

**NEW HAMPSHIRE
WETLANDS PERMIT APPLICATION
FOR THE
ANTRIM WIND PARK PROJECT
IN ANTRIM, NEW HAMPSHIRE**

Submitted to:

NEW HAMPSHIRE SITE EVALUATION COMMITTEE

Submitted by:

**Antrim Wind Energy
155 Fleet St.
Portsmouth, NH 03801-0065**

Prepared by:

**TRC
14 Gabriel Drive
Augusta, ME 04330**

July 2015





WETLANDS PERMIT APPLICATION

Water Division/ Wetlands Bureau

Land Resources Management

Check the status of your application: <http://des.nh.gov/onestop>



RSA/Rule: Env-Wq 100-900

Administrative Use Only	Administrative Use Only	Administrative Use Only	File No.:
			Check No.:
			Amount:
			Initials:

1. REVIEW TIME:

Indicate your Review Time below. Refer to Guidance Document A for instructions.

☒ Standard Review (Minimum, Minor or Major Impact)

☐ Expedited Review (Minimum Impact only)

2. PROJECT LOCATION:

Separate applications must be filed with each municipality that jurisdictional impacts will occur in.

ADDRESS: **354 Keene Road**

TOWN/CITY: **Antrim**

TAX MAP: **212; 235; 236; 239**

BLOCK:

LOT: **212-27,30,34; 235-14**

UNIT:

USGS TOPO MAP WATERBODY NAME:

☒ NA

STREAM WATERSHED SIZE:

☒ NA

LOCATION COORDINATES (If known): **N: 230,000 ft E: 890,000 ft**
UTM ☒ State Plane

☐ Latitude/Longitude ☐

3. PROJECT DESCRIPTION:

Provide a brief description of the project outlining the scope of work. Attach additional sheets as needed to provide a detailed explanation of your project. DO NOT reply "See Attached" in the space provided below.

The proposed Antrim Wind Energy Project is a wind energy generation facility to be located in Antrim, New Hampshire. The project will include the construction of nine (9) wind turbine generators, a substation, an operations and maintenance building, and associated access roads, crane pads, and stormwater management facilities. The proposed site is linear, running approximately north to south along the ridge top of Tuttle Hill and spanning several individually owned parcels. The site will be accessed from State Route 9 (Keene Road).

4. RELATED PERMITS, ENFORCEMENT, EMERGENCY AUTHORIZATION, SHORELAND, ALTERATION OF TERRAIN, ETC...

Existing Wetlands Bureau Permit No. **2012-00211**

Existing A of T Bureau Permit No. **SEC-0005**

5. NATURAL HERITAGE BUREAU & DESIGNATED RIVERS:

See the Instructions & Required Attachments document for instructions to complete a & b below.

a. Natural Heritage Bureau File ID: NHB **15** - **1904**

b. ☐ Designated River the project is in ¼ miles of: _____; and
date a copy of the application was sent to Local River Advisory Committee: Month: ____ Day: ____ Year: ____

☒ NA

shoreland@des.nh.gov or (603) 271-2147

NHDES Wetlands Bureau, Concord, NH 03303-0095

www.des.nh.gov

6. APPLICANT INFORMATION (Desired permit holder)

LAST NAME, FIRST NAME, M.I.:

TRUST / COMPANY NAME: **Antrim Wind Energy, LLC**MAILING ADDRESS: **155 Fleet Street**TOWN/CITY: **Portsmouth**STATE: **NH**ZIP CODE: **03801-4050**EMAIL or FAX: **generate@eolian-energy.com**PHONE: **603-570-4842**

ELECTRONIC COMMUNICATION: By initialing here: _____, I hereby authorize DES to communicate all matters relative to this application electronically

7. PROPERTY OWNER INFORMATION (If different than applicant)LAST NAME, FIRST NAME, M.I.: **See attached Exhibit 10**

TRUST / COMPANY NAME:

MAILING ADDRESS:

TOWN/CITY:

STATE:

ZIP CODE:

EMAIL or FAX:

PHONE:

ELECTRONIC COMMUNICATION: By initialing here _____, I hereby authorize DES to communicate all matters relative to this application electronically

8. AUTHORIZED AGENT INFORMATIONLAST NAME, FIRST NAME, M.I.: **Valleau, Dana, B.**COMPANY NAME: **TRC**MAILING ADDRESS: **14 Gabriel Drive**TOWN/CITY: **Augusta**STATE: **ME**ZIP CODE: **04330**EMAIL or FAX: **dvalleau@trcsolutions.com**PHONE: **207-215-4582**ELECTRONIC COMMUNICATION: By initialing here **DV**, I hereby authorize DES to communicate all matters relative to this application electronically**9. PROPERTY OWNER SIGNATURE:**

See the Instructions & Required Attachments document for clarification of the below statements

By signing the application, I am certifying that:

1. I authorize the applicant and/or agent indicated on this form to act in my behalf in the processing of this application, and to furnish upon request, supplemental information in support of this permit application.
2. I have reviewed and submitted information & attachments outlined in the Instructions and Required Attachment document.
3. All abutters have been identified in accordance with RSA 482-A:3, I and Env-Wt 100-900.
4. I have read and provided the required information outlined in Env-Wt 302.04 for the applicable project type.
5. I have read and understand Env-Wt 302.03 and have chosen the least impacting alternative.
6. Any structure that I am proposing to repair/replace was either previously permitted by the Wetlands Bureau or would be considered grandfathered per Env-Wt 101.47.
7. I have submitted a Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) to the NH State Historic Preservation Officer (SHPO) at the NH Division of Historical Resources to be reviewed for the presence of historical/ archeological resources.
8. I authorize DES and the municipal conservation commission to inspect the site of the proposed project.
9. I have reviewed the information being submitted and that to the best of my knowledge the information is true and accurate.
10. I understand that the willful submission of falsified or misrepresented information to the New Hampshire Department of Environmental Services is a criminal act, which may result in legal action.
11. I am aware that the work I am proposing may require additional state, local or federal permits which I am responsible for obtaining.
12. The mailing addresses I have provided are up to date and appropriate for receipt of DES correspondence. DES will not forward returned mail.

Property Owner Signature

Print name legibly

Date


shoreland@des.nh.gov or (603) 271-2147
NHDES Wetlands Bureau, Concord, NH 03303-0095
www.des.nh.gov

MUNICIPAL SIGNATURES

10. CONSERVATION COMMISSION SIGNATURE

The signature below certifies that the municipal conservation commission has reviewed this application, and:

1. Waives its right to intervene per RSA 482-A:11;
2. Believes that the application and submitted plans accurately represent the proposed project; and
3. Has no objection to permitting the proposed work.


	Print name legibly	Date
--	--------------------	------

DIRECTIONS FOR CONSERVATION COMMISSION

1. Expedited review ONLY requires that the conservation commission's signature is obtained in the space above.
2. Expedited review requires the Conservation Commission signature be obtained **prior** to the submittal of the original application to the Town/City Clerk for signature.
3. The Conservation Commission may refuse to sign. If the Conservation Commission does not sign this statement for any reason, the application is not eligible for expedited review and the application will reviewed in the standard review time frame.

11. TOWN / CITY CLERK SIGNATURE

As required by Chapter 482-A:3 (amended 2014), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.

	Print name legibly	Town/City	Date
Town/City Clerk Signature			

DIRECTIONS FOR TOWN/CITY CLERK:

Per RSA 482-A:3,I

1. For applications where "Expedited Review" is checked on page 1, if the Conservation Commission signature is not present, NHDES will accept the permit application, but it will NOT receive the expedited review time.
2. IMMEDIATELY sign the original application form and four copies in the signature space provided above;
3. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.
4. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board; and
5. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

DIRECTIONS FOR APPLICANT:

1. Submit the original permit application form bearing the signature of the Town/ City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery.

12. IMPACT AREA:

For each jurisdictional area that will be/has been impacted, provide square feet and, if applicable, linear feet of impact

Permanent: impacts that will remain after the project is complete.

Temporary: impacts not intended to remain (and will be restored to pre-construction conditions) after the project is complete.

JURISDICTIONAL AREA	PERMANENT Sq. Ft. / Lin. Ft.	TEMPORARY Sq. Ft. / Lin. Ft.
Forested wetland	5,896 <input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Scrub-shrub wetland	2,270 <input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Emergent wetland	955 <input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Wet meadow	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Intermittent stream	156 <input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Perennial Stream / River	296 / 74 <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Lake / Pond	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Bank - Intermittent stream	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Bank - Perennial stream / River	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Bank - Lake / Pond	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Tidal water	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Salt marsh	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Sand dune	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Prime wetland	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Prime wetland buffer	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Undeveloped Tidal Buffer Zone (TBZ)	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Previously-developed upland in TBZ	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Docking - Lake / Pond	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Docking - River	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Docking - Tidal Water	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
TOTAL	9,573 / 74	/

13. APPLICATION FEE: See the Instructions & Required Attachments document for further instruction

☐ Minimum Impact Fee: Flat fee of \$ 200

☒ Minor or Major Impact Fee: Calculate using the below table below

Permanent and Temporary (non-docking) 9,573 sq. ft. X \$0.20 = \$ 1,914.60

Temporary (seasonal) docking structure: _____ sq. ft. X \$1.00 = \$

Permanent docking structure: _____ sq. ft. X \$2.00 = \$

Projects proposing shoreline structures (including docks) add \$200 = \$

Total = \$

The Application Fee is the above calculated Total or \$200, whichever is greater = \$ 1,914.60



WETLANDS PERMIT APPLICATION – ATTACHMENT A MINOR AND MAJOR - 20 QUESTIONS

Water Division/ Wetlands Bureau/ Land Resources Management

Check the Status of your application: <http://des.nh.gov/onestop>



RSA/ Rule: RSA 482-A, Env-Wt 100-900

Env-Wt 302.04 Requirements for Application Evaluation - For any major or minor project, the applicant shall demonstrate by plan and example that the following factors have been considered in the project's design in assessing the impact of the proposed project to areas and environments under the department's jurisdiction. Respond with statements demonstrating:

1. The need for the proposed impact.

Impacts to wetlands have been avoided and minimized to the greatest extent practical. Turbine, access road, substation, and collector system facilities have been carefully sited to meet design, operational, and safety needs while avoiding and minimizing impacts to natural resources, including wetlands.

Ten identified wetlands will be impacted either temporarily or permanently as a result of Project construction and operation. No jurisdictional vernal pools, or areas currently described as potential vernal pools will be impacted as a result of Project construction or operation. In total, approximately 0.22 acre (9,573 square feet) of wetland and stream impact are expected to be incurred as a result of construction and operation of the proposed project. Forested and scrub-shrub wetland fill impacts total approximately 9,121 square feet and stream impacts from culvert placement for two road crossings total approximately 452 square feet. This small amount of impact is the result of careful Project planning and design, which aimed to avoid and minimize impacts to these important resources. The direct wetland impacts are those which were deemed unavoidable during the Project planning process.

2. That the alternative proposed by the applicant is the one with the least impact to wetlands or surface waters on site.

During the development of the Project the AWE made significant efforts to avoid and minimize impact to wetlands and surface waters. Prior to siting of any facilities, AWE conducted a reconnaissance survey for sensitive resources, including wetlands, streams and natural communities. Once these areas were identified, facilities were sited and formal delineations were conducted. During detailed design of the facility, numerous revisions were made to the iterative Project layout design process to further reduce the level of impact of the Project. However, due to design and construction constraints of wind projects in New England, some level of wetland impact was unavoidable. AWE believes that the Project, as presented, represents the lowest possible degree of impact to wetlands and surface waters. For additional information on the alternatives evaluated for this Project, please refer to Section I of the SEC Application.

3. The type and classification of the wetlands involved.
<p>Detailed narrative descriptions of all identified wetland features relevant to the Project are provided in the full Wetland Delineation Report, which is provided in Exhibit 5 of this Wetlands Permit Application.</p> <p>In general, wetlands within the Project area consist primarily of small forested wetlands that occur along skidder trails, in confined pockets in the regional bedrock, in saddle areas along the ridgeline, and in areas with poorly drained soils that support wetland vegetation. Streams within the Project area include unnamed perennial and intermittent streams which drain either to the north toward Route 9, or to the southeast into Gregg Lake. Because the proposed Project area is along a ridgeline and is moderately well drained, very few perennial streams occur. Observations in the field generally suggest that rainfall and snow-melt quickly run off the ridge to lower elevations, without collecting volumes that fill natural depressions or create natural ponds.</p> <p>A total of ten wetlands will be impacted by Project operation and development. Seven of these are palustrine forested wetlands (five PFO1 and two PFO4), and three are palustrine scrub-shrub wetlands (PSS1), two of which are in maintained electric transmission ROW and the other is in an inactive borrow pit. For detailed descriptions of these wetlands, please see the Wetland Delineation Report, Exhibit 5 of this Application, Table 4-1, pages 7-9.</p>
4. The relationship of the proposed wetlands to be impacted relative to nearby wetlands and surface waters.
<p>The locations of wetlands to be impacted relative to nearby wetlands and surface waters are illustrated in Appendix A, Figure 2, Maps 1-4 provided in the Wetland Delineation Report, which is Exhibit 5 of this Application.</p>
5. The rarity of the wetland, surface water, sand dunes, or tidal buffer zone area.
<p>None of the wetlands or surface waters impacted by the Project is considered rare.</p>
6. The surface area of the wetlands that will be impacted.
<p>In total, approximately 0.22 acre (9,573 square feet) of wetland and stream impact are expected to be incurred as a result of construction and operation of the proposed project. Forested and scrub-shrub wetland fill impacts total approximately 9,121 square feet and stream impacts from culvert placement for two road crossings total approximately 452 square feet. Specific impacts to wetlands and streams are described in Tables 4-1 and 4-2 of the Wetland Delineation Report, which is provided in Exhibit 5 of this Application.</p>

<p>7. The impact on plants, fish and wildlife including, but not limited to:</p> <ul style="list-style-type: none"> a. Rare, special concern species; b. State and federally listed threatened and endangered species; c. Species at the extremities of their ranges; d. Migratory fish and wildlife; e. Exemplary natural communities identified by the DRED-NHB; and f. Vernal pools.
<p>The Project does not expect to have an undue adverse impact on fish and wildlife species. A detailed discussion of the fish and wildlife impacts associated with the Project is included in Section J of the SEC Application and associated appendices.</p> <ul style="list-style-type: none"> a. Rare, special concern species; b. State and federally listed threatened and endangered species; c. Species at the extremities of their ranges; d. Migratory fish and wildlife; e. Exemplary natural communities identified by the DRED-NHB; and f. Vernal pools.
<p>8. The impact of the proposed project on public commerce, navigation and recreation.</p>
<p>A detailed discussion of impact of the Project on public commerce, navigation and recreation is included in Section K of the SEC Application.</p>
<p>9. The extent to which a project interferes with the aesthetic interests of the general public. For example, where an applicant proposes the construction of a retaining wall on the bank of a lake, the applicant shall be required to indicate the type of material to be used and the effect of the construction of the wall on the view of other users of the lake.</p>
<p>A detailed discussion of the aesthetic impact of the Project is included in Section J of the SEC Application and associated appendix. The Project does not anticipate having an undue adverse impact.</p>

10. The extent to which a project interferes with or obstructs public rights of passage or access. For example, where the applicant proposes to construct a dock in a narrow channel, the applicant shall be required to document the extent to which the dock would block or interfere with the passage through this area.

The Project is located entirely on private land and any land access is granted at the will of the landowners. The Project will limit access to their immediate project facilities and access to the remainder of the property will remain at the landowner's will. Please see Section J.6 of the SEC application for a further discussion of public rights of passage or access.

11. The impact upon abutting owners pursuant to RSA 482-A:11, II. For example, if an applicant is proposing to rip-rap a stream, the applicant shall be required to document the effect of such work on upstream and downstream abutting properties.

No wetland impacts will occur within 20 feet of adjacent property boundaries. All abutting property owners will be notified of the proposed project in accordance with NHDES rules. Documentation of this notification is found in Exhibit 4

12. The benefit of a project to the health, safety, and well being of the general public.

Public health and safety impacts of the Project are discussed in Section J of the SEC Application.

13. The impact of a proposed project on quantity or quality of surface and ground water. For example, where an applicant proposes to fill wetlands the applicant shall be required to document the impact of the proposed fill on the amount of drainage entering the site versus the amount of drainage exiting the site and the difference in the quality of water entering and exiting the site.

Due to the lack of groundwater resources on the site, this project is not expected to have any direct or indirect impacts on groundwater drinking resources. The AWE site does not have any aquifers on the project site and there are no source water protection and/or well head protection areas on or adjacent to the site. The closest public water supply well is 1.06 miles from the project development. The project does not propose to make large groundwater withdrawals and thus will have no effect on groundwater supply.

Most of the site is made up of stony soils that are relatively shallow in depth to bedrock, and observations in the field generally suggest that rainfall and snow melt in the spring quickly run off the ridge to lower elevations, without collecting volumes that fill natural depressions or create natural ponds. The small forested wetland areas on the site occur along skidder trails, confined pockets in the regional bedrock, and in saddle areas along the ridgeline. These type of soils limit the value of these wetlands for groundwater recharge. Additionally, wetlands with peaty, organic soils increase the retention time of water, slowing recharge.

The limited ability of the site wetlands to recharge groundwater combined with limited sources of potential project pollutants that would adversely affect the quality of the groundwater results in a very low potential for this project to adversely affect groundwater quality.

The majority of wetlands in the project are perched with shallow depths to bedrock or impervious soils and rely on precipitation, surface sheet flow, and shallow subsurface flows for maintenance of wetland hydrology. There are a few wetlands occurring along benches at the toe of steep slopes where the hydrology of the wetland relies primarily on the discharge of groundwater from breakout seeps. Because the project has minimal wetland impacts (0.19 acres of impact total in 10 distinct wetland areas) and proposes to maintain natural flow patterns to the extent practical, there should be minimal change in groundwater discharge patterns to wetlands.

The intent in the project development has been to minimize surface water and stormwater runoff impacts starting with the initial field survey work through the design phase and by implementing accepted erosion control and stormwater Best Management Practices (BMPs) during construction and operation of the facility. During the field survey portion of the project, areas of drainage including jurisdictional wetland and streams as well as non-jurisdictional drainage (to the extent possible) were mapped during field surveys. The design phase included maintaining natural drainage patterns where possible through the use of culverts and subsurface stone drainage ways (stone mattresses). During construction, field drainage conditions will be taken into consideration, and there will be flexibility to install appropriate measures to maintain drainage. Any runoff from the roads will be routed into undisturbed buffers to help maintain water quality and disperse and distribute water volumes to approximate pre-development flows.

Additional erosion control and stormwater BMPs to protect surface water quality during construction of this project have focused on control of erosion during construction through use of sediment barriers and the use of soil stabilization measures including erosion control blankets, spray-on polymer emulsions, and prompt stabilization of exposed surfaces. See the Civil Design Plans at Exhibit 7A of the SEC Application. The proposed development will alter approximately 57 acres of land. In order to evaluate the project's effect on peak stormwater runoff rates, a hydrologic model was developed to evaluate the existing and proposed drainage conditions on the site. The results of the analyses indicate that there is no significant change in peak discharge rates between the pre- and post-development conditions for the 2, 10, and 50 year storm events (See

the stormwater management plans included in the Alteration of Terrain permit application included as Appendix 2B of the SEC application).

14. The potential of a proposed project to cause or increase flooding, erosion, or sedimentation.

The project is not located in a mapped floodplain. The project has been designed in conformance with standard best management practices for wind park construction and stormwater management. Details of the stormwater management plans for the Project are included in the Alteration of Terrain permit application included as Appendix 2B of the SEC Application.

15. The extent to which a project that is located in surface waters reflects or redirects current or wave energy which might cause damage or hazards.

Since there are no large open bodies of water being impacted by the project, wave energy will not be affected. Two small streams are being affected by the Project, however proposed redevelopment of the site will not redirect the current. Stream crossings have been designed in accordance with the *New Hampshire Stream Crossing Guidelines* to the extent practicable to minimize the potential for erosion resulting from new crossings.

16. The cumulative impact that would result if all parties owning or abutting a portion of the affected wetland or wetland complex were also permitted alterations to the wetland proportional to the extent of their property rights. For example, an applicant who owns only a portion of a wetland shall document the applicant's percentage of ownership of that wetland and the percentage of that ownership that would be impacted.

AWE has leased approximately 1,870 acres of private land on six landowners for the development of the Project. All wetlands that will be impacted by the Project are located entirely within these parcels.

17. The impact of the proposed project on the values and functions of the total wetland or wetland complex.

The AWE project has been designed to avoid and minimize impacts on wetlands to the extent practicable. This started with desktop review of readily available information including USGS and NWI mapping to identify the field survey area. The initial assessment of the field survey corridor started with investigation for vernal pools as snow cover left the site and later for wetlands. As it was determined there would be wetland impacts and needs for changes in project alignment and design, additional survey area was added and investigated for natural resources. This is typical of an iterative process that continued throughout the period of resource delineation and civil design (May – October, 2011; September 2014).

The total permanent impact to wetlands and surface water resources is approximately 0.21 acres. This wetland impact is only 0.3 percent of the land area to be disturbed by this project (57.3 acres).

The primary function of wetlands on the project site is wildlife habitat. The very small area of impact inherently limits the amount of impact to this function. Additionally the narrow, linear nature of these impacts (primarily from gravel roads) further limits impact to this function. The one perennial stream crossing has been designed with an open bottom arch culvert which will allow for maintenance of the natural substrates and unrestricted flows along the natural channel.

There are indirect impacts from road construction and a turbine pad to vernal pool terrestrial habitat (VP1, 2, 3, and 7), however these impacts are only to upland area and do not include any impact to the associated wetlands. It is not anticipated that these impacts will adversely affect the productivity of these pools. There is no direct impact to any of the vernal pool breeding habitats (depression). See the attached Vernal Pool Report at Exhibit 6 for additional information.

18. The impact upon the value of the sites included in the latest published edition of the National Register of Natural Landmarks, or sites eligible for such publication.

An evaluation of the impact of the Project on historic sites is included in Section J and Appendices 9D through 9G of the SEC Application.

19. The impact upon the value of areas named in acts of congress or presidential proclamations as national rivers, national wilderness areas, national lakeshores, and such areas as may be established under federal, state, or municipal laws for similar and related purposes such as estuarine and marine sanctuaries.

No such areas have been identified within the Project area.

20. The degree to which a project redirects water from one watershed to another.

The Project has been designed to minimize the impacts to hydrology on the site and minimize the interruption of the natural flow. Details of the design can be found in the Alteration of Terrain permit application included as Appendix 2B of the SEC Application.

Additional comments

EXHIBIT 1

COPY OF APPLICATION CHECK

Antrim Wind Energy LLC
155 Fleet Street
Portsmouth, NH 03801
603-570-4842



001459
54-202/114

7/3/2015

DATE _____

PAY TO THE
ORDER OF

Treasurer State of New Hampshire

**1,914.60

One Thousand Nine Hundred Fourteen and 60/100*****

DOLLARS

State of New Hampshire Treasury
25 Capitol Street, Room 121
Concord, NH 03301



[Handwritten signature]
AUTHORIZED SIGNATURE

Memo

Wetlands Permit Application Fee

⑈001459⑈ ⑆011402024⑆1010125354⑈

Antrim Wind Energy LLC

Treasurer State of New Hampshire

Wetlands Permit App Fee

7/3/2015

001459
1,914.60

Eastern Checking

Wetlands Permit Application Fee

1,914.60

Antrim Wind Energy LLC

Treasurer State of New Hampshire

Wetlands Permit App Fee

7/3/2015

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Eastern Checking

Wetlands Permit Application Fee

1,914.60

EXHIBIT 2

NEW HAMPSHIRE NATURAL HERITAGE BUREAU LETTERS

Memo



NH NATURAL HERITAGE BUREAU NHB DATACHECK RESULTS LETTER

To: Dana Valleau, TRC Environmental Corp.
14 Gabriel Drive
Augusta, ME 04330

From: Amy Lamb, NH Natural Heritage Bureau

Date: 6/11/2015 3:14:08 PM (valid for one year from this date)

Re: Review by NH Natural Heritage Bureau

NHB File ID: NHB15-1904

Town: Antrim

Location: Tax Maps: Maps 212, 235, 236, 239;
Lots 212-7, 30&34; 235-14; 236-1&2;
239-1

Description: The project is a wind power project located along Tuttle Hill.

cc: Kim Tuttle

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments: NHB requests surveys for the endangered plant species and exemplary natural community indicated below. Please send the requested information to: Amy.Lamb@dred.nh.gov. Please coordinate with Kim Tuttle of NH Fish & Game for wildlife concerns.

Invertebrate Species

	State ¹	Federal	Notes
Ebony Boghaunter (<i>Williamsonia fletcheri</i>)	SC	--	Contact the NH Fish & Game Dept (see below).

Natural Community

	State ¹	Federal	Notes
Inland Atlantic white cedar swamp	--	--	Changes to the hydrology of the wetland are the greatest threat facing the cedar swamp. Damming which causes pooling for extended periods can flood and drown existing trees, and drainage that results in lower water levels can lead to invasion by other species that can out compete -- and eventually eliminate -- Atlantic white cedar trees. Increased nutrient input from stormwater runoff could also deleteriously impact this acidic, low-nutrient plant community.

Plant species

	State ¹	Federal	Notes
Canada shore quillwort (<i>Isoetes riparia</i> var. <i>canadensis</i>)	E	--	Threats to aquatic species include changes in water quality, e.g., due to pollution and stormwater runoff, and significant changes in water level.

Vertebrate species

	State ¹	Federal	Notes
Marsh Wren (<i>Cistothorus palustris</i>)	--	--	Contact the NH Fish & Game Dept (see below).

Memo



NH NATURAL HERITAGE BUREAU
NHB DATACHECK RESULTS LETTER

Wood Turtle (*Glyptemys insculpta*)

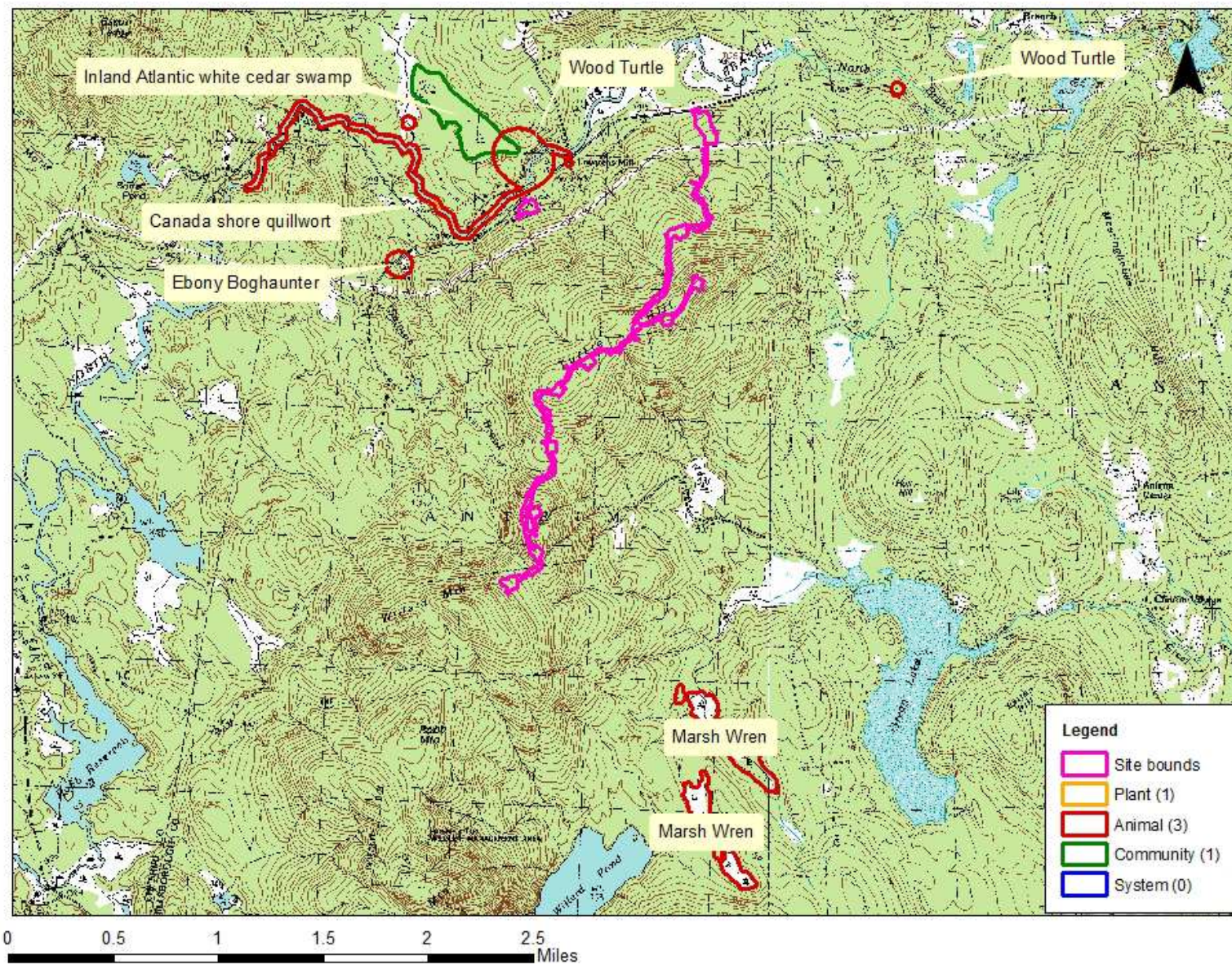
SC -- Contact the NH Fish & Game Dept (see below).

¹Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

Contact for all animal reviews: Kim Tuttle, NH F&G, (603) 271-6544.

A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

NHB15-1904



New Hampshire Natural Heritage Bureau - Animal Record

Ebony Boghaunter (*Williamsonia fletcheri*)**Legal Status**

Federal: Not listed
State: Special Concern

Conservation Status

Global: Apparently secure but with cause for concern
State: Rare or uncommon

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 2003: Area 1: Species observed on 5/30.

General Area:

General Comments:

Management

Comments:

Location

Survey Site Name: Salmon Brook
Managed By: The Nature Conservancy #2

County: Hillsborough

Town(s): Antrim

Size: 7.7 acres

Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions:

Dates documented

First reported: 2003-05-30

Last reported: 2003-05-30

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

New Hampshire Natural Heritage Bureau - Community Record

Inland Atlantic white cedar swamp

Legal Status

Federal: Not listed
State: Not listed

Conservation Status

Global: Not ranked (need more information)
State: Critically imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Excellent quality, condition and landscape context ('A' on a scale of A-D).
Comments on Rank: This site is probably the best, largest and most viable remaining cedar swamp in the western part of the state. It should remain among the highest conservation priorities in the state.

Detailed Description: 2006: Community observed and photographed. 2004: Community observed and photographed. 1993: *Chamaecyparis thyoides* (Atlantic white cedar) is the dominant tree with both *Acer rubrum* (red maple) and *Picea rubens* (red spruce) present in abundance. *Picea mariana* (black spruce) is scattered and less abundant. Occasionally, *Pinus strobus* (white pine) and *Betula alleghaniensis* (yellow birch) are also found. Dominant shrub species are *Gaylussacia baccata* (black huckleberry), *Nemopanthus mucronatus* (mountain holly), *Ilex laevigata* (smooth winterberry), and *Kalmia angustifolia* (sheep laurel). Common boreal components present are *Chamaedaphne calyculata* (leatherleaf), *Gaultheria hispida* (creeping snowberry), and *Ledum groenlandicum* (Labrador tea). The herbaceous layer is fairly abundant, although richness is somewhat limited. *Osmunda cinnamomea* (cinnamon fern), *Aralia nudicaulis* (wild sarsaparilla), *Maianthemum canadense* (Canada mayflower), *Sarracenia purpurea* (pitcher-plant) and *Carex trisperma* (three-seeded sedge) are commonly present. Sphagnum species are abundant. 1990: Has *Chamaecyparis thyoides* (Atlantic white cedar) to 14 inches dbh and a few larger individuals, abundant in areas away from streams. *Picea mariana* (black spruce), *Picea rubens* (red spruce), *Abies balsamea* (balsam fir), and *Acer rubrum* (red maple) also occur. Lesser amounts of *Pinus strobus* (white pine).

General Area: 1993: Soil type is a mucky peat, with the peat deposits averaging <1 meter. The soil is permanently saturated with a couple of obvious watercourses present. The pH of the groundwater is quite acidic with a range of 3.8-4.0. 1990: Purest and largest cedar around open black spruce bog (90 percent, 10-14 inches average range). Other areas 50-80 percent. Basin is surrounded by gradually sloping uplands which are punctuated by a number of small cliffs. 1961 (Baldwin): a fairly large boggy swamp with *Chamaecyparis thyoides* (Atlantic white cedar). Contains 6 stands of cedar.

General Comments: 1997: New community boundaries mapped based on 1993 field work. 1990: Encroaching urban development.

Management
Comments:

Location

Survey Site Name: Loverens Mill Cedar Swamp

Managed By: Loverens Mill Preserve

County: Hillsborough

Town(s): Antrim

Size: 51.3 acres

Elevation: 1080 feet

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: From Hillsboro, take Rte. 9 south ca. 5 miles south to Holmes Hill Road. Turn right (north) onto Holmes Hill. Park on the right immediately after crossing the bridge over the river, at the TNC preserve sign kiosk. After ca. 900 feet there will be a gravel road on the left. This is the trailhead. Take the marked trail on this road, up past the old mill, and look for a turnoff to the right. Proceed down this trail (N-NW). The cedar swamp is at the bottom of the basin, to the north.

