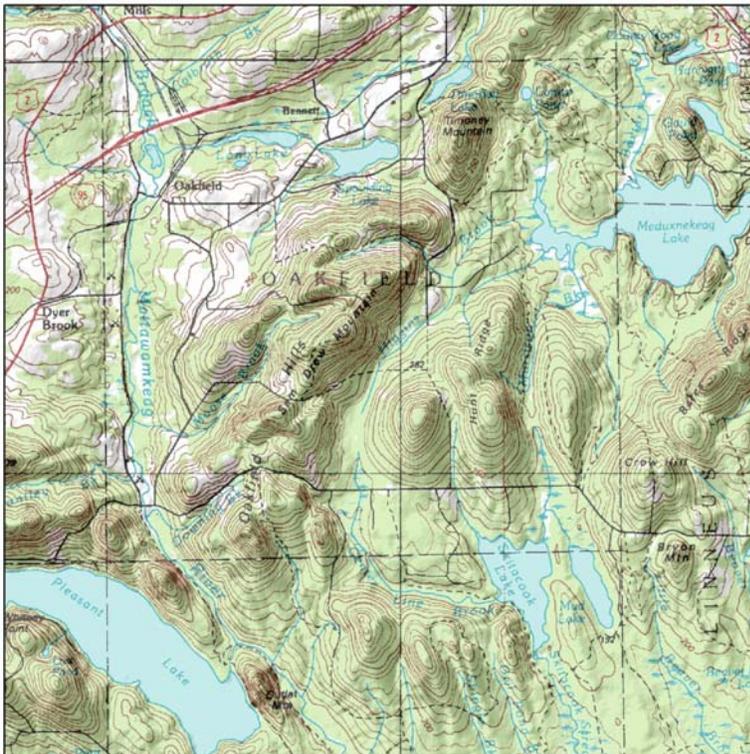


Maine Department of Environmental Protection
Natural Resources Protection Act and
Site Location of Development Combined Application

Appendix 7-1: Wetland and Waterbody Resource Delineation,
Vernal Pool Survey, and Rare, Threatened, and Endangered
Species Report

Oakfield Wind Project Amendment
Oakfield, Maine

May 2011



Prepared For:
Evergreen Wind Power II, LLC
179 Lincoln Street, Suite 500
Boston, MA 02111

Prepared By:
Stantec Consulting
30 Park Drive
Topsham, ME 04086

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APPENDICES

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Appendix B	Resource Maps
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Appendix E	Vernal Pool Table
Appendix F	Agency Correspondence
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Appendix I	Vernal Pool Survey Data Forms

1.0 INTRODUCTION

Between 2008 and 2011, Stantec Consulting (Stantec) completed wetland and waterbody resource delineations, rare plant surveys, and vernal pool surveys in association with the new area of the amended Oakfield Wind Project (project) in Oakfield, Maine. Surveys for wetlands, waterbodies, and vernal pools were conducted within designated corridors around identified areas of the proposed project components (Appendix A). The following provides a general description of the project area components.

- Ridgeline turbine corridors on several ridges surrounding the Oakfield Hills in Oakfield and T4R3 WELS, Maine. Each of the turbine corridors is wider than the area to be disturbed to account for minor changes in proposed turbine and access road placement.
- Proposed access roads were surveyed using a 150-foot wide corridor covering 75 feet on each side of the approximate center of potential roadways. A section of South Oakfield Road was delineated as part of the original Oakfield project and was included in the wetland delineation report for that project as well.
- A 200-foot wide corridor was surveyed along the proposed location of the electrical collection system. The corridor begins near the Operations and Maintenance building at Thompson Settlement Road and continues west to a proposed substation in the eastern most part of the project area. A separate corridor includes electrical collection between the southern portion of the project area and the substation.

This report includes descriptions of the wetlands, streams, vernal pools, and rare plants within the project area as described above. Natural resources that occur within both the collector line corridor and the summit corridors are included in this summit report. These findings provide information normally required for the U.S. Army Corps of Engineers (Corps) and the Maine Department of Environmental Protection (MDEP) permitting processes.

2.0 SURVEY METHODS

2.1 PRELIMINARY LANDSCAPE ANALYSIS

Prior to conducting field surveys, Stantec reviewed U.S. Geological Survey topographical maps, National Wetlands Inventory maps, and State of Maine Office of GIS digital data layers for Oakfield, Maine, as well as the U.S. Department of Agriculture Soil Survey map for Aroostook County, Maine. The information gathered from these sources was used to identify the approximate location of known wetland and waterbody resources within the project area to support field efforts.

2.2 WETLAND AND WATERBODY RESOURCE DELINEATION

The proposed project area as described above was delineated in 2008 through 2010 during appropriate field conditions. Portions of the project area were delineated during winter conditions and subsequently verified during seasonally appropriate field conditions to confirm wetland boundaries. Wetland boundaries under federal, state, and local jurisdiction were determined using the technical criteria described in the Corps Wetland Delineation Manual (Environmental Laboratory 1987). Streams and *Wetlands of Special Significance* were identified based on criteria in the Natural Resource Protection Act (NRPA). Identification of streams and *Wetlands of Special Significance* was limited to observable conditions within the project area and available background information. Wetland boundaries were marked with pink, numbered flagging and surveyed using Trimble® Pro-XR Global Positioning System (GPS) receivers. GPS data were then used to produce the attached resource maps (Appendix B).

2.3 VERNAL POOL SURVEYS

Stantec completed vernal pool surveys within the proposed project area in May 2009, 2010 and 2011. The purpose of the surveys was to identify and evaluate vernal pool habitat throughout the project area. In May 2010 and 2011, Stantec also revisited those potential vernal pools (PVPs) identified during wetland delineations (i.e., outside the appropriate window for verifying vernal pools). Vernal pools are

dynamic habitats that vary in water level, vegetative cover, and other physical characteristics during the course of a year, as well as from year to year. In addition, the breeding activity of amphibians, particularly the initiation of breeding, depends upon seasonal environmental parameters such as temperature and precipitation. Due to this variability, the presence and number of egg masses may differ between breeding seasons and during the course of a given breeding season. The presence, absence, and number of egg masses presented in this report reflect the results of this survey. Based on Stantec's observations of the on-site vernal pools, the survey events were conducted at the appropriate time to characterize vernal pools.

Each vernal pool was surveyed by slowly wading through the pool basin, searching for amphibian breeding activity, including the presence of egg masses and use by other vernal pool-dependent species. During the surveys, egg masses for each vernal pool-dependent amphibian species were counted and recorded. In addition, the presence of other life stages of these amphibians was noted, as was the presence of other vernal pool-dependent species or associated species. Data were also collected on the physical characteristics of the pool such as the presence/absence of a permanently flowing inlet or outlet and the presence/absence of fish. A second field visit occurred one to two weeks after the first visit to focus on species that use vernal pools later in the spring. This second visit was only performed on naturally occurring pools. Information on the biological and physical characteristics of each pool then was used to determine if the vernal pools met the criteria of a Significant Vernal Pool (SVP) as defined in Chapter 335 Section 9 of the NRPA. According to this section, a vernal pool is a natural, temporary to semi permanent body of water occurring in a shallow depression that typically fills during the spring or fall and may dry during the summer. Vernal pools have no permanent inlet or outlet and no viable populations of predatory fish. In addition, an SVP contains one or any combination of the following:

- 40 or more wood frog (*Rana sylvatica*) egg masses;
- 20 or more spotted salamander (*Ambystoma maculatum*) egg masses;
- 10 or more blue spotted salamander (*Ambystoma laterale*) egg masses;
- Presence of fairy shrimp (*Eubranchipus* spp.); or
- Documented use by a state-listed rare, threatened or endangered species that commonly require a vernal pool to complete a critical portion of their life-history such as Blanding's turtle (*Emydoidea blandingii*), spotted turtle (*Clemmys guttata*), or ringed bog haunter dragonfly (*Williamsonia lintneri*).

Vernal pools that occur within wetlands but are man-made are not regulated under the NRPA; however, these vernal pools can be regulated by the Corps, the U.S. Environmental Protection Agency (USEPA), and the U.S. Fish and Wildlife Service (USFWS) under the Clean Water Act depending on their function and value as a resource. Further, the Corps does not have jurisdiction over vernal pools if they are not located within a jurisdictional wetland.

The boundary of each vernal pool envelope was located using Trimble® Pro-Series GPS receivers. GPS data were then used to produce the attached resource maps (Appendix B). Each vernal pool was assigned a unique alpha-numeric code (e.g., VP01DD_M, SVP10MA_N) that appears on the map and within this report.

2.4 RARE, THREATENED, AND ENDANGERED PLANT SURVEYS

Rare, threatened, and endangered (RTE) plants surveys were completed concurrently with the vernal pool and wetland surveys in 2009 and 2010, as well as during a targeted survey in June 2010. Stantec staff traversed the project area, including the access roads and electrical collection systems with associated buffer distances. Several areas required additional evaluation because they were not traversed during the appropriate season to allow the identification of RTE species, particularly the electrical collection corridor. These areas were surveyed in June 2010. Some rare species known to occur in similar ecological settings as those found within the project area include Goldie's fern (*Dryopteris goldiana*), large toothwort (*Cardamine maxima*), American ginseng (*Panax quinquefolius*), purple clematis (*Clematis occidentalis*), shining ladies' tresses (*Spiranthes lucida*), showy lady's-slipper (*Cypripedium*

reginae), auricled twayblade (*Listera auriculata*), small round-leaved orchis (*Amerorchis rotundifolia*), and cut-leaved toothwort (*Cardamine concatenata*).

2.5 AGENCY CONTACTS

The MDEP, Maine Natural Areas Program (MNAP), the Maine Department of Inland Fisheries and Wildlife (MDIFW), and the USFWS were contacted for information regarding documented occurrences of RTE species and communities within or in the vicinity of the project area. The Maine Historic Preservation Commission (MHPC) was also contacted for information regarding significant historic resources within or in the vicinity of the project area (see Section 8 of this application). Agency responses are presented in Appendix E and summarized in Section 4.1.

3.0 SURVEY RESULTS

3.1 GENERAL SITE DESCRIPTION

The project area includes Hunt Ridge, an unnamed peak to the west and an unnamed ridge to the east, all in Oakfield, as well as an unnamed ridge in T4R3 WELS. The majority of the landscape consists of slightly to moderately sloping topography, with elevations ranging from approximately 550 feet in the valleys to approximately 1,150 feet above sea level along the ridges. General land use within the project area includes active and inactive agricultural land at lower elevations and evidence of past and present timber management on most of the areas along the ridges. The upland forest community present along the ridgelines and side slopes of the project area is dominated by Beech-Birch-Maple Forest in various stages of succession due to timber management practices. This type of Northern Hardwood Forest is characterized by a combination of American beech (*Fagus grandifolia*),¹ yellow birch (*Betula alleghaniensis*), and sugar maple (*Acer saccharum*). Additional tree species include American linden (*Tilia americana*), white ash (*Fraxinus americana*), paper birch (*Betula papyrifera*), and eastern hophornbeam (*Ostrya virginiana*). A Spruce-Northern Hardwoods Forest also occurs in the project area within the valleys but constitutes a relatively small amount of the total area. Dominant tree species in this forest community include red spruce (*Picea rubens*), balsam fir (*Abies balsamea*), and eastern hemlock (*Tsuga canadensis*), with yellow birch and other hardwoods such as sugar maple, balsam poplar (*Populus balsamifera*), and quaking poplar (*Populus tremuloides*) also occurring. The shrub stratum in the project area includes the above-mentioned tree species, as well as striped maple (*Acer pensylvanicum*), mountain maple (*Acer spicatum*), hobblebush (*Viburnum lantanoides*), red raspberry (*Rubus idaeus*), and beaked hazelnut (*Corylus cornuta*). Many upland portions of the project area contain well developed herbaceous layers and include large colonies of Carolina spring beauty (*Claytonia caroliniana*), Dutchman's breeches (*Dicentra cucullaria*), Canada mayflower (*Maianthemum racemosum*), and trout lily (*Erythronium americanum*). Bracken fern (*Pteridium aquilinum*), Christmas fern (*Polystichum acrostichoides*), evergreen wood fern (*Dryopteris intermedia*), and mountain wood fern (*Dryopteris campyloptera*) also occur throughout the Project area. A list of plant species observed within the project area is presented in Appendix C.

3.2 WETLAND AND WATERBODY DELINEATION SURVEY RESULTS

The following is a brief summary of the wetland and waterbody resources identified within the project area.

- A total of 158 wetland resources. Three of these resources overlap with the project transmission line, which is addressed under a separate application amendment.
- There are 58 streams, 43 of which are perennial.
- Of the 158 wetland resources, 50 would be considered *Wetlands of Special Significance*. This designation is either due to the wetland's proximity to a river, stream, or brook or the presence of Significant Wildlife Habitat in the form of an SVP or mapped Significant Wildlife Habitat.

¹ Nomenclature follows Haines, A. 2009. *Flora Novae Angliae* available at: [www.arthurhaines.com/tracheophyte_keys/Flora_Novae_Angliae_11Dec09.pdf]. Appendix C contains synonymy.

Additional information on wetlands and waterbodies is presented in Appendix D. Table D-1 details the wetland resources identified in the project area, including the resource identifier, wetland classifications (i.e., types), associated streams and vernal pools, dominant vegetation, hydric soil indicators, and observed evidence of hydrology. Table D-2 details the stream resources identified in the project area, including the associated wetland, names, and stream width.

Emergent wetlands account for at least a portion of about a third of the project area wetlands. Emergent wetlands are those with more than 30 percent of their area dominated by herbaceous plants such as sedges, grasses, rushes, ferns and other forbs. The emergent wetlands often make up a component of a larger wetland complex containing other wetland types. Some of these emergent wetlands are naturally occurring communities, where as others have been altered by natural or anthropogenic activities. These altered emergent communities are often referred to as wet meadows and are represented in the project area by formerly forested wetlands that are in the very early stages of succession following timber harvesting or by meadows that developed above abandoned beaver dams. Wet meadows are dominated by herbaceous species that are adapted to saturated soil conditions but are not adapted to long periods of inundations as would be common in marsh habitats. The emergent wetlands within the project area are comprised of cinnamon fern (*Osmunda cinnamomea*), common soft rush (*Juncus effuses*), common woosedge (*Scirpus cyperinus*), dark-green bulrush (*Scirpus atrovirens*), common grass-leaved goldenrod (*Euthamia graminifolia*), northeastern manna grass (*Glyceria melicaria*), fowl manna grass (*Glyceria striata*), fringed sedge (*Carex crinita*), fox sedge (*Carex vulpinoidea*), eastern rough sedge (*Carex scabrata*), necklace sedge (*Carex projecta*), fringed willow-herb (*Epilobium ciliatum*), golden-saxifrage (*Chrysosplenium americanum*), bedstraw (*Galium sp.*), and sensitive fern (*Onoclea sensibilis*). The soils are generally an organic- or dark A-horizon over a depleted matrix with redoximorphic features in the form of iron and manganese concentrations or depletions. Many of the resources Stantec delineated have been disturbed, with the emergent species the first to re-establish.

Nearly half of the wetland resources in the project area can be at least partially classified as scrub-shrub wetlands. The scrub-shrub wetlands often make up a major component of a larger wetland complex containing other wetland types. Scrub-shrub wetlands occur as either formerly forested wetlands that are reverting following timber harvesting or as naturally occurring shrub dominated communities such as Alder Shrub Thickets. Most of the scrub-shrub wetlands are comprised of speckled alder (*Alnus rugosa ssp. incana*), white meadowsweet (*Spiraea alba ssp. latifolia*), rosy meadowsweet (*Spiraea tomentosa*), yellow birch, gray birch (*Betula populifolia*), black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica*), highbush cranberry (*Viburnum opulus*), northern white-cedar (*Thuja occidentalis*), balsam fir, red osier dogwood (*Swida [Cornus] sericea*), long beaked willow (*Salix bebbiana*), high bush blueberry (*Vaccinium corymbosum*), and pussy willow (*Salix discolor*).

Forested wetlands account for nearly one-third of the project area wetland resources, generally as a dominant community type with the other wetland types occurring as parts of a larger wetland complex. Forested wetlands are those with more than 30 percent of their area dominated by woody vegetation that is greater than 3 inches in diameter and 20 feet in height. Canopy cover may be dominated by either deciduous or evergreen species, or a combination of these species. The canopy of these forested wetlands within the project area typically consist of yellow birch, balsam fir, black ash, green ash, eastern hophornbeam, and red maple (*Acer rubrum*). The soils in these wetlands vary from more than 16 inches of mucky organic material to 3-12 inches of organic and/or a dark A horizon over a depleted matrix with redoximorphic features. Most of these areas occur at lower topographic positions on the landscape.

For the purposes of this report, all streams identified in the project area meet the MDEP definition of a river, stream, or brook, as provided in Chapter 310 of the NRPA. Streams of various size and order occur throughout the project area and are often associated with larger wetland systems. Streams within the project area vary in size from large, United States Geological Survey-named, perennial streams to smaller intermittent streams. Named streams in the project area include Moose Brook, Center Line Brook, Nickerson Brook, and Owl Pond Brook. Streams are regulated as waterbodies, and wetlands within 25 feet of streams are regulated as *Wetlands of Special Significance*.

The detailed results of the wetland and waterbody delineation are presented in Appendix D. Data for each resource mapped are presented in Tables D-1 and D-2 as described above. Resource identification numbers that appear in these tables correspond to the numbers that appear on the resource delineation maps presented in Appendix B.

3.3 VERNAL POOL SURVEY RESULTS

Stantec identified 46 vernal pools within the project area. Twenty of those pools were determined to be naturally occurring. Of the 20 natural vernal pools, 6 were determined to be SVPs. A table detailing observed amphibian breeding activity in each vernal pool is presented in Appendix E. The vernal pool locations are shown on the resource delineation maps provided in Appendix B.

3.4 RARE, THREATENED, AND ENDANGERED PLANT SURVEY RESULTS

During the 2009 and 2010 RTE surveys, Stantec botanists discovered several locations of a state-listed species of Special Concern:² large toothwort (*Cardamine maxima*) S3, within upland portions of the project area. MNAP special plant survey forms are included in Appendix G. An additional location of Goldie's fern ranked S2, was observed in 2008 during wetland delineation surveys (and reported in the Oakfield Phase I report) but the population was not observed in 2010 due to recent forest harvest. This population is not expected to recur until the canopy redevelops and the forest matures.

4.0 REGULATORY INFORMATION

4.1 AGENCY CORRESPONDENCE

Full identification of *Wetlands of Special Significance* involves contacting natural resource agencies such as the MNAP, MDIFW, USFWS, and the MHPC to determine if there are any documented occurrences of rare, threatened, or endangered species and communities, or known historic features within or in the vicinity of the project area. MNAP indicated that there are no rare botanical features documented specifically within the project area but that Hunt Ridge supports an exemplary Beech-Birch-Maple Forest. According to MDIFW, a portion of moderate value Inland Wading Bird and Waterfowl Habitat (IWWH) #131086 is mapped across South Oakfield Road. Responses from the MHPC indicate that there are three previously identified historic properties adjacent to the project area. The USFWS pointed out that the project area is not part of the Canada lynx (*Lynx canadensis*) critical habitat but that the species may occur in the vicinity of the project area. Further discussion of wildlife concerns can be found in Section 7 of this application. Agency responses are presented in Appendix F.

4.2 STATE AND FEDERAL WETLAND REGULATIONS

The MDEP and the Corps regulate the wetlands identified within the project area. Under the provisions of Section 404 of the Clean Water Act, the Corps regulates activities within waters of the United States, which include navigable waters and all their tributaries, adjacent wetlands, and other waters or wetlands where degradation or destruction could affect interstate or foreign commerce. The Corps has issued a General Permit (GP) for the State of Maine that merges the federal and state permit review process for many projects. In Maine, wetlands and waterbodies, as well as other protected natural resources, are regulated under M.R.S.A. 38 §§ 480A-480BB, the NRPA.

In general, projects that are not located within a wetland or waterbody, alter less than 4,300 square feet of wetland, are not within the Shoreland Zone, and do not impact a *Wetland of Special Significance* are

² An S3 rarity ranking means that the species is rare in Maine with known 20-100 occurrences. The rarity ranking of this species has been recently revised after several populations were located. A S2 rarity ranking means that it is "imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals or hectares) or because of other factors making it vulnerable to further decline." A species of Special Concern means that it is a plant which is rare in Maine, based on the information available but not sufficiently so to be considered Threatened or Endangered. Maine Natural Areas Program, 1997.

exempt from NRPA permitting requirements. Typically, projects with cumulative impacts to freshwater wetlands between 4,300 and 15,000 square feet are eligible for review under the Tier 1 process. The Tier 2 review process applies to alterations that affect between 15,000 and 43,560 square feet (i.e., 1 acre) of freshwater wetlands. Cumulative freshwater wetlands impacts that exceed 1 acre typically require a Tier 3 review. Impacts to *Wetlands of Special Significance*, rivers, streams, brooks, great ponds, and *Significant Wildlife Habitat* typically require an Individual Permit.

Stantec identified a total of 50 wetlands within the project area that meet the criteria to be considered *Wetlands of Special Significance*. The resource identification number of each wetland and the reasons for this designation are presented in Appendix D. This state regulatory designation is given to wetlands containing a river, stream or brook. It is also used to classify wetlands containing 20,000 square feet of emergent vegetation and/or open water, wetlands containing SVPs (i.e., Significant Wildlife Habitat), or wetlands within the MDIFW-mapped IWWH.

4.3 STATE AND FEDERAL VERNAL POOL REGULATIONS

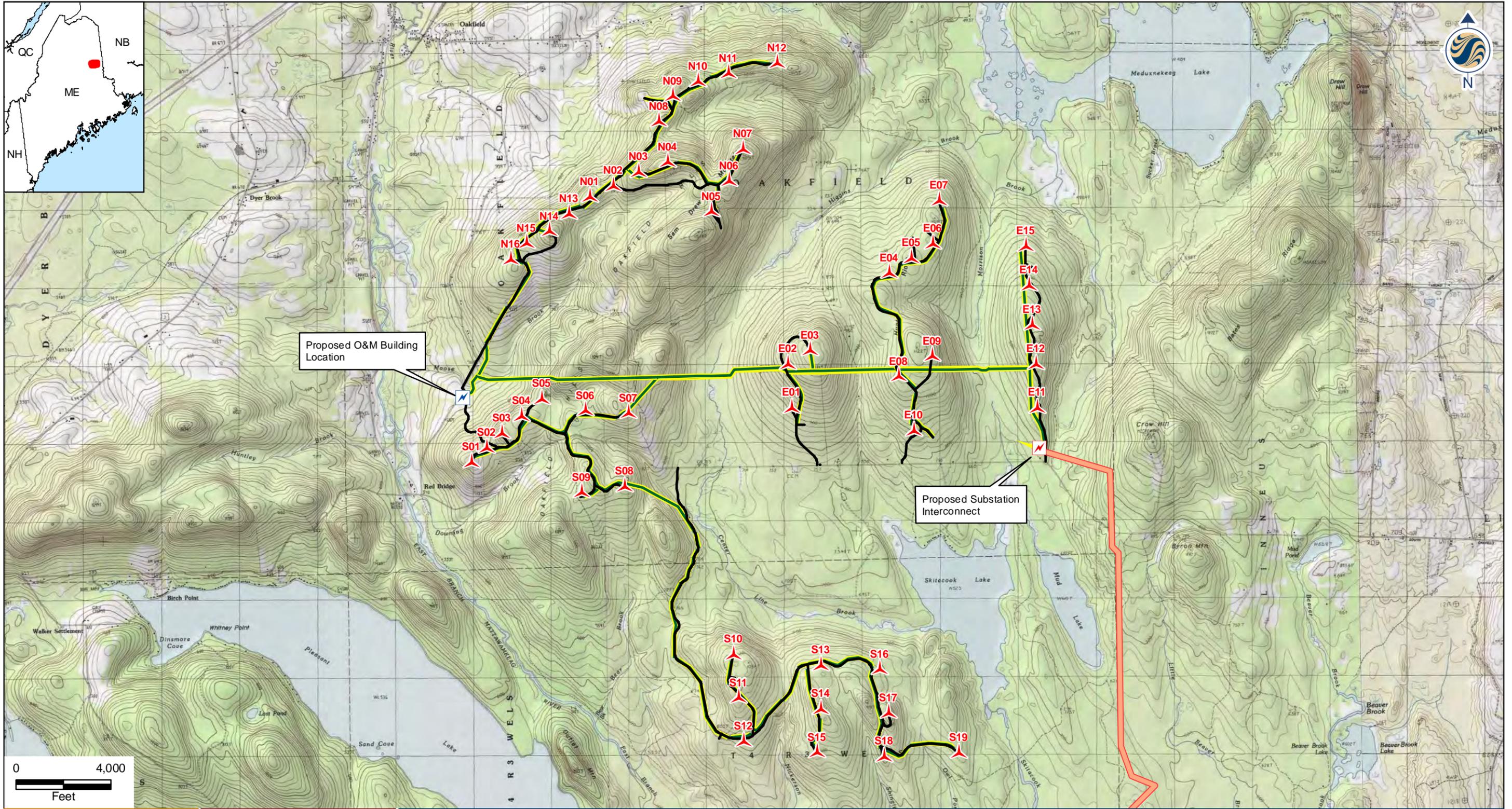
On September 1, 2007, revisions to Chapter 335, which regulates SVP as Significant Wildlife Habitat, became effective. Chapter 335 details specific definitions and standards regarding the characterization and protection of SVPs in Maine. In summary, unavoidable impacts to an SVP, which includes the critical terrestrial habitat within 250 feet of the high water line of the actual vernal pool, may require an Individual NRPA Permit. The concurrent adoption of a Permit by Rule (PBR), Chapter 305 Section 19, allows some activities within 250 feet of SVPs or potential SVP if the standards of this PBR can be met. If impacts to the SVP cannot be avoided and the standards for the PBR cannot be met, an Individual Permit may be required.

Certain development projects in Maine may also be regulated under Chapter 375, Site Location of Development (i.e., Site Law). Vernal pools that are ecologically significant on a landscape level may be regulated by MDEP under Site Law.

The GP for the State of Maine, which was re-issued by the Corps on October 12, 2010, for projects involving “minimal-impact activities”, also addresses protection of vernal pools. Under the new Maine GP, the Corps has revised its definition of a vernal pool and adopted specific management standards for vernal pools and their surrounding habitat. The GP also defines a Vernal Pool Management Area (VPMA), which includes the vernal pool plus the area within 750 feet of the pool edge. Projects are required to avoid and minimize impacts within the VPMA. Projects located within the management area must meet a specific set of management practices to be permitted as a Category 1 project. Projects that cannot meet the management practices may require an Individual Permit.

Based on Stantec’s field surveys, 46 vernal pools were identified within the project area, 6 of which are SVPs. The six SVPs are regulated by the State of Maine under Chapter 335 of the NRPA. The locations of these pools are noted in Appendix E and correspond with the resource maps presented in Appendix B. All of the vernal pools within the project area may also be regulated by the Corps, USEPA, and/or USFWS.

