.7 miles from the nearest proposed turbine that would be visible in a view to the northwest (toward the proposed Facility). The foreground of the existing view consists of the First Presbyterian Church, an S/NRHP-eligible property, residences, the Deposit Civil War Veterans Memorial, and overhead utility lines (see Inset 3).

The historic resources survey conducted by EDR included 24 previously identified resources in the Village of Deposit; however, as part of their review of the survey report, NYSOPRHP determined that 17 of these resources were S/NRHP-eligible (see Table 1 and Figure 4, Sheet 7). These S/NRHP-eligible resources are located between approximately 1.6 and 2.1 miles from the nearest turbine in densely developed residential areas with considerable street vegetation, away from the village core and are anticipated to also experience partially screened views of the Facility. The criteria by which these resources were determined to be significant for purposes of the S/NRHP listing did not include the character of the surrounding landscape, but rather the individual architectural quality and residential setting. Therefore, the Facility is not expected to diminish the qualities that have made any of the resources in the Village of Deposit eligible for the S/NRHP.

With the proposed Facility in place (see Inset 4), one turbine would be clearly visible on the wooded ridgeline that forms a backdrop to this view. The vertical line of the turbine is consistent with street signs and trees present in the view. Although the ridgeline and the turbine can be seen in the simulation during “leaf-off” conditions, views of the Facility will presumably be more obscured during the growing season, when leaves on the trees will block more of the ridgeline. The monument and church in the foreground remain the focal points in the view. Furthermore, the concentration of modern infrastructure in the form of overhead transmission lines will tend to lessen the visual impact of the proposed Facility. Due to the complexity of this view, the addition of the turbine along the ridgeline does not significantly charge the character of the view. However, the turbine will become more noticeable when it is in motion.

Inset 4. Visual simulation: View to the northeast toward the Facility from the intersection of Monument Street and Second Street (State Route 315) in the Village of Deposit.

Views of the Facility from the village are partially screened by intervening vegetation, buildings, existing modern utility lines and other infrastructure. When visible, turbines will appear above the ridgeline of hills northwest of the Village of Deposit.

3.3.3 Rural Agrarian Properties

Several resources determined by NYSOPRHP to be S/NRHP-eligible include residences, cemeteries and other historic properties located in an historically rural, agrarian landscape. As part of their review of the *Historic Resources Survey Report* (EDR, 2017b), NYSOPRHP requested these types of properties be more closely evaluated for visual impacts:

> In addition, several of the individual rural agrarian properties will be in the viewshed of a significant number of the proposed towers. Given the dramatic topography of this area the potential view shed/setting impacts associated with these resources should be carefully assessed (Bonafide, 2018).

Rural agrarian landscapes within the Study Area are characterized by open agricultural and successional fields mixed with woodlands and widely-spaced farms. Residential development within these landscapes typically consists of older, single-family residences along the surface roads and newer residential construction set back further onto the land. The topography of rural agrarian landscapes throughout the Study Area is generally a gently rolling mix of hills and valleys dissected by a network of county and local roads, including several heavily traveled two-lane roads such as State Routes 8, 10, 41, and 79, which in places offer open views of the surrounding landscape. The Susquehanna and the

West Branch of the Delaware River Valleys run through the Study Area and are important elements of this type of landscape. Due to the presence of open farm land, open views are more available than they are in the forests or village centers of the Study Area. These views typically include open fields in the foreground, including scattered homes and farms, backed or bordered by forested hills that define the horizon.

A discussion of existing, representative views from two simulation viewpoints in the direction of the proposed Facility as well as corresponding visual simulations prepared as part of the VIA for the Facility (EDR, 2018c) are provided below. Viewpoint 61 is located along State Route 79 in the Town of Colesville. It is approximately 3.0 miles from the nearest proposed turbine that would be visible within this view, and approximately 0.4-mile northeast of the nearest S/NRHP-eligible resource (Harpur Cemetery, USN 00704.000090). The existing view toward the proposed Facility is in a southeasterly direction, approximately 45 degrees to the left for the typical viewer traveling south on State Route 79. The gently rolling farm field backed by the forested ridgeline along the horizon characterizes this long-distance view and is representative of much of the Study Area (see Inset 5).

The visual simulation prepared from Viewpoint 61 depicts that multiple turbines would be visible across the horizon at the ridgeline (see Inset 6). The turbines present appreciable contrast with the existing vegetation, landform, and sky. While the turbines may become a focal point, and attract viewer attention, they are few in number, and appear compatible with the existing working agricultural landscape. In addition, the Facility faces south, so that views from the east or west from the major transportation corridors will give the turbines a bladeless appearance and reduce the contrast with the existing elements.

Inset 5. Existing view: Viewpoint 61, view to the southeast from State Route 79 in the Town of Colesville.

This view of an open agricultural field and hills is representative of the view from many of the S/NRHP-eligible rural agrarian properties located within the Study Area.

Inset 6. Visual simulation: Viewpoint 61, view to the southeast from State Route 79 in the Town of Colesville.

Although this representative view toward the Facility from a rural landscape is largely unobstructed, it is likely that views toward S/NRHP-eligible rural properties looking in the direction of the Facility would potentially be screened by buildings and vegetation, while views in the direction of the Facility looking away from S/NRHP-eligible rural properties may have more unobstructed views of the Facility.

Viewpoint 104 is from Bryce Road, approximately 4.8 miles northwest from the Village of Deposit. It is approximately 0.1-mile from the nearest proposed turbine, and approximately 0.2-mile north from the nearest S/NRHP-eligible resource (110 Bryce Road, USN 00712.000093). The existing view toward the proposed Facility is in a northern direction. It features a small clearing and pond but is dominated by a heavily forested hilltop (see Inset 7). The undeveloped natural features characterize against the rolling topography. The overall scenic quality of this rural landscape is high.

Inset 7. Existing view: Viewpoint 104, view north from Bryce Road.

This view of a forested ridgeline is representative of the view from many of the S/NRHP-eligible rural agrarian properties located within the Study Area.

The introduction of turbines would constitute a change in the visual setting of the rural areas in the Study Area. Views of and from S/NRHP-eligible properties within the Facility Area are likely to be unobstructed in areas with clearings or bodies of water (see Inset 8). However, the rolling topography and vegetation will likely obstruct visibility even at close range of the turbines, and views of the Facility will vary drastically throughout the rural portions of the Study Area.

Although construction of the Facility will result in a change to the predominantly rural, agrarian landscape and setting of much of the Facility Area and Study Area, it is likely that the qualities that contributed to the historic significance of properties determined by NYSOPRHP to be S/NRHP-eligible will not be adversely impacted by the Facility.

Inset 8. Visual simulation: Viewpoint 104, view north from Bryce Road.

Although this representative view toward the Facility from a rural landscape is largely unobstructed, it is likely that views toward S/NRHP-eligible rural properties looking in the direction of the Facility would potentially be screened by buildings and vegetation, while views in the direction of the Facility looking away from S/NRHP-eligible rural properties may have more unobstructed views of the Facility.

Additional visual simulations that depict views toward the Facility from a range of selected representative vantage points at varying distances are included as Appendix B and fully evaluated in the VIA for the Facility (EDR, 2018c). Although these simulations do not necessarily represent the views of or from specific historic properties, the simulations do provide representative depictions of the Facility's potential effect on the visual settings associated with historic properties listed in or determined eligible for listing in the S/NRHP within the APE for indirect (visual) effects.

3.4 Noise Effects Analysis

The assessment of potential noise-related impacts from the Facility is discussed in detail in Exhibit 19 of the Article 10 Application. This subsection focuses on potential operational noise/vibration impacts to S/NRHP-eligible historic properties within the Study Area. Construction-related noise/vibration impacts are not considered because they will be short-term and temporary in nature.

Relevant to noise and vibration impacts to S/NRHP-eligible cultural resources, the implementing regulations for New York State Parks, Recreation and Historic Preservation Law, Section 14.09 (9 NYCRR § 428.7) state:

a. In determining whether an undertaking will have an adverse impact on eligible or register property, the commissioner shall consider whether the undertaking is likely to cause:
   1. destruction or alteration of all or part of the property;
   2. isolation or alteration of the property's environment;
   3. *introduction of visual, audible or atmospheric elements which are out of character with the property or alter its setting;*
   4. neglect of the property resulting in its deterioration or destruction. [emphasis added] (9 NYCRR § 428.7)

In addition, the Federal Regulations entitled "Protection of Historic Resources" (36 CFR Part 800) include in Section 800.5(2) a discussion of potential adverse effects on historic resources:

> "Adverse effects on historic properties include but are not limited to: . . . (iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance; [and] (v) *Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features. . .*" (CFR, 2004b). [emphasis added]

Similar to visual impacts to historic properties, potential noise and vibration impacts would be greatest at properties in closer in proximity to turbines. The 44 properties located outside of 0.5-mile from the nearest turbine (98 percent of S/NRHP-eligible properties) will experience noise levels below 45 dBA $L_{eq(8)}$ with noise levels decreasing with distance from the turbine. Ambient noise levels of 45 dBA $L_{eq(8)}$ and below are consistent with sound levels suggested by various noise guidelines that are considered generally acceptable for residential areas (see Exhibit 19 of the Application).

Only one S/NRHP-eligible property (110 Bryce Road (USN 00712.000093)) is located within 0.5-mile (0.8 km) of the nearest turbine. This property is anticipated to experience noise levels of between 40 and 45 dBA $L_{eq(8)}$ during Facility operation. However, it should be noted that the distance from the nearest turbine was measured to the property's parcel boundary. The distance from the nearest turbine to the S/NRHP-eligible structure on the property is 0.6-mile (0.9 km). Therefore, the noise generated by nearby wind turbines is not anticipated to constitute a significant adverse impact to the setting of this property, nor to any of the S/NRHP-listed or S/NRHP-eligible historic resources within the Study Area.

More generally, the Facility has been sited with turbines, the POI substation, and the collection substation in undeveloped areas away from population centers, such as villages and town centers, in order to minimize potential auditory impacts to area residences and historic properties, which are clustered in developed areas within the 5-Mile

Study Area for the Facility. Moreover, because existing ambient noise levels are expected to be slightly higher in these more developed areas (due to increased vehicle traffic and other noises associated with greater population density, any potential noise impacts to historic properties from the proposed turbines and collection substation would not be expected to be significant.

Based on the above analysis, and that contained in Exhibit 19 of the Article 10 Application, potential noise and/or vibrations caused by the operation of the proposed Facility are not expected to significantly alter the character or setting of S/NRHP-listed and -eligible historic properties within the Study Area. Vibrations are not anticipated to impact any S/NRHP-listed or -eligible properties and noise-related impacts are anticipated to be relatively minimal, due in large part to the Facility's siting in remote rural areas away from areas of higher historic and modern population density. Any elevated noise and vibration levels related to Facility construction will be short-term and temporary in nature. Therefore, there will be no permanent noise-related adverse impacts to S/NRHP-listed or eligible properties.

4.0 SUMMARY AND CONCLUSIONS

4.1 Summary of Facility's Potential Effect on Historic Resources

Per the regulations implementing Section 14.09 of the New York State Parks, Recreation, and Historic Preservation Law, the "introduction of visual, audible, or atmospheric elements which are out of character with [a historic property] or alter its setting" needs to be considered when determining whether an undertaking will have an adverse impact on historic resources (9 NYCRR §428.7). The Facility's potential effect on historic resources would be a change (resulting from the introduction of wind turbines) in the visual setting associated with a given historic resource. The potential effect of the Facility on the visual setting associated with historic resources is highly variable and is dependent on a number of factors including the distance to the project, the number of visible turbines, the extent to which the Facility is screened or partially screened by buildings, trees, or other objects, the amount of existing visual clutter and/or modern intrusions in the view, and whether visual setting is an important factor contributing to a given property's historical significance.

Based on their review of the *Historic Resources Survey Report* prepared by EDR (EDR, 2018b), NYSOPRHP determined a total of 30 resources were listed in, or eligible for, the S/NRHP:

- Five extant properties listed on the S/NRHP are located within the APE for indirect effects;
- Twenty-five properties recommended by EDR to be S/NRHP-eligible were determined by NYSOPRHP to be S/NRHP-eligible.

Based on the viewshed analysis, of the five S/NRHP-listed properties within the APE for indirect effects:

- One property (the State Theater, 90NR00089) is anticipated to have views of up to two wind turbines;
- One property (the Windsor Village Historic District, 90NR00091) will experience views of up to three wind turbines;
- The remaining three of the S/NRHP-listed properties will not experience views of any wind turbines.

Based on the viewshed analysis, of the 25 properties within the APE determined by NYSOPRHP to be S/NRHP-eligible:

- Fourteen S/NRHP-eligible properties will have potential views of between 1 and 15 turbines. These properties are located between 1.7 and 4.7 miles from the nearest turbine. Of these 14 properties, nine had views of between 1 and 3 turbines.
- Two S/NRHP-eligible properties will have views of between 16 and 23 turbines. These properties are located approximately 2.7 miles and 0.0 miles from the nearest turbine, respectively.

- Nine S/NRHP-eligible properties will have no views of the Facility.
- No S/NRHP-eligible properties will have views of more than 33 turbines.

Construction of the Facility will not require the demolition or physical alteration of any buildings or other potential historic resources. No direct physical impacts to historic architectural resources listed in or determined eligible for the S/NRHP will occur as a result of construction of the Facility. The potential indirect (visual) effect of the Facility on historic resources listed in or determined eligible for the S/NRHP located within the APE is variable based on several factors, including distance to the nearest turbine, intervening screening provided by vegetation, topography and buildings, and the degree to which location, or views of the surrounding rural landscape contribute to the historic setting and significance of a given property.

As described in Section 3.3, simulations of the proposed Faciliy indicate that the visibility and visual impact of the wind turbines on historic properties will be highly variable, based on landscape setting, extent of natural screening, presence of other man-made features in the view, baseline scenic quality, viewer sensitivity, distance of the viewer from the Facility, and the number of turbines visible in the view

Potential noise and/or vibrations caused by the operation of the proposed Facility are not expected to significantly alter the character or setting of S/NRHP-listed and -eligible historic properties within the Study Area. Vibrations are not anticipated to impact any S/NRHP-listed or -eligible properties and noise-related impacts are anticipated to be relatively minimal, due in large part to the Facility's siting in remote rural areas away from areas of higher historic and modern population density. Any elevated noise and vibration levels related to Facility construction will be short-term and temporary in nature. Therefore, there will be no permanent noise-related adverse impacts to S/NRHP-listed or eligible properties.

4.2 Conclusion and Recommendations

Based on field review and visual simulations prepared as part of the VIA for the Facility, it is anticipated that views from the Villages of Deposit and Windsor (which were identified by NYSOPRHP as locations where visual impacts should be carefully assessed) toward the Facility would be largely screened by intervening vegetation, buildings and topography. With regard to the concerns expressed by NYSOPRHP regarding rural, agrarian properties, although construction of the Facility will result in a change to the visual setting of historic properties located within the Study Area, it is likely that the qualities that contributed to the historic significance of properties determined by NYSOPRHP to be S/NRHP-eligible will not be adversely impacted by the Facility.

4.3 Avoidance and Mitigation

Correspondence from NYSOPRHP dated July 10, 2018 included the following recommendations regarding the assessment of potential avoidance options and mitigation of visual impacts posed by the Facility:

> The assessment of potential impact avoidance options may include previous efforts to reduce the number of turbines and the relocation of turbine units. Given the heights now associated with modern wind turbines we do not believe the screening is a viable mitigation option. We would recommend that only after an assessment of avoidance options has been established should potential mitigation options be discussed. All consultation regarding avoidance options and potential later mitigation options should involve those state/federal agencies directly associated with the permitting/approval process for this project (Bonafide, 2018).

Mitigation options are limited, given the nature of the Facility and its siting criteria (very tall structures some of which are located in open fields at the highest locally available elevations). However, in accordance with NYSDEC Visual Policy (NYSDEC, 2000), and as described in the VIA report for the Facility (EDR, 2018c) various mitigation measures were considered. These included the following:

- Professional Design. All turbines will have uniform design, speed, color, height and rotor diameter. Turbines will be mounted on conical steel towers that minimize visual clutter. The placement of any advertising devices (including commercial advertising, lettering, or logos identifying the Project owner or turbine manufacturer) on the turbines will be prohibited.

- Screening. Due do the height of individual turbines and the geographic extent of the proposed Project, screening of individual turbines with earthen berms, fences, or planted vegetation will generally not be effective in reducing Project visibility or visual impact. Additionally, based on site-specific field investigation, both the POI and collection substation are not anticipated to have significant visual effect on the nearby landscape. Therefore, visual screening of these Project components is not anticipated to be necessary.

- Relocation. Because of the limited number of suitable locations for turbines within the Project Site, and the variety of viewpoints from which the Project can be seen, turbine relocation will generally not significantly alter visual impact. Moving individual turbines to alternative sites would not necessarily reduce impacts but rather, shift that impact to other viewers/resources. Relocation to less windy sites could also affect the productivity and viability of the Project. Where visible from sensitive resources within the study area, views of the Project are highly variable and include different turbines at different vantage points. Therefore, turbine relocation would generally not be effective in mitigating visual impacts on sensitive resources. Additionally, the Project layout has been designed to accommodate various set-backs from residences, private properties, wetlands and cultural resources which limit options for relocation of individual Project components.

- Camouflage. The proposed white to light gray color of wind turbines (as mandated by the FAA to avoid daytime lighting) generally minimizes contrast with the sky under most conditions. This is demonstrated by simulations prepared under a variety of sky conditions. The size and movement of the turbines prevents more extensive camouflage from being a viable mitigation alternative (i.e., the turbines cannot be made to look like anything else). Nielsen (1996) notes that efforts to camouflage or hide wind farms generally fail, while Stanton (1996) feels that such efforts are inappropriate. She believes that wind turbine siting "*is about honestly portraying a form in direct relation to its function and our culture; by compromising this relationship, a negative image of attempted camouflage can occur*." Other components of the Project will be designed to minimize contrast with the existing character of the adjacent landscape. For instance, the design of the O&M and substation buildings will be in the style of an agricultural pole barn, common to the visual study area and will be of neutral earth-tone color that minimizes contrast with the colors present in the landscape. Also, the buried collection line will be located adjacent to the proposed access roads and existing pipeline ROWs where feasible to minimize new areas of clearing in the landscape.

- Low Profile. A significant reduction in turbine height is not possible without significantly decreasing power generation. Less generating capacity (resulting from smaller turbines) could threaten the Project's economic feasibility. To avoid generation losses, use of smaller turbines would require that additional turbines be constructed. The turbine proposed was specifically chosen to provide the required power with the lowest number of turbines to minimalize visual and environmental impacts. Several studies have concluded that people tend to prefer fewer larger turbines to a greater number of smaller ones (Thayer and Freeman, 1987; van de Wardt and Staats, 1988). There will be minimal visual impact from the electrical collection system because it will be installed underground, and where feasible, will be co-located with access/maintenance roads and existing pipeline ROWs.

- Downsizing. The number of proposed turbines on this project, anticipated to be up to 53 at the time the PSS was prepared, has already been reduced to 33. Further reducing the number of turbines could reduce visual impact from certain viewpoints, but from most locations within the study area where more than one turbine is visible, the visual impact of the Project would change only marginally unless a substantial number of additional turbines were removed. Along with affecting the financial viability of the Project, further elimination of turbines could significantly reduce the local socioeconomic benefits of the Project and reduce the Project's ability to assist the State in meeting its energy policy objectives and goals.

- Alternate Technologies. Alternate technologies for comparable power generation, such as gas-fired or solar-powered facilities, would have different, and perhaps more significant, visual impacts than wind power. A solar project capable of generating an equivalent 125 MW of power would require approximately 310 to 350 acres of open land.[5] Within the Facility site, this would require significant clearing of existing forest vegetation. Viable alternative wind power technologies (e.g., vertical axis turbines), that could reduce visual impacts, do not currently exist in a form that could be used on a commercial/utility-scale Facility.

- Non-specular Materials. Non-reflective paints and finishes will be used on the wind turbines to minimize reflected glare.

- Lighting. To comply with FAA guidance all of the turbines must be lit with two FAA warning lights. Medium intensity flashing red lights will be used at night, rather than white strobes or steady burning red lights. Fixtures with a narrow beam path will be utilized as a means of minimizing the visibility/intensity of FAA warning lights at ground-level vantage points. Lighting at the substations will be kept to a minimum, and turned on only as needed, either by switch or motion detector.

- Maintenance. The turbines and turbine sites will be maintained to ensure that they are clean, attractive, and operating efficiently. Research and anecdotal reports indicate that viewers find wind turbines more appealing when the rotors are turning (Stanton, 1996; Pasqualetti et al., 2002). In addition, the Project developer will establish a decommissioning fund to ensure that if the Project goes out of service and is not repowered/redeveloped, all visible above-ground components will be removed.

- Offsets. Correction of an existing aesthetic problem within the viewshed is a viable mitigation strategy for wind power projects that result in substantial adverse visual impact at a particular viewpoint. Projects that provide enhanced public access, recreational opportunities or environmental services at these locations could be proposed as offset mitigation for potential visual impacts to these resources and its users. In the review of planning documents undertaken as part of the VIA for the Facility, specific projects are called out by regional planning groups and town boards alike. For example the *Broome County Four Rivers Intermunicipal Waterfront Public Access Plan* and the *Village of Deposit Comprehensive Plan,* have the goal of upgrading River Street Park in the Village of Deposit.

[5] The leases for the Bluestone Wind Project do not allow for development of solar projects within participating parcels.

Mitigation for impacts to historic properties typically consist of projects that benefit historic properties and/or the public's appreciation of historic resources to offset potential impacts to historic properties resulting from the introduction of wind turbines into their visual setting. Mitigation projects that have been proposed for other wind energy projects in New York State have included activities such as additional historic resources surveys, S/NRHP nominations, monetary contributions to historic property restoration causes, development of heritage tourism promotional materials, development of educational materials and lesson plans, and development of public history materials, such as roadside markers.