Dates documented

First reported: 1961

Last reported: 2006-06-13

New Hampshire Natural Heritage Bureau - Plant Record

Canada shore quillwort (*Isoetes riparia* var. *canadensis*)**Legal Status**

Federal: Not listed
State: Listed Endangered

Conservation Status

Global: Not ranked (need more information)
State: Critically imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Good quality, condition and landscape context ('B' on a scale of A-D).
Comments on Rank: Likely extensive habitat, good population condition, and good landscape context.

Detailed Description: 2009: 200-250 stems, 95% dispersing seeds. 1997, 1995?: No details.
General Area: 2009: Fourth-order stream/river. Associated species include royal fern (*Osmunda regalis* var. *spectabilis*), water bulrush (*Schoenoplectus subterminalis*), and several species of algae.
General Comments: 2009: The population is further downstream from where it was first located in the mid-1990s. There are larger numbers of individuals. The presence of potential hybrids in the area suggest that there is some dynamism to the long-term occurrence.
Management Comments: 2009: Some potential damage from bathers in summer who use the rest area, although it is downstream.

Location

Survey Site Name: Loverens Mill, west of
Managed By: The Nature Conservancy #2

County: Hillsborough
Town(s): Antrim
Size: .4 acres

Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2009: Take Rte. 9 west from Hillsboro to the only rest area on the north side of the highway in Antrim. Park in the lot and proceed down a trail behind the station to the [North Branch of the] Contoocook River. Head downstream about 250 ft. until the river makes a sharp bend to the south. Look in the current and backwater area above the shallow ledge (above the drop) in 0.5 to 1.5 feet of water amidst cobbles and gravels.

Dates documented

First reported: 1993-1998
Last reported: 2009-09-20

New Hampshire Natural Heritage Bureau - Animal Record

Marsh Wren (*Cistothorus palustris*)**Legal Status**

Federal: Not listed
State: Not listed

Conservation Status

Global: Demonstrably widespread, abundant, and secure
State: Not ranked (need more information)

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 2002: 5 observed on 6/18, 1 seen gathering nesting material.

General Area:

General Comments:

Management

Comments:

Location

Survey Site Name: Willard Pond, NE of
Managed By:

County: Hillsborough

Town(s): Antrim

Size: 66.0 acres

Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions:

Dates documented

First reported: 2002-06-18

Last reported: 2002-06-18

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

New Hampshire Natural Heritage Bureau - Animal Record

Wood Turtle (*Glyptemys insculpta*)

Legal Status

Federal:	Not listed
State:	Special Concern

Conservation Status

Global: Apparently secure but with cause for concern
State: Rare or uncommon

Description at this Location

Conservation Rank: Good quality, condition and landscape context ('B' on a scale of A-D).
Comments on Rank:

Detailed Description: 2010: Area 12723: 1 adult observed. 2009: Area 12334: 1 observed. 2008: Area 11603: 1 adult seen. 2006: Area 11693: 1 adult seen. 2005: Area 12135: 1 adult seen. 2002: Area 12069: 1 observed.

General Area: 2010: Area 12723: Roadside along river. 2005: Area 12135: Crossing highway towards North Branch of Contoocook River. 2002: Area 12069: Near cedar swamp.

General Comments:
Management
Comments:

Location

Survey Site Name: Loverens Mill
Managed By: The Nature Conservancy #2

County: Hillsborough
Town(s): Antrim
Size: 88.3 acres

Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2010: Area 12723: Rte. 9 in Antrim. 2009: Area 12334: TNC property at Loverens Mill. Drainage into North Branch Contoocook River. 2008: Area 11603: TNC property at Loverens Mill Road. 2002: Area 12069: Loverens Mill property near trail to cedar swamp.

Dates documented

First reported:	2002-07-28	Last reported:	2010-08-05
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The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.



NEW HAMPSHIRE NATURAL HERITAGE BUREAU

DRED - DIVISION OF FORESTS & LANDS
172 PEMBROKE ROAD, CONCORD, NH 03301
(603) 271-2214

To: Dana Valleau, Environmental Specialist, TRC

From: Amy Lamb, Ecological Information Specialist, NHB

Date: June 26, 2015

Subject: Re: NHB15-1904, NHB10-0644: Antrim Wind Energy, LLC

This is a follow-up to NHB15-1904, which indicated the presence of an exemplary natural community, an Inland Atlantic white cedar swamp, and a state endangered plant, Canada shore quillwort (*Isoetes riparia* var. *canadensis*), close to the proposed project area. The report also indicated the presence of three wildlife species; please note that the Natural Heritage Bureau does not provide comments regarding wildlife, and that there must be consultation with the NH Fish and Game Department for all wildlife concerns.

In the NHB15-1904 review, we requested that the project area be surveyed for the occurrence of the rare species and natural community within the project area. After this initial recommendation, it came to my attention that community mapping had occurred throughout the project area, through consultation with Melissa Coppola under project number NHB10-0644. Based on the results of those surveys, NHB does not find it likely that the natural community and rare plant identified in NHB15-1904 would be found on the property. As such, NHB no longer recommends a survey for Canada shore quillwort or Inland Atlantic white cedar swamp in the project area.

We look forward to continued communication throughout the SEC process. Please send us any additional application materials as they become available, and include us in any future communications regarding the subject project.



NEW HAMPSHIRE NATURAL HERITAGE BUREAU

DRED - DIVISION OF FORESTS & LANDS

PO Box 1856 -- 172 PEMBROKE ROAD, CONCORD, NH 03302-1856

(603) 271-2214

To: Site Evaluation Committee

From: Melissa Coppola, Environmental Information Specialist

Date: August 2, 2012

Subject: Final Report: Site Evaluation Committee #2012-01
Application for Antrim Wind Energy, LLC

The Natural Heritage Bureau (NHB), under the auspices of the NH Native Plant Protection Act of 1987 (RSA 217-A), has reviewed the application materials for Antrim Wind Energy, LLC.

NHB had requested a final site visit during the growing as a last review step. This site review was conducted on 13 July 2012. The purpose of the visit was to search for a state-listed plant species within a few targeted natural community types with greater potential for rare species. No rare plant species were observed during the surveys.

Based on the observations made during the site visit and the application materials provided, NHB has determined that it is unlikely that the proposed wind facility will impact rare plants species or exemplary natural communities.

Memo



NH NATURAL HERITAGE BUREAU

To: James Kenworthy, Eolian Renewable Energy, LLC
55 Fleet St.
Portsmouth, NH 03801

From: Melissa Coppola, NH Natural Heritage Bureau

Date: 3/22/2010 (valid for one year from this date)

Re: Review by NH Natural Heritage Bureau

NHB File ID: NHB10-0644

Project type: Roads, Driveways, Bridges: Road construction, etc.

Town: Antrim

Location: Tax Maps: 212-030, 212-027, 212-034, 211-004, 235-014

cc: Kim Tuttle

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments: NHB has concerns about potential impacts to the exemplary natural community. Please send detailed site plans to mcoppola@dred.state.nh.us for further review.

Natural Community

Inland Atlantic white cedar swamp

State¹

--

Federal

--

Notes

Changes to the hydrology of the wetland are the greatest threat facing the cedar swamp. Damming which causes pooling for extended periods can flood and drown existing trees, and drainage that results in lower water levels can lead to invasion by other species that can out compete -- and eventually eliminate -- Atlantic white cedar trees. Increased nutrient input from stormwater runoff could also deleteriously impact this acidic, low-nutrient plant community.

Vertebrate species

Wood Turtle (*Glyptemys insculpta*)

State¹

SC

Federal

--

Notes

Contact the NH Fish & Game Dept (see below).

¹Codes: "E" = Endangered, "T" = Threatened, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

Contact for all animal reviews: Kim Tuttle, NH F&G, (603) 271-6544.

A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. For some purposes, including legal requirements for state wetland permits, the fact that no species of concern are known to be present is sufficient. However, an on-site survey would provide better information on what species and communities are indeed present.

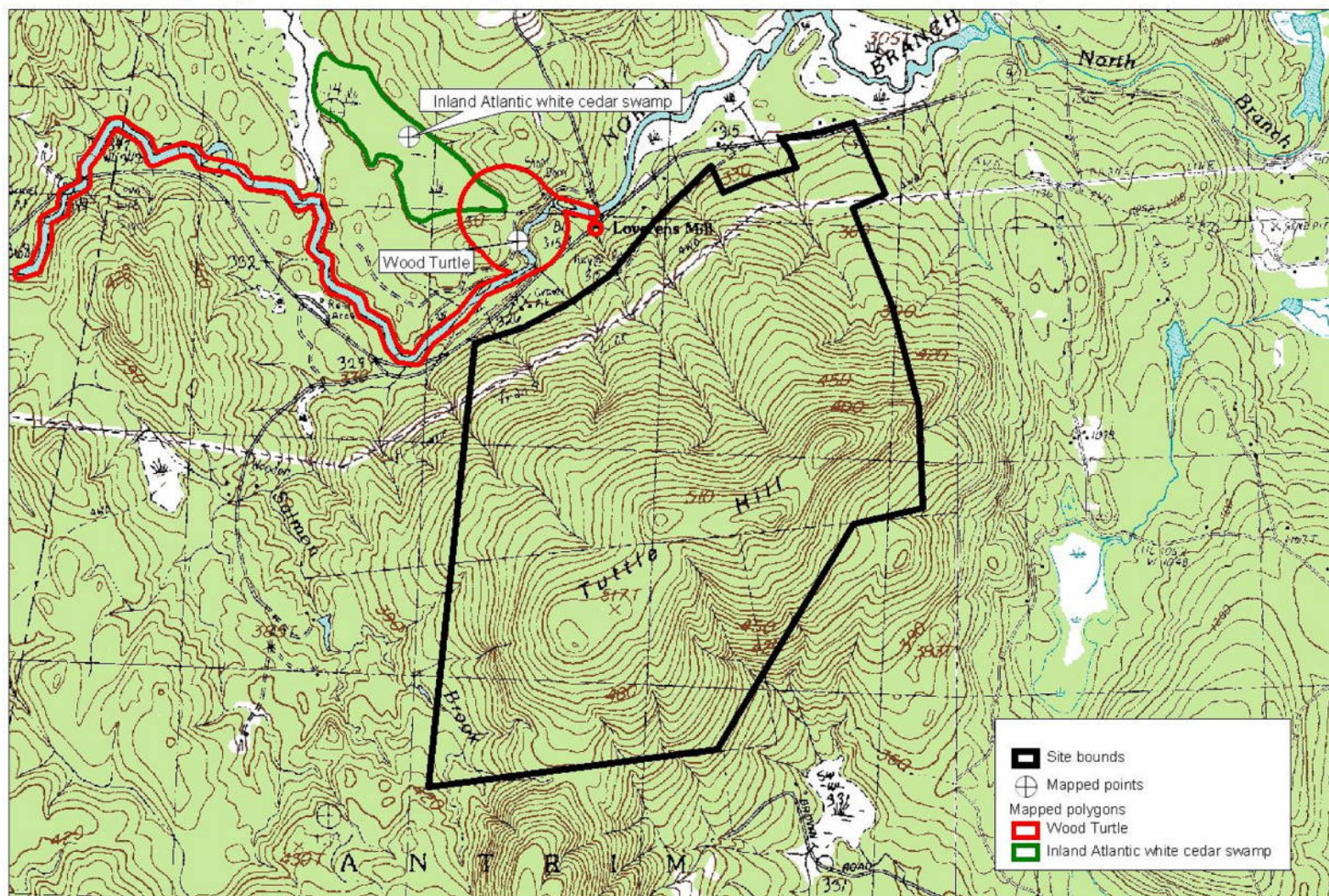
NHB10-0644



NH NATURAL HERITAGE BUREAU

Known locations of rare species and exemplary natural communities

Note: Mapped locations are not always exact. Occurrences that are not in the vicinity of the project are not shown.



*Historical record

0.25 0 0.25 0.5 0.75 1 Miles
1:24000

Valid for one year from this date: 22 Mar 2010

New Hampshire Natural Heritage Bureau - Community Record

Inland Atlantic white cedar swamp

Legal Status

Federal: Not listed
State: Not listed

Conservation Status

Global: Not ranked (need more information)
State: Critically imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Excellent quality, condition and landscape context ('A' on a scale of A-D).
Comments on Rank: This site is probably the best, largest and most viable remaining cedar swamp in the western part of the state. It should remain among the highest conservation priorities in the state.

Detailed Description: 2006: Community observed and photographed. 2004: Community observed and photographed. 1993: *Chamaecyparis thyoides* (Atlantic white cedar) is the dominant tree with both *Acer rubrum* (red maple) and *Picea rubens* (red spruce) present in abundance. *Picea mariana* (black spruce) is scattered and less abundant. Occasionally, *Pinus strobus* (white pine) and *Betula alleghaniensis* (yellow birch) are also found. Dominant shrub species are *Gaylussacia baccata* (black huckleberry), *Nemopanthus mucronatus* (mountain holly), *Ilex laevigata* (smooth winterberry), and *Kalmia angustifolia* (sheep laurel). Common boreal components present are *Chamaedaphne calyculata* (leather-leaf), *Gaultheria hispidula* (creeping snowberry), and *Ledum groenlandicum* (Labrador-tea). The herbaceous layer is fairly abundant, although richness is somewhat limited. *Osmunda cinnamomea* (cinnamon fern), *Aralia nudicaulis* (wild sarsaparilla), *Maianthemum canadense* (Canada mayflower), *Sarracenia purpurea* (pitcher-plant) and *Carex trisperma* (three-seeded sedge) are commonly present. Sphagnum species are abundant. 1990: Has *Chamaecyparis thyoides* (Atlantic white cedar) to 14 inches dbh and a few larger individuals, abundant in areas away from streams. *Picea mariana* (black spruce), *Picea rubens* (red spruce), *Abies balsamea* (balsam fir), and *Acer rubrum* (red maple) also occur. Lesser amounts of *Pinus strobus* (white pine).

General Area: 1993: Soil type is a mucky peat, with the peat deposits averaging <1 meter. The soil is permanently saturated with a couple of obvious watercourses present. The pH of the groundwater is quite acidic with a range of 3.8-4.0. 1990: Purest and largest cedar around open black spruce bog (90 percent, 10-14 inches average range). Other areas 50-80 percent. Basin is surrounded by gradually sloping uplands which are punctuated by a number of small cliffs. 1961 (Baldwin): a fairly large boggy swamp with *Chamaecyparis thyoides* (Atlantic white cedar). Contains 6 stands of cedar.

General Comments: 1997: New community boundaries mapped based on 1993 field work. 1990: Encroaching urban development.

Management
Comments:

Location

Survey Site Name: Loverens Mill Cedar Swamp
Managed By: Loverens Mill Preserve

County:	Hillsborough	USGS quad(s):	Stoddard (4307211)
Town(s):	Antrim	Lat, Long:	430433N, 0720142W
Size:	51.3 acres	Elevation:	1080 feet

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: From Hillsboro, take Rte. 9 south ca. 5 miles south to Holmes Hill Road. Turn right (north) onto Holmes Hill. Park on the right immediately after crossing the bridge over the river, at the TNC preserve sign kiosk. After ca. 900 feet there will be a gravel road on the left. This is the trailhead. Take the marked trail on this road, up past the old mill, and look for a turnoff to the right. Proceed down this trail (N-NW). The cedar swamp is at the bottom of the basin, to the north.

Dates documented

First reported: 1961 Last reported: 2006-06-13

Kimball, Ben, et al. 2006. Field visit to Loverens Mill Cedar Swamp Preserve on June 13.

Sperduto, D. & N. Ritter. 1994. Altantic White Cedar Wetlands of New Hampshire. Environmental Protection Agency, Boston, MA.

New Hampshire Natural Heritage Bureau - Animal Record

Wood Turtle (*Glyptemys insculpta*)**Legal Status**

Federal: Not listed
State: SC

Conservation Status

Global: Apparently secure but with cause for concern
State: Rare or uncommon

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 2008: Area 11603: 1 adult seen.2006: Area 11693: 1 adult seen.2005: Area 12135: 1 adult seen.2002: Area 12069: 1 observed.

General Area: 2005: Area 12135: Crossing highway towards North Branch of Contoocook River.2002: Area 12069: Near cedar swamp.

General Comments:
Management
Comments:

Location

Survey Site Name: Loverens Mill
Managed By: The Nature Conservancy #2

County: Hillsborough
Town(s): Antrim
Size: 84.4 acres

USGS quad(s): Stoddard (4307211)
Lat, Long:
Elevation:

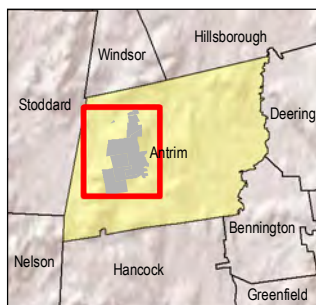
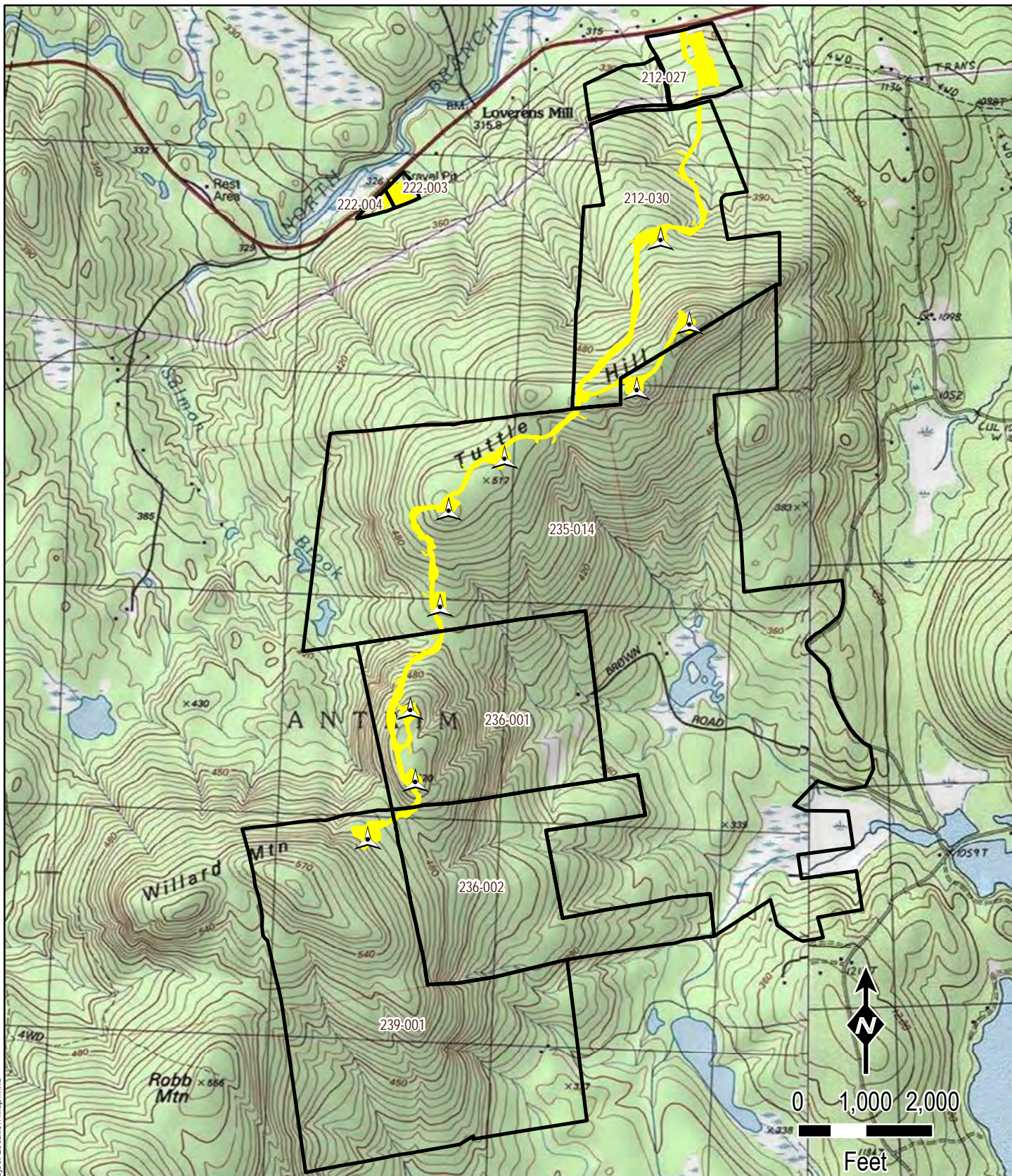
Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2008: Area 11603: TNC property at Loverens Mill Road.2002: Area 12069: Loverens Mill property near trail to cedar swamp.




Dates documented

First reported: 2002-07-28
Last reported: 2008-06-01

EXHIBIT 3
AREA MAP




Legend

-  Proposed WTG
-  Project Footprint
-  Project Parcels

Antrim Wind Energy

**ANTRIM WIND
ENERGY PROJECT**
354 KEENE ROAD, ANTRIM, NH

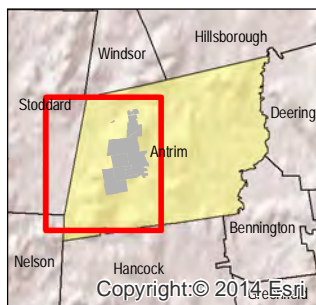
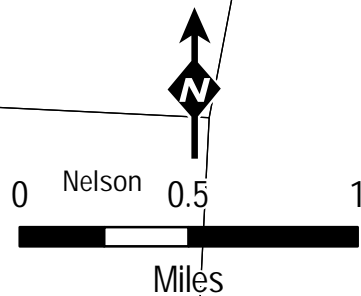
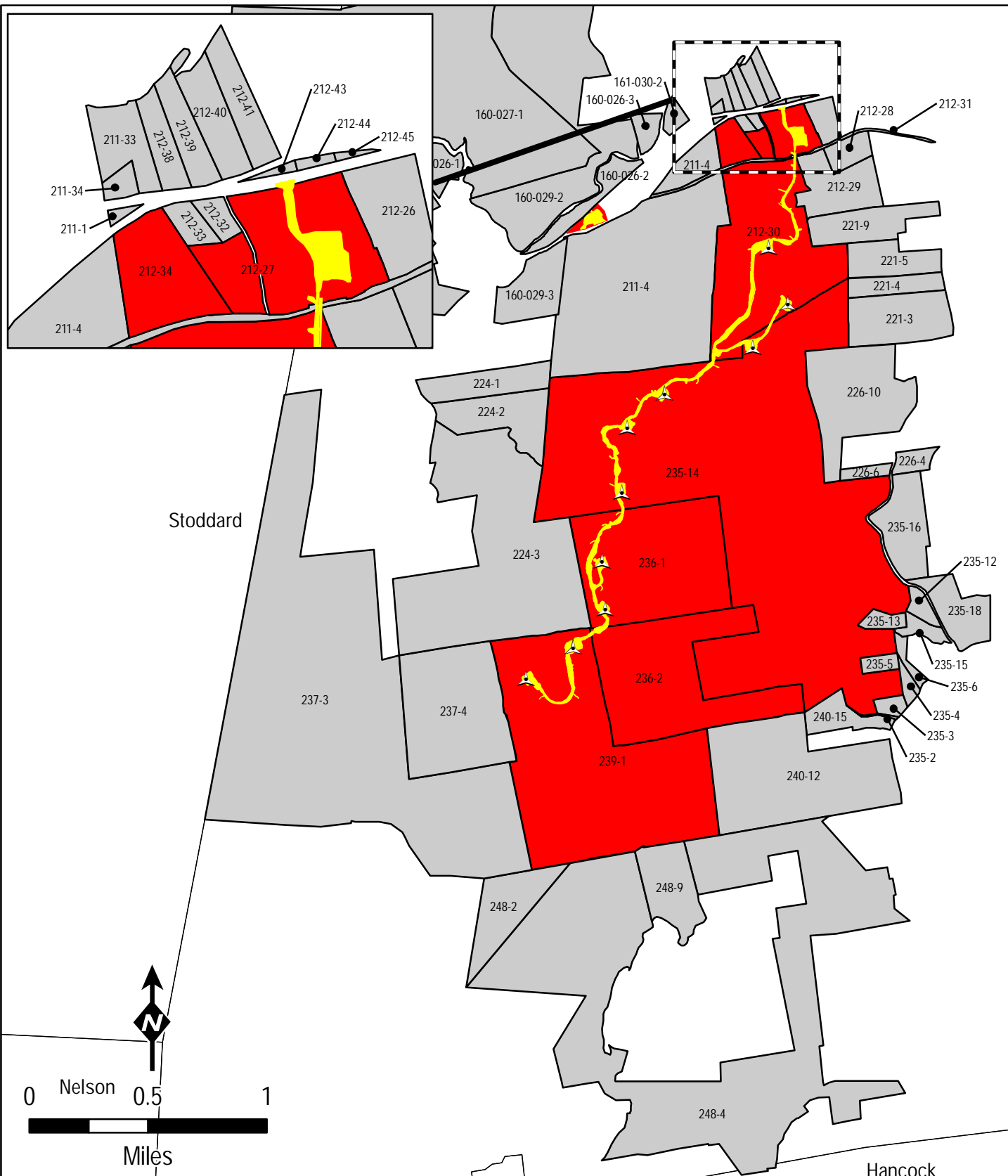
Project Location Map

Produced by: 





1/29/2015

EXHIBIT 4

TAX MAP, ABUTTERS, and ABUTTER NOTIFICATION LETTER




Legend

-  Proposed WTG
-  Proposed Project Area - 60 Acres
-  Project Parcels
-  Abutter



**ANTRIM WIND
ENERGY PROJECT**
354 KEENE ROAD, ANTRIM, NH
Project Abutter Map

Produced by: 

7/6/2015

ANTRIM ABUTTERS

Map	Lot	Owner	Type	Property Address	Owner Address	Owner Address
212	27	Ott Michael James	Project Parcel	354 Keene Road	PO Box 160	Antrim NH 03440
212	30	Ott Michael James	Project Parcel	High Range Road	PO Box 160	Antrim NH 03440
212	34	Ott Michael James	Project Parcel	Russell Road	PO Box 160	Antrim NH 03440
222	3	TWBW LLC	Project Parcel	Keene Road	155 Fleet Street	Portsmouth NH 03801
222	4	TWBW LLC	Project Parcel	Keene Road	155 Fleet Street	Portsmouth NH 03801
235	14	Antrim Limited Partnership C/O Heritage Financial Services	Project Parcel	Hattie Brown Road	100 Lowder Brook Drive #1000	Westwood MA 02090
236	1	Cotran Group Inc	Project Parcel	Brimstone Corner Road W/S	685 Massabesic Street	Manchester NH 03101
236	2	Whittemore Paul J Whittemore Helen M	Project Parcel	Brimstone Corner Road	PO Box 528	Auburn NH 03032
239	1	Whittemore Trust Whittemore Arthur F Et Al Ttes	Project Parcel	103 Camp Road - Pvt Road 38	16501 North Elmirage Road 735	Surprise AZ 85374
211	1	Jackson Bradley	Abutter	Keene Road	PO Box 632	Jaffrey NH 03452
211	4	Ellens Pastels & Art House LLC	Abutter	Keene Road	25 North Holt Hill Road	Antrim NH 03440
211	33	Hutchinson Ted Campbell Diana L	Abutter	363 Keene Road	PO Box 469	Henniker NH 03242
211	34	Hutinson Ted & Diana L	Abutter	367 Keene Road	PO Box 469	Henniker NH 03242
212	12	State of New Hampshire Fish & Game Dept	Abutter	409 Keene Road	11 Hazen Drive	Concord NH 03301
212	26	Couterier Marcel J Kusnarowis Paula J	Abutter	344 Keene Road	344 Keene Road	Antrim NH 03440
212	28	Charette Norman M	Abutter	High Range Road	PO Box 74	Westport MA 02790
212	29	Mata Cristian ET UX	Abutter	Old Keene Road	73 Rhododendron Road	Stony Brook NY 11790
212	31	Owner Unknown	Abutter	High Range Road	Unknown	Unknown
212	32	Perry Adam	Abutter	362 Keene Road	PO Box 163	Antrim NH 03440
212	33	Gauthier Raymond C and Scott H	Abutter	Keene Road	York River Trust 6 Manhattan Drive	Amherst NH 03031
212	38	Wells Fargo	Abutter	359 Keene Road	800 Walnut Street	Des Moines IA 50309
212	39	Moote Wayne A	Abutter	355 Keene Road	12 Bobolink Lane	Hillsboro NH 03244
212	40	Barry Robert W	Abutter	351 Keene Road	351 Keene Road	Antrim NH 03440
212	41	Olsen Family Partnership IV Ltd	Abutter	Keene Road	PO Box 2050	Lecanto FL 34460
212	43	Frosch Real Estate Investments LLC	Abutter	349 Keene Road	176 Old Hancock Road	Antrim NH 03440
212	44	Voydatch Steven & Mahala	Abutter	345 Keene Road	55 Jewett Road	Dunbarton NH 03045
212	45	Ellinwood Christie & Albertin	Abutter	Keene Road	PO Box 127	Antrim NH 03440
221	3	Ivey III Rev Trust Jefferson F S ttee	Abutter	20 Reed Carr Road	36 Country Club Lane	Middleton MA 01949
221	4	Garrett C Spencer & Joann H	Abutter	38 Reed Carr Road	38 Reed Carr Road	Antrim NH 03440
221	9	Berwick Bruce E & Barbara I	Abutter	72 Reed Carr Road	72 Reed Carr Road	Antrim NH 03440
222	2	Tuttle Mountain Leasing LLC	Abutter	408 Keene Road	PO Box 519	Antrim NH 03440
222	5	Meadowsend Timberlands Limited Partnership	Abutter	Keene Road	PO Box 966	New London NH 03257
224	1	Schaefer Mark J	Abutter	128 Salmon Brook Road	128 Salmon Brook Road	Antrim NH 03440
224	2	Longgood Janice	Abutter	156 Salmon Brook Road	156 Salmon Brook Road	Antrim NH 03440
224	3	Micheli Lyle J 2008 Trust Micheli Lyle J & Anne J Ttes	Abutter	Salmon Brook Road	319 Longwood Avenue	Boston MA 02115
226	4	Levesque Walter T & Joy C	Abutter	Craig Road	12 Backmeadow Road	Nobleboro ME 04555
226	6	Seroczynski Christine & Sigmond	Abutter	Craig Road	67 Indian Trail	Bristol CT 06010
226	10	Craig Jr Clark A	Abutter	224 Craig Road	224 Craig Road	Antrim NH 03440
235	2	Owner Unknown	Abutter	Private Road 70	Unknown	Unknown
235	3	Caughey Family Re Trust Caughey George H & Michelle B Ttes	Abutter	Brimstone Corner Road	1 Entrance Way	Woodside CA 94062
235	4	Robinson Daniel C & Steven E Robinson Charles E & Gary M	Abutter	Brimstone Corner Road	NE 132nd Circle	Brush Prairie WA 98606
235	5	Robinson Daniel C & Steven E Robinson Charles E & Gary M	Abutter	Brimstone Corner Road	NE 132nd Circle	Brush Prairie WA 98606
235	6	Taylor Glenn P	Abutter	19 Brimstone Corner Road	19 Brimstone Corner Road	Antrim NH 03440
235	12	State of New Hampshire	Abutter	Craig Road	State of New Hampshire	Concord NH 03301
235	13	Town of Antrim	Abutter	Craig Road	PO Box 517	Antrim NH 03440
235	15	Town of Antrim	Abutter	Craig Road	PO Box 517	Antrim NH 03440
235	16	Craig Steven M & James P	Abutter	Craig Road	224 Craig Road	Antrim NH 03440
237	3	Meadowsend Timberlands Limited Partnership	Abutter	Area Willard Mountain	PO Box 966	New London NH 03257

ANTRIM ABUTTERS

237	4 State of New Hampshire Fish & Game Dept	Abutter	West Side of Antrim	11 Hazen Drive	Concord NH 03301
240	12 Harris Center for Conservation Education	Abutter	Brimstone Corner Road	83 Kings Highway	Hancock NH 03449
240	14 Lynch Thomas F & Mary L	Abutter	53 Brimstone Corner Road	53 Brimstone Corner Road	Antrim NH 03440
240	15 Sharby Neil P & Margaret R	Abutter	Brimstone Corner Road	55 Brimstone Corner Road	Antrim NH 03440
248	2 Audubon Society of New Hampshire	Abutter	Willard Pond	3 Silk Farm Road	Concord NH 03301
248	4 Audubon Society of New Hampshire	Abutter	Willard Pond Road	3 Silk Farm Road	Concord NH 03301
248	9 Audubon Society of New Hampshire	Abutter	Willard Pond Road	3 Silk Farm Road	Concord NH 03301

ABUTTER NOTIFICATION
OF
WETLANDS PERMIT APPLICATION

VIA CERTIFIED MAIL

RE: Wetlands Permit Application
Antrim Wind Energy LLC
155 Fleet Street
Portsmouth, NH 03801
Tax Map/Lot#: 212/027, 212/030, 212/034, 236/001, 235/014, 236/002, 239/001,
222/003, 222/004

Dear Sir or Madam:

This letter is to inform you that a permit application will be filed with the NH Department of Environmental Services for a wetlands permit associated with the above referenced project. Under state law RSA 482-A:3 I (d)(1), I am required to notify you about the application, which proposes work abutting your property.

Once it is filed, the permit application, including the plans that show the proposed project, will be available for viewing at the City or Town Clerk's office in the town where the proposed project is located.