Appendix A
Site Location Map



Stantec Consulting Services Inc.
 30 Park Drive
 Topsham, ME USA
 04086
 Phone (207) 729-1199
 Fax: (207) 729-2715
 www.stantec.com

- Legend**
-  Proposed Turbine (Vestas 50)
 -  Proposed 115kv Transmission Corridor
 -  Proposed Collector Corridor
 -  Proposed Access Roads

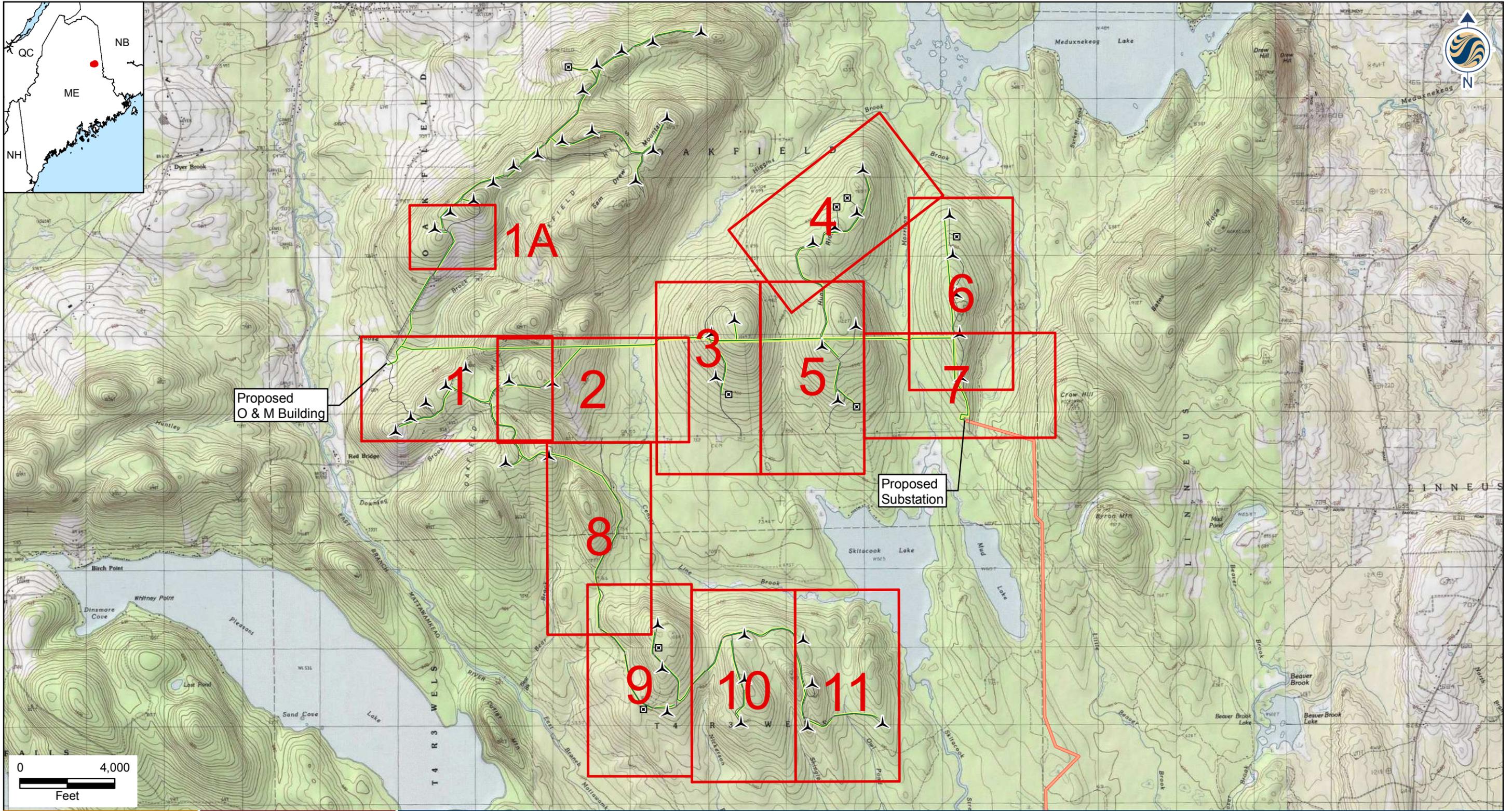
Client/Project
 Evergreen Wind Power II, LLC
 Oakfield Wind Project Amendment
 Oakfield, Maine

Figure No.
 1

Title
 Summit Project Development Area
 May 2011

195600518

Appendix B Resource Maps



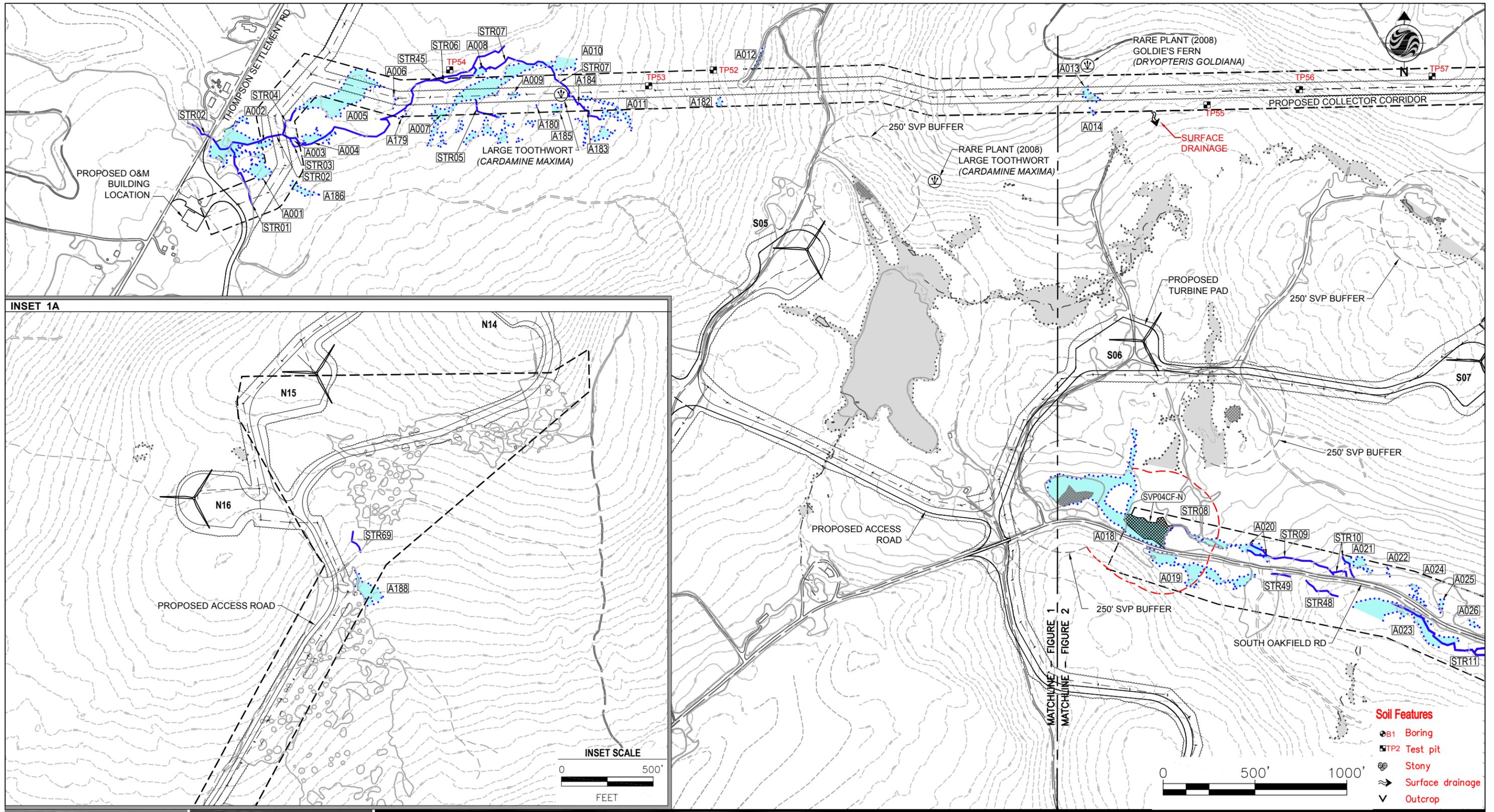

Stantec Consulting Services Inc.
 30 Park Drive
 Topsham, ME USA
 04086
 Phone (207) 729-1199
 Fax: (207) 729-2715
 www.stantec.com

- Legend**
-  Proposed MET Tower
 -  Proposed Turbine
 -  Collector Corridor
 -  Proposed Road
 -  115Kv Transmission Corridor
 -  Natural Resource Map Extents

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 Evergreen Wind Power II, LLC
 Oakfield Wind Project Amendment
 Oakfield, Maine

Figure No.
Key

Title
**Summit Delineated
 Natural Resource Map**
 May 2011



Stantec Consulting Services Inc.

30 Park Drive
 Topsham ME U.S.A.
 04086
 Tel. 207.729.1199
 Fax. 207.729.2715
 www.stantec.com

Legend

- Stream identified by Stantec
- Approximate delineation report boundary
- Wetland identified by Stantec
- Vernal pool identified by Stantec
- Significant vernal pool identified by Stantec
- Resources from Original Oakfield Application
- Wetland
- Stream
- A001 Resource identification
- VP01MA-N Natural vernal pool identification
- VP02MA-M Man-made vernal pool identification
- SVP01DD-N Significant vernal pool identification
- V Rare plant location
- Vernal pool
- Significant vernal pool

Notes

1. Wetland boundaries delineated in accordance with USACE 1987 Wetland Delineation Manual or subsequent versions. Vernal pools surveyed in accordance with Maine Association of Wetland Scientists 2010 Interim Vernal Pool Survey Protocol, April 2010.
2. Wetland and vernal pool boundaries were located utilizing a Trimble PRO Series Receiver. Expected accuracy of GPS data is within 1 to 2 meters of actual position.
3. Basemap features comprised of photogrammetry obtained from Aerial Survey and Photo, Inc. and USGS topography.
4. Civil design dated 5/16/2011 provided by Deluca-Hoffman Associates, Inc. Electrical design provided by RLC Engineering, LLC.

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 Oakfield Wind Project Amendment
 Oakfield, Maine

Figure No.

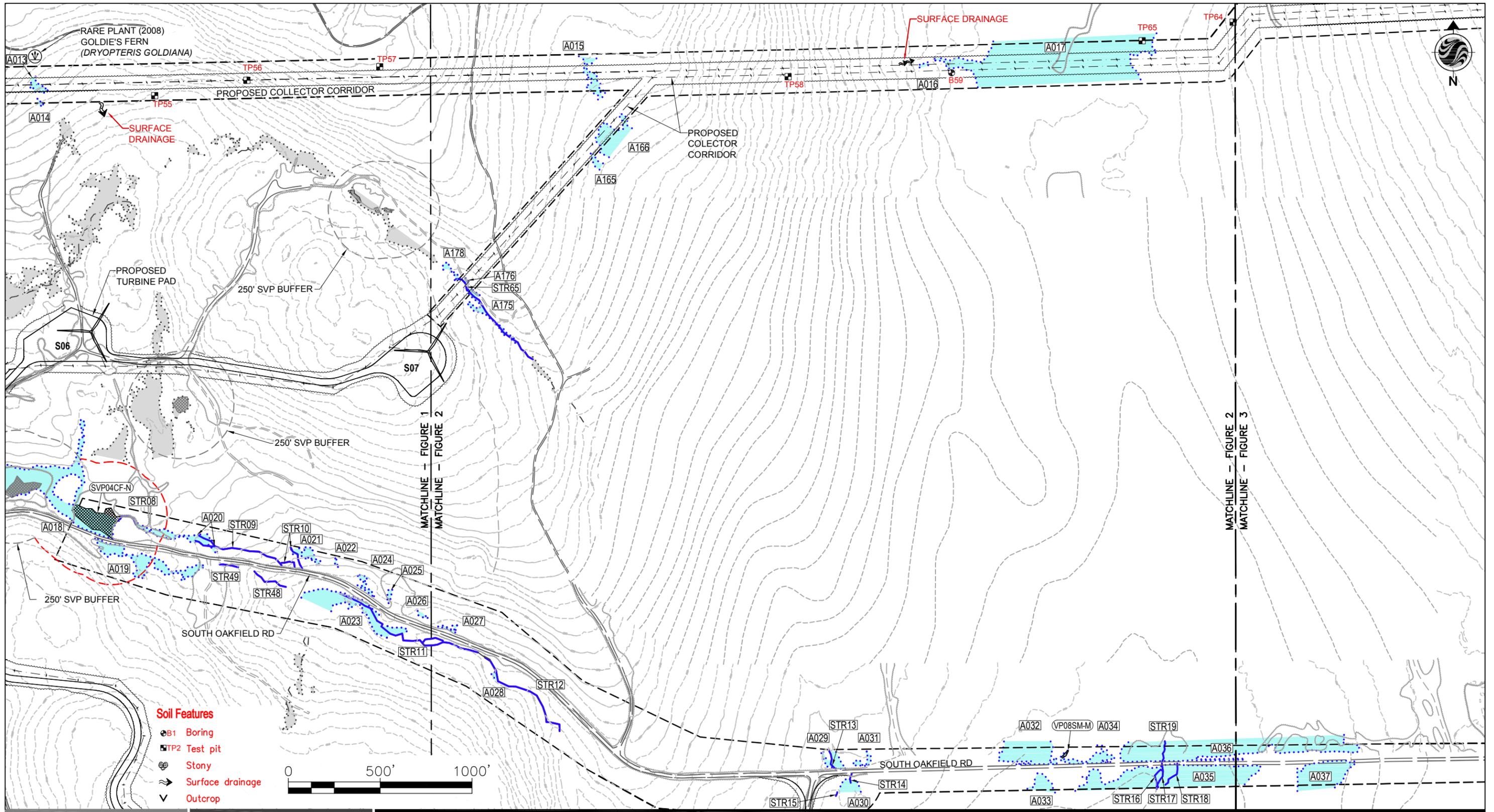
1

Title

Delineated Natural Resource Map

May 2011





- Soil Features**
- B1 Boring
 - TP2 Test pit
 - ☘ Stony
 - Surface drainage
 - ∇ Outcrop



Stantec Consulting Services Inc.
 30 Park Drive
 Topsham ME U.S.A.
 04086
 Tel. 207.729.1199
 Fax. 207.729.2715
 www.stantec.com



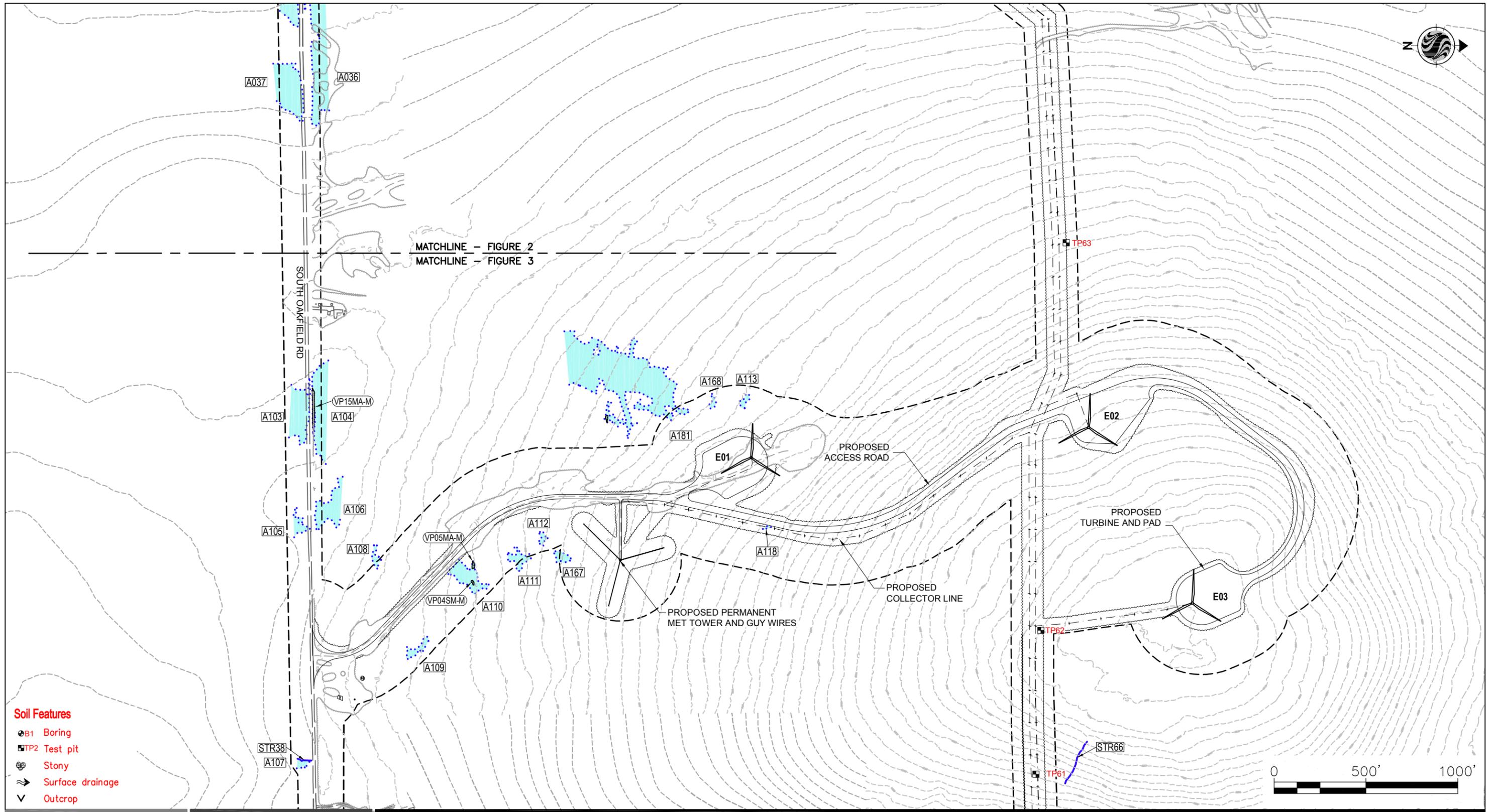
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- Legend**
- Stream identified by Stantec
 - - - Approximate delineation report boundary
 - Wetland identified by Stantec
 - Vernal pool identified by Stantec
 - Significant vernal pool identified by Stantec
 - Resources from Original Oakfield Application
 - Wetland
 - Stream
 - A001 Resource identification
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Evergreen Wind Power II, LLC
 Oakfield Wind Project Amendment
 Oakfield, Maine
 Figure No.
2
 Title
Delineated Natural Resource Map
 May 2011

195600518



- Soil Features**
- ⊕ B1 Boring
 - ⊠ TP2 Test pit
 - ⊙ Stony
 - ~ Surface drainage
 - ∇ Outcrop

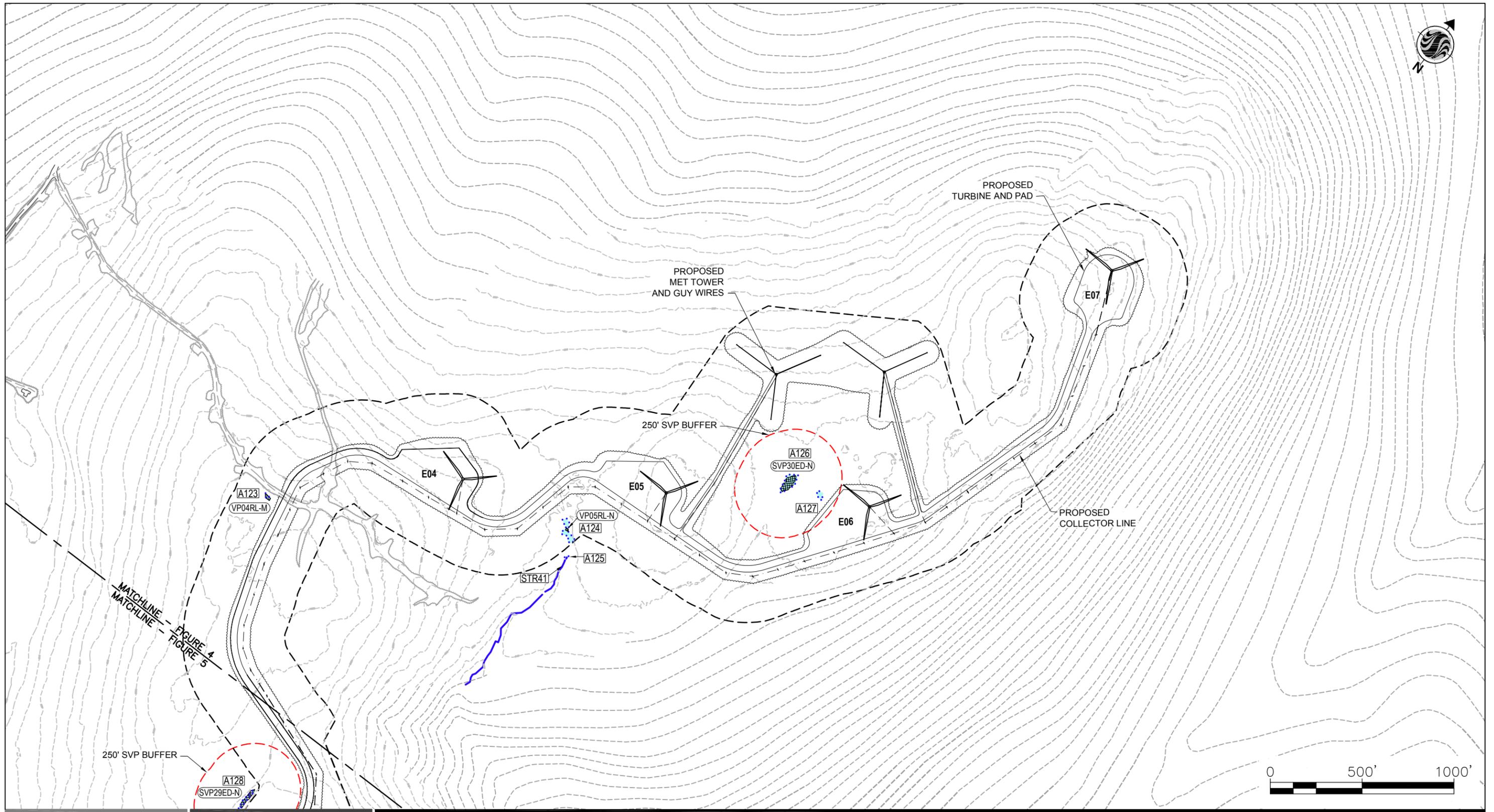
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- Legend**
- Stream identified by Stantec
 - - - Approximate delineation report boundary
 - Wetland identified by Stantec
 - ▨ Vernal pool identified by Stantec
 - ▩ Significant vernal pool identified by Stantec
 - A001 Resource identification
 - VP01MA-N Natural vernal pool identification
 - VP02MA-M Man-made vernal pool identification
 - SVP01DD-N Significant vernal pool identification

- Notes**
1. Wetland boundaries delineated in accordance with USACE 1987 Wetland Delineation Manual or subsequent versions. Vernal pools surveyed in accordance with Maine Association of Wetland Scientists 2010 Interim Vernal Pool Survey Protocol, April 2010.
 2. Wetland and vernal pool boundaries were located utilizing a Trimble PRO Series Receiver. Expected accuracy of GPS data is within 1 to 2 meters of actual position.
 3. Basemap features comprised of photogrammetry obtained from Aerial Survey and Photo, Inc. and USGS topography.
 4. Civil design dated 5/16/2011 provided by Deluca-Hoffman Associates, Inc. Electrical design provided by RLC Engineering, LLC.

Client/Project
Evergreen Wind Power II, LLC
 Oakfield Wind Project Amendment
 Oakfield, Maine
 Figure No.
3
 Title
Delineated Natural Resource Map
 May 2011

195600518



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Legend

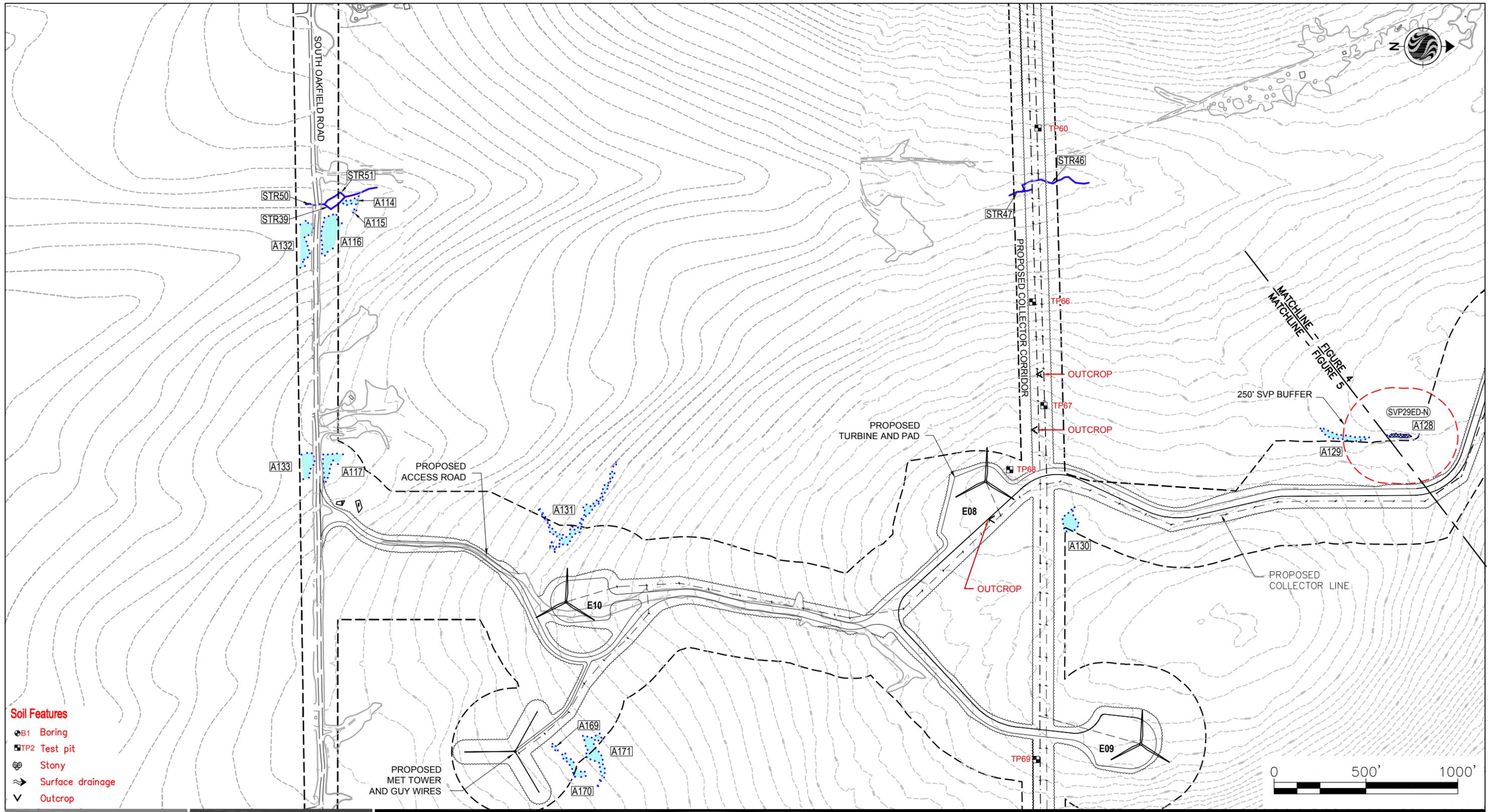
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	Approximate delineation report boundary
	Wetland identified by Stantec
	Vernal pool identified by Stantec
	Significant vernal pool identified by Stantec

	Resource identification
	Natural vernal pool identification
	Man-made vernal pool identification
	Significant vernal pool identification

Notes

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Client/Project **Evergreen Wind Power II, LLC** 195600518
 Oakfield Wind Project Amendment
 Oakfield, Maine
 Figure No. **4**
 Title **Delineated Natural Resource Map**



- Soil Features**
- B1 Boring
 - TP2 Test pit
 - ⊙ Stony
 - Surface drainage
 - ∇ Outcrop

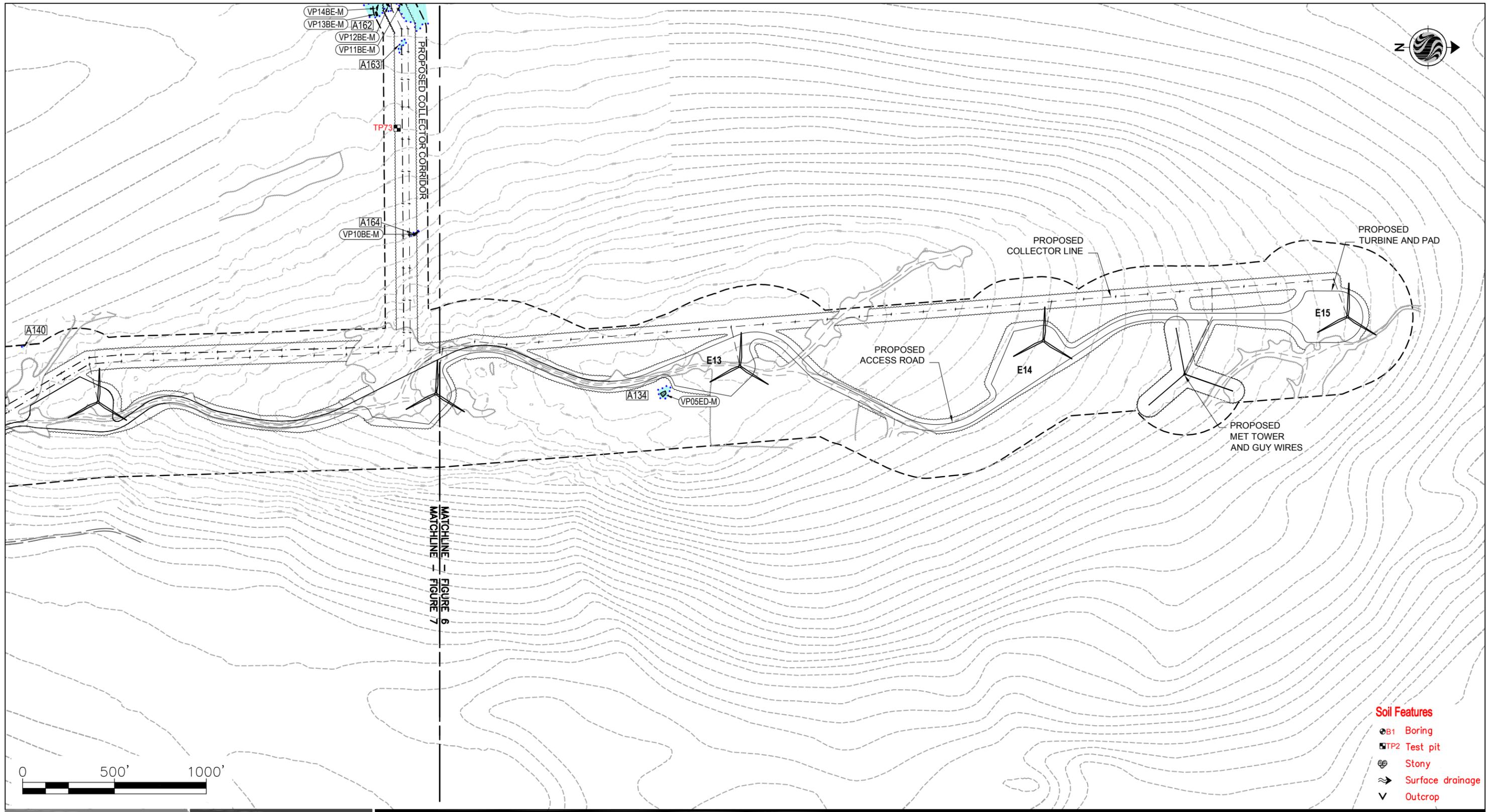
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- Legend**
- Stream identified by Stantec
 - - - Approximate delineation report boundary
 - Wetland identified by Stantec
 - ▨ Vernal pool identified by Stantec
 - ▩ Significant vernal pool identified by Stantec
 - A001 Resource identification
 - VP01MA-N Natural vernal pool identification
 - VP02MA-M Man-made vernal pool identification
 - SVP01DD-N Significant vernal pool identification

