

## **Appendix E**

Vernal Pool Survey Memo



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## memorandum

**To:** Mr. Alec Jarvis **EDR Project Number:** 16050

**From:** Gregory S. Liberman (Senior Project Manager, EDR)  
Shelby Zemken (Environmental Analyst, EDR)

**Date:** August 31, 2018

**Reference:** Bluestone Wind Project: Vernal Pool Study

### Comments:

This memorandum summarizes the findings of a vernal pool study performed by Environmental Design & Research, Landscape Architecture, Engineering, & Environmental Services, D.P.C. (EDR) for the proposed Bluestone Wind Project (the "Facility") in the Towns of Windsor and Sanford, Broome County, New York. This memorandum has been prepared in support of an Application by Bluestone Wind, LLC for a Certificate of Environmental Compatibility and Public Need pursuant to Article 10 of the New York State Public Service Law for the construction of a major wind energy generating facility. The purpose of the vernal pool study was to identify potential vernal pool habitats during the spring season, document amphibian species that may utilize these habitats, and provide a basis for assessing potential project-related impacts to enable avoidance. The Facility's potential effects on other ecological resources are addressed in the Article 10 Application and supporting studies.

### Background and Methodology

The vernal pool study was conducted by qualified EDR biologists following guidelines developed by the New York Natural Heritage Program (NYNHP), the New York State Department of Environmental Conservation (NYSDEC), the Massachusetts Division of Fisheries and Wildlife, and the Pennsylvania Natural Heritage Program. Surveys were conducted within the Wetland Delineation Study Area<sup>1</sup> ("Study Area") from May to July of 2018. The entirety of the Study Area was surveyed, vernal pools were identified, and observations of potential vernal pools were recorded by taking photographs and field notes of existing conditions within and adjacent to potential vernal pool areas, and by collecting geographic location data for features of interest using a GPS and the Collector for ArcGIS application. Specific attention was paid to forest communities within the Study Area, as vernal pools are most common within this community type.

Typical characteristics used to identify vernal pools included 1) hydrological isolation (i.e., a lack of permanent inlets or outlets of flowing surface water that could allow fish access), 2) standing water that is likely ephemeral, 3) sparse vegetation or no vegetation growing within a pool area, 4) water-stained leaves in a depression, 5) moss trim lines/buttrussing/watermarks on trees nearby a potential vernal pool, 6) connectivity to adjacent upland forested habitat, and 7) the presence of amphibian indicator species in or nearby the pool. These characteristics are consistent with

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<sup>1</sup> The wetland delineation Study Area included all areas within a 200 feet of linear Facility components (e.g., access roads, buried electrical interconnect, overhead transmission line) and within 265 feet of turbines and other components such as permanent meteorological towers, the O&M building, staging areas, and the collection substation.

those used by northeastern state environmental conservation agencies to describe vernal pools (NYNHP, 2017; NYSDEC, 2018; MADFW, 2009; PNHP, 2018).

## Findings

Five potential vernal pools were identified by EDR within the Study Area (see Figure VP-1). All five were classified as isolated, semi-permanent forested wetlands and were found on ridge tops in natural bowl-shaped depressions surrounded by upland forest. All had indicators of standing water less than 3 inches in depth and no surface connection to other streams or wetlands. Indicator amphibian species (e.g., adult wood frogs [*Rana sylvatica*] and male salamanders [*Ambystoma spp.*] exhibiting breeding behavior, larvae, egg masses) were not observed in any of the vernal pools identified. This may be because most breeding activity had already occurred earlier in the spring (i.e., March and/or April) or because significant breeding was not occurring in these pools.

## Likely Species Occurrence

Consultation in 2017 with the NYNHP indicated that no listed Endangered, Threatened, or Special Concern amphibians or reptiles are known to occur within or adjacent to the Study Area. Additionally, the Amphibian & Reptile Atlas Project (“Herp Atlas”)<sup>2</sup> shows no known herpetofauna listed as Threatened or Endangered by the NYSDEC occurring in the Study Area. Based on our field study and a review of the Herp Atlas, the following species have the potential to occur within the Study Area.