Sincerely,



John B. Kenworthy
Executive Officer
Antrim Wind Energy LLC
155 Fleet Street
Portsmouth, NH 03801
(603) 570-4842

EXHIBIT 5
WETLANDS REPORT

WETLAND DELINEATION REPORT

**For
Antrim Wind Energy Project
Town of Antrim
Hillsborough County, New Hampshire**

Prepared for:

**Antrim Wind Energy, LLC
155 Fleet Street
Portsmouth, NH 03801**



Prepared by:

**TRC ENVIRONMENTAL CORPORATION
*10 Maxwell Drive, Suite 200
Clifton Park, New York 12065***

**January 2012
Revised 2015**

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1.0 INTRODUCTION

Antrim Wind Energy LLC (AWE) is proposing to construct the Antrim Wind Energy Project (Project) on Tuttle Hill and Willard Mountain in the Town of Antrim, Hillsborough County, New Hampshire. The proposed Project is sited entirely on privately owned land that is leased by AWE. The proposed Antrim Wind Energy Project involves the construction of wind turbines, an electrical collection system and interconnection substation, new access road, and an operations and maintenance building. There will be no new electrical transmission lines, other than collector system lines, constructed as part of this Project. The total direct impact for the access roads, the turbine pads, and electrical collector system will be approximately 57.1 acres.

The proposed project is sited on the ridges of Tuttle Hill and Willard Mountain which are oriented east-northeast to west-southwest. The ridges are approximately parallel to NH Route 9, which is about $\frac{3}{4}$ of a mile to the north. Between the ridgeline and Route 9 is an existing transmission corridor containing both an 115kV transmission line and a 34.5kV distribution circuit; the proposed Project will interconnect with the existing 115kV line. See Attachment A, Figure 1, for a map of the Project area and Project elements.

TRC Environmental Corporation (TRC) was retained by AWE to identify and delineate jurisdictional wetlands and waterways within the project area to support the design, or layout, of the proposed facilities. TRC has prepared this wetland delineation report on behalf of AWE to support the submittal of a Joint Application for a Permit (a U.S. Army Corps of Engineers (ACOE) and New Hampshire State wetlands permit).

2.0 CURRENT AND HISTORIC LAND USES

2.1 *Current Land Use*

Most of the Town of Antrim is undeveloped, and a large proportion of the town's landscape is heavily wooded. Much of Antrim's forested areas are located in the Rural and Rural Conservation Zoning Districts of town; these two districts constitute over 70% of Antrim's total area. These woodlands are viewed by the town as a renewable resource and are logged on a regular basis. In addition to abundant woodland, there are also numerous conservation areas, hiking trails and water features (Town of Antrim 2011).

2.2 *Historic Land Use*

Historically, the area of the proposed Project was cleared for sheep farming; numerous stone walls still remain as a result of this historic activity. After the decline of sheep farming, the site was allowed to regenerate into a forested condition. Subsequently, timber harvesting has occurred in many areas on Tuttle Hill and Willard Mountain. Currently, the land in and around the area of proposed development consists of undeveloped forest land in various stages of maturity, ranging from recent clear cuts and early successional stands as a result of timber harvesting, to mature forested areas.

3.0 WETLAND DELINEATION METHODOLOGY

3.1 *Siting Alternatives*

The layout of wind turbines is a function of several siting factors that balance the location of each wind turbine and environmental compatibility. These factors include:

- maximizing wind speed;
- minimizing tree clearing, wetland impacts, and the acquisition of land (the Project proposes to lease the land needed for the Project facilities);
- maintaining the current use of the land;
- connecting the turbines with an efficient and practical network of unpaved access roads for construction and maintenance of the turbines;
- co-locating electric cables with the access road corridor that connect the turbines to electric substation; and
- co-locating the electric transmission line that would connect the Project to the electric grid within existing infrastructure right-of-way.

These siting factors inherently create the need for a Project survey area that was sufficiently large enough to provide for an adequate area to identify cultural and natural resources and allow for the opportunity to evaluate siting alternatives that avoid and minimize impacts to any identified resources. After reviewing available topographic, soils mapping, and potential turbine locations for the Project area, TRC developed a survey area, which is depicted on Figure 1, found in Attachment A. With a survey corridor of 500 feet in width with a 250 foot radius around potential turbine locations, the survey area was approximately 462 acres.

To determine the potential for wetland impacts from construction of the Antrim Wind Energy Project, TRC assessed the survey area for the presence of federal and jurisdictional wetlands. A New Hampshire Certified Wetland Scientist from TRC conducted wetland delineations in August, September, November 2011, and October 2014 (refer to Attachment B for professional resume and qualifications). TRC also investigated hydrologic connectivity (drainage ditches, natural swales, intermittent and perennial streams outside the study corridor when necessary to verify “normal conditions” or “nexus” hydrologic determinations. The delineations were performed in accordance with the U.S. Army Corps of Engineers (USACE) wetland delineation criteria and methodology which is described in Section 3.2. The USACE data sheets have been compiled for this Wetland Delineation Report and presented in Attachment C.

This report presents the delineation methodology, wetland identification, and the results of the field wetland delineation, including descriptions of on-site hydrology, soils and vegetation (see Section 4.0). Mapping is provided in Attachment A, with Figure 2 presenting the wetland mapping.

3.2 *Wetland Delineation Method*

TRC wetland delineation crews surveyed proposed corridors using the Federal Routine Determination Method presented in the USACE Wetlands Delineation Manual (USACOE 1987), including clarifications and interpretations provided in the March 6, 1992 guidance memorandum (Williams 1992), USACOE and Environmental Protection Agency guidance on jurisdictional forms (USACOE 2007), and the Regional Supplements to Corps Delineation Manual (USACOE 2009).

The 1987 USACE manual and guidance memorandums emphasize a three-parameter approach to wetland boundary determination in the field. This approach involves the identification of: (i) evidence of wetland hydrology; (ii) presence of hydric soils; and (iii) predominance of hydrophytic vegetation as defined by the National Plant List Panel (Reed 1988). Positive indicators of all three parameters are normally present in wetlands and serve to distinguish between both upland and transitional plant communities. Identified wetlands were classified according to Cowardin et al. (1979).

After a wetland area was initially identified, an appropriate transect and plot location was established, generally perpendicular to the wetland/upland boundary, in order to document conditions within each plant community and firmly establish the wetland boundary using wetland indicators. USACE Wetland Determination data forms were completed for each representative wetland transect. These data forms are provided in Attachment C to this report. The wetland boundary was marked with sequentially numbered (alpha-numeric) pink flagging labeled with “Wetland Delineation”. Once wetland flags were in place, the location of each flag was pinpointed using a hand-held Global Positioning Satellite (GPS) unit. These data were downloaded into a GIS system and then plotted on the project base map (a USGS geo-referenced map), which is provided in Attachment A, Figure 2. The results of the delineations are summarized in Section 4.0.

4.0 WETLAND DELINEATION RESULTS

A total of thirty eight (38) wetland areas were identified in the Project survey area. This report describes and maps those wetlands within and in relative proximity to the proposed roads, turbines, collector system, the proposed transmission right-of-way corridor, and other facility sites associated with the Project (see Figure 2 in Attachment A). The 38 wetlands are represented in Table 4.1 due to their occurrence in the proposed corridor and in close proximity to the proposed project corridors or facility sites. Of the 38 wetlands, twenty-four (24) are deciduous broad-leaf forested wetlands, three (3) are conifer dominated forested wetland, two (2) are mixed forested and scrub-shrub wetland, and five (5) are scrub-shrub wetlands. Three (3) of the delineated wetlands within the Project corridor consist of two or more wetland types, including three (3) streams with associated palustrine wetlands (2 intermittent and 1 perennial stream). The wetland associated with the perennial water-way consists of a mixed palustrine system. Table 4-1 provides a summary of the wetlands identified along the Project corridor, including their classification in accordance with Cowardin et al (1979).

Narrative descriptions of wetland hydrology, soils and vegetation observed within the Project study area are presented in the following sections. Tables 4-1, 4-2 and 4-3 summarize the wetlands delineated in this report, streams identified, and the soil series information we assembled for the Project area respectively.

4.1 Vegetation

Within the Project area, vegetative communities consist of forested upland and wetland communities. Forest stands include mostly mixed coniferous and deciduous forest, with a small portion of the Project area sustained as a managed transmission line ROW and another portion recently timber harvested on Willard Mountain.

The wetland communities crossed by the Project include and scrub-shrub wetlands typically found in the transmission line ROW and isolated forested wetlands. The scrub-shrub wetlands typically contain sapling red maple (*Acer rubrum*), maleberry (*Lyonia lingustrina*), red osier dogwood (*Cornus stolonifera*), arrowwood (*Viburnum dentatum*), meadowsweet (*Spiraea latifolia*), and steeplebush (*Spiraea tomentosa*). The forested wetlands typically contain red maple, yellow birch (*Betula alleghaniensis*), and green ash (*Fraxinus pennsylvanica*).

Upland tree species found throughout the Project area include red oak (*Quercus rubra*), American beech (*Fagus grandifolia*), sugar maple (*Acer saccharum*), white pine (*Pinus strobus*), red spruce (*Picea rubens*), balsam fir (*Abies balsama*), quaking aspen (*Populus tremuloides*), paper birch (*Betula papyrifera*), eastern hemlock (*Tsuga canadensis*) and others. Upland herbaceous species include wild sarsassparilla (*Aralia nudicaulis*), New York fern (*Thelypteris noveboracensis*), Solomon's-seal (*Polygonatum pubescens*), star flower (*Trientalis borealis*), hayscented fern (*Dennstaedtia punctilobula*) and Canada mayflower (*Maianthemum canadense*).

4.2 Hydrology

Streams within the Project area include an unnamed perennial and intermittent streams draining both to the north (Route 9) toward the North Branch River and to the southeast draining into Gregg Lake. Because the Project area is along a ridgeline and moderately well drained, we

observed very few perennial streams. Observations in the field generally suggest that rainfall and snow melt in the spring quickly run off the ridge to lower elevations, without collecting volumes that fill natural depressions or create natural ponds. Small forest wetland areas occur along skidder trails, confined pockets in the regional bedrock, saddle areas along the ridgeline, and in other areas of poorly drained soils that support wetland vegetation.

4.3 *Soils*

TRC reviewed the published soil survey of the Project area and conducted soil profile characterizations in the study corridor to confirm the presence of hydric soil indicators. Within the Project survey area, a total of 7 different soil types have been mapped by the Natural Resource Conservation Service (formerly the Soil Conservation Service) (USDA & NRCS 2009). Table 4-3 summarizes the soil series in the project area and indicates that most of the Project area soils are mapped with a slope of 3-35 percent. The soil type mapping has also been overlain on the Project location map (see Figure 3 in Attachment A). The mapped soil types range from excessively drained to well drained soils. Field surveys have resulted in delineating additional soil types that are poorly drained to very poorly drained soils and are hydric or wetland soils. Hydric soils are defined as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part of the soil.

The wetlands flagged in the Project corridors generally exhibited the soil characteristics of a dark surface horizon (A horizon) overlying grayish (10YR 5/1) to grayish brown (10YR 4/1), sandy loam subsoils with common redoximorphic features. As described below, this is typical of the loamy till parent material sediments in which many of the soils in the region are formed. The upland soils within the forested uplands lacked a low chroma matrix and had typical matrix chromas ranging between 3 and 6. In wetlands, the hydric soil showed evidence of a seasonal high water table in the form of low chroma matrix and redoximorphic features, indicating that the soils experience anaerobic conditions from prolonged saturation thereby meeting the definition of a hydric soil in some instances. The upland and more transitional area soils have developed redoximorphic features common to somewhat poorly to moderately well drained soils but did not exhibit the required low chroma matrix and as a result were not classified as hydric soils. In addition, as a result of glacial till environment, the subsoil (B) and substratum (C) horizons of both hydric and non-hydric soils commonly contain layers of loose stony material on steeper slopes with loamy materials, which are not necessarily indicative of an aquic moisture regime or reducing conditions.

**Table 4-1
Summary of Wetlands within Project Area**

Figure 2 8.5" x 11" Sheet Number	Wetland ID	Wetland Types and Associations	Associated Wetland Impact	Cowardin Classification
4	AN1	Isolated forested wetland. Contains VP1	No direct impact	PFO1
4	AN2	Isolated forested wetland. Bat radar within wetland	0.005 acre/228 sq. ft. Access road.	PFO4
4	AN3	Isolated forested wetland	No direct impact	PFO1
4	AN4	Isolated forested wetland. Contains VP2	No direct impact	PFO1
4	AN5	Isolated forested wetland. Contains VP3	No direct impact	PFO1
4	AN6	Isolated forested wetland	No direct impact	PFO1
3	AN7	Isolated forested wetland straddling property line	No direct impact	PFO1
3, 4	AN8	Forested wetland draining southeast associated with intermittent stream AN9	0.001 acre/34 sq. ft. Access road.	PFO4
3	AN10	Isolated forested wetland within skidder trail	No direct impact	PFO1
1, 3	AN11	Isolated forested wetland with ephemeral inlet and outlet	No direct impact	PFO1
1	AN12	Isolated forested wetland within skidder trail	No direct impact	PFO1
1, 3	AN13	Isolated forested wetland along ATV trail	No direct impact	PFO1

**Table 4-1
Summary of Wetlands within Project Area**

Figure 2 8.5" x 11" Sheet Number	Wetland ID	Wetland Types and Associations	Associated Wetland Impact	Cowardin Classification
1, 3	AN14	Isolated forested wetland within skidder trail	No direct impact	PFO1
1	AN15	Isolated forested wetland within skidder trail	No direct impact	PFO1
1	AN16	Very small isolated wetland along old skidder trail	No direct impact	PFO1
1	AN18	6 forested wetland areas draining north associated with perennial stream AN17	No direct impact	PFO1/4 & PSS1
1	AN20	Isolated scrub-shrub wetland within transmission ROW	No direct impact	PSS1
1	AN21	Isolated scrub-shrub wetland within transmission ROW	No direct impact	PSS1
1	AN22	Isolated forested wetland within skidder trail	0.004 acre/170 sq. ft. Access road.	PFO1
1	AN23	Isolated forested wetland within skidder trail	No direct impact	PFO1
4	AN24	Isolated forested wetland. Associated with VP 5. ATV trail within wetland.	No direct impact	PFO1
4	AN25	Isolated forested wetland. Associated with VP 4.	No direct impact	PFO4
5	AN26	Forested wetland draining to the northwest along property line	No direct impact	PFO1
5	AN27	Forested wetland draining to the southeast. Associated with intermittent stream AN28.	0.028 acre/ 1,218 sq. ft. Access Road	PFO1

Table 4-1 Summary of Wetlands within Project Area				
Figure 2 8.5" x 11" Sheet Number	Wetland ID	Wetland Types and Associations	Associated Wetland Impact	Cowardin Classification
1	AN30	Isolated forested wetland with ephemeral inlet and outlet	0.02 acre/869 sq. ft. Substation	PFO1
1	AN31	Isolated scrub-shrub wetland within transmission ROW	0.016 acre/708 sq. ft. Transmission tap structure and guys	PSS1
1	AN32	Isolated scrub-shrub wetland within transmission ROW	0.032 acre/1,392 sq. ft. Access Road	PSS1
1	AN33	Isolated forested wetland within skidder trail	No direct impact	PFO1
1	AN35	Isolated forested an scrub-shrub wetland located in ROW and to the North of the ROW	No direct impact	PFO1/PSS1
4	AN36	Isolated forested wetland with peat soils	No direct impact	PFO1
4	AN37	Isolated forested wetland adjacent to ATV trail	No direct impact	PFO1
4	AN38	Isolated forested wetland with potential vernal pool	No direct impact	PFO1
5	AN41	Isolated forested wetland.	0.06 acre/2,584 sq. ft. Turbine 9.	PFO1
4	AN1000	Isolated forested wetland	0.022 acre/963 sq. ft. Turbine 4.	PFO1
2	AN-LD 1	Isolated forested wetland.	No direct impact	PFO1
2	AN-LD 2	Isolated forested and scrub-shrub wetland.	No direct impact	PFO/PSS1
2	AN-LD 3	Isolated forested wetland	No direct impact	PFO1
2	AN-LD 4	Isolated scrub-shrub wetland. Formerly borrow pit area.	0.02 acre/955 sq. ft. Temporary staging area.	PSS1
TOTAL IMPACT			0.21 acre/9,121 sq. ft.	

4.4 Wetland Descriptions

The following narratives briefly characterize the delineated wetlands summarized in Table 4-1. Refer to Figure 2 for the location of these wetlands within the project study area and landscape in

Attachment A.

Wetland AN1 is a deciduous mixed forest wetland dominated by red maple (*Acer rubrum*), and black spruce (*Picea mariana*). It is located within a pocket of ledge along the ridgeline of Tuttle Hill. This wetland also contains Vernal Pool 1.

Wetland AN2 is a deciduous mixed forest wetland dominated by yellow birch (*Betula alleghaniensis*) and black spruce. It is located within a pocket of ledge along the ridgeline of Tuttle Hill.

Wetlands AN3, AN4 and AN5 are deciduous forested wetlands dominated by red maple. They are located within pockets of ledge along the ridgeline of Tuttle Hill. Wetland AN4 contains Vernal Pool 2, and wetland AN5 contains Vernal Pool 3.

Wetland AN6 is a deciduous forest wetland dominated by red maple. It is located within a pocket of ledge along the ridgeline between Tuttle Hill and Willard Mountain.

Wetland AN7 is a very small deciduous forest wetland dominated by red maple. It is located along a stone wall within a pocket of ledge along the ridgeline between Tuttle Hill and Willard Mountain.

Wetland AN8 is a deciduous forest wetland dominated by red maple and yellow birch. It is located within a swale draining from Wetland AN7 towards the southeast. An intermittent stream segment (Stream AN9) is located within this wetland. The stream flows between very large boulders; eventually the hydrology disappears as the slope increases along the southeast boundary of the wetland.

Wetlands AN10, AN11 and AN12 are deciduous forest wetlands dominated by yellow birch and green ash (*Fraxinus pennsylvanica*). They are located in hillside seeps created by skidder activity.

Wetland AN13 is a deciduous forest wetland dominated by red maple. It is located within a hillside seep created by skidder activity. An ATV access trail traverses the northwestern portion of this wetland.

Wetlands AN14 and AN15 are deciduous forest wetlands dominated by yellow birch and green ash. They are located in hillside seeps created by skidder activity.

Wetland AN16 is a very small deciduous forest wetland dominated by red maple. It is located within an old skidder trail to the north of the transmission ROW.

Wetland AN18 is a wetland complex associated with perennial stream AN17. Six components of this wetland complex were individually identified as wetlands AN18a, b, c, d, e and f. Component AN18a is an area of scrub shrub within the existing transmission corridor; it is dominated by red osier dogwood (*Cornus stolonifera*), green ash, and black willow (*Salix nigra*). Wetlands AN18 b, c, d, e and f are deciduous mixed forested wetlands dominated by green ash, yellow birch, and red maple. Each of these wetlands has been impacted by logging activity.

Wetlands AN20 and AN21 are deciduous scrub shrub wetlands dominated by red maple, meadowsweet (*Spiraea latifolia*), and steplebush (*Spiraea tomentosa*). They are located within the existing transmission corridor.

Wetlands AN22 and AN23 are deciduous forest wetlands dominated by red maple, yellow birch and green ash. They are located in hillside seeps created by skidder activity.

Wetland AN24 is a deciduous forest wetland dominated by red maple and yellow birch. It is located within a depression on the ridgeline between Tuttle Hill and Willard Mountain. An ATV trail traverses the through the middle of this wetland, from north to south. This wetland also contains Vernal Pool 5.

Wetland AN25 is an evergreen mixed forest wetland dominated by eastern hemlock (*Tsuga canadensis*) and yellow birch. It is located within a depression on the ridgeline between Tuttle Hill and Willard Mountain. This wetland contains Vernal Pool 4.

Wetland AN26 is a deciduous forest wetland dominated by red maple and yellow birch. It is located within a depression on the ridgeline between Tuttle Hill and Willard Mountain. This wetland drains to the northwest.

Wetland AN27 is a deciduous mixed forest wetland dominated by red maple, yellow birch, and black spruce. It is located within the saddle area at the northern base of Willard Mountain. The wetland drains to the southeast and feeds Intermittent Stream AN28 which drains to the southeast.

Wetland AN30 is a very small deciduous forest wetland dominated by red maple. It receives ephemeral flow from wetland AN31 which is located upslope (and within the existing transmission corridor). This wetland has an ephemeral drainage that flows towards intermittent stream AN29 to the north.

Wetlands AN31 and AN32 are deciduous scrub shrub wetlands dominated by red maple, meadowsweet and maleberry (*Lyonia lingustrina*). They are located within the existing transmission corridor. Wetland AN31 ephemerally drains to the north into Wetland AN30.

Wetland AN33 is a very small deciduous forest wetland dominated by red maple. It is located within a hillside seep created by skidder activity.

Wetland AN35 is primarily a forested wetland dominated by red maple, but includes an area of scrub shrub. The scrub shrub component is located within the existing transmission corridor, on the southern portion of the wetland, and is dominated by winterberry (*Ilex verticillata*).

Wetland AN36 is an isolated forested wetland dominated by red maple. This wetland contains organic soils. It is located in a saddle area and is near an ATV trail.

Wetland AN37 is a small isolated deciduous forest wetland dominated by red maple. It has an ephemeral drainage that flows west across an ATV trail that is adjacent to the wetland.

Wetland AN38 is an isolated deciduous forest wetland dominated by red maple, with a thick understory of winterberry shrubs. It has an ephemeral drainage that flows northwest through a steep boulder area. This wetland contains an area which has been identified as a potential vernal pool.

Wetland AN41 is an isolated deciduous forest wetland dominated by red maple with a sparse understory of red maple and yellow birch saplings and a dense herbaceous layer dominated by cinnamon fern. This wetland is located at the base of a long bouldery slope.

Wetland AN1000 is an isolated deciduous forest wetland dominated by red maple with an understory of winterberry shrubs and a patchy herbaceous layer of cinnamon fern and three-seeded sedge. This wetland is located in a concave area that drains to the east, and the soils are saturated to within 10-inches of the surface.

Wetland AN-LD 1 is a deciduous forest wetland dominated by red maple (*Acer rubrum*). It is located within a depression on a terrace located above the North Branch River valley. Soils are saturated and are sandy with a cemented restrictive layer.

Wetland AN-LD 2 is a deciduous forest wetland dominated by red maple with a lesser component of highbush blueberry and meadowsweet. It is located in a flat area on a terrace above the North Branch River valley. An old borrow pit is directly adjacent to the wetland boundary. Soils are saturated and are sandy.

Wetland AN-LD 3 is deciduous forested wetland dominated by red maple. It is located within a depression on a terrace located above the North Branch River valley. Soils are saturated and are sandy. An intermittent stream channel (AN-LD-INT 1) carries surface water and disperses in this wetland area.

Wetland AN-LD 4 is a deciduous scrub-shrub wetland dominated by speckled alder. It is located within an old borrow pit excavation on a terrace above the North Branch River valley. Soils are sandy, saturated and surface water was present at the time of survey.

4.5 Waterbody Descriptions

The following narratives briefly characterize the identified perennial and intermittent watercourses summarized in Table 4-2. Refer to Figure 2 in Attachment A for the location of these watercourses within the project study area.

Table 4-2 Summary of Streams within Project Area				
Figure 2 8.5" x 11" Sheet Number	Stream ID	Flow Regime	Associated Impact	Associated Wetland(s)
2	AN9	Intermittent	No direct impact	AN8
1	AN17	Perennial	74 linear feet, 4 foot wide channel	AN18a,b,c,d,e,f
1	AN19	Intermittent	No direct impact	Tributary to AN17
4	AN28	Intermittent	No direct impact	AN27

4	AN28a	Intermittent	No direct impact	
1	AN29	Intermittent	156 linear feet, 1 foot wide channel	
1	AN34	Intermittent	No direct impact	Flows into AN17
2	AN40	Intermittent	No direct impact	
2	AN-LD-INT 1	Intermittent	No direct impact	AN_LD 3
TOTAL IMPACT			230 linear ft./ 452 sq. ft.	

Stream AN9 is an intermittent stream with a sandy substrate. The average width of the stream is 2 feet and the bank height is less than one foot. There was approximately 1 inch of flowing water in the stream at the time of the wetland delineation survey (in late summer, 2011). The stream channel commences within wetland AN8 and disperses within the same wetland due to slopes and a bouldery landscape, which allows for subsurface flow.

Stream AN17 is perennial stream with a gravel/cobble substrate. The average width of the stream is 4 feet and the bank height averages approximately one foot. There was approximately 5 inches of flowing water at the time of the delineation. The stream flows into the survey area from the south and then out to the north, flowing towards Route 9. Intermittent Streams AN19 and AN34 flow into this stream.

Stream AN19 is an intermittent stream with a sandy substrate. The average width of the stream is approximately 1 foot and the bank height is less than one foot. There was approximately 1 inch of flowing water at the time of the delineation. The stream channel commences in a forested setting, within a seep on a slope, and flows into Stream AN17.

Stream AN28 is an intermittent stream with a gravel/sand substrate. The average width of the stream is approximately 3 feet and the bank height is less than one a foot. There were approximately 4 inches of flowing water at the time of the delineation. The stream channel commences within wetland AN27 and flows to the southeast.

Stream AN28a is an intermittent stream with a gravel/cobble substrate. The average width of the stream is approximately 2 feet and the bank height averages approximately one foot. There were approximately 2 inches of flowing water at the time of the delineation. The stream channel commences within an upland area with steep slopes and disperses within the upland as it flows down slope. This dispersal is due to slopes and a bouldery landscape, which allows for subsurface flow.

Stream AN29 is an intermittent stream with a gravel/cobble substrate. The average width of the stream is approximately one foot, and the bank height is less than one foot. There was no flowing water in the streambed at the time of the delineation. The stream channel commences within an upland area with steep slopes and disperses within the upland as it flows down slope. This dispersal is due to slopes and a bouldery landscape, which allows for subsurface flow.

Stream AN34 is an intermittent stream with a gravel/cobble substrate. The average width of the stream is approximately 3 feet and the bank height is less than one foot. There were approximately 4 inches of flowing water at the time of the delineation. The stream channel commences in a forested setting within a seep on a slope and flows into Stream AN17.

Stream AN40 is an intermittent stream with a gravel/cobble substrate. The average width of the stream is 2 feet and the bank height averaged around a foot. There were approximately 2 inches of flowing water at the time of the delineation. The stream channel commences within an upland area with steep slopes and disperses within the upland downslope due to slopes and a bouldery landscape, which allows for subsurface flow.

Stream AN-LD-INT 1 is an intermittent stream with a sandy substrate that originates in a logging trail upslope and south of the site. The average width of the stream is 1-2 feet and the bank height is less than one foot. The channel was dry at the time of the wetland delineation survey (in July 2012). The stream channel disperses within wetland AN-LD 3.

Table 4-3 Soil Description Summary					
Soil Names	Symbol	% Slopes	Hydric (y/n)	Parent Material	Drainage Class
Lyman-Tunbridge-Rock outcrop complex	161C	3-15	N	Lyman: Loamy Till Underlain by Schist Bedrock; Tunbridge: Loamy Till Underlain by Granite	Lyman: Somewhat Excessively Drained; Tunbridge: Well Drained
Lyman-Tunbridge-Rock outcrop complex	161D	15-35	N	Lyman: Loamy Till Underlain by Schist Bedrock; Tunbridge: Loamy Till Underlain by Granite	Lyman: Somewhat Excessively Drained; Tunbridge: Well Drained
Tunbridge-Lyman-Monadnock complex, stony	160B	3-8	N	Tunbridge: Loamy Till Underlain by Granite; Lyman: Loamy Till Underlain by Schist Bedrock; Monadnock: Loam Underlain by Sandy Till	Tunbridge: Well Drained; Lyman: Somewhat Excessively Drained; Monadnock: Well Drained
Tunbridge-Lyman-Monadnock complex, stony	160C	8-15	N	Tunbridge: Loamy Till Underlain by Granite; Lyman: Loamy Till Underlain by Schist Bedrock; Monadnock: Loam Underlain by Sandy Till	Tunbridge: Well Drained; Lyman: Somewhat Excessively Drained; Monadnock: Well Drained
Marlow stony loam	77C	8-15	N	Loamy Till	Well Drained
Marlow stony loam	77D	15-35	N	Loamy Till	Well Drained
Rock outcrop	399			Granite	Excessively Drained
Colton Loamy Sand	22C	8-15	N	Sandy and Gavelly Outwash	Excessively Drained

4.6 Natural Resource Conservation Service Soil Series Descriptions

The following are the abbreviated descriptions of each of the relevant soil types taken from the USDA (Natural Resource Conservation Service) Official Soil Series Descriptions Online Soils Database and the Soil Survey Geographic Database (SSURGO) for Hillsborough County, New Hampshire, Western Part (USDA & NRCS 2009). Additional information regarding relevant soil characteristics are also summarized in Table 4-3. Soils mapping of the Project area is in Attachment A, Figure 3.

Tunbridge-Lyman-Monadnock complex, stony

Tunbridge Series: These very moderately deep, well drained soils formed in loamy till of Wisconsin age derived mainly from micaceous schist, gneiss, and phyllite. They are on mountain side slopes, mountain tops, mountain ridges, hill tops, and hill slopes. Slope ranges from 0 to 75 percent. The A horizon is typically very friable dark brown sandy loam, with weak fine granular structure. The B horizon is typically reddish brown to yellowish brown silt loams.

It is friable with subangular blocky structure. Bedrock is usually encountered at 28 inches.

Lyman Series: These shallow, somewhat excessively drained soils formed thin mantle of till and frost fractured rock fragments derived principally from gray, greenish gray, or nearly black mica schist rocks with lesser amounts of phyllite, granite, and gneiss. They are found on rocky hills, mountains and high plateaus. Slopes range from 3 to 35 percent. Ap horizons are typically black and 6 inches or more thick. Texture is sandy loam, fine sandy loam, very fine sandy loam, loam or silt loam in the fine-earth fraction. The E horizon generally is a reddish gray fine sandy loam, with very weak fine granular structure. The B horizon generally is a dark red to brown loam, with very weak fine granular structure. Bedrock is usually encountered at a depth of 18 inches.

Monadnock Series: These very deep, well drained soils formed in a loamy mantle underlain by acid, sandy till of Wisconsin age derived mainly from schist, granite, gneiss, and quartzite. They are on upland hills, plains, and mountain sideslopes. Slope ranges from 0-60 percent. The A horizon is typically very friable brown fine sandy loam. The E horizon generally is a light brownish gray sandy loam with a weak fine granular structure. The B horizon generally is reddish to yellowish brown, 5 to 23 inches deep, very friable with a weak fine granular structure. The C horizon consists of gravelly loamy sand extending to a depth of 65 inches.

Lyman-Tunbridge-Rock outcrop complex

Lyman Series: These shallow, somewhat excessively drained soils formed thin mantle of till and frost fractured rock fragments derived principally from gray, greenish gray, or nearly black mica schist rocks with lesser amounts of phyllite, granite, and gneiss. They are found on rocky hills, mountains and high plateaus. Slopes range from 3 to 35 percent. Ap horizons are typically black and 6 inches or more thick. Texture is sandy loam, fine sandy loam, very fine sandy loam, loam or silt loam in the fine-earth fraction. The E horizon generally is a reddish gray fine sandy loam, with very weak fine granular structure. The B horizon generally is a dark red to brown loam, with very weak fine granular structure. Bedrock is usually encountered at a depth of 18 inches.

Tunbridge Series: These very moderately deep, well drained soils formed in loamy till of Wisconsin age derived mainly from micaceous schist, gneiss, and phyllite. They are on mountain side slopes, mountain tops, mountain ridges, hill tops, and hill slopes. Slope ranges from 0 to 75 percent. The A horizon is typically very friable dark brown sandy loam, with weak fine granular structure. The B horizon is typically reddish brown to yellowish brown silt loams. It is friable with subangular blocky structure. Bedrock is usually encountered at 28 inches.

Marlow Series

These well drained soils formed in dense, loamy till derived mainly from mica schist, granite, and phyllite. They are found on drumlins and glaciated uplands. They are moderately deep to a densic contact and very deep to bedrock. Slope ranges from 0 to 60 percent. Typically, the A horizon is a friable very dark gray fine sandy loam with a moderate fine granular structure. Generally, the E horizon is gray fine sandy loam, with very friable consistence. The B horizon consists of a yellowish red to olive fine sandy loam with a weak fine granular structure. The C horizon is an olive gray fine sandy loam with moderate medium platy structure and is very firm.