- Notes**
1. Wetland boundaries delineated in accordance with USACE 1987 Wetland Delineation Manual or subsequent versions. Vernal pools surveyed in accordance with Maine Association of Wetland Scientists 2010 Interim Vernal Pool Survey Protocol, April 2010.
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Client/Project
Evergreen Wind Power II, LLC
 Oakfield Wind Project Amendment
 Oakfield, Maine
 Figure No.
5
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Delineated Natural Resource Map
 195600518
 May 2011



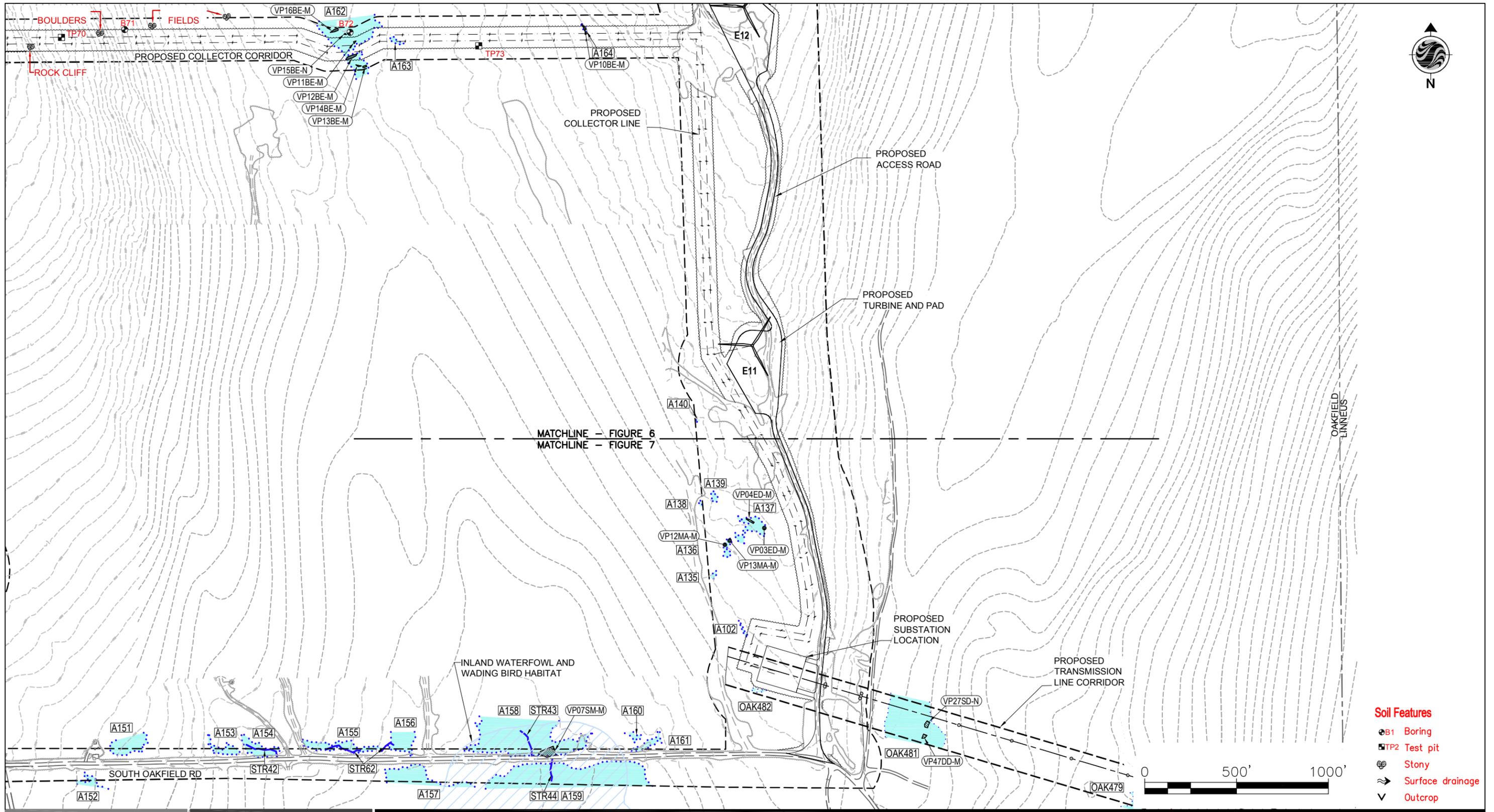
- Soil Features**
- ⊙B1 Boring
 - ⊠TP2 Test pit
 - ⊙ Stony
 - Surface drainage
 - ∇ Outcrop

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- Legend**
- Stream identified by Stantec
 - Approximate delineation report boundary
 - Wetland identified by Stantec
 - Vernal pool identified by Stantec
 - Significant vernal pool identified by Stantec
 - Resource identification
 - Natural vernal pool identification
 - Man-made vernal pool identification
 - Significant vernal pool identification

- Notes**
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 Oakfield Wind Project Amendment
 Oakfield, Maine
 Figure No. **6**
 Title **Delineated Natural Resource Map**
 May 2011



- Soil Features**
- ⊕ B1 Boring
 - ⊠ TP2 Test pit
 - ⊙ Stony
 - Surface drainage
 - ∇ Outcrop

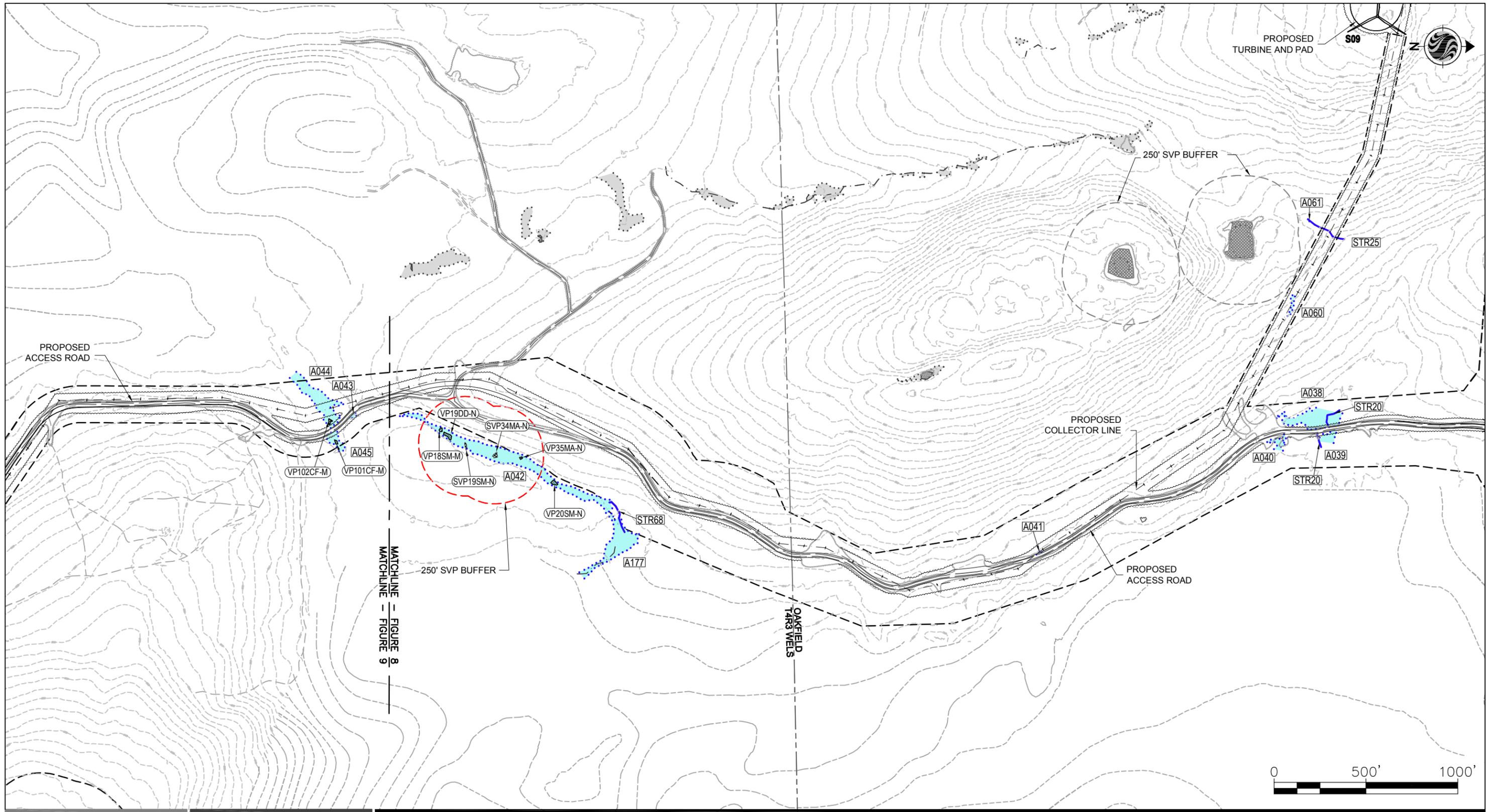


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- Legend**
- Stream identified by Stantec
 - Approximate delineation report boundary
 - Wetland identified by Stantec
 - Vernal pool identified by Stantec
 - Significant vernal pool identified by Stantec
 - Inland waterfowl and wading bird habitat layer obtained from MEGIS
 - Resource identification
 - Natural vernal pool identification
 - Man-made vernal pool identification
 - Significant vernal pool identification

- Notes**
- Wetland boundaries delineated in accordance with USACE 1987 Wetland Delineation Manual or subsequent versions. Vernal pools surveyed in accordance with Maine Association of Wetland Scientists 2010 Interim Vernal Pool Survey Protocol, April 2010.
 - Wetland and vernal pool boundaries were located utilizing a Trimble PRO Series Receiver. Expected accuracy of GPS data is within 1 to 2 meters of actual position.
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 - Civil design dated 5/16/2011 provided by Deluca-Hoffman Associates, Inc. Electrical design provided by RLC Engineering, LLC.

Client/Project
Evergreen Wind Power II, LLC
 Oakfield Wind Project Amendment
 Oakfield, Maine
 Figure No.
7
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Delineated Natural Resource Map
 195600518
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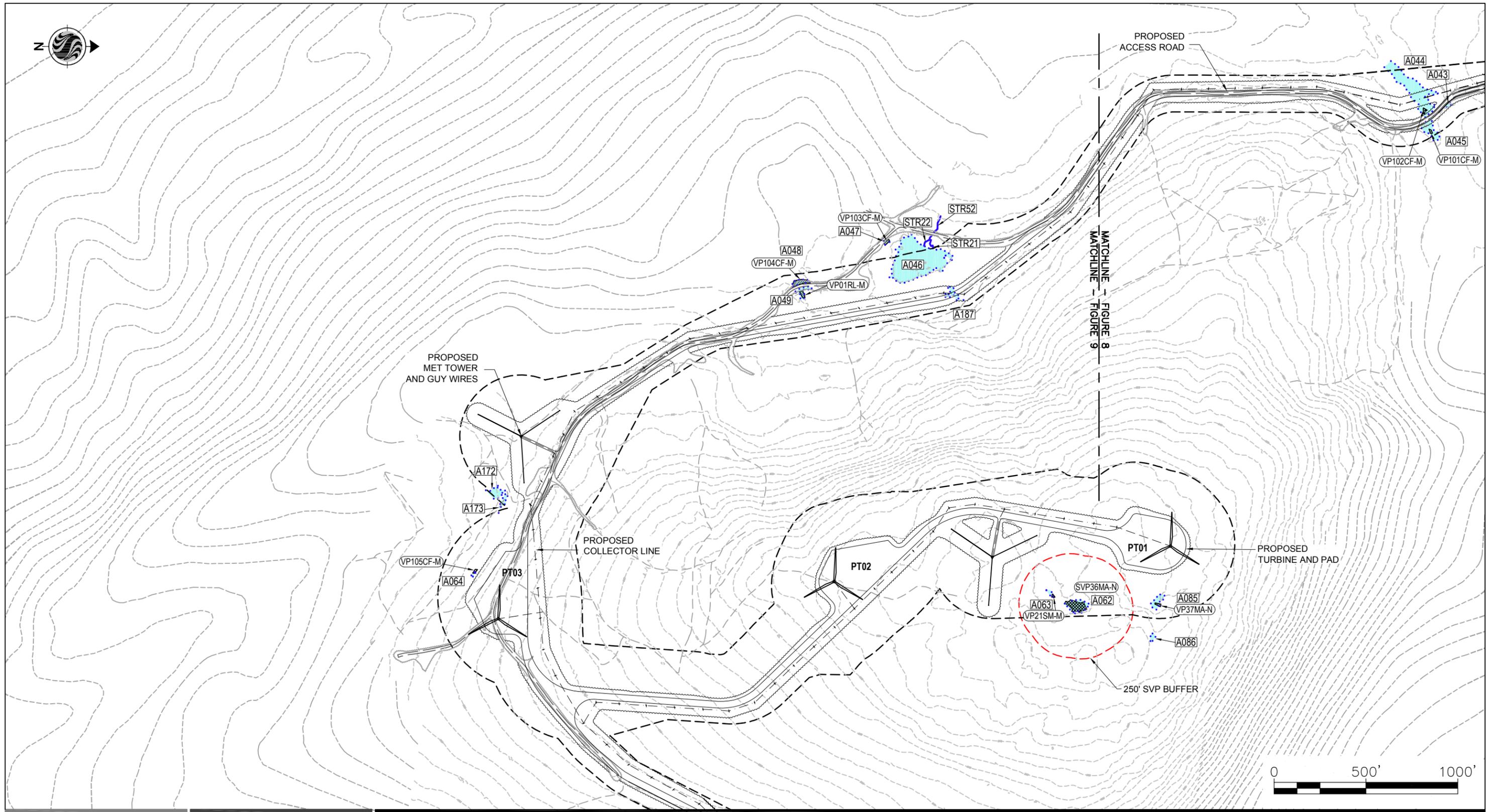
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Stream identified by Stantec	VP01MA-N Natural vernal pool identification
Approximate delineation report boundary	VP02MA-M Man-made vernal pool identification
Wetland identified by Stantec	SVP01DD-N Significant vernal pool identification
Vernal pool identified by Stantec	Vernal pool
Significant vernal pool identified by Stantec	Significant vernal pool
Resources from Original Oakfield Application	Wetland
Wetland	Stream
Stream	

Notes

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Evergreen Wind Power II, LLC
 Oakfield Wind Project Amendment
 Oakfield, Maine
 Figure No. **8**
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Delineated Natural Resource Map
 May 2011

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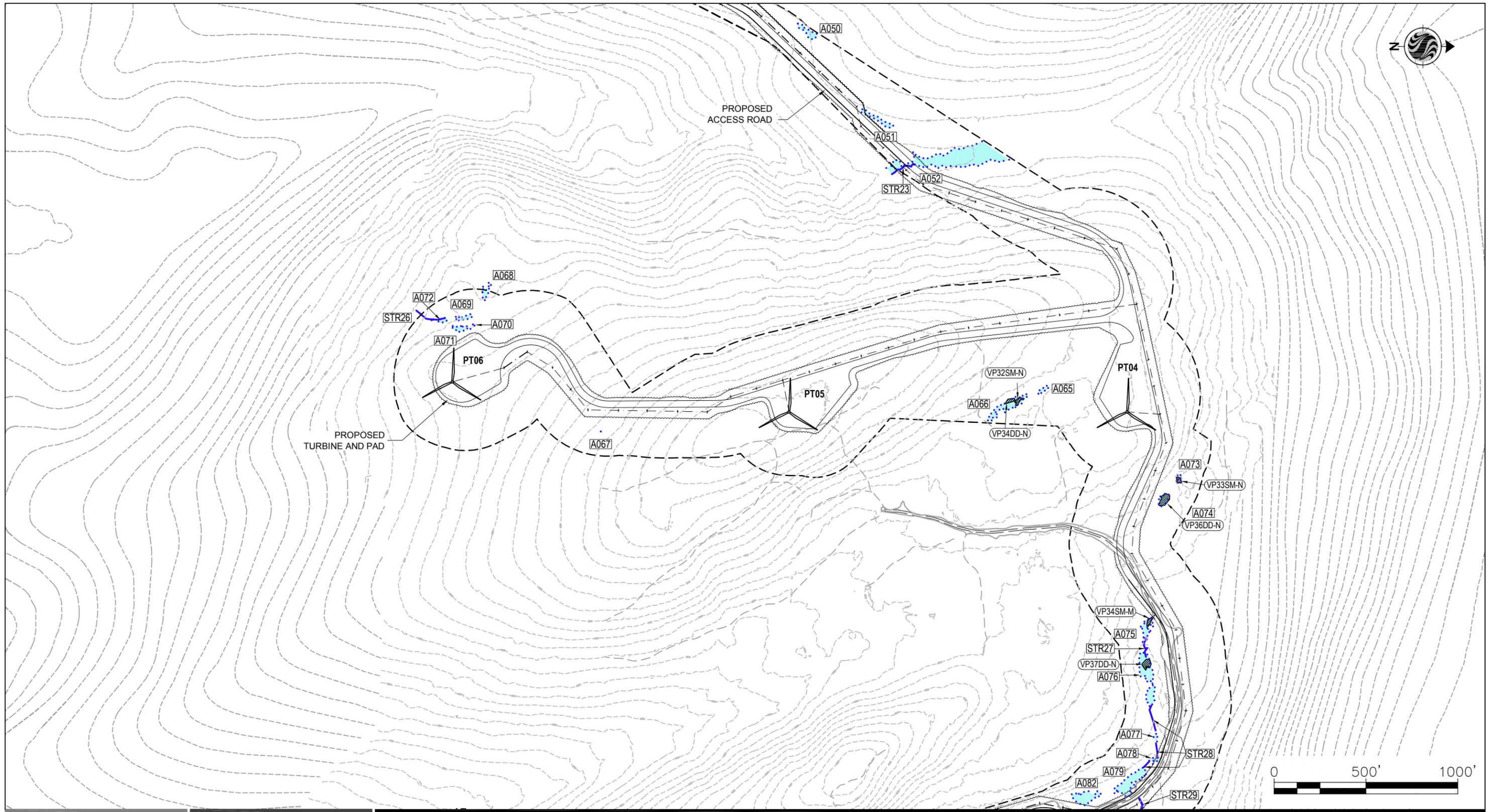
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Stream identified by Stantec	VP01MA-N Natural vernal pool identification
Approximate delineation report boundary	VP02MA-M Man-made vernal pool identification
Wetland identified by Stantec	SVP01DD-N Significant vernal pool identification
Vernal pool identified by Stantec	
Significant vernal pool identified by Stantec	

Notes

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Evergreen Wind Power II, LLC
 Oakfield Wind Project Amendment
 Oakfield, Maine
 Figure No. **9**
 Title
Delineated Natural Resource Map

May 2011



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Legend

- Stream identified by Stantec
- Approximate delineation report boundary
- Wetland identified by Stantec
- Vernal pool identified by Stantec
- Significant vernal pool identified by Stantec

- Resource identification
- Natural vernal pool identification
- Man-made vernal pool identification
- Significant vernal pool identification

Notes

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2. Wetland and vernal pool boundaries were located utilizing a Trimble PRO Series Receiver. Expected accuracy of GPS data is within 1 to 2 meters of actual position.
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Evergreen Wind Power II, LLC
 Oakfield Wind Project Amendment
 Oakfield, Maine

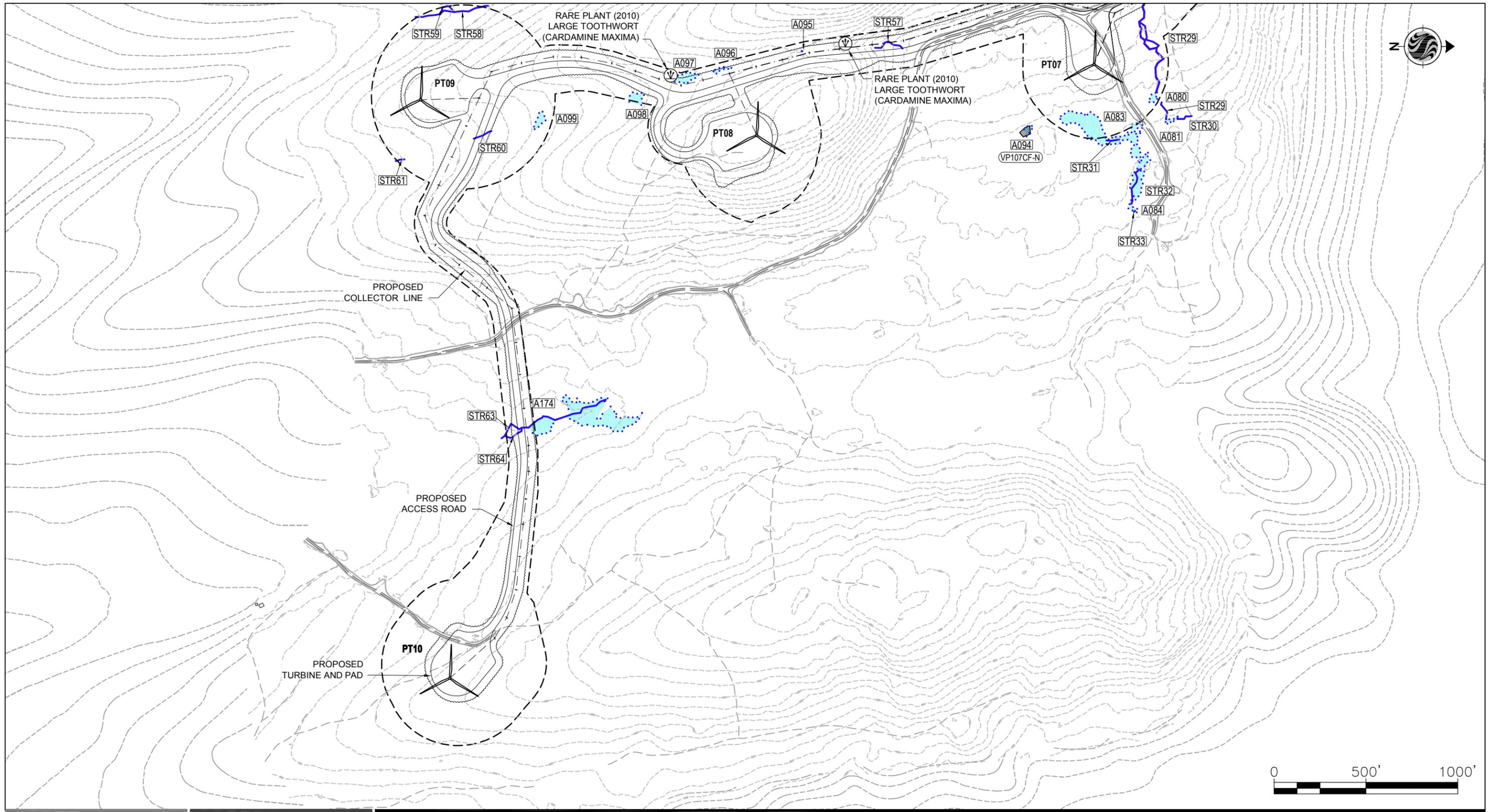
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Figure No.
10

Title
Delineated Natural Resource Map

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- Legend**
- Stream identified by Stantec
 - Approximate delineation report boundary
 - Wetland identified by Stantec
 - Vernal pool identified by Stantec
 - Significant vernal pool identified by Stantec

- Resource identification
- Natural vernal pool identification
- Man-made vernal pool identification
- Significant vernal pool identification
- Rare plant location

Notes

1. Wetland boundaries delineated in accordance with USACE 1987 Wetland Delineation Manual or subsequent versions. Vernal pools surveyed in accordance with Maine Association of Wetland Scientists 2010 Interim Vernal Pool Survey Protocol, April 2010.
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Client/Project **Evergreen Wind Power II, LLC** 195600518
 Oakfield Wind Project Amendment
 Oakfield, Maine
 Figure No. **11**
 Title **Delineated Natural Resource Map**
 May 2011

Appendix C
List of Plant Species Observed within the Project Area

Common Name	Scientific Name (Flora of Maine)
Balsam fir	<i>Abies balsamea</i>
Striped maple	<i>Acer pensylvanicum</i>
Red maple	<i>Acer rubrum</i>
Sugar maple	<i>Acer saccharum</i>
Mountain maple	<i>Acer spicatum</i>
Rough bentgrass	<i>Agrostis scabra</i>
Speckled alder	<i>Alnus incana ssp. rugosa</i>
Wild sarsaparilla	<i>Aralia nudicaulis</i>
Narrow lady fern	<i>Athyrium filix-femina</i>
Yellow birch	<i>Betula alleghaniensis</i>
Paper birch	<i>Betula papyrifera</i>
Gray birch	<i>Betula populifolia</i>
Fringed brome	<i>Bromus ciliatus</i>
Canada reed grass	<i>Calamagrostis canadensis</i>
Two-leaved toothwort	<i>Cardamine diphylla</i>
Crawford's sedge	<i>Carex crawfordii</i>
Fringed sedge	<i>Carex crinita</i>
Soft-leaved sedge	<i>Carex disperma</i>
Nodding sedge	<i>Carex gynandra</i>
Greater bladder sedge	<i>Carex intumescens</i>
Sallow sedge	<i>Carex lurida</i>
Long-stalked sedge	<i>Carex pedunculata</i>
Pennsylvania sedge	<i>Carex pensylvanica</i>
Necklace sedge	<i>Carex projecta</i>
Eastern rough sedge	<i>Carex scabrata</i>
Pointed broom sedge	<i>Carex scoparia</i>
Awl-fruited sedge	<i>Carex stipata var. stipata</i>
Three-seeded sedge	<i>Carex trisperma</i>
Velvet sedge	<i>Carex vestita</i>
Golden-saxifrage	<i>Chrysosplenium americanum</i>
Small enchanter's nightshade	<i>Circium alpinum</i>
Three-leaved goldthread	<i>Coptis trifolia</i>
Alternate-leaved dogwood	<i>Swida [Cornus] alternifolia</i>
Silky dogwood	<i>Swida [Cornus] amomum</i>
Canada bunchberry	<i>Chamaepericlymenum canadense</i> <i>[Cornus canadensis]</i>
Red osier dogwood	<i>Swida [Cornus] sericea</i>
Beaked hazlenut	<i>Corylus cornuta</i>
Tall white-aster	<i>Doellingeria umbellata</i>
Round-leaved sundew	<i>Drosera rotundifolia</i>
Crested wood fern	<i>Dryopteris cristata</i>
Evergreen wood fern	<i>Dryopteris intermedia</i>
Fringed willow-herb	<i>Epilobium ciliatum</i>
Field horsetail	<i>Equisetum arvense</i>
Wood horsetail	<i>Equisetum sylvaticum</i>
American burnweed	<i>Erechtites hieraciifolius</i>
Spotted Joe-Pye weed	<i>Eupatorium maculatum</i>
Common grass-leaved-goldenrod	<i>Euthamia graminifolia</i>
American beech	<i>Fagus grandifolia</i>

Common Name	Scientific Name (Flora of Maine)
White ash	<i>Fraxinus americana</i>
Black ash	<i>Fraxinus nigra</i>
Green ash	<i>Fraxinus pennsylvanica</i>
Creeping spiky-wintergreen	<i>Gaultheria hispidula</i>
Water avens	<i>Geum rivale</i>
Rattlesnake manna grass	<i>Glyceria canadensis</i>
Northeastern manna grass	<i>Glyceria melicaria</i>
Fowl manna grass	<i>Glyceria striata</i>
American witch-hazel	<i>Hamamelis virginiana</i>
American cow-parsnip	<i>Heracleum maximum</i>
American marsh-pennywort	<i>Hydrocotyle americana</i>
Mountain holly	<i>Ilex mucronata</i>
American holly	<i>Ilex opaca</i> var. <i>opaca</i>
Spotted-touch-me-not	<i>Impatiens capensis</i>
Short-tailed rush	<i>Juncus brevicaudatus</i>
Common soft rush	<i>Juncus effusus</i>
American larch	<i>Larix laricina</i>
Rice cut grass	<i>Leersia oryzoides</i>
American twinflower	<i>Linnaea borealis</i> ssp. <i>longiflora</i>
Bladder-pod lobelia	<i>Lobelia inflata</i>
European water-horehound	<i>Lycopus europaeus</i>
Northern water-horehound	<i>Lycopus uniflorus</i>
Canada-mayflower	<i>Maianthemum canadense</i>
Fiddlehead fern	<i>Matteuccia struthiopteris</i> var. <i>pennsylvanica</i>
Sharp-toothed nodding-aster	<i>Oclemena acuminata</i>
Sensitive fern	<i>Onoclea sensibilis</i>
Bland sweet-cicely	<i>Osmorhiza claytonii</i>
Cinnamon fern	<i>Osmunda cinnamomea</i>
Interrupted fern	<i>Osmunda claytoniana</i>
Royal fern	<i>Osmunda regalis</i> var. <i>spectabilis</i>
Eastern hop-hornbeam	<i>Ostrya virginiana</i>
Northern wood sorrell	<i>Oxalis montana</i>
Wild parsnip	<i>Pastinaca sativa</i>
Arrow-leaved tearthumb	<i>Persicaria sagittata</i>
Long beech fern	<i>Phegopteris connectilis</i>
Red spruce	<i>Picea rubens</i>
Eastern white pine	<i>Pinus strobus</i>
Fowl meadow grass	<i>Poa palustris</i>
Christmas fern	<i>Polystichum acrostichoides</i>
Balsam poplar	<i>Populus balsamifera</i>
Big-toothed poplar	<i>Populus grandidentata</i>
Quaking poplar	<i>Populus tremuloides</i>
Common selfheal	<i>Prunella vulgaris</i>
Choke cherry	<i>Prunus virginiana</i> var. <i>virginiana</i>
Tall crowfoot	<i>Ranunculus acris</i>
Hooked crowfoot	<i>Ranunculus recurvatus</i> var. <i>recurvatus</i>
Labrador-tea	<i>Rhododendron groenlandicum</i>
Bristly swamp currant	<i>Ribes lacustre</i>
Bristly blackberry	<i>Rubus hispidus</i>