Table 1. Herp Atlas Reported Amphibian Occurrence within the Study Area.

| Class                 | Species                             |                                   |
|-----------------------|-------------------------------------|-----------------------------------|
|                       | Common Name                         | Latin Name                        |
| Toads and Frogs       | Eastern American Toad               | <i>Bufo americanus</i>            |
|                       | Gray Treefrog                       | <i>Hyla versicolor</i>            |
|                       | Spring Peeper                       | <i>Pseudacris crucifer</i>        |
|                       | Bullfrog                            | <i>Rana catesbeiana</i>           |
|                       | Green Frog                          | <i>Rana clamitans</i>             |
|                       | Wood Frog                           | <i>Rana sylvatica</i>             |
|                       | Northern Leopard Frog               | <i>Rana pipiens</i>               |
|                       | Pickerel Frog                       | <i>Rana palustris</i>             |
| Salamanders and Newts | Spotted Salamander                  | <i>Ambystoma maculatum</i>        |
|                       | Red-spotted Newt                    | <i>Notophthalmus viridescens</i>  |
|                       | Northern Dusky Salamander           | <i>Desmognathus fuscus</i>        |
|                       | Allegheny Mountain Dusky Salamander | <i>Desmognathus ochrophaeus</i>   |
|                       | Northern Redback Salamander         | <i>Plethodon cinereus</i>         |
|                       | Northern Slimy Salamander           | <i>Plethodon glutinosus</i>       |
|                       | Spring Salamander                   | <i>Gyrinophilus porphyriticus</i> |
|                       | Northern Two-lined Salamander       | <i>Eurycea bislineata</i>         |

<sup>2</sup> A 10-year research program which documented the geographic distribution of New York State's herpetofauna at a 7.5-minute topographic quadrangle scale.

**Figures:** Figure VP-1: Vernal Pool Maps  
Figure VP- 2: Representative Photographs

**References:** New York Natural Heritage Program (NYNHP). 2017. Online Conservation Guide for Vernal Pools. Available at: <http://www.acris.nynhp.org/guide.php?id=9902>. Accessed May 2018.

New York Department of Environmental Conservation (NYSDEC). 2018. Woodland Pool Wildlife Photo Identification Guide. Available at: [http://www.dec.ny.gov/docs/regions\\_pdf/hrepwpwid.pdf](http://www.dec.ny.gov/docs/regions_pdf/hrepwpwid.pdf). Accessed May 2018.

Massachusetts Division of Fisheries and Wildlife (MADFW). 2009. Natural Heritage and Endangered Species Program's Guidelines for the Certification of Vernal Pool Habitat. Available at: <https://www.mass.gov/files/documents/2017/01/uv/vpcert.pdf>. Accessed May 2018.

Pennsylvania Natural Heritage Program (PNHP). 2018. Vernal Pools. Available at: [http://www.naturalheritage.state.pa.us/VernalPool\\_Animal.aspx](http://www.naturalheritage.state.pa.us/VernalPool_Animal.aspx). Accessed August 2018.