As part of the Article 10 review process for the Facility, the Applicant contacted local stakeholders to help identify potential cultural resources mitigation projects and will continue to consult with the stakeholders and NYSOPRHP to determine the need for and details of these projects. The Applicant has drafted a Preliminary Cultural Resources Mitigation Plan that summarizes these outreach efforts and proposes mitigation for review by NYSOPRHP. The preliminary plan will be submitted as part of the Article 10 application for review by DPS.

5.0 REFERENCES

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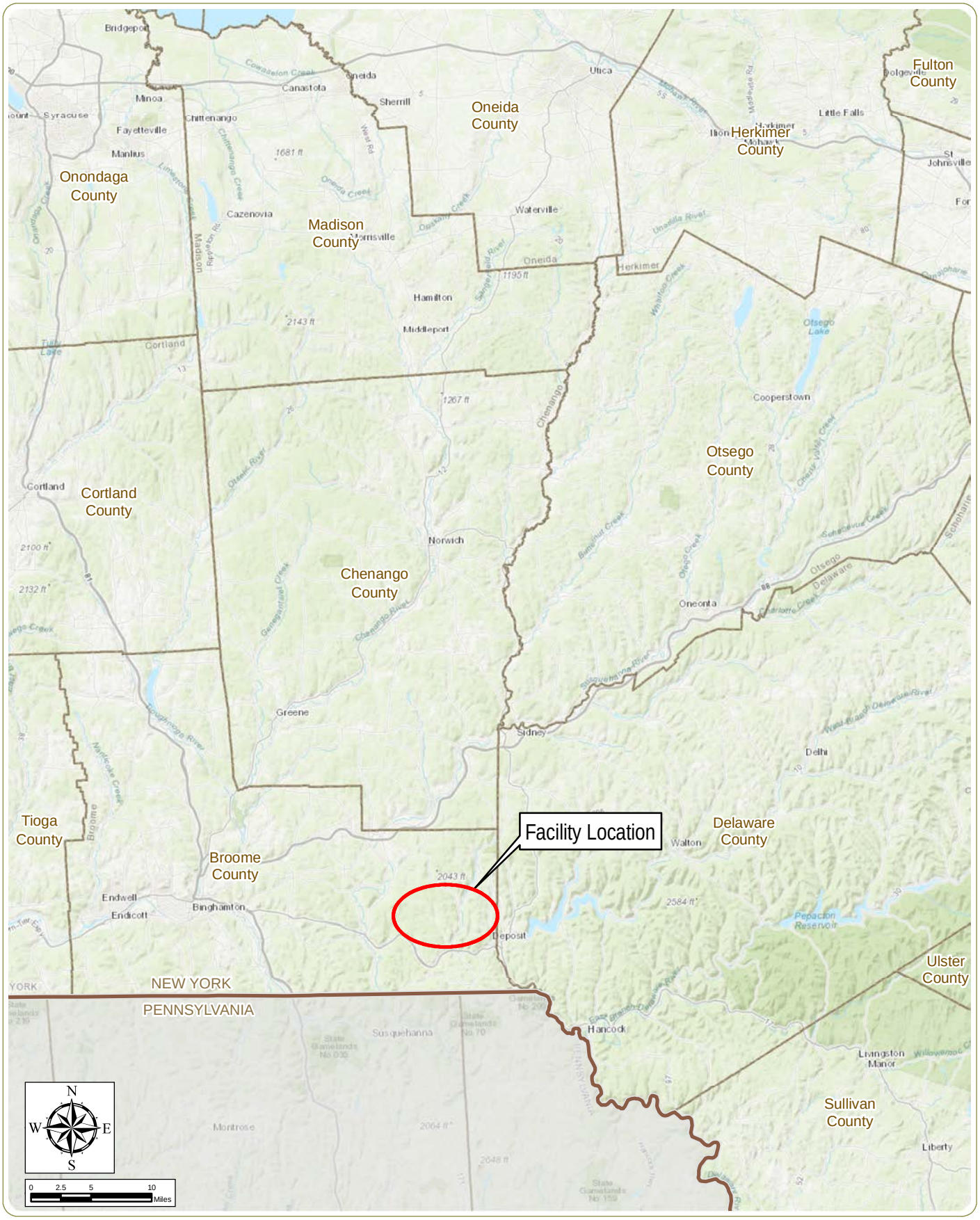
Figures



Bluestone Wind Project

Towns of Sanford and Windsor - Broome County, New York

Figure 1. Regional Facility Location

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service.
2. This map was generated in ArcMap on August 21, 2018. 3. This is a color graphic.
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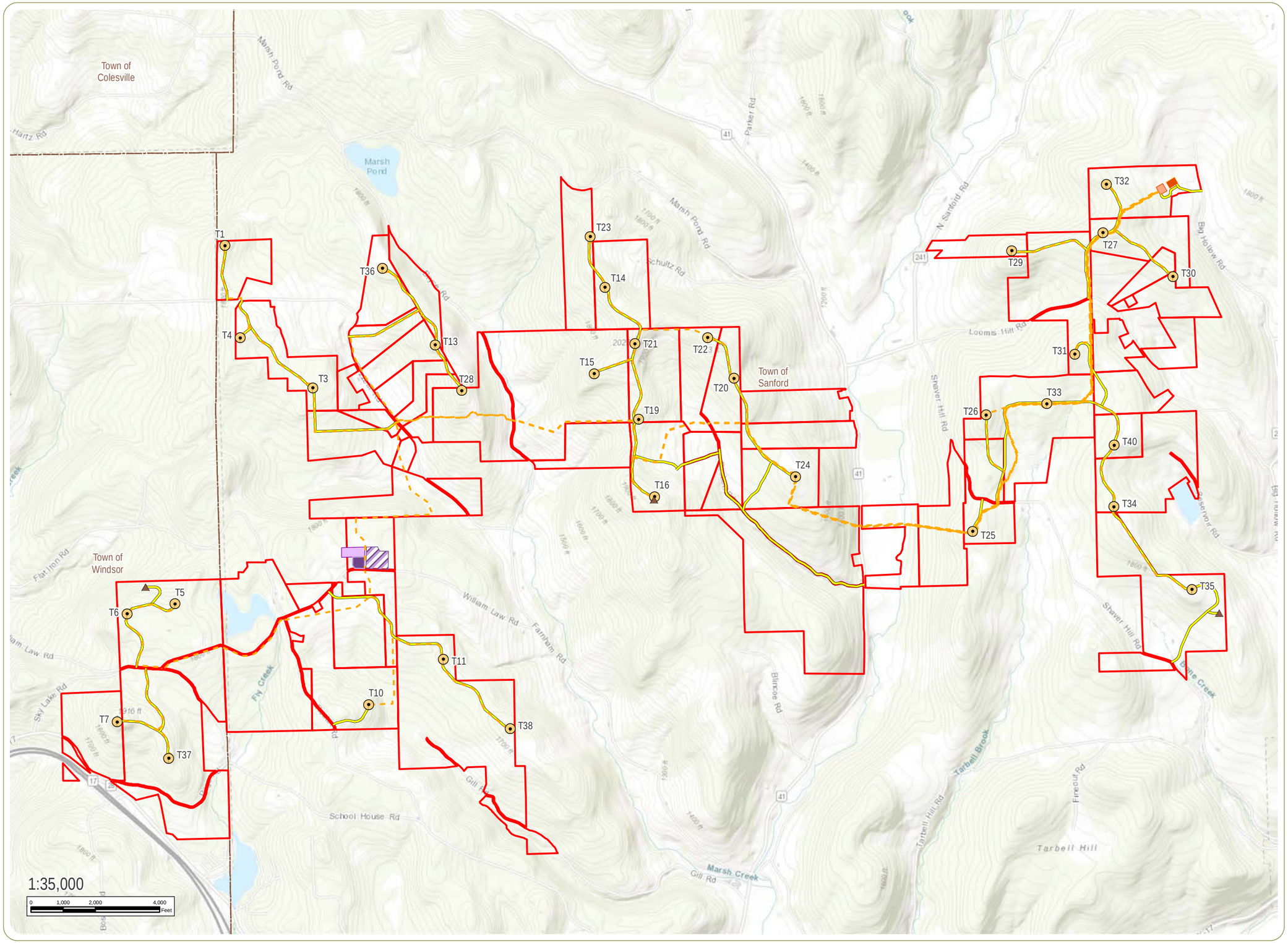

Bluestone Wind Project

Towns of Sanford and Windsor, Broome County, New York

Figure 2. Proposed Facility Layout

- Wind Turbine
- Met Tower
- Access Road
- Collection Line
- Batch Plant
- Laydown Area
- O&M Facility
- Collection Substation
- POI Substation
- Facility Area
- Town Boundary

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service. 2. This map was generated in ArcMap on September 7, 2018. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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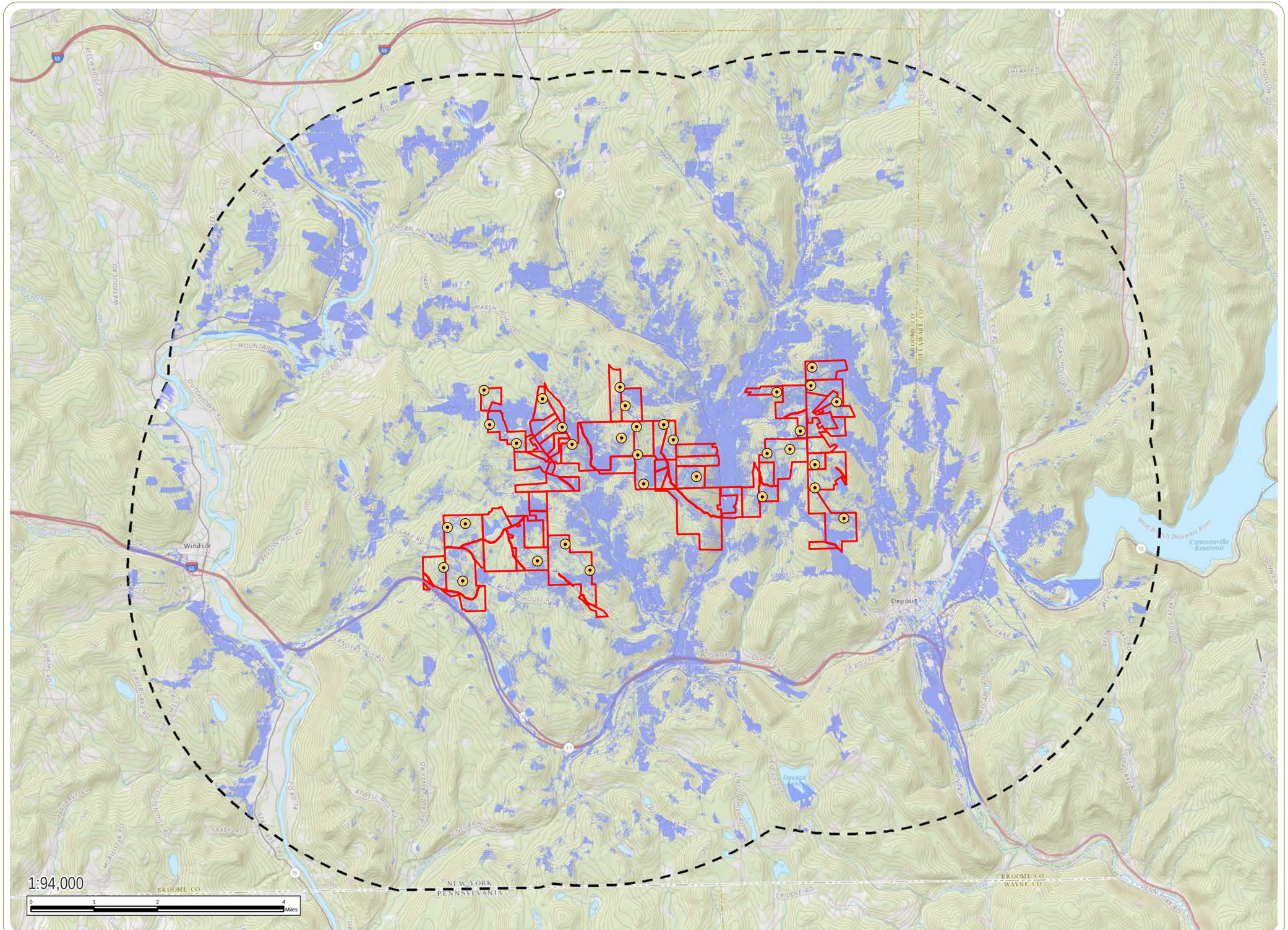

Bluestone Wind Project

Towns of Sanford and Windsor, Broome County, New York

Figure 3. Turbine Layout and Area of Potential Effect

- Wind Turbine
- Area of Potential Effect (APE) for Indirect (Visual) Effects
- Facility Area
- Five-Mile Study Area

Notes: 1. Basemap: ESRI ArcGIS Online "USGS Topo Maps" map service. 2. This map was generated in ArcMap on August 21, 2018. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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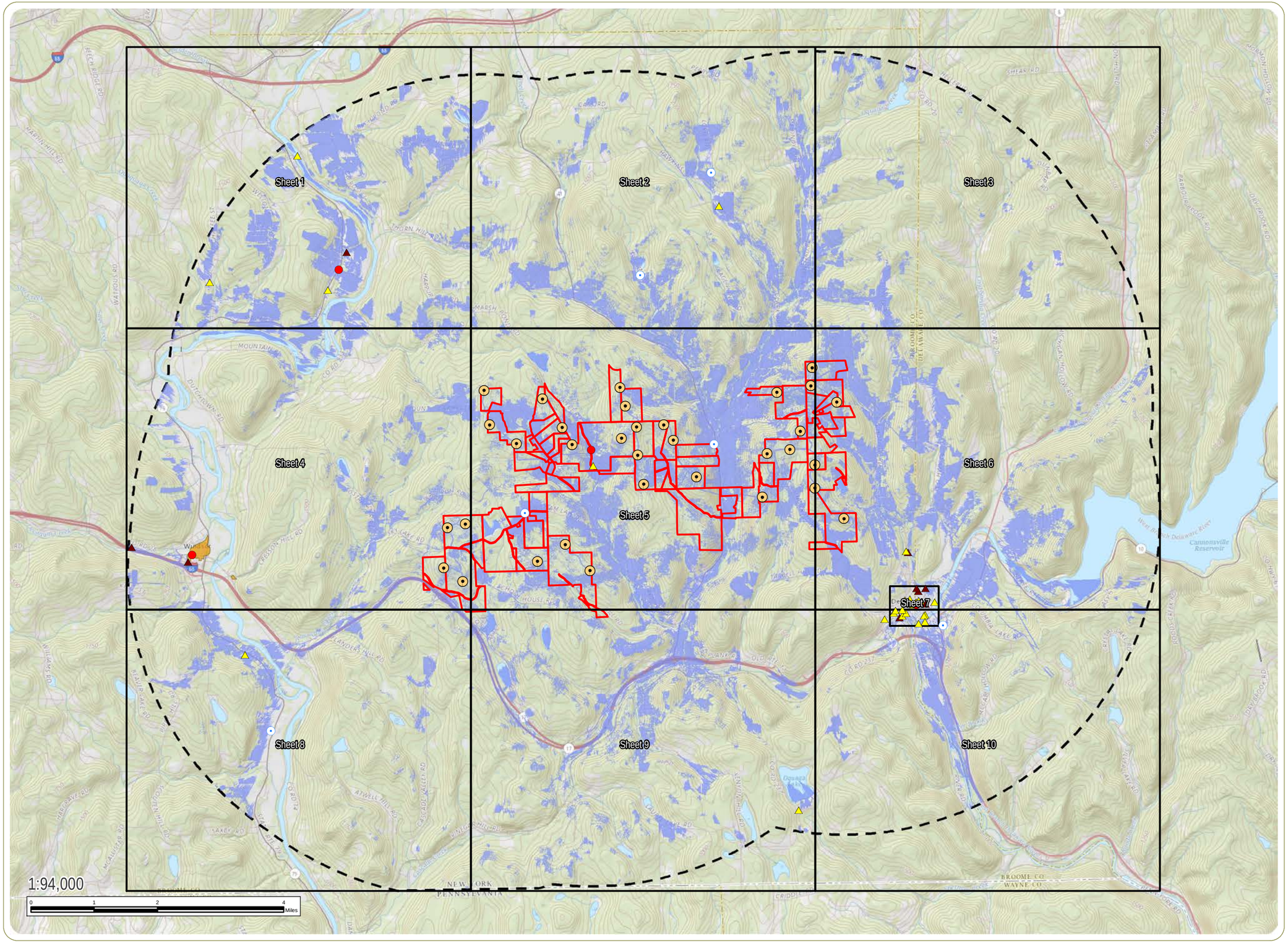

Bluestone Wind Project

Towns of Sanford and Windsor, Broome County, New York

Figure 4. Historic Resources Visual Effects Analysis - Index

NYSOPRHP NRHP Eligibility Determination

- NRHP-Eligible (NYSOPRHP Determined)
- Not NRHP-Eligible (NYSOPRHP Determined)
- NRHP Eligibility Undetermined
- Wind Turbine
- Simulation Viewpoint
- NRHP-Listed Site
- Area of Potential Effect (APE) for Indirect (Visual) Effects
- Facility Area
- Five-Mile Study Area

Notes: 1. Basemap: ESRI ArcGIS Online "USGS Topo Maps" map service. 2. This map was generated in ArcMap on August 22, 2018. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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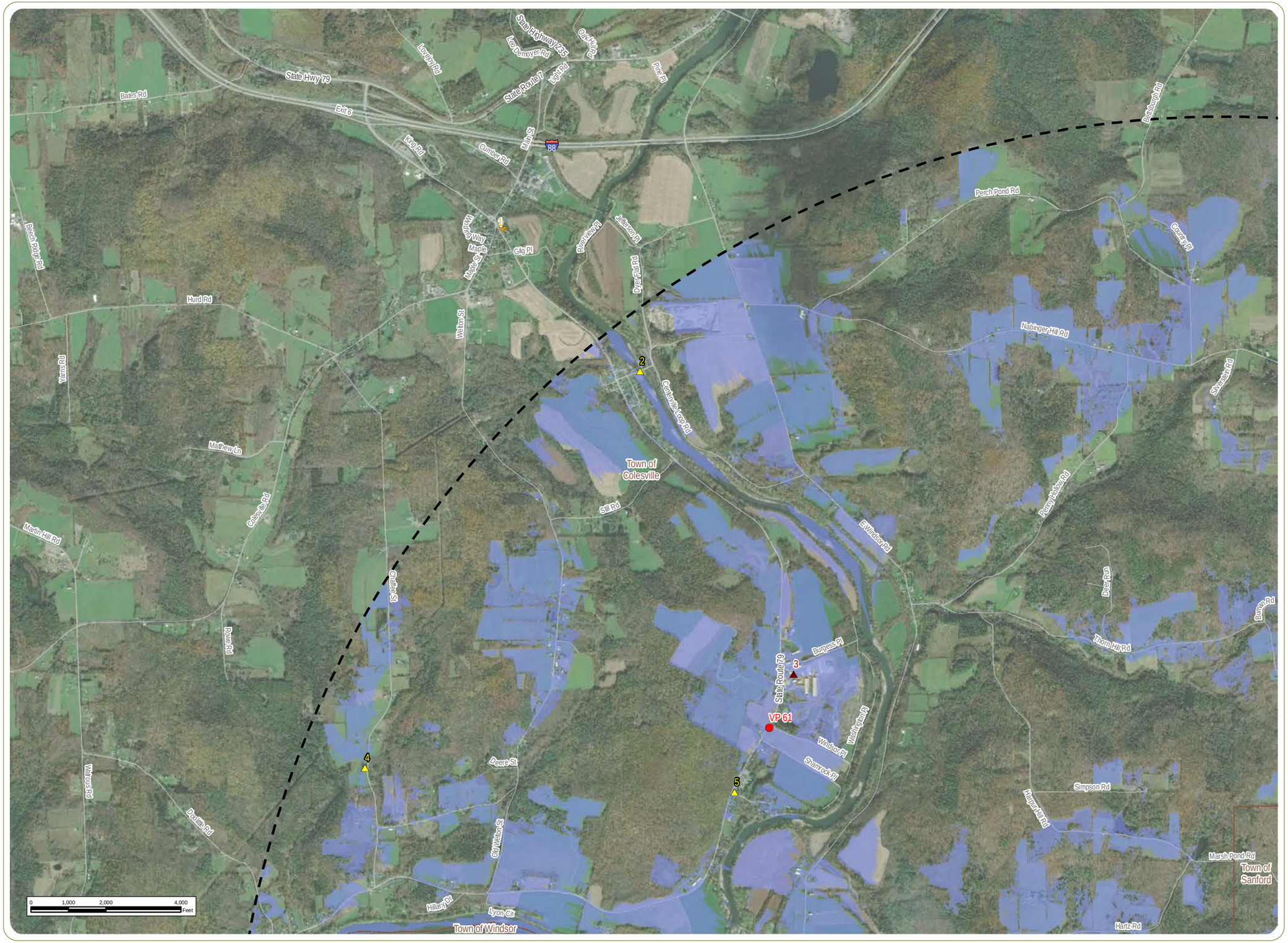

Bluestone Wind Project

Towns of Sanford and Windsor, Broome County, New York

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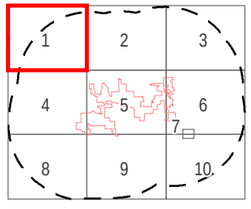