Colton Series

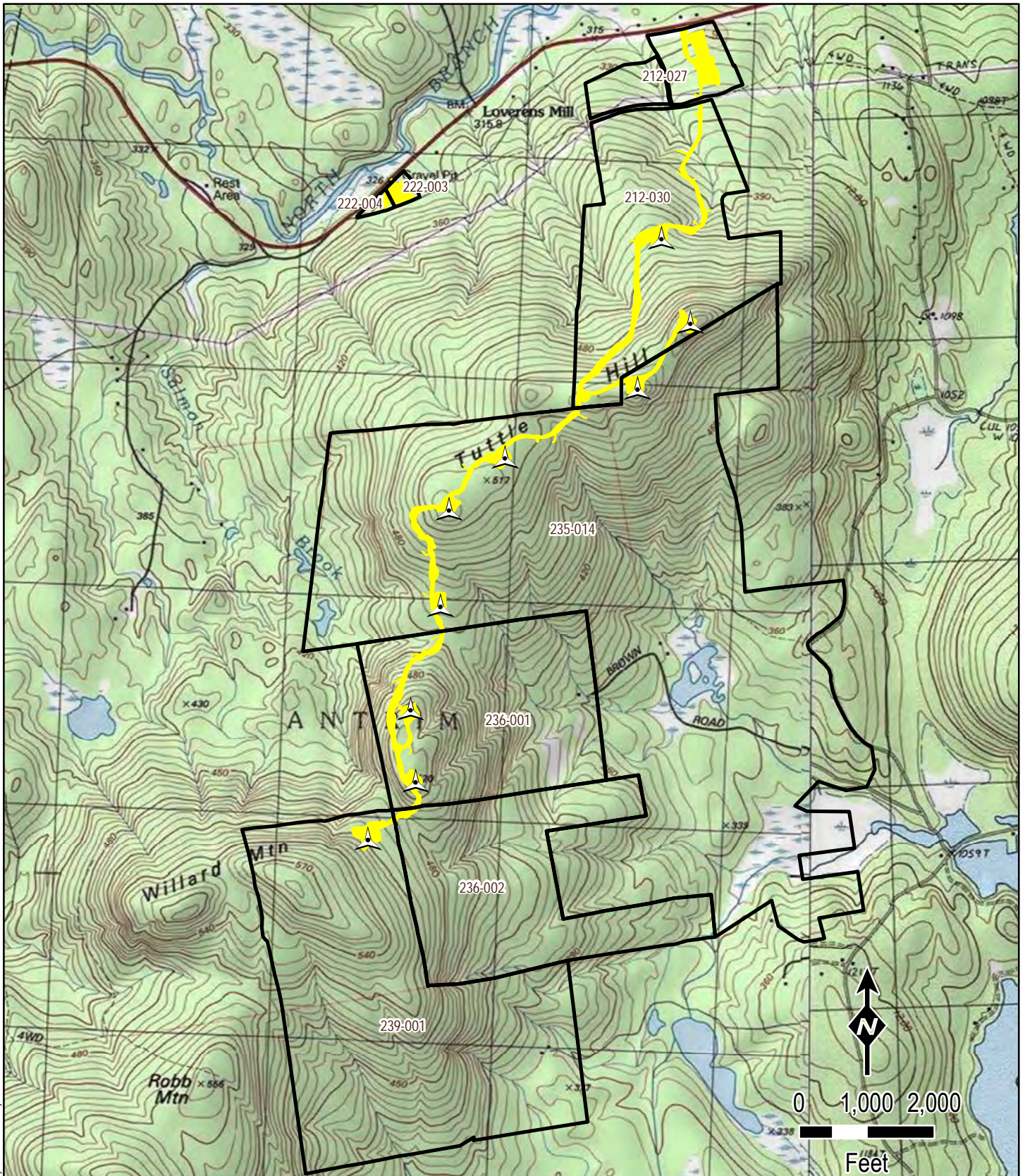
These excessively drained soils formed in sandy and gravelly glacial outwash derived mainly from granite till. They are found on outwash terraces, kames, and eskers. Slope ranges from 0 to 50 percent. The solum ranges from 18 to 36 inches in thickness. The content of rock fragments ranges from 10 to 55 percent in the solum and 35 to 70 percent in the C horizon. Some pedons have an A horizon that is dark reddish brown. The E horizon has gray to dark gray. The A and E horizons range from loamy coarse sand to fine sandy loam. The B horizon is dark reddish brown to reddish yellow. It ranges from coarse sand to loamy sand. The C horizon is dark reddish gray to reddish yellow.

5.0 REFERENCES

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<http://soils.usda.gov/technical/classification/scfile/index.html> . Site visited December 9, 2011.
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**ATTACHMENT A
PROJECT MAPPING**

V:\PROJECTS\AUGUSTA\ANTRIM\Figure C-1 Project Location Map.mxd

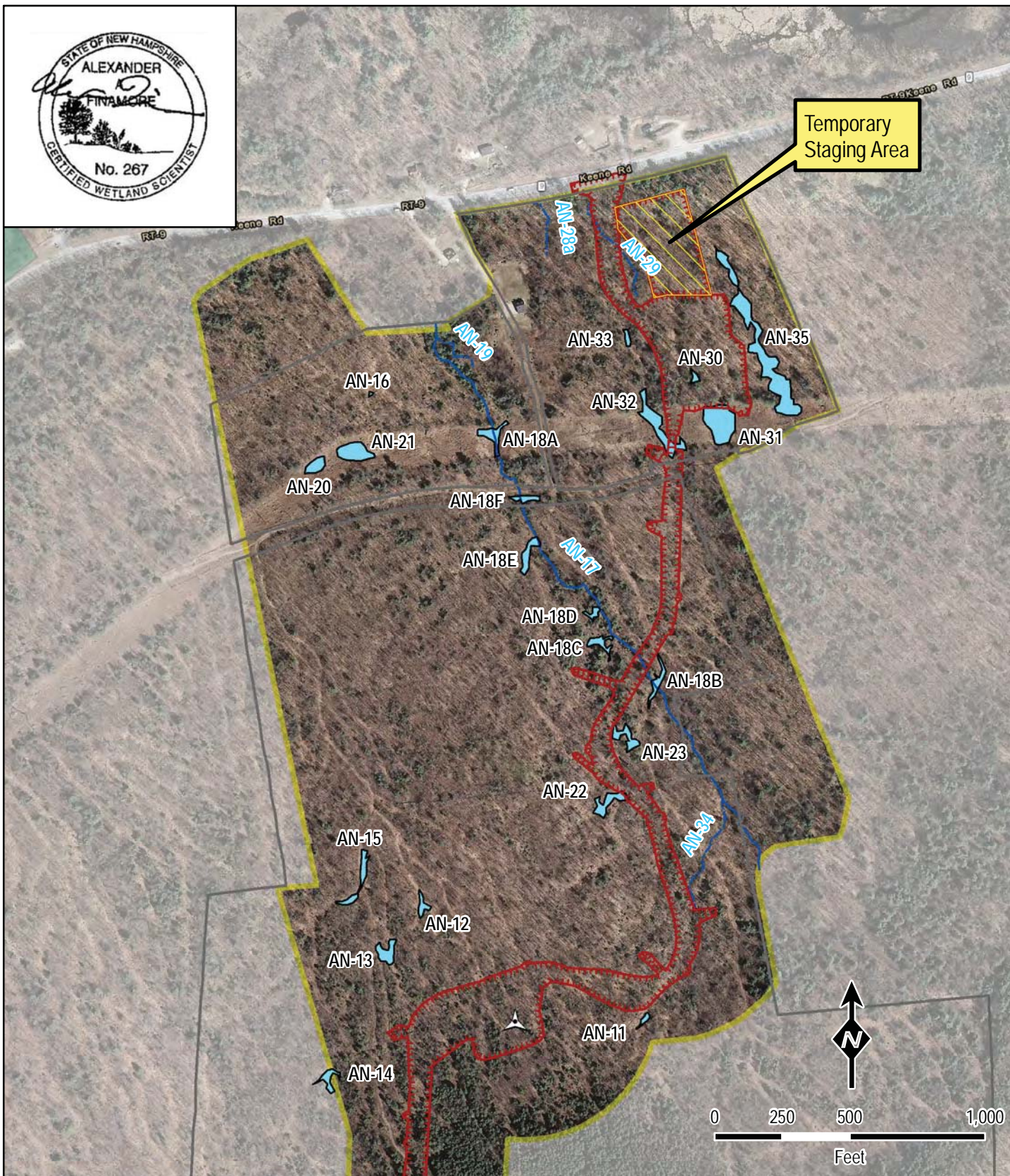


- Legend
- Proposed WTG
 - Project Footprint
 - Project Parcels

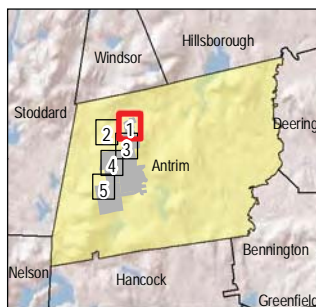
Antrim Wind Energy	
ANTRIM WIND ENERGY PROJECT	
354 KEENE ROAD, ANTRIM, NH	
Figure 1	
Project Location Map	
Produced by: CTRC	1/29/2015



Temporary
Staging Area



\\appesr1\GIS\PROJECTS\AUGUSTA\Antrim\ANTRIM\Figure 1_5_b_Natural Resource Survey Map.mxd



Legend

- Proposed WTG Location
- Proposed Disturbance Area
- Vernal Pool
- Project Parcels
- Existing Conserved Lands
- Resource Survey Area
- Wetlands
- Wetland Boundary
- Perennial Stream
- Intermittent Stream
- Drainage
- Stream Label
- Wetland Label

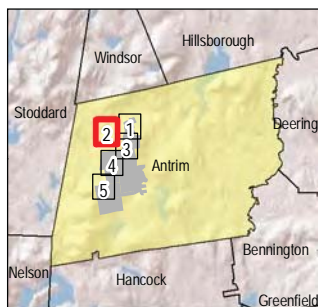
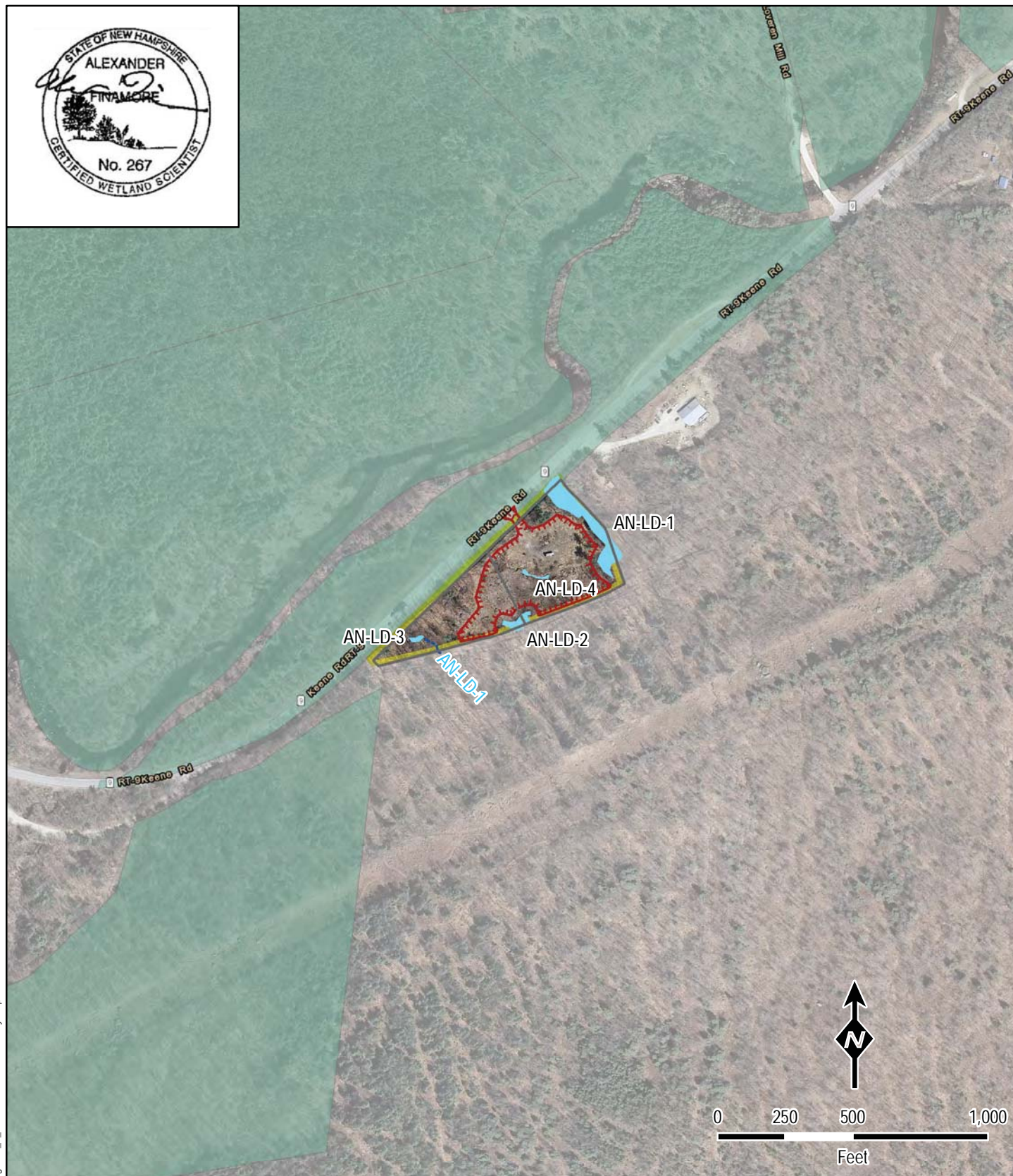
Antrim Wind Energy

ANTRIM WIND ENERGY PROJECT ANTRIM, NH

Figure 2
Natural Resource Survey Map
Map 1 of 5

Produced by: CTRC

7/6/2015



Legend

- Proposed WTG Location
- Proposed Disturbance Area
- Vernal Pool
- Project Parcels
- Existing Conserved Lands
- Resource Survey Area
- Wetlands
- Wetland Boundary
- Perennial Stream
- Intermittent Stream
- Drainage
- Stream Label
- Wetland Label

Antrim Wind Energy

ANTRIM WIND ENERGY PROJECT

ANTRIM, NH

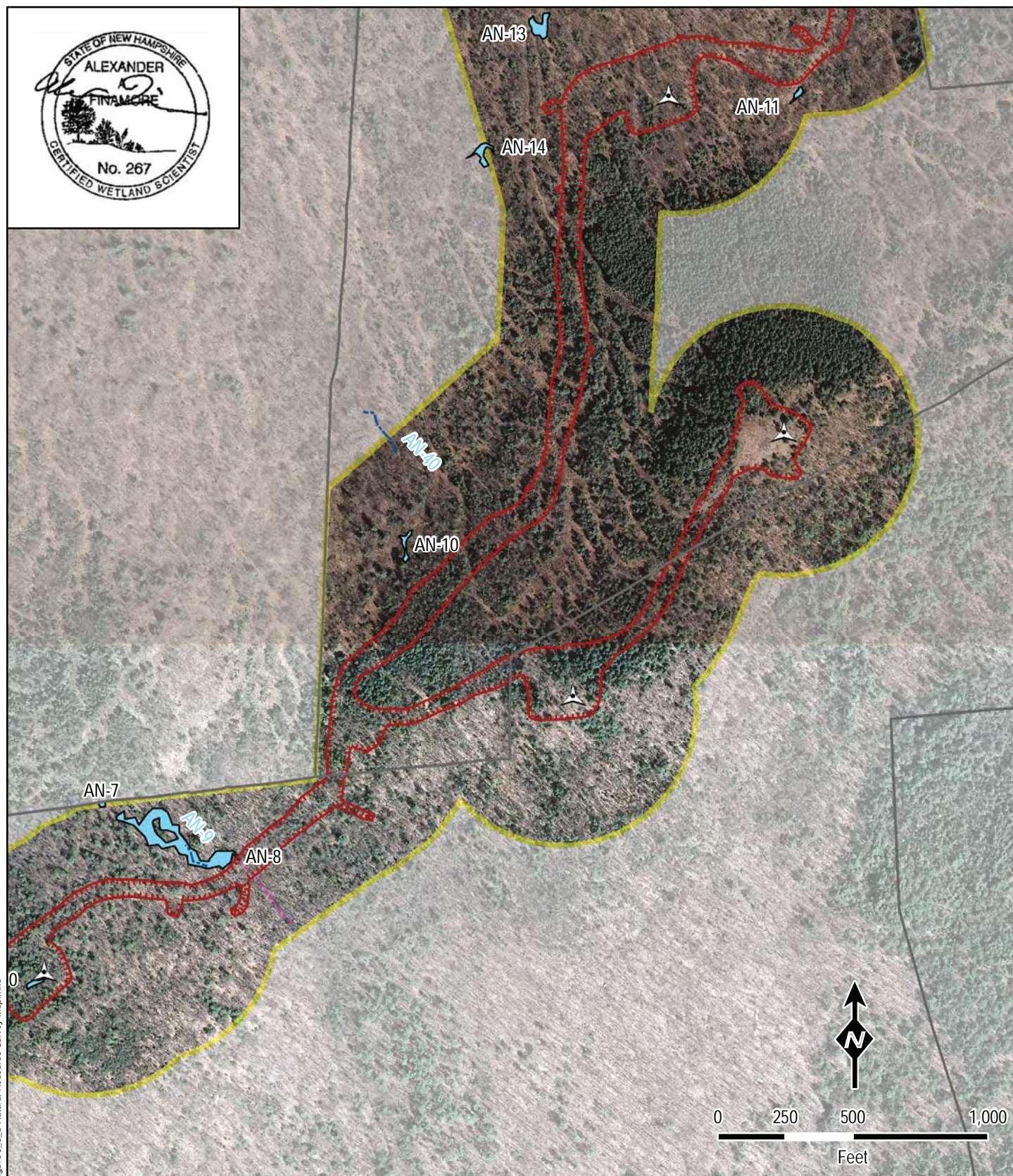
Figure 2

Natural Resource Survey Map

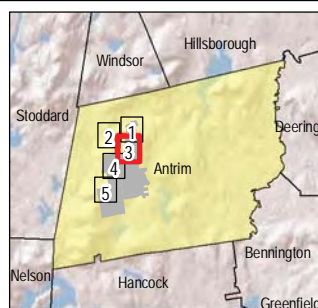
Map 2 of 5

Produced by: CTRC

7/6/2015



I:\GIS\PROJECTS\GUSTAE\ANTRIM\Figure 2_5_b Natural Resource Survey Map.mxd



Legend

- | | | | |
|--|---------------------------|--|---------------------|
| | Proposed WTG Location | | Wetlands |
| | Proposed Disturbance Area | | Wetland Boundary |
| | Vernal Pool | | Perennial Stream |
| | Project Parcels | | Intermittent Stream |
| | Existing Conserved Lands | | Drainage |
| | Resource Survey Area | | Stream Label |
| | | | Wetland Label |

Antrim Wind Energy

ANTRIM WIND ENERGY PROJECT

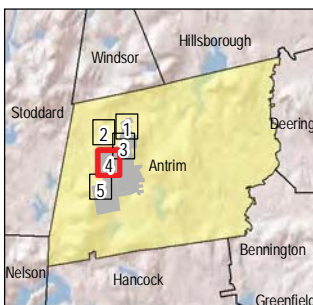
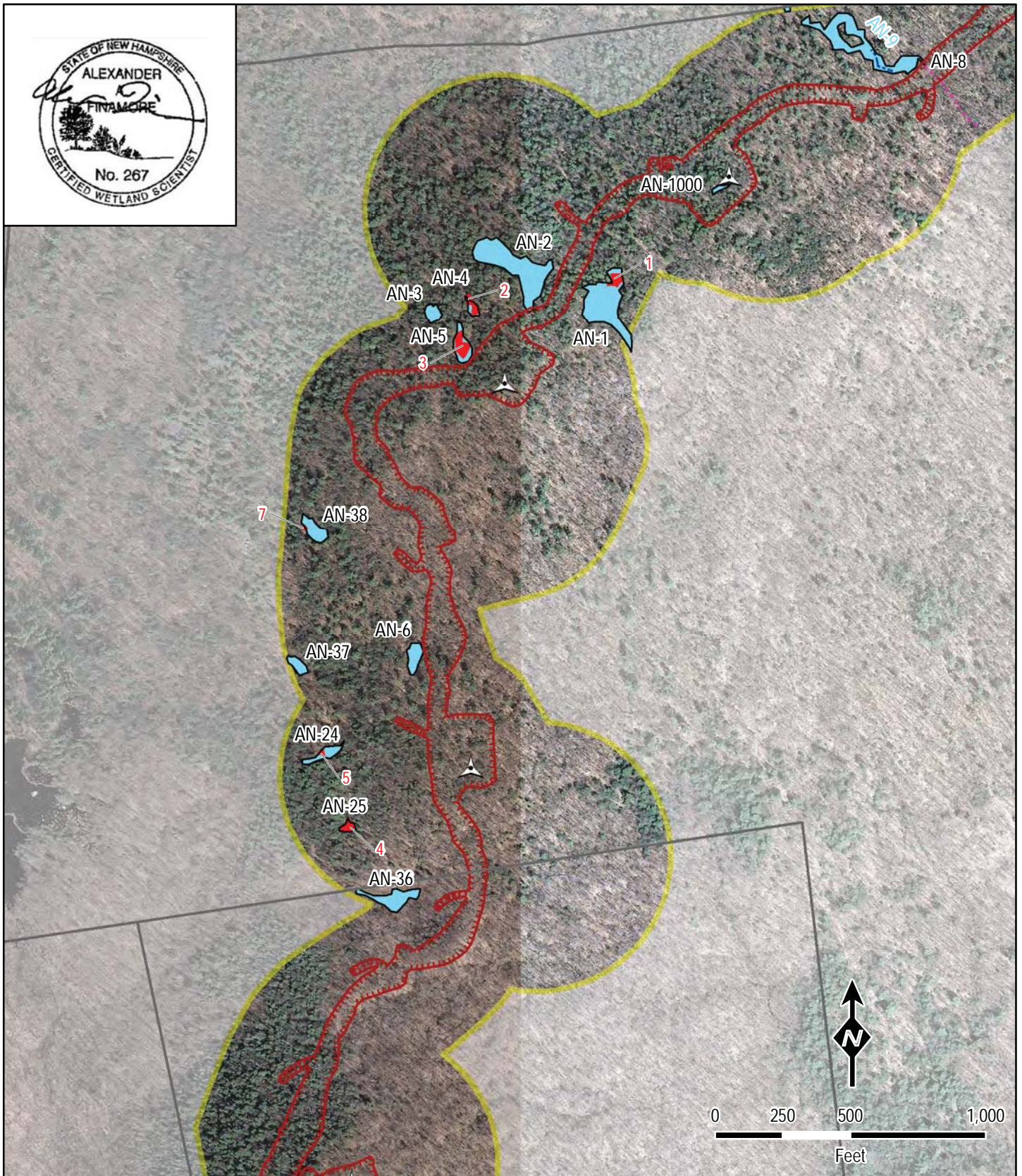
ANTRIM, NH

Figure 2

Natural Resource Survey Map
Map 3 of 5

Produced by: CTRC

7/6/2015



Legend

- Proposed WTG Location
- Proposed Disturbance Area
- Vernal Pool
- Project Parcels
- Existing Conserved Lands
- Resource Survey Area
- Wetlands
- Wetland Boundary
- Perennial Stream
- Intermittent Stream
- Drainage
- Stream Label
- Wetland Label

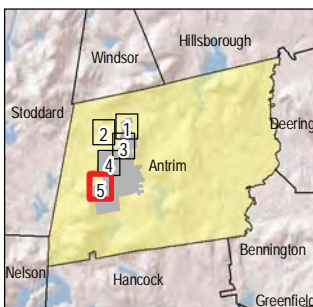
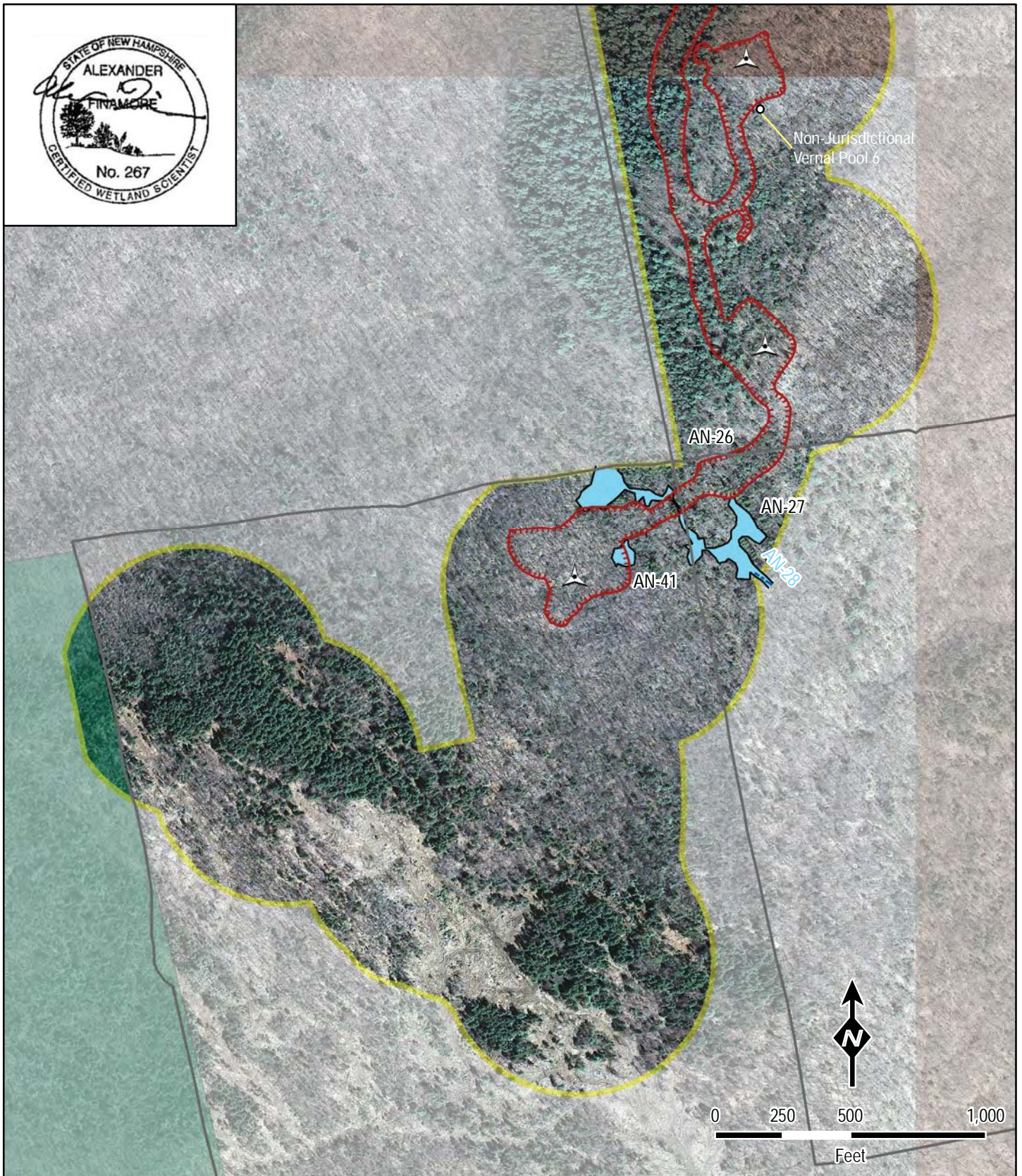
Antrim Wind Energy

ANTRIM WIND ENERGY PROJECT ANTRIM, NH Figure 2

Natural Resource Survey Map
Map 4 of 5

Produced by: CTRC

7/6/2015



Legend

- Proposed WTG Location
- Proposed Disturbance Area
- Vernal Pool
- Project Parcels
- Existing Conserved Lands
- Resource Survey Area
- Wetlands
- Wetland Boundary
- Perennial Stream
- Intermittent Stream
- Drainage
- Stream Label
- Wetland Label

Antrim Wind Energy

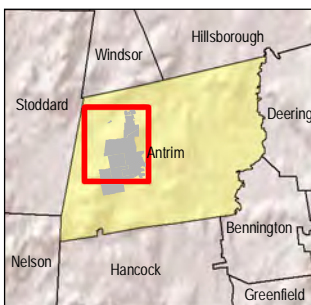
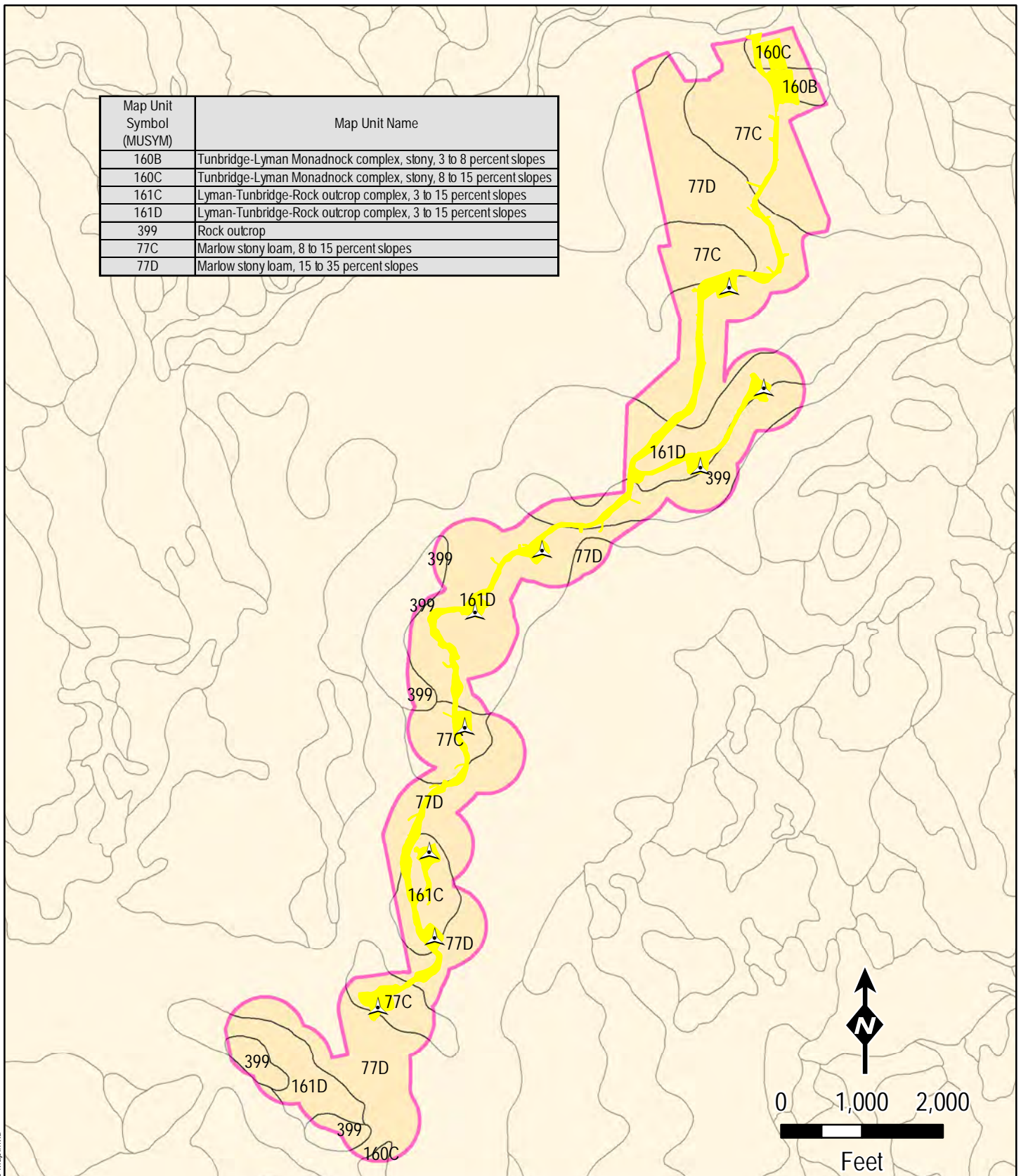
ANTRIM WIND ENERGY PROJECT ANTRIM, NH

Figure 2
Natural Resource Survey Map
Map 5 of 5





Produced by: CTRC

7/6/2015

Map Unit Symbol (MUSYM)	Map Unit Name
160B	Tunbridge-Lyman Monadnock complex, stony, 3 to 8 percent slopes
160C	Tunbridge-Lyman Monadnock complex, stony, 8 to 15 percent slopes
161C	Lyman-Tunbridge-Rock outcrop complex, 3 to 15 percent slopes
161D	Lyman-Tunbridge-Rock outcrop complex, 3 to 15 percent slopes
399	Rock outcrop
77C	Marlow stony loam, 8 to 15 percent slopes
77D	Marlow stony loam, 15 to 35 percent slopes




Legend

-  Proposed WTG
-  Proposed Project Area - 57 Acres
-  Resource Survey Area
-  NRCS SSURGO Soils



**ANTRIM WIND
ENERGY PROJECT**
354 KEENE ROAD, ANTRIM, NH

Figure 3
NRCS Soil Survey Map

Produced by: 

7/8/2015

ATTACHMENT B
PROFESSIONAL RESUME

ALEXANDER A. FINAMORE

EDUCATION

B.S., Environmental Science and Management, University of Rhode Island, 2004

AREAS OF EXPERTISE

Mr. Finamore has over 7 years experience encompassing

- Federal, State, and Local Environmental Permitting
- Wetland Delineations and Reports
- Subsurface Wastewater Disposal Design
- Vernal Pool Identification and Assessment
- Land Survey
- Preliminary Environmental Site Assessments (PESS)

REPRESENTATIVE EXPERIENCE

Mr. Finamore has completed or managed numerous wetland delineations and vernal pool surveys throughout the northeastern U.S., ranging from single house lots to large linear projects. Mr. Finamore has also completed or managed the permitting process and/or the preparation of technical documents in accordance to State and Federal site location, wetlands, and subsurface wastewater disposal system regulations.

Reunion Energy, Grandpa's Knob Wind Farm, Natural Resource Mapping – VT

Wetland Scientist, 2011 Mr. Finamore organized and directed field crews, performed wetland delineations along corridor of proposed 20 wind turbines and collector line, performed vernal pool surveys, attended site walk with client and pertinent state and federal regulators.

Eolian Wind, Antrim Wind Farm, Natural Resource Mapping – NH Wetland

Scientist, 2011 Mr. Finamore performed wetland delineations along corridor of proposed 10 wind turbines and collector line, performed vernal pool surveys, attended site walk with client and pertinent state and federal regulators

VELCO, Lines 350 & 370, Natural Resource Mapping – VT Wetland Scientist, 2011

Mr. Finamore organized and directed field crews, performed wetland delineations, wetland function and values assessments, stream classifications, and natural community surveys along existing transmission line right-of-ways

National Grid, 015S, Turtle Sweeps – MA Ecologist, 2011

Mr. Finamore performed Turtle Sweeps for Wood Turtle and Eastern Box Turtle for line restoration work due to tornado damage

National Grid, S9, Natural Resource Mapping – MA Wetland Scientist, 2011

Mr. Finamore performed wetland delineations for reconductoring along the S9 line.