Common Name	Scientific Name (Flora of Maine)
Red raspberry	<i>Rubus idaeus</i>
Dwarf raspberry	<i>Rubus pubescens</i>
Long-beaked willow	<i>Salix bebbiana</i>
Pussy willow	<i>Salix discolor</i>
Shining willow	<i>Salix lucida ssp. lucida</i>
Black-girdled woolsedge	<i>Scirpus atrocinctus</i>
Common woolsedge	<i>Scirpus cyperinus</i>
Mosquito bullrush	<i>Scirpus hattorianus</i>
Barber-pole bulrush	<i>Scirpus microcarpus</i>
Stalked woolsedge	<i>Scirpus pedicellatus</i>
Mad dog skullcap	<i>Scutellaria lateriflora</i>
Canada goldenrod	<i>Solidago canadensis</i>
Zig-zag goldenrod	<i>Solidago flexicaulis</i>
Common rough-stemmed goldenrod	<i>Solidago rugosa</i>
American bur-reed	<i>Sparganium americanum</i>
White meadowsweet	<i>Spiraea alba var. latifolia</i>
Rosy meadowsweet	<i>Spiraea tomentosa</i>
Common snowberry	<i>Symphoricarpos albus</i>
Lance-leaved American-aster	<i>Symphotrichum lanceolatum</i>
Calico American-aster	<i>Symphotrichum lateriflorum</i>
Purple-stemmed American-aster	<i>Symphotrichum puniceum</i>
Small white American-aster	<i>Symphotrichum racemosum</i>
Tall meadow-rue	<i>Thalictrum pubescens</i>
New York fern	<i>Thelypteris noveboracensis</i>
Marsh fern	<i>Thelypteris palustris var. pubescens</i>
Northern white-cedar	<i>Thuja occidentalis</i>
Foam-flower	<i>Tiarella cordifolia</i>
American linden	<i>Tilia americana</i>
Eastern hemlock	<i>Tsuga canadensis</i>
Broad-leaved cat-tail	<i>Typha latifolia</i>
American elm	<i>Ulmus americana</i>
Smooth arrowwood	<i>Viburnum dentatum</i>
Hobblebush	<i>Viburnum lantanoides</i>
Withe-rod	<i>Viburnum nudum var. cassinoides</i>
Highbush-cranberry	<i>Viburnum opulus ssp. trilobum</i>
Downy arrowwood	<i>Viburnum rafinesquianum var. rafinesquianum</i>

Appendix D
Wetland and Waterbody Resource Descriptions

Wetland ID	Delineated Resource Map #	Wetland Classification ¹			Stream	Vernal Pool ²	WSS ³	Wetland Information			Notes (named regulatory resources SWH, IWWH, DWA, rare plants, animals)
		PFO	PSS	PEM				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology	
A001	1	x	D				green ash, sensitive fern, speckled alder, mountain maple, American cow-parsnip, red maple, balsam fir, sensitive fern, evergreen wood fern, gray birch	Depleted matrix mixed and layered with organic soil from flooding of nearby stream	Soil saturated to surface		
A002	1	x	D		STR02	R	green ash, sensitive fern, speckled alder, mountain maple, American cow-parsnip, red maple, balsam fir, sensitive fern, evergreen wood fern, gray birch	Depleted matrix mixed and layered with organic soil from flooding of nearby stream	Soil saturated to surface		
A003	1		D		STR03, STR02	R	green ash, sensitive fern, speckled alder, mountain maple, American cow-parsnip, red maple, balsam fir, sensitive fern, evergreen wood fern, gray birch	Depleted matrix mixed and layered with organic soil from flooding of nearby stream	Soil saturated to surface		
A004	1	D			STR02	R	quaking poplar, yellow birch, fowl manna grass	depleted matrix with redoximorphic concentrations	Soil saturated to the surface		
A005	1		D		STR04	R	northern white-cedar, quaking poplar, balsam fir, speckled alder, black ash, red maple, common winterberry, white meadowsweet, common wooldsedge; common strawberry, cinnamon fern, green ash, gray alder	8-10" Ap horizon over depleted matrix with redoximorphic concentrations; Depleted matrix mixed and layered with organic soil from flooding of nearby stream	Wetland drainage patterns; Soil saturated to surface, wetland drainage patterns		

¹ Cowardin, et al.; D = Dominant, x = Present

² Vernal Pool Status: VP = Vernal Pool, SVP = Significant Vernal Pool

³ Wetlands of Special Significance

S = Critically imperiled (S1) or imperiled (S2) community

C = Within 250' of a coastal wetland

E = >20,000 s.f. of emergent vegetation or open water

P = Peatlands

H = Significant Wildlife Habitat

G = Within 250' of a GPA great pond

F = Wetland subject to flooding

R = Within 25' of river, stream or brook

* plants with morphological adaptations to hydric conditions

Wetland ID	Delineated Resource Map #	Wetland Classification ¹			Stream	Vernal Pool ²	WSS ³	Wetland Information			Notes (named regulatory resources SWH, IWWH, DWA, rare plants, animals)
		PFO	PSS	PEM				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology	
A006	1		D				northern white-cedar, eastern hemlock, fowl manna grass	6" O horizon over depleted matrix with redoximorphic concentrations	Soil saturated to the surface, wetland drainage patterns		
A007	1	D			STR05	R	northern white-cedar, yellow birch, red maple, balsam fir, black ash, common wooldsedge	2-3" O horizon over 3" A horizon over depleted matrix with redoximorphic concentrations	Soil saturated to the surface, wetland drainage patterns		
A008	1	D			STR06, STR07	R	eastern hemlock, yellow birch, common wooldsedge, sensitive fern, northern white-cedar, bristly blackberry	disturbed alluvial soils over depleted matrix with redoximorphic concentrations	Soil saturated to the surface, stream adjacent		
A009	1			D			red-osier dogwood, balsam fir, sensitive fern, fowl manna grass, common wooldsedge, broad-leaved cat-tail	4-6" dark A horizon over a depleted B horizon with 10% redoximorphic concentrations	Standing water in ruts, soil saturated to the surface		
A010	1	D			STR07	R	eastern hemlock, yellow birch, common wooldsedge, sensitive fern, northern white-cedar, bristly blackberry	disturbed alluvial soils over depleted matrix with redoximorphic concentrations	Soil saturated to the surface, stream adjacent		
A011	1	D					balsam fir, red maple, yellow birch, green ash, common wooldsedge, fowl manna grass	5-10" O horizon over depleted matrix with 25% redoximorphic concentrations	Wetland drainage patterns, soil saturated to the surface		
A012	1			D			balsam fir, common wooldsedge, common wrinkle-leaved goldenrod	1" O horizon over 2" A horizon over depleted matrix with redoximorphic concentrations	Wetland drainage patterns, soil saturated to the surface		

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		PFO	PSS	PEM				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology	
A186	1	D	x				black ash, white ash*, speckled alder, sensitive fern, white meadowsweet, interrupted fern, fowl manna grass, golden-saxifrage, willow-herb	Dark A horizon over depleted matrix with 5% redoximorphic concentrations	Soil saturated to surface, water-stained leaves		
A179	1		D		^	R	balsam fir, black ash, yellow birch, long-beaked willow, northeastern manna grass, sensitive fern, fringed sedge	2" O horizon over 6" mucky a horizon with depletion over depleted matrix with redoximorphic concentrations	Soil saturated to surface, small area of standing water, free water within 6" of surface	^Within 25' of stream, not a direct connection with stream STR02	
A180	1			D			balsam fir, black ash, northern white cedar, yellow birch, fringed sedge, northeastern manna grass, eastern rough sedge, sensitive fern	4" O horizon depleted matrix with redoximorphic concentrations	Wetland drainage patterns, soil saturated to surface		
A185	1	D					red maple, yellow birch, black ash, balsam fir, white meadowsweet, northeastern manna grass, eastern rough sedge, necklace sedge, sensitive fern	7" O /mucky A horizon over depleted matrix with redoximorphic concentrations	Soil saturated to surface, wetland drainage patterns		
A183	1		D		STR07	R	black ash, fowl manna grass, eastern rough sedge, sensitive fern	4" O horizon depleted matrix with redoximorphic concentrations	Soil saturated to surface, wetland drainage patterns		
A182	1			D			common wooldsedge, eastern rough sedge, fringed sedge, fowl manna grass	3" O horizon depleted matrix with redoximorphic concentrations	Soil saturated to surface, one are of standing water		

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A187	1 (Inset)		D				red-osier dogwood, white meadowsweet, speckled alder, long-beaked willow, sensitive fern	Dark A horizon with depletions	Wetland drainage patterns, soil saturated to surface		
A013	2	D	D				Goldie's fern (S2) , green ash, American elm, sugar maple, long-beaked willow, sensitive fern, drooping sedge, inflated sedge, fowl manna grass, wrinkle-leaf goldenrod	7" O/A horizon over depleted matrix	Soil saturated to surface, wetland drainage patterns, water-stained leaves	Reported in Oakfield Phase I report. Goldie's Fern was observed prior to a timber cutting prescription that cleared the canopy, and the plant was not observed during the second visit	
A014	2	D	D				drooping sedge, Virginia strawberry, inflated sedge, red raspberry, sugar maple	4" organic over a 3" depleted B horizon with redoximorphic concentrations, Indicator V.	Wetland drainage patterns, water-stained leaves	Reported in Oakfield Phase I report	
A015	2	D					balsam fir, yellow birch, red maple, eastern rough sedge, fowl meadow grass, nodding sedge	4" O horizon over depleted matrix with redoximorphic concentrations	Wetland drainage patterns, soil saturated to the surface		
A016	2			D			common wooldsedge, eastern rough sedge, fringed sedge, fowl manna grass	4" O horizon over depleted matrix with redoximorphic concentrations	Wetland drainage patterns, soil saturated to the surface		
A017	2	D					northern white-cedar, red maple, balsam fir, yellow birch, cinnamon fern, witherod, three-seeded sedge	16+" O horizon	Soil saturated to the surface, elevated roots, areas of inundation		

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A018	2		D		SVP04CF_N	H	yellow birch, northeastern manna grass, red maple, green ash, black ash, cinnamon fern, sensitive fern, common woolsedge,	4-6" O horizon over thin dark A horizon over a depleted B horizon with 20% redoximorphic features at 8"	Wetland drainage patterns, soil saturated to the surface	Significant Vernal Pool. Reported in Oakfield Phase I report	
A019	2			D			green ash, manna grass, balsam fir, marsh fern, oak fern	7 inch mucky dark A-horizon over depleted matrix with 2% redox concentrations	Water-stained leaves, soil saturated to surface, wetland drainage patterns	Reported in Oakfield Phase I report	
A020	2	D			STR09, STR08	R	red maple, green ash, black ash, balsam fir, speckled alder, white meadowsweet, sensitive fern, common woolsedge, common wrinkle-leaved goldenrod	1"-4" O horizon over 4"-6" dark A horizon (areas of 6"-8" Ap horizon also present) over depleted B horizon with 10% redoximorphic features	Wetland drainage patterns, soil saturated to the surface, stream adjacent	Reported in Oakfield Phase I report	
A021	2		D		STR10	R	red maple, green ash, speckled alder, common woolsedge, Canada reed grass	1-2" O horizon over 5" dark A horizon over a depleted B horizon with 20% redoximorphic features at 8"	Wetland drainage patterns, soil saturated in upper 12", stream adjacent	Reported in Oakfield Phase I report	
A022	2		D				quaking poplar, yellow birch, green ash, common woolsedge, sensitive fern	3" O horizon over 4"-6" dark A horizon over a depleted B horizon with 25% redoximorphic features at 10"	Wetland drainage patterns, soil saturated to the surface	Reported in Oakfield Phase I report	
A023	2	X	D		STR11	R	red maple, balsam fir, northern white-cedar speckled alder, sensitive fern	Soil mixed from flooding, 4"-6" O horizon over dark A horizon with 5% redox over rock	Soil saturated to the surface, adjacent to stream	Reported in Oakfield Phase I report	

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A024	2	D					northern white-cedar, balsam fir, green ash, black ash, speckled alder, red maple, common woolsedge, common wrinkle-leaved goldenrod	2"-3" O horizon over 4" dark mucky A horizon over a depleted B horizon with 10% redox at 8"	Wetland drainage patterns, soil saturated to the surface	Reported in Oakfield Phase I report	
A025	2		D				speckled alder, northern white-cedar, balsam fir, white meadowsweet, common woolsedge, sensitive fern	1" O horizon over 4"-6" dark A horizon over a depleted B horizon with 10% redox at 8"	Soil saturated to the surface, wetland drainage patterns	Reported in Oakfield Phase I report	
A026	2		D				balsam fir, speckled alder, northern white-cedar, green ash, sensitive fern, common wrinkle-leaved goldenrod, tall white aster, nodding sedge, northeastern manna grass	1" O horizon over 8" dark A horizon over a depleted B horizon with 25% redoximorphic features at 10"	Wetland drainage patterns, soil saturated to the surface.	Reported in Oakfield Phase I report	
A027	2	D					balsam fir, yellow birch, red maple, speckled alder, northern white-cedar, fowl manna grass, sensitive fern, cinnamon fern, witch-hazel	1-3" O horizon over 4" dark sandy A horizon over a depleted B horizon with 5% redoximorphic features at 8"	Wetland drainage patterns, soil saturated to the surface	Reported in Oakfield Phase I report	
A028	2	D			STR12	R	red maple, balsam fir, red raspberry sensitive fern, New York fern, speckled alder	4-6" O horizon over dark A horizon with 5% redoximorphic features over rock	Wetland drainage patterns, soil saturated to the surface, adjacent to stream	Reported in Oakfield Phase I report	

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		PFO	PSS	PEM				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology	
A029	2	D			STR13		R	quaking poplar balsam fir, yellow birch, red maple, speckled alder, northern white-cedar, fowl manna grass, sensitive fern, cinnamon fern, Canada reed grass	3" O horizon over 6" of dark sandy A horizon over a depleted B horizon with 15% redoximorphic features at 10"	Wetland drainage patterns, soil saturated to the surface, adjacent to stream	
A030	2		D		STR14, STR15		R	red maple, black ash, sensitive fern, common woolsedge, fowl manna grass, Canada reed grass	6-8" O horizon over a thin dark A horizon over a depleted B horizon with 20% redoximorphic features at 10"	Wetland drainage patterns, soil saturated to the surface	
A031	2		D					quaking poplar, balsam fir, yellow birch, red maple, speckled alder, northern white-cedar, fowl manna grass, common wrinkle-leaved goldenrod, common soft rush, red-osier dogwood	4-6" dark A horizon over a depleted B horizon with 10% redoximorphic features at 10"	Wetland drainage patterns, soil saturated within 12" of the surface	
A032	2	x	D					northern white-cedar, balsam fir, red maple, cinnamon fern, crested wood fern, nodding sedge, tall-white American-aster, sensitive fern	3" O horizon over 5" of dark sandy A over a depleted sandy B with 5% redoximorphic features at 10"	Wetland drainage patterns, soil saturated to the surface.	
A033	2	D						northern white-cedar, balsam fir, red maple, green ash, common woolsedge, nodding sedge, sensitive fern, common soft rush, speckled alder, Canada reed grass	3" O horizon over 4" dark A horizon over depleted B horizon with 10% redoximorphic features	Wetland drainage patterns, soil saturated within 12", areas of inundation	

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		PFO	PSS	PEM				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology	
A034	2	D				VP08SM_M		black ash, white ash, red maple, speckled alder, northern white-cedar, fowl manna grass, common wrinkle-leaved goldenrod, tall white-aster	3" O horizon over 5" of dark A horizon over depleted B horizon with 10% redoximorphic features over rock	Wetland drainage patterns, soil saturated to the surface	
A035	2	D			STR16, STR17, STR18		R	northern white-cedar, speckled alder, red spruce, yellow birch, three-seeded sedge, nodding sedge, cinnamon fern, sensitive fern	10" dark A horizon over a depleted matrix with 5% redoximorphic concentrations	Pits inundated, soil saturated to the surface	
A036	2	x	D		STR19		R	black ash, white ash, red maple, speckled alder, northern white-cedar, fowl manna grass, common wrinkle-leaved goldenrod, tall white-aster	5" dark A horizon over, depleted B horizon with 10% redoximorphic features, areas of 16" O horizon soil	Wetland drainage patterns, soil saturated to the surface, areas with 6-24" standing water	
A165	2							fringed sedge, rattlesnake manna grass, fowl manna grass, sensitive fern, Canada reed grass, pussy willow, red raspberry	Depleted matrix at 5" below surface with redoximorphic concentrations. Soil disturbed by recent harvest activity	Areas of inundation, soil saturated to the surface	
A166	2	D		X				green ash, American elm, yellow birch, balsam fir, silky dogwood, fringed sedge, rattlesnake manna grass, sensitive fern	Depleted matrix at 3-8" below surface, heavy disturbance, lots of soil mixing, indicators variable	Soil saturated between 10" and the surface, wetland drainage patterns, areas of inundation, water stained leaves	

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		PFO	PSS	PEM				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology	
A175	2			D	STR65		R	fringed sedge, fowl manna grass, red raspberry, Canada reed grass, sensitive fern, cinnamon fern, balsam fir, yellow birch, green ash	3-4" O horizon over 4-6" dark A horizon over a depleted B horizon with 20% redoximorphic concentrations	Soil saturated to the surface, wetland drainage patterns	
A176	2			D	STR65		R	fringed sedge, fowl manna grass, red raspberry, Canada reed grass, sensitive fern, cinnamon fern, balsam fir, yellow birch, green ash	3-4" O horizon over 4-6" dark A horizon over a depleted B horizon with 20% redoximorphic concentrations	Soil saturated to the surface, wetland drainage patterns	
A178	2			D	^		R	Canada reed grass, fowl manna grass, cinnamon fern, lesser bladder sedge, willow-herb, balsam fir, yellow birch, green ash	5" organic material over a depleted matrix with 5% redoximorphic features	Small areas of standing water, soil saturated to the surface	^Within 25' of stream, not a direct connection with stream STR65
A037	3	D						northern white-cedar, speckled alder, common wooldsedge, fringed willow-herb, fringed sedge, fowl manna grass	5" dark A horizon over a depleted B horizon with >10% redoximorphic features	Soil saturated to the surface, areas of inundation	
A103	3	D		x				black ash, balsam fir, northern white-cedar, speckled alder, tall white-aster, common soft rush, fiddlehead fern, cinnamon fern, sensitive fern	3" dark A horizon and organic over a depleted matrix and redoximorphic concentrations at 6"	Soil saturated to the surface, standing water in areas	

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		PFO	PSS	PEM				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology	
A104	3	D	x		VP15MA_M		black ash, white ash, red maple, speckled alder, northern white-cedar, sensitive fern, fowl manna grass, cinnamon fern, crested wood fern, northeastern manna grass	8" dark A horizon over depleted B horizon with 15% redoximorphic at 10", areas of 16" organic soil	Inundated (6-10", near roadside impoundments), wetland drainage patterns, soil saturated to surface		
A105	3	D	D				northern white-cedar, black ash, balsam fir, red maple, speckled alder, sensitive fern, cinnamon fern, fowl manna grass, fringed willow-herb	7" dark A horizon and organic soil over a depleted matrix, soil disturbed	Soil saturated, wetland drainage patterns		
A106	3		D				northern white-cedar, quaking poplar, black ash, white ash, red maple, speckled alder, sensitive fern, common woosedge, nodding sedge, cinnamon fern	7-8" dark A horizon over depleted matrix with 15% redoximorphic concentrations at 10" below surface	Wetland drainage, patterns, soil saturated to the surface		
A107	3	D			STR38	R	black ash, white ash, speckled alder, witherod, sensitive fern, wrinkle-leaf goldenrod	Sandy loam with a depleted matrix	Soil saturated, standing water at soil surface, wetland drainage patterns		
A108	3			D			greater bladder sedge, sensitive fern, fringed willow-herb, water avens, wrinkle-leaf goldenrod, mosquito bulrush, Crawford's sedge	4" A over a depleted B horizon with 15% redoximorphic concentrations at 7", soil disturbed	Wetland drainage patterns, soil saturated to the surface		

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A109	3			D			greater bladder sedge, common wooldsedge, common soft rush, tall white-aster, wrinkle-leaf goldenrod, crested wood fern, sensitive fern	5" dark A horizon over a depleted B horizon with 15% redoximorphic features at 8", soil disturbed	Wetland drainage patterns, soil saturated to the surface		
A110	3		x	D	VP05MA_M, VP04SM_M		speckled alder, yellow birch, red maple, white meadowsweet, greater bladder sedge, water avens, tall white-aster, mosquito bulrush, common soft rush, sensitive fern	7" dark A horizon over a depleted B horizon with 5% redoximorphic concentrations, soil very disturbed	Rutted areas with standing water, soil saturated to the surface		
A111	3		D				white ash*, quaking poplar*, red maple, speckled alder, black ash, New York fern, mosquito bulrush, sensitive fern	5" dark Ap horizon over a depleted B horizon with 15% redoximorphic features at 8", soil disturbed	Wetland drainage patterns, soil saturated to the surface		
A112	3		D				white ash*, red maple, sensitive fern, greater bladder sedge, mosquito bulrush, tall white-aster	dark A horizon over a depleted B horizon with redoximorphic features, soil disturbed	Soil saturated to the surface, areas of standing water		
A113	3		D				white ash*, quaking poplar*, red maple, speckled alder, black ash, New York fern, mosquito bulrush, sensitive fern	5" dark Ap horizon over a depleted B horizon with 15% redoximorphic features at 8", soil disturbed	Wetland drainage patterns, soil saturated to the surface		
A118	3			D			sensitive fern, tall white-aster, mosquito bulrush, red maple	Dark A horizon over a depleted B horizon with redoximorphic features, soil disturbed	Soil saturated to the surface, areas of standing water		

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A167	3		D				white ash*, quaking poplar*, red maple, speckled alder, black ash, New York fern, mosquito bulrush, sensitive fern	5" dark Ap horizon over a depleted B horizon with 15% redoximorphic features at 8", soil disturbed	Wetland drainage patterns, soil saturated to the surface		
A168	3		D				white ash*, quaking poplar*, red maple, speckled alder, black ash, New York fern, mosquito bulrush, sensitive fern	5" dark Ap horizon over a depleted B horizon with 15% redoximorphic features at 8", soil disturbed	Wetland drainage patterns, soil saturated to the surface		
A181	3	D	D				red maple, green ash, balsam fir, black ash, American linden, northern white-cedar, quaking poplar*, speckled alder, sensitive fern, stiff three-petaled bedstraw, common soft rush, common woolsedge, nodding sedge	Areas of 4-5" dark A horizon over a depleted B horizon with 25% redoximorphic concentrations, Other areas of 4-6" A horizon over depleted B horizon with 10% redoximorphic features	Wetland drainage patterns, soil saturated to the surface		
A123	4			D		VP04RL_M	common woolsedge, bristly black currant, eastern rough sedge	Soil disturbed, 6" dark A horizon over 3" depleted matrix with 10% redoximorphic concentrations	Rutted areas with standing water, soil saturated to the surface		
A124	4	D				VP05RL_N	balsam fir, red spruce, yellow birch, three-seeded sedge, fringed sedge, northern water-horehound	5" O horizon, dark A horizon over a depleted B horizon	Soil saturated to the surface		
A125	4		D		STR41	R	green ash, red maple, balsam fir, wrinkle-leaf goldenrod, nodding sedge, Canada goldenrod, northern water-horehound	5" O horizon over 4" dark A horizon over a depleted, sandy B with 10% redoximorphic concentrations at 10"	Soil saturated to the surface, wetland drainage patterns, areas 2-4" of standing water		

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A126	4			D		SVP30ED_N	H	shining sedge, fowl manna grass, common wool sedge, sensitive fern, mad dog skullcap, drooping sedge	Dark A horizon over a depleted matrix with redoximorphic concentrations	Areas of inundation, soil saturated to the surface	Significant Vernal Pool
A127	4		D					red spruce, red maple, narrow lady fern, yellow birch	6" dark A horizon over a depleted matrix with 3% redoximorphic concentrations	Soil saturated to within 1" of surface	
A128	4		D			SVP29ED_N	H	sensitive fern, fowl manna grass, fringed willow-herb, evergreen wood fern, smooth white violet, narrow lady fern, calico American-aster, brownish sedge	4" very dark, mucky A horizon over a depleted matrix with 15% redoximorphic concentrations	Soil saturated to surface, wetland periodically ponded evidenced by water stained leaves and staining patterns on tree trunks	Significant Vernal Pool
A114	5	D			STR39		R	yellow birch, balsam fir, northern white-cedar, three-seeded sedge, greater bladder sedge, Jack-in-the-pulpit	8" dark mineral soil with 10% redoximorphic concentrations	Wetland drainage patterns, 1-2" surface water, soil saturated to the surface	
A115	5			D				drooping sedge, awl-fruited sedge, three-seeded sedge, broad-leaved cat-tail, northern white-cedar	6" organic material over rock	2" standing water, soil saturated to the surface	
A116	5	D						northern white-cedar, balsam fir, black ash, yellow birch, speckled alder, three-seeded sedge, sensitive fern	10" organic material over rock	6" standing water, soil saturated to the surface	

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		PFO	PSS	PEM				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology	
A117	5	D					black ash, balsam fir, yellow birch, speckled alder, white meadowsweet, sensitive fern, drooping sedge	12" dark A over rock with 10% redoximorphic concentrations and areas of organic streaking and sediment layers	Wetland drainage patterns, 4" surface water, soil saturated to the surface		
A129	5	D					red spruce, three-seeded sedge, cinnamon fern, gray birch, evergreen wood fern, common woolsedge	10" O horizon over soil with redoximorphic concentrations	Soil saturated to surface, areas of inundation		
A130	5			D			fowl manna grass, northern bugleweed, evergreen wood fern, Canada reed grass, marsh violet, American beech	6" dark A horizon over depleted matrix with 5% redoximorphic concentrations	Areas of inundation, soil saturated to the surface		
A131	5			D			common woolsedge, sensitive fern, wood horsetail, drooping sedge, fowl manna grass, common soft rush, black ash	6" O horizon and mixed soil over a depleted matrix with 5% redoximorphic concentrations	Soil saturated to the surface, wetland drainage patterns, wetland disturbed		
A132	5	D					northern white-cedar, balsam fir, black ash, yellow birch, red maple, speckled alder, sensitive fern, fowl manna grass, wrinkle-leaf goldenrod	Soil with a depleted matrix and 5% redoximorphic concentrations at 7"	Soil saturated to the surface, pit and mound micro-topography with standing water in pits		
A133	5		D				green ash, yellow birch, witherod, speckled alder, balsam fir, sensitive fern, Canada reed grass, nodding sedge, fowl manna grass	Soil with a depleted matrix and 5% redoximorphic concentrations	Soil saturated, wetland drainage patterns, 12" culvert flowing water through wetland		

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A169	5			D			sensitive fern, New York fern, tall white-aster, cinnamon fern, drooping sedge, balsam fir, fowl manna grass	8-10" dark Ap horizon over a depleted B horizon with 15% redoximorphic concentrations at 12"	Water stained leaves, saturated within 12" of the soil surface		
A170	5			D			sensitive fern, New York fern, tall white-aster, cinnamon fern, drooping sedge, balsam fir, fowl manna grass	10" dark Ap horizon over a depleted B horizon with 15% redoximorphic concentrations at 12"	Water stained leaves, saturated within 12" of the soil surface		
A171	5	D					green ash, balsam fir, winterberry, sensitive fern, royal fern, tall white-aster, three-seeded sedge, interrupted fern	12" dark Ap horizon with redoximorphic concentrations over a depleted B horizon with 10% redoximorphic concentrations	Water stained leaves, saturated within 12" of the soil surface		
A134	6		x	D		VP05ED_M	red maple, yellow birch, common woolsedge, common soft rush, three-seeded sedge, sensitive fern, northern water-horehound	1" O horizon over 1" A over a depleted B horizon with 10% redoximorphic features at 5"	6-18" standing water, soil saturated to the surface		
A140	6			D			common woolsedge, wrinkle-leaf goldenrod, northeastern manna grass, common soft rush, nodding sedge, sensitive fern, yellow birch, red maple	5" dark A horizon over a depleted B horizon with 10% redoximorphic features at 7"	Wetland drainage patterns, soil saturated to the surface		