**Figure VP-1**

Vernal Pool Maps

# Bluestone Wind

Towns of Windsor and Sanford, Broome County, New York

## Potential Vernal Pool Overview

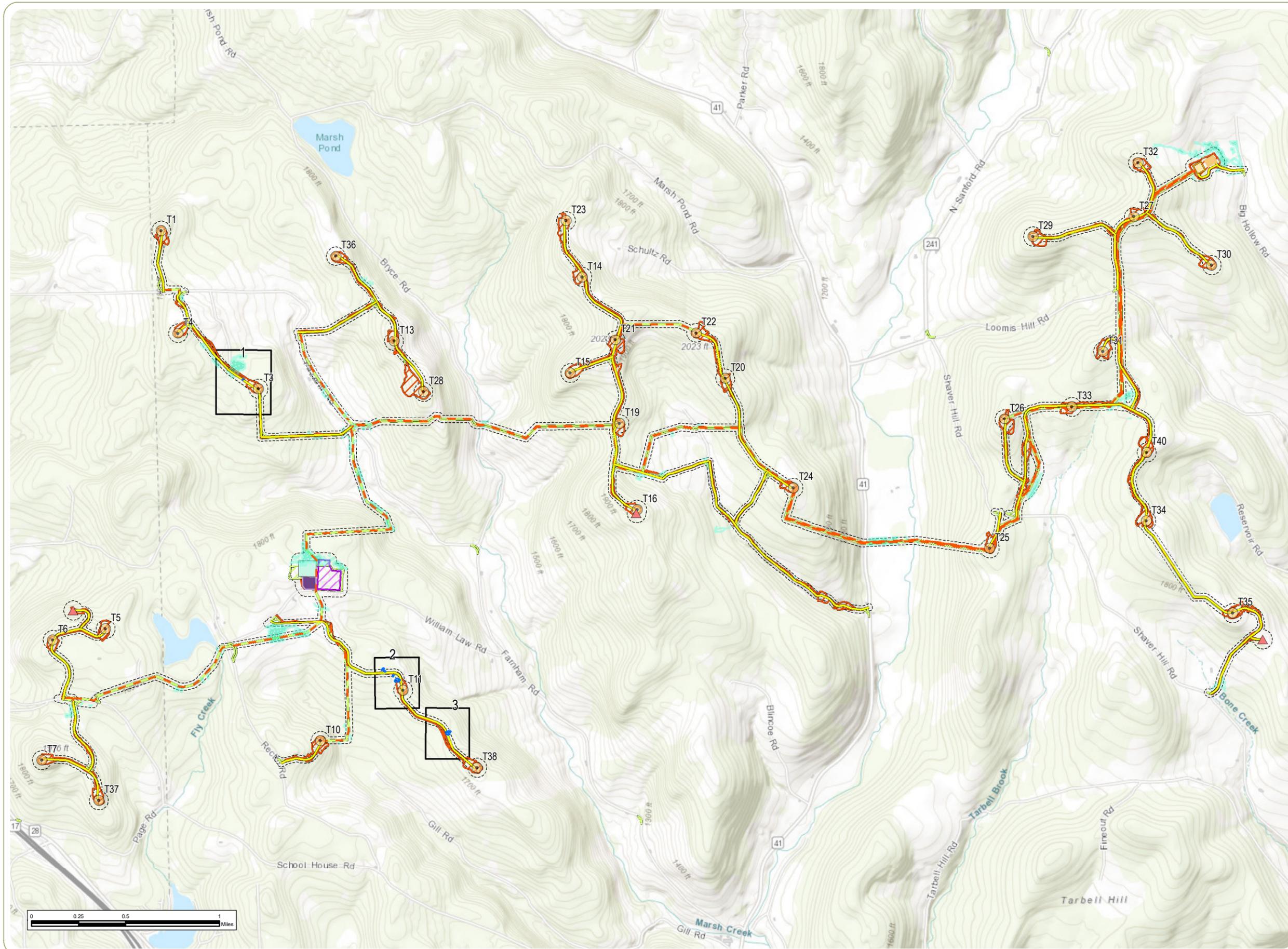
-  Met Tower
-  Wind Turbine
-  Access Road
-  Collection Line
-  Potential Vernal Pool
-  Delineated Wetland
-  Batch Plant
-  Laydown Area
-  Point of Interconnection Substation
-  Collection Substation
-  O&M Facility
-  Temporary Limits of Grading
-  Permanent Limits of Grading
-  Wetland Study Area
-  Page Index