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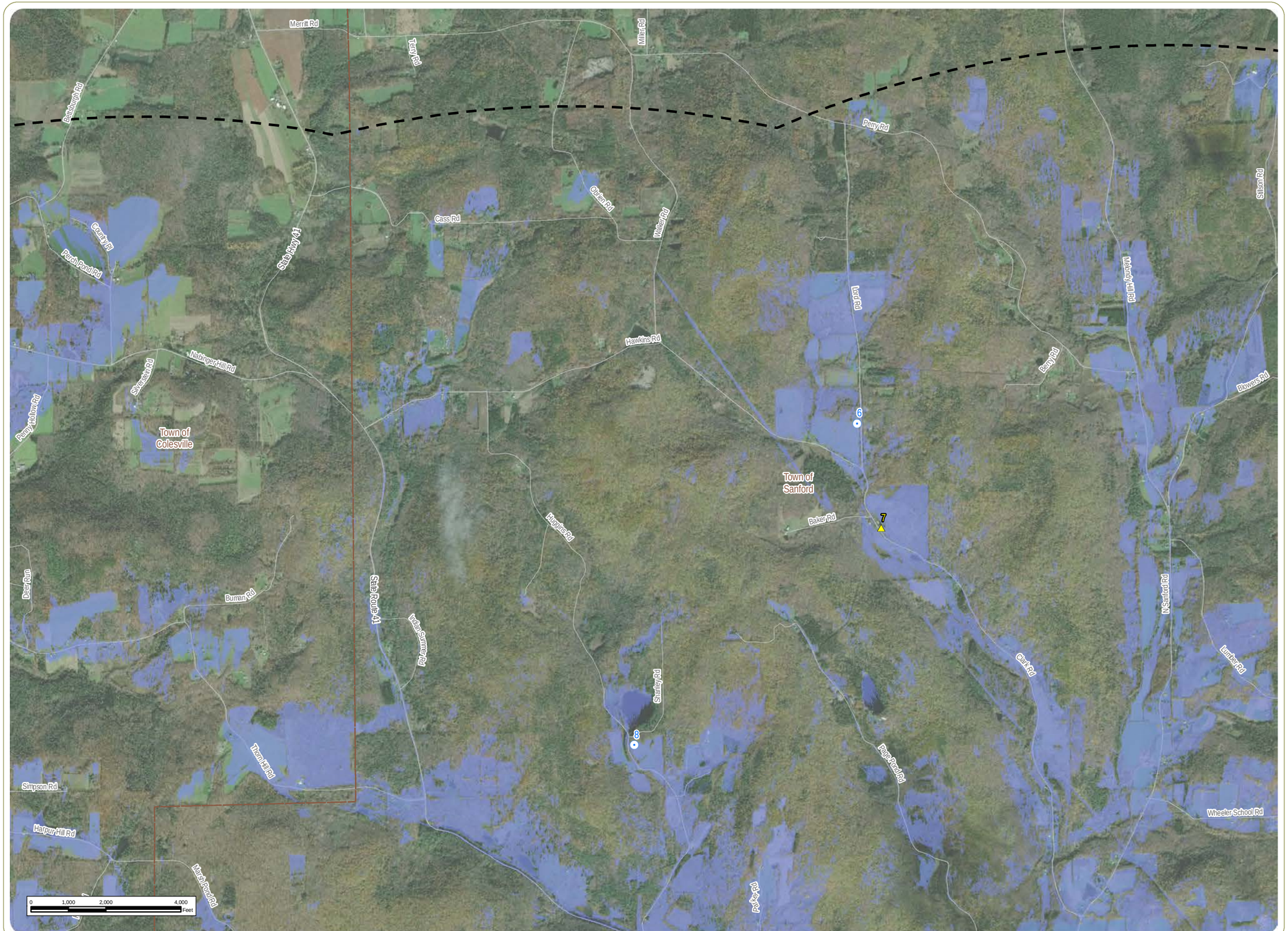

Bluestone Wind Project

Towns of Sanford and Windsor, Broome County, New York

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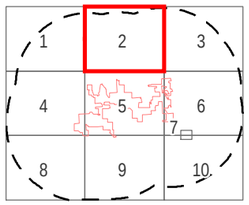

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Towns of Sanford and Windsor, Broome County, New York

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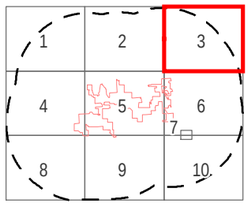

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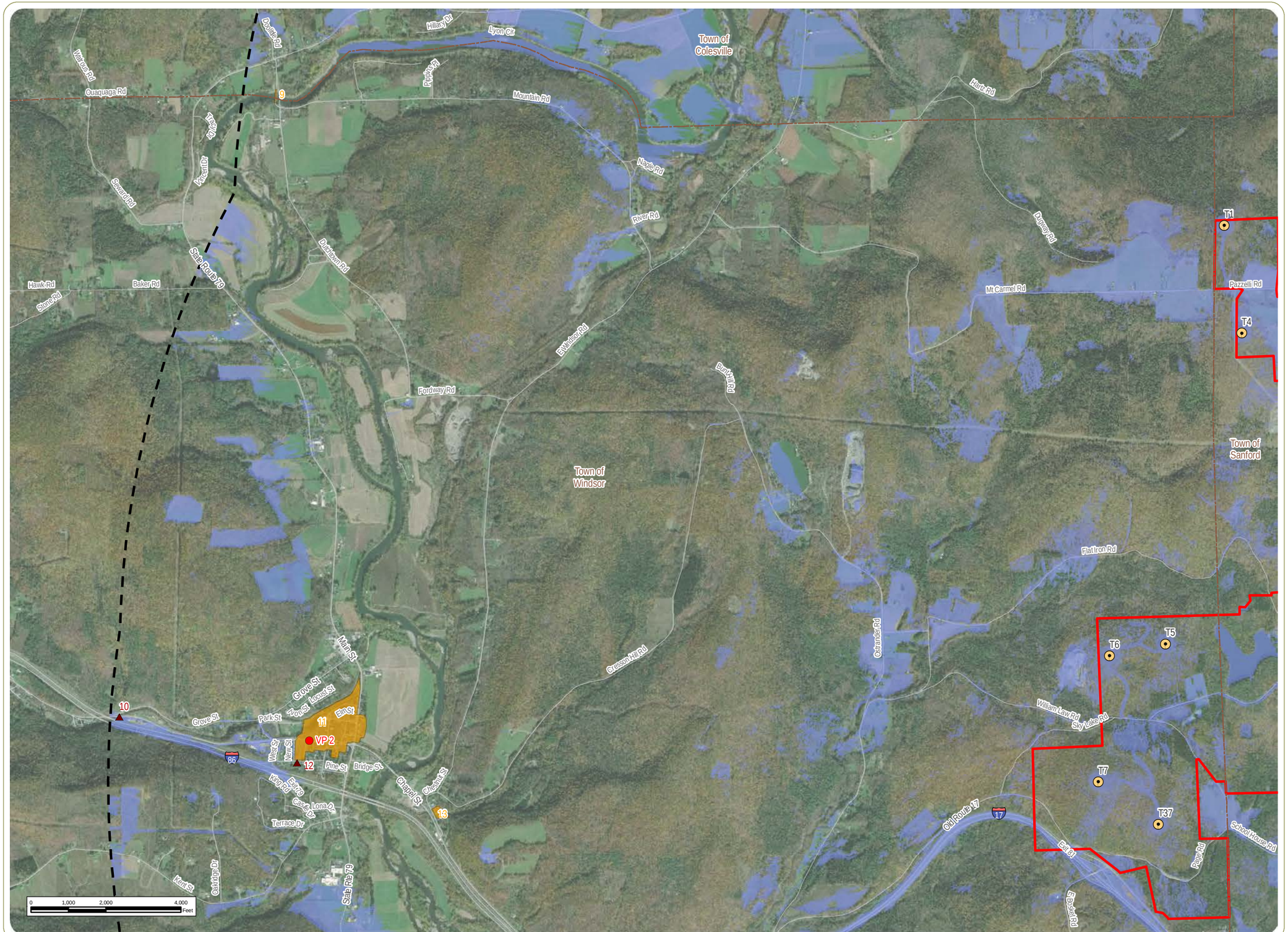

Bluestone Wind Project

Towns of Sanford and Windsor, Broome County, New York

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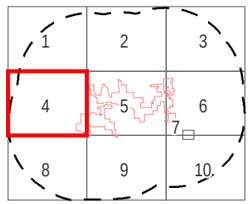
- Five-Mile Study Area

Sheet 4 of 10



Notes: 1. Basemap: ESRI ArcGIS Online "World Imagery" map service. 2. This map was generated in ArcMap on August 22, 2018. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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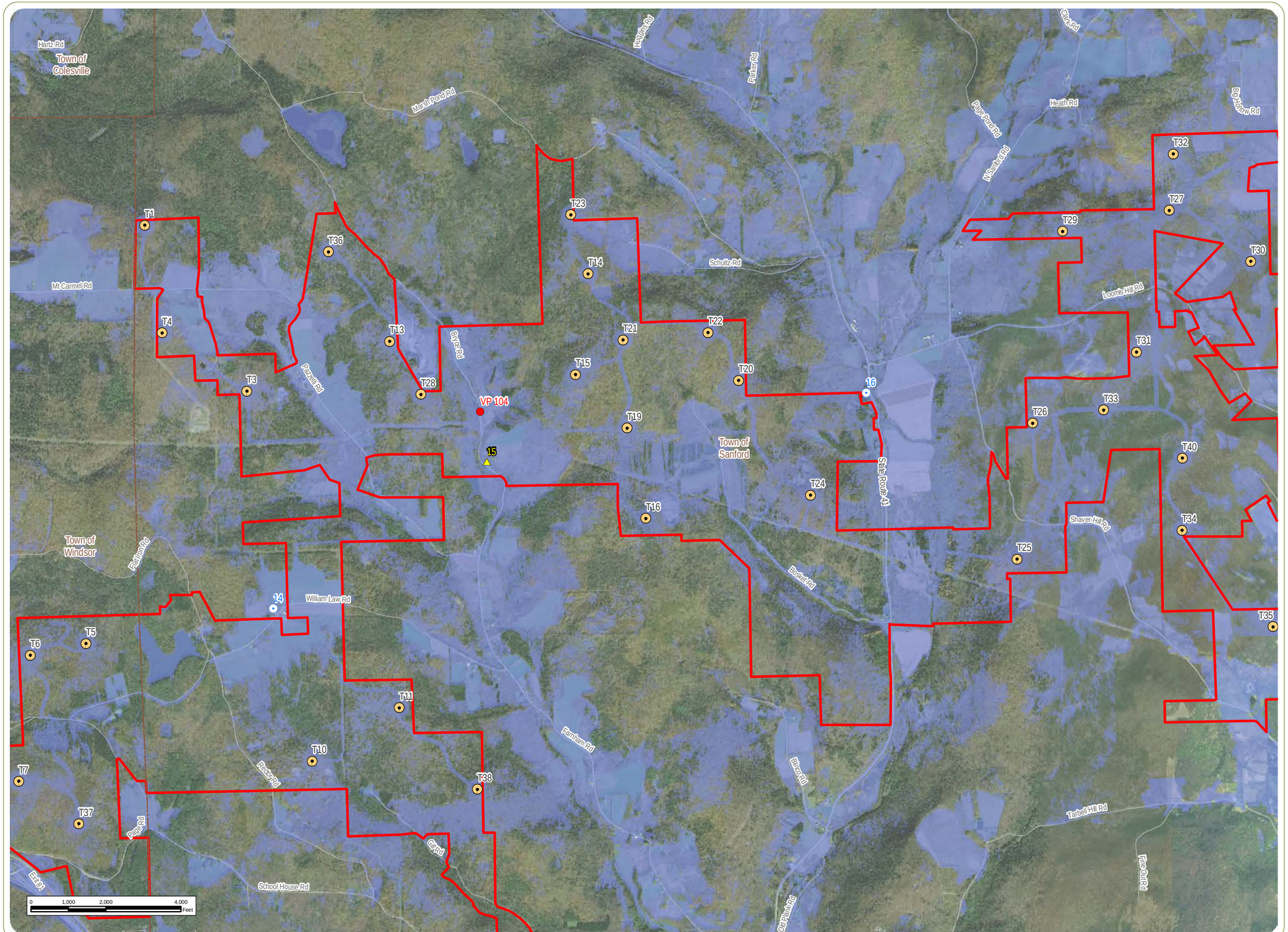


Bluestone Wind Project

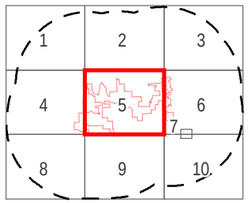
Towns of Sanford and Windsor, Broome County, New York

Figure 4. Historic Resources Visual Effects Analysis - Sheets

NYSOPRHP NRHP Eligibility Determination

- NRHP-Eligible (NYSOPRHP Determined)
- Not NRHP-Eligible (NYSOPRHP Determined)
- NRHP Eligibility Undetermined
- Wind Turbine
- Simulation Viewpoint
- NRHP-Listed Site
- Area of Potential Effect (APE) for Indirect (Visual) Effects
- Facility Area
- Five-Mile Study Area

Sheet 5 of 10



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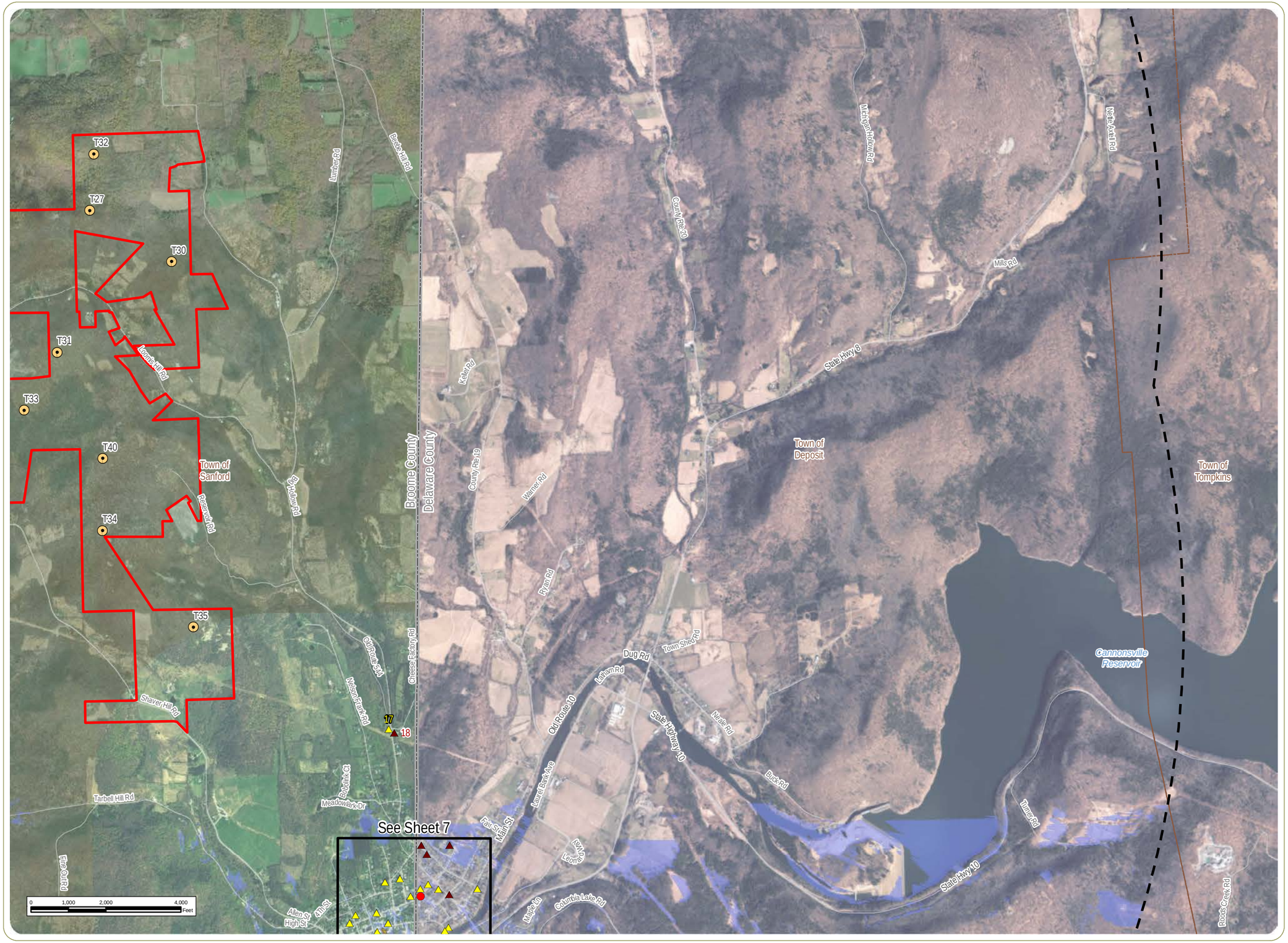

Bluestone Wind Project

Towns of Sanford and Windsor, Broome County, New York

Figure 4. Historic Resources Visual Effects Analysis - Sheets

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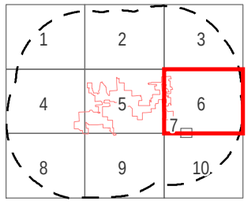
Sheet 6 of 10



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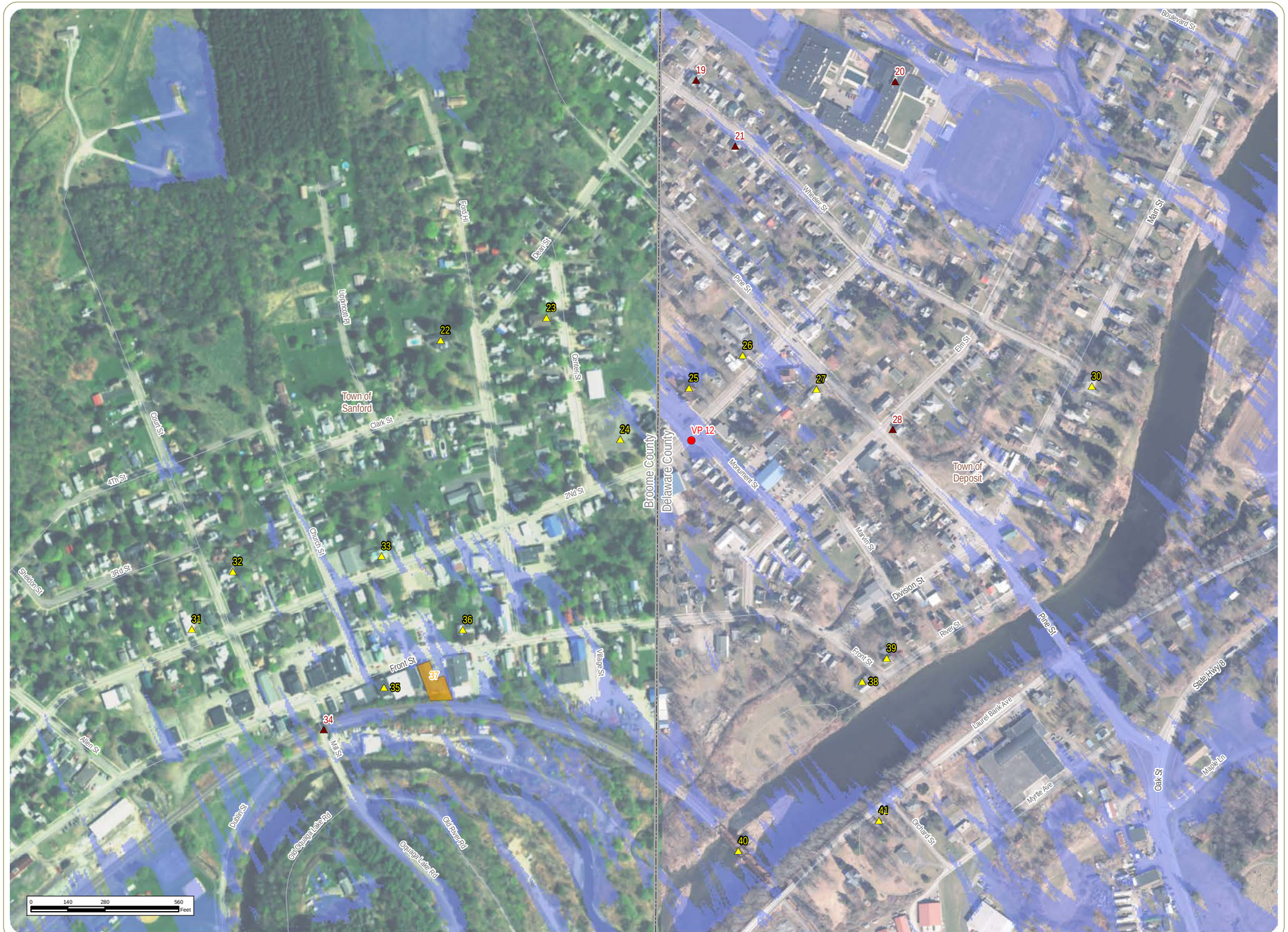

Bluestone Wind Project

Towns of Sanford and Windsor, Broome County, New York

Figure 4. Historic Resources Visual Effects Analysis - Sheets

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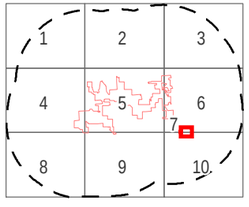
Sheet 7 of 10



Notes: 1. Basemap: ESRI ArcGIS Online "World Imagery" map service. 2. This map was generated in ArcMap on August 23, 2018. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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Bluestone Wind Project

Towns of Sanford and Windsor, Broome County, New York

Figure 4. Historic Resources Visual Effects Analysis - Sheets

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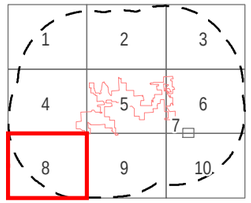
Sheet 8 of 10



