

**Natural Resources Assessment for:
Proposed Vertex/Verizon Tower
410 Hunter Park Road
Manchester, Vermont**

*Prepared by:
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January 9, 2024



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I. Summary Findings

Arrowwood Environmental, LLC (AE) conducted a natural resources assessment for the proposed Vertex/Verizon tower (“Project”) located at 410 Hunter Park Road, Manchester, Vermont. The field assessments were conducted in March and May of 2023. AE assessed natural resources criteria incorporated by the Public Utility Commission into the review of limited size and scope telecommunications projects, including floodways, rare and irreplaceable natural areas, threatened and endangered species, and necessary wildlife habitat.

There are no floodways, rare and irreplaceable natural areas, or necessary wildlife habitat at the Project site.

The Project is located in both summer roosting habitat and winter hibernacula for federally endangered Northern long eared and Indiana bat species. If any clearing is needed for the Project, it will be carried out November 1 to March 31 or with prior written approval from the Vermont Department of Fish and Wildlife.

In summary, AE concludes that the Project has been sited and designed to avoid undue adverse impacts to natural resources including floodways, rare and irreplaceable natural areas, threatened and endangered species, and necessary wildlife habitat.

II. Introduction and Project Description

Arrowwood Environmental, LLC (AE) performed a natural resources assessment for the proposed Vertex/Verizon tower located at 410 Hunter Park Road, Manchester, Vermont (“Project”). The Project site consists of mowed field and early succession shrubby lands.



Project Area (5/8/23)

This report outlines AE’s findings related to natural resources criteria incorporated by the Public Utility Commission into the review of limited size and scope telecommunications projects, including floodways, rare and irreplaceable natural areas, threatened and endangered species, and necessary wildlife habitat. The natural resources assessment involved both a remote review of available digital databases as well as field investigations at the Project site on March 3 and May 8, 2023.

III. Site Characterization

Ecologically the site is within the Vermont Valley biophysical region of the state (Thompson, Sorenson and Zaino, 2019). The Project is located at approximately 810 feet above mean sea level according to U.S. Geologic Survey (“USGS”) topographic data. The mapped bedrock that is underlying the site is of the dolostone and phyllite rock class with sedimentary rock types from the Winooski Dolostone Formation. (Ratcliffe et al. 2011). The soils are mapped as Groton gravelly fine sandy loam with 25-60% slopes in the southern project area and Udipsamments and Udorthents, gently sloping in the northern project area (NRCS Soil Survey).



Figure 1. Project Site and Nearby Natural Resources Map.

IV. Criterion 1(D) Floodways

AE reviewed the FEMA DFIRM (Digital Flood Insurance Rate Map Database) and the VT ANR’s Flood Ready Atlas to identify floodways or flood fringes. The closest mapped floodway is approximately 650’ south of the Project.

The Project is not located within a 100-year Zone Area and will not restrict or divert the flow of floodwaters or significantly increase the peak discharge of a river or stream within or downstream from the area of development. The Project will not have any undue, adverse impacts on floodways nor will they endanger the health, safety, and welfare of the public or riparian owners as it relates to flood events.

V. Criterion 8 Rare and Irreplaceable Natural Areas

The Rare and Irreplaceable Natural Areas assessment involved both a remote review of available digital maps for the Project area and a field review in May 2023. AE reviewed digital orthophotography, the NRCS Soil Survey, the 2011 Bedrock Geologic Map of Vermont, and the Wildlife Natural Heritage Inventory (NHI) Rare, Threatened and Endangered Species digital database.

The Project site consists of early succession forest and mowed lawn adjacent to an existing solar facility. This site does not constitute a state significant natural community or a Rare and Irreplaceable Natural Area (RINA). Since there are no Rare and Irreplaceable Natural Areas in the Project area, there will be no adverse impacts on any Rare and Irreplaceable Natural Areas.