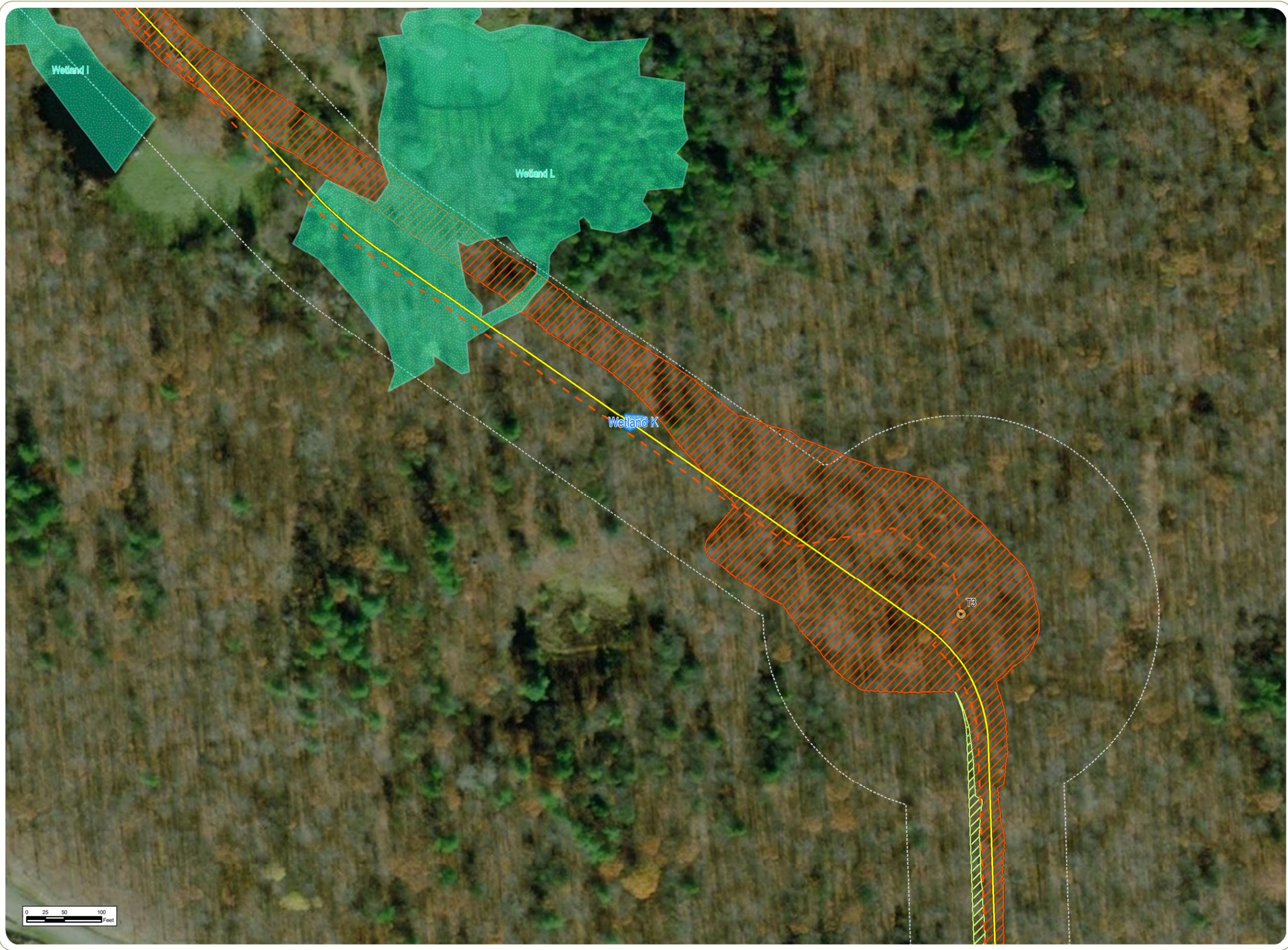


**Notes:** 1. Basemap: ESRI ArcGIS Online "World Topographic Map" map service. 2. This map was generated in ArcMap on August 27, 2018. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



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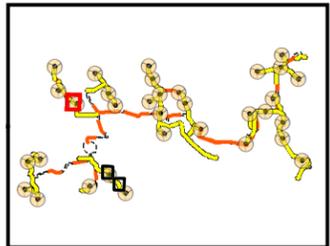
# Bluestone Wind

Towns of Windsor and Sanford, Broome County, New York

## Potential Vernal Pool Sheets

Sheet 1 of 3

- Met Tower
- Wind Turbine
- Access Road
- Collection Line
- Potential Vernal Pool
- Delineated Wetland
- Batch Plant
- Laydown Area
- Point of Interconnection Substation
- Collection Substation
- O&M Facility
- Temporary Limits of Grading
- Permanent Limits of Grading
- Wetland Study Area



**Notes:** 1. Basemap: ESRI ArcGIS Online "World Imagery" map service. 2. This map was generated in ArcMap on August 27, 2018. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



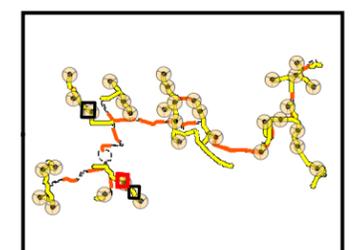
# Bluestone Wind

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## Potential Vernal Pool Sheets