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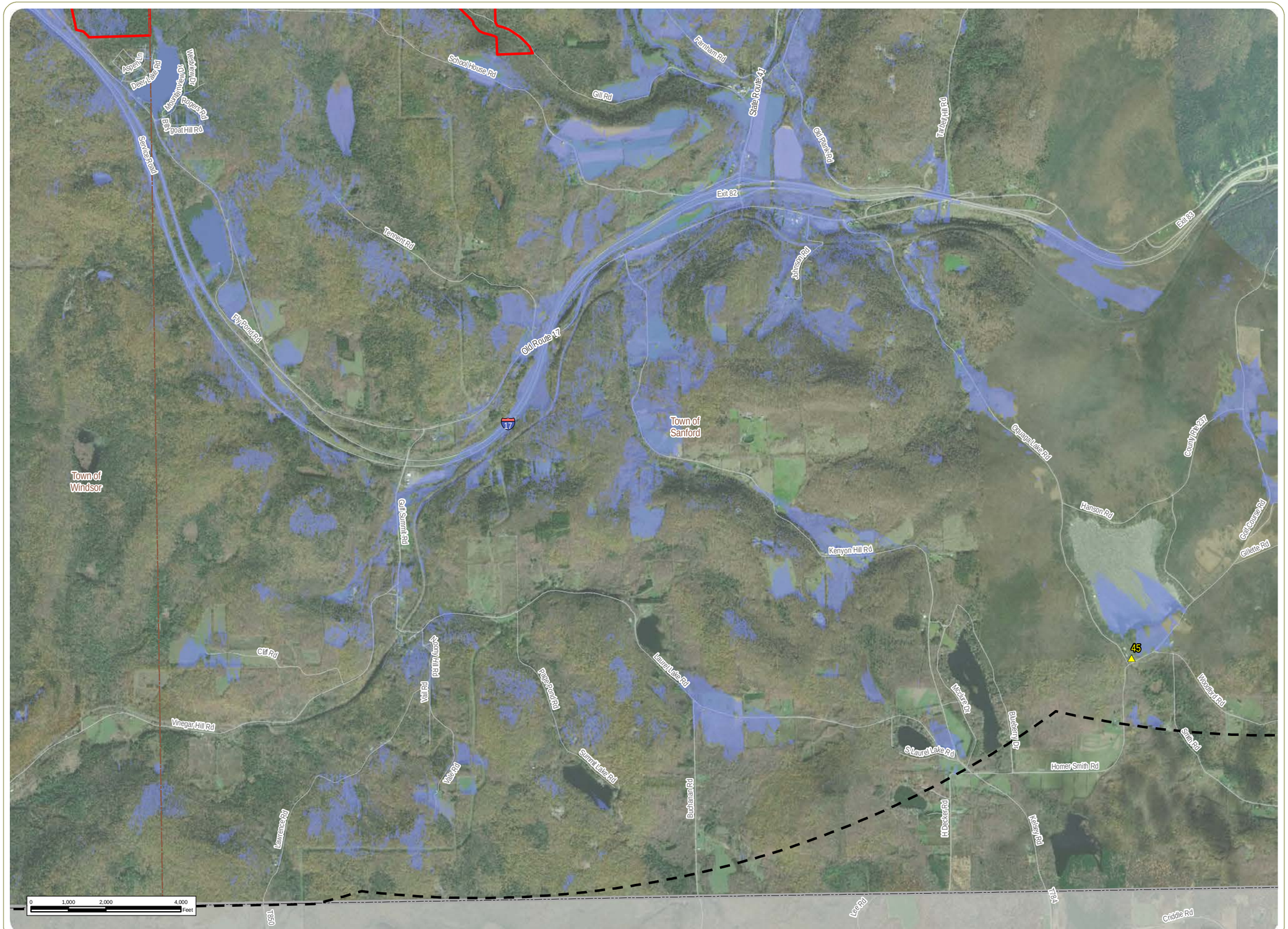

Bluestone Wind Project

Towns of Sanford and Windsor, Broome County, New York

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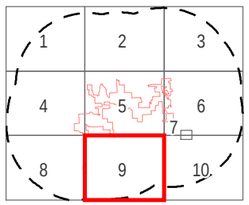
Sheet 9 of 10



Notes: 1. Basemap: ESRI ArcGIS Online "World Imagery" map service. 2. This map was generated in ArcMap on August 23, 2018. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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Bluestone Wind Project

Towns of Sanford and Windsor, Broome County, New York

Figure 4. Historic Resources Visual Effects Analysis - Sheets

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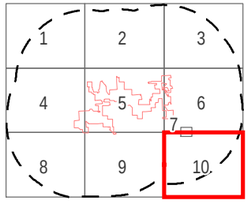
Sheet 10 of 10



Notes: 1. Basemap: ESRI ArcGIS Online "World Imagery" map service. 2. This map was generated in ArcMap on August 23, 2018. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

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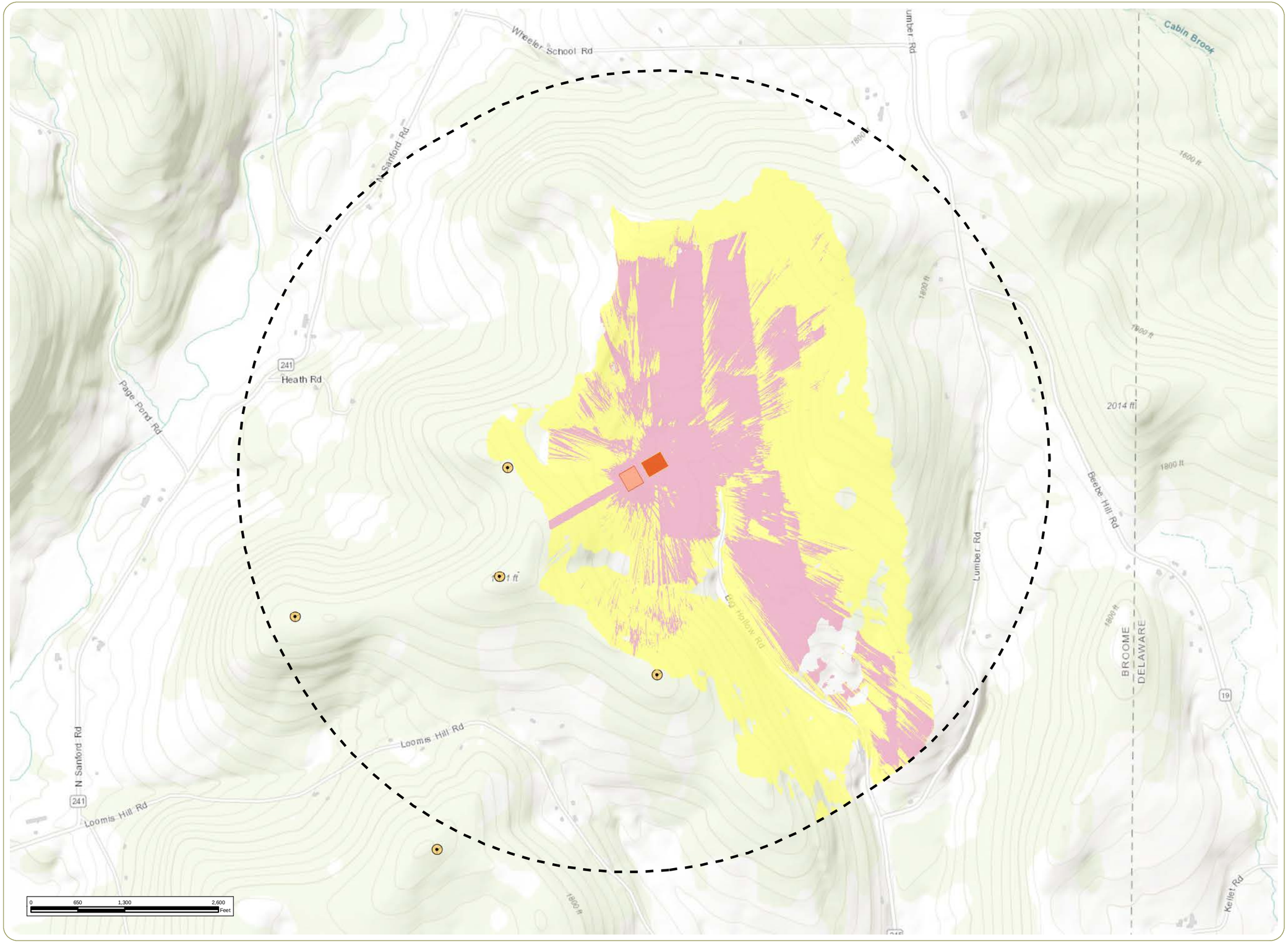

Bluestone Wind Project

Towns of Sanford and Windsor, Broome County, New York

Figure 5: Historic Resources Visual Effects Analysis - Collection and POI Substation

- Wind Turbine
- Collection Substation
- Point of Interconnect
- Potential Visibility Considering Topography Only
- Potential Visibility Considering Topography and Vegetation
- 1-Mile Substation Study Area

Notes: 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service. 2. This map was generated in ArcMap on September 7, 2018. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data. 4. Potential collection substation and point of interconnect visibility is based on the screening effects of topography only and topography, vegetation, and man-made structures as represented in the FEMA Susquehanna Basin 2007 and FEMA Delaware County 2007 lidar datasets. Viewshed analysis based on maximum structure height of 18.3 meters (60 feet)

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Appendix A: NYSOPRHP Correspondence

NEW YORK STATE OF OPPORTUNITY. | Parks, Recreation and Historic Preservation

ANDREW M. CUOMO
Governor

ROSE HARVEY
Commissioner

July 10, 2018

Grant Johnson
Cultural Resources Project Manager
217 Montgomery Street, Suite 1000
Syracuse, NHY 13202
(via email)

Re: ACE, PSC
Bluestone Wind Project/ Calpine Corp/124 MW/ 34 Turbines/ 655 Feet
Towns of Colesville/Sanford/Windsor, Broome County
17PR01874

Dear Mr. Johnson:

Our office has received the material that you submitted for this undertaking on behalf of Calpine Corporation. Based on this information it appears that the U.S. Army Corps of Engineers may have jurisdiction over this action. As such, we are reviewing your submissions in accordance with Section 106 of the National Historic Preservation Act of 1966. Our comments are those of the SHPO and relate only to historic and archaeological resources.

The submitted material included a request to evaluate properties for potential historic/architectural significance. The survey area established for the project was based on our agency's generic wind farm survey guidance (2006). The evaluated survey area included a ten-mile buffer (5-mile radius) drawn around each of the individual turbine sites. The tangents of the buffers were then connected to establish the potential survey area.

The resulting building survey was received by our office on June 22 in a single volume titled: *Historic Resources Survey Report-Bluestone Wind Project* (June 2018, EDR). The report identified a total of 46 individual properties within the survey area. The survey included 5 previously listed National Register properties (4 individual and 1 historic district); 30 National Register eligible properties; 9 properties that do not meet the National Register criteria and 2 properties identified as unevaluated.

The Division for Historic Preservation reviewed the assessments prepared by your firm and found that we concurred with all but 5 of the determinations. Our findings are noted in the attached Appendix A.

The listed and eligible resources identified in the survey report are diverse in both nature and their physical settings. Properties that will be in the view shed of the project include those in established village/hamlet settings as well as resources that occupy open rural agricultural settings. With few exceptions, the scale of the building stock is limited to the height of single and two-story residential, commercial and agricultural buildings with few non-agricultural elements breaking the treetops in this sparsely populated area.

Within the survey area, this agency has identified several key loci where visual impacts should be carefully assessed. A list of proposed key receptors was previously circulated and responded to by this office in January. Our office is particularly concerned with potential impacts to the viewsheds associated with the villages of Windsor (Windsor Village Historic District) and Deposit. There are also several historic resources located within the confines of the turbine field.

Many of these resources will undoubtedly have a direct visual connection to the proposed towers. In addition, several of the individual rural agrarian properties will be in the viewshed of a significant number of the proposed turbines. Given the dramatic topography of this area the potential view shed/setting impacts associated with these resources should be carefully assessed.

Although the full extent of potential impacts from the proposed undertaking cannot be assessed absent simulations as part of a comprehensive visual analysis, the NYSHPO believes that sufficient information does exist to determine that under Section 106, the undertaking will have an Adverse Effect on cultural resources.

The introduction of the sleek, ultramodern, approximately 655-foot-tall, kinetic wind turbines throughout this landscape forever alters and changes the rural setting, which itself is a significant element in much of the survey area and serves as the backdrop for the architectural heritage of these communities. We also note that the archaeological assessment for the project is ongoing.

We would recommend that the visual analysis be used as a tool to aid in the exploration of feasible and prudent alternatives that avoid or minimize the adverse impact(s). The assessment of potential impact avoidance options may include efforts to reduce the number of turbines and the relocation of turbine units. Given the heights now associated with modern wind turbines we do not believe the screening is a viable mitigation option.

We would recommend that only after an assessment of avoidance options has been established should potential mitigation options be discussed. All consultation regarding avoidance options and potential later mitigation options should involve those state/federal agencies directly associated with the permitting/approval process for this project.

At this point in time we have concluded our evaluation of eligible resources and the potential impacts to those resources associated with this project.

If I can be of any further assistance, please do not hesitate to contact me at (518) 268-2166 or john.bonafide@parks.ny.gov.

Sincerely,

John A. Bonafide
Director, Technical Preservation Services Bureau
Agency Historic Preservation Officer

cc: Margaret Crawford, ACE *(via email)*
Andrew Davis, PSC *(via email)*
Charles Vandrei, NYS DEC *(via email)*
NY CRIS Project Notification List *(via email)*

att: Appendix A - Historic Building Resources List

Appendix A

Historic Building Resources List

Survey ID	USN	Address	Name and/or Description	Municipality	County	Counsultant Finding	NYSHPO Determination
1	05NR05519	3500 State Route 79	Harpursville United Methodist Church, a one-story stone church with a central bell tower	Colesville	Broome	NR Listed	NR Listed
2	BIN 3349160	Old Bridge Street over Susquehanna River	Center Village Bridge, a Pratt through-truss bridge	Colesville	Broome	NR Eligible	NR Eligible
3	00704.000070	2906 State Route 79	Winsor Acres Farms, a farm complex consisting of 12 metal agricultural buildings	Colesville	Broome	Not Eligible	Concur
4	N/A	63 Chaffee Street	A two-story Greek Revival residence with clapboard siding	Colesville	Broome	NR Eligible	Concur
5	N/A	2814 State Route 79	Approximately 0.6-acre cemetery with an estimated 291 headstones, circa 1798 (Harpur Cemetery)	Colesville	Broome	NR Eligible	Concur
6	N/A	14 Lord Road	Approximately 0.25-acre cemetery with an estimated 12 headstones, circa 1843 (Lord Road Cemetery)	Sanford	Broome	NR Eligible	**Undetermined**
7	N/A	395 Clark Road	Historic farmstead consisting of a two-and-one-half-story vernacular residence, a small shed, an historic barn, and a modern pole barn	Sanford	Broome	NR Eligible	Concur
8	N/A	223 Huggins Road	Approximately 0.4-acre cemetery with an estimated 5 headstones, circa 1900 (Huggins Cemetery)	Sanford	Broome	Undetermined	Concur
9	02NR04990	Dutchtown Road over Susquehanna River	Ouaquaga Lenticular Truss Bridge, a double-span, lenticular through-truss bridge	Windsor	Broome	NR Listed	NR Listed
10	00716.000027	Old New York Route 17 over Occanum Creek	Girder and floor beam bridge, built 1935	Windsor	Broome	Not Eligible	Concur
11	90NR00091	Academy, Chapel, Church, College, Dewey, Elm and Main Streets	Windsor Village Historic District	Windsor	Broome	NR Listed	NR Listed
12	N/A	32 Chapel Street	Approximately 3-acre cemetery with an estimated 1013 headstones, circa 1861 (Windsor Village Cemetery)	Windsor	Broome	NR Eligible	Concur
13	00747.000100	21 Maple Street	Two-story Greek Revival residence	Windsor	Broome	Not Eligible	Concur
14	90NR00090	10 Chestnut Street	Jedediah Hotchkiss House, a two-stone Greek Revival residence with associated stone barn	Windsor	Broome	NR Listed	NR Listed
15	N/A	585 William Law Road	Approximately 0.2-acre cemetery with an estimated 46 headstones, circa 1848 (Alexander Hill Cemetery)	Windsor	Broome	Undetermined	Concur
16	N/A	110 Bryce Road	An historic farmstead consisting of a two-and-one-half-story vernacular residence, a barn, and two small sheds	Sanford	Broome	NR Eligible	Concur
17	N/A	828 State Route 41	Approximately 0.7-acre cemetery with an estimated 150 headstones, circa 1830 (Sanford Cemetery)	Windsor	Broome	NR Eligible	**Undetermined**
18	N/A	171 Big Hollow Road	A two-and-one-half-story vernacular structure with a northern ell and two roof ridge cupolas	Sanford	Broome	NR Eligible	Concur
19	00712.000009	166 Big Hollow Road	Historic farmstead with two-story vernacular residence	Sanford	Broome	Not Eligible	Concur
20	02544.000018	60 Wheeler Street	Two-and-one-half-story vernacular residence	Deposit	Delaware	Not Eligible	Concur
21	02544.000019	171 Second Street	Deposit Junior-Senior High School, a two-story PWA-era school building	Deposit	Delaware	NR Eligible	**Not Eligible**
22	02544.000012	47 Wheeler Street	Two-story vernacular residence	Deposit	Delaware	Not Eligible	Concur
23	N/A	29 Ford Hill Road	A two-story Gothic Revival cottage residence with lancet doorways and decorative gable-end woodwork	Sanford	Broome	NR Eligible	Concur
24	N/A	21 Center Street	A three-stone pressed cement block apartment building. Keystone above door reads "1915"	Sanford	Broome	NR Eligible	Concur
25	02506.000054	129 Second Street	First Presbyterian Church, a one-story brick church with a four-story cross-gabled bell tower with spire	Sanford	Broome	NR Eligible	NR Eligible
26	N/A	141 Second Street	First Baptist Church, a one-story brick church with a cross-gabled roof and a four-and-one-half-story bell tower	Deposit	Delaware	NR Eligible	Concur
27	N/A	145 Second Street	Deposit Historical Society Museum, a one-story brick building, originally the first bank in the village	Deposit	Delaware	NR Eligible	Concur
28	N/A	43 Pine Street	A two-story Federal/Greek Revival transitional style residence	Deposit	Delaware	NR Eligible	Concur
29	02544.000016	32 Pine Street	Two-story Greek Revival residence	Deposit	Delaware	Not Eligible	Concur
30	00743.000003	45 Second Street	Two-and-one-half-story Second Empire residence	Sanford	Broome	NR Eligible	NR Eligible

31	02544.000001	20 Main Street	Two-story Greek Revival residence with additions	Deposit	Delaware	NR Eligible	Concur
32	00743.000002	75 Second Street	Two-story Greek Revival with additions	Sanford	Broome	NR Eligible	NR Eligible
33	00743.000006	16 Court Street	Two-story vernacular residence with decorative woodwork	Sanford	Broome	NR Eligible	NR Eligible
34	N/A	99 Second Street	A two-and-one-half-story residence with elements of Federal, Greek Revival, and Italianate styles	Sanford	Broome	NR Eligible	Concur
35	BIN 770220	CSX over Mill Street (County Route 237)	Girder and floor beam railroad bridge, built 1920	Sanford	Broome	Not Eligible	Concur
36	02544.000017	128-132 Front Street	Three-story brick commercial building	Sanford	Broome	NR Eligible	NR Eligible
37	02544.000015	159 Front Street	Deposit Free Library, one-story brick building	Sanford	Broome	NR Eligible	NR Eligible
38	90NR00089	148 Front Street	State Theater, a one-story Art Deco theater with a glass facade	Sanford	Broome	NR Listed	NR Listed
39	N/A	228 Front Street	A two-story Greek Revival residence and contemporary addition. Historic marker states the property was the site of the first store in the village, built by Silas Crandall in 1803	Deposit	Delaware	NR Eligible	Concur
40	N/A	1 River Street	Axtell Antiques, a two-story Federal style residence with 12/12 windows and historic iron gate on property. Historic marker states the building was historically known as the "Rookery Tavern" and was constructed in 1799	Deposit	Delaware	NR Eligible	Concur
41	N/A	CSX over Delaware River	CSX over the Delaware, a metal lattice through truss railroad bridge, circa 1880.	Deposit	Delaware	NR Eligible	Concur
42	N/A	Southwest corner of Orchard and Laurel Bank Avenue	An approximately 0.5-acre cemetery with an estimated 102 headstones, circa 1793 (Revolutionary War Cemetery)	Deposit	Delaware	NR Eligible	Concur
43	N/A	27 Oak Street	Approximately 8.9-acre cemetery with an estimated 2101 headstones, circa 1882 (Laurel Hill Cemetery)	Deposit	Delaware	Not Eligible	**Undetermined**
44	N/A	941 State Route 79	Outlook Farm, an historic farmstead consisting of a two-and- one-story Queen Anne residence, a carriage house with an attached shed, and a barn	Sanford	Broome	NR Eligible	Concur
45	N/A	623 State Route 79	Approximately 0.25-acre cemetery with an estimated 100 headstones, circa 1780 (Old South Windsor Cemetery, also known as Wake Cemetery)	Windsor	Broome	NR Eligible	**Undetermined**
46	N/A	591 Oquaga Lake Road	Approximately 243-acre camping resort consisting of six houses, two barns, two large camp lodges, two support buildings, a lake house, and a tennis court.	Sanford	Broome	NR Eligible	Concur

Appendix B: Visual Simulations (Wind Turbines)

Viewpoint: 12

Photograph Information:

Date: March 27, 2018

Time: 9:05 AM

Camera Make/Model: Canon EOS 5D Mark IV

Focal Length: 50.0 mm

Camera Sensor Size: 36 mm x 24 mm

View Location Information:

Location: View from 2ND Street and Monument Street

Town: Deposit

County: Delaware

Direction of View: Northwest

Camera Elevation: 996 feet

Latitude: 42.06297000° N

Longitude: 75.42185500° W

Landscape Similarity Zone: Village

Viewer Type: Local Residents, Tourists/Recreational Users

Sensitive Site: Village of Deposit

Distance Zone: Middle Ground

Nearest Visible Turbine: 1.78 miles

Project Information:

Turbine Model: Vestas V150-4.2 MW

Hub Height: 427 feet (130 meters)