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A162	6	D			VP11BE_M VP12BE_M VP13BE_M VP14BE_M VP15BE_N VP16BE_M		northern white-cedar, yellow birch, red maple, green ash, balsam fir, drooping sedge, cinnamon fern, interrupted fern, rattlesnake manna grass, star sedge	4-6" organic material (very well decomposed) over a depleted matrix with 2-5% faint redoximorphic concentrations	2-4" standing water in rutted areas, soil saturated to the surface, water table at surface		
A163	6			D			black-girdled bulrush, common wool-sedge, fringed sedge, tall white-aster, calico-aster, interrupted fern, green ash	6-8" organic material mixed with mineral A horizon with redoximorphic concentrations at 4" over a depleted matrix with translocated organic material throughout	Water-stained leaves, soil in ruts saturated at the surface		
A164	6			D	VP10BE_M		fringed sedge, shining sedge, common soft rush, black-girdled bulrush, interrupted fern, mosquito bulrush, fowl manna grass	12" dark A horizon mixed with organic material over a depleted, low chroma matrix. Soil disturbed by recent harvest activity	4-6" standing water, soil saturated to the surface, altered by recent harvest activity		
A135	7		D				common woolsedge, wrinkle-leaf goldenrod, northeastern manna grass, common soft rush, nodding sedge, sensitive fern, yellow birch, red maple	5" dark A horizon over a depleted B horizon with 10% redoximorphic features at 7"	Wetland drainage patterns, soil saturated to the surface		
A136	7		D		VP13MA_M, VP12MA_M		balsam fir, red maple, yellow birch, common woolsedge, northeastern manna grass, common soft rush, nodding sedge, sensitive fern	5" dark A horizon over a depleted B horizon with 10% redoximorphic features at 7"	Wetland drainage patterns, soil saturated to the surface		

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A137	7		D	D		VP04ED_M, VP03ED_M		northern rough sedge, fringed willow-herb, drooping sedge, fowl manna grass, red maple, yellow birch	6" dark A horizon with mixed organic over 4" depleted matrix with 15% redoximorphic concentrations	Areas of 4" standing water, soil saturated to the surface, most areas inundated	
A138	7			D				common woolsedge, wrinkle-leaf goldenrod, northeastern manna grass, common soft rush, nodding sedge, sensitive fern, yellow birch, red maple	5" dark A horizon over a depleted B horizon with 10% redoximorphic features at 7"	Wetland drainage patterns, soil saturated to the surface	
A139	7			D				common woolsedge, wrinkle-leaf goldenrod, northeastern manna grass, common soft rush, nodding sedge, sensitive fern, yellow birch, red maple	5" dark A horizon over a depleted B horizon with 10% redoximorphic features at 7"	Wetland drainage patterns, soil saturated to the surface	
A151	7	D						balsam fir, northern white-cedar, yellow birch, green ash, black ash, red maple, drooping sedge, Canada reed grass, sensitive fern	10" dark mucky A horizon over a depleted matrix with >2% redoximorphic features	Soil saturated to the surface	
A152	7	D						balsam fir, northern white-cedar, green ash, white meadowsweet, speckled alder, interrupted fern, drooping sedge, mosquito bulrush	Soil disturbed, 6" organic material over 10" dark A with redoximorphic concentrations throughout	Soil saturated to the surface, wetland drainage patterns	
A153	7	D						black ash, balsam fir, red maple, silky dogwood, fowl manna grass, drooping sedge	9" dark mucky A horizon over a depleted matrix over rock	Wetland drainage patterns, soil saturated to the surface	

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		PFO	PSS	PEM				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology	
A154	7	D			STR42		R	black ash, balsam fir, yellow birch, speckled alder, fowl manna grass, drooping sedge, sensitive fern	8" O horizon over a depleted matrix	Wetland drainage patterns, soil saturated to the surface	
A155	7		D	x	STR62		R	balsam fir, yellow birch, black ash, red maple, speckled alder, drooping sedge, sensitive fern, fowl manna grass, golden-saxifrage	8" dark A horizon over a low chroma matrix with organic streaking and redoximorphic features	Wetland drainage patterns, soil saturated to the surface	
A156	7	D			STR62		R	speckled alder, northern white-cedar, red maple, sensitive fern, fringed sedge	9" A over 3" depleted matrix with >10% redoximorphic concentrations	Areas of inundation, soil saturated to the surface	
A157	7	D	D				H	yellow birch, green ash, balsam fir, northern white-cedar, black ash, speckled alder, greater bladder sedge, drooping sedge, awl-fruited sedge, sensitive fern	4-8" organic material over rock or a depleted matrix with 10% redoximorphic concentrations	Surface water in wetland drainage patterns from culverts, soil saturated to the surface	Part of mapped IWWH resource
A158	7	D			STR43	VP07SM_M	H, R	northern white-cedar, red spruce, red maple, broad-leaved cat-tail, three-seeded sedge, cinnamon fern, sensitive fern	8" O horizon over 4" depleted matrix with >5% redoximorphic features	Soil saturated to the surface, areas ponded/flooded by stream overflow	Part of mapped IWWH resource
A159	7	D			STR44		H, R	northern white-cedar, yellow birch, balsam fir, black ash, speckled alder, winterberry, royal fern, three-seeded sedge, sensitive fern	20"+ organic material	Soil saturated to the surface, areas of 2-4" standing water	Part of mapped IWWH resource

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		PFO	PSS	PEM				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology	
A160	7		x	D			speckled alder, red maple, yellow birch, broad-leaved cat-tail, fringed sedge, fowl manna grass	7" very dark A horizon over a depleted matrix with 2% redoximorphic concentrations	Soil saturated at one inch below soil surface, some small areas of inundation		
A161	7			D			speckled alder, yellow birch, grey birch, crested wood fern, fringed sedge, broad-leaved cat-tail	6" dark A horizon over 4" depleted matrix with >5% redoximorphic concentrations	Soil saturated to the surface, wetland drainage patterns		
A102	7						common woolsedge, common wrinkle-leaf goldenrod, northeastern manna grass, common soft rush, nodding sedge, sensitive fern, yellow birch, red maple	5" dark A over a depleted B with 10% redoximorphic features at 7",	Wetland drainage patterns, soil saturated to the surface		
OAK 479	7	x					yellow birch, green ash, balsam fir, fowl manna grass, common woolsedge, interrupted fern, sensitive fern, cinnamon fern	11" O horizon over rock in most areas	Wetland drainage patterns, soil saturated to the surface, water stained leaves		
OAK 481	7					VP47DD_M, VP27SD_N	northern white-cedar, black ash, long beaked-willow, balsam fir, yellow birch, speckled alder, common woolsedge, cinnamon fern, three-seeded sedge, royal fern	24+" O horizon, histosol	Soil saturated to the surface, water stained leaves		

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		PFO	PSS	PEM				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology	
OAK482	7			D			common woolsedge, wrinkle-leaf goldenrod, northeastern manna grass, common soft rush, nodding sedge, sensitive fern, tall-white American-aster, yellow birch, red maple	5" dark A horizon over a depleted B horizon with 10% redoximorphic features at 7"	Wetland drainage patterns, soil saturated to the surface		
A038	8	D	D		STR20	R	black ash, American elm, northern white-cedar, speckled alder, balsam fir, cinnamon fern, northeastern manna grass, common soft rush, golden-saxifrage, fowl manna grass,	20" dark A horizon with redoximorphic concentrations. Areas of a mixed O/A horizon over a depleted matrix, Indicator VI. Soil disturbed	Soil saturated, wetland drainage patterns, stream associated, pit and mound micro-topography (more pits)		
A039	8		D		STR20	R	black ash, balsam fir, red maple, witherod, northeastern manna grass, sensitive fern, fiddlehead fern, sharp-toothed nodding-aster	3" O and A over a depleted matrix with 5% distinct redoximorphic concentrations, Indicator VI.	Wetland drainage patterns, soil saturated to the surface, stream associated		
A040	8	D	D				northern white-cedar, black ash, speckled alder, balsam fir, common woolsedge, sensitive fern, cinnamon fern, three-seeded sedge, nodding sedge, broad-leaved cat-tail	6" Organic material over a dark, mucky A, over a depleted matrix with redoximorphic concentrations and depletions, Indicator V. Soil disturbed	Soil saturated to the surface, wetland drainage patterns, water flowing through wetland from culvert		
A041	8			D			nodding sedge, mosquito bulrush, northeastern manna grass, fowl manna grass, choke cherry, fringed willow-herb	Depleted sandy soil with redoximorphic concentrations and depletions, Indicator X.B. Soil disturbed	Soil saturated to the surface, areas with standing water (ice)		

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		PFO	PSS	PEM				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology	
A042	8	D				VP18SM_M, VP19DD_N, SVP19SM_N, VP20SM_N, SVP34MA_N, VP35MA_N	H	yellow birch, red maple, balsam fir, green ash, black ash, cinnamon fern, evergreen wood fern	8-12" organic material over a depleted matrix	Areas of inundation, wetland drainage patterns, soil saturated to the surface	Significant Vernal pool. VPs and SVP are not within project area, but SVP buffer crosses existing gravel road
A043	8			D				common woolsedge, long-beaked willow, golden saxifrage, sensitive fern, yellow birch, bristly black currant	12" organic material over a disturbed soil with redoximorphic depletions over a layer of organic material, all with a sulfur odor	Wetland drainage patterns, areas inundated	
A044	9	D				VP102CF_M		yellow birch, speckled alder, gray birch, spotted touch-me-not, sensitive fern, golden saxifrage	4" O horizon over 8" depleted matrix with 5% redoximorphic depletions	Wetland drainage patterns	
A045	9	D				VP101CF_M		gray birch, yellow birch, sensitive fern, golden saxifrage, drooping sedge	1" O horizon over 8" depleted matrix with 15% redoximorphic depletions	Soil saturated to the surface, wetland drainage patterns	
A060	8			D				eastern rough sedge, drooping sedge, common soft rush, red raspberry	6-10" organic material over rock, and organic over dark mineral soil with redoximorphic concentrations	Soil saturated, areas of inundation, water stained leaves	
A061	8			D	STR25		R	eastern rough sedge, balsam fir, rattlesnake root	3" organic material over a low chroma matrix with redoximorphic concentrations to 6"	Soil saturated to the surface, wetland drainage patterns, free water at 2"	

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A046	9	D			STR21, STR22		R	speckled alder, gray birch, yellow birch, sensitive fern, honeysuckle	6" organic material over 5" gleyed matrix with 5% redoximorphic concentrations	Soil saturated to the surface, wetland drainage patterns	
A047	9			D		VP103CF_M		eastern rough sedge, common woolsedge, northern white-cedar, sensitive fern, yellow birch	3" O horizon over 5" depleted matrix with 5% redoximorphic concentrations	Inundated	
A048	9			D		VP104CF_M		common woolsedge, drooping sedge, sensitive fern, yellow birch	Soil disturbed, 8" depleted matrix with 25% redoximorphic concentrations	Inundated	
A049	9			D		VP01RL_M		golden saxifrage, common woolsedge, sensitive fern	12" depleted matrix with 5% redoximorphic concentrations	12" standing water, wetland drainage patterns	
A062	9			D		SVP36MA_N	H	Canada reed grass, cinnamon fern, common woolsedge, sensitive fern	18" organic material	Inundated	Significant Vernal Pool
A063	9			D		VP21SM_M		cinnamon fern, sensitive fern, manna grass	1-2" organic material over depleted B horizon	Areas of inundation, soil saturated to the surface	
A064	9			D		VP105CF_M		red raspberry, common woolsedge, drooping sedge, sensitive fern, yellow birch	5" organic material over 5" depleted matrix with 5% redoximorphic concentrations	Soil saturated to the surface, 3-6" standing water in pools	
A085	9	D		x		VP37MA_N		yellow birch, red spruce, spotted touch-me-not, fowl manna grass	1" organic material over 4" dark A horizon over 4" dark mineral B horizon with 2% redoximorphic features	Areas of standing water, buttressed roots, water marks	

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A086	9			D				yellow birch, red maple, evergreen wood fern, fowl manna grass, red spruce	2" organic material over 4" A horizon over a depleted B horizon	Areas of standing water, soil saturated to the surface	
A172	9			D				Canada reed grass, fringed sedge, common burdock, red maple, yellow birch	4" O horizon over a depleted matrix with 2% redoximorphic features	Standing water, soil saturated to the surface	
A173	9			D				spotted touch-me-not, red raspberry, fringed sedge, sensitive fern, cinnamon fern	Depleted or gleyed matrix within 10 inches of the soil surface	Areas inundated, soil saturated to the surface	
A050	10			D				eastern rough sedge, red raspberry, common soft rush, spotted touch-me-not, long beaked willow	Soil disturbed, dark mineral soil with redoximorphic concentrations	Inundated, soil saturated to the surface	
A051	10			D			VP03RL_M, VP02RL_M	common wooldsedge, eastern rough sedge, bristly blackberry, yellow birch	3" O horizon over 6" depleted matrix with 5% redoximorphic concentrations	Soil saturated to the surface, free water at surface	
A052	10	D			STR23		R	yellow birch, red spruce, speckled alder, gray birch, northern white-cedar, goldthread, sensitive fern, bristly black currant	8" O horizon over 4" depleted matrix with 5% redoximorphic features	Wetland drainage patterns, soil saturated to the surface, water stained leaves	
A065	10			D				sensitive fern, fowl manna grass, red maple, New York fern, interrupted fern, yellow birch	2" mucky O horizon over a depleted matrix	Water stained leaves, areas of ponded water	
A066	10	D	X	X			VP32SM_N, VP34DD_N	red maple, yellow birch, black ash, cinnamon fern, New York fern	2" mucky O horizon over a depleted matrix	Areas of inundation	

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A067	10			D			foamflower, fowl manna grass, fiddlehead fern, spotted touch-me-not, cinnamon fern, marsh horsetail, sensitive fern, lady fern	Dark A horizon over a depleted matrix with 10% redoximorphic concentrations	Soil saturated to the surface, wetland drainage patterns		
A068	10	D					cinnamon fern, interrupted fern, fiddlehead fern, sensitive fern, American linden, yellow birch, green ash, dwarf enchanter's nightshade, fowl manna grass	Soil disturbed, mucky mixed A and O horizon and layers of a depleted B horizon with 10% redoximorphic concentrations	Wetland drainage patterns, areas of standing water, soil saturated to the surface, trees with morphological adaptations		
A069	10			D			fiddlehead fern, spotted touch-me-not, silvery spleenwort, dwarf enchanter's nightshade, dwarf raspberry, golden saxifrage, marsh fern	3" O horizon over a 6" gleyed matrix	Soil saturated to the surface, areas of standing water		
A070	10		D				yellow birch, green ash, dwarf raspberry, silvery spleenwort, eastern rough sedge, spotted touch-me-not, dwarf enchanter's nightshade, golden saxifrage	3" mucky dark A over 7" gleyed matrix with fine, faint redoximorphic concentrations at 10"	Free water at surface, 2" standing water in most areas, trees with morphological adaptations, wetland drainage patterns, water stained leaves		

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Wetland ID	Delineated Resource Map #	Wetland Classification ¹			Stream	Vernal Pool ²	WSS ³	Wetland Information			Notes (named regulatory resources SWH, IWWH, DWA, rare plants, animals)
		PFO	PSS	PEM				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology	
A071	10		D				yellow birch, green ash, dwarf raspberry, silvery spleenwort, eastern rough sedge, spotted touch-me-not, dwarf enchanter's nightshade, golden saxifrage	3" mucky dark A over 7" gleyed matrix with fine, faint redoximorphic concentrations at 10"	Free water at surface, 2" standing water in most areas, trees with morphological adaptations, wetland drainage patterns, water stained leaves		
A072	10	D	D		STR26	R	cinnamon fern, spotted touch-me-not, red maple, yellow birch, green ash, golden saxifrage, sensitive fern	4" O horizon over a gleyed matrix, some areas with 20% redoximorphic features	wetland drainage patterns, soil saturated to the surface, free water at 2", water stained leaves		
A073	10	D					yellow birch, black ash, red maple	6" mucky A/O horizon over rock	Areas of inundation, soil saturated to the surface		
A074	10			D			fowl manna grass, New York fern, green ash, yellow birch	4" mucky O horizon over a depleted matrix with 5% redoximorphic features	Areas of pooled water, soil saturated to the surface, water stained leaves, visible water line		
A075	10	D			STR27	R	black ash, yellow birch, balsam fir, American elm, dwarf raspberry, fowl manna grass	6-12" mucky organic material over rock	A perched rocky depression holding water and organic material, wetland inundated, soil saturated to the surface, water stained leaves		

¹ Cowardin, et al.; D = Dominant, x = Present

² Vernal Pool Status: VP = Vernal Pool, SVP = Significant Vernal Pool

³ Wetlands of Special Significance

S = Critically imperiled (S1) or imperiled (S2) community

C = Within 250' of a coastal wetland

E = >20,000 s.f. of emergent vegetation or open water

P = Peatlands

H = Significant Wildlife Habitat

G = Within 250' of a GPA great pond

F = Wetland subject to flooding

R = Within 25' of river, stream or brook

* plants with morphological adaptations to hydric conditions

Wetland ID	Delineated Resource Map #	Wetland Classification ¹			Stream	Vernal Pool ²	WSS ³	Wetland Information			Notes (named regulatory resources SWH, IWWH, DWA, rare plants, animals)
		PFO	PSS	PEM				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology	
A076	10	D			STR28, STR27	VP37DD_N	R	yellow birch, red maple, American elm, black ash, New York fern, lady fern, sensitive fern, spotted touch-me-not, fowl manna grass	4" mucky O horizon over a depleted matrix with 5% redoximorphic features	Standing water, soil saturated to the surface, wetland drainage patterns, buttressed roots	
A077	10		D		STR28		R	red maple, yellow birch, black ash, New York fern, cinnamon fern	5" organic over 6" dark A horizon over depleted sand	Wetland drainage patterns, soil saturated to the surface, areas of inundation	
A078	10			D	STR28		R	tall meadow rue, New York fern, fowl manna grass, cinnamon fern, green ash, yellow birch	16"+ mucky organic material	Wetland drainage patterns, soil saturated to the surface	
A079	10	D	D		STR28		R	red maple, yellow birch, black ash, New York fern, cinnamon fern	Depleted matrix at 5" below surface	Areas of inundation, soil saturated to the surface, wetland drainage patterns	
A082	10	D						red maple, American elm, green ash, sensitive fern	6-8" mucky A horizon over depleted coarse sand	Areas of inundation, soil saturated to the surface	
A080	11		D	D	STR29		R	yellow birch, sensitive fern, cinnamon fern, red maple	8" organic material over 12" of mucky, dark A horizon, over rock	Areas of inundation, soil saturated to the surface	
A081	11			D	STR29, STR30		R	fowl manna grass, marsh marigold, sensitive fern, yellow birch, lady fern, drooping sedge	6" organic material over a depleted matrix with 5% redoximorphic features	Wetland drainage patterns, soil saturated to the surface	
A083	11	D			STR31, STR32		R	black ash, green ash, red maple, red spruce, yellow birch, cinnamon fern, interrupted fern	16"+ organic material	Areas of standing water, soil saturated to the surface	

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* plants with morphological adaptations to hydric conditions

Wetland ID	Delineated Resource Map #	Wetland Classification ¹			Stream	Vernal Pool ²	WSS ³	Wetland Information			Notes (named regulatory resources SWH, IWWH, DWA, rare plants, animals)
		PFO	PSS	PEM				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology	
A084	11		D	X	STR33		R	red maple, New York fern, black ash, sensitive fern, yellow birch, cinnamon fern	4" organic material over depleted matrix	Wetland drainage patterns, soil saturated to the surface, areas of inundation	
A094	11	D	D			VP107CF_N		yellow birch, honeysuckle, gray birch, red spruce	16" organic material over rock	Areas of standing water, soil saturated to the surface, water stained leaves	
A095	11			D				fiddlehead fern, sensitive fern, lady fern, necklace sedge, spotted touch-me-not, fox sedge	Dark A and O mixed over a dark mineral soil with redoximorphic concentrations and depletions, soil compacted and disturbed but evolved	Soil saturated to the surface, areas of standing water, topographical depression between two slopes	
A096	11			D				large leaved toothwort (S3), pale violet, common toothwort, common marsh fern	2" organic material over 7" gleyed matrix with 10% redoximorphic concentrations	Wetland drainage patterns, soil saturated to the surface	
A097	11			D				large leaved toothwort (S3), pale violet, common toothwort, common marsh fern	2" organic material over 7" gleyed matrix with 10% redoximorphic concentrations	Wetland drainage patterns, soil saturated to the surface	
A098	11			D				lady fern, fowl manna grass, large leaved toothwort (S3), golden saxifrage, sensitive fern, pale violet	12" organic material over rock	Soil saturated to the surface, wetland drainage patterns	
A099	11		D					sensitive fern, pale violet, common wooldsedge, speckled alder, yellow birch	12" organic material over 1" depleted matrix with 2% redoximorphic concentrations over rock	Soil saturated to the surface, wetland drainage patterns	

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* plants with morphological adaptations to hydric conditions

Wetland ID	Delineated Resource Map #	Wetland Classification ¹			Stream	Vernal Pool ²	WSS ³	Wetland Information			Notes (named regulatory resources SWH, IWWH, DWA, rare plants, animals)
		PFO	PSS	PEM				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology	
A174	11				STR64, STR63		R	yellow birch, balsam fir, green ash, cinnamon fern, evergreen wood fern, sensitive fern, bristly blackberry, bristly black currant	6" organic over areas of rock and areas of depleted matrix with 5% redoximorphic features	Soil saturated to surface	

¹ Cowardin, et al.; D = Dominant, x = Present

² Vernal Pool Status: VP = Vernal Pool, SVP = Significant Vernal Pool

³ Wetlands of Special Significance

S = Critically imperiled (S1) or imperiled (S2) community

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P = Peatlands

* plants with morphological adaptations to hydric conditions

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G = Within 250' of a GPA great pond

F = Wetland subject to flooding

R = Within 25' of river, stream or brook

Stream ID	Associated Wetland ID	Map	Perennial or Intermittent	USGS Name	Width
STR01	--	1	Perennial		3-4'
STR02	A002, A003, A004	1	Perennial	Moose Brook	10'
STR03	A003	1	Perennial		3-4'
STR04	A005	1	Perennial		3-4'
STR05	A007	1	Intermittent		1-3'
STR06	A008	1	Perennial	Moose Brook	10-20'
STR07	A008, A010	1	Perennial		2-5'
STR45	--	1	Perennial		3-6'
STR69	--	1 (Inset)	Intermittent		0.5-1'
STR08	A020	2	Perennial		1-5'
STR09	A020	2	Perennial		1-6'
STR10	A021	2	Perennial		1-3'
STR65	A175, A176	2	Perennial		1-3'
STR11	A023	2	Perennial		8-4'
STR12	A028	2	Perennial		5-12'
STR13	A029	2	Perennial		4'
STR14	A030	2	Perennial		2-3'
STR15	A030	2	Perennial		3'
STR16	A035	2	Perennial		1-2'
STR17	A035	2	Perennial	Center Line Brook	1-2'
STR18	A035	2	Perennial		1-2'
STR19	A036	2	Perennial	Center Line Brook	10-20'
STR48	--	2	Perennial		1-2'
STR49	--	2	Intermittent		1-2'
STR38	A107	3	Perennial		3'
STR66	--	3	Perennial		1-3'
STR68	A042	8	Intermittent		05-3'
STR41	A125	4	Perennial		4-8'
STR39	A114	5	Perennial	Unnamed	3-5'
STR46	--	5	Intermittent		1-2'
STR47	--	5	Intermittent		3-6'
STR50	--	5	Perennial		8-10'
STR51	--	5	Perennial		3-5'
STR42	A154	7	Perennial		2-3'
STR43	A158	7	Perennial		2-3'
STR44	A159	7	Perennial	Unnamed	3-4'
STR62	A155, A156	7	Perennial		2-5'
STR20	A038, A039	8	Perennial		3-4'
STR25	A061	8	Perennial		1-4'
STR21	A046	9	Intermittent		0.5-3'
STR22	A046	9	Intermittent		0.5-3'
STR52	--	9	Perennial		1-3'
STR23	A052	10	Perennial	Nickerson Brook	1-2'
STR26	A072	10	Intermittent		1-2'
STR27	A076, A075	10	Intermittent		8-12"

Stream ID	Associated Wetland ID	Map	Perennial or Intermittent	USGS Name	Width
STR28	A076, A077, A078, A079	10	Intermittent		1-2'
STR29	A080, A081	10	Intermittent		1-3'
STR30	A081	11	Intermittent		1-2'
STR31	A083	11	Perennial		1-3'
STR32	A083	5	Perennial		1-3'
STR33	A084	11	Perennial		1-5'
STR57	--	11	Intermittent		1-2'
STR58	--	11	Perennial		0.5-3'
STR59	--	11	Perennial		0.5-3'
STR60	--	11	Intermittent		1-2'
STR61	--	11	Perennial		1-2'
STR64	A174	11	Perennial		3-6'
STR63	A174	11	Perennial		3-6'

Appendix E
Vernal Pool Summary Table

Vernal Pool Identifier	Natural Resource Map Number	Associated Wetland ID	NRPA		Corps Regulated Vernal Pool	Number of Egg Masses ¹						Presence ²		Comments
			Vernal Pool	SVP		Wood Frog		Spotted Salamander		Blue-Spotted Salamander		Fairy Shrimp	Other Indicator Species ³	
						V1	V2	V1	V2	V1	V2			
SVP04CF_N	2	A018	x	x	x	96	0	176	138	0	3	-	-	Natural-modified significant vernal pool. Surveyed as part of 2008 VP season
VP08SM_M	2	A034			x	-	0	-	4	-	0	-	-	Artificial pool along road.
VP15MA_M	3	A104			x	9	-	5	-	0	-	-	-	Artificial pool along road.
VP05MA_M	3	A110			x	2	-	2	-	0	-	-	-	Artificial pool, skidder rut through wetland
VP04SM_M	3	A110			x	-	-	-	-	-	-	-	-	Artificial pool, skidder rut through wetland. Field book lost, no data for pool. GPS notes specify pool type and origin
VP04RL_M	4	A123			x	6	-	34	-	0	-	-	-	Artificial pool.
VP05RL_N	4	A124	x		x	0	0	1	3	0	0			
SVP30ED_N	4	A126	x	x	x	36	10*	79	109	0	0	-	-	Significant vernal pool; *wood frog egg masses mostly hatched out at time of second visit

Vernal Pool Identifier	Natural Resource Map Number	Associated Wetland ID	NRPA		Corps Regulated Vernal Pool	Number of Egg Masses ¹						Presence ²		Comments
			Vernal Pool	SVP		Wood Frog		Spotted Salamander		Blue-Spotted Salamander		Fairy Shrimp	Other Indicator Species ³	
						V1	V2	V1	V2	V1	V2			
SVP29ED_N	4	A128	x	x	x	7	-	37	-	0	-	-	-	Originally considered man-made, but surveyor observed no evidence of a road despite linear shape, opening is too narrow (between several 20" dbh trees) for machinery, and no stumps in vicinity.
VP05ED_M	6	A134			x	0	-	23	-	0	-	-	-	Artificial pool, skidder rut through wetland
VP10BE_M	6	A164			x	28	-	4	-	0	-	-	-	Artificial pool in old road
VP11BE_M	7	A162			x	1	-	5	-	0	-	-	-	Artificial pool, skidder rut through wetland
VP12BE_M	7	A162			x	27	-	31	-	0	-	-	-	Artificial pool, old road through wetland
VP13BE_M	7	A162			x	5	-	10	-	0	-	-	-	Artificial pool, skidder rut through wetland
VP14BE_M	7	A162			x	0	-	4	-	0	-	-	-	Artificial pool, skidder rut through wetland

Vernal Pool Identifier	Natural Resource Map Number	Associated Wetland ID	NRPA		Corps Regulated Vernal Pool	Number of Egg Masses ¹						Presence ²		Comments
			Vernal Pool	SVP		Wood Frog		Spotted Salamander		Blue-Spotted Salamander		Fairy Shrimp	Other Indicator Species ³	
						V1	V2	V1	V2	V1	V2			
VP15BE_N	7	A162	x		x	2	-	2	-	0	-	-	-	Depression under red spruce tip-up
VP16BE_M	7	A162			x	16	-	23	-	0	-	-	-	Artificial pool, skidder rut through wetland
VP13MA_M	7	A136			x	2	-	1	-	0	-	-	-	Artificial pool, skidder rut through wetland
VP12MA_M	7	A136			x	0	-	3	-	0	-	-	-	Artificial pool, skidder rut through wetland
VP04ED_M	7	A137			x	0	-	6	-	0	-	-	-	Artificial pool, skidder rut through wetland
VP03ED_M	7	A137			x	6	-	0	-	0	-	-	-	Artificial pool, skidder rut through wetland
VP07SM_M	7	A158			x	-	-	-	-	-	-	-	-	Artificial pool, skidder rut through wetland. Field book lost, no data for pool. GPS notes specify pool type and origin
VP27SD_N	7	OAK481	x		x	10	0	4	6	0	0	-	-	Natural pool modified by entry trail for harvester
VP47DD_N	7	OAK481	x		x	0	0	7	5	0	0	-	-	

Vernal Pool Identifier	Natural Resource Map Number	Associated Wetland ID	NRPA		Corps Regulated Vernal Pool	Number of Egg Masses ¹						Presence ²		Comments
			Vernal Pool	SVP		Wood Frog		Spotted Salamander		Blue-Spotted Salamander		Fairy Shrimp	Other Indicator Species ³	
						V1	V2	V1	V2	V1	V2			
VP18SM_M	8	A042			x	0*	-	28	-	0	-	-	-	Artificial pool within adjacent SVP buffer. *Wood frog tadpoles observed.
VP19DD_N	8	A042	x		x	4	0	8	19	0	0	-	-	Isolated natural depression adjacent to man-made pool in wetland complex
SVP19SM_N	8	A042	x	x	x	0	0	35	27	0	0	-	-	250' buffer crosses corridor of existing road
VP20SM_N	8	A042	x		x	0	0	11	12	0	0	-	-	
SVP34MA_N	8	A042	x	x	x	5	0	26	16	0	0	-	-	250' buffer crosses corridor of existing road. Pool disturbed by previous harvest activity; greater than 100 tadpoles at second visit
VP35MA_N	8	A042	x		x	0	0	5	4	0	0	-	-	Pool previously disturbed
VP102CF_M	9	A044			x	15	-	23	-	0	-	-	-	Artificial pool
VP101CF_M	9	A045			x	0	0	4	7	0	0	-	-	Artificial pool
VP103CF_M	9	A047			x	31	-	4	-	0	-	-	-	Artificial pool
VP104CF_M	9	A048			x	46	-	5	-	0	-	-	-	Artificial pool
VP01RL_M	9	A049			x	20	-	11	-	0	-	-	-	Artificial pool
VP105CF_M	9	A064			x	5	-	1	-	0	-	-	-	Artificial pool
VP21SM_M	9	A063			x	0	-	7	-	0	-	-	-	Artificial pool

Vernal Pool Identifier	Natural Resource Map Number	Associated Wetland ID	NRPA		Corps Regulated Vernal Pool	Number of Egg Masses ¹						Presence ²		Comments
			Vernal Pool	SVP		Wood Frog		Spotted Salamander		Blue-Spotted Salamander		Fairy Shrimp	Other Indicator Species ³	
						V1	V2	V1	V2	V1	V2			
SVP36MA_N	9	A062	x	x	x	28	0*	227	200	0	0	-	-	Significant vernal pool, occurs at top of ridge, the surrounding upland intact; *all egg masses at second visit hatched and hatching
VP37MA_N	9	A085	x		x	0	0	6	5	0	0	-	-	One additional egg mass out of water at second visit
VP32SM_N	10	A066	x		x	0	0	10	11	0	0	-	-	Field book lost, no data for pool. GPS notes specify pool type and origin
VP36DD_N	10	A074	x		x	3	0	10	3	0	0	-	-	Wood frog egg masses hatching; at second visit an additional 6 masses were out of water
VP34DD_N	10	A066	x		x	1	0*	4	3	0	0	-	-	*Tadpoles observed at second visit
VP33SM_N	10	A073	x		x	0	0	4	2	0	0	-	-	Field book lost, no data for pool. GPS notes specify pool type and origin
VP34SM_M	10	A075			x	0	-	11	-	0	-	-	-	Artificial pool.
VP37DD_N	10	A076	x		x	0	0	3	0	0	0	-	-	

Vernal Pool Identifier	Natural Resource Map Number	Associated Wetland ID	NRPA		Corps Regulated Vernal Pool	Number of Egg Masses ¹						Presence ²		Comments
			Vernal Pool	SVP		Wood Frog		Spotted Salamander		Blue-Spotted Salamander		Fairy Shrimp	Other Indicator Species ³	
						V1	V2	V1	V2	V1	V2			
VP107CF_N	11	A094	x		x	1	2	17	11	0	0	-	-	Wood frog egg masses mostly hatched out

¹ The headers V1 and V2 represent the results of the first and second site visits respectively.