Sheet 2 of 3

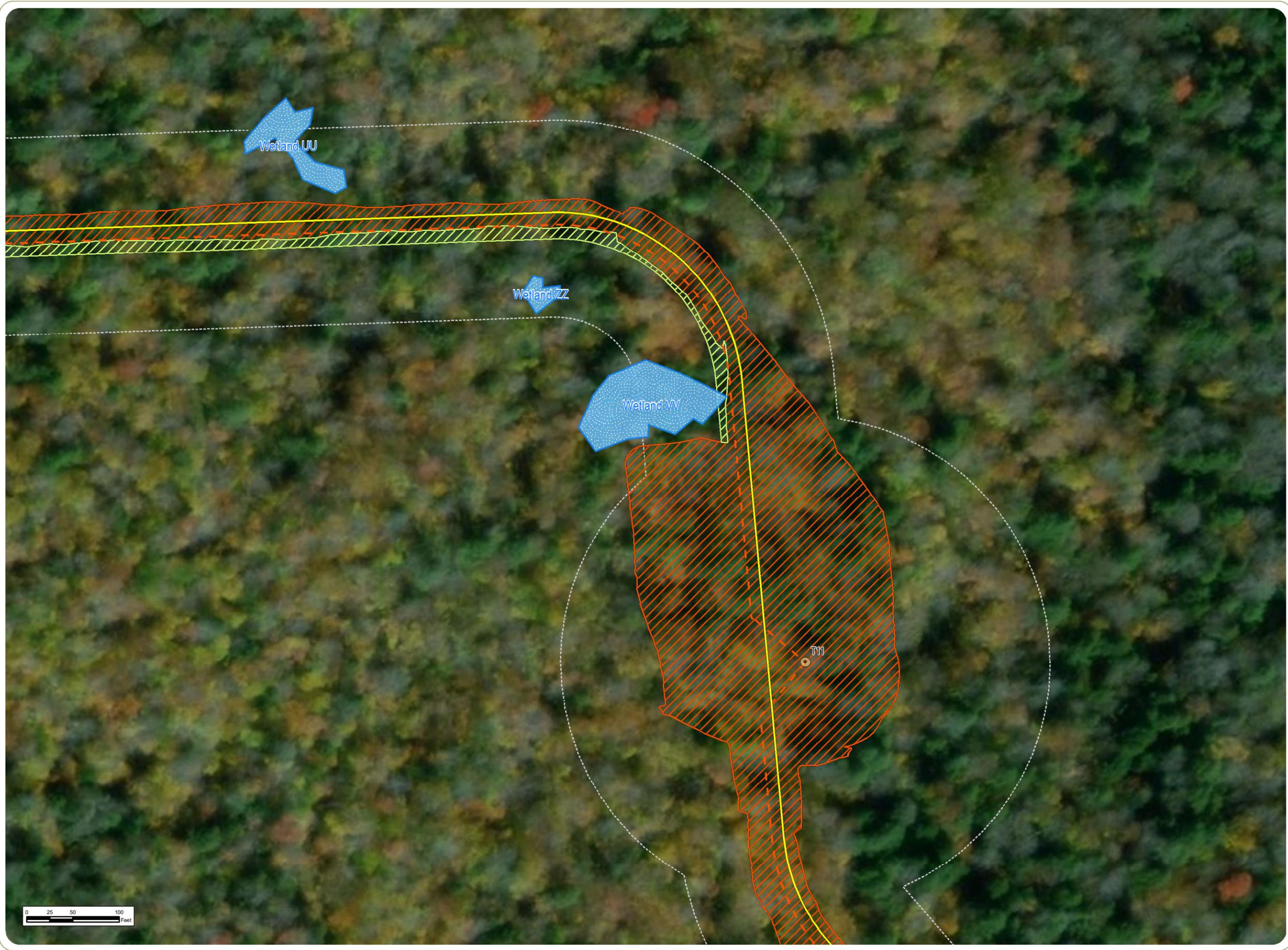
- ▲ Met Tower
- Wind Turbine
- Access Road
- - - Collection Line
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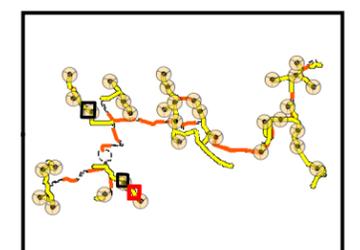
# Bluestone Wind