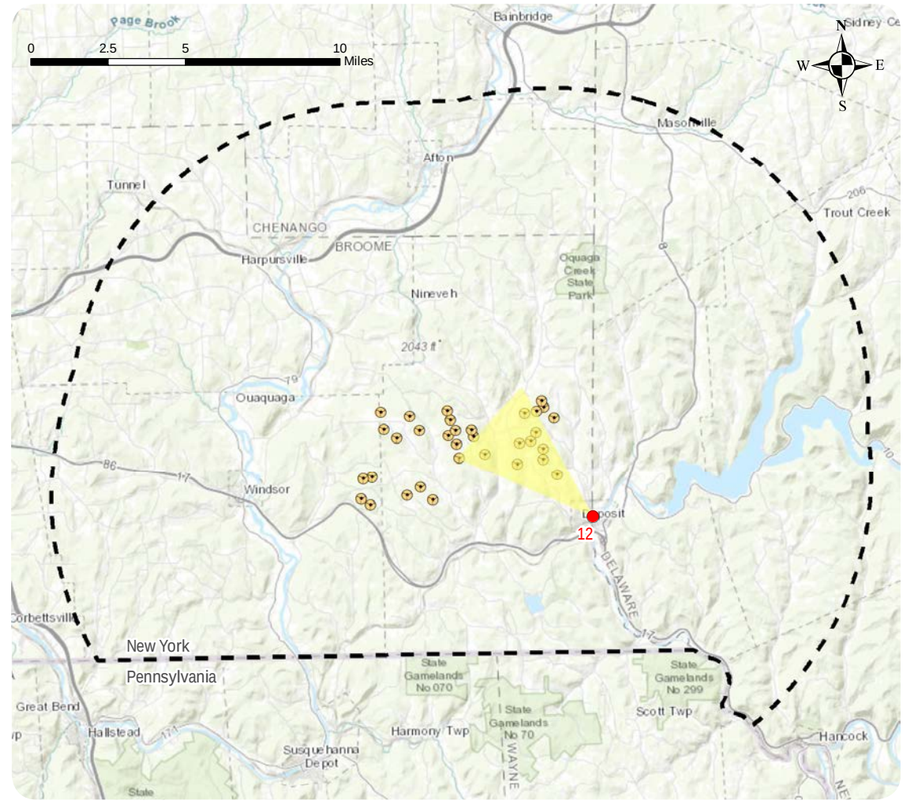
Rotor Diameter: 492 feet (150 meters)

Total Turbine Height:

673 feet (205 meters)

Number of Turbines: 33 Turbines

Viewpoint Location



Viewpoint Context

Context Photo: View to the West-Southwest

Context Photo: View to the West

Simulation Photo: View to the Northwest

Context Photo: View to the North

Bluestone Wind Project
Towns of Windsor and Sanford, Broome County, New York
Appendix B: Existing Conditions - Viewpoint 12
Sheet 2 of 58

Bluestone Wind Project
Towns of Windsor and Sanford, Broome County, New York
Appendix B: Visual Simulation - Viewpoint 12
Sheet 3 of 58

Viewpoint: 15

Photograph Information:

Date: May 24, 2018

Time: 2:33 PM

Camera Make/Model: Canon EOS 5D Mark IV

Focal Length: 50.0 mm

Camera Sensor Size: 36 mm x 24 mm

View Location Information:

Location: View from Elm Street, at Deposit School Track

Town: Deposit

County: Delaware

Direction of View: Northwest

Camera Elevation: 1000 feet

Latitude: 42.06529300° N

Longitude: 75.41704600° W

Landscape Similarity Zone: Village

Viewer Type: Local Residents

Sensitive Site: Deposit Middle School/High School

Distance Zone: Middle Ground

Nearest Visible Turbine: 1.83 miles

Project Information:

Turbine Model: Vestas V150-4.2 MW

Hub Height: 427 feet (130 meters)

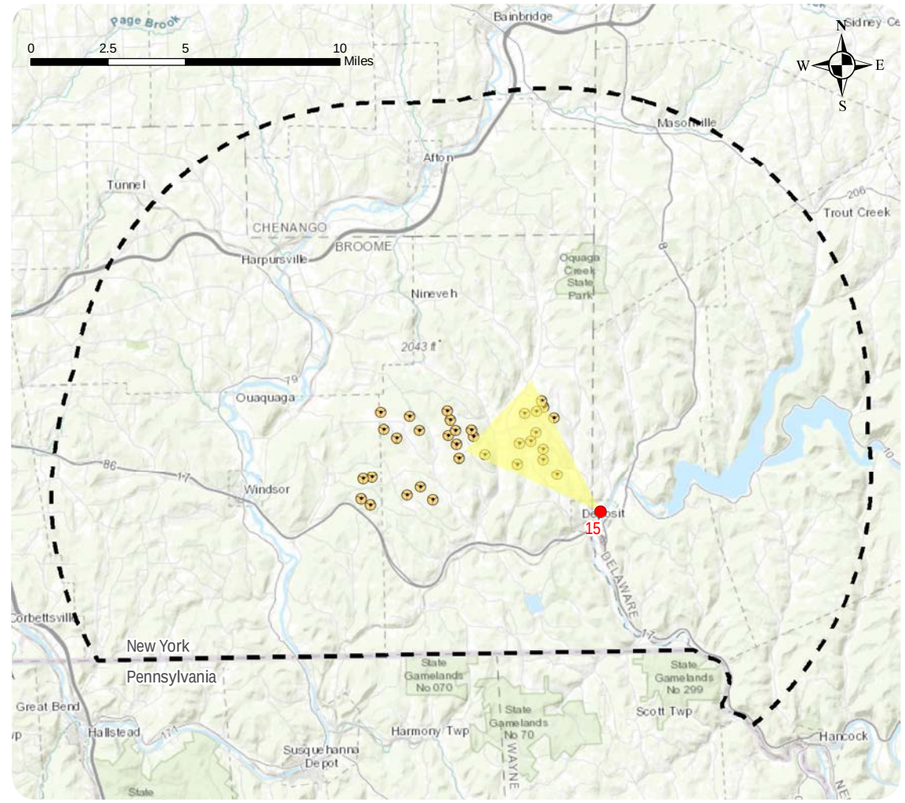
Rotor Diameter: 492 feet (150 meters)

Total Turbine Height:

673 feet (205 meters)

Number of Turbines: 33 Turbines

Viewpoint Location



Viewpoint Context

Context Photo: View to the West-Southwest

Context Photo: View to the West-Northwest

Simulation Photo: View to the Northwest

Context Photo: View to the North-Northwest

Existing Conditions

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Bluestone Wind Project
Towns of Windsor and Sanford, Broome County, New York
Appendix B: Existing Conditions - Viewpoint 15
Sheet 5 of 58

Simulation

Bluestone Wind Project
Towns of Windsor and Sanford, Broome County, New York
Appendix B: Visual Simulation - Viewpoint 15
Sheet 6 of 58

Viewpoint: 17

Photograph Information:

Date: May 24, 2018

Time: 3:20 PM

Camera Make/Model: Canon EOS 5D Mark IV

Focal Length: 50.0 mm

Camera Sensor Size: 36 mm x 24 mm

View Location Information:

Location: View from State Route 17

Town: Deposit

County: Delaware

Direction of View: Northwest

Camera Elevation: 1018 feet

Latitude: 42.05210700° N

Longitude: 75.41502700° W

Landscape Similarity Zone: Transportation Corridor

Viewer Type: Through-Travellers/Commuters

Sensitive Site: State Route 17

Distance Zone: Middle Ground

Nearest Visible Turbine: 2.58 miles

Project Information:

Turbine Model: Vestas V150-4.2 MW

Hub Height: 427 feet (130 meters)

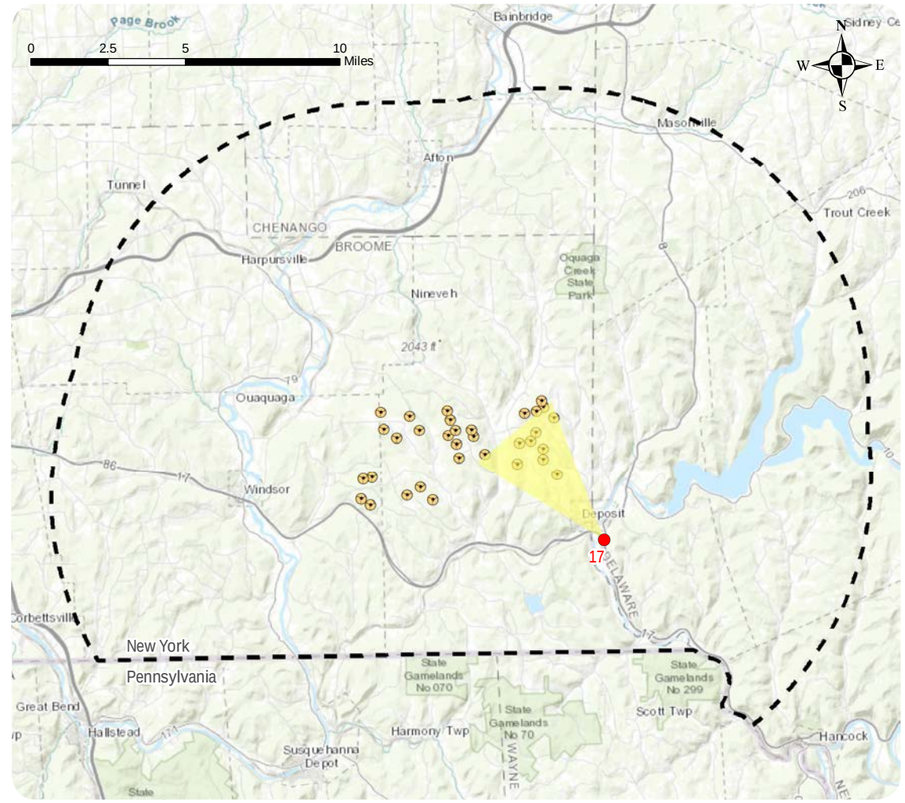
Rotor Diameter: 492 feet (150 meters)

Total Turbine Height:

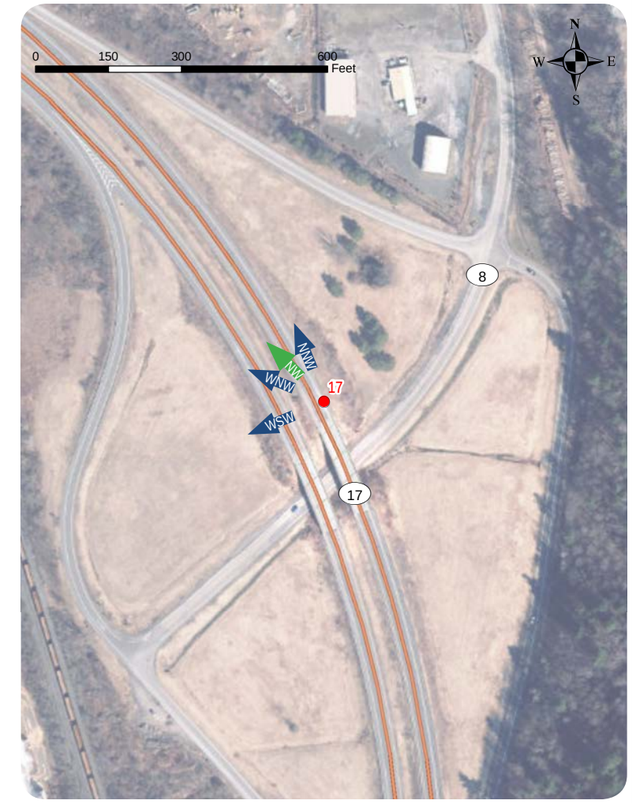
673 feet (205 meters)

Number of Turbines: 33 Turbines

Viewpoint Location



Viewpoint Context



Context Photo: View to the West-Southwest

Context Photo: View to the West-Northwest

Simulation Photo: View to the Northwest

Context Photo: View to the North-Northwest

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Viewpoint: 22

Photograph Information:

Date: April 9, 2018

Time: 12:46 PM

Camera Make/Model: Canon EOS 5D Mark IV

Focal Length: 50.0 mm

Camera Sensor Size: 36 mm x 24 mm

View Location Information:

Location: View from State Highway 8

Town: Deposit

County: Delaware

Direction of View: Northwest

Camera Elevation: 1094 feet

Latitude: 42.06409400° N

Longitude: 75.40546100° W

Landscape Similarity Zone: Rural Residential/Agricultural

Viewer Type: Through-Travelers/Commuters

Sensitive Site: State Route 8

Distance Zone: Middle Ground

Nearest Visible Turbine: 2.28 miles

Project Information:

Turbine Model: Vestas V150-4.2 MW

Hub Height: 427 feet (130 meters)

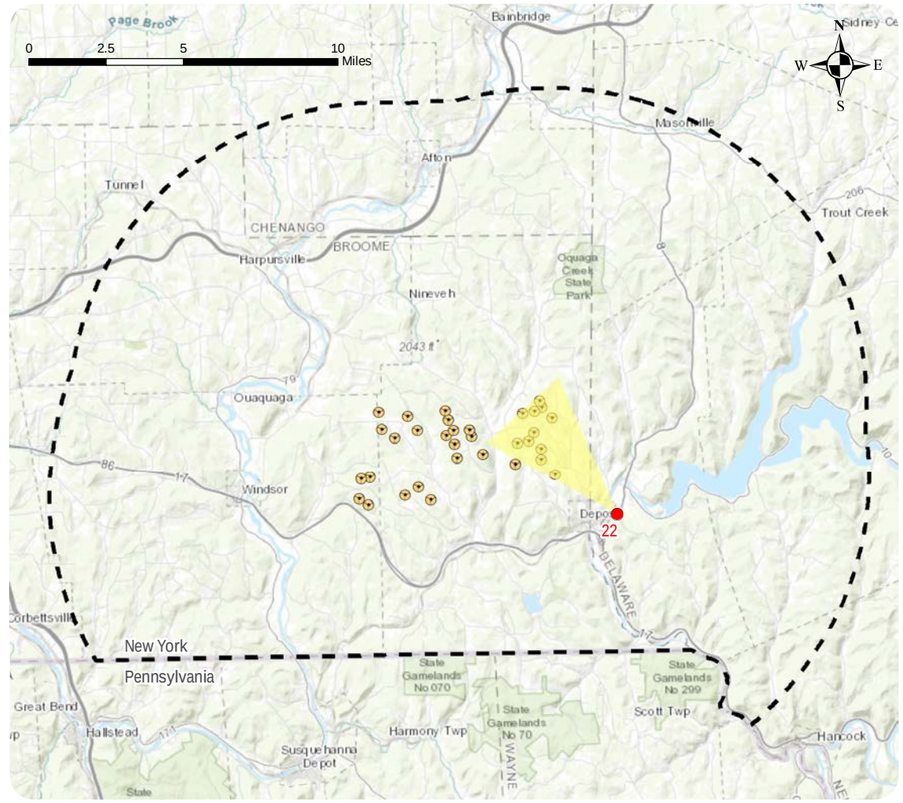
Rotor Diameter: 492 feet (150 meters)

Total Turbine Height:

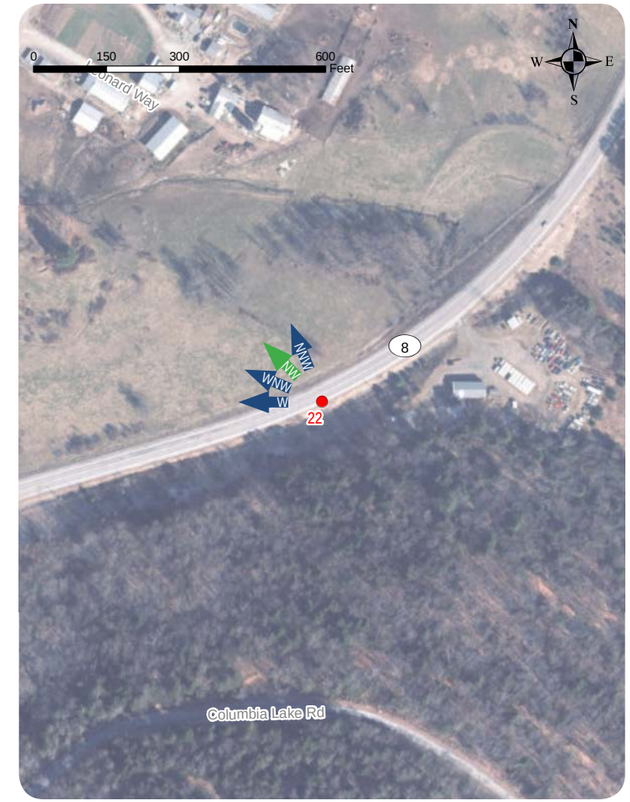
673 feet (205 meters)

Number of Turbines: 33 Turbines

Viewpoint Location



Viewpoint Context



Context Photo: View to the West

Context Photo: View to the West-Northwest

Simulation Photo: View to the Northwest

Context Photo: View to the North-Northwest

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Bluestone Wind Project
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Viewpoint: 39

Photograph Information:

Date: May 24, 2018

Time: 9:41 AM

Camera Make/Model: Canon EOS 5D Mark IV

Focal Length: 50.0 mm

Camera Sensor Size: 36 mm x 24 mm

View Location Information:

Location: View from Oquaga Creek State Park, Ski Trail

Town: Sanford

County: Broome

Direction of View: South-Southwest

Camera Elevation: 1649 feet

Latitude: 42.18406900° N

Longitude: 75.42118200° W

Landscape Similarity Zone: Rural Residential/Agricultural

Viewer Type: Tourists/Recreational Users

Sensitive Site: Oquaga Creek State Park

Distance Zone: Background

Nearest Visible Turbine: 6.63 miles

Project Information:

Turbine Model: Vestas V150-4.2 MW

Hub Height: 427 feet (130 meters)

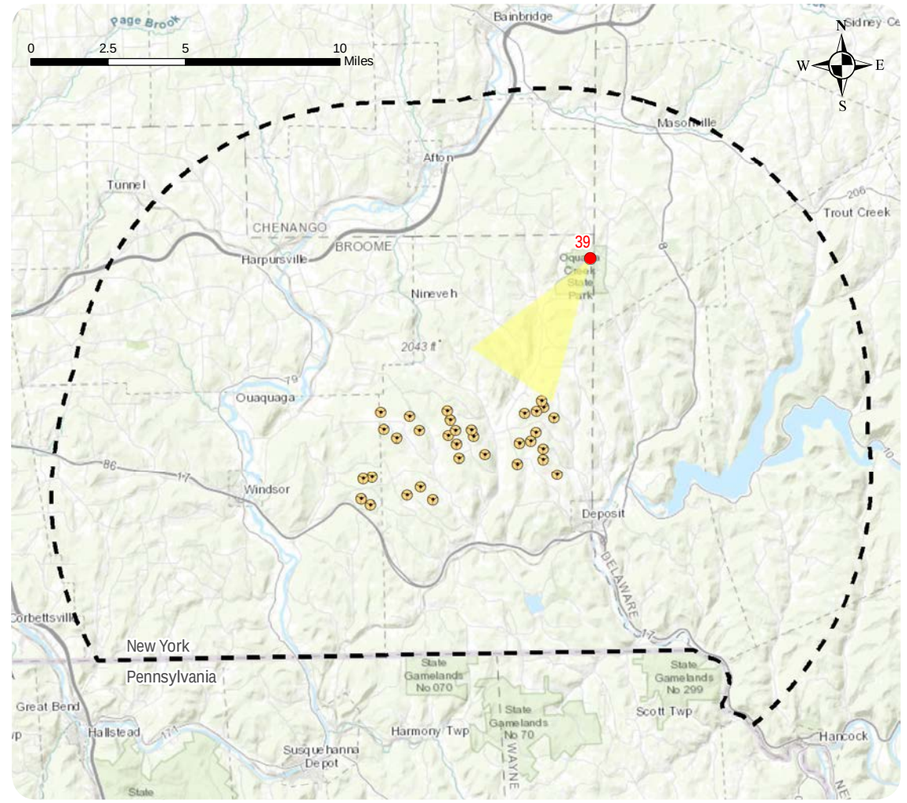
Rotor Diameter: 492 feet (150 meters)

Total Turbine Height:

673 feet (205 meters)

Number of Turbines: 33 Turbines

Viewpoint Location



Viewpoint Context

Context Photo: View to the Southeast

Context Photo: View to the South

Simulation Photo: View to the Southwest

Context Photo: View to the West-Southwest

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Viewpoint: 48

Photograph Information:

Date: May 24, 2018

Time: 1:58 PM

Camera Make/Model: Canon EOS 5D Mark IV

Focal Length: 50.0 mm

Camera Sensor Size: 36 mm x 24 mm

View Location Information:

Location: View from County Route 241 (North Sanford Road) at Oquaga Creek Fishing Access Site, NYS DEC

Town: Sanford

County: Broome

Direction of View: Northeast to Southeast

Camera Elevation: 1168 feet

Latitude: 42.10277600° N

Longitude: 75.48097900° W

Landscape Similarity Zone: Rural Residential/Agricultural

Viewer Type: Local Residents, Tourists/Recreational Users

Sensitive Site: NYS DEC Fishing Access, Oquaga Creek

Distance Zone: Middle Ground

Nearest Visible Turbine: 0.79 miles

Project Information:

Turbine Model: Vestas V150-4.2 MW

Hub Height: 427 feet (130 meters)

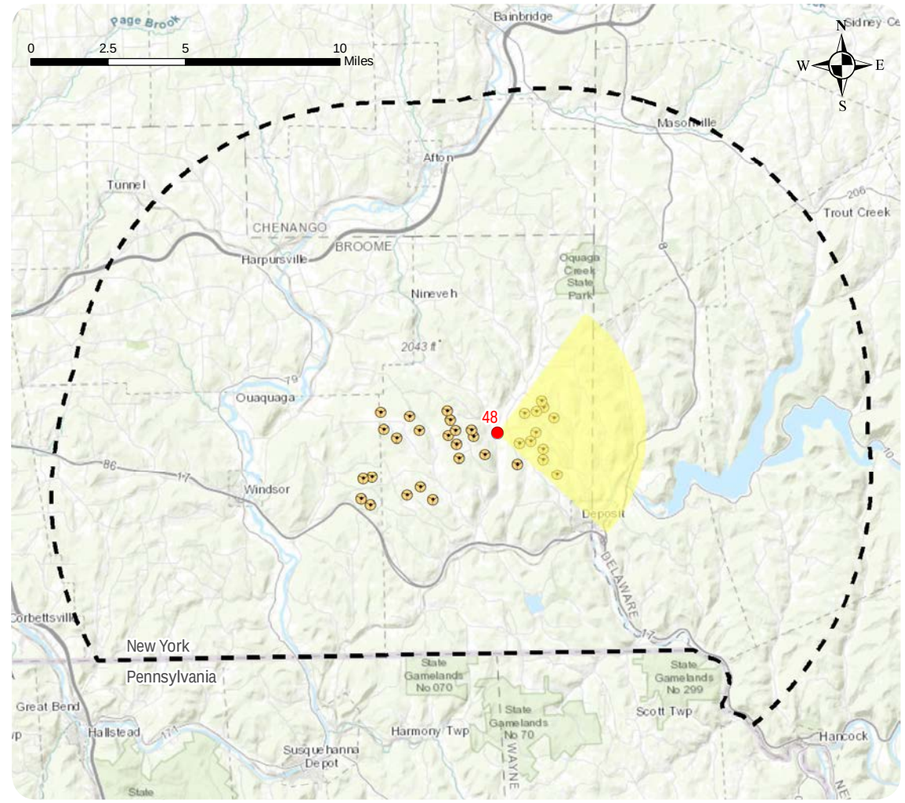
Rotor Diameter: 492 feet (150 meters)