National Grid, Y151, Natural Resource Mapping – MA Wetland Scientist, 2011

Mr. Finamore performed wetland delineations for reconductoring along the A126 line.

Spectra Energy, Wetland Permitting – CT, MA, RI Wetland Scientist, 2011 Mr. Finamore performed local and state wetland permitting for installation of launcher and receiver barrels for pipeline segments throughout Algonquin's distribution system

MBCR, Natural Resource Mapping – Walpole, MA Wetland Scientist, 2010 Mr. Finamore delineated watersheds for culvert sizing using GIS and ground truthing.

Central Maine Power, Co., Natural Resource Mapping and State and Federal Permit Application – ME Wetland Scientist, 2009-Present Mr. Finamore performed wetland delineations along proposed transmission line corridors, performed vernal pool surveys, performed routine stormwater inspections, performed invasive species inventories, field located resources and setbacks for pre-construction, prepared GIS maps and data tables for associated NRPA, Site Location of Development, and Army Corps of Engineers permitting, provided survey assistance on structure location and conductor height over major river crossings.

First Wind & 3Phase, Land Survey – Lincoln, ME Survey Technician, 2010 Mr. Finamore performed structure layout for the collector and transmission line servicing 40 wind turbines.

NSTAR, Natural Resource Mapping – RI Wetland Scientist, 2010 Mr. Finamore performed wetland delineations along an existing transmission line.

Town of Morrisville, FERC Pre-application Document – Morrisville, VT Ecologist, 2010 Mr. Finamore collected existing condition information regarding geologic, soil, wetland, wildlife, botanical, and rare, threatened and endangered species pertinent to FERC relicensing from federal, state, and local agencies for four hydroelectric dams.

Bangor Hydro, Natural Resource Mapping and State and Federal Permit Application, Ellsworth – ME Wetland Scientist, 2009-2010 Mr. Finamore performed wetland delineations along proposed transmission line corridors, assessed potential access roads for viability, prepared GIS maps and data tables for associated NRPA, Site Location of Development, and Army Corps of Engineers permitting.

National Grid, A127, Natural Resource Mapping – MA Wetland Scientist, 2009 Mr. Finamore performed wetland delineations for reconductoring along the A126 line.

VELCO, PV-20, Natural Resource Mapping – VT Wetland Scientist, 2009 Mr. Finamore performed wetland delineations, wetland function and values assessments, stream classifications, and natural community surveys along existing transmission line right-of-ways.

L.L. Bean, Inc., Natural Resource Mapping and Permitting – Freeport, ME Wetland Scientist & Survey Technician, 2005-2008 Mr. Finamore performed wetland delineations, vernal pool surveys, topographic mapping, and prepared Natural

Resource Protection Act applications and assisted with Site Location of Development Act applications.

First Wind, Natural Resource Mapping – ME Wetland Scientist, 2006-2007 Mr. Finamore performed wetland delineations and vernal pool surveys for the First Wind Stetson Wind Farm and associated transmission line corridors.

Bangor Hydro Electric Company, Natural Resource Mapping – Bangor, ME Wetland Scientist, 2008 Mr. Finamore performed wetland delineations and vernal pool surveys for the rebuild of Line 64.

Maine Coast Heritage Trust, Natural Resource Inventory – Stonington, ME Wetland Scientist, 2009 Mr. Finamore performed a Natural Resource inventory of 11 properties managed by MCHT. Inventories included gathering of available GIS data, historical aerial photography, and historical accounts of land use, vegetative inventories, soil evaluations, and wildlife observations.

Zyacorp Cinemagic, Natural Resource Mapping, Environmental Permit Applications, Environmental Site Assessment and Topographic Mapping – Westbrook and Saco, ME Environmental Scientist & Survey Technician, 2005-2009 Mr. Finamore performed wetland delineations, vernal pool surveys, topographic mapping on commercial properties. Mr. Finamore prepared environmental permit applications under Maine's Natural Resource Protection Act and a Preliminary Environmental Assessment on the Saco property.

New England College, Environmental Permit Application – Henniker, NH Wetland Scientist, 2009 Mr. Finamore prepared environmental permit applications under New Hampshire's Fill and Dredge in Wetlands statute for the installation of an athletic field.

Bangor Retirement Community, Wetland Mitigation Design and Monitoring – Bangor, ME Wetland Scientist, 2007-2009 Mr. Finamore assisted with the design of a wetland creation area mitigating over an acre of wetland disturbance. Mr. Finamore performed annual monitoring of the mitigation area and submitted reports to the Maine Department of Environmental Protection.

Town of Wells, Salt Marsh Erosion Monitoring – Wells, ME Wetland Scientist, 2004 Mr. Finamore mapped erosional features within a coastal marsh and inventoried vegetation and wildlife

CERTIFICATIONS AND TRAINING

Certified Wetland Scientist, #267, NH
Licensed Site Evaluator, #391, ME

AFFILIATIONS

Maine Association of Wetland Scientists – Member (Member since 2005)
Maine Association of Site Evaluators – Member (Member since 2005)

ATTACHMENT C
U.S. ARMY CORPS OF ENGINEERS
WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 10-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN1 Wet

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): hummocky Slope: 0.0 % / 0.0 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

VP-1, Isolated, No overland drainage

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input checked="" type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): 4	Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Water Table Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): 3	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): 0	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN1 Wet

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <u>Acer rubrum</u>	20	<input checked="" type="checkbox"/> 50.0%	FAC
2. <u>Picea mariana</u>	20	<input checked="" type="checkbox"/> 50.0%	FACW-
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
40 = Total Cover			
Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <u>Betula alleghaniensis</u>	10	<input checked="" type="checkbox"/> 25.0%	FAC
2. <u>Picea mariana</u>	15	<input checked="" type="checkbox"/> 37.5%	FACW-
3. <u>Vaccinium corymbosum</u>	15	<input checked="" type="checkbox"/> 37.5%	FACW-
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
40 = Total Cover			
Herb Stratum (Plot size: 5')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <u>Carex intumescens</u>	15	<input checked="" type="checkbox"/> 45.5%	FACW+
2. <u>Osmunda cinnamomea</u>	10	<input checked="" type="checkbox"/> 30.3%	FACW
3. <u>Coptis trifolia</u>	8	<input checked="" type="checkbox"/> 24.2%	FACW
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
33 = Total Cover			
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>83</u>	x 2 = <u>166</u>
FAC species <u>30</u>	x 3 = <u>90</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>113</u> (A)	<u>256</u> (B)
Prevalence Index = B/A = <u>2.265</u>	

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤ 3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 10-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN1 Upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): none Slope: 5.0 % / 2.9 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN1 Upland

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <i>Fagus grandifolia</i>	25	<input checked="" type="checkbox"/> 30.1%	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>28.6%</u> (A/B)
2. <i>Picea rubens</i>	33	<input checked="" type="checkbox"/> 39.8%	FACU	
3. <i>Acer rubrum</i>	25	<input checked="" type="checkbox"/> 30.1%	FAC	
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
Sapling/Shrub Stratum (Plot size: 15')	83 = Total Cover			Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 38 x 3 = 114 FACU species 91 x 4 = 364 UPL species 0 x 5 = 0 Column Totals: 129 (A) 478 (B) Prevalence Index = B/A = 3.705
1. <i>Picea rubens</i>	10	<input checked="" type="checkbox"/> 55.6%	FACU	
2. <i>Fagus grandifolia</i>	3	<input type="checkbox"/> 16.7%	FACU	
3. <i>Vaccinium angustifolium</i>	5	<input checked="" type="checkbox"/> 27.8%	FACU-	
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
Herb Stratum (Plot size: 5')	18 = Total Cover			Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Aralia nudicaulis</i>	5	<input type="checkbox"/> 16.1%	FACU	
2. <i>Lycopodium obscurum</i>	10	<input checked="" type="checkbox"/> 32.3%	FACU	
3. <i>Malanthemum canadense</i>	3	<input type="checkbox"/> 9.7%	FAC-	
4. <i>trillium spp.</i>	3	<input type="checkbox"/> 9.7%		
5. <i>Trientalis borealis</i>	10	<input checked="" type="checkbox"/> 32.3%	FAC	
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
11. _____	0	<input type="checkbox"/> 0.0%		
12. _____	0	<input type="checkbox"/> 0.0%		
Woody Vine Stratum (Plot size: _____)	31 = Total Cover			
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
	0 = Total Cover			Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]



AN1 Wetland



AN1 Wetland



AN1 Upland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 10-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN2 Wet

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Ridgetop Local relief (concave, convex, none): concave Slope: 0.0 % / 0.0 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PFO/PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Isolated Bat Radar location

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Water Table Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches):	9	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches):	0	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN2 Wet

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <i>Picea mariana</i>	25	<input checked="" type="checkbox"/> 55.6%	FACW-
2. <i>Betula alleghaniensis</i>	20	<input checked="" type="checkbox"/> 44.4%	FAC
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
45 = Total Cover			
Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <i>Picea mariana</i>	10	<input checked="" type="checkbox"/> 33.3%	FACW-
2. <i>Spiraea latifolia</i>	10	<input checked="" type="checkbox"/> 33.3%	FAC+
3. <i>Vaccinium corymbosum</i>	10	<input checked="" type="checkbox"/> 33.3%	FACW-
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
30 = Total Cover			
Herb Stratum (Plot size: 5')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <i>Eriophorum virginicum</i>	100	<input checked="" type="checkbox"/> 90.9%	OBL
2. <i>Osmunda cinnamomea</i>	5	<input type="checkbox"/> 4.5%	FACW
3. <i>Rubus hispidoides</i>	5	<input type="checkbox"/> 4.5%	FACW
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
110 = Total Cover			
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>100</u>	x 1 = <u>100</u>
FACW species <u>55</u>	x 2 = <u>110</u>
FAC species <u>30</u>	x 3 = <u>90</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>185</u> (A)	<u>300</u> (B)
Prevalence Index = B/A = <u>1.622</u>	

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤ 3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 10-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN2 upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Ridgetop Local relief (concave, convex, none): none Slope: 3.0 % / 1.7 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN2 upland

Tree Stratum (Plot size: 30')	Absolute % Cover	Indicator Status	Dominance Test worksheet:
1. <u>Quercus rubra</u>	35	<input checked="" type="checkbox"/> 58.3% FACU-	Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>28.6%</u> (A/B)
2. <u>Pinus strobus</u>	25	<input checked="" type="checkbox"/> 41.7% FACU	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
Sapling/Shrub Stratum (Plot size: 15') <div>60 = Total Cover</div>			Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 20 x 3 = 60 FACU species 105 x 4 = 420 UPL species 0 x 5 = 0 Column Total s: 125 (A) 480 (B) Prevalence Index = B/A = 3.840
1. <u>Acer rubrum</u>	10	<input checked="" type="checkbox"/> 18.2% FAC	
2. <u>Betula papyrifera</u>	5	<input type="checkbox"/> 9.1% FACU	
3. <u>Fagus grandifolia</u>	10	<input checked="" type="checkbox"/> 18.2% FACU	
4. <u>Picea rubens</u>	25	<input checked="" type="checkbox"/> 45.5% FACU	
5. <u>Betula alleghaniensis</u>	5	<input type="checkbox"/> 9.1% FAC	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
Herb Stratum (Plot size: 5') <div>55 = Total Cover</div>			Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Vaccinium angustifolium</u>	5	<input checked="" type="checkbox"/> 50.0% FACU-	
2. <u>Trientalis borealis</u>	5	<input checked="" type="checkbox"/> 50.0% FAC	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
Woody Vine Stratum (Plot size: _____) <div>10 = Total Cover</div>			Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: (Include photo numbers here or on a separate sheet.)			

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: AN2 upland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-4	10YR	3/2	100%				Loam	
4-12	10YR	4/6	100%				Fine Sandy Loam	
12-16	10YR	5/8	100%				Fine Sandy Loam	

¹ Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains

² Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

☐ Histosol (A1)

☐ Histic Epipedon (A2)

☐ Black Histic (A3)

☐ Hydrogen Sulfide (A4)

☐ Stratified Layers (A5)

☐ Depleted Below Dark Surface (A11)

☐ Thick Dark Surface (A12)

☐ Sandy Muck Mineral (S1)

☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)

☐ Stripped Matrix (S6)

☐ Dark Surface (S7) (LRR R, MLRA 149B)

☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)

☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)

☐ Loamy Mucky Mineral (F1) LRR K, L)

☐ Loamy Gleyed Matrix (F2)

☐ Depleted Matrix (F3)

☐ Redox Dark Surface (F6)

☐ Depleted Dark Surface (F7)

☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : ³

☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)

☐ Coast Prairie Redox (A16) (LRR K, L, R)

☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)

☐ Dark Surface (S7) (LRR K, L)

☐ Polyvalue Below Surface (S8) (LRR K, L)

☐ Thin Dark Surface (S9) (LRR K, L)

☐ Iron-Manganese Masses (F12) (LRR K, L, R)

☐ Piedmont Floodplain Soils (F19) (MLRA 149B)

☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)

☐ Red Parent Material (TF2)

☐ Very Shallow Dark Surface (TF12)

☐ Other (Explain in Remarks)

³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present?

Yes

No

Remarks:



AN2 Wetland



AN2 Wetland



AN2 Wetland



AN2 Upland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 10-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN3 Wet

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Ridgetop Local relief (concave, convex, none): hummocky Slope: 0.0 % / 0.0 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: (Explain alternative procedures here or in a separate report.) No outlet, No VP	

Hydrology

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of 2 required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-neutral Test (D5)	
Field Observations: Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): <u> </u> Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): <u> </u> Saturation Present? (includes capillary fringe) Yes <input checked="" type="radio"/> No <input type="radio"/> Depth (inches): <u>0</u>			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN3 Wet

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <u>Acer rubrum</u>	20	<input checked="" type="checkbox"/> 100.0%	FAC	Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A)
2. _____	0	<input type="checkbox"/> 0.0%		Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. _____	0	<input type="checkbox"/> 0.0%		Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
Sapling/Shrub Stratum (Plot size: 15')	20 = Total Cover			Prevalence Index worksheet:
1. <u>Picea mariana</u>	15	<input checked="" type="checkbox"/> 37.5%	FACW-	Total % Cover of: <u>20</u> Multiply by: <u>1</u> = <u>20</u>
2. <u>Acer rubrum</u>	5	<input type="checkbox"/> 12.5%	FAC	OBL species <u>20</u> x <u>2</u> = <u>100</u>
3. <u>Vaccinium corymbosum</u>	20	<input checked="" type="checkbox"/> 50.0%	FACW-	FAC species <u>25</u> x <u>3</u> = <u>75</u>
4. _____	0	<input type="checkbox"/> 0.0%		FACU species <u>0</u> x <u>4</u> = <u>0</u>
5. _____	0	<input type="checkbox"/> 0.0%		UPL species <u>0</u> x <u>5</u> = <u>0</u>
6. _____	0	<input type="checkbox"/> 0.0%		Column Totals: <u>95</u> (A) <u>195</u> (B)
7. _____	0	<input type="checkbox"/> 0.0%		Prevalence Index = B/A = <u>2.053</u>
Herb Stratum (Plot size: 5')	40 = Total Cover			Hydrophytic Vegetation Indicators:
1. <u>Osmunda cinnamomea</u>	15	<input checked="" type="checkbox"/> 42.9%	FACW	<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation
2. <u>Carex stricta</u>	20	<input checked="" type="checkbox"/> 57.1%	OBL	<input checked="" type="checkbox"/> Dominance Test is > 50%
3. _____	0	<input type="checkbox"/> 0.0%		<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹
4. _____	0	<input type="checkbox"/> 0.0%		<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____	0	<input type="checkbox"/> 0.0%		<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____	0	<input type="checkbox"/> 0.0%		¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____	0	<input type="checkbox"/> 0.0%		Definitions of Vegetation Strata:
8. _____	0	<input type="checkbox"/> 0.0%		Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
9. _____	0	<input type="checkbox"/> 0.0%		Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..
10. _____	0	<input type="checkbox"/> 0.0%		Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
11. _____	0	<input type="checkbox"/> 0.0%		Woody vine - All woody vines greater than 3.28 ft in height.
12. _____	0	<input type="checkbox"/> 0.0%		
Woody Vine Stratum (Plot size: _____)	35 = Total Cover			
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
	0 = Total Cover			

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 10-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN3 Upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Ridgetop Local relief (concave, convex, none): none Slope: 3.0 % / 1.7 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

bouldery

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches):

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN3 Upland

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:																																																				
1. <u>Picea rubens</u>	66	<input checked="" type="checkbox"/> 66.7%	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)																																																				
2. <u>Pinus strobus</u>	33	<input checked="" type="checkbox"/> 33.3%	FACU																																																					
3. _____	0	<input type="checkbox"/> 0.0%																																																						
4. _____	0	<input type="checkbox"/> 0.0%																																																						
5. _____	0	<input type="checkbox"/> 0.0%																																																						
6. _____	0	<input type="checkbox"/> 0.0%																																																						
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Sapling/Shrub Stratum (Plot size: 15') <table border="1"> <thead> <tr> <th></th> <th>Absolute % Cover</th> <th>Rel.Strat. Cover</th> <th>Indicator Status</th> </tr> </thead> <tbody> <tr> <td>1. <u>Picea rubens</u></td> <td>10</td> <td><input checked="" type="checkbox"/> 100.0%</td> <td>FACU</td> </tr> <tr> <td>2. _____</td> <td>0</td> <td><input type="checkbox"/> 0.0%</td> <td></td> </tr> <tr> <td>3. _____</td> <td>0</td> <td><input type="checkbox"/> 0.0%</td> <td></td> </tr> <tr> <td>4. _____</td> <td>0</td> <td><input type="checkbox"/> 0.0%</td> <td></td> </tr> <tr> <td>5. _____</td> <td>0</td> <td><input type="checkbox"/> 0.0%</td> <td></td> </tr> <tr> <td>6. _____</td> <td>0</td> <td><input type="checkbox"/> 0.0%</td> <td></td> </tr> <tr> <td>7. _____</td> <td>0</td> <td><input type="checkbox"/> 0.0%</td> <td></td> </tr> </tbody> </table>					Absolute % Cover	Rel.Strat. Cover	Indicator Status	1. <u>Picea rubens</u>	10	<input checked="" type="checkbox"/> 100.0%	FACU	2. _____	0	<input type="checkbox"/> 0.0%		3. _____	0	<input type="checkbox"/> 0.0%		4. _____	0	<input type="checkbox"/> 0.0%		5. _____	0	<input type="checkbox"/> 0.0%		6. _____	0	<input type="checkbox"/> 0.0%		7. _____	0	<input type="checkbox"/> 0.0%		Prevalence Index worksheet: Total % Cover of: <u>115</u> Multiply by: <u>4</u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>115</u> x 4 = <u>460</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>115</u> (A) <u>460</u> (B) Prevalence Index = B/A = <u>4.000</u>																				
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	Absolute % Cover	Rel.Strat. Cover	Indicator Status																																																					
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Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]



AN3 Wetland



AN3 Upland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 10-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN4 Wet

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Ridgetop Local relief (concave, convex, none): hummocky Slope: 0.0 % / 0.0 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: (Explain alternative procedures here or in a separate report.) VP-2	

Hydrology

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of 2 required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-neutral Test (D5)	
Field Observations: Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input checked="" type="radio"/> No <input type="radio"/> Depth (inches): 0		Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: sphagnum carpet			

VEGETATION - Use scientific names of plants

Dominant
Species?

Sampling Point: **AN4 Wet**

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:	
1. <u>Acer rubrum</u>	50	<input checked="" type="checkbox"/> 100.0%	FAC	Number of Dominant Species That are OBL, FACW, or FAC:	4 (A)
2. _____	0	<input type="checkbox"/> 0.0%		Total Number of Dominant Species Across All Strata:	4 (B)
3. _____	0	<input type="checkbox"/> 0.0%		Percent of dominant Species That Are OBL, FACW, or FAC:	100.0% (A/B)
4. _____	0	<input type="checkbox"/> 0.0%			
5. _____	0	<input type="checkbox"/> 0.0%			
6. _____	0	<input type="checkbox"/> 0.0%			
7. _____	0	<input type="checkbox"/> 0.0%			
Sapling/Shrub Stratum (Plot size: 15')	50 = Total Cover			Prevalence Index worksheet:	
1. <u>Acer rubrum</u>	15	<input checked="" type="checkbox"/> 33.3%	FAC	Total % Cover of:	Multiply by:
2. <u>Vaccinium corymbosum</u>	30	<input checked="" type="checkbox"/> 66.7%	FACW-	OBL species 0	x 1 = 0
3. _____	0	<input type="checkbox"/> 0.0%		FACW species 35	x 2 = 70
4. _____	0	<input type="checkbox"/> 0.0%		FAC species 65	x 3 = 195
5. _____	0	<input type="checkbox"/> 0.0%		FACU species 0	x 4 = 0
6. _____	0	<input type="checkbox"/> 0.0%		UPL species 0	x 5 = 0
7. _____	0	<input type="checkbox"/> 0.0%		Column Totals:	100 (A) 265 (B)
	45 = Total Cover			Prevalence Index = B/A = 2.650	
Herb Stratum (Plot size: 5')				Hydrophytic Vegetation Indicators:	
1. <u>Osmunda cinnamomea</u>	5	<input checked="" type="checkbox"/> 100.0%	FACW	<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation	
2. _____	0	<input type="checkbox"/> 0.0%		<input checked="" type="checkbox"/> Dominance Test is > 50%	
3. _____	0	<input type="checkbox"/> 0.0%		<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹	
4. _____	0	<input type="checkbox"/> 0.0%		<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
5. _____	0	<input type="checkbox"/> 0.0%		<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
6. _____	0	<input type="checkbox"/> 0.0%		¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
7. _____	0	<input type="checkbox"/> 0.0%		Definitions of Vegetation Strata:	
8. _____	0	<input type="checkbox"/> 0.0%		Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.	
9. _____	0	<input type="checkbox"/> 0.0%		Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..	
10. _____	0	<input type="checkbox"/> 0.0%		Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
11. _____	0	<input type="checkbox"/> 0.0%		Woody vine - All woody vines greater than 3.28 ft in height.	
12. _____	0	<input type="checkbox"/> 0.0%			
Woody Vine Stratum (Plot size: _____)	5 = Total Cover				
1. _____	0	<input type="checkbox"/> 0.0%			
2. _____	0	<input type="checkbox"/> 0.0%			
3. _____	0	<input type="checkbox"/> 0.0%			
4. _____	0	<input type="checkbox"/> 0.0%			
	0 = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point:

AN4 Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features							Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²					
0-6	10YR	3/2	100%						Loam		
6-10	2.5Y	4/1	100%						Fine Sandy Loam		
10+										Bedrock	

¹Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☒ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Muck Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7) (LRR R, MLRA 149B)

☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
☐ Loamy Mucky Mineral (F1) LRR K, L)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils :³

☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
☐ Coast Prairie Redox (A16) (LRR K, L, R)
☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
☐ Dark Surface (S7) (LRR K, L)
☐ Polyvalue Below Surface (S8) (LRR K, L)
☐ Thin Dark Surface (S9) (LRR K, L)
☐ Iron-Manganese Masses (F12) (LRR K, L, R)
☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: bedrock
Depth (inches): 10

Hydric Soil Present?

Yes☒

No☐

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 10-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN4 Upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Ridgetop Local relief (concave, convex, none): convex Slope: 0.0 % / 0.0 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN4 Upland

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:																																																				
1. <u>Quercus rubra</u>	30	<input checked="" type="checkbox"/> 37.5%	FACU-	Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>14.3%</u> (A/B)																																																				
2. <u>Pinus strobus</u>	25	<input checked="" type="checkbox"/> 31.3%	FACU																																																					
3. <u>Picea rubens</u>	25	<input checked="" type="checkbox"/> 31.3%	FACU																																																					
4. _____	0	<input type="checkbox"/> 0.0%																																																						
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Sapling/Shrub Stratum (Plot size: 15') <table border="1"> <thead> <tr> <th></th> <th>Absolute % Cover</th> <th>Rel.Strat. Cover</th> <th>Indicator Status</th> </tr> </thead> <tbody> <tr> <td>1. <u>Betula papyrifera</u></td> <td>5</td> <td><input type="checkbox"/> 10.0%</td> <td>FACU</td> </tr> <tr> <td>2. <u>Picea rubens</u></td> <td>15</td> <td><input checked="" type="checkbox"/> 30.0%</td> <td>FACU</td> </tr> <tr> <td>3. <u>Vaccinium angustifolium</u></td> <td>25</td> <td><input checked="" type="checkbox"/> 50.0%</td> <td>FACU-</td> </tr> <tr> <td>4. <u>Fagus grandifolia</u></td> <td>5</td> <td><input type="checkbox"/> 10.0%</td> <td>FACU</td> </tr> <tr> <td>5. _____</td> <td>0</td> <td><input type="checkbox"/> 0.0%</td> <td></td> </tr> <tr> <td>6. _____</td> <td>0</td> <td><input type="checkbox"/> 0.0%</td> <td></td> </tr> <tr> <td>7. _____</td> <td>0</td> <td><input type="checkbox"/> 0.0%</td> <td></td> </tr> </tbody> </table>					Absolute % Cover	Rel.Strat. Cover	Indicator Status	1. <u>Betula papyrifera</u>	5	<input type="checkbox"/> 10.0%	FACU	2. <u>Picea rubens</u>	15	<input checked="" type="checkbox"/> 30.0%	FACU	3. <u>Vaccinium angustifolium</u>	25	<input checked="" type="checkbox"/> 50.0%	FACU-	4. <u>Fagus grandifolia</u>	5	<input type="checkbox"/> 10.0%	FACU	5. _____	0	<input type="checkbox"/> 0.0%		6. _____	0	<input type="checkbox"/> 0.0%		7. _____	0	<input type="checkbox"/> 0.0%		Prevalence Index worksheet: Total % Cover of: <u>80</u> = Total Cover Multiply by: OBL species <u>0</u> x <u>1</u> = <u>0</u> FACW species <u>0</u> x <u>2</u> = <u>0</u> FAC species <u>5</u> x <u>3</u> = <u>15</u> FACU species <u>135</u> x <u>4</u> = <u>540</u> UPL species <u>0</u> x <u>5</u> = <u>0</u> Column Totals: <u>140</u> (A) <u>555</u> (B) Prevalence Index = B/A = <u>3.964</u>																				
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Remarks: (Include photo numbers here or on a separate sheet.)				Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>																																																				

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: **AN4 Upland**

[illegible]



AN4 Wetland



AN4 Upland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 10-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN5 Wet

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Ridgetop Local relief (concave, convex, none): hummocky Slope: 0.0 % / 0.0 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: (Explain alternative procedures here or in a separate report.) Isolated, VP-3	

Hydrology

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of 2 required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-neutral Test (D5)	
Field Observations: Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input checked="" type="radio"/> No <input type="radio"/> Depth (inches): 0		Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Sphagnum carpet			

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN5 Wet

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <u>Acer rubrum</u>	15	<input checked="" type="checkbox"/> 100.0%	FAC	Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A)
2. _____	0	<input type="checkbox"/> 0.0%		Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	0	<input type="checkbox"/> 0.0%		Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
Sapling/Shrub Stratum (Plot size: 15')	15 = Total Cover			Prevalence Index worksheet:
1. <u>Vaccinium corymbosum</u>	25	<input checked="" type="checkbox"/> 62.5%	FACW-	Total % Cover of: <u>0</u> Multiply by: <u>0</u>
2. <u>Picea mariana</u>	5	<input type="checkbox"/> 12.5%	FACW-	OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Spiraea latifolia</u>	10	<input checked="" type="checkbox"/> 25.0%	FAC+	FACW species <u>96</u> x 2 = <u>192</u>
4. _____	0	<input type="checkbox"/> 0.0%		FAC species <u>25</u> x 3 = <u>75</u>
5. _____	0	<input type="checkbox"/> 0.0%		FACU species <u>0</u> x 4 = <u>0</u>
6. _____	0	<input type="checkbox"/> 0.0%		UPL species <u>0</u> x 5 = <u>0</u>
7. _____	0	<input type="checkbox"/> 0.0%		Column Totals: <u>121</u> (A) <u>267</u> (B)
Herb Stratum (Plot size: 5')	40 = Total Cover			Prevalence Index = B/A = <u>2.207</u>
1. <u>Scirpus cyperinus</u>	66	<input checked="" type="checkbox"/> 100.0%	FACW+	Hydrophytic Vegetation Indicators:
2. _____	0	<input type="checkbox"/> 0.0%		<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation
3. _____	0	<input type="checkbox"/> 0.0%		<input checked="" type="checkbox"/> Dominance Test is > 50%
4. _____	0	<input type="checkbox"/> 0.0%		<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹
5. _____	0	<input type="checkbox"/> 0.0%		<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
6. _____	0	<input type="checkbox"/> 0.0%		<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
7. _____	0	<input type="checkbox"/> 0.0%		¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____	0	<input type="checkbox"/> 0.0%		Definitions of Vegetation Strata:
9. _____	0	<input type="checkbox"/> 0.0%		Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
10. _____	0	<input type="checkbox"/> 0.0%		Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..
11. _____	0	<input type="checkbox"/> 0.0%		Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
12. _____	0	<input type="checkbox"/> 0.0%		Woody vine - All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: _____)	66 = Total Cover			
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
	0 = Total Cover			
Remarks: (Include photo numbers here or on a separate sheet.)				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 10-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN5 Upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Ridgetop Local relief (concave, convex, none): hummocky Slope: 5.0 % / 2.9 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input checked="" type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:		Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN5 Upland

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <u>Picea rubens</u>	33	<input checked="" type="checkbox"/> 39.8%	FACU
2. <u>Pinus strobus</u>	50	<input checked="" type="checkbox"/> 60.2%	FACU
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
83 = Total Cover			
Sapling/Shrub Stratum (Plot size: 15')			
1. <u>Vaccinium corymbosum</u>	5	<input checked="" type="checkbox"/> 100.0%	FACW-
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
5 = Total Cover			
Herb Stratum (Plot size: 5')			
1. <u>Gaultheria procumbens</u>	3	<input checked="" type="checkbox"/> 27.3%	FACU
2. <u>Vaccinium angustifolium</u>	5	<input checked="" type="checkbox"/> 45.5%	FACU-
3. <u>Quercus rubra</u>	3	<input checked="" type="checkbox"/> 27.3%	FACU-
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
11 = Total Cover			
Woody Vine Stratum (Plot size: _____)			
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 16.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>5</u>	x 2 = <u>10</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>94</u>	x 4 = <u>376</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Total s: <u>99</u> (A)	<u>386</u> (B)
Prevalence Index = B/A = <u>3.899</u>	

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☐ Dominance Test is > 50%

☐ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point:

AN5 Upland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features							Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²					
0-4	10YR	3/3							Loam		
4-10	2.5Y	5/1							Fine Loamy Sand		
10-16	10YR	4/4							Fine Sandy Loam		

¹Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Muck Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7) (LRR R, MLRA 149B)

☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
☐ Loamy Mucky Mineral (F1) LRR K, L)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils :³

☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
☐ Coast Prairie Redox (A16) (LRR K, L, R)
☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
☐ Dark Surface (S7) (LRR K, L)
☐ Polyvalue Below Surface (S8) (LRR K, L)
☐ Thin Dark Surface (S9) (LRR K, L)
☐ Iron-Manganese Masses (F12) (LRR K, L, R)
☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present?

Yes ☐

No ☒

Remarks:



AN5 Upland



AN5 Wetland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 10-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN6 Wet

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): flat Slope: 0.0 % / 0.0 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: (Explain alternative procedures here or in a separate report.) Isolated	

Hydrology

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of 2 required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-neutral Test (D5)	
Field Observations: Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): <u> </u> Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): <u> </u> Saturation Present? (includes capillary fringe) Yes <input checked="" type="radio"/> No <input type="radio"/> Depth (inches): <u>0</u>			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: sphagnum carpet			

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: **AN6 Wet**

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <u>Acer rubrum</u>	25	<input checked="" type="checkbox"/> 50.0%	FAC
2. <u>Betula alleghaniensis</u>	25	<input checked="" type="checkbox"/> 50.0%	FAC
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
Sapling/Shrub Stratum (Plot size: 15')	50 = Total Cover		
1. <u>Vaccinium corymbosum</u>	20	<input checked="" type="checkbox"/> 36.4%	FACW-
2. <u>Acer rubrum</u>	10	<input type="checkbox"/> 18.2%	FAC
3. <u>Picea mariana</u>	25	<input checked="" type="checkbox"/> 45.5%	FACW-
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
Herb Stratum (Plot size: 5')	55 = Total Cover		
1. <u>Iris versicolor</u>	15	<input type="checkbox"/> 14.9%	OBL
2. <u>Coptis trifolia</u>	33	<input checked="" type="checkbox"/> 32.7%	FACW
3. <u>Cornus canadensis</u>	20	<input type="checkbox"/> 19.8%	FAC-
4. <u>Osmunda cinnamomea</u>	33	<input checked="" type="checkbox"/> 32.7%	FACW
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
Woody Vine Stratum (Plot size: _____)	101 = Total Cover		
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>15</u>	x 1 = <u>15</u>
FACW species <u>111</u>	x 2 = <u>222</u>
FAC species <u>80</u>	x 3 = <u>240</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>206</u> (A)	<u>477</u> (B)
Prevalence Index = B/A = <u>2.316</u>	

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤ 3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: AN6 Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-4	10YR	3/2	100%				Loam	
4-8	2.5Y	4/1	100%				Sandy Loam	
8-9	2.5Y	6/1	100%				Loamy Sand	
9+								Bedrock

¹Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

☐ Histosol (A1)

☐ Histic Epipedon (A2)

☐ Black Histic (A3)

☐ Hydrogen Sulfide (A4)

☐ Stratified Layers (A5)

☒ Depleted Below Dark Surface (A11)

☐ Thick Dark Surface (A12)

☐ Sandy Muck Mineral (S1)

☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)

☐ Stripped Matrix (S6)

☐ Dark Surface (S7) (LRR R, MLRA 149B)

☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)

☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)

☐ Loamy Mucky Mineral (F1) LRR K, L)

☐ Loamy Gleyed Matrix (F2)

☐ Depleted Matrix (F3)

☐ Redox Dark Surface (F6)

☐ Depleted Dark Surface (F7)

☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : ³

☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)

☐ Coast Prairie Redox (A16) (LRR K, L, R)

☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)

☐ Dark Surface (S7) (LRR K, L)

☐ Polyvalue Below Surface (S8) (LRR K, L)

☐ Thin Dark Surface (S9) (LRR K, L)

☐ Iron-Manganese Masses (F12) (LRR K, L, R)

☐ Piedmont Floodplain Soils (F19) (MLRA 149B)

☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)

☐ Red Parent Material (TF2)

☐ Very Shallow Dark Surface (TF12)

☐ Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: bedrock

Depth (inches): 9

Hydric Soil Present?