² Presence indicates observation during vernal pool survey.

³ BT = Blanding's Turtle; ST = Spotted Turtle; RB = Ringed Boghaunter Dragonfly; WT = Wood Turtle; RS = Ribbon Snake; SD = Swamp Darner Dragonfly; CD = Comet Darner Dragonfly

Appendix F
Agency Correspondence



JOHN E. BALDACCI
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0041

ROLAND MARTIN
COMMISSIONER

March 29, 2010

PO Box 447
Ashland, ME 04732

Brooke E. Barnes
Stantec Consulting
30 Park Drive
Topsham, ME 04086

RE: Significant resources associated with Oakfield, Island Falls, and Dyer Brook and other areas, ME

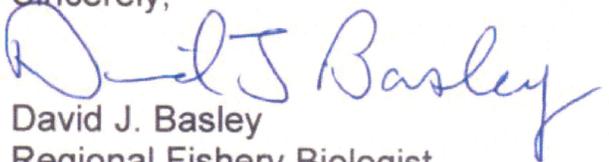
Dear Mr. Barnes:

Please be advised that there are no known threatened, endangered or special status inland fish species or habitat within the proposed project area. Meduxnekeag Lake is managed for brown trout and splake through an annual stocking program. Wild populations of chain pickerel and white perch are present in the lake providing warmwater sport fisheries. Rainbow smelt are present and are significant forage species for these gamefish. Smelts utilize tributaries to the lake for spawning runs. The East Branch Mattawamkeag River supports a limited wild brook trout population that is supplemented with hatchery trout in the Oakfield and Smyrna area.

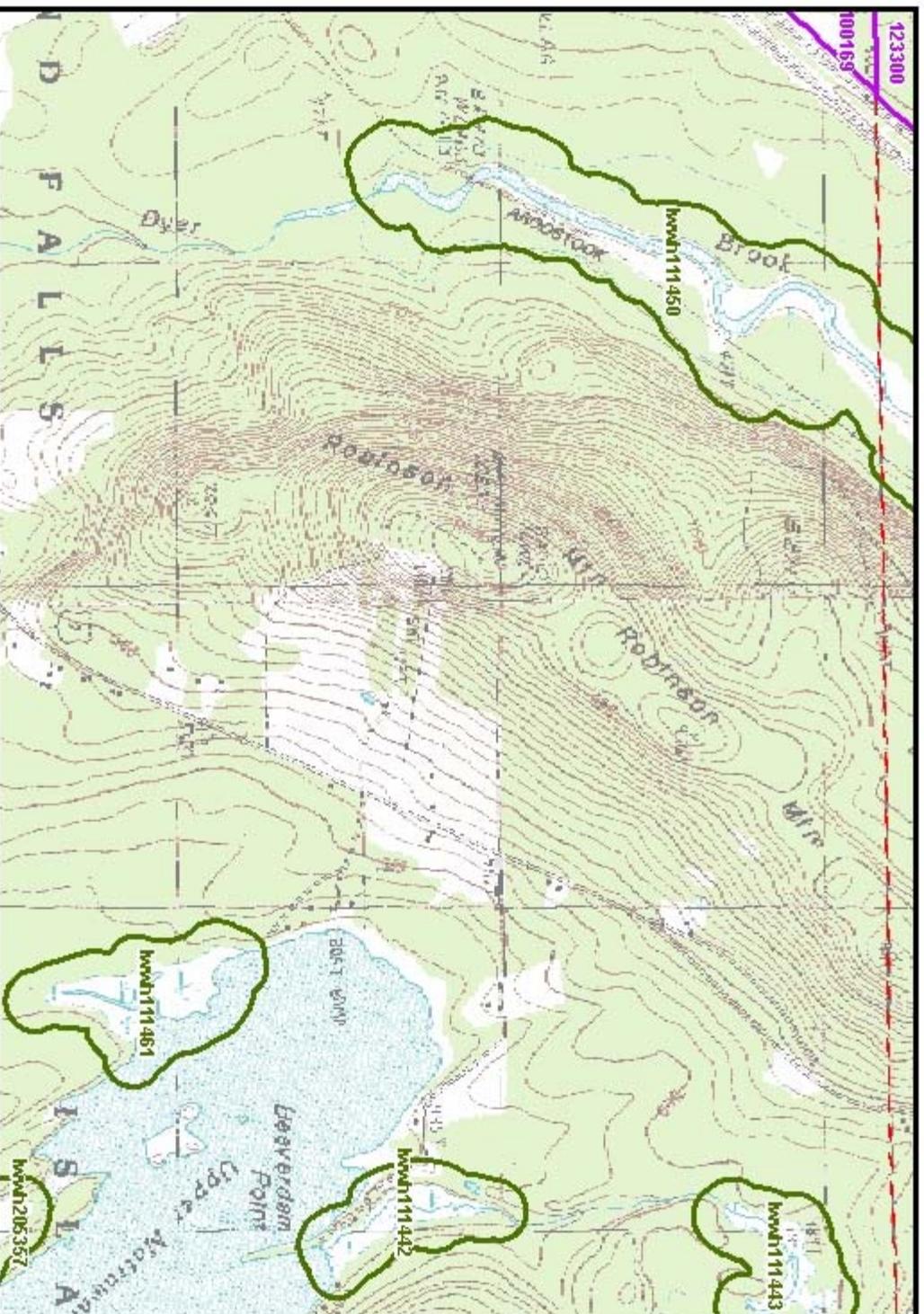
We would encourage great detail to road construction in accessing these areas for turbine installation and transmission lines to protect the surface water quality of surrounding lakes, rivers and brooks.

Thank you for the opportunity to review and comment on the fisheries resources in this proposed project area.

Sincerely,


David J. Basley
Regional Fishery Biologist

Stantec-IF



- Bald Eagle Nest Site
- Piping Plover / Least Tern Nesting, Feeding, & Brood-rearing Area
- Roseate Tern Nesting Area
- Deer Winter Area
- Inland Waterfowl / Wading Bird Habitat
- Tidal Waterfowl / Wading Bird Habitat
- Seabird Nesting Island
- Shorebird Area
- Significant Vernal Pool
- Endangered, Threatened, & Special Concern Species Habitat
- Township Boundary
- County



1 = 20,937

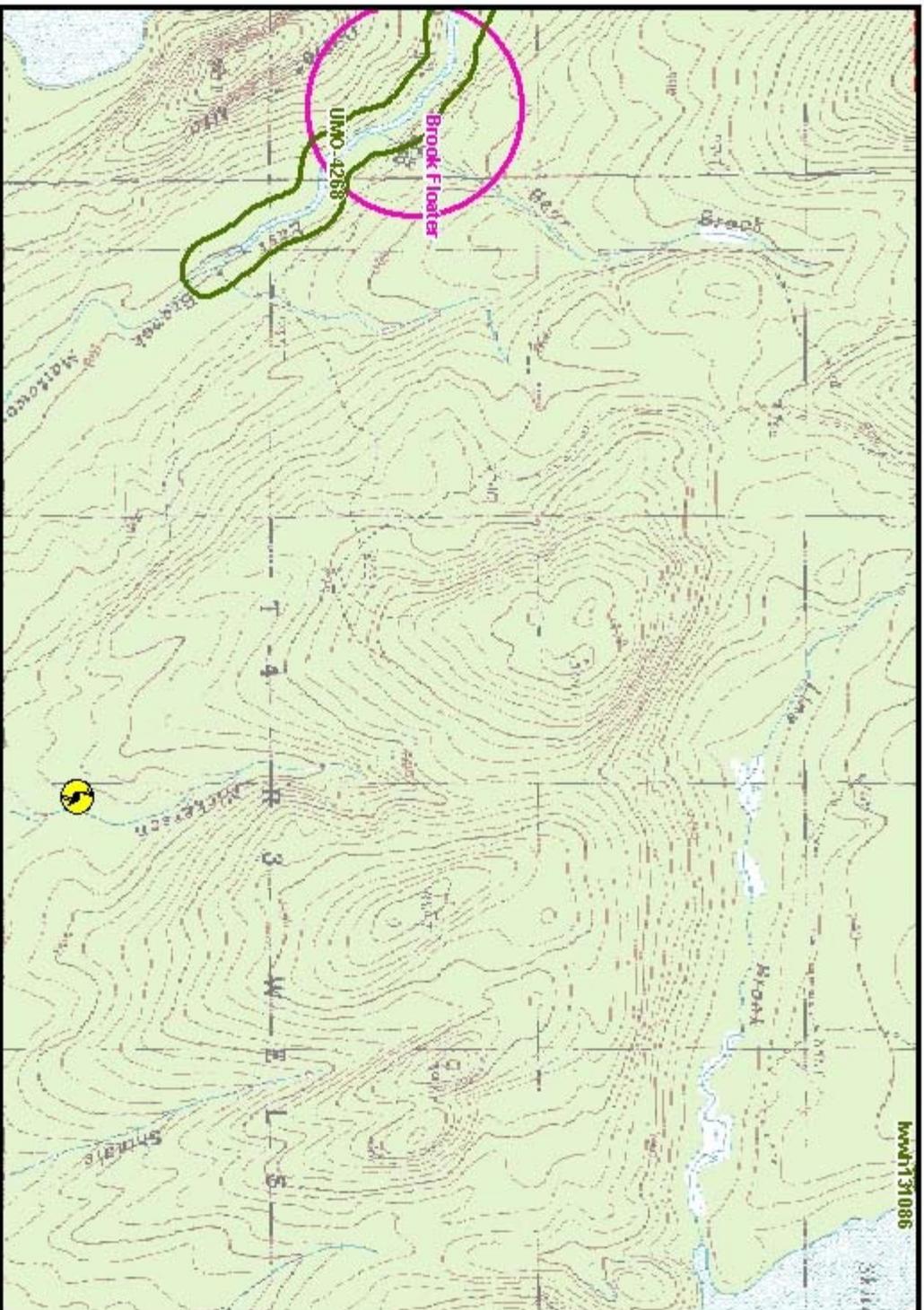
UTM Projection, Zone 19N, NAD83



73 Cobb Road
 Enfield, ME 04493
 Voice: (207) 732-4132
 Fax: (207) 732-4405
 March 11, 2010



Stantec-T4 R3 WELLS



- Bald Eagle Nest Site
- Piping Plover / Least Tern Nesting, Feeding, & Brood-rearing Area
- Roseate Tern Nesting Area
- Deer Winter Area
- Inland Waterfowl / Wading Bird Habitat
- Tidal Waterfowl / Wading Bird Habitat
- Seabird Nesting Island
- Shorebird Area
- Significant Vernal Pool
- Endangered, Threatened, & Special Concern Species Habitat
- Township Boundary
- County



1 = 25,235

UTM Projection, Zone 19N, NAD83



73 Cobb Road
 Enfield, ME 04493
 Voice: (207) 732-4132
 Fax: (207) 732-4405
 March 11, 2010



HOULTON BAND OF MALISEET INDIANS

Tribal Chief
Brenda Commander
Tribal Council
Crystal Tucker
Merlon Tomah
Linda Raymond
John Flewelling
Sandra Hayes
Joshua Toner

88 Bell Road
Littleton, ME 04730

Administration
Telephone:
(207) 532-4273
In State:
1-800-564-8524
Out-of-State:
1-800-545-8524
Fax:
(207) 532-2660

March 3, 2010

Brooke E. Barnes
Project Manager
Stantec Consulting
30 Park Drive
Topsham, ME 04086

RE: PN 195600518

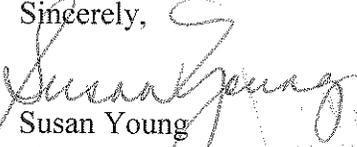
Mr. Barnes,

Thank you for your letter regarding Significant Historic Resources as it pertains to the proposed wind project in the Oakfield, Island Falls and Dyer Brook area.

We have no immediate interest in these sites, however, if in the course of this project archaeological remains or resources are discovered, you should immediately stop this project and report your findings to the appropriate state and federal agencies with a copy to my attention at the address listed above.

Should you have any questions, please do not hesitate to contact me directly at (207) 532-4273 ext. 202 or via email at ogs1@maliseets.com

Sincerely,


Susan Young
Natural Resources Director
Tribal Historic Preservation Officer



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Maine Field Office – Ecological Services
17 Godfrey Drive, Suite #2
Orono, ME 04473
(207) 866-3344 Fax: (207) 866-3351

FWS/Region 5/ES/MEFO

March 15, 2010

Brooke E. Barnes
Stantec Consulting
30 Park Drive
Topsham, ME 04086

Dear Ms. Barnes:

Thank you for your letter dated March 1, 2010 requesting resource information from the U.S. Fish and Wildlife Service (Service) for proposed wind power facility sites in Oakfield, Island Falls and Dyer Brook, Maine, as well as appurtenant transmission line corridors. We recommend that you consult the Service's interim guidance on wind energy development at <http://www.fws.gov/habitatconservation/wind.pdf>. We used the Service's interim guidance as a model for developing *Guidelines for Building and Operating Wind Energy Facilities in Maine Compatible with Federal Fish and Wildlife Regulations*, which are attached to this letter. We stepped down the national interim guidance to make the guidance more relevant for Maine wind energy developers. We provide these guidelines so you can make an informed decision regarding site selection, project design, and address the requirements of federal fish and wildlife legislation.

This letter provides the Service's response pursuant to Section 7 of the Endangered Species Act (ESA), as amended (16 U.S.C. 1531-1543), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250), and the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661-667d).

Project Name/Location: Oakfield, Island Falls & Dryer Brook wind facilities and transmission lines

Log Number: 53411-2010-SL-0133

Federally Listed Species

Atlantic salmon

This project occurs within the range of the Gulf of Maine Distinct Population Segment (GOM DPS) of Atlantic salmon (*Salmo salar*) in Maine, a federally-endangered species under the joint



jurisdiction of the Service and the National Marine Fisheries Service (NMFS) (74 FR 29344; June 19, 2009). The Atlantic salmon GOM DPS encompasses all naturally spawned and conservation hatchery populations of anadromous Atlantic salmon whose freshwater range occurs in the watersheds from the Androscoggin River northward along the Maine coast to the Dennys River and wherever these fish occur in the estuarine and marine environment. Also included in the GOM DPS are all associated conservation hatchery populations used to supplement these natural populations. Excluded are landlocked Atlantic salmon and those salmon raised in commercial hatcheries for aquaculture.

The proposed project site also occurs within a HUC-10 watershed (Mattawamkeag River 1&2, East Branch & West Branch Mattawamkeag, Penobscott River 2 at Mattawamkeag, and Penobscott River 1 at West Enfield) that has been designated as critical habitat for Atlantic salmon by NMFS (74 FR 29300; June 19, 2009). Critical habitat is designated to include all perennial rivers, streams, and estuaries and lakes connected to the marine environment within the designated watershed.

Please note that under Section 7 of the ESA, it is the federal action agency's responsibility to determine if a project may affect a federally listed species. For example, if the project receives federal funding or needs a federal permit, those actions may provide a "nexus" for Section 7 consultation under the ESA¹. If the federal action agency determines that a project would have "no effect" on a listed species or critical habitat, they do not need to seek the concurrence of the Service and there is no need for Section 7 consultation. If the federal agency determines that a project "may affect" a listed species or its critical habitat, then consultation pursuant to Section 7 of the ESA should be initiated. Please note, however, that there is no provision under Section 7 for consultation after a project has already been completed.

For Atlantic salmon and its critical habitat, NMFS and the Service share consultation responsibilities under Section 7 of the ESA. The Service generally handles projects in the freshwater component of the salmon's habitat and NMFS handles projects in the marine and estuarine environment (generally below the head of tide).

Based on the information currently available to us, no other federally-listed species under the jurisdiction of the Service are known to occur in the project area.

Canada lynx

The federally-threatened Canada lynx (*Lynx canadensis*) occurs throughout northern Maine and could occur in your project area. The proposed sites are outside of the lynx critical habitat and just outside the area we normally review federal funded and permitted projects for lynx. We are not aware of lynx occurrences in or near the proposed sites. The proposed project site is not within the area designated as critical habitat for the Canada lynx (74 FR 8616; February 25, 2009), but lynx may occur on or near your project area. Federal agencies permitting or funding your project should consult with the Service according to Section 7 of the ESA.

¹ Section 7 consultation, however, is only necessary when a federal agency takes a *discretionary* action (e.g., an agency has a choice of whether or not to fund or permit a particular project).

Canada lynx in Maine prefer to use regenerating spruce-fir habitats having high stem densities. These regenerating stands support high populations of snowshoe hare (*Lepus americanus*), the primary food of the Canada lynx. Highest hare densities are generally present about 12 to 30 years after clearcutting or heavy partial harvesting. Forest practices that diminish habitat quality for snowshoe hares may have an adverse affect on Canada lynx. We have developed *Canada lynx habitat management guidelines for Maine*. Please email (mark_mccollough@fws.gov) or call (207 866-3344 x115) if you are interested in obtaining a copy.

Wind power construction activities may cause adverse effects to the Canada lynx depending on the size and scale of habitat alteration a project may cause. Evaluations of boreal (spruce-fir) habitat and/or snow tracking surveys in the vicinity of proposed towers, roads, transmission lines, and other associated facilities would help assess the potential for the occurrence of lynx. Maine Inland Fisheries and Wildlife (MDIFW) conducted lynx snow track surveys in northern and western Maine in recent years. You should contact Jennifer Vashon, MDIFW lynx biologist (650 State Street, Bangor, ME 04401) to determine if surveys were conducted in your project area or nearby townships. Ultimately, this information will be needed by federal agencies permitting or funding your project to determine if adverse effects to lynx or critical habitat are anticipated. We ask that you share this information with the Service and federal permitting or funding agencies (Army Corps of Engineers or others) who are required to consult with the Service according to Section 7 of the ESA. We encourage project designs that will avoid and minimize adverse effects to lynx and their habitat.

Other Protected Species

Occasional, transient bald eagles may occur in the general project area. The bald eagle was removed from the federal threatened list on August 9, 2007 and is now protected from take under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. "Take" means to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb. The term "disturb" under the Bald and Golden Eagle Protection Act was recently defined within a final rule published in the Federal Register on June 5, 2007 (72 Fed. Reg. 31332). "Disturb" means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle; 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.

Further information on bald eagle delisting and their protection can be found at <http://www.fws.gov/migratorybirds/baldeagle.htm>.

Please consult with our new national bald eagle guidelines, which can found at <http://www.fws.gov/migratorybirds/issues/BaldEagle/NationalBaldEagleManagementGuidelines.pdf>. These Guidelines are voluntary and were prepared to help landowners, land managers and others meet the intent of the Eagle Act and avoid disturbing bald eagles. If you believe this project will result in taking or disturbing bald or golden eagles, please contact our office for further guidance. We encourage early and frequent consultations to avoid take of eagles.

We have not reviewed this project for state-threatened and endangered wildlife, wildlife species of special concern, and significant wildlife habitats protected under the Maine Natural Resources Protection Act. We recommend that you contact the Maine Department of Inland Fisheries and Wildlife:

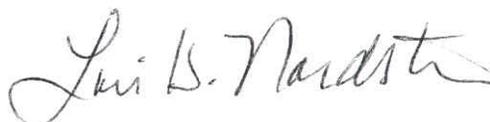
Steve Timpano
Maine Department of Inland Fisheries and Wildlife
284 State St.
State House Station 41
Augusta, ME 04333-0041
Phone: 207 287-5258

We also recommend that you contact the Maine Natural Areas Program for additional information on state-threatened and endangered plant species, plant species of special concern, and rare natural communities:

Lisa St. Hilaire
Maine Natural Areas Program
Department of Conservation
93 State House Station
Augusta, ME 04333
Phone: 207 287-8046

If you have any questions about this project, please contact Mark McCollough (Canada lynx and bald eagles) at (207) 866-3344 x115 or Wende Mahaney (wetlands and Atlantic salmon) at (207) 866-3344 x118.

Sincerely,



Lori H. Nordstrom
Field Supervisor

Enclosure :

- NOVEMBER 2009 USFWS WEND ENERGY GUIDELINES
- FEBRUARY 11, 2010 CANADA LYNX GUIDELINES

Appendix to Maine Field Office wind development guidelines

Canada lynx February 11, 2010

The federally-threatened Canada lynx occurs throughout northern Maine and could occur in or near your project area. Federal agencies funding or permitting wind projects are required to consult with Service according to Section 7 of the Endangered Species Act. Project effects on lynx must be addressed if your project occurs within the area depicted in Map 1. Within critical habitat (Map 2) federal agencies must ensure projects will not result in adverse modification of habitat. We recommend the following:

Pre-application

1. **Avoid adverse effects to lynx and their habitat** - A landscape analysis should be conducted to identify areas suitable for wind development that will not fragment or adversely affect current and future habitat of Canada lynx. University of Maine lynx and snowshoe hare habitat models (e.g. Hoving 2002, Robinson 2006, Simons, 2009, Scott 2009) and Maine Inland Fisheries and Wildlife lynx occurrence data are suggested sources of information. Project developers are encouraged to consult with the Service when locating potential sites.
2. **Contact the Service and permitting agency early and often** - Once a site is selected for potential development (prior to placement of met towers) wind developers and their consultants should contact our office requesting information on federally-listed species in the area. It is important that projects be identified as potential wind energy projects so that we provide the best scientific information and guidance.
3. **Document lynx occurrence** - We recommend at least three preconstruction winter snow tracking surveys for Canada lynx be conducted in the township(s) where turbines, roads, transmission lines, and other associated facilities are proposed. Surveys should follow MDIFW lynx snow tracking protocol. If surveys are not conducted, Canada lynx will be assumed to be present at high densities. Study design of snow track surveys should be discussed with the Service.
4. **Document lynx habitat** - Current and future lynx habitat should be identified and mapped in the vicinity of the project footprint and surrounding landscape. Canada lynx in Maine prefer to use regenerating spruce-fir habitats having high stem densities. These regenerating stands support high populations of snowshoe hare, the primary food of the Canada lynx. Highest hare densities are generally present about 12 to 30 years after clearcutting or heavy partial harvesting. Sources of information necessary to map habitat include landowner stand maps (regenerating softwood and softwood dominated stands, mature softwood (future habitat)), aerial photo interpretation, and satellite imagery (Simons 2009, Scott 2009). Habitat mapping methods should be discussed with the Service.
5. **Evaluate risk to lynx and their habitat** - Characterize habitat present in the project area in relation to surrounding landscape. Review literature of lynx movements in relation to wind projects or similar development. Is project construction likely and operation likely to displace lynx from their habitat? At a minimum, wind developers should document

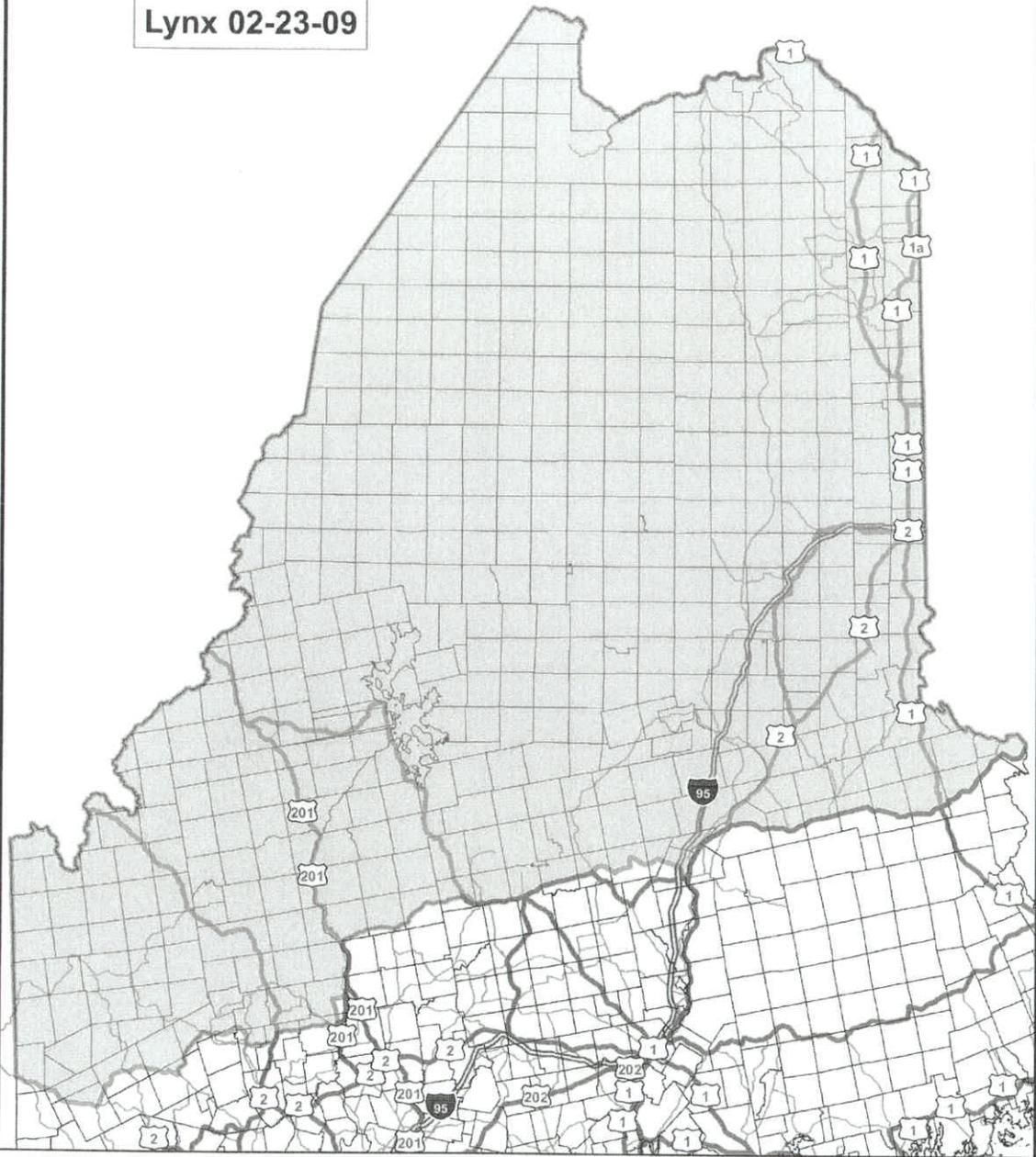
total project footprint, acres of lynx habitat within the project footprint, miles of new road, and miles of new road in lynx habitat. Fragmentation of large blocks of lynx habitat should be documented. Anticipated traffic volumes and speed (construction and post-construction) should be documented. Direct, indirect, and cumulative effects on lynx should be analyzed (including disturbance effects on lynx).