Total Turbine Height:

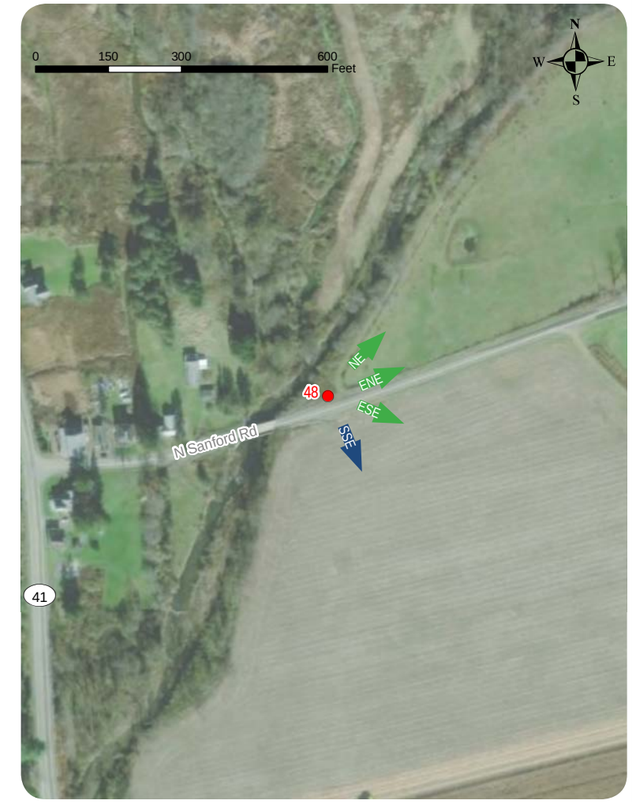
673 feet (205 meters)

Number of Turbines: 33 Turbines

Viewpoint Location



Viewpoint Context

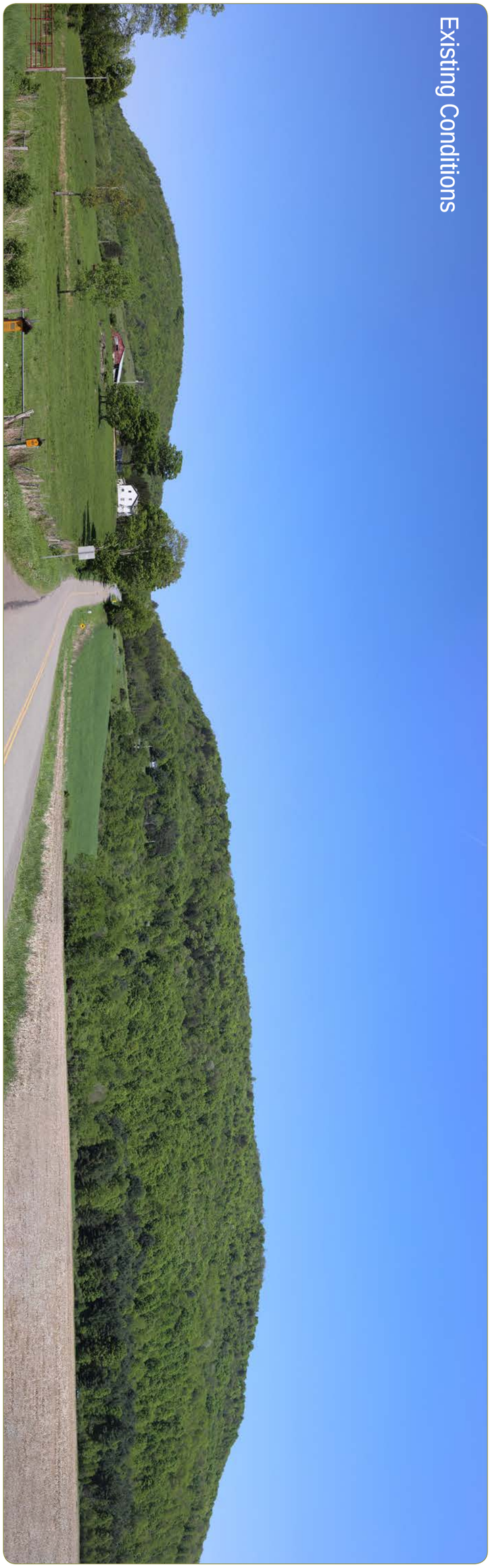


Simulation Photo: View to the Northeast

Simulation Photo: View to the East-Northeast

Simulation Photo: View to the East-Southeast

Simulation Photo: View to the South-Southeast



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Viewpoint: 55

Photograph Information:

Date: April 9, 2018

Time: 2:18 PM

Camera Make/Model: Canon EOS 5D Mark IV

Focal Length: 50.0 mm

Camera Sensor Size: 36 mm x 24 mm

View Location Information:

Location: View from William Law Road

Town: Sanford

County: Broome

Direction of View: Northeast

Camera Elevation: 1787 feet

Latitude: 42.08223100° N

Longitude: 75.54548000° W

Landscape Similarity Zone: Rural Residential/Agricultural

Viewer Type: Local Residents

Sensitive Site: Windsor Woods

Distance Zone: Middle Ground

Nearest Visible Turbine: 0.86 miles

Project Information:

Turbine Model: Vestas V150-4.2 MW

Hub Height: 427 feet (130 meters)

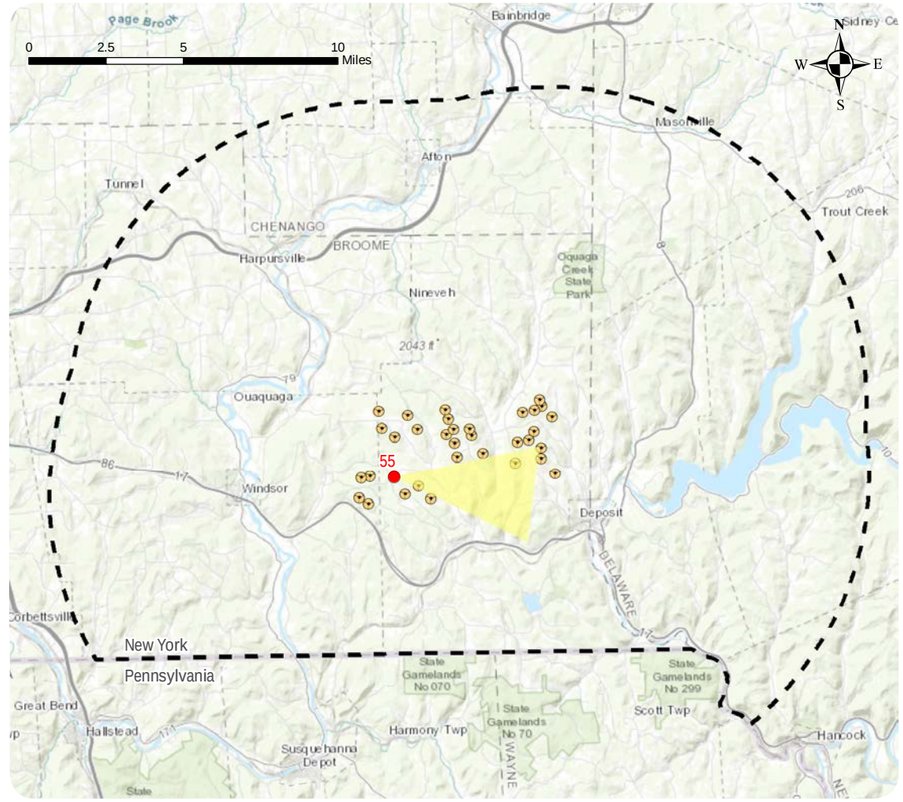
Rotor Diameter: 492 feet (150 meters)

Total Turbine Height:

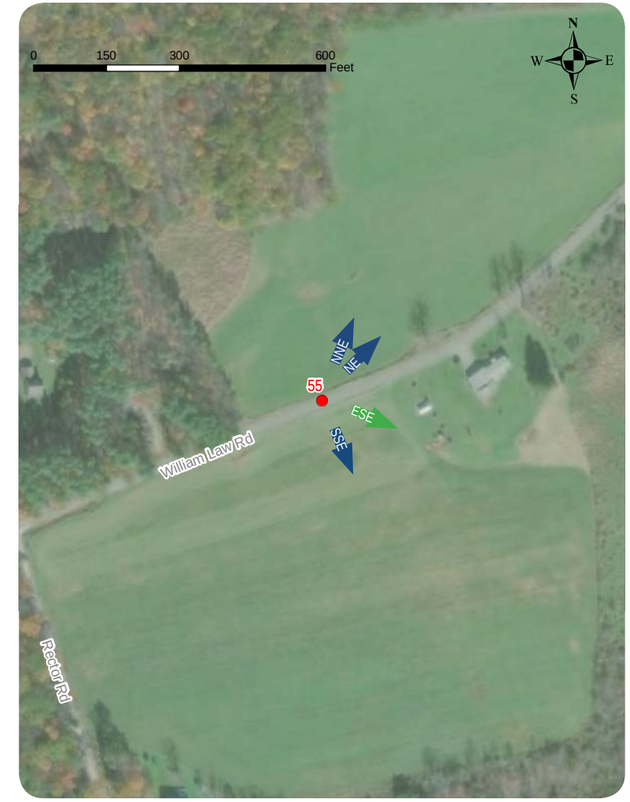
673 feet (205 meters)

Number of Turbines: 33 Turbines

Viewpoint Location



Viewpoint Context



Context Photo: View to the North-Northeast

Context Photo: View to the Northeast

Simulation Photo: View to the East-Southeast

Context Photo: View to the South-Southeast

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Viewpoint: 58

Photograph Information:

Date: April 9, 2018

Time: 2:31 PM

Camera Make/Model: Canon EOS 5D Mark IV

Focal Length: 50.0 mm

Camera Sensor Size: 36 mm x 24 mm

View Location Information:

Location: View from Pazzelli Road

Town: Sanford

County: Broome

Direction of View: East

Camera Elevation: 1822 feet

Latitude: 42.10868500° N

Longitude: 75.55320000° W

Landscape Similarity Zone: Rural Residential/Agricultural

Viewer Type: Local Residents

Sensitive Site: Windsor Woods

Distance Zone: Middle Ground

Nearest Visible Turbine: 0.9 miles

Project Information:

Turbine Model: Vestas V150-4.2 MW

Hub Height: 427 feet (130 meters)

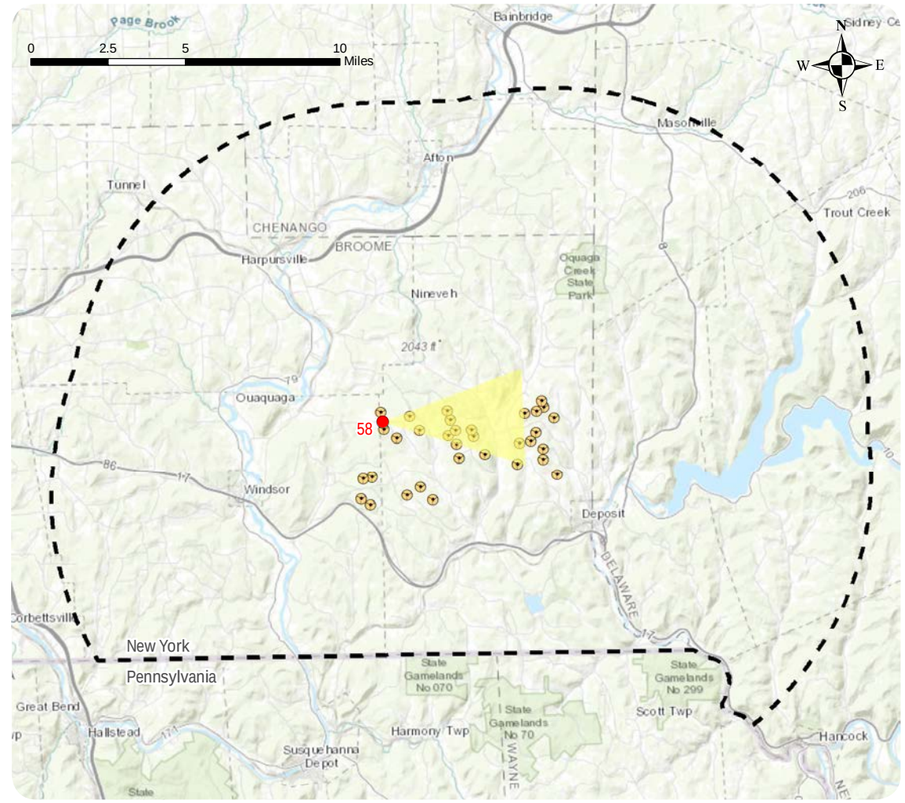
Rotor Diameter: 492 feet (150 meters)

Total Turbine Height:

673 feet (205 meters)

Number of Turbines: 33 Turbines

Viewpoint Location



Viewpoint Context

Context Photo: View to the West

Context Photo: View to the Northeast

Simulation Photo: View to the East

Context Photo: View to the East-Southeast

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Viewpoint: 59

Photograph Information:

Date: April 9, 2018

Time: 11:47 AM

Camera Make/Model: Canon EOS 5D Mark IV

Focal Length: 50.0 mm

Camera Sensor Size: 36 mm x 24 mm

View Location Information:

Location: View from Bridge Street (Center Village Bridge)

Town: Colesville

County: Broome

Direction of View: Southeast

Camera Elevation: 968 feet

Latitude: 42.16749500° N

Longitude: 75.61147100° W

Landscape Similarity Zone: Rural Residential/Agricultural, Open Water

Viewer Type: Local Residents, Tourists/Recreational Users

Sensitive Site: Center Street Bridge, Susquehanna River

Distance Zone: Background

Nearest Visible Turbine: 4.72 miles

Project Information:

Turbine Model: Vestas V150-4.2 MW

Hub Height: 427 feet (130 meters)

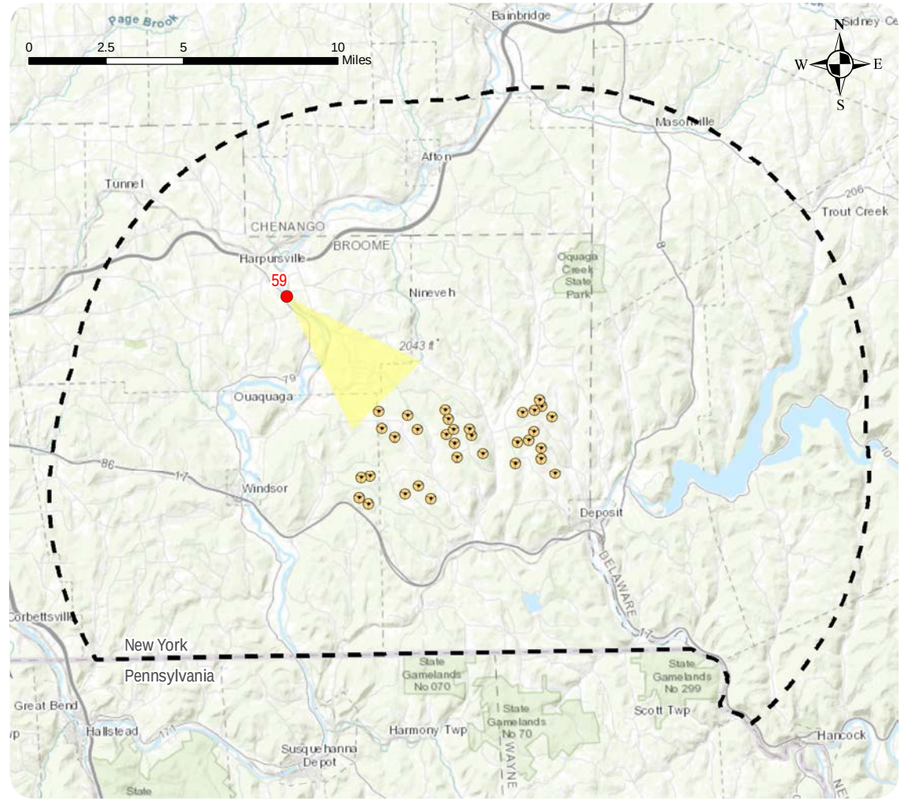
Rotor Diameter: 492 feet (150 meters)

Total Turbine Height:

673 feet (205 meters)

Number of Turbines: 33 Turbines

Viewpoint Location



Viewpoint Context

Context Photo: View to the West-Southwest

Context Photo: View to the East-Southeast

Simulation Photo: View to the Southeast

Context Photo: View to the North-Northwest

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Viewpoint: 61

Photograph Information:

Date: April 9, 2018

Time: 11:56 AM

Camera Make/Model: Canon EOS 5D Mark IV

Focal Length: 50.0 mm

Camera Sensor Size: 36 mm x 24 mm

View Location Information:

Location: View from State Route 79

Town: Colesville

County: Broome

Direction of View: Southeast

Camera Elevation: 980 feet

Latitude: 42.14144400° N

Longitude: 75.59841200° W

Landscape Similarity Zone: Rural Residential/Agricultural

Viewer Type: Local Residents, Through-Travelers/Commuters

Sensitive Site: State Route 79/State Bike Route 17

Distance Zone: Middle Ground

Nearest Visible Turbine: 2.96 miles

Project Information:

Turbine Model: Vestas V150-4.2 MW

Hub Height: 427 feet (130 meters)

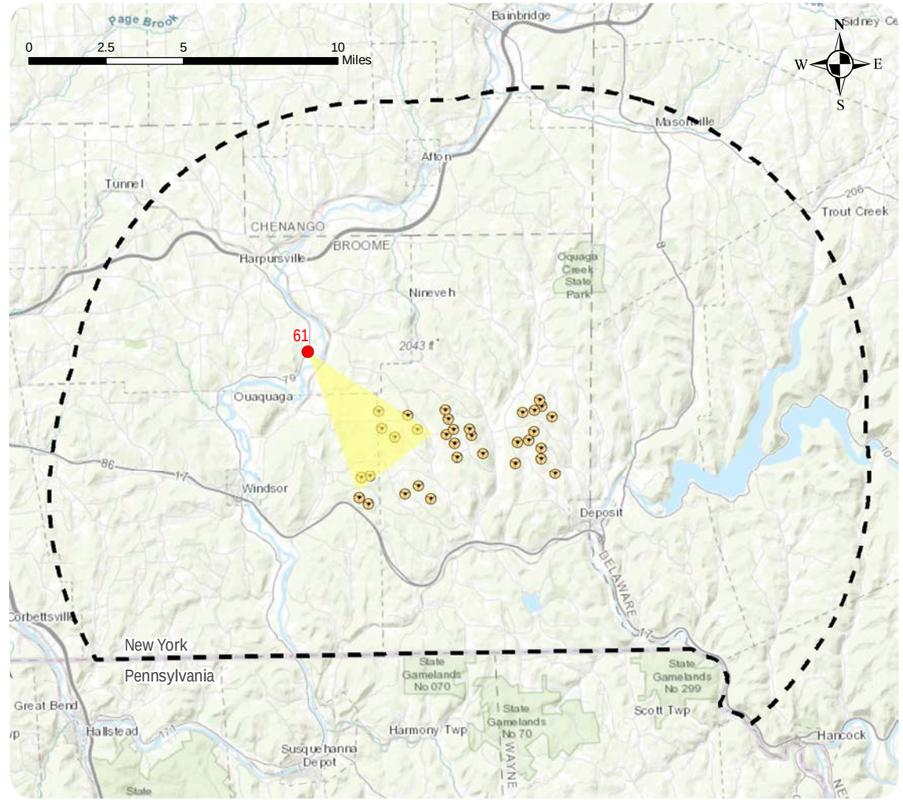
Rotor Diameter: 492 feet (150 meters)

Total Turbine Height:

673 feet (205 meters)

Number of Turbines: 33 Turbines

Viewpoint Location



Viewpoint Context

Context Photo: View to the East

Context Photo: View to the East-Southeast

Simulation Photo: View to the Southeast

Context Photo: View to the South-Southeast

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Viewpoint: 64

Photograph Information:

Date: April 9, 2018

Time: 12:26 PM

Camera Make/Model: Canon EOS 5D Mark IV

Focal Length: 50.0 mm

Camera Sensor Size: 36 mm x 24 mm

View Location Information:

Location: View from Interstate 86/ State Route 17

Town: Windsor

County: Broome

Direction of View: Northeast

Camera Elevation: 1141 feet

Latitude: 42.06247300° N

Longitude: 75.59094900° W

Landscape Similarity Zone: Transportation Corridor

Viewer Type: Through-Travelers/Commuters

Sensitive Site: Interstate 86/State Route 17

Distance Zone: Middle Ground

Nearest Visible Turbine: 1.95 miles

Project Information:

Turbine Model: Vestas V150-4.2 MW

Hub Height: 427 feet (130 meters)