VI. Criterion 8(A) Necessary Wildlife Habitat and Threatened and Endangered Species

The wildlife habitat assessment involved both a remote review of available digital maps for the Project area and a field inventory component in March and May 2023. A remote review of available digital databases was conducted to identify and map necessary wildlife habitat (including State of Vermont Deeryard data layer, USGS Topographic map, and “VT HYDRODEM” elevation data) in the Project area. The field inventory component involved characterizing natural communities and recording observations of wildlife signs or sightings during field surveys. Site assessments were conducted to assess wildlife, wildlife habitats, and threatened and endangered species.

A. Necessary Wildlife Habitats

1. White-tailed Deer Wintering Habitats

There are no mapped VT Fish and Wildlife Department white-tailed deer (*Odocoileus virginianus*) winter habitats (DWA) in the Project area. The closest mapped DWA is located approximately 2 miles to the northeast of the Project area. AE confirmed the absence of historic or recent deer wintering activity as well as lack of forested areas containing significant enough soft wood canopy closure to be considered DWA habitat in the Project area. The proposed Project will have no adverse impact on DWA resources.

2. Black Bear Habitat

There is no bear habitat identified by the Vermont Fish and Wildlife Department within the Project area and no observations of bear use or feeding (including bear claw scarring, bear dens, scat) were made during the field inventories of the woodland within and wetlands adjacent to the Project area. The woodlands within and adjacent to the Project area do not contain beech or oak stands. No potential black bear spring feeding wetlands were identified. The Project will therefore have no adverse impact on black bear habitat.

3. Vernal Pools

The Vermont Department of Fish and Wildlife considers intact well-functioning breeding pools that are interconnected to intact upland forest necessary wildlife habitat for pool-breeding amphibians. Field assessments conducted in May 2023 did not identify any functioning or potentially functioning vernal pools in the Project area. The Project will have no undue adverse impact on vernal pools.

4. Grassland Bird Habitat

The Vermont Fish and Wildlife Department considers grassland bird habitat to be easily identifiable, concentrated, and essential for the reproductive success and survival of a suite of birds. Grasslands used by many species of grassland birds consist of large expanses (minimum of 20 acres) of native grasses with little or no woody vegetation. The Project is located within a generally shrubby and wooded landscape with open areas of mowed lawn, and does not provide suitable habitat for grassland bird species. The Project will have no adverse impact on grassland bird habitat.

B. Threatened and Endangered (RTE) Species

The RTE species review involved both a remote review of available digital maps for the Project area as well as a field survey. AE reviewed digital orthophotography, the NRCS Soil Survey, the 2011 Bedrock Geologic Map of Vermont, and the Wildlife Natural Heritage Inventory (NHI) Rare, Threatened and Endangered Species digital database.

1. Threatened and Endangered Animal Species

The Northern Long Eared Bat (LEB) became a federally listed endangered species in March of 2023. The Indiana Bat is designated as endangered by both Vermont and Federal authority. This Project is sited in a region of Vermont known to be summer range for both the Indiana Bat and LEB. The Project site is also situated between known hibernacula for both the LEB and Indiana bat with the South Dorset Bat cave ~2.5 miles to the northeast, the Vermonster bat cave ~1.62 miles to the southwest and the Skinner Hollow bat caves ~3.11 miles to the southwest. Trees on the property with a diameter at breast height (DBH) of greater than 4 inches are potentially summer roosting trees.

In order to ensure that the Project will not have an undue adverse effect on endangered bat species, any clearing required for the Project will be carried out November 1 to March 31 or with prior written approval from the Vermont Department of Fish and Wildlife.

There are no old or abandoned buildings potentially providing roosting habitat for little brown bat proposed for demolition. The Project will have no adverse impact on RTE bat species.

2. Threatened and Endangered Plant Species

There are no previous records or occurrences of threatened or endangered plant species at the site. The closest mapped rare species occurrence is approximately 0.5 miles to the south of the Project. A threatened and endangered plant survey will be conducted prior to construction to confirm absence of threatened and endangered plant species. The Project will have no adverse impact on threatened or endangered plant species.

VII. References

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Vermont Fish and Wildlife Department. Guidance for Conducting Rare, Threatened, and Endangered Plant Inventories in Connection with Section 248 Projects, 2016.

Vermont Fish and Wildlife Department. Guidance to Address Impacts to Deer Winter Habitat Associated with Solar Energy Projects. November 12, 2015.