6. **Avoid and minimize effects to lynx.** The Service will consult with federal agencies funding, implementing, or permitting wind projects. Projects that are likely to adversely affect or take lynx will require formal consultation and a biological opinion, which may require up to 130 days after all materials have been submitted. Projects that avoid adverse effects will require informal consultation, which can be completed in a much shorter period of time. Through informal or formal consultation, the Service will make recommendations to federal permitting or funding agencies that may further avoid or minimize effects to Canada lynx and their habitat. These recommendations may become permit conditions. Avoidance measures may include gating new roads to avoid introducing new sources of lynx mortality, revegetating disturbed areas and maintain young forest habitat to create snowshoe hare habitat, and limiting speeds of vehicles to reduce likelihood of vehicle mortality. In some instances, mitigation may be warranted to compensate for adverse effects to Canada lynx and their habitat.
7. **Restore habitat** - A vegetation management plan for restoring and maintaining turbine pads, roadsides, and transmission line corridors should be prepared. A habitat restoration plan for the conclusion of the project should be prepared.

Post-construction

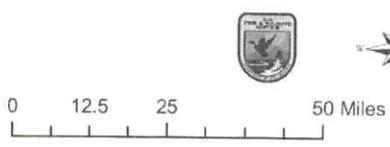
1. **Document lynx response to wind projects.** In some instances post-construction snow tracking surveys should be conducted to document lynx distribution and habitat use after the wind project is operational (compare to pre-construction baseline studies). Extent and duration of surveys should be discussed with the Service. Radio-telemetry studies and other research techniques may be warranted to document lynx movements and habitat use in relation to wind development.
2. **Adaptive management** – To date, the Service is unaware of scientific studies of the direct and indirect effects of wind on Canada lynx (or any land mammal). We encourage the wind industry to work with the Service to document response of land mammals (particularly Canada lynx) to wind projects and locate and share published and unpublished reports. An adaptive management plan, including long-term monitoring, may be warranted to address uncertainty.

Lynx 02-23-09



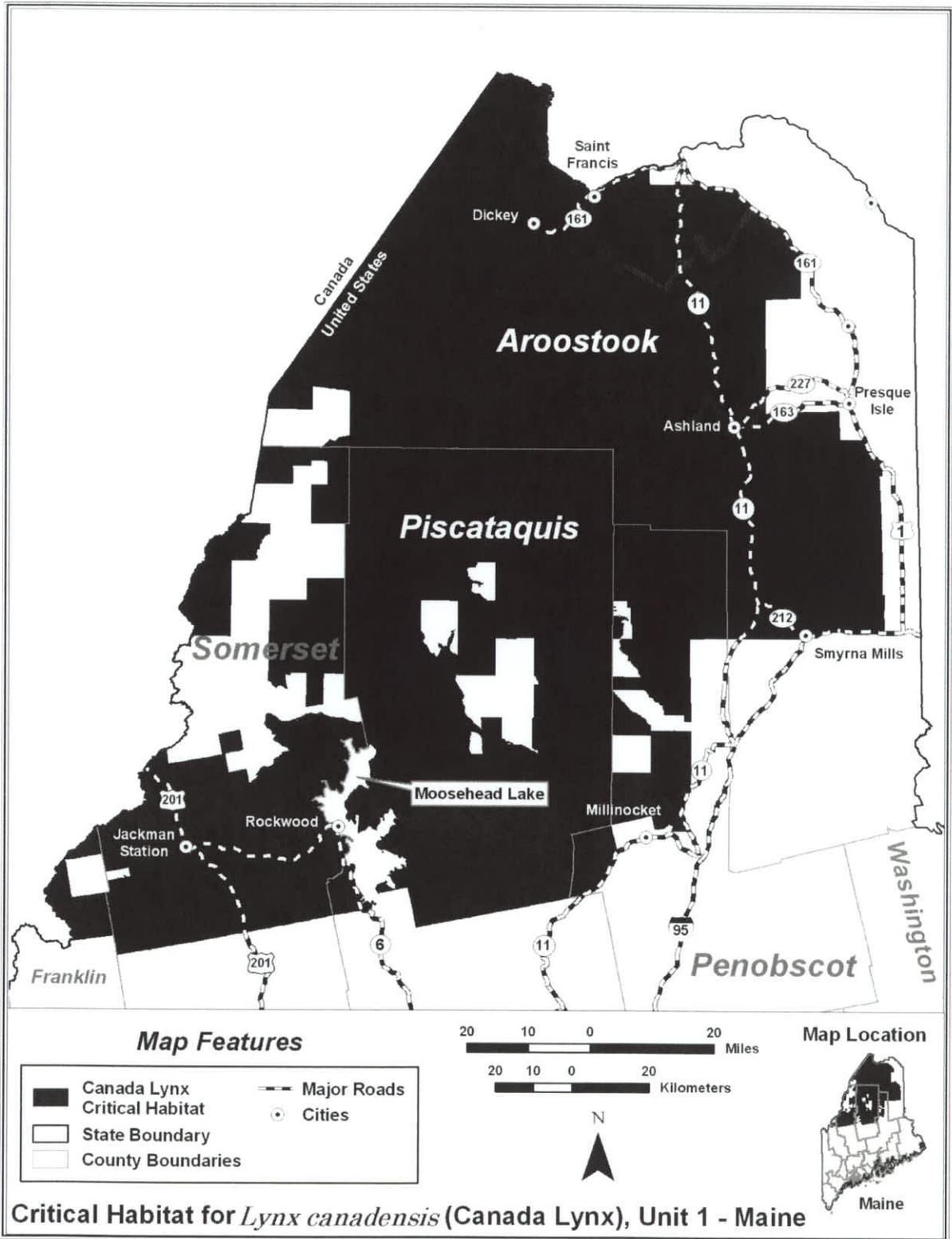
Legend

 Canada_Lynx_Review_Area_2008



Data from USFWS, MDIFW & MNAP.

Data map made; file name: map maker.





United States Department of the Interior



FISH AND WILDLIFE SERVICE

Maine Field Office – Ecological Services
17 Godfrey Drive, Suite #2
Orono, ME 04473
Phone: (207) 866-3344 Fax: (207) 866-3351

Guidelines for Building and Operating Wind Energy Facilities in Maine Compatible with Federal Fish and Wildlife Regulations

Developed by the Maine Field Office, U. S. Fish and Wildlife Service
November, 2009

Background: Wind energy is renewable, produces no emissions, and can be an environmentally friendly technology. Development of wind energy is endorsed by the Secretary of the Interior. However, wind energy facilities can adversely affect fish and wildlife and their habitats. The Service's mission is conservation of fish and wildlife in the public trust. Our goals are to ensure renewable energy is fish, wildlife and habitat friendly and to make informed decisions and recommendations based on sound environmental assessment. Project review and permitting will be expedited when projects avoid, minimize, and mitigate adverse effects to federal trust resources.

Proper siting of turbines continues to be our most critical concern related to wind energy development - both to avoid and minimize wildlife mortality and habitat fragmentation. As more facilities are built, the cumulative effects of this rapidly growing industry may initiate or contribute to the decline of some wildlife populations. The potential harm to these populations from an additional source of mortality makes careful evaluation of the siting and effects of proposed facilities essential.

The Service is currently participating on a Federal Advisory Committee to develop national guidelines for site selection, evaluation, construction, and operation of wind energy facilities across the country. These new guidelines will be posted on the Service's national wind energy web page (<http://www.fws.gov/habitatconservation/wind.html>). Until new guidelines are prepared, wind energy developers and their consultants should consult the Service's *Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines* (2003) are available at the same website.

Purpose: We provide these guidelines so you can make an informed decision regarding site selection, project design, and address the requirements of federal fish and wildlife legislation. These guidelines also provide information on Service wind energy guidance documents and wildlife species that we consider during the formal consultation process for construction projects. We hope this information assists you during your initial pre-site considerations and project design and encourage you to consult with us early in your wind energy development process. The project review and permitting process will proceed more quickly if projects avoid, minimize, and mitigate adverse effects to federal trust resources. We used the Service's interim guidance



as a model for developing the guidance that follows, but stepped them down to make the guidance more relevant for Maine wind energy developers.

Legal authorities: This guidance advises you of federal wildlife laws applying to wind power, including the Endangered Species Act as amended (16 U.S.C. 1531-1543), Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250), and Migratory Bird Treaty Act (16 U.S.C. 703-712).

Endangered Species Act (ESA): Under Section 7 of the ESA federal agencies that permit or fund wind energy projects must determine if a project may affect federally listed species. If the federal agency determines that a project has “no effect” on a listed species or their critical habitat, they do not need to seek the concurrence of the Service. If the federal agency determines that a project is “not likely to adversely affect” a listed species, the agency must explain the basis for their determination and seek the written concurrence of the Service. Projects that have an “adverse effect” on a listed species require formal Section 7 consultation with the Service.

Unauthorized take of federally-listed species is prohibited under Section 9 of the ESA. If take of a listed species is anticipated, wind developers are encouraged to contact the Service to discuss obtaining an incidental take permit under Section 10 of the ESA, which involves developing a Habitat Conservation Plan.

Several federally listed species could be affected by wind power projects in Maine. The federally-threatened Canada lynx occur throughout northern Maine. Critical habitat was designated in March 2009 in northwestern Maine. The endangered Atlantic salmon Gulf of Maine Distinct Population Segment encompasses all naturally spawned and conservation hatchery populations of anadromous Atlantic salmon whose freshwater range occurs in the watersheds from the Androscoggin River northward along the Maine coast to the Dennys River and wherever these fish occur in the estuarine and marine environment. Critical habitat was designated throughout much of this area in June 2009. The federally threatened piping plover and roseate tern nest along the coast of Maine. Other federally-listed species occur in Maine and could occur in your project area.

Bald and Golden Eagle Protection Act (BGEPA): Although the bald eagle has recovered such that it no longer is protected under the ESA (August 9, 2007), it remains protected from take under the Bald and Golden Eagle Protection Act (BGEPA)(16 U.S.C. 668-668d) and the Migratory Bird Treaty Act (16 U.S.C. 703-712). “Take” means to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb. The term “disturb” under the BGEPA means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle; 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior (72 FR 31332, June 5, 2007). It is the responsibility of landowners and project proponents to determine whether their project will take or disturb eagles. A permit is necessary to avoid potential liability for take.

The U.S. Fish and Wildlife Service prepared National Bald Eagle Management Guidelines (<http://www.fws.gov/migratorybirds/CurrentBirdIssues/NationalBaldEagleManagementGuidelines.pdf>) to help landowners, land managers and others meet the intent of BGEPA and avoid disturbing bald eagles. Please note that our National Bald Eagle Guidelines do not provide guidance for large development projects like wind power projects.

The Service published a final rule explaining policies and procedures for applying for incidental take permits under the BGEPA (FR 74 46836-46879), which became effective on November 10, 2009. Draft *Implementation Guidance for Eagle Take Permits* will soon be distributed for public notice and comment and will provide further details on application requirements and procedures. The Service will soon release new national *Draft U. S. Fish and Wildlife Service Raptor Conservation Measures* for public notice and comment, which will specifically address lethal infrastructure projects such as wind power. The measures will also provide the interim guidance for golden eagle disturbance until species-specific guidance can be developed.

With extensive habitat and over 500 nesting pairs of bald eagles in Maine, nesting, migrating, wintering, summering, and transient bald eagles occur throughout the state. Maine was the last state to support nesting golden eagles in the eastern U. S. (up to 1999), and a small (100+ pairs), but growing population nests immediately north in Quebec and Labrador. Golden eagles nest in the Gaspé region of Quebec, have been seen in Maine in recent years during the breeding season, and may reoccupy Maine in the future.

Migratory Bird Treaty Act (16 U.S.C. 703-712; MBTA): The MBTA prohibits the taking of migratory birds, their eggs, parts, and nests. While the MBTA has no provision for allowing an unauthorized take, we recognize that some birds may be killed at structures such as wind turbines even if all reasonable measures to avoid take are implemented. We encourage wind power proponents to utilize the Service's wind energy guidelines, complete appropriate pre- and post-construction studies, and to site and operate wind projects to avoid and minimize take of migratory birds.

Bats: There are no federal regulations protecting bats, however, the Service encourages you to incorporate measures to avoid and minimize risk to bats. The federally endangered Indiana bat is not known to occur in Maine.

Some wind energy projects have been especially injurious to bats. Foremost, the potential exists for death to bats from collision or "barotraumas" (low pressure damage to lungs) within the rotor-swept area of wind turbines. The potential for mortality of bats is affected by many factors but location of the wind turbines seems to be one of the most important. The potential for harm makes careful evaluation of wind facilities essential.

Wetlands: Your project will likely require bridging, filling, or degrading certain wetlands or other waters of the United States under jurisdiction of section 404 of the Clean Water Act, which may require permits be acquired from the U.S. Army Corps of Engineers. The Corps of Engineers requires project proponents to avoid, minimize, and mitigate wetland impacts, and the Service strongly supports this sequential approach to permitting. The federal "nexus" of wetland

permitting by the Army Corps may require ESA consultation. The Service may provide recommendations to the Army Corps to avoid and minimize effects to fish and wildlife in issuing Clean Water Act permits.

Organization: The following guidelines provide Maine wind project developers with methods to assess potential effects, design, and operate a wildlife-friendly wind facility. We have organized these steps into three stages of wind facility development:

Stage 1: Site evaluation and selection

Stage 2: Project design and construction

Stage 3: Facility operation, monitoring, and adaptive management.

Each proposed wind power development site is unique and requires detailed, individual evaluation. We encourage wind energy proponents to develop site evaluation and pre- and post-construction surveys simultaneously with the Service, Maine Department of Inland Fisheries and Wildlife (MDIFW), and appropriate state and federal agencies. Site evaluations are important to select appropriate areas for wind development where adverse effects to wildlife and habitats can be avoided or minimized. Preconstruction surveys may allow for the project to be designed in such a way to further avoid or minimize impacts. As with all development projects, we encourage wind developers to consult early and consult often with our field office to minimize impacts to fish and wildlife. Doing so will facilitate permit review and result in compliance with federal legislation.

Stage 1: Site Evaluation and Selection

The first step in the assessing potential wind power sites is to conduct a regional evaluation of possible project locations to avoid adverse effects to fish and wildlife resources, wetlands, and sensitive ecosystems. Large project developers of all kinds typically conduct a regional evaluation of potential sites using information in the public domain and contacts with the Service, MDIFW, Maine Natural Areas Program, and other agencies. Wind developers are encouraged to use the site evaluation protocol in Appendix 1 of the *Service's Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines*. Information should be evaluated on federal and state-listed species and their critical habitats; bald and golden eagles; migration corridors for birds, bats, and other wildlife; characterization of wildlife habitats present including wetlands; and proximity to state or national parks or wildlife refuges. If state and federal agencies lack data on these natural resources, project proponents are encouraged to seek help in designing studies to secure this information. The purpose of this reconnaissance is to identify and exclude sites with special designation and/or particularly high risks to fish and wildlife, identify sites that may be promising for wind power, and ultimately select a site that meets the wind developer's requirements while avoiding and minimizing impacts to fish and wildlife.

Stage 2: Project Design and Construction

After an appropriate wind development site is selected where impacts to fish and wildlife remain a concern, attention should be given to avoiding and minimizing impacts to fish and wildlife

through careful project design. If endangered species are present, consultation should begin with federal permitting agencies and the Service.

The following recommendations for wind energy development in Maine are intended to assist developers who are in the planning and design process. These recommendations will further avoid and minimize adverse effects to wildlife and their habitats and may evolve over time as new federal guidelines are developed and additional experience, monitoring and research, and adaptive management practices document how best to avoid and minimize impacts to wildlife. The Service will work with developers, the State, and other stakeholders to evaluate, revise, and update these recommendations. If necessary, additional recommendations may be made to address site-specific concerns.

Recommendations for addressing wildlife concerns in the development of wind energy projects in Maine.

1. When sites are being considered for potential wind power development (prior to placement of met towers) we encourage developers and their consultants to promptly contact our office to request information on federal trust species in the area. It is important that you identify your project as a potential wind energy project so that we can provide you with the best information and recommendations. The Service recommends development and agency review of pre-construction study plans that describe proposed assessments for endangered species, bald and golden eagle, migratory bird, wetland and other natural resources of concern.
2. To address the Endangered Species Act we will likely require surveys and/or habitat assessments for federally-listed species. These evaluations will be used by the federal agency authorizing, implementing, or funding the project to complete their evaluation of effects on listed species. If there is no federal connection to the project this information can be used to identify whether there is a risk of incidental take such that an incidental take permit may be necessary. Survey design may vary between sites in extent, methodology, and duration according to species and site. Survey designs should be developed with the Service to assure proper methods are being used and to determine where to focus additional investigations. Pre-construction surveys, whether in progress or completed, do not imply the Service's sanction for development of a site.
3. To address the Bald and Golden Eagle Protection Act we recommend surveys begin at least two years in advance of anticipated project construction to identify important eagle feeding, roosting, nesting or wintering areas eagle areas within four miles of your project area. Four miles is an average distance that Maine bald eagles may be expected to travel within their nesting territory or from roosting, foraging, or wintering areas.

If important eagle areas are identified by MDIFW or the Service or discovered via surveys, we recommend two years of pre-construction studies be completed to obtain baseline information on eagle nest productivity, document use of feeding, roosting, nesting or wintering areas, documenting movements in relation to proposed turbine locations (including an analysis of spatial use in relation to rotor swept zone), numbers

moving through the project area, movements in relation to meteorological conditions, and phenology of movements. For proposed wind projects located within four miles of eagle nests, we recommend that eagle movement studies be conducted for two years for at least 20 days each nesting season when adult eagles and their fledged young are most active (June through early October). Migrating eagle information should be collected as part of raptor migration surveys (see recommendation #4).

The purpose of surveys is to document the use and location of important eagle areas in relation to the proposed infrastructure, document eagle use of the project area, and ensure proper siting and placement of infrastructure to avoid take of eagles. For example, wind turbines sited between several bald eagle territories and a river that serves as the eagle's primary feeding area will have a higher risk of mortalities than it would if sited outside of the flight path of the eagles.

Eagle migration and movement data should be used to develop a quantitative risk assessment to determine likelihood of take of bald and golden eagles. If the risk assessment suggests that incidental take of eagles is likely, developers should employ measures to avoid take of eagles. Developers are advised to seek a BGEPA incidental take permit from the Service if take or disturbance cannot be avoided. Under a BGEPA permit, developers will likely be requested to conduct long-term post-construction studies of behavioral response to wind turbines, and monitoring of mortality, injury, and productivity so that the effects of the wind project on eagles can be monitored and understood. Additionally, an adaptive management plan likely will be required to regularly review and analyze eagle data, meet with the Service to discuss results, and develop appropriate measures to further reduce take of eagles. Mitigation for take may be necessary.

If the risk assessment suggests that take of eagles is not likely, but important eagle feeding, roosting, nesting or wintering areas are nearby or migratory eagles frequent the area, then long-term monitoring would be advised to periodically reassess risk to eagles under BGEPA.

4. To address Migratory Bird Treaty Act and bat concerns, we concur with recommendations for migratory bird and bat surveys found in MDIFW and Maine Department of Environmental Protection (MDEP) *Methodologies for Evaluating Bird and Bat Interactions with Wind Turbines in Maine*, Attachment H (http://www.maine.gov/doc/mfs/windpower/pubs/report/wind_power_task_force_rpt_final_021408.pdf).

Bird and bat survey information will be used by the Service to evaluate and comment on overall site suitability, siting of turbines and other infrastructure, habitat fragmentation, and risk to birds and bats. In addition survey data may be used to inform permit review with other agencies, permit conditions, design and duration of post-construction studies, and adaptive management programs.

5. We encourage wind developers and their consultants to review and incorporate the Service's *Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines* (2003) (<http://www.fws.gov/habitatconservation/wind.pdf>) This document

provide robust data on environmental impacts that are comparable between the pre- and post-construction condition. Wind energy proponents should develop the post-construction study plan simultaneously with the Service and MDIFW. By doing so, federal and state regulatory agencies and the developer have a reasonable expectation of the operational measures to be employed if significant bird and bat mortality occurs. Examples of additional measures may include habitat manipulation and management on and around the project site, radar monitoring coinciding with migration, and discontinuing turbine operation during high risk conditions.

2. Post-construction mortality studies for birds and bats should be conducted for 2 to 3 years (both spring and fall migration seasons) within 5 years of initiating operation of a wind project. These studies should follow the MDIFW-DEP *Methodologies for Evaluating Bird and Bat Interactions with Wind Turbines in Maine*. Developers should consult with the Service and MDIFW when varying from recommended methodologies. Adaptive management, as described in the post-construction plan, should be employed to revise methodologies as new information is obtained.
3. Take of endangered species and bald and golden eagles should be reported to the Service within 24 hours of discovery. Migratory bird and bat mortality events of >25 individuals over a 24-hour period should be reported to the Service within 24 hours of discovery. Otherwise, bird and bat mortalities should be summarized in reports provided to the Maine Field Office at least annually.

In summary, the guidelines provided above and the Service's *Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines* (2003) are intended to guide wind power developers in Maine while protecting federal trust fish, wildlife and their habitats.

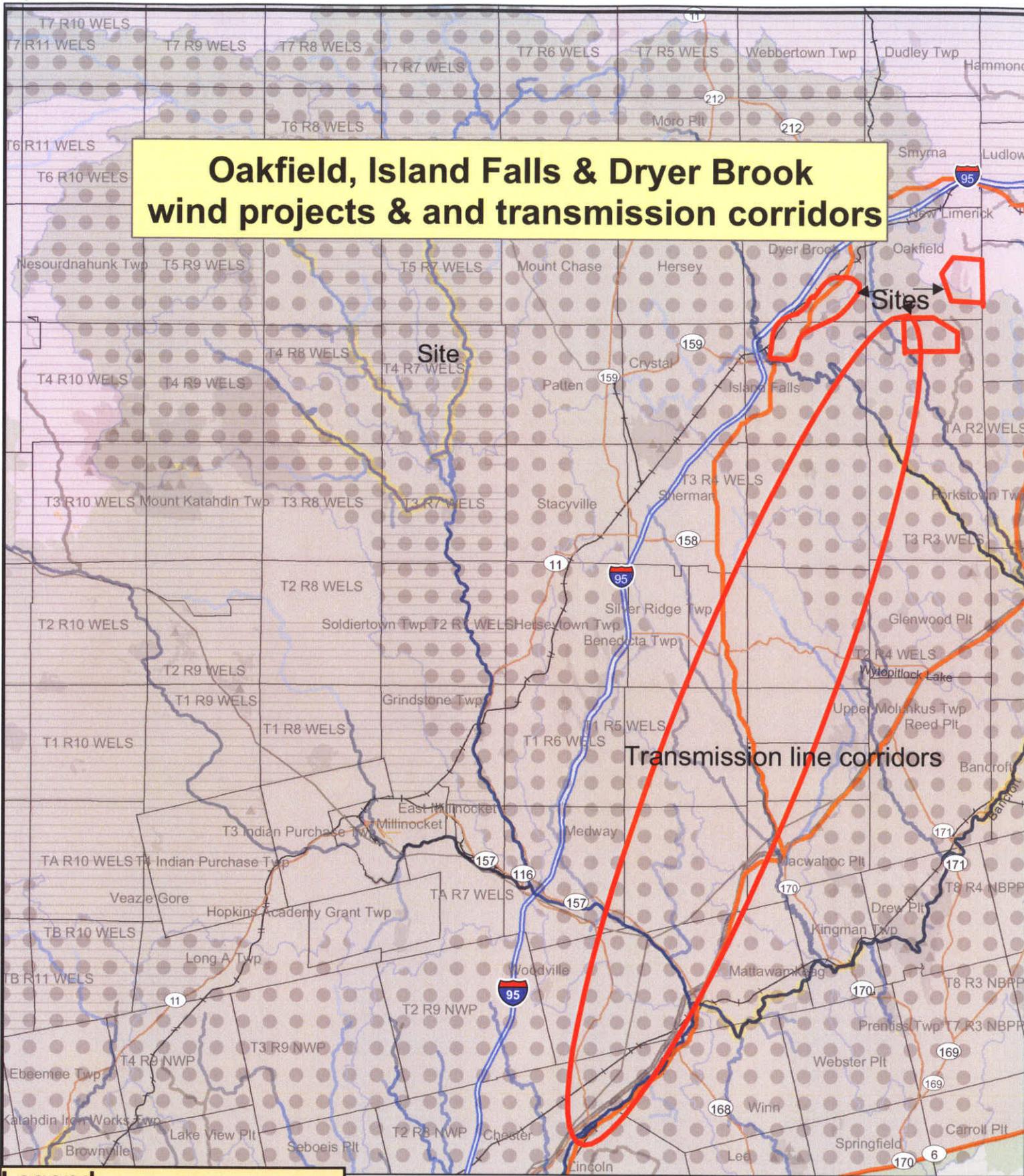
If you have any questions, please call or email:

Lori Nordstrom, Project Leader at (207) 866-3344 x111, lori_nordstrom@fws.gov

Mark McCollough, endangered species biologist (Canada lynx, Furbish's lousewort, roseate terns, piping plovers, and bald eagles) at (207) 866-3344 x115 mark_mccollough@fws.gov

Wende Mahaney, wetland and endangered species biologist (Atlantic salmon) at 866-3344 x118, wende_mahaney@fws.gov

Oakfield, Island Falls & Dryer Brook wind projects & transmission corridors



Legend

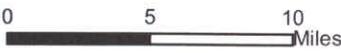
- Canada Lynx Section 7 review
- Canada Lynx Critical Habitat
- ATS Critical_Habitat_by_HUC10
- ATS GOM_DPS







Area of detail



0 5 10 Miles

Data from USFWS, MDFW & MNAP.



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JOHN ELIAS BALDACCI
GOVERNOR

DAVID P. LITTELL
COMMISSIONER

March 10, 2010

Brooke E. Barnes, Project Manager
Stantec Consulting
30 Park Drive
Topsham, ME 04086

Re: Advisory Opinion- Significant Resources associated with Oakfield, Island Falls, Dyer Brook, and other areas depicted on maps

Dear Brooke,

This letter is in response to a letter submitted by you on March 1, 2010 asking for information on resources for the proposed electrical transmission lines in the Southern Aroostook, Eastern Penobscot area. I have attached a series of maps (32 in all) showing significant resources printed on them associated with the Natural Resources Protection Act Chapters 310 (Wetlands and Water bodies) and Chapter 335 (Significant Wildlife Habitat).

I have included 2 maps for each approximate township provided in your letter. The first map for each approximate township area shows mapped wetlands and streams/rivers. The second map provided shows areas of Inland Wading Bird Habitat. Please note that not all areas of this proposed project lie in the jurisdiction of the DEP. The unorganized portions of the project lie in LURC territory and are subject to LURC regulations. It is also important to note that streams and rivers flowing in organized municipalities may be subject to Shoreland Zoning and may have different setbacks as detailed in the Natural Resource Protection Act. Please contact town officials in the towns affected by the project for such information regarding shoreland zoned bodies of water. Maps 1-4 Show the 3 Towns, Maps 5-18 Show the route of the Potential Transmission line and Maps 19-32 show the route of Line Corridors.

It is also important to note that all information provided is for informational purposes only and that any project submitted to the DEP for review, must include wetland surveys from qualified professionals including vernal pool information. Please contact the US Army Corps of Engineers regarding federal rules on wetlands and navigable waters as well as any other local and state regulatory agencies regarding natural resources.

Important information regarding these resources associated with wildlife habitat may also be obtained from the Inland Fisheries and Wildlife Department, Please contact Biologist Rich Hoppe in the Ashland, Maine office @ (207) 435-3231.

I hope this serves your immediate need for information regarding this matter. Please contact me if I can be of further assistance (207) 764-0477.

Sincerely,

Eric Hitchcock, Maine DEP
Bureau of Land and Water Quality
Div. of Land Resource Regulation

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826
RAY BLDG., HOSPITAL ST.