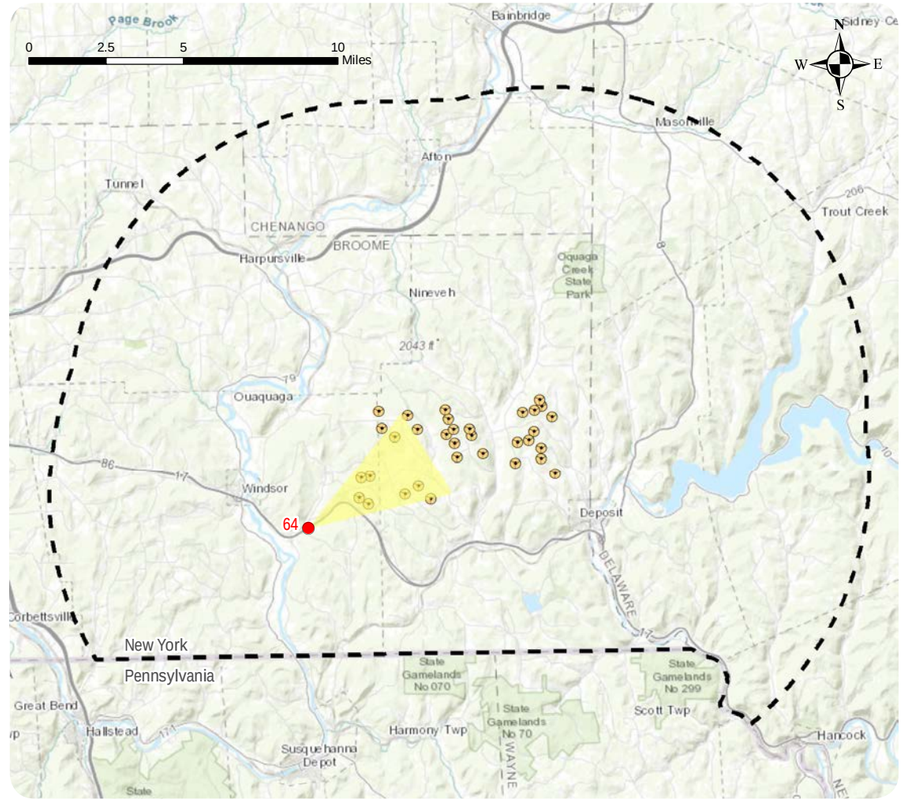
Rotor Diameter: 492 feet (150 meters)

Total Turbine Height:

673 feet (205 meters)

Number of Turbines: 33 Turbines

Viewpoint Location



Viewpoint Context

Context Photo: View to the Southwest

Context Photo: View to the North-Northeast

Simulation Photo: View to the Northeast

Context Photo: View to the East

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Viewpoint: 67

Photograph Information:

Date: May 24, 2018

Time: 3:37 PM

Camera Make/Model: Canon EOS 5D Mark IV

Focal Length: 50.0 mm

Camera Sensor Size: 36 mm x 24 mm

View Location Information:

Location: View from State Route 10, NYS Bicycle Route 17, Cannonsville Resevoir

Town: Deposit

County: Delaware

Direction of View: West Northwest

Camera Elevation: 1251 feet

Latitude: 42.06420000° N

Longitude: 75.36865500° W

Landscape Similarity Zone: Open Water

Viewer Type: Tourists/Recreational Users

Sensitive Site: Cannonsville Reservoir

Distance Zone: Background

Nearest Visible Turbine: 4.1 miles

Project Information:

Turbine Model: Vestas V150-4.2 MW

Hub Height: 427 feet (130 meters)

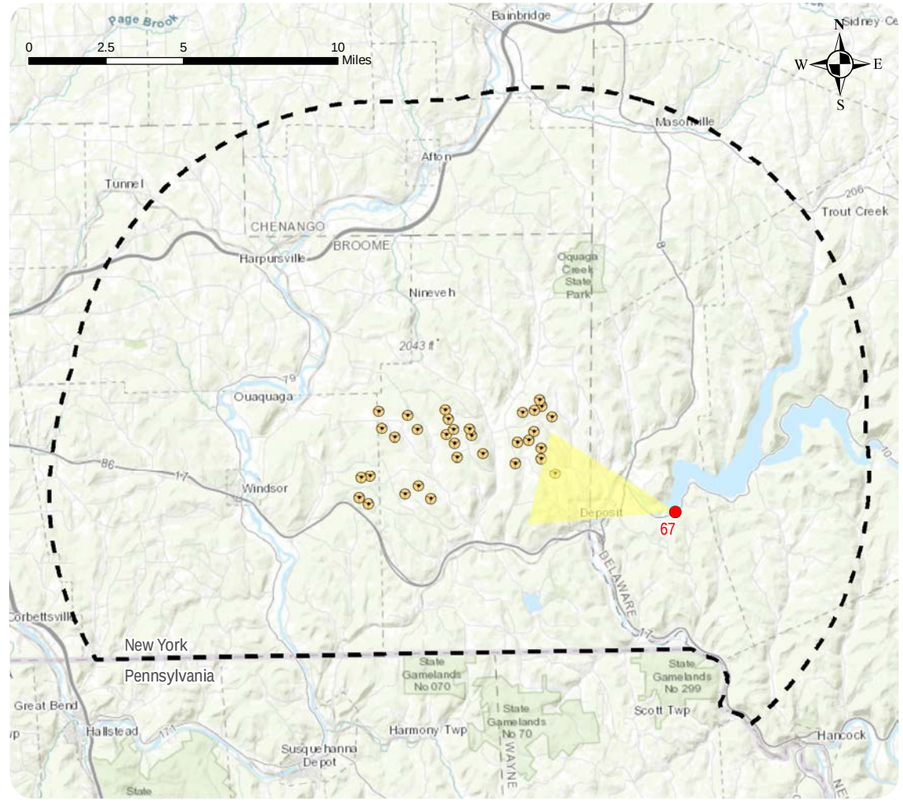
Rotor Diameter: 492 feet (150 meters)

Total Turbine Height:

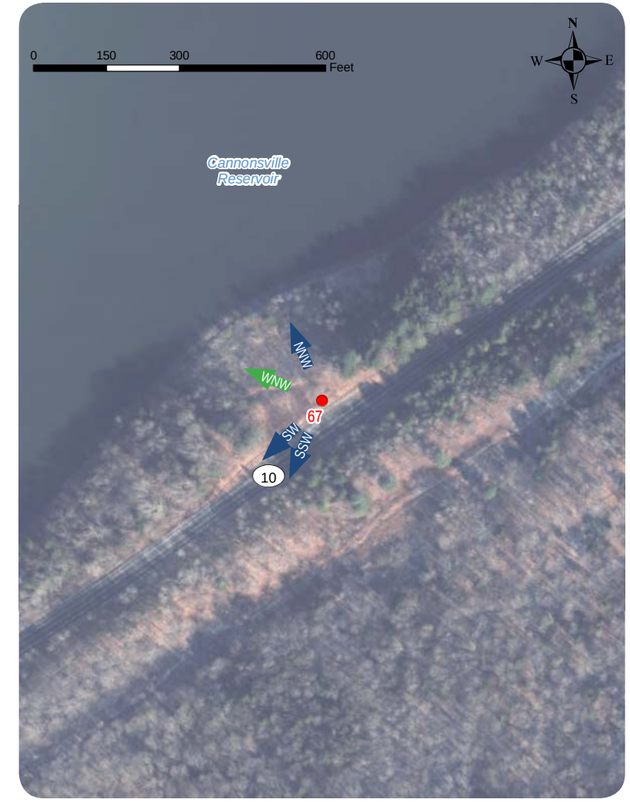
673 feet (205 meters)

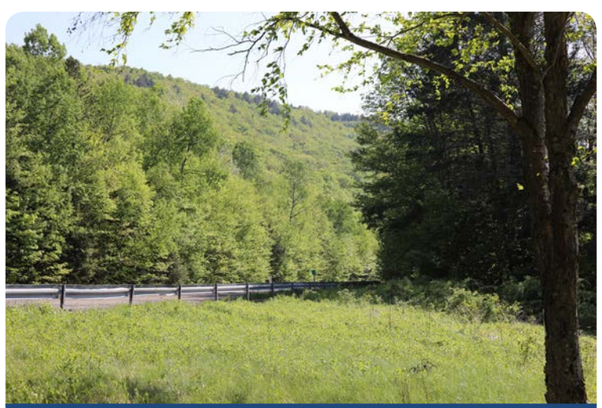
Number of Turbines: 33 Turbines

Viewpoint Location

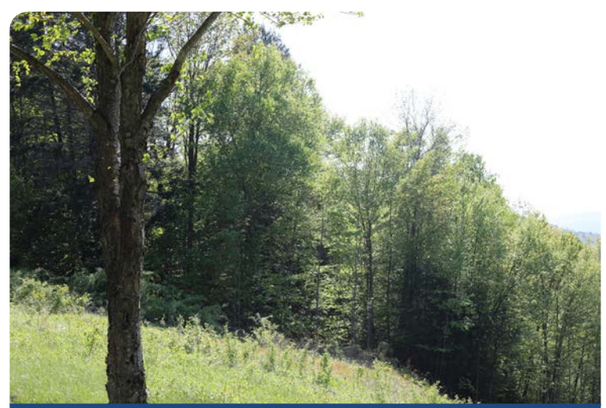


Viewpoint Context

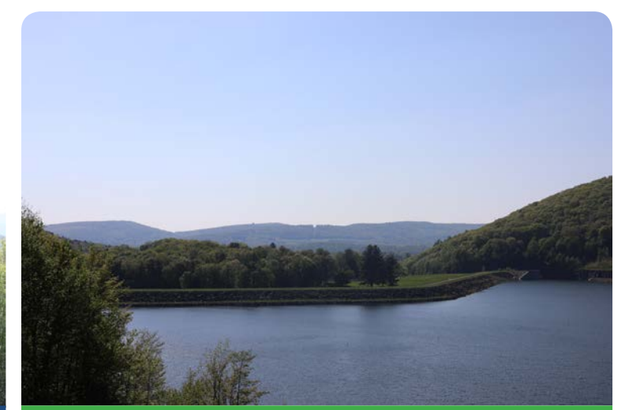




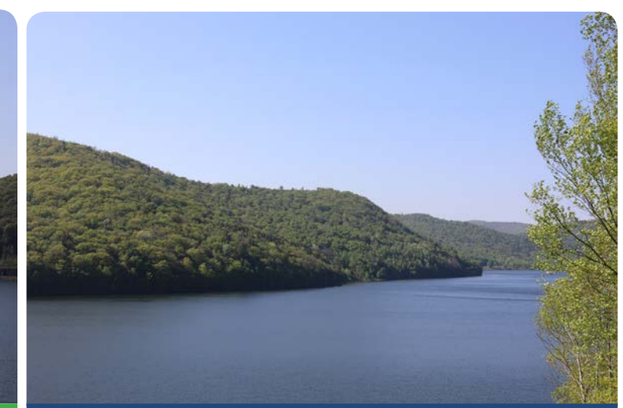
Context Photo: View to the South-Southwest



Context Photo: View to the Southwest



Simulation Photo: View to the West-Northwest



Context Photo: View to the North-Northwest

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Viewpoint: 69

Photograph Information:

Date: May 24, 2018

Time: 3:48 PM

Camera Make/Model: Canon EOS 5D Mark IV

Focal Length: 50.0 mm

Camera Sensor Size: 36 mm x 24 mm

View Location Information:

Location: View from West Branch Delaware River, Pine Street Extension Bridge

Town: Deposit

County: Delaware

Direction of View: Northwest

Camera Elevation: 1010 feet

Latitude: 42.06068400° N

Longitude: 75.41662000° W

Landscape Similarity Zone: Village, Open Water

Viewer Type: Local Residents, Tourists/Recreational Users

Sensitive Site: West Branch Delaware River

Distance Zone: Middle Ground

Nearest Visible Turbine: 2.06 miles

Project Information:

Turbine Model: Vestas V150-4.2 MW

Hub Height: 427 feet (130 meters)

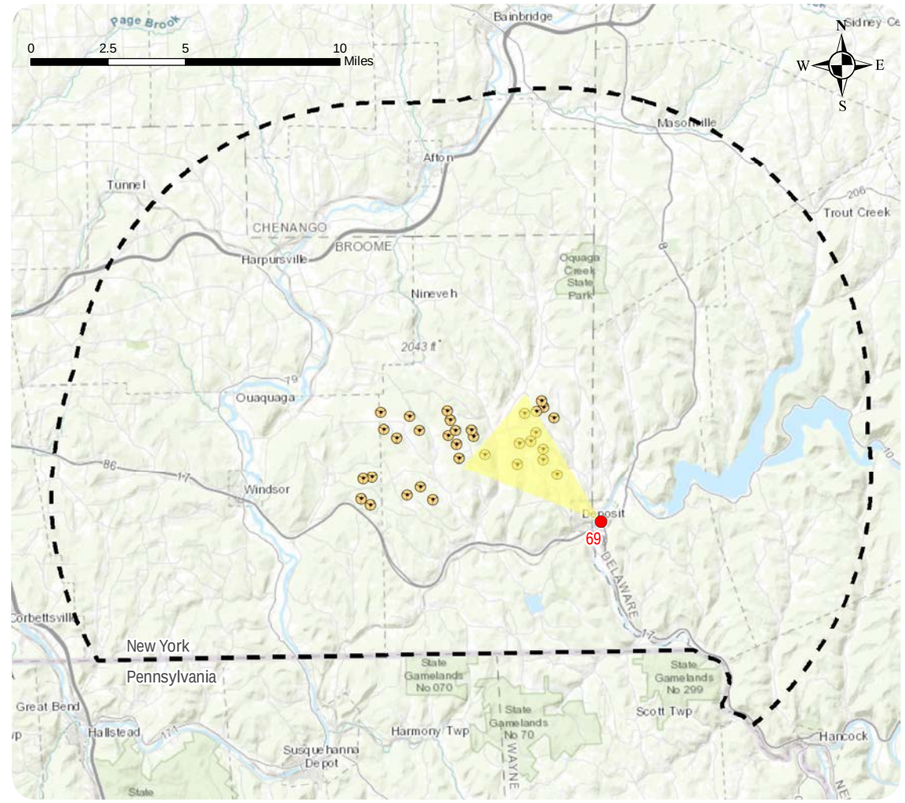
Rotor Diameter: 492 feet (150 meters)

Total Turbine Height:

673 feet (205 meters)

Number of Turbines: 33 Turbines

Viewpoint Location



Viewpoint Context

Context Photo: View to the Southwest

Context Photo: View to the West

Simulation Photo: View to the Northwest

Context Photo: View to the North-Northeast

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Viewpoint: 83

Photograph Information:

Date: May 24, 2018

Time: 1:48 PM

Camera Make/Model: Canon EOS 5D Mark IV

Focal Length: 50.0 mm

Camera Sensor Size: 36 mm x 24 mm

View Location Information:

Location: View from Page Pond Road

Town: Sanford

County: Broome

Direction of View: Southwest

Camera Elevation: 1225 feet

Latitude: 42.11921800° N

Longitude: 75.47095700° W

Landscape Similarity Zone: Forest

Viewer Type: Tourists/Recreational Users

Sensitive Site: Oquaga Creek

Distance Zone: Background

Nearest Visible Turbine: 1.77 miles

Project Information:

Turbine Model: Vestas V150-4.2 MW

Hub Height: 427 feet (130 meters)

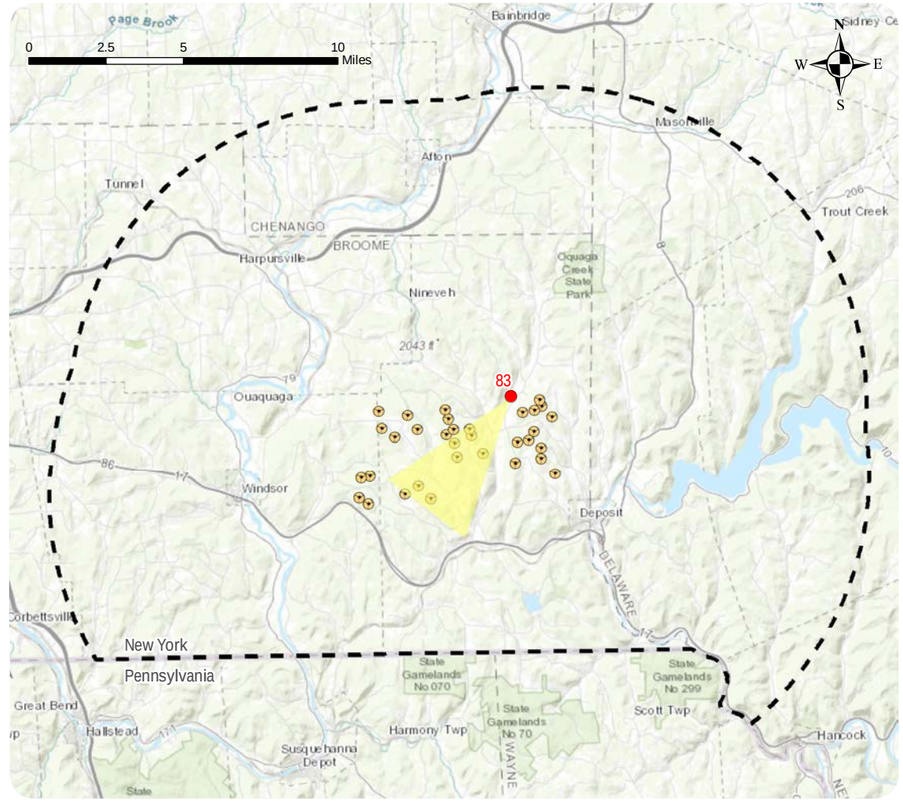
Rotor Diameter: 492 feet (150 meters)

Total Turbine Height:

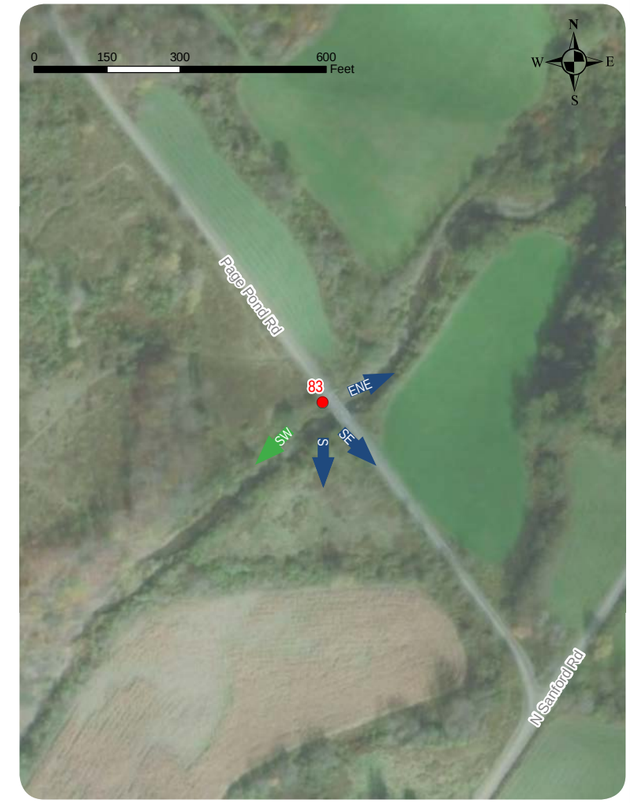
673 feet (205 meters)

Number of Turbines: 33 Turbines

Viewpoint Location



Viewpoint Context



Context Photo: View to the East-Northeast

Context Photo: View to the Southeast

Context Photo: View to the South

Simulation Photo: View to the Southwest

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Viewpoint: 85

Photograph Information:

Date: May 24, 2018

Time: 2:05 PM

Camera Make/Model: Canon EOS 5D Mark IV

Focal Length: 50.0 mm

Camera Sensor Size: 36 mm x 24 mm

View Location Information:

Location: View from Loomis Hill Road

Town: Sanford

County: Broome

Direction of View: North-Northwest

Camera Elevation: 1638 feet

Latitude: 42.10676800° N

Longitude: 75.46046700° W

Landscape Similarity Zone: Forest

Viewer Type: Local Residents

Sensitive Site: N/A

Distance Zone: Foreground

Nearest Visible Turbine: 0.4 miles

Project Information:

Turbine Model: Vestas V150-4.2 MW

Hub Height: 427 feet (130 meters)

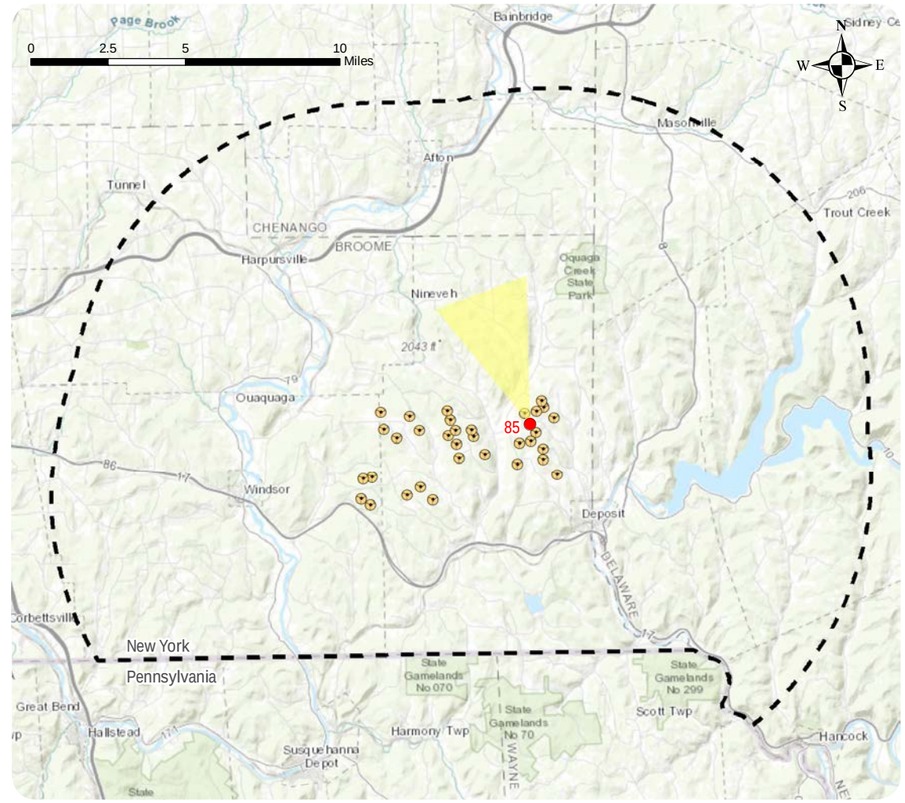
Rotor Diameter: 492 feet (150 meters)