Yes☒

No☐

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 10-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN6 Upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): none Slope: 8.0 % / 4.6 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:			
Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
		Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN6 Upland

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <u>Quercus rubra</u>	45	<input checked="" type="checkbox"/> 56.3%	FACU-	Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>28.6%</u> (A/B)
2. <u>Acer rubrum</u>	25	<input checked="" type="checkbox"/> 31.3%	FAC	
3. <u>Tsuga canadensis</u>	10	<input type="checkbox"/> 12.5%	FACU	
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
Sapling/Shrub Stratum (Plot size: 15')	80 = Total Cover			Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 30 x 3 = 90 FACU species 73 x 4 = 292 UPL species 5 x 5 = 25 Column Totals: 108 (A) 407 (B) Prevalence Index = B/A = 3.769
1. <u>Fagus grandifolia</u>	8	<input checked="" type="checkbox"/> 61.5%	FACU	
2. <u>Picea rubens</u>	5	<input checked="" type="checkbox"/> 38.5%	FACU	
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
Herb Stratum (Plot size: 5')	13 = Total Cover			Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Trientalis borealis</u>	5	<input checked="" type="checkbox"/> 33.3%	FAC	
2. <u>Medeola virginiana</u>	5	<input checked="" type="checkbox"/> 33.3%	UPL	
3. <u>Vaccinium angustifolium</u>	3	<input checked="" type="checkbox"/> 20.0%	FACU-	
4. <u>Aralla nudicaulis</u>	2	<input type="checkbox"/> 13.3%	FACU	
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
11. _____	0	<input type="checkbox"/> 0.0%		
12. _____	0	<input type="checkbox"/> 0.0%		
13. _____	0	<input type="checkbox"/> 0.0%		
14. _____	0	<input type="checkbox"/> 0.0%		
Woody Vine Stratum (Plot size: _____)	15 = Total Cover			Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
11. _____	0	<input type="checkbox"/> 0.0%		
12. _____	0	<input type="checkbox"/> 0.0%		
13. _____	0	<input type="checkbox"/> 0.0%		
14. _____	0	<input type="checkbox"/> 0.0%		
15. _____	0	<input type="checkbox"/> 0.0%		
16. _____	0	<input type="checkbox"/> 0.0%		
17. _____	0	<input type="checkbox"/> 0.0%		
18. _____	0	<input type="checkbox"/> 0.0%		
19. _____	0	<input type="checkbox"/> 0.0%		
20. _____	0	<input type="checkbox"/> 0.0%		
21. _____	0	<input type="checkbox"/> 0.0%		
22. _____	0	<input type="checkbox"/> 0.0%		
23. _____	0	<input type="checkbox"/> 0.0%		
24. _____	0	<input type="checkbox"/> 0.0%		
25. _____	0	<input type="checkbox"/> 0.0%		
26. _____	0	<input type="checkbox"/> 0.0%		
27. _____	0	<input type="checkbox"/> 0.0%		
28. _____	0	<input type="checkbox"/> 0.0%		
29. _____	0	<input type="checkbox"/> 0.0%		
30. _____	0	<input type="checkbox"/> 0.0%		
31. _____	0	<input type="checkbox"/> 0.0%		
32. _____	0	<input type="checkbox"/> 0.0%		
33. _____	0	<input type="checkbox"/> 0.0%		
34. _____	0	<input type="checkbox"/> 0.0%		
35. _____	0	<input type="checkbox"/> 0.0%		
36. _____	0	<input type="checkbox"/> 0.0%		
37. _____	0	<input type="checkbox"/> 0.0%		
38. _____	0	<input type="checkbox"/> 0.0%		
39. _____	0	<input type="checkbox"/> 0.0%		
40. _____	0	<input type="checkbox"/> 0.0%		
41. _____	0	<input type="checkbox"/> 0.0%		
42. _____	0	<input type="checkbox"/> 0.0%		
43. _____	0	<input type="checkbox"/> 0.0%		
44. _____	0	<input type="checkbox"/> 0.0%		
45. _____	0	<input type="checkbox"/> 0.0%		
46. _____	0	<input type="checkbox"/> 0.0%		
47. _____	0	<input type="checkbox"/> 0.0%		
48. _____	0	<input type="checkbox"/> 0.0%		
49. _____	0	<input type="checkbox"/> 0.0%		
50. _____	0	<input type="checkbox"/> 0.0%		
51. _____	0	<input type="checkbox"/> 0.0%		
52. _____	0	<input type="checkbox"/> 0.0%		
53. _____	0	<input type="checkbox"/> 0.0%		
54. _____	0	<input type="checkbox"/> 0.0%		
55. _____	0	<input type="checkbox"/> 0.0%		
56. _____	0	<input type="checkbox"/> 0.0%		
57. _____	0	<input type="checkbox"/> 0.0%		
58. _____	0	<input type="checkbox"/> 0.0%		
59. _____	0	<input type="checkbox"/> 0.0%		
60. _____	0	<input type="checkbox"/> 0.0%		
61. _____	0	<input type="checkbox"/> 0.0%		
62. _____	0	<input type="checkbox"/> 0.0%		
63. _____	0	<input type="checkbox"/> 0.0%		
64. _____	0	<input type="checkbox"/> 0.0%		
65. _____	0	<input type="checkbox"/> 0.0%		
66. _____	0	<input type="checkbox"/> 0.0%		
67. _____	0	<input type="checkbox"/> 0.0%		
68. _____	0	<input type="checkbox"/> 0.0%		
69. _____	0	<input type="checkbox"/> 0.0%		
70. _____	0	<input type="checkbox"/> 0.0%		
71. _____	0	<input type="checkbox"/> 0.0%		
72. _____	0	<input type="checkbox"/> 0.0%		
73. _____	0	<input type="checkbox"/> 0.0%		
74. _____	0	<input type="checkbox"/> 0.0%		
75. _____	0	<input type="checkbox"/> 0.0%		
76. _____	0	<input type="checkbox"/> 0.0%		
77. _____	0	<input type="checkbox"/> 0.0%		
78. _____	0	<input type="checkbox"/> 0.0%		
79. _____	0	<input type="checkbox"/> 0.0%		
80. _____	0	<input type="checkbox"/> 0.0%		
81. _____	0	<input type="checkbox"/> 0.0%		
82. _____	0	<input type="checkbox"/> 0.0%		
83. _____	0	<input type="checkbox"/> 0.0%		
84. _____	0	<input type="checkbox"/> 0.0%		
85. _____	0	<input type="checkbox"/> 0.0%		
86. _____	0	<input type="checkbox"/> 0.0%		
87. _____	0	<input type="checkbox"/> 0.0%		
88. _____	0	<input type="checkbox"/> 0.0%		
89. _____	0	<input type="checkbox"/> 0.0%		
90. _____	0	<input type="checkbox"/> 0.0%		
91. _____	0	<input type="checkbox"/> 0.0%		
92. _____	0	<input type="checkbox"/> 0.0%		
93. _____	0	<input type="checkbox"/> 0.0%		
94. _____	0	<input type="checkbox"/> 0.0%		
95. _____	0	<input type="checkbox"/> 0.0%		
96. _____	0	<input type="checkbox"/> 0.0%		
97. _____	0	<input type="checkbox"/> 0.0%		
98. _____	0	<input type="checkbox"/> 0.0%		
99. _____	0	<input type="checkbox"/> 0.0%		
100. _____	0	<input type="checkbox"/> 0.0%		

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]



AN6 Wetland



AN6 Upland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 11-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN7 Wet

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Ridgetop Local relief (concave, convex, none): hummocky Slope: 0.0 % / 0.0 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Isolated, extends past rock wall, ledge pocket

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input checked="" type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: **AN7 Wet**

Tree Stratum (Plot size: 30')	Absolute % Cover	Indicator Status	Dominance Test worksheet:
1. <u>Acer rubrum</u>	25	<input checked="" type="checkbox"/> 100.0% FAC	Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>75.0%</u> (A/B)
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
Sapling/Shrub Stratum (Plot size: 15')	25 = Total Cover		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>116</u> x 2 = <u>232</u> FAC species <u>60</u> x 3 = <u>180</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>176</u> (A) <u>412</u> (B) Prevalence Index = B/A = <u>2.341</u>
1. <u>Vaccinium corymbosum</u>	50	<input checked="" type="checkbox"/> 33.1% FACW-	
2. <u>Acer rubrum</u>	25	<input type="checkbox"/> 16.6% FAC	
3. <u>Spiraea latifolia</u>	10	<input type="checkbox"/> 6.6% FAC+	
4. _____	66	<input checked="" type="checkbox"/> 43.7%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
Herb Stratum (Plot size: 5')	151 = Total Cover		Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Osmunda cinnamomea</u>	66	<input checked="" type="checkbox"/> 100.0% FACW	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
Woody Vine Stratum (Plot size: _____)	66 = Total Cover		Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
	0 = Total Cover		Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: (Include photo numbers here or on a separate sheet.) 			

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point:

AN7 Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features							Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²					
0-6	10YR	3/2	100%						Loam		
6-7	2.5Y	5/1	100%						Fine Loamy Sand		
7-9	2.5Y	4/2	100%						Very Fine Sandy Loam		
9+										bedrock	

Hydric Soil Indicators:

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☒ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Muck Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7) (LRR R, MLRA 149B)

☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
☐ Loamy Mucky Mineral (F1) LRR K, L)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils :³

☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
☐ Coast Prairie Redox (A16) (LRR K, L, R)
☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
☐ Dark Surface (S7) (LRR K, L)
☐ Polyvalue Below Surface (S8) (LRR K, L)
☐ Thin Dark Surface (S9) (LRR K, L)
☐ Iron-Manganese Masses (F12) (LRR K, L, R)
☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: bedrock

Depth (inches): 9

Hydric Soil Present? Yes No

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 11-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN7 Upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Ridgetop Local relief (concave, convex, none): concave Slope: 12.5 % / 7.1 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:			
Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
		Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN7 Upland

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <i>Betula papyrifera</i>	15	<input checked="" type="checkbox"/> 20.5%	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>16.7%</u> (A/B)
2. <i>Quercus rubra</i>	33	<input checked="" type="checkbox"/> 45.2%	FACU-	
3. <i>Acer rubrum</i>	25	<input checked="" type="checkbox"/> 34.2%	FAC	
4.	0	<input type="checkbox"/> 0.0%		
5.	0	<input type="checkbox"/> 0.0%		
6.	0	<input type="checkbox"/> 0.0%		
7.	0	<input type="checkbox"/> 0.0%		
73 = Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x <u>1</u> = <u>0</u> FACW species <u>0</u> x <u>2</u> = <u>0</u> FAC species <u>25</u> x <u>3</u> = <u>75</u> FACU species <u>121</u> x <u>4</u> = <u>484</u> UPL species <u>5</u> x <u>5</u> = <u>25</u> Column Totals: <u>151</u> (A) <u>584</u> (B) Prevalence Index = B/A = <u>3.868</u>
Sapling/Shrub Stratum (Plot size: 15')				
1. <i>Fagus grandifolia</i>	33	<input checked="" type="checkbox"/> 76.7%	FACU	
2. <i>Picea rubens</i>	10	<input checked="" type="checkbox"/> 23.3%	FACU	
3.	0	<input type="checkbox"/> 0.0%		
4.	0	<input type="checkbox"/> 0.0%		
5.	0	<input type="checkbox"/> 0.0%		
6.	0	<input type="checkbox"/> 0.0%		
7.	0	<input type="checkbox"/> 0.0%		Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
43 = Total Cover				
Herb Stratum (Plot size: 5')				
1. <i>Vaccinium angustifolium</i>	25	<input checked="" type="checkbox"/> 71.4%	FACU-	
2. <i>Lycopodium obscurum</i>	5	<input type="checkbox"/> 14.3%	FACU	
3. <i>Polygonatum pubescens</i>	5	<input type="checkbox"/> 14.3%	UPL	
4.	0	<input type="checkbox"/> 0.0%		
5.	0	<input type="checkbox"/> 0.0%		
6.	0	<input type="checkbox"/> 0.0%		Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
7.	0	<input type="checkbox"/> 0.0%		
8.	0	<input type="checkbox"/> 0.0%		
9.	0	<input type="checkbox"/> 0.0%		
10.	0	<input type="checkbox"/> 0.0%		
11.	0	<input type="checkbox"/> 0.0%		
12.	0	<input type="checkbox"/> 0.0%		
35 = Total Cover				Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
Woody Vine Stratum (Plot size:)				
1.	0	<input type="checkbox"/> 0.0%		
2.	0	<input type="checkbox"/> 0.0%		
3.	0	<input type="checkbox"/> 0.0%		
4.	0	<input type="checkbox"/> 0.0%		
0 = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]



AN7 Wetland



AN7 Upland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 11-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN8 Wet

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): flat Slope: 5.0 % / 2.9 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Narrow PFO drainage through boulder field into overland ephemeral drainages to south with upland species

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches):	0

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN8 Wet

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <i>Betula alleghaniensis</i>	25	<input checked="" type="checkbox"/> 50.0%	FAC	Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. <i>Acer rubrum</i>	25	<input checked="" type="checkbox"/> 50.0%	FAC	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
Sapling/Shrub Stratum (Plot size: 15')	50 = Total Cover			Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x <u>1</u> = <u>0</u> FACW species <u>91</u> x <u>2</u> = <u>182</u> FAC species <u>63</u> x <u>3</u> = <u>189</u> FACU species <u>3</u> x <u>4</u> = <u>12</u> UPL species <u>0</u> x <u>5</u> = <u>0</u> Column Totals: <u>157</u> (A) <u>383</u> (B) Prevalence Index = B/A = <u>2.439</u>
1. <i>Vaccinium corymbosum</i>	5	<input checked="" type="checkbox"/> 23.8%	FACW-	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <i>Spiraea latifolia</i>	10	<input checked="" type="checkbox"/> 47.6%	FAC+	
3. <i>Picea rubens</i>	3	<input type="checkbox"/> 14.3%	FACU	
4. <i>Betula alleghaniensis</i>	3	<input type="checkbox"/> 14.3%	FAC	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
Herb Stratum (Plot size: 5')	21 = Total Cover			Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
1. <i>Impatiens capensis</i>	75	<input checked="" type="checkbox"/> 82.4%	FACW	Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
2. <i>Osmunda cinnamomea</i>	5	<input type="checkbox"/> 5.5%	FACW	
3. <i>Onoclea sensibilis</i>	3	<input type="checkbox"/> 3.3%	FACW	
4. <i>Carex intumescens</i>	3	<input type="checkbox"/> 3.3%	FACW+	
5. <i>Violet spp.</i>	5	<input type="checkbox"/> 5.5%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
11. _____	0	<input type="checkbox"/> 0.0%	_____	
12. _____	0	<input type="checkbox"/> 0.0%	_____	
Woody Vine Stratum (Plot size: _____)	91 = Total Cover			
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
	0 = Total Cover			

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 11-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN8 Upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope: 7.0 % / 4.0 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:			
Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
		Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN8 Upland

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <u>Quercus rubra</u>	25	<input checked="" type="checkbox"/> 28.4%	FACU-	Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>16.7%</u> (A/B)
2. <u>Pinus strobus</u>	33	<input checked="" type="checkbox"/> 37.5%	FACU	
3. <u>Betula papyrifera</u>	10	<input type="checkbox"/> 11.4%	FACU	
4. <u>Acer rubrum</u>	20	<input checked="" type="checkbox"/> 22.7%	FAC	
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
Sapling/Shrub Stratum (Plot size: 15')	88 = Total Cover			Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>119</u> x 4 = <u>476</u> UPL species <u>26</u> x 5 = <u>130</u> Column Totals: <u>165</u> (A) <u>666</u> (B) Prevalence Index = B/A = <u>4.036</u>
1. <u>Fagus grandifolia</u>	40	<input checked="" type="checkbox"/> 80.0%	FACU	
2. <u>Picea rubens</u>	10	<input checked="" type="checkbox"/> 20.0%	FACU	
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
Herb Stratum (Plot size: 5')	50 = Total Cover			Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Aralia nudicaulis</u>	1	<input type="checkbox"/> 3.7%	FACU	
2. <u>Medeola virginiana</u>	1	<input type="checkbox"/> 3.7%	UPL	
3. <u>Polygonatum pubescens</u>	25	<input checked="" type="checkbox"/> 92.6%	UPL	
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
11. _____	0	<input type="checkbox"/> 0.0%		
12. _____	0	<input type="checkbox"/> 0.0%		
Woody Vine Stratum (Plot size: _____)	27 = Total Cover			Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
	0 = Total Cover			Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: AN8 Upland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-4	10YR	3/2	100%				Loam	
4-6	2.5Y	5/1	100%				Loamy Sand	
6-8	10YR	4/4	100%				Very Fine Sandy Loam	
8+								Bedrock

¹Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Muck Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7) (LRR R, MLRA 149B)

☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
☐ Loamy Mucky Mineral (F1) LRR K, L)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : ³

☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
☐ Coast Prairie Redox (A16) (LRR K, L, R)
☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
☐ Dark Surface (S7) (LRR K, L)
☐ Polyvalue Below Surface (S8) (LRR K, L)
☐ Thin Dark Surface (S9) (LRR K, L)
☐ Iron-Manganese Masses (F12) (LRR K, L, R)
☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 8

Hydric Soil Present?

Yes☐

No☒

Remarks:



AN8 Upland



AN8 Wetland



AN8 Wetland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 11-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN10 Wet

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): none Slope: 10.0 % / 5.7 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Small isolated PFO seep into skidder trail

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): 1

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches):

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

drainage patterns saturated to surface, 1" flowing water near seep

VEGETATION - Use scientific names of plants

Dominant
Species?

Sampling Point: **AN10 Wet**

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <u>Betula alleghaniensis</u>	15	<input checked="" type="checkbox"/> 50.0%	FAC	Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>83.3%</u> (A/B)
2. <u>Fraxinus pennsylvanica</u>	15	<input checked="" type="checkbox"/> 50.0%	FACW	
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
Sapling/Shrub Stratum (Plot size: 15')	30 = Total Cover			Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>5</u> x 1 = <u>5</u> FACW species <u>88</u> x 2 = <u>176</u> FAC species <u>30</u> x 3 = <u>90</u> FACU species <u>50</u> x 4 = <u>200</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>173</u> (A) <u>471</u> (B) Prevalence Index = B/A = <u>2.723</u>
1. <u>Acer pensylvanicum</u>	50	<input checked="" type="checkbox"/> 76.9%	FACU	
2. <u>Betula alleghaniensis</u>	15	<input checked="" type="checkbox"/> 23.1%	FAC	
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
Herb Stratum (Plot size: 5')	65 = Total Cover			Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Osmunda cinnamomea</u>	33	<input checked="" type="checkbox"/> 42.3%	FACW	
2. <u>Impatiens capensis</u>	40	<input checked="" type="checkbox"/> 51.3%	FACW	
3. <u>Carex lurida</u>	5	<input type="checkbox"/> 6.4%	OBL	
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
11. _____	0	<input type="checkbox"/> 0.0%		
12. _____	0	<input type="checkbox"/> 0.0%		
Woody Vine Stratum (Plot size: _____)	78 = Total Cover			Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
	0 = Total Cover			Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point:

AN10 Wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features							Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²					
0-6	10YR	3/2	100%						Sandy Loam		
6-10	2.5Y	4/2	90%	10YR	5/8	10%	C	M	Fine Sandy Loam	boul dery	
10+											

¹Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☒ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Muck Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7) (LRR R, MLRA 149B)

☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
☐ Loamy Mucky Mineral (F1) LRR K, L)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils :³

☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
☐ Coast Prairie Redox (A16) (LRR K, L, R)
☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
☐ Dark Surface (S7) (LRR K, L)
☐ Polyvalue Below Surface (S8) (LRR K, L)
☐ Thin Dark Surface (S9) (LRR K, L)
☐ Iron-Manganese Masses (F12) (LRR K, L, R)
☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: bouldery

Depth (inches): 10

Hydric Soil Present?

Yes☒

No☐

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 11-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN10 Upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): none Slope: 15.0 % / 8.5 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:			
Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <u> </u>	
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <u> </u>	
Saturation Present? (includes capillary fringe)	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <u> </u>	Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: **AN10 Upland**

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <u>Tsuga canadensis</u>	40	<input checked="" type="checkbox"/> 42.1%	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>33.3%</u> (A/B)
2. <u>Betula papyrifera</u>	25	<input checked="" type="checkbox"/> 26.3%	FACU	
3. <u>Fraxinus pennsylvanica</u>	15	<input type="checkbox"/> 15.8%	FACW	
4. <u>Picea rubens</u>	15	<input type="checkbox"/> 15.8%	FACU	
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
Sapling/Shrub Stratum (Plot size: 15')	95 = Total Cover			Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>15</u> x 2 = <u>30</u> FAC species <u>70</u> x 3 = <u>210</u> FACU species <u>155</u> x 4 = <u>620</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>240</u> (A) <u>860</u> (B) Prevalence Index = B/A = <u>3.583</u>
1. <u>Acer rubrum</u>	50	<input checked="" type="checkbox"/> 76.9%	FAC	
2. <u>Picea rubens</u>	15	<input checked="" type="checkbox"/> 23.1%	FACU	
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
Herb Stratum (Plot size: 5')	65 = Total Cover			Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Trientalis borealis</u>	20	<input checked="" type="checkbox"/> 25.0%	FAC	
2. <u>Aralia nudicaulis</u>	50	<input checked="" type="checkbox"/> 62.5%	FACU	
3. <u>Dryopteris intermedia</u>	10	<input type="checkbox"/> 12.5%	FACU	
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
11. _____	0	<input type="checkbox"/> 0.0%		
12. _____	0	<input type="checkbox"/> 0.0%		
Woody Vine Stratum (Plot size: _____)	80 = Total Cover			Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
	0 = Total Cover			Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: AN10 Upland

[illegible]



AN10 Upland



AN10 Wetland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 12-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN11 Wet

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): none Slope: 7.0 % / 4.0 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

skiddered PSS below moose wallow

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant
Species?

Sampling Point: **AN11 Wet**

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:	
1. _____		<input type="checkbox"/> 0.0%		Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A)	
2. _____	0	<input type="checkbox"/> 0.0%		Total Number of Dominant Species Across All Strata: <u>5</u> (B)	
3. _____	0	<input type="checkbox"/> 0.0%		Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)	
4. _____	0	<input type="checkbox"/> 0.0%			
5. _____	0	<input type="checkbox"/> 0.0%			
6. _____	0	<input type="checkbox"/> 0.0%			
7. _____	0	<input type="checkbox"/> 0.0%			
0 = Total Cover				Prevalence Index worksheet:	
Sapling/Shrub Stratum (Plot size: 15')				Total % Cover of: Multiply by:	
1. <u>Spiraea tomentosa</u>	15	<input checked="" type="checkbox"/> 75.0%	FACW	OBL species <u>25</u>	x 1 = <u>25</u>
2. <u>Betula alleghaniensis</u>	5	<input checked="" type="checkbox"/> 25.0%	FAC	FACW species <u>63</u>	x 2 = <u>126</u>
3. _____	0	<input type="checkbox"/> 0.0%		FAC species <u>5</u>	x 3 = <u>15</u>
4. _____	0	<input type="checkbox"/> 0.0%		FACU species <u>0</u>	x 4 = <u>0</u>
5. _____	0	<input type="checkbox"/> 0.0%		UPL species <u>0</u>	x 5 = <u>0</u>
6. _____	0	<input type="checkbox"/> 0.0%		Column Totals: <u>93</u> (A)	<u>166</u> (B)
7. _____	0	<input type="checkbox"/> 0.0%		Prevalence Index = B/A = <u>1.785</u>	
20 = Total Cover				Hydrophytic Vegetation Indicators:	
Herb Stratum (Plot size: 5')				<input type="checkbox"/> Rapid Test for Hydrophytic Vegetation	
1. <u>Onoclea sensibilis</u>	20	<input checked="" type="checkbox"/> 27.4%	FACW	<input checked="" type="checkbox"/> Dominance Test is > 50%	
2. <u>Scirpus cyperinus</u>	20	<input checked="" type="checkbox"/> 27.4%	FACW+	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹	
3. <u>Carex crinita</u>	25	<input checked="" type="checkbox"/> 34.2%	OBL	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
4. <u>Osmunda cinnamomea</u>	5	<input type="checkbox"/> 6.8%	FACW	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
5. <u>Calamagrostis canadensis</u>	3	<input type="checkbox"/> 4.1%	FACW+	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
6. _____	0	<input type="checkbox"/> 0.0%		Definitions of Vegetation Strata:	
7. _____	0	<input type="checkbox"/> 0.0%		Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.	
8. _____	0	<input type="checkbox"/> 0.0%		Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..	
9. _____	0	<input type="checkbox"/> 0.0%		Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
10. _____	0	<input type="checkbox"/> 0.0%		Woody vine - All woody vines greater than 3.28 ft in height.	
11. _____	0	<input type="checkbox"/> 0.0%			
12. _____	0	<input type="checkbox"/> 0.0%			
73 = Total Cover					
Woody Vine Stratum (Plot size: _____)					
1. _____	0	<input type="checkbox"/> 0.0%			
2. _____	0	<input type="checkbox"/> 0.0%			
3. _____	0	<input type="checkbox"/> 0.0%			
4. _____	0	<input type="checkbox"/> 0.0%			
0 = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 12-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN11 Up

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): flat Slope: 20.0 % / 11.3 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:			
Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
		Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN11 Up

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <i>Fagus grandifolia</i>	20	<input checked="" type="checkbox"/> 22.2%	FACU
2. <i>Acer saccharum</i>	60	<input checked="" type="checkbox"/> 66.7%	FACU-
3. <i>Quercus rubra</i>	10	<input type="checkbox"/> 11.1%	FACU-
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
6. _____	0	<input type="checkbox"/> 0.0%	_____
7. _____	0	<input type="checkbox"/> 0.0%	_____
90 = Total Cover			
Sapling/Shrub Stratum (Plot size: 15')			
1. <i>Quercus rubra</i>	20	<input checked="" type="checkbox"/> 23.5%	FACU-
2. <i>Picea rubens</i>	20	<input checked="" type="checkbox"/> 23.5%	FACU
3. <i>Betula alleghaniensis</i>	15	<input type="checkbox"/> 17.6%	FAC
4. <i>Acer saccharum</i>	10	<input type="checkbox"/> 11.8%	FACU-
5. <i>Ostrya virginiana</i>	20	<input checked="" type="checkbox"/> 23.5%	FACU-
6. _____	0	<input type="checkbox"/> 0.0%	_____
7. _____	0	<input type="checkbox"/> 0.0%	_____
85 = Total Cover			
Herb Stratum (Plot size: 5')			
1. <i>Dennstaedtia punctilobula</i>	10	<input checked="" type="checkbox"/> 76.9%	UPL
2. <i>Trientalis borealis</i>	3	<input checked="" type="checkbox"/> 23.1%	FAC
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
5. _____	0	<input type="checkbox"/> 0.0%	_____
6. _____	0	<input type="checkbox"/> 0.0%	_____
7. _____	0	<input type="checkbox"/> 0.0%	_____
8. _____	0	<input type="checkbox"/> 0.0%	_____
9. _____	0	<input type="checkbox"/> 0.0%	_____
10. _____	0	<input type="checkbox"/> 0.0%	_____
11. _____	0	<input type="checkbox"/> 0.0%	_____
12. _____	0	<input type="checkbox"/> 0.0%	_____
13 = Total Cover			
Woody Vine Stratum (Plot size: _____)			
1. _____	0	<input type="checkbox"/> 0.0%	_____
2. _____	0	<input type="checkbox"/> 0.0%	_____
3. _____	0	<input type="checkbox"/> 0.0%	_____
4. _____	0	<input type="checkbox"/> 0.0%	_____
0 = Total Cover			

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 14.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>18</u>	x 3 = <u>54</u>
FACU species <u>160</u>	x 4 = <u>640</u>
UPL species <u>10</u>	x 5 = <u>50</u>
Column Totals: <u>188</u> (A)	<u>744</u> (B)
Prevalence Index = B/A = <u>3.957</u>	

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☐ Dominance Test is > 50%

☐ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: AN11 Up

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features							Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²					
0-4	10YR	3/2	100%						Loam		
4-5	2.5Y	4/1	100%						Fine Sandy Loam		
5-9	10YR	4/3	100%						Very Fine Sandy Loam		
9-15	10YR	4/6	100%						Very Fine Sandy Loam		

¹Type:

C=Concentration.

D=Depletion.

RM=Reduced Matrix,

CS=Covered or Coated Sand Grains

²Location:

PL=Pore Lining.

M=Matrix

Hydric Soil Indicators:

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Muck Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7) (LRR R, MLRA 149B)

☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
☐ Loamy Mucky Mineral (F1) LRR K, L)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils :

³
☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
☐ Coast Prairie Redox (A16) (LRR K, L, R)
☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
☐ Dark Surface (S7) (LRR K, L)
☐ Polyvalue Below Surface (S8) (LRR K, L)
☐ Thin Dark Surface (S9) (LRR K, L)
☐ Iron-Manganese Masses (F12) (LRR K, L, R)
☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Boulders

Depth (inches):

15 +

Hydric Soil Present?

Yes☐

No☒

Remarks:



AN11 Upland



AN11 Wetland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 12-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: an12 wetland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): flat Slope: 5.0 % / 2.9 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Skiddered PSS

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches):	3

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant
Species?

Sampling Point: an12 wetland

Tree Stratum (Plot size: _____)	Absolute % Cover	Indicator Status	Dominance Test worksheet:
1. _____	0	<input type="checkbox"/> 0.0%	Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
Sapling/Shrub Stratum (Plot size: 15')	0 = Total Cover		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>15</u> x 1 = <u>15</u> FACW species <u>125</u> x 2 = <u>250</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>140</u> (A) <u>265</u> (B) Prevalence Index = B/A = <u>1.893</u>
1. <u>Spiraea alba</u>	25	<input checked="" type="checkbox"/> 33.3% FACW+	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Spiraea tomentosa</u>	50	<input checked="" type="checkbox"/> 66.7% FACW	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
Herb Stratum (Plot size: 5')	75 = Total Cover		Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
1. <u>Carex crinita</u>	15	<input checked="" type="checkbox"/> 23.1% OBL	Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
2. <u>Onoclea sensibilis</u>	25	<input checked="" type="checkbox"/> 38.5% FACW	
3. <u>Scirpus cyperinus</u>	5	<input type="checkbox"/> 7.7% FACW+	
4. <u>Rubus hispidus</u>	20	<input checked="" type="checkbox"/> 30.8% FACW	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
Woody Vine Stratum (Plot size: _____)	65 = Total Cover		
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
	0 = Total Cover		

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: an12 wetland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features								Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²						
0-3	10YR	3/2	100%							Loam		
3-12	2.5Y	4/2	95%	10YR	4/6	5%	C	PL		Fine Sandy Loam		
12-16	2.5Y	4/1	95%	10YR	4/6	5%	C	M		Fine Sandy Loam		

Type:

C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains

Location:

PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

☐ Histosol (A1)

☐ Histic Epipedon (A2)

☐ Black Histic (A3)

☐ Hydrogen Sulfide (A4)

☐ Stratified Layers (A5)

☒ Depleted Below Dark Surface (A11)

☐ Thick Dark Surface (A12)

☐ Sandy Muck Mineral (S1)

☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)

☐ Stripped Matrix (S6)

☐ Dark Surface (S7) (LRR R, MLRA 149B)

☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)

☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)

☐ Loamy Mucky Mineral (F1) LRR K, L)

☐ Loamy Gleyed Matrix (F2)

☐ Depleted Matrix (F3)

☐ Redox Dark Surface (F6)

☐ Depleted Dark Surface (F7)

☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils :

☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)

☐ Coast Prairie Redox (A16) (LRR K, L, R)

☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)

☐ Dark Surface (S7) (LRR K, L)

☐ Polyvalue Below Surface (S8) (LRR K, L)

☐ Thin Dark Surface (S9) (LRR K, L)

☐ Iron-Manganese Masses (F12) (LRR K, L, R)

☐ Piedmont Floodplain Soils (F19) (MLRA 149B)

☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)

☐ Red Parent Material (TF2)

☐ Very Shallow Dark Surface (TF12)

☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present?