Towns of Windsor and Sanford, Broome County, New York

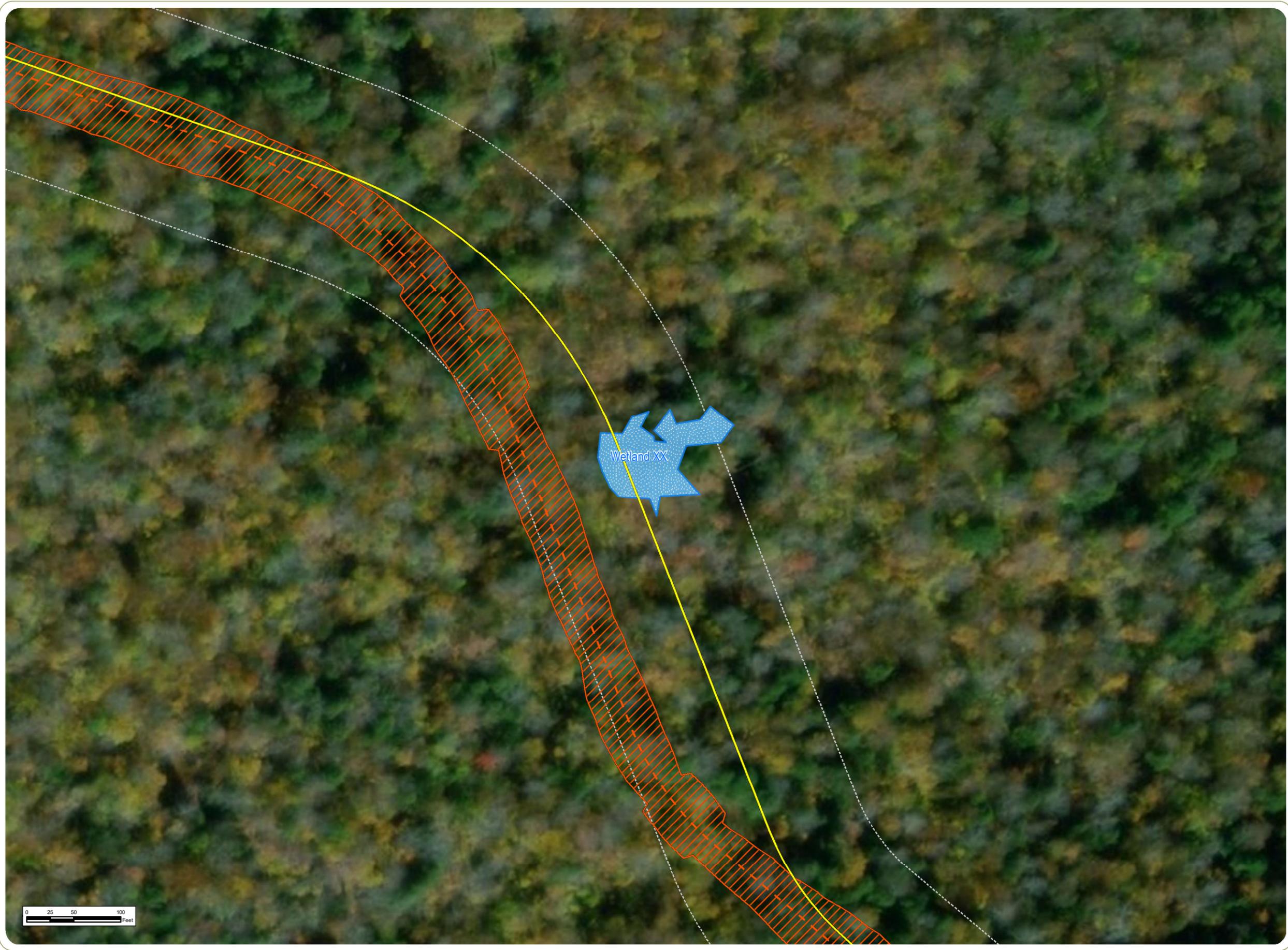
## Potential Vernal Pool Sheets

Sheet 3 of 3

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## **Figure 2**

Representative Photographs



Photo 1

Wetland K - May 4



Photo 2

Wetland K - July 12

**Bluestone Wind**

Towns of Windsor and Sanford, Broome County, New York

**Representative Photographs**

Sheet 1 of 3



Photo 3

Wetland UU - June 6



Photo 4

Wetland VV - June 6

### Bluestone Wind

Towns of Windsor and Sanford, Broome County, New York

### Representative Photographs

Sheet 2 of 3



Photo 5

Wetland XX - June 6



Photo 6

Wetland ZZ - June 6

## Bluestone Wind

Towns of Windsor and Sanford, Broome County, New York

### Representative Photographs

Sheet 3 of 3