Total Turbine Height:

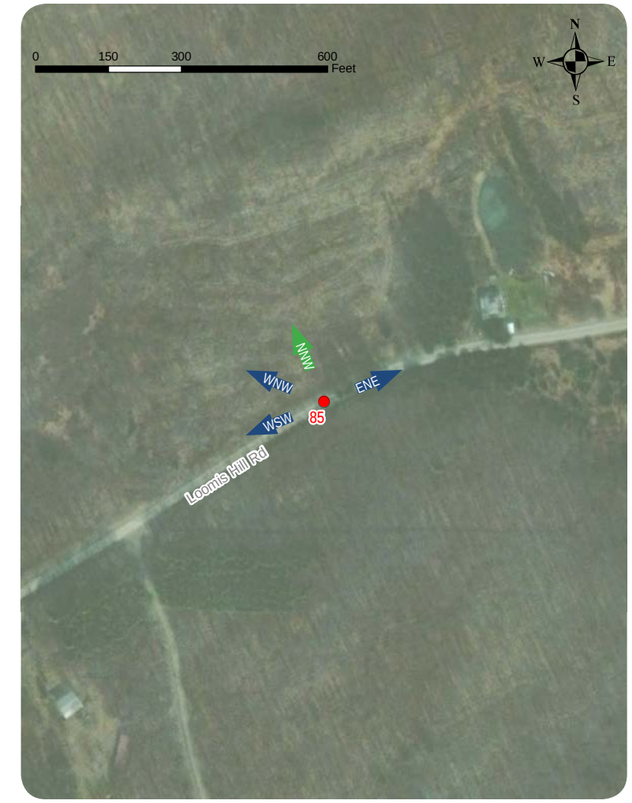
673 feet (205 meters)

Number of Turbines: 33 Turbines

Viewpoint Location



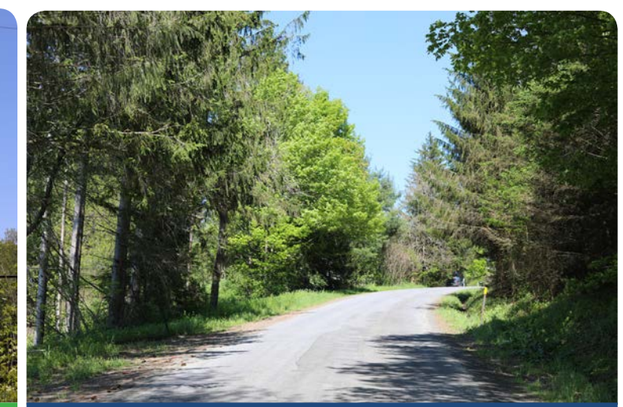
Viewpoint Context



Context Photo: View to the West-Southwest

Context Photo: View to the West-Northwest

Simulation Photo: View to the North-Northwest



Context Photo: View to the East-Northeast

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Viewpoint: 102

Photograph Information:

Date: May 24, 2018

Time: 5:33 PM

Camera Make/Model: Canon EOS 5D Mark IV

Focal Length: 50.0 mm

Camera Sensor Size: 36 mm x 24 mm

View Location Information:

Location: View from Car top portage off Bryce Road at Marsh Pond Road, Marsh Pond State Forest

Town: Sanford

County: Broome

Direction of View: Southeast

Camera Elevation: 1661 feet

Latitude: 42.12163600° N

Longitude: 75.54023300° W

Landscape Similarity Zone: Open Water

Viewer Type: Local Residents, Tourists/Recreational Users

Sensitive Site: Marsh Pond State Forest

Distance Zone: Middle Ground

Nearest Visible Turbine: 1.48 miles

Project Information:

Turbine Model: Vestas V150-4.2 MW

Hub Height: 427 feet (130 meters)

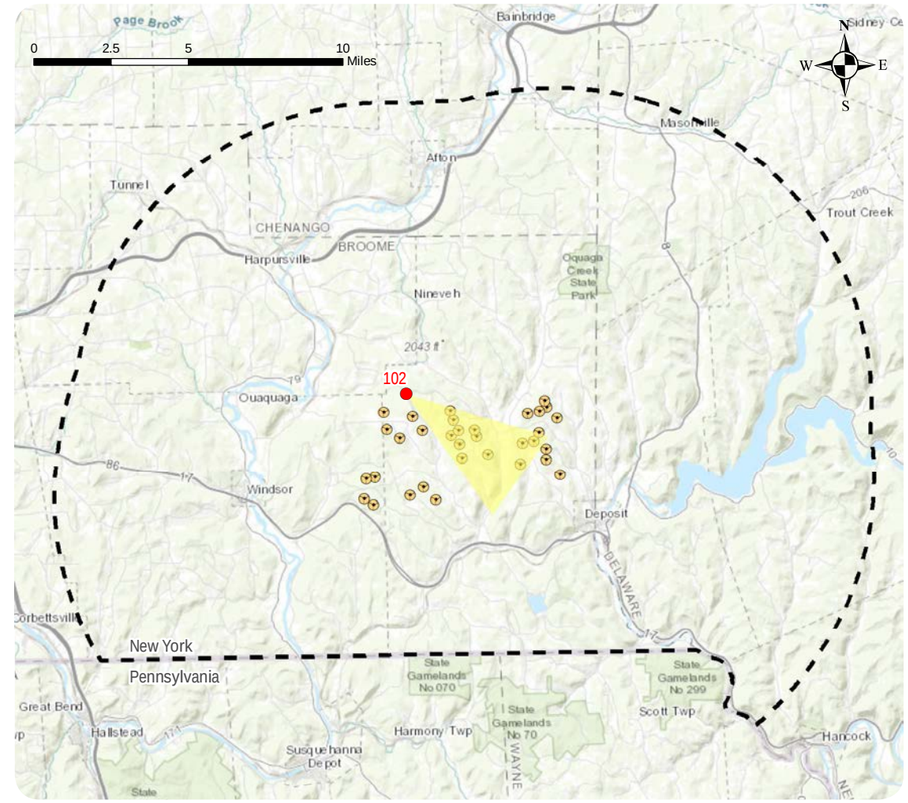
Rotor Diameter: 492 feet (150 meters)

Total Turbine Height:

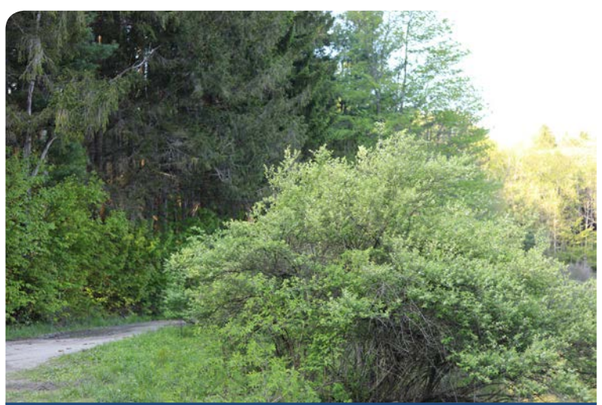
673 feet (205 meters)

Number of Turbines: 33 Turbines

Viewpoint Location

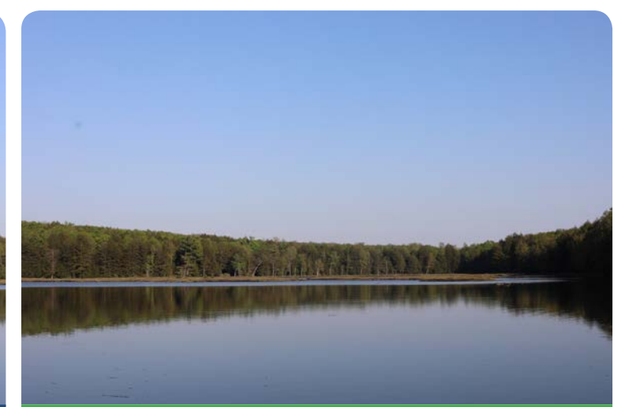


Viewpoint Context

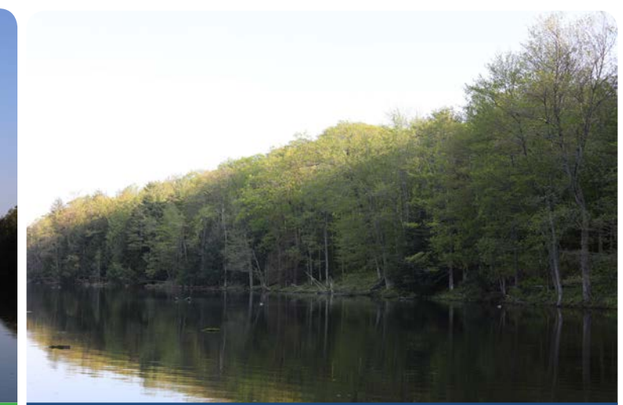


Context Photo: View to the East-Northeast

Context Photo: View to the East



Simulation Photo: View to the Southeast



Context Photo: View to the South-Southeast

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Viewpoint: 104

Photograph Information:

Date: May 24, 2018

Time: 5:56 PM

Camera Make/Model: Canon EOS 5D Mark IV

Focal Length: 50.0 mm

Camera Sensor Size: 36 mm x 24 mm

View Location Information:

Location: View from Bryce Road

Town: Sanford

County: Broome

Direction of View: East-Northeast

Camera Elevation: 1452 feet

Latitude: 42.09938700° N

Longitude: 75.52137700° W

Landscape Similarity Zone: Forest

Viewer Type: Local Residents, Tourists/Recreational Users

Sensitive Site: Marsh Creek

Distance Zone: Foreground

Nearest Visible Turbine: 0.5 miles

Project Information:

Turbine Model: Vestas V150-4.2 MW

Hub Height: 427 feet (130 meters)

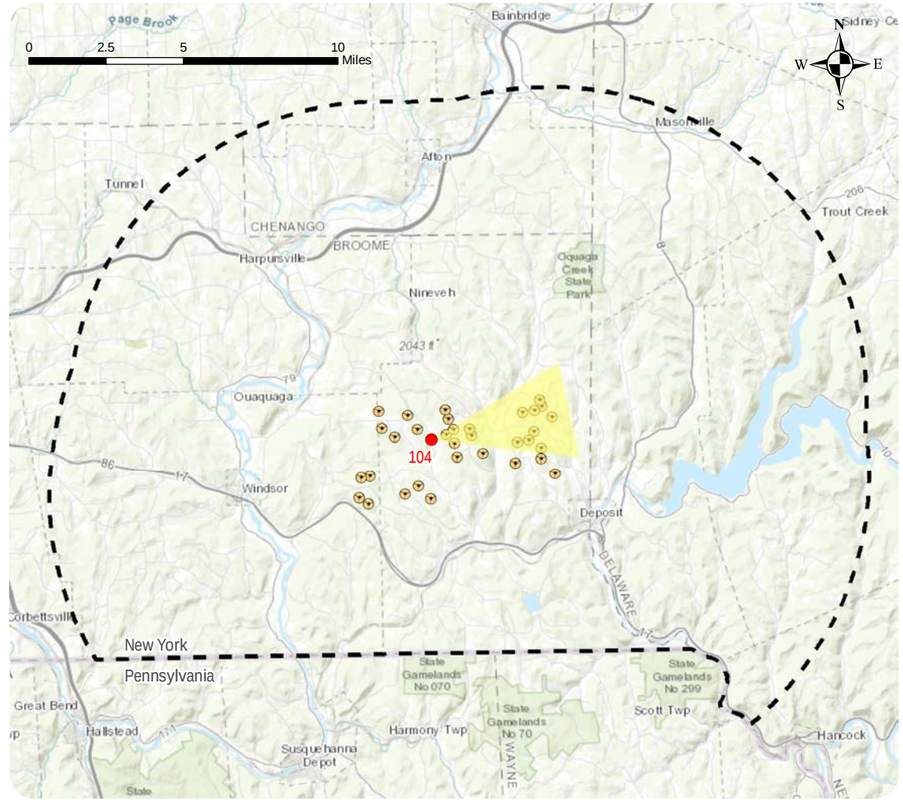
Rotor Diameter: 492 feet (150 meters)

Total Turbine Height:

673 feet (205 meters)

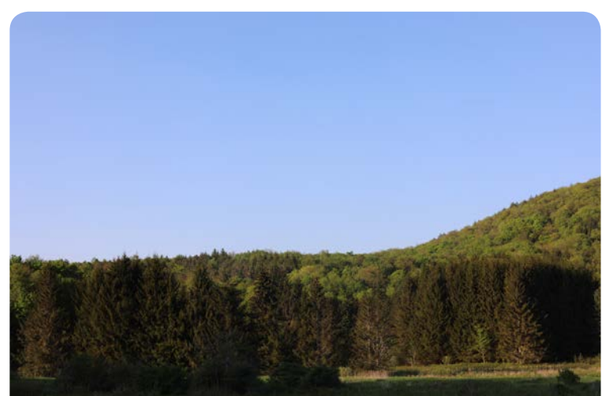
Number of Turbines: 33 Turbines

Viewpoint Location



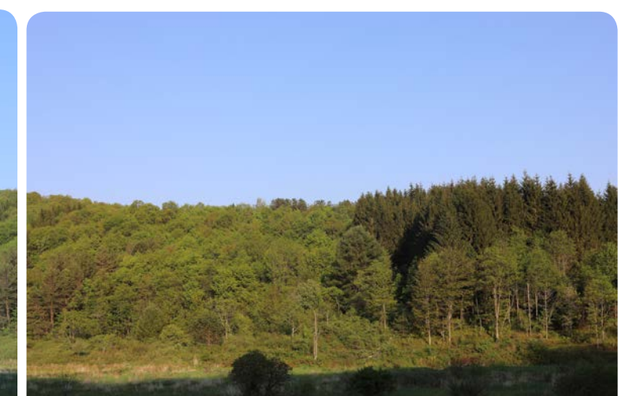
Viewpoint Context

Context Photo: View to the North



Context Photo: View to the North-Northeast

Simulation Photo: View to the East-Northeast



Context Photo: View to the East

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Viewpoint: 107

Photograph Information:

Date: May 24, 2018

Time: 6:19 PM

Camera Make/Model: Canon EOS 5D Mark IV

Focal Length: 50.0 mm

Camera Sensor Size: 36 mm x 24 mm

View Location Information:

Location: View from Mountain View Drive, Deer Lake

Town: Sanford

County: Broome

Direction of View: North-Northwest

Camera Elevation: 1543 feet

Latitude: 42.05680300° N

Longitude: 75.55311900° W

Landscape Similarity Zone: Forest, Open Water

Viewer Type: Local Residents

Sensitive Site: Deer Lake

Distance Zone: Middle Ground

Nearest Visible Turbine: 0.98 miles

Project Information:

Turbine Model: Vestas V150-4.2 MW

Hub Height: 427 feet (130 meters)

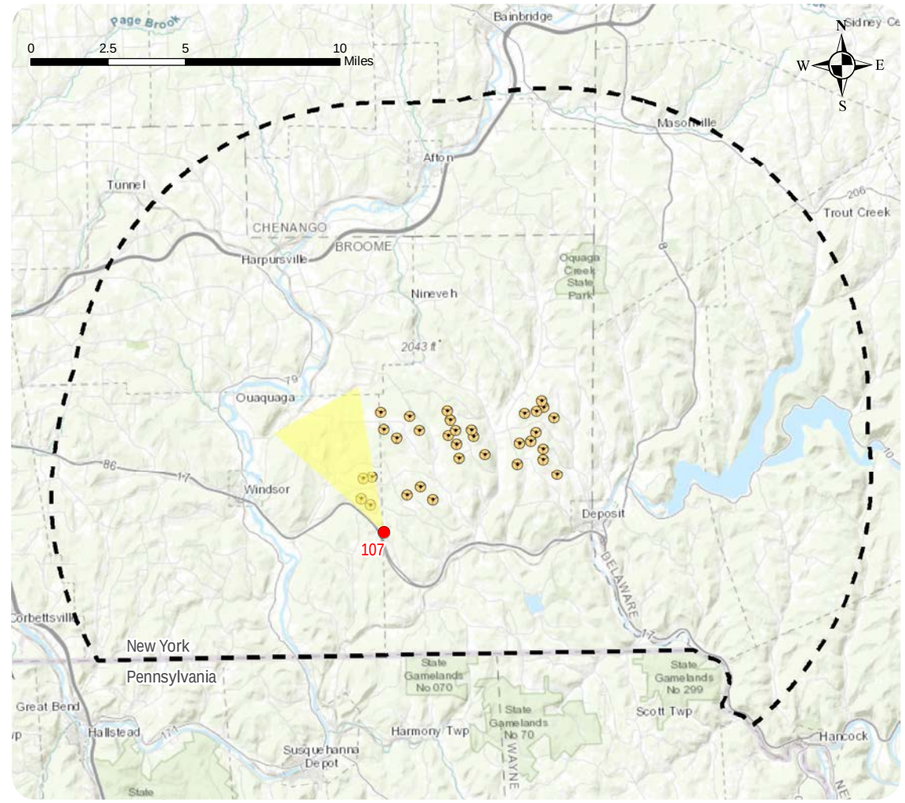
Rotor Diameter: 492 feet (150 meters)

Total Turbine Height:

673 feet (205 meters)

Number of Turbines: 33 Turbines

Viewpoint Location



Viewpoint Context

Context Photo: View to the West-Southwest

Context Photo: View to the West-Northwest

Simulation Photo: View to the North-Northwest

Context Photo: View to the Northeast

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Viewpoint: 113

Photograph Information:

Date: May 24, 2018

Time: 6:47 PM

Camera Make/Model: Canon EOS 5D Mark IV

Focal Length: 50.0 mm

Camera Sensor Size: 36 mm x 24 mm

View Location Information:

Location: View from Piper Hill Road, west of intersection with White Birch Lake Road

Town: Windsor

County: Broome

Direction of View: East-Northeast

Camera Elevation: 1493 feet

Latitude: 42.05002700° N

Longitude: 75.64286300° W

Landscape Similarity Zone: Rural Residential/Agricultural

Viewer Type: Local Residents

Sensitive Site: N/A

Distance Zone: Background

Nearest Visible Turbine: 4.2 miles

Project Information:

Turbine Model: Vestas V150-4.2 MW

Hub Height: 427 feet (130 meters)

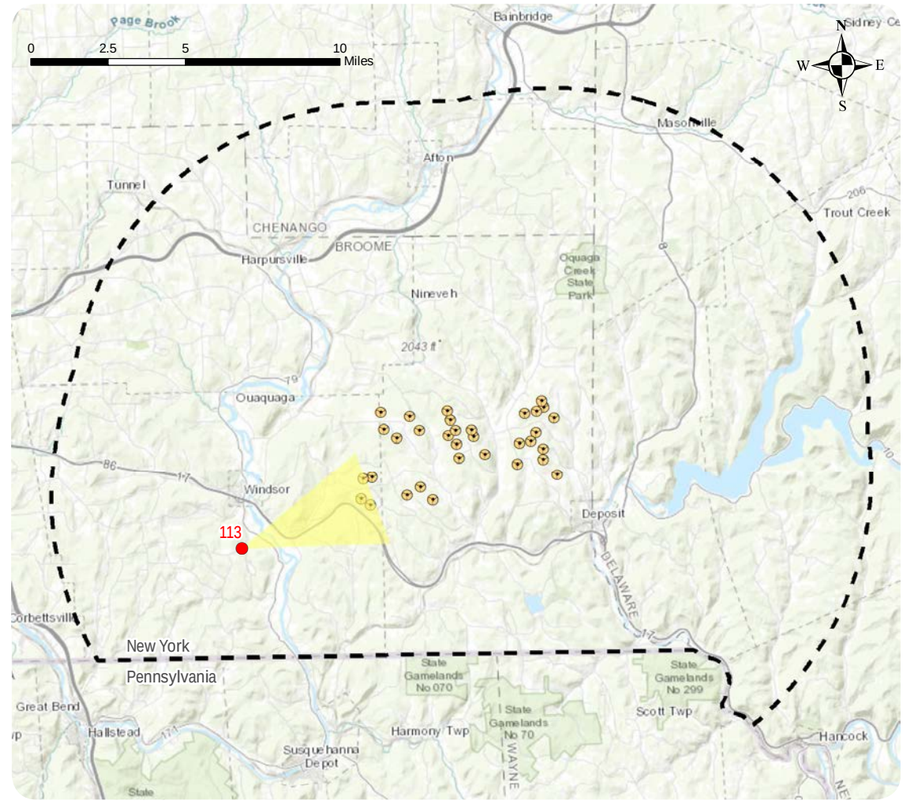
Rotor Diameter: 492 feet (150 meters)

Total Turbine Height:

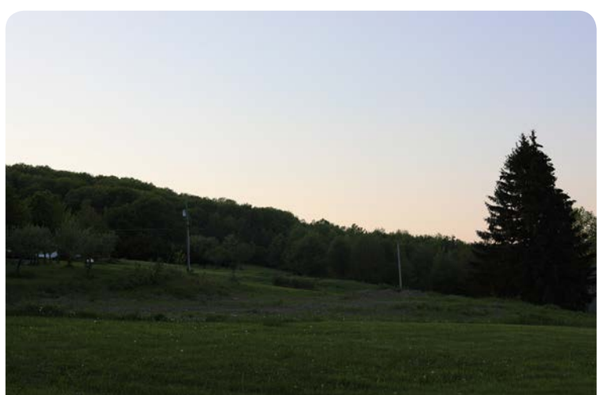
673 feet (205 meters)

Number of Turbines: 33 Turbines

Viewpoint Location



Viewpoint Context



Context Photo: View to the North

Context Photo: View to the Northeast

Simulation Photo: View to the East-Northeast

Context Photo: View to the East

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