Yes☒

No☐

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 12-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: an12 upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): flat Slope: 5.0 % / 2.9 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

recently cut

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:		Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: an12 upland

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <u>Quercus rubra</u>	15	<input checked="" type="checkbox"/> 60.0%	FACU-	Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>16.7%</u> (A/B)
2. <u>Tsuga canadensis</u>	10	<input checked="" type="checkbox"/> 40.0%	FACU	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
Sapling/Shrub Stratum (Plot size: 15')	25 = Total Cover			Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>88</u> x 4 = <u>352</u> UPL species <u>90</u> x 5 = <u>450</u> Column Totals: <u>188</u> (A) <u>832</u> (B) Prevalence Index = B/A = <u>4.426</u>
1. <u>Acer pensylvanicum</u>	20	<input checked="" type="checkbox"/> 44.4%	FACU	
2. <u>Betula alleghaniensis</u>	10	<input checked="" type="checkbox"/> 22.2%	FAC	
3. <u>Acer saccharum</u>	15	<input checked="" type="checkbox"/> 33.3%	FACU-	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
Herb Stratum (Plot size: 5')	45 = Total Cover			Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Dennstaedtia punctilobula</u>	90	<input checked="" type="checkbox"/> 76.3%	UPL	
2. <u>Solidago canadensis</u>	10	<input type="checkbox"/> 8.5%	FACU	
3. <u>Rubus alumnus</u>	10	<input type="checkbox"/> 8.5%	FACU-	
4. <u>Dryopteris intermedia</u>	5	<input type="checkbox"/> 4.2%	FACU	
5. <u>Aralla nudicaulis</u>	3	<input type="checkbox"/> 2.5%	FACU	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
11. _____	0	<input type="checkbox"/> 0.0%	_____	
12. _____	0	<input type="checkbox"/> 0.0%	_____	
Woody Vine Stratum (Plot size: _____)	118 = Total Cover			Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
	0 = Total Cover			Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>

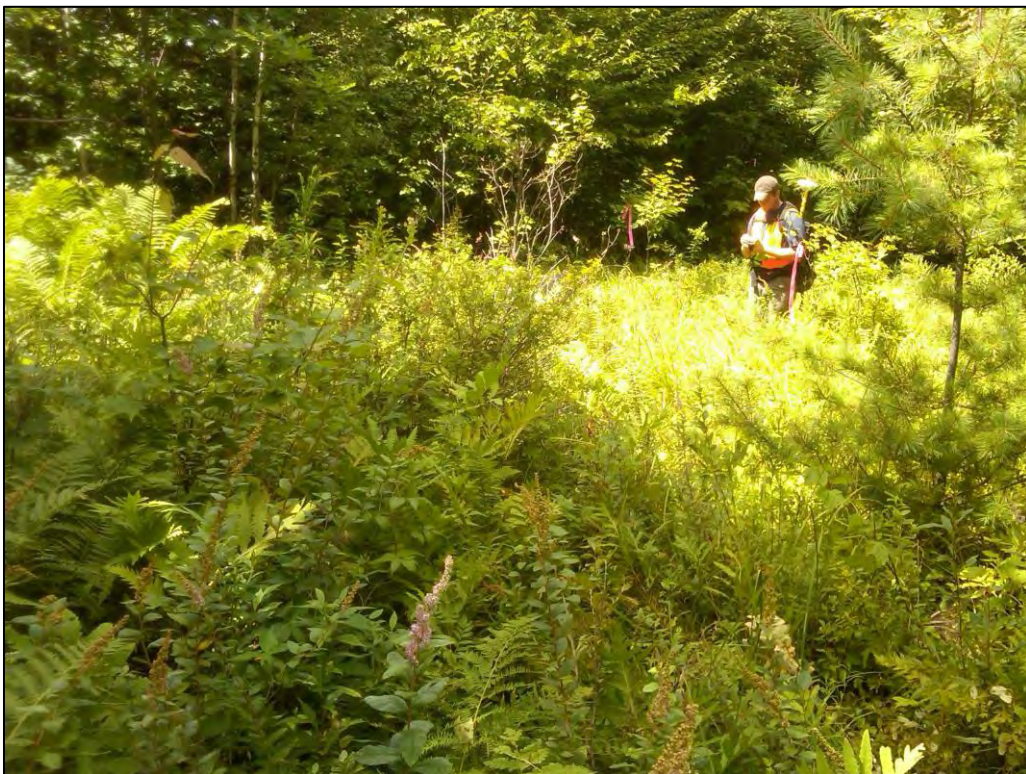
Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]



AN12 Upland



AN12 Wetland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 12-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: an13 wetland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Foothills Local relief (concave, convex, none): flat Slope: 3.0 % / 1.7 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: (Explain alternative procedures here or in a separate report.) Isolated lay down yard wetland adjacent to ATV trail	

Hydrology

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of 2 required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-neutral Test (D5)	
Field Observations: Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input checked="" type="radio"/> No <input type="radio"/> Depth (inches): 3		Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: an13 wetland

Tree Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			
Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <u>Spiraea tomentosa</u>	66	<input checked="" type="checkbox"/> 72.5%	FACW
2. <u>Acer rubrum</u>	10	<input type="checkbox"/> 11.0%	FAC
3. <u>Spiraea alba</u>	15	<input type="checkbox"/> 16.5%	FACW+
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
91 = Total Cover			
Herb Stratum (Plot size: 5')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <u>Carex lurida</u>	8	<input type="checkbox"/> 10.1%	OBL
2. <u>Onoclea sensibilis</u>	5	<input type="checkbox"/> 6.3%	FACW
3. <u>Eupatorium perfoliatum</u>	3	<input type="checkbox"/> 3.8%	FACW+
4. <u>Rubus hispidus</u>	15	<input type="checkbox"/> 19.0%	FACW
5. <u>Carex crinita</u>	25	<input checked="" type="checkbox"/> 31.6%	OBL
6. <u>Scirpus cyperinus</u>	3	<input type="checkbox"/> 3.8%	FACW+
7. <u>Carex trisperma</u>	20	<input checked="" type="checkbox"/> 25.3%	OBL
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
79 = Total Cover			
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>53</u>	x 1 = <u>53</u>
FACW species <u>107</u>	x 2 = <u>214</u>
FAC species <u>10</u>	x 3 = <u>30</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>170</u> (A)	<u>297</u> (B)
Prevalence Index = B/A = <u>1.747</u>	

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 12-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: an13 upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Foothills Local relief (concave, convex, none): flat Slope: 4.0 % / 2.3 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:		Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: an13 upland

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <u>Acer saccharum</u>	10	<input checked="" type="checkbox"/> 66.7%	FACU-	Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>16.7%</u> (A/B)
2. <u>Picea rubens</u>	5	<input checked="" type="checkbox"/> 33.3%	FACU	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
Sapling/Shrub Stratum (Plot size: 15') <div style="float: right;">15 = Total Cover</div>				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species 0 x 1 = 0 FACW species 20 x 2 = 40 FAC species 0 x 3 = 0 FACU species 193 x 4 = 772 UPL species 5 x 5 = 25 Column Totals: 218 (A) 837 (B) Prevalence Index = B/A = 3.839
1. <u>Acer pensylvanicum</u>	33	<input checked="" type="checkbox"/> 32.0%	FACU	
2. <u>Prunus serotina</u>	10	<input type="checkbox"/> 9.7%	FACU	
3. <u>Acer saccharum</u>	50	<input checked="" type="checkbox"/> 48.5%	FACU-	
4. <u>Populus tremula</u>	10	<input type="checkbox"/> 9.7%	FACU	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
Herb Stratum (Plot size: 5') <div style="float: right;">103 = Total Cover</div>				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Aralia nudicaulis</u>	75	<input checked="" type="checkbox"/> 75.0%	FACU	
2. <u>Rubus hispidus</u>	20	<input checked="" type="checkbox"/> 20.0%	FACW	
3. <u>Dennstaedtia punctilobula</u>	5	<input type="checkbox"/> 5.0%	UPL	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
11. _____	0	<input type="checkbox"/> 0.0%	_____	
12. _____	0	<input type="checkbox"/> 0.0%	_____	
Woody Vine Stratum (Plot size: _____) <div style="float: right;">100 = Total Cover</div>				Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]



AN13 Upland



AN13 Wetland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 16-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: an14 wetland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): flat Slope: 10.0 % / 5.7 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Isolated PSS within skidder trail

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

sphagnum 25% cover

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: an14 wetland

Tree Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			
Sapling/Shrub Stratum (Plot size: 15')			
1. <u>Spiraea tomentosa</u>	20	<input checked="" type="checkbox"/> 57.1% FACW	
2. <u>Acer rubrum</u>	10	<input checked="" type="checkbox"/> 28.6% FAC	
3. <u>Fraxinus pennsylvanica</u>	5	<input type="checkbox"/> 14.3% FACW	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
35 = Total Cover			
Herb Stratum (Plot size: 5')			
1. <u>Onoclea sensibilis</u>	40	<input checked="" type="checkbox"/> 46.5% FACW	
2. <u>Osmunda cinnamomea</u>	10	<input type="checkbox"/> 11.6% FACW	
3. <u>Eupatoriadelphus maculatus</u>	8	<input type="checkbox"/> 9.3% FACW	
4. <u>Scirpus cyperinus</u>	5	<input type="checkbox"/> 5.8% FACW+	
5. <u>Carex lurida</u>	15	<input checked="" type="checkbox"/> 17.4% OBL	
6. <u>Rubus idaeus</u>	8	<input type="checkbox"/> 9.3% FAC-	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
86 = Total Cover			
Woody Vine Stratum (Plot size: _____)			
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>15</u>	x 1 = <u>15</u>
FACW species <u>88</u>	x 2 = <u>176</u>
FAC species <u>18</u>	x 3 = <u>54</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>121</u> (A)	<u>245</u> (B)
Prevalence Index = B/A = <u>2.025</u>	

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: an14 wetland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-8	10YR	3/2	100%				Sandy Loam	
8-11	2.5Y	5/1	100%				Sandy Loam	

¹Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

☐ Histosol (A1)

☐ Histic Epipedon (A2)

☐ Black Histic (A3)

☐ Hydrogen Sulfide (A4)

☐ Stratified Layers (A5)

☒ Depleted Below Dark Surface (A11)

☐ Thick Dark Surface (A12)

☐ Sandy Muck Mineral (S1)

☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)

☐ Stripped Matrix (S6)

☐ Dark Surface (S7) (LRR R, MLRA 149B)

☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)

☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)

☐ Loamy Mucky Mineral (F1) LRR K, L)

☐ Loamy Gleyed Matrix (F2)

☐ Depleted Matrix (F3)

☐ Redox Dark Surface (F6)

☐ Depleted Dark Surface (F7)

☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : ³

☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)

☐ Coast Prairie Redox (A16) (LRR K, L, R)

☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)

☐ Dark Surface (S7) (LRR K, L)

☐ Polyvalue Below Surface (S8) (LRR K, L)

☐ Thin Dark Surface (S9) (LRR K, L)

☐ Iron-Manganese Masses (F12) (LRR K, L, R)

☐ Piedmont Floodplain Soils (F19) (MLRA 149B)

☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)

☐ Red Parent Material (TF2)

☐ Very Shallow Dark Surface (TF12)

☐ Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: bouldery

Depth (inches): 11

Hydric Soil Present?

Yes

No

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 16-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN14 Upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): flat Slope: 10.0 % / 5.7 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

logged upland

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:			
Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
		Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN14 Upland

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <i>Picea rubens</i>	20	<input checked="" type="checkbox"/> 50.0%	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>25.0%</u> (A/B)
2. <i>Populus tremula</i>	20	<input checked="" type="checkbox"/> 50.0%	FACU	
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
Sapling/Shrub Stratum (Plot size: 15')	40 = Total Cover			Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 30 x 3 = 90 FACU species 93 x 4 = 372 UPL species 0 x 5 = 0 Column Totals: 123 (A) 462 (B) Prevalence Index = B/A = 3.756
1. <i>Acer pensylvanicum</i>	40	<input checked="" type="checkbox"/> 83.3%	FACU	
2. <i>Acer saccharum</i>	8	<input type="checkbox"/> 16.7%	FACU-	
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
Herb Stratum (Plot size: 5')	48 = Total Cover			Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
1. <i>Thelypteris noveboracensis</i>	25	<input checked="" type="checkbox"/> 71.4%	FAC	
2. <i>Aralia nudicaulis</i>	5	<input type="checkbox"/> 14.3%	FACU	
3. <i>Trientalis borealis</i>	5	<input type="checkbox"/> 14.3%	FAC	
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
11. _____	0	<input type="checkbox"/> 0.0%		
12. _____	0	<input type="checkbox"/> 0.0%		
Woody Vine Stratum (Plot size: _____)	35 = Total Cover			
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
	0 = Total Cover			

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point:

AN14 Upland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features							Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²					
0-5	10YR	3/2	100%						Sandy Loam		
5-10	2.5Y	5/3	100%						Loamy Sand		

¹Type:

C=Concentration.

D=Depletion.

RM=Reduced Matrix,

CS=Covered or Coated Sand Grains

²Location:

PL=Pore Lining.M=Matrix

Hydric Soil Indicators:

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Muck Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7) (LRR R, MLRA 149B)

☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
☐ Loamy Mucky Mineral (F1) LRR K, L)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils :³

☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
☐ Coast Prairie Redox (A16) (LRR K, L, R)
☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
☐ Dark Surface (S7) (LRR K, L)
☐ Polyvalue Below Surface (S8) (LRR K, L)
☐ Thin Dark Surface (S9) (LRR K, L)
☐ Iron-Manganese Masses (F12) (LRR K, L, R)
☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth (inches):_____

Hydric Soil Present?

Yes☐

No☒

Remarks:



AN14 Wetland



AN14 Upland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 16-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: an15 wetland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): concave Slope: 8.0 % / 4.6 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Isolated PSS within skidder trail

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Water Table Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches):	5	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches):	0	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: an15 wetland

Tree Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. _____	0	<input type="checkbox"/> 0.0%		Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A)
2. _____	0	<input type="checkbox"/> 0.0%		Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	0	<input type="checkbox"/> 0.0%		Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
4. _____	0	<input type="checkbox"/> 0.0%		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>28</u> x 1 = <u>28</u> FACW species <u>104</u> x 2 = <u>208</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>142</u> (A) <u>266</u> (B) Prevalence Index = B/A = <u>1.873</u>
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____	0	<input type="checkbox"/> 0.0%		
Sapling/Shrub Stratum (Plot size: 15')	0 = Total Cover			Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
1. <u>Spiraea tomentosa</u>	66	<input checked="" type="checkbox"/> 81.5% FACW		
2. <u>Acer rubrum</u>	10	<input type="checkbox"/> 12.3% FAC		Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
3. <u>Fraxinus pennsylvanica</u>	5	<input type="checkbox"/> 6.2% FACW		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
Herb Stratum (Plot size: 5')	81 = Total Cover			
1. <u>Carex lurida</u>	20	<input checked="" type="checkbox"/> 32.8% OBL		
2. <u>Eupatoriadelphus dubius</u>	5	<input type="checkbox"/> 8.2% FACW		
3. <u>Scirpus cyperinus</u>	3	<input type="checkbox"/> 4.9% FACW+		
4. <u>Onoclea sensibilis</u>	25	<input checked="" type="checkbox"/> 41.0% FACW		
5. <u>Carex crinita</u>	8	<input type="checkbox"/> 13.1% OBL		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
11. _____	0	<input type="checkbox"/> 0.0%		
12. _____	0	<input type="checkbox"/> 0.0%		
Woody Vine Stratum (Plot size: _____)	61 = Total Cover			
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
	0 = Total Cover			

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 16-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: an15 upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): flat Slope: 8.0 % / 4.6 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:			
Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
		Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: an15 upland

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <i>Fagus grandifolia</i>	25	<input checked="" type="checkbox"/> 41.7%	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>25.0%</u> (A/B)
2. <i>Fraxinus americana</i>	25	<input checked="" type="checkbox"/> 41.7%	FACU	
3. <i>Betula alleghaniensis</i>	10	<input type="checkbox"/> 16.7%	FAC	
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
Sapling/Shrub Stratum (Plot size: 15')	60 = Total Cover			Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>15</u> x 3 = <u>45</u> FACU species <u>112</u> x 4 = <u>448</u> UPL species <u>1</u> x 5 = <u>5</u> Column Totals: <u>128</u> (A) <u>498</u> (B) Prevalence Index = B/A = <u>3.891</u>
1. <i>Acer pensylvanicum</i>	50	<input checked="" type="checkbox"/> 83.3%	FACU	
2. <i>Fagus grandifolia</i>	5	<input type="checkbox"/> 8.3%	FACU	
3. <i>Picea rubens</i>	5	<input type="checkbox"/> 8.3%	FACU	
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
Herb Stratum (Plot size: 5')	60 = Total Cover			Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Fraxinus americana</i>	1	<input type="checkbox"/> 12.5%	FACU	
2. <i>Acer saccharum</i>	1	<input type="checkbox"/> 12.5%	FACU-	
3. <i>Malanthemum canadense</i>	5	<input checked="" type="checkbox"/> 62.5%	FAC-	
4. <i>Polygonatum pubescens</i>	1	<input type="checkbox"/> 12.5%	UPL	
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
11. _____	0	<input type="checkbox"/> 0.0%		
12. _____	0	<input type="checkbox"/> 0.0%		
Woody Vine Stratum (Plot size: _____)	8 = Total Cover			Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
	0 = Total Cover			Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>

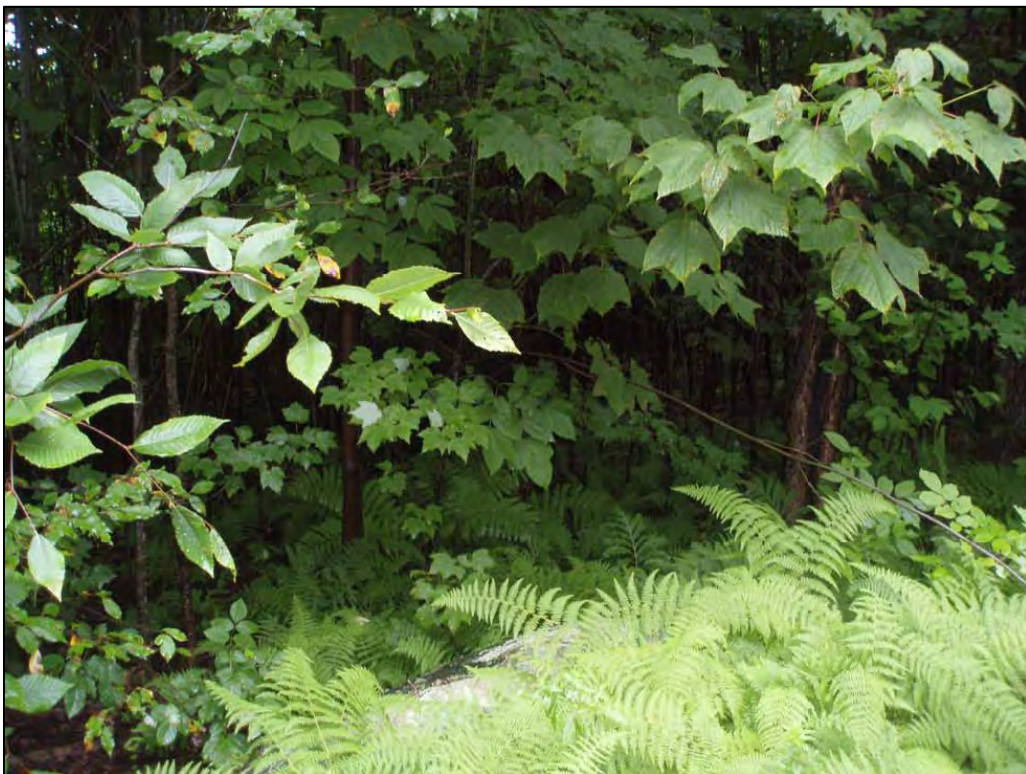
Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]



AN15 Wetland



AN15 Upland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 16-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: an16 wetland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): flat Slope: 0.0 % / 0.0 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Very small PEM wetland within wetland disturbance. Upslope of a small spring feature.

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Water Table Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches):	0	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches):	0	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: an16 wetland

Tree Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			
Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <u>Spiraea alba</u>	15	<input checked="" type="checkbox"/> 50.0%	FACW+
2. <u>Spiraea tomentosa</u>	15	<input checked="" type="checkbox"/> 50.0%	FACW
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
30 = Total Cover			
Herb Stratum (Plot size: 5')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <u>Carex crinita</u>	50	<input checked="" type="checkbox"/> 60.2%	OBL
2. <u>Scirpus cyperinus</u>	5	<input type="checkbox"/> 6.0%	FACW+
3. <u>Scirpus atrovirens</u>	5	<input type="checkbox"/> 6.0%	OBL
4. <u>Onoclea sensibilis</u>	20	<input checked="" type="checkbox"/> 24.1%	FACW
5. <u>Impatiens capensis</u>	3	<input type="checkbox"/> 3.6%	FACW
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
83 = Total Cover			
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>55</u>	x 1 = <u>55</u>
FACW species <u>58</u>	x 2 = <u>116</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>113</u> (A)	<u>171</u> (B)
Prevalence Index = B/A = <u>1.513</u>	

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 16-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: Sampling Point: an16 upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): flat Slope: 10.0 % / 5.7 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:			
Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>			

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: an16 upland

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <i>Fagus grandifolia</i>	20	<input checked="" type="checkbox"/> 66.7%	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
2. <i>Betula papyrifera</i>	10	<input checked="" type="checkbox"/> 33.3%	FACU	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
Sapling/Shrub Stratum (Plot size: 15')	30 = Total Cover			Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>106</u> x 4 = <u>424</u> UPL species <u>80</u> x 5 = <u>400</u> Column Totals: <u>191</u> (A) <u>839</u> (B) Prevalence Index = B/A = <u>4.393</u>
1. <i>Pinus strobus</i>	10	<input type="checkbox"/> 19.6%	FACU	
2. <i>Fagus grandifolia</i>	33	<input checked="" type="checkbox"/> 64.7%	FACU	
3. <i>Viburnum lentago</i>	5	<input type="checkbox"/> 9.8%	FAC	
4. <i>Picea rubens</i>	3	<input type="checkbox"/> 5.9%	FACU	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
Herb Stratum (Plot size: 5')	51 = Total Cover			Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Rubus alumnus</i>	10	<input type="checkbox"/> 9.1%	FACU-	
2. <i>Dennstaedtia punctilobula</i>	80	<input checked="" type="checkbox"/> 72.7%	UPL	
3. <i>Acer saccharum</i>	5	<input type="checkbox"/> 4.5%	FACU-	
4. <i>Solidago canadensis</i>	15	<input type="checkbox"/> 13.6%	FACU	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
11. _____	0	<input type="checkbox"/> 0.0%	_____	
12. _____	0	<input type="checkbox"/> 0.0%	_____	
Woody Vine Stratum (Plot size: _____)	110 = Total Cover			Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
	0 = Total Cover			Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

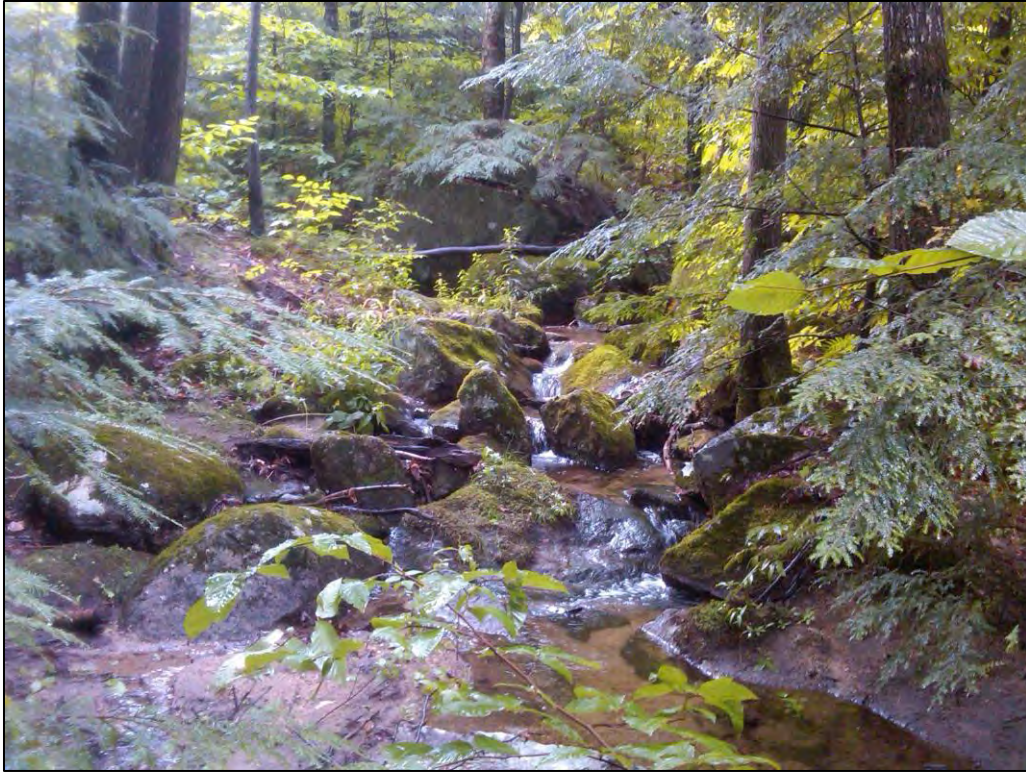
[illegible]



AN16 Wetland



AN16 Wetland



AN17 Stream (associated with AN18 Wetland)

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 16-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: an18a wetland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Gulch or Gully Local relief (concave, convex, none): concave Slope: 12.0 % / 6.8 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Isolated PSS wetland entirely within ROW associated with stream AN17. Stream flowing with 4-6 inches of water.

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:		Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Water Table Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches):	7	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches):	0	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant
Species?

Sampling Point: an18a wetland

Tree Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
Sapling/Shrub Stratum (Plot size: 15')	0 = Total Cover		
1. <u>Salix nigra</u>	10	<input checked="" type="checkbox"/> 76.9% FACW+	
2. <u>Fraxinus pennsylvanica</u>	0	<input type="checkbox"/> 0.0% FACW	
3. <u>Cornus stolonifera</u>	3	<input checked="" type="checkbox"/> 23.1% FACW+	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
Herb Stratum (Plot size: 5')	13 = Total Cover		
1. <u>Eupatoriadelphus dubius</u>	0	<input type="checkbox"/> 0.0% FACW	
2. <u>Onoclea sensibilis</u>	33	<input checked="" type="checkbox"/> 38.4% FACW	
3. <u>Scirpus cyperinus</u>	8	<input type="checkbox"/> 9.3% FACW+	
4. <u>Carex crinita</u>	10	<input type="checkbox"/> 11.6% OBL	
5. <u>Osmunda cinnamomea</u>	25	<input checked="" type="checkbox"/> 29.1% FACW	
6. <u>Carex lurida</u>	10	<input type="checkbox"/> 11.6% OBL	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
Woody Vine Stratum (Plot size: _____)	86 = Total Cover		
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>20</u>	x 1 = <u>20</u>
FACW species <u>79</u>	x 2 = <u>158</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>99</u> (A)	<u>178</u> (B)
Prevalence Index = B/A = <u>1.798</u>	

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: an18a wetland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹				
0-10	10YR	3/2	100%					Sandy Loam	alluvial soils
10-20	2.5Y	4/1	100%					gravelly sand	

¹Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

☐ Histosol (A1)

☐ Histic Epipedon (A2)

☐ Black Histic (A3)

☐ Hydrogen Sulfide (A4)

☐ Stratified Layers (A5)

☒ Depleted Below Dark Surface (A11)

☐ Thick Dark Surface (A12)

☐ Sandy Muck Mineral (S1)

☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)

☐ Stripped Matrix (S6)

☐ Dark Surface (S7) (LRR R, MLRA 149B)

☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)

☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)

☐ Loamy Mucky Mineral (F1) LRR K, L)

☐ Loamy Gleyed Matrix (F2)

☐ Depleted Matrix (F3)

☐ Redox Dark Surface (F6)

☐ Depleted Dark Surface (F7)

☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils :³

☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)

☐ Coast Prairie Redox (A16) (LRR K, L, R)

☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)

☐ Dark Surface (S7) (LRR K, L)

☐ Polyvalue Below Surface (S8) (LRR K, L)

☐ Thin Dark Surface (S9) (LRR K, L)

☐ Iron-Manganese Masses (F12) (LRR K, L, R)

☐ Piedmont Floodplain Soils (F19) (MLRA 149B)

☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)

☐ Red Parent Material (TF2)

☐ Very Shallow Dark Surface (TF12)

☐ Other (Explain in Remarks)

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present?

Yes ☒

No ☐

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 16-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: an18a upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): convex Slope: 20.0 % / 11.3 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Maintained ROW

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:		Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: an18a upland

Tree Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			
Herb Stratum (Plot size: 5' _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <i>Phalaris arundinacea</i>	50	<input checked="" type="checkbox"/> 46.3% FACW+	
2. <i>Dennstaedtia punctilobula</i>	50	<input checked="" type="checkbox"/> 46.3% UPL	
3. <i>Solidago canadensis</i>	8	<input type="checkbox"/> 7.4% FACU	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
108 = Total Cover			
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>50</u>	x 2 = <u>100</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>8</u>	x 4 = <u>32</u>
UPL species <u>50</u>	x 5 = <u>250</u>
Column Totals: <u>108</u> (A)	<u>382</u> (B)
Prevalence Index = B/A = <u>3.537</u>	

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☐ Dominance Test is > 50%

☐ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: an18a upland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-10	10YR	3/2	100%				Sandy Loam	
10-20	10YR	4/4	100%				Sandy Loam	

¹Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Muck Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7) (LRR R, MLRA 149B)

☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
☐ Loamy Mucky Mineral (F1) LRR K, L)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils :

☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
☐ Coast Prairie Redox (A16) (LRR K, L, R)
☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
☐ Dark Surface (S7) (LRR K, L)
☐ Polyvalue Below Surface (S8) (LRR K, L)
☐ Thin Dark Surface (S9) (LRR K, L)
☐ Iron-Manganese Masses (F12) (LRR K, L, R)
☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: _____
Depth (inches):_____

Hydric Soil Present?

Yes☐

No☒

Remarks:



AN18a Wetland



AN18a Upland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 17-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: an18b wetland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): undulating Slope: 0.0 % / 0.0 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Isolated PSS wetland within skidder trail crossing stream AN17. Courdory matting over stream

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:		Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Saturation Present? (includes capillary fringe) Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): 0		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: an18b wetland

Tree Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			
Sapling/Shrub Stratum (Plot size: 15')			
1. <u>Spiraea tomentosa</u>	33	<input checked="" type="checkbox"/> 68.8% FACW	
2. <u>Fraxinus pennsylvanica</u>	15	<input checked="" type="checkbox"/> 31.3% FACW	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
48 = Total Cover			
Herb Stratum (Plot size: 5')			
1. <u>Onoclea sensibilis</u>	20	<input type="checkbox"/> 14.8% FACW	
2. <u>Osmunda cinnamomea</u>	5	<input type="checkbox"/> 3.7% FACW	
3. <u>Carex trisperma</u>	15	<input type="checkbox"/> 11.1% OBL	
4. <u>Carex lurida</u>	20	<input type="checkbox"/> 14.8% OBL	
5. <u>Rubus hispidus</u>	50	<input checked="" type="checkbox"/> 37.0% FACW	
6. <u>Aster umbellatus</u>	25	<input checked="" type="checkbox"/> 18.5% FACW	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
135 = Total Cover			
Woody Vine Stratum (Plot size: _____)			
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>35</u>	x 1 = <u>35</u>
FACW species <u>148</u>	x 2 = <u>296</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Total s: <u>183</u> (A)	<u>331</u> (B)
Prevalence Index = B/A = <u>1.809</u>	

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: an18b wetland

[illegible]

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 17-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: an18b upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): undulating Slope: 3.0 % / 1.7 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: an18b upland

Tree Stratum		Species?		Indicator Status	
(Plot size: 30')		Absolute % Cover	Rel.Strat. Cover		
1.	Fagus grandifolia	25	<input checked="" type="checkbox"/>	41.7%	FACU
2.	Tsuga canadensis	25	<input checked="" type="checkbox"/>	41.7%	FACU
3.	Abies balsamea	10	<input type="checkbox"/>	16.7%	FAC
4.	Quercus rubra	0	<input type="checkbox"/>	0.0%	FACU-
5.		0	<input type="checkbox"/>	0.0%	
6.		0	<input type="checkbox"/>	0.0%	
7.		0	<input type="checkbox"/>	0.0%	
Sapling/Shrub Stratum (Plot size: 15')		60	= Total Cover		
1.	Betula alleghaniensis	25	<input checked="" type="checkbox"/>	45.5%	FAC
2.	Acer saccharum	25	<input checked="" type="checkbox"/>	45.5%	FACU-
3.	Pinus strobus	5	<input type="checkbox"/>	9.1%	FACU
4.		0	<input type="checkbox"/>	0.0%	
5.		0	<input type="checkbox"/>	0.0%	
6.		0	<input type="checkbox"/>	0.0%	
7.		0	<input type="checkbox"/>	0.0%	
Herb Stratum (Plot size: 5')		55	= Total Cover		
1.	Aralia nudicaulis	33	<input checked="" type="checkbox"/>	33.7%	FACU
2.	Thelypteris noveboracensis	60	<input checked="" type="checkbox"/>	61.2%	FAC
3.	Polygonatum pubescens	5	<input type="checkbox"/>	5.1%	UPL
4.		0	<input type="checkbox"/>	0.0%	
5.		0	<input type="checkbox"/>	0.0%	
6.		0	<input type="checkbox"/>	0.0%	
7.		0	<input type="checkbox"/>	0.0%	
8.		0	<input type="checkbox"/>	0.0%	
9.		0	<input type="checkbox"/>	0.0%	
10.		0	<input type="checkbox"/>	0.0%	
11.		0	<input type="checkbox"/>	0.0%	
12.		0	<input type="checkbox"/>	0.0%	
Woody Vine Stratum (Plot size:)		98	= Total Cover		
1.		0	<input type="checkbox"/>	0.0%	
2.		0	<input type="checkbox"/>	0.0%	
3.		0	<input type="checkbox"/>	0.0%	
4.		0	<input type="checkbox"/>	0.0%	
		0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:

Multiply by:

OBL species 0 x 1 = 0

FACW species 0 x 2 = 0

FAC species 95 x 3 = 285

FACU species 113 x 4 = 452

UPL species 5 x 5 = 25

Column Total s: 213 (A) 762 (B)

Prevalence Index = B/A = 3.577

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☐ Dominance Test is > 50%

☐ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present?

Yes ☐ No ☒

Remarks: (Include photo numbers here or on a separate sheet.)

* Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]



AN18b Upland



AN18b Wetland



AN18 Wetland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 17-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN18c wetland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): undulating Slope: 10.0 % / 5.7 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PSS/PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Isolated skidder disturbed wetland adjacent to Stream AN17. Boulders throughout wetland.

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): 0	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN18c wetland

Tree Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			
Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <u>Acer rubrum</u>	5	<input checked="" type="checkbox"/> 50.0%	FAC
2. <u>Fraxinus pennsylvanica</u>	5	<input checked="" type="checkbox"/> 50.0%	FACW
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
10 = Total Cover			
Herb Stratum (Plot size: 5')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <u>Carex crinita</u>	25	<input checked="" type="checkbox"/> 28.1%	OBL
2. <u>Phalaris arundinacea</u>	33	<input checked="" type="checkbox"/> 37.1%	FACW+
3. <u>Onoclea sensibilis</u>	15	<input type="checkbox"/> 16.9%	FACW
4. <u>Carex lurida</u>	8	<input type="checkbox"/> 9.0%	OBL
5. <u>Scirpus cyperinus</u>	5	<input type="checkbox"/> 5.6%	FACW+
6. <u>Carex trisperma</u>	3	<input type="checkbox"/> 3.4%	OBL
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
89 = Total Cover			
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>36</u>	x 1 = <u>36</u>
FACW species <u>58</u>	x 2 = <u>116</u>
FAC species <u>5</u>	x 3 = <u>15</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>99</u> (A)	<u>167</u> (B)
Prevalence Index = B/A = <u>1.687</u>	

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 17-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN18c upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): convex Slope: 5.0 % / 2.9 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

logged upland

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches):

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN18c upland

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <u>Acer rubrum</u>	15	<input checked="" type="checkbox"/> 33.3%	FAC	Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>25.0%</u> (A/B)
2. <u>Betula alleghaniensis</u>	10	<input checked="" type="checkbox"/> 22.2%	FAC	
3. <u>Picea rubens</u>	10	<input checked="" type="checkbox"/> 22.2%	FACU	
4. <u>Tsuga canadensis</u>	10	<input checked="" type="checkbox"/> 22.2%	FACU	
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
Sapling/Shrub Stratum (Plot size: 15')	45 = Total Cover			Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 25 x 3 = 75 FACU species 78 x 4 = 312 UPL species 50 x 5 = 250 Column Totals: 153 (A) 637 (B) Prevalence Index = B/A = 4.163
1. <u>Acer pensylvanicum</u>	20	<input checked="" type="checkbox"/> 44.4%	FACU	
2. <u>Quercus rubra</u>	10	<input checked="" type="checkbox"/> 22.2%	FACU-	
3. <u>Fagus grandifolia</u>	5	<input type="checkbox"/> 11.1%	FACU	
4. <u>Betula papyrifera</u>	10	<input checked="" type="checkbox"/> 22.2%	FACU	
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
Herb Stratum (Plot size: 5')	45 = Total Cover			Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Dennstaedtia punctilobula</u>	50	<input checked="" type="checkbox"/> 79.4%	UPL	
2. <u>Solidago canadensis</u>	8	<input type="checkbox"/> 12.7%	FACU	
3. <u>Rubus alumnus</u>	5	<input type="checkbox"/> 7.9%	FACU-	
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
11. _____	0	<input type="checkbox"/> 0.0%		
12. _____	0	<input type="checkbox"/> 0.0%		
Woody Vine Stratum (Plot size: _____)	63 = Total Cover			Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
	0 = Total Cover			Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point:

AN18c upland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹				
0-6	10YR	3/2	100%					Fine Sandy Loam	
6-10	2.5Y	5/1	100%					Fine Sandy Loam	
10-14	10YR	4/3	100%					Fine Sandy Loam	

¹ Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

☐ Histosol (A1)

☐ Histic Epipedon (A2)

☐ Black Histic (A3)

☐ Hydrogen Sulfide (A4)

☐ Stratified Layers (A5)

☐ Depleted Below Dark Surface (A11)

☐ Thick Dark Surface (A12)

☐ Sandy Muck Mineral (S1)

☐ Sandy Gleyed Matrix (S4)

☐ Sandy Redox (S5)

☐ Stripped Matrix (S6)

☐ Dark Surface (S7) (LRR R, MLRA 149B)

☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)

☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)

☐ Loamy Mucky Mineral (F1) LRR K, L)

☐ Loamy Gleyed Matrix (F2)

☐ Depleted Matrix (F3)

☐ Redox Dark Surface (F6)

☐ Depleted Dark Surface (F7)

☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : ³

☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)

☐ Coast Prairie Redox (A16) (LRR K, L, R)

☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)

☐ Dark Surface (S7) (LRR K, L)

☐ Polyvalue Below Surface (S8) (LRR K, L)

☐ Thin Dark Surface (S9) (LRR K, L)

☐ Iron-Manganese Masses (F12) (LRR K, L, R)

☐ Piedmont Floodplain Soils (F19) (MLRA 149B)

☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)

☐ Red Parent Material (TF2)

☐ Very Shallow Dark Surface (TF12)

☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Boulders

Depth (inches): 14

Hydric Soil Present?

Yes☐

No☒

Remarks:



AN18c Wetland



AN18c Upland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 17-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN18d wetland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): concave Slope: 5.0 % / 2.9 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Isolated PSS associated with Stream AN17

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): 0	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN18d wetland

Tree Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			
Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <u>Fraxinus pennsylvanica</u>	15	<input checked="" type="checkbox"/> 60.0%	FACW
2. <u>Betula alleghaniensis</u>	10	<input checked="" type="checkbox"/> 40.0%	FAC
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
25 = Total Cover			
Herb Stratum (Plot size: 5')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <u>Onoclea sensibilis</u>	80	<input checked="" type="checkbox"/> 81.6%	FACW
2. <u>Eupatoriadelphus dubius</u>	5	<input type="checkbox"/> 5.1%	FACW
3. <u>Fraxinus pennsylvanica</u>	3	<input type="checkbox"/> 3.1%	FACW
4. <u>Osmunda cinnamomea</u>	10	<input type="checkbox"/> 10.2%	FACW
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
98 = Total Cover			
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>113</u>	x 2 = <u>226</u>
FAC species <u>10</u>	x 3 = <u>30</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>123</u> (A)	<u>256</u> (B)
Prevalence Index = B/A = <u>2.081</u>	

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 17-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: an18d upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): convex Slope: 8.0 % / 4.6 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks: (Explain alternative procedures here or in a separate report.) logged upland	

Hydrology

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of 2 required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): <u> </u> Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): <u> </u> Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): <u> </u>		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: an18d upland

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <u>Tsuga canadensis</u>	33	<input checked="" type="checkbox"/> 43.4%	FACU
2. <u>Populus tremula</u>	10	<input type="checkbox"/> 13.2%	FACU
3. <u>Fraxinus pennsylvanica</u>	33	<input checked="" type="checkbox"/> 43.4%	FACW
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
Sapling/Shrub Stratum (Plot size: 15')	76 = Total Cover		
1. <u>Acer rubrum</u>	25	<input checked="" type="checkbox"/> 33.3%	FAC
2. <u>Fagus grandifolia</u>	15	<input checked="" type="checkbox"/> 20.0%	FACU
3. <u>Pinus strobus</u>	25	<input checked="" type="checkbox"/> 33.3%	FACU
4. <u>Betula papyrifera</u>	10	<input type="checkbox"/> 13.3%	FACU
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
Herb Stratum (Plot size: 5')	75 = Total Cover		
1. <u>Solidago canadensis</u>	8	<input type="checkbox"/> 18.6%	FACU
2. <u>Rubus alumnus</u>	5	<input type="checkbox"/> 11.6%	FACU-
3. <u>Dennstaedtia punctilobula</u>	25	<input checked="" type="checkbox"/> 58.1%	UPL
4. <u>Trientalis borealis</u>	5	<input type="checkbox"/> 11.6%	FAC
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
Woody Vine Stratum (Plot size: _____)	43 = Total Cover		
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>33</u>	x 2 = <u>66</u>
FAC species <u>30</u>	x 3 = <u>90</u>
FACU species <u>106</u>	x 4 = <u>424</u>
UPL species <u>25</u>	x 5 = <u>125</u>
Column Totals: <u>194</u> (A)	<u>705</u> (B)

Prevalence Index = B/A = 3.634

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☐ Dominance Test is > 50%

☐ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: an18d upland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-6	10YR	3/2	100%				Loam	
6-10	2.5Y	5/1	100%				Fine Loamy Sand	
10-16	10YR	4/3	100%				Fine Sandy Loam	

¹Type:

C=Concentration.

D=Depletion.

RM=Reduced Matrix,

CS=Covered or Coated Sand Grains

²Location:

PL=Pore Lining.

M=Matrix

Hydric Soil Indicators:

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Muck Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7) (LRR R, MLRA 149B)

☐ Polyvalue Below Surface (S8) (LRR R,
MLRA 149B)
☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
☐ Loamy Mucky Mineral (F1) LRR K, L)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : ³

☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
☐ Coast Prairie Redox (A16) (LRR K, L, R)
☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
☐ Dark Surface (S7) (LRR K, L)
☐ Polyvalue Below Surface (S8) (LRR K, L)
☐ Thin Dark Surface (S9) (LRR K, L)
☐ Iron-Manganese Masses (F12) (LRR K, L, R)
☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:
Boulders

Depth (inches):
16

Hydric Soil Present?

Yes

No

Remarks:

Spodosol



AN18d Upland



AN18d Wetland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 17-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN18e Wetland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): concave Slope: 10.0 % / 5.7 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Isolated PFO adjacent to Stream AN17.

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches):	0

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: **AN18e Wetland**

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Fraxinus pennsylvanica</u>	15	<input checked="" type="checkbox"/> 30.0%	FACW
2. <u>Acer rubrum</u>	20	<input checked="" type="checkbox"/> 40.0%	FAC
3. <u>Betula alleghaniensis</u>	15	<input checked="" type="checkbox"/> 30.0%	FAC
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
Sapling/Shrub Stratum (Plot size: 15')		50 = Total Cover	
1. <u>Betula alleghaniensis</u>	50	<input checked="" type="checkbox"/> 100.0%	FAC
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
Herb Stratum (Plot size: 5')		50 = Total Cover	
1. <u>Osmunda cinnamomea</u>	33	<input checked="" type="checkbox"/> 27.3%	FACW
2. <u>Onoclea sensibilis</u>	33	<input checked="" type="checkbox"/> 27.3%	FACW
3. <u>Eupatoriadelphus dubius</u>	20	<input type="checkbox"/> 16.5%	FACW
4. <u>Impatiens capensis</u>	20	<input type="checkbox"/> 16.5%	FACW
5. <u>Coptis trifolia</u>	15	<input type="checkbox"/> 12.4%	FACW
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
Woody Vine Stratum (Plot size: _____)		121 = Total Cover	
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
		0 = Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>136</u>	x 2 = <u>272</u>
FAC species <u>85</u>	x 3 = <u>255</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>221</u> (A)	<u>527</u> (B)
Prevalence Index = B/A = <u>2.385</u>	

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point:

AN18e Wetland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features							Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²					
0-8	10YR	2/1	100%						Muck		
8-11	2.5Y	4/1	75%	10YR	4/6	25%	C	M	mucky sand		
11-13	10YR	3/2							Sandy Loam		

¹Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains ²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☒ Depleted Below Dark Surface (A11)
☒ Thick Dark Surface (A12)
☐ Sandy Muck Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7) (LRR R, MLRA 149B)

☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
☐ Loamy Mucky Mineral (F1) LRR K, L)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils :³

☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
☐ Coast Prairie Redox (A16) (LRR K, L, R)
☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
☐ Dark Surface (S7) (LRR K, L)
☐ Polyvalue Below Surface (S8) (LRR K, L)
☐ Thin Dark Surface (S9) (LRR K, L)
☐ Iron-Manganese Masses (F12) (LRR K, L, R)
☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

Restrictive Layer (if observed):

Type: _____
Depth (inches):_____

Hydric Soil Present? Yes☒ No☐

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 17-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN18e upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): convex Slope: 15.0 % / 8.5 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Very Bouldery.

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches):

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN18e upland

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <i>Fagus grandifolia</i>	33	<input checked="" type="checkbox"/> 43.4%	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>28.6%</u> (A/B)
2. <i>Tsuga canadensis</i>	33	<input checked="" type="checkbox"/> 43.4%	FACU	
3. <i>Betula papyrifera</i>	10	<input type="checkbox"/> 13.2%	FACU	
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
76 = Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 30 x 3 = 90 FACU species 141 x 4 = 564 UPL species 0 x 5 = 0 Column Totals: 171 (A) 654 (B) Prevalence Index = B/A = 3.825
Sapling/Shrub Stratum (Plot size: 15')				
1. <i>Fagus grandifolia</i>	40	<input checked="" type="checkbox"/> 53.3%	FACU	
2. <i>Acer pensylvanicum</i>	20	<input checked="" type="checkbox"/> 26.7%	FACU	
3. <i>Betula alleghaniensis</i>	15	<input checked="" type="checkbox"/> 20.0%	FAC	
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
75 = Total Cover				
Herb Stratum (Plot size: 5')				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <i>Thelypteris noveboracensis</i>	15	<input checked="" type="checkbox"/> 75.0%	FAC	
2. <i>Quercus rubra</i>	5	<input checked="" type="checkbox"/> 25.0%	FACU-	
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
11. _____	0	<input type="checkbox"/> 0.0%		
12. _____	0	<input type="checkbox"/> 0.0%		
20 = Total Cover				
Woody Vine Stratum (Plot size: _____)				Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
0 = Total Cover				
Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>				

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]



AN18e Wetland



AN18e Upland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 17-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN18f wetland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): convex Slope: 5.0 % / 2.9 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PFO

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Isolated PFO adjacent to Stream AN17. Drains through rock culvert and old ditching associated with old road bed.

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): 4	Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): 0	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: AN18f wetland

Tree Stratum (Plot size: 30')	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
1. <u>Betula alleghaniensis</u>	33	<input checked="" type="checkbox"/> 100.0%	FAC	Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
Sapling/Shrub Stratum (Plot size: 15')	33 = Total Cover			Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>43</u> x 2 = <u>86</u> FAC species <u>68</u> x 3 = <u>204</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>111</u> (A) <u>290</u> (B) Prevalence Index = B/A = <u>2.613</u>
1. <u>Betula alleghaniensis</u>	25	<input checked="" type="checkbox"/> 55.6%	FAC	
2. <u>Acer rubrum</u>	10	<input checked="" type="checkbox"/> 22.2%	FAC	
3. <u>Fraxinus pennsylvanica</u>	10	<input checked="" type="checkbox"/> 22.2%	FACW	
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
Herb Stratum (Plot size: 5')	45 = Total Cover			Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Onoclea sensibilis</u>	33	<input checked="" type="checkbox"/> 100.0%	FACW	
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
11. _____	0	<input type="checkbox"/> 0.0%		
Woody Vine Stratum (Plot size: _____)	33 = Total Cover			Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.
1. _____	0	<input type="checkbox"/> 0.0%		
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
	0 = Total Cover			Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point:

AN18f wetland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features						Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²				
0-8	10YR	3/2	100%						Sandy Loam	
8-16	2.5Y	5/2	80%	10YR	4/6	20%	C	M	Gravelly Sand	

¹Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☒ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Muck Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7) (LRR R, MLRA 149B)

☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
☐ Loamy Mucky Mineral (F1) LRR K, L)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils :³

☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
☐ Coast Prairie Redox (A16) (LRR K, L, R)
☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
☐ Dark Surface (S7) (LRR K, L)
☐ Polyvalue Below Surface (S8) (LRR K, L)
☐ Thin Dark Surface (S9) (LRR K, L)
☐ Iron-Manganese Masses (F12) (LRR K, L, R)
☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:

Depth (inches):

Hydric Soil Present?

Yes☒

No☐

Remarks:

Alluvial Soils

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 17-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN18f Upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): convex Slope: 10.0 % / 5.7 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:		Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		
Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: **AN18f Upland**

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)																								
1. <u>Acer rubrum</u>	<u>40</u>	<input checked="" type="checkbox"/>	<u>50.0%</u>	<u>FAC</u>																									
2. <u>Fraxinus pennsylvanica</u>	<u>40</u>	<input checked="" type="checkbox"/>	<u>50.0%</u>	<u>FACW</u>																									
3. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
4. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
5. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
6. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
7. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
Sapling/Shrub Stratum (Plot size: 15')		80 = Total Cover			Prevalence Index worksheet: Total % Cover of: Multiply by: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:30%;">OBL species</td> <td style="width:10%; text-align: center;"><u>0</u></td> <td style="width:10%; text-align: center;">x 1 =</td> <td style="width:10%; text-align: center;"><u>0</u></td> </tr> <tr> <td>FACW species</td> <td style="text-align: center;"><u>40</u></td> <td style="text-align: center;">x 2 =</td> <td style="text-align: center;"><u>80</u></td> </tr> <tr> <td>FAC species</td> <td style="text-align: center;"><u>70</u></td> <td style="text-align: center;">x 3 =</td> <td style="text-align: center;"><u>210</u></td> </tr> <tr> <td>FACU species</td> <td style="text-align: center;"><u>70</u></td> <td style="text-align: center;">x 4 =</td> <td style="text-align: center;"><u>280</u></td> </tr> <tr> <td>UPL species</td> <td style="text-align: center;"><u>5</u></td> <td style="text-align: center;">x 5 =</td> <td style="text-align: center;"><u>25</u></td> </tr> <tr> <td>Column Totals:</td> <td style="text-align: center;"><u>185</u></td> <td style="text-align: center;">(A)</td> <td style="text-align: center;"><u>595</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>3.216</u>	OBL species	<u>0</u>	x 1 =	<u>0</u>	FACW species	<u>40</u>	x 2 =	<u>80</u>	FAC species	<u>70</u>	x 3 =	<u>210</u>	FACU species	<u>70</u>	x 4 =	<u>280</u>	UPL species	<u>5</u>	x 5 =	<u>25</u>	Column Totals:	<u>185</u>	(A)	<u>595</u> (B)
OBL species	<u>0</u>	x 1 =	<u>0</u>																										
FACW species	<u>40</u>	x 2 =	<u>80</u>																										
FAC species	<u>70</u>	x 3 =	<u>210</u>																										
FACU species	<u>70</u>	x 4 =	<u>280</u>																										
UPL species	<u>5</u>	x 5 =	<u>25</u>																										
Column Totals:	<u>185</u>	(A)	<u>595</u> (B)																										
1. <u>Ostrya virginiana</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>31.3%</u>	<u>FACU-</u>																									
2. <u>Pinus strobus</u>	<u>10</u>	<input type="checkbox"/>	<u>12.5%</u>	<u>FACU</u>																									
3. <u>Betula alleghaniensis</u>	<u>10</u>	<input type="checkbox"/>	<u>12.5%</u>	<u>FAC</u>																									
4. <u>Fagus grandifolia</u>	<u>15</u>	<input type="checkbox"/>	<u>18.8%</u>	<u>FACU</u>																									
5. <u>Acer pensylvanicum</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>25.0%</u>	<u>FACU</u>																									
6. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
7. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
Herb Stratum (Plot size: 5')		80 = Total Cover			Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																								
1. <u>Malanthemum canadense</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>80.0%</u>	<u>FAC-</u>																									
2. <u>Polygonatum pubescens</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>20.0%</u>	<u>UPL</u>																									
3. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
4. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
5. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
6. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
7. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
8. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
9. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
10. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
11. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
12. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
Woody Vine Stratum (Plot size: _____)		25 = Total Cover			Definitions of Vegetation Strata: Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.. Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine - All woody vines greater than 3.28 ft in height.																								
1. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
2. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
3. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
4. _____	<u>0</u>	<input type="checkbox"/>	<u>0.0%</u>	_____																									
		0 = Total Cover																											

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point:

AN18f Upland

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features							Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²					
0-8	10YR	3/2	100%						Fine Sandy Loam		
8-14	10YR	3/4	100%						Fine Sandy Loam		

¹Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains

²Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Muck Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Dark Surface (S7) (LRR R, MLRA 149B)

☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
☐ Loamy Mucky Mineral (F1) LRR K, L)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils :³

☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
☐ Coast Prairie Redox (A16) (LRR K, L, R)
☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
☐ Dark Surface (S7) (LRR K, L)
☐ Polyvalue Below Surface (S8) (LRR K, L)
☐ Thin Dark Surface (S9) (LRR K, L)
☐ Iron-Manganese Masses (F12) (LRR K, L, R)
☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type:
 Boulders

Depth (inches): 14

Hydric Soil Present?

Yes☐

No☒

Remarks:



AN18f Wetland



AN18f Upland



AN18f Wetland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 16-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: an20 wetland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave Slope: 3.0 % / 1.7 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Remarks: (Explain alternative procedures here or in a separate report.) Isolated PEM entirely within ROW	

Hydrology

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of 2 required)	
<input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-neutral Test (D5)	
Field Observations: Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Depth (inches): 2 Saturation Present? (includes capillary fringe) Yes <input checked="" type="radio"/> No <input type="radio"/> Depth (inches): 0			
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: an20 wetland

Tree Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			
Herb Stratum (Plot size: 5' _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <i>Onoclea sensibilis</i>	45	<input checked="" type="checkbox"/> 39.8%	FACW
2. <i>Impatiens capensis</i>	10	<input type="checkbox"/> 8.8%	FACW
3. <i>Osmunda cinnamomea</i>	33	<input checked="" type="checkbox"/> 29.2%	FACW
4. <i>Carex crinita</i>	10	<input type="checkbox"/> 8.8%	OBL
5. <i>Phalaris arundinacea</i>	15	<input type="checkbox"/> 13.3%	FACW+
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
113 = Total Cover			
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>10</u>	x 1 = <u>10</u>
FACW species <u>103</u>	x 2 = <u>206</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>113</u> (A)	<u>216</u> (B)
Prevalence Index = B/A = <u>1.912</u>	

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 16-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: an20 upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): convex Slope: 15.0 % / 8.5 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Maintained ROW

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches):

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: an20 upland

Tree Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			
Sapling/Shrub Stratum (Plot size: 15')			
1. <u>Rhus copallinum</u>	25	<input checked="" type="checkbox"/> 100.0%	NI
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
25 = Total Cover			
Herb Stratum (Plot size: 5')			
1. <u>Dennstaedtia punctilobula</u>	95	<input checked="" type="checkbox"/> 90.5%	UPL
2. <u>Rubus alumnus</u>	10	<input type="checkbox"/> 9.5%	FACU-
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
105 = Total Cover			
Woody Vine Stratum (Plot size: _____)			
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>10</u>	x 4 = <u>40</u>
UPL species <u>95</u>	x 5 = <u>475</u>
Column Totals: <u>105</u> (A)	<u>515</u> (B)
Prevalence Index = B/A = <u>4.905</u>	

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☐ Dominance Test is > 50%

☐ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]



AN20 Wetland



AN20 Upland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 16-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: an21 wetland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave Slope: 3.0 % / 1.7 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PEM

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Isolated PEM entirely within ROW

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☒ No ☐ Depth (inches): 3

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: an21 wetland

Tree Stratum (Plot size: _____)	Absolute % Cover	Indicator Status	Dominance Test worksheet:																																																																																													
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Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 16-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: an21 upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): convex Slope: 18.0 % / 10.2 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Maintained ROW

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes ☐ No ☒ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches):

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: an21 upland

Tree Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			
Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <u>Acer rubrum</u>	5	<input checked="" type="checkbox"/> 20.0%	FAC
2. <u>Gaylussacia baccata</u>	5	<input checked="" type="checkbox"/> 20.0%	FACU
3. <u>Acer saccharum</u>	5	<input checked="" type="checkbox"/> 20.0%	FACU-
4. <u>Fagus grandifolia</u>	5	<input checked="" type="checkbox"/> 20.0%	FACU
5. <u>Quercus rubra</u>	5	<input checked="" type="checkbox"/> 20.0%	FACU-
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
25 = Total Cover			
Herb Stratum (Plot size: 5')	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. <u>Dennstaedtia punctilobula</u>	95	<input checked="" type="checkbox"/> 89.6%	UPL
2. <u>Trientalis borealis</u>	3	<input type="checkbox"/> 2.8%	FAC
3. <u>Solidago canadensis</u>	8	<input type="checkbox"/> 7.5%	FACU
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
106 = Total Cover			
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 16.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>8</u>	x 3 = <u>24</u>
FACU species <u>28</u>	x 4 = <u>112</u>
UPL species <u>95</u>	x 5 = <u>475</u>
Column Totals: <u>131</u> (A)	<u>611</u> (B)
Prevalence Index = B/A = <u>4.664</u>	

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☐ Dominance Test is > 50%

☐ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]



AN21 Wetland



AN21 Upland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 17-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: an22 wetland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): flat Slope: 5.0 % / 2.9 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Isolated PSS with moose wallow on southern end of wetland.

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches):	0

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Dominant Species?

Sampling Point: an22 wetland

Tree Stratum (Plot size: _____)	Absolute % Cover	Rel.Strat. Cover	Indicator Status
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			
Sapling/Shrub Stratum (Plot size: 15')			
1. <i>Fraxinus pennsylvanica</i>	10	<input checked="" type="checkbox"/> 20.8% FACW	
2. <i>Acer rubrum</i>	25	<input checked="" type="checkbox"/> 52.1% FAC	
3. <i>Spiraea tomentosa</i>	5	<input type="checkbox"/> 10.4% FACW	
4. <i>Viburnum lentago</i>	8	<input type="checkbox"/> 16.7% FAC	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
48 = Total Cover			
Herb Stratum (Plot size: 5')			
1. <i>Onoclea sensibilis</i>	25	<input checked="" type="checkbox"/> 49.0% FACW	
2. <i>Osmunda cinnamomea</i>	15	<input checked="" type="checkbox"/> 29.4% FACW	
3. <i>Carex crinita</i>	8	<input type="checkbox"/> 15.7% OBL	
4. <i>Equisetum arvense</i>	3	<input type="checkbox"/> 5.9% FAC	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
51 = Total Cover			
Woody Vine Stratum (Plot size: _____)			
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
0 = Total Cover			

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>8</u>	x 1 = <u>8</u>
FACW species <u>55</u>	x 2 = <u>110</u>
FAC species <u>36</u>	x 3 = <u>108</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>99</u> (A)	<u>226</u> (B)
Prevalence Index = B/A = <u>2.283</u>	

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤ 3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 17-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN22 Upland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): flat Slope: 12.0 % / 6.8 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification:

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: (Explain alternative procedures here or in a separate report.)	

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-neutral Test (D5)	
<div style="display: flex; justify-content: space-between;"> <div style="width: 60%;"> <p>Field Observations:</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/></p> <p>Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/></p> <p>Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/></p> </div> <div style="width: 45%;"> <p>Depth (inches): _____</p> <p>Depth (inches): _____</p> <p>Depth (inches): _____</p> </div> </div> </div> <div style="width: 35%;"> <p>Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/></p> </div> </div>			
<p>Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:</p> <div style="height: 40px; border: 1px solid black; margin-top: 5px;"></div>			
<p>Remarks:</p> <div style="height: 150px; border: 1px solid black; margin-top: 5px;"></div>			

VEGETATION - Use scientific names of plants

Sampling Point: AN22 Upland

Tree Stratum (Plot size: 30')		Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	<u>Tsuga canadensis</u>	20	<input checked="" type="checkbox"/> 33.3%	FACU
2.	<u>Betula papyrifera</u>	10	<input type="checkbox"/> 16.7%	FACU
3.	<u>Fagus grandifolia</u>	20	<input checked="" type="checkbox"/> 33.3%	FACU
4.	<u>Acer rubrum</u>	10	<input type="checkbox"/> 16.7%	FAC
5.		0	<input type="checkbox"/> 0.0%	
6.		0	<input type="checkbox"/> 0.0%	
7.		0	<input type="checkbox"/> 0.0%	
Sapling/Shrub Stratum (Plot size: 15')		60 = Total Cover		
1.	<u>Betula alleghaniensis</u>	25	<input checked="" type="checkbox"/> 50.0%	FAC
2.	<u>Acer pensylvanicum</u>	15	<input checked="" type="checkbox"/> 30.0%	FACU
3.	<u>Fagus grandifolia</u>	10	<input checked="" type="checkbox"/> 20.0%	FACU
4.		0	<input type="checkbox"/> 0.0%	
5.		0	<input type="checkbox"/> 0.0%	
6.		0	<input type="checkbox"/> 0.0%	
7.		0	<input type="checkbox"/> 0.0%	
Herb Stratum (Plot size: 5')		50 = Total Cover		
1.	<u>Trientalis borealis</u>	10	<input type="checkbox"/> 11.0%	FAC
2.	<u>Dennstaedtia punctilobula</u>	66	<input checked="" type="checkbox"/> 72.5%	UPL
3.	<u>Aralia nudicaulis</u>	15	<input type="checkbox"/> 16.5%	FACU
4.		0	<input type="checkbox"/> 0.0%	
5.		0	<input type="checkbox"/> 0.0%	
6.		0	<input type="checkbox"/> 0.0%	
7.		0	<input type="checkbox"/> 0.0%	
8.		0	<input type="checkbox"/> 0.0%	
9.		0	<input type="checkbox"/> 0.0%	
10.		0	<input type="checkbox"/> 0.0%	
11.		0	<input type="checkbox"/> 0.0%	
12.		0	<input type="checkbox"/> 0.0%	
Woody Vine Stratum (Plot size:)		91 = Total Cover		
1.		0	<input type="checkbox"/> 0.0%	
2.		0	<input type="checkbox"/> 0.0%	
3.		0	<input type="checkbox"/> 0.0%	
4.		0	<input type="checkbox"/> 0.0%	
		0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 16.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>45</u>	x 3 = <u>135</u>
FACU species <u>90</u>	x 4 = <u>360</u>
UPL species <u>66</u>	x 5 = <u>330</u>
Column Totals: <u>201</u> (A)	<u>825</u> (B)

Prevalence Index = B/A = 4.104

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☐ Dominance Test is > 50%

☐ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]



AN22 Wetland



AN22 Upland

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Antrim Wind Project City/County: Antrim Sampling Date: 17-Aug-11

Applicant/Owner: Eolian Renewable Energy, LLC State: NH Sampling Point: AN23 Wetland

Investigator(s): AF JG Section, Township, Range: S. T. R.

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): concave Slope: 12.0 % / 6.8 °

Subregion (LRR or MLRA): Lat.: Long.: Datum:

Soil Map Unit Name: NWI classification: PFO/PSS

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	

Remarks: (Explain alternative procedures here or in a separate report.)

Isolated PFO/PSS hillside seep disturbed by Skidder activity.

Hydrology

Wetland Hydrology Indicators:		Secondary Indicators (minimum of 2 required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Marl Deposits (B15)	<input type="checkbox"/> Moss Trim Lines (B16)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Drift deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<input type="checkbox"/> Microtopographic Relief (D4)	
		<input checked="" type="checkbox"/> FAC-neutral Test (D5)	

Field Observations:

Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches):	0

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: **AN23 Wetland**

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. <u>Fraxinus pennsylvanica</u>	33	<input checked="" type="checkbox"/> 40.7%	FACW
2. <u>Acer rubrum</u>	33	<input checked="" type="checkbox"/> 40.7%	FAC
3. <u>Betula alleghaniensis</u>	15	<input type="checkbox"/> 18.5%	FAC
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
Sapling/Shrub Stratum (Plot size: 15')	81 = Total Cover		
1. <u>Fraxinus pennsylvanica</u>	8	<input checked="" type="checkbox"/> 28.6%	FACW
2. <u>Spiraea tomentosa</u>	15	<input checked="" type="checkbox"/> 53.6%	FACW
3. <u>Pinus strobus</u>	5	<input type="checkbox"/> 17.9%	FACU
4. _____	0	<input type="checkbox"/> 0.0%	
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
Herb Stratum (Plot size: 5')	28 = Total Cover		
1. <u>Onoclea sensibilis</u>	75	<input checked="" type="checkbox"/> 78.1%	FACW
2. <u>Osmunda cinnamomea</u>	8	<input type="checkbox"/> 8.3%	FACW
3. <u>Equisetum arvense</u>	8	<input type="checkbox"/> 8.3%	FAC
4. <u>Carex lurida</u>	5	<input type="checkbox"/> 5.2%	OBL
5. _____	0	<input type="checkbox"/> 0.0%	
6. _____	0	<input type="checkbox"/> 0.0%	
7. _____	0	<input type="checkbox"/> 0.0%	
8. _____	0	<input type="checkbox"/> 0.0%	
9. _____	0	<input type="checkbox"/> 0.0%	
10. _____	0	<input type="checkbox"/> 0.0%	
11. _____	0	<input type="checkbox"/> 0.0%	
12. _____	0	<input type="checkbox"/> 0.0%	
Woody Vine Stratum (Plot size: _____)	96 = Total Cover		
1. _____	0	<input type="checkbox"/> 0.0%	
2. _____	0	<input type="checkbox"/> 0.0%	
3. _____	0	<input type="checkbox"/> 0.0%	
4. _____	0	<input type="checkbox"/> 0.0%	
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>5</u>	x 1 = <u>5</u>
FACW species <u>139</u>	x 2 = <u>278</u>
FAC species <u>56</u>	x 3 = <u>168</u>
FACU species <u>5</u>	x 4 = <u>20</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>205</u> (A)	<u>471</u> (B)
Prevalence Index = B/A = <u>2.298</u>	

Hydrophytic Vegetation Indicators:

☐ Rapid Test for Hydrophytic Vegetation

☒ Dominance Test is > 50%

☒ Prevalence Index is ≤3.0 ¹

☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation ¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

[illegible]