BANGOR
106 HOGAN ROAD
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769-2094
(207) 764-0477 FAX: (207) 760-3143

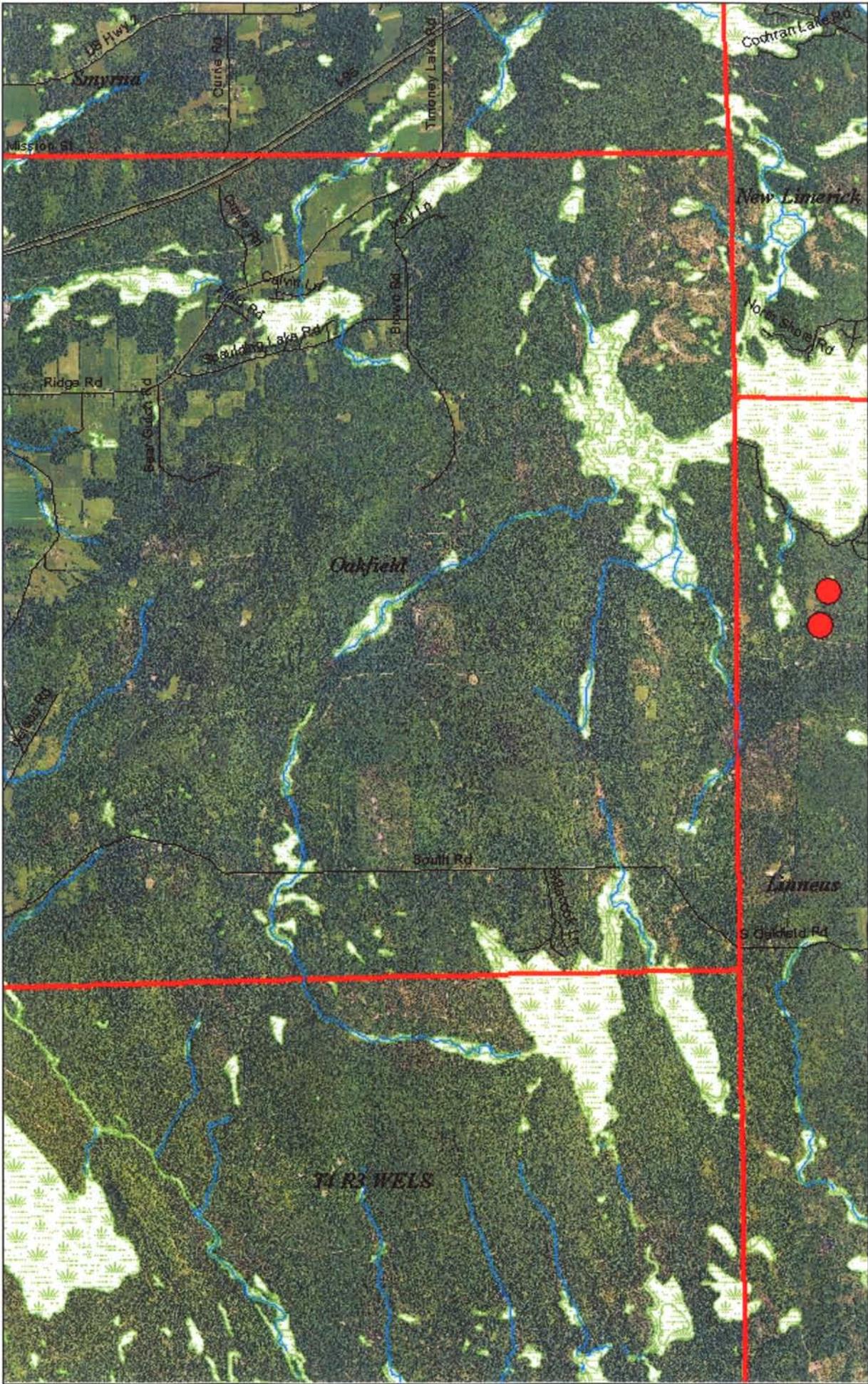


MAP 1

**Oakfield, ME
Inland Wading
Bird Habitat**

1:58,916
1 inch = 4,909.7 feet





MAP 2
Oakfield, ME
Streams and
Wetlands

1:58,916
1 inch = 4,909.7 feet





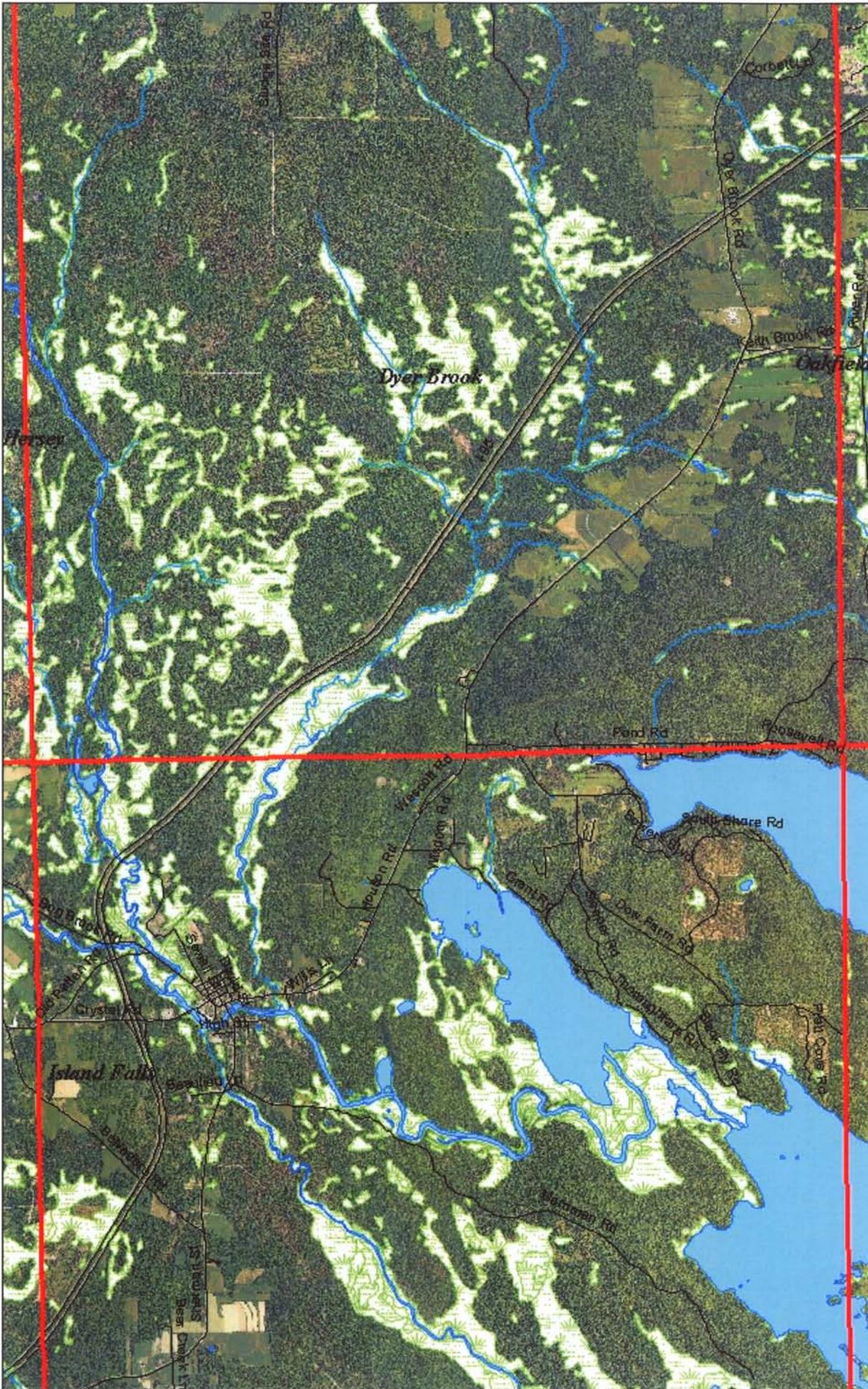
Map 3

**Dyer Brook, ME
Island Falls, ME**

**Inland Wading
Bird Habitat**

1:65,716
1 inch = 5,476.31 feet



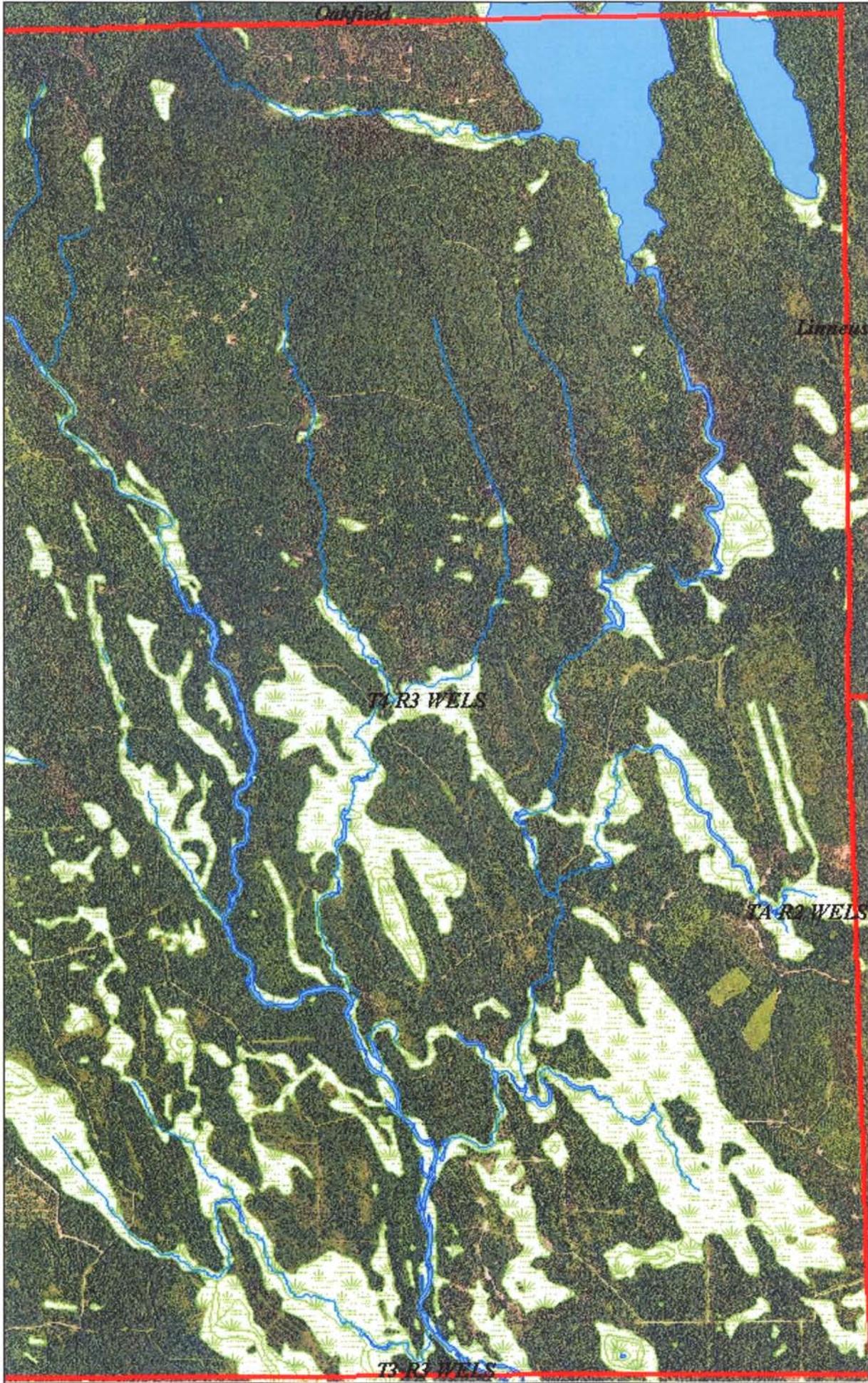


Map 4
Dyer Brook, ME
Island Falls, ME
Streams and Wetlands

1:65,716
1 inch = 5,476.31 feet



Outfield



Map 5

T4 R3, ME

Streams and
Wetlands

1:40,000
1 inch = 3,333.33 feet



T4 R3 WELS

T4 R2 WELS

T3 R3 WELS

Oakfield

Map 6

T4 R3, ME

Inland Wading
Bird Habitat

Linneus

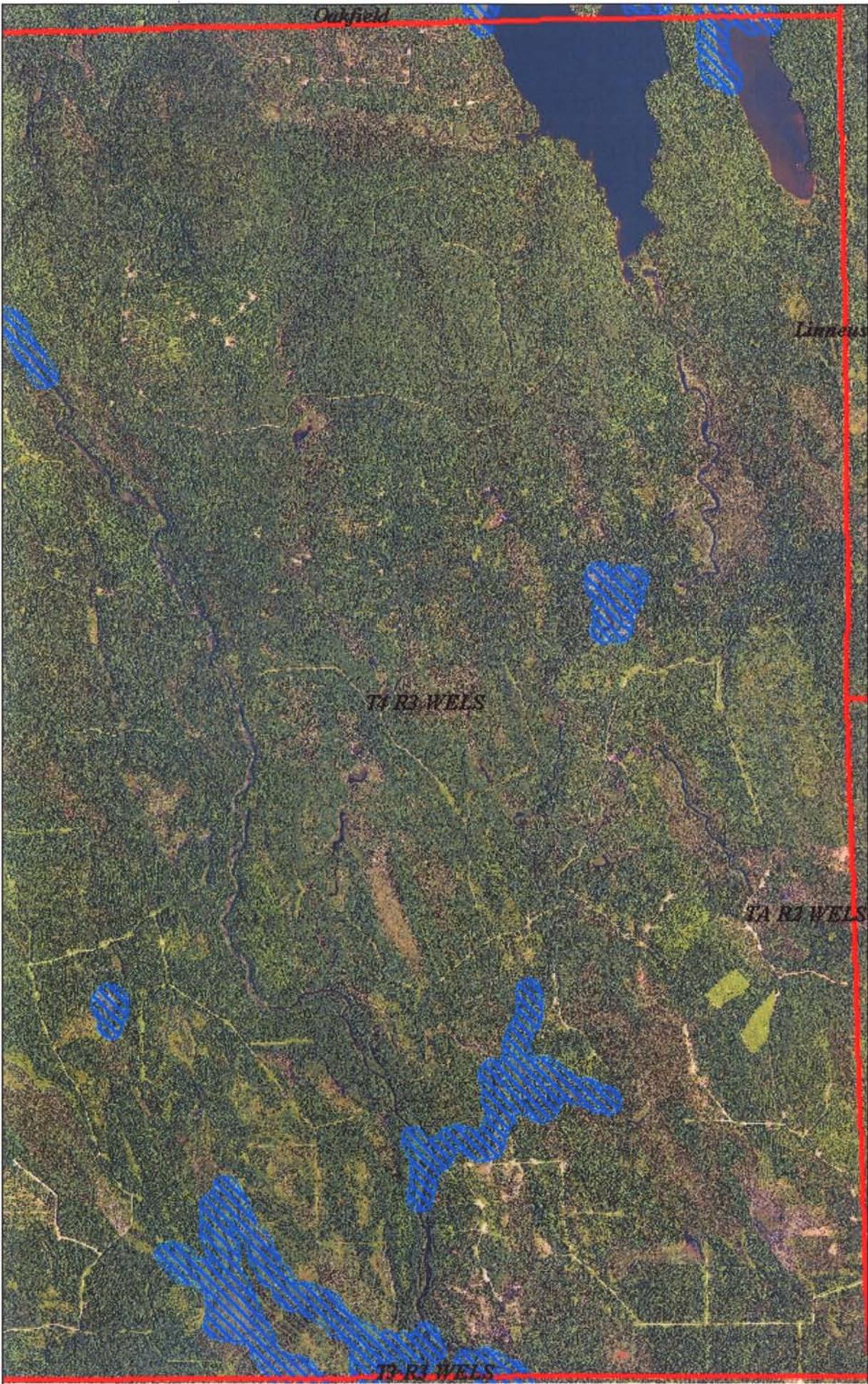
1:40,000
1 inch = 3,333.33 feet

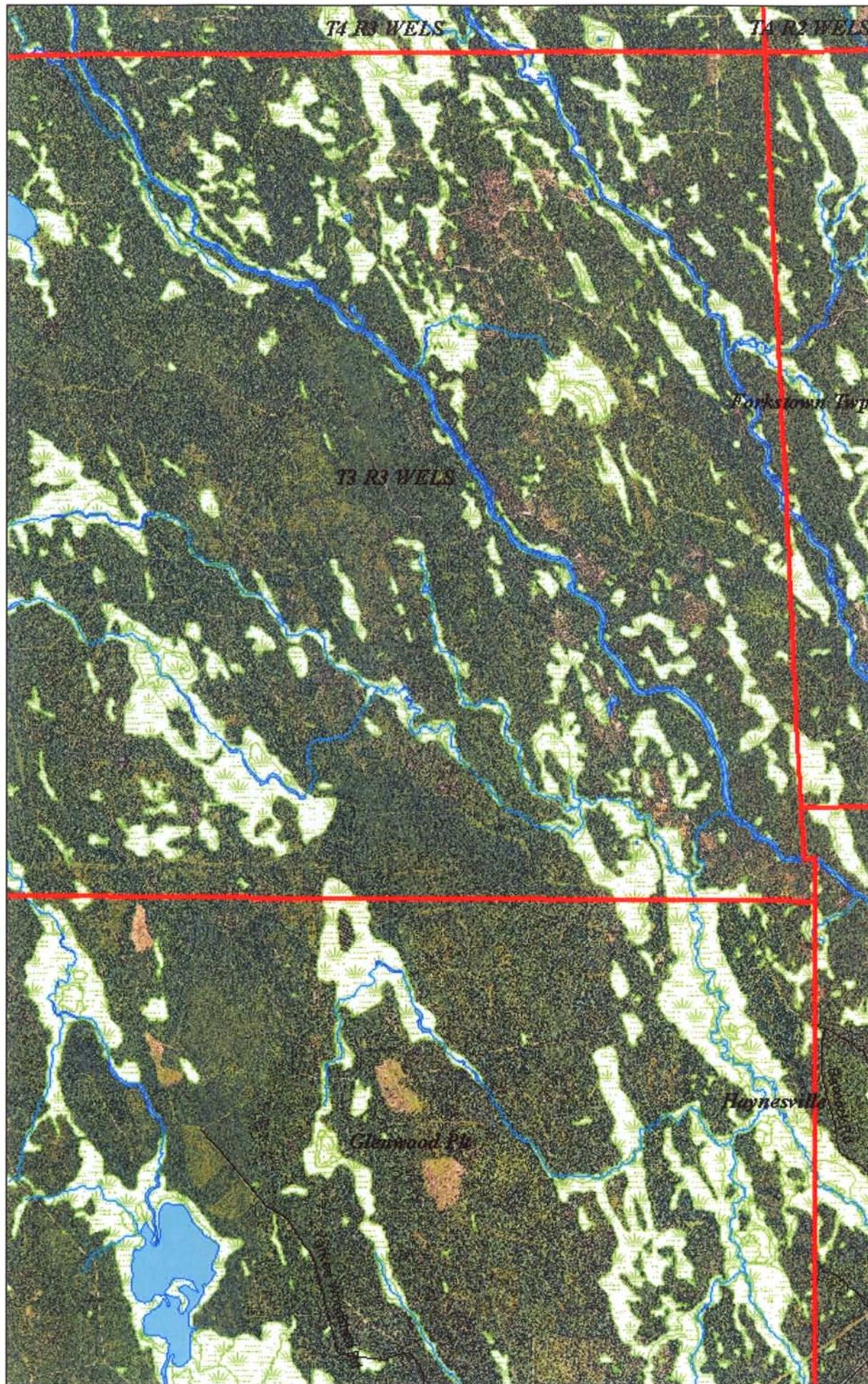


T4 R3 WELS

T4 R1 WELS

T3 R1 WELS





Map 7

T3 R3, ME

Streams and
Wetlands

1:60,000
1 inch = 5,000 feet



T4 R3 WELS

T4 R2 WELS

T3 R3 WELS

Forkstown Twp

Glenwood Pt

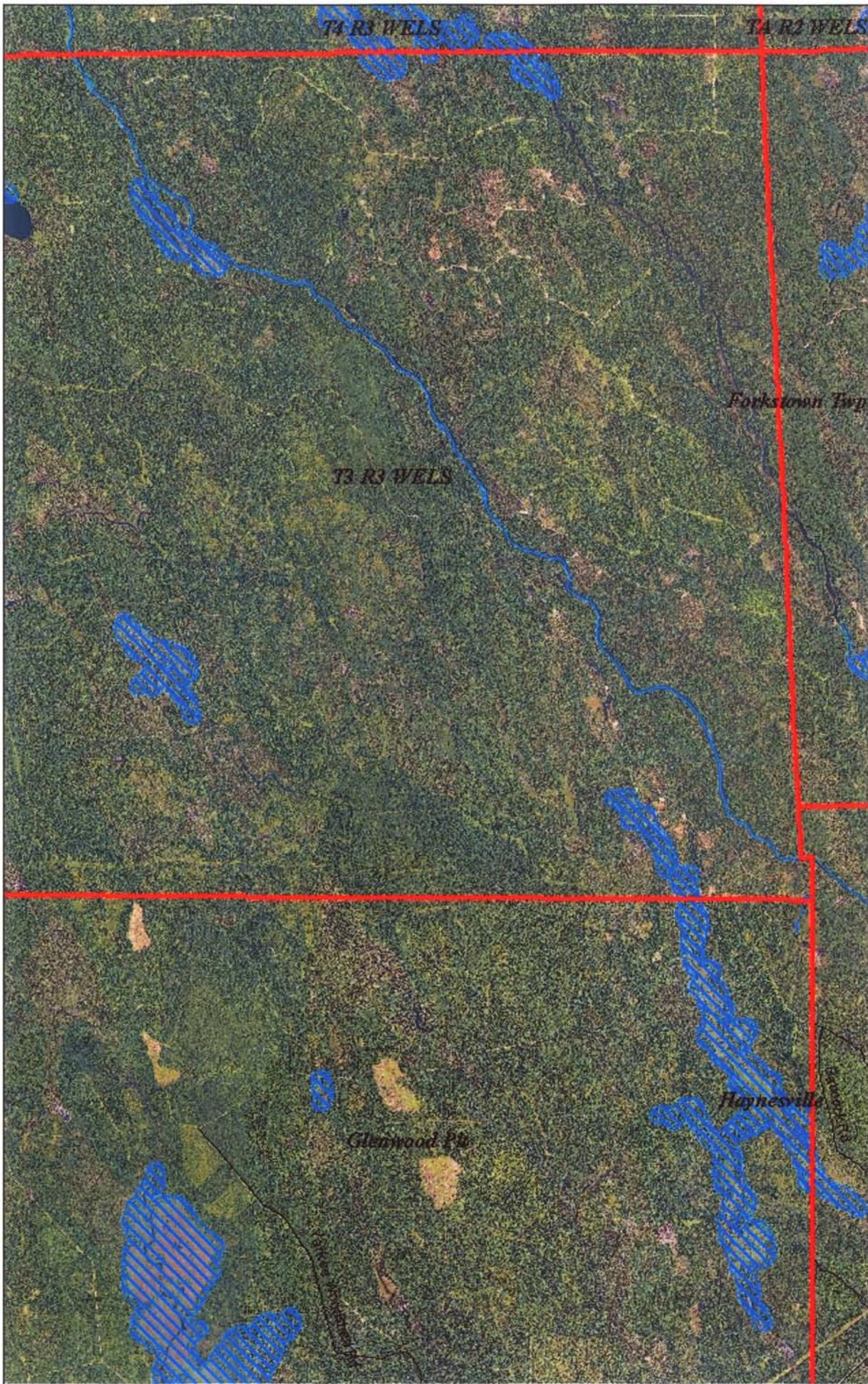
Haynesville

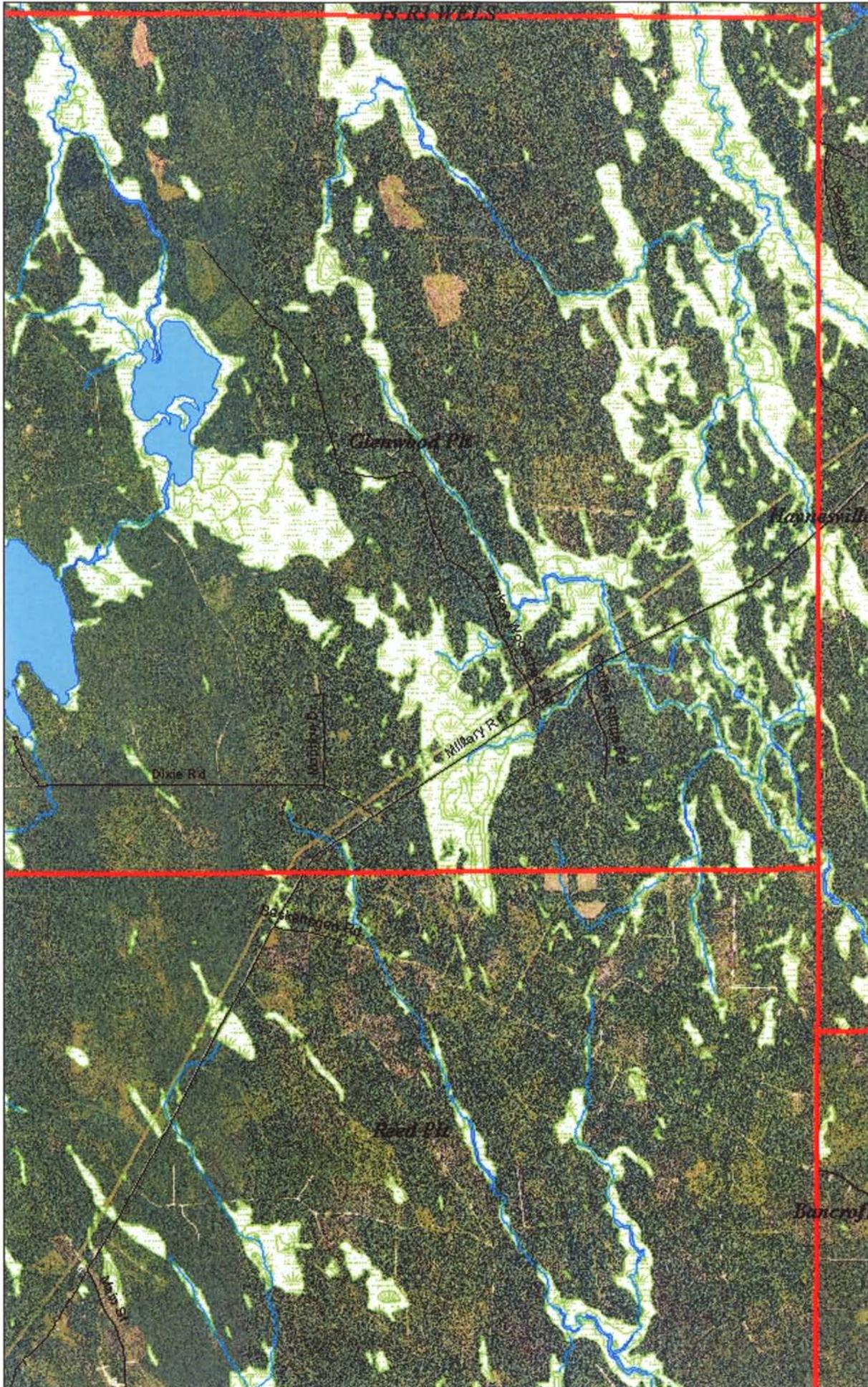
Map 8

T3 R3, ME

Inland Wading
Bird Habitat

1:60,000
1 inch = 5,000 feet

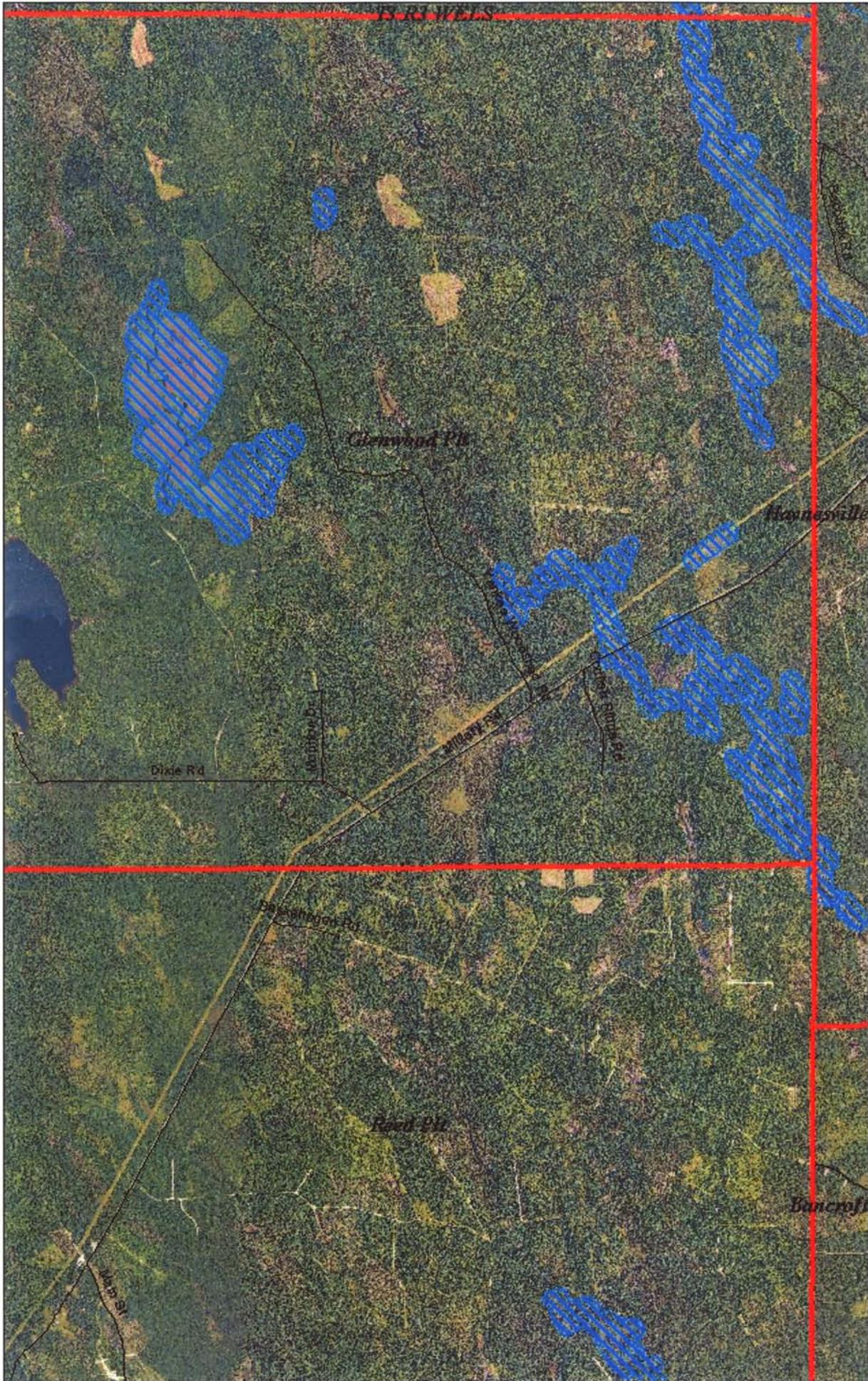




Map 9
Glenood Pt, ME
Streams and
Wetlands

1:60,000
1 inch = 5,000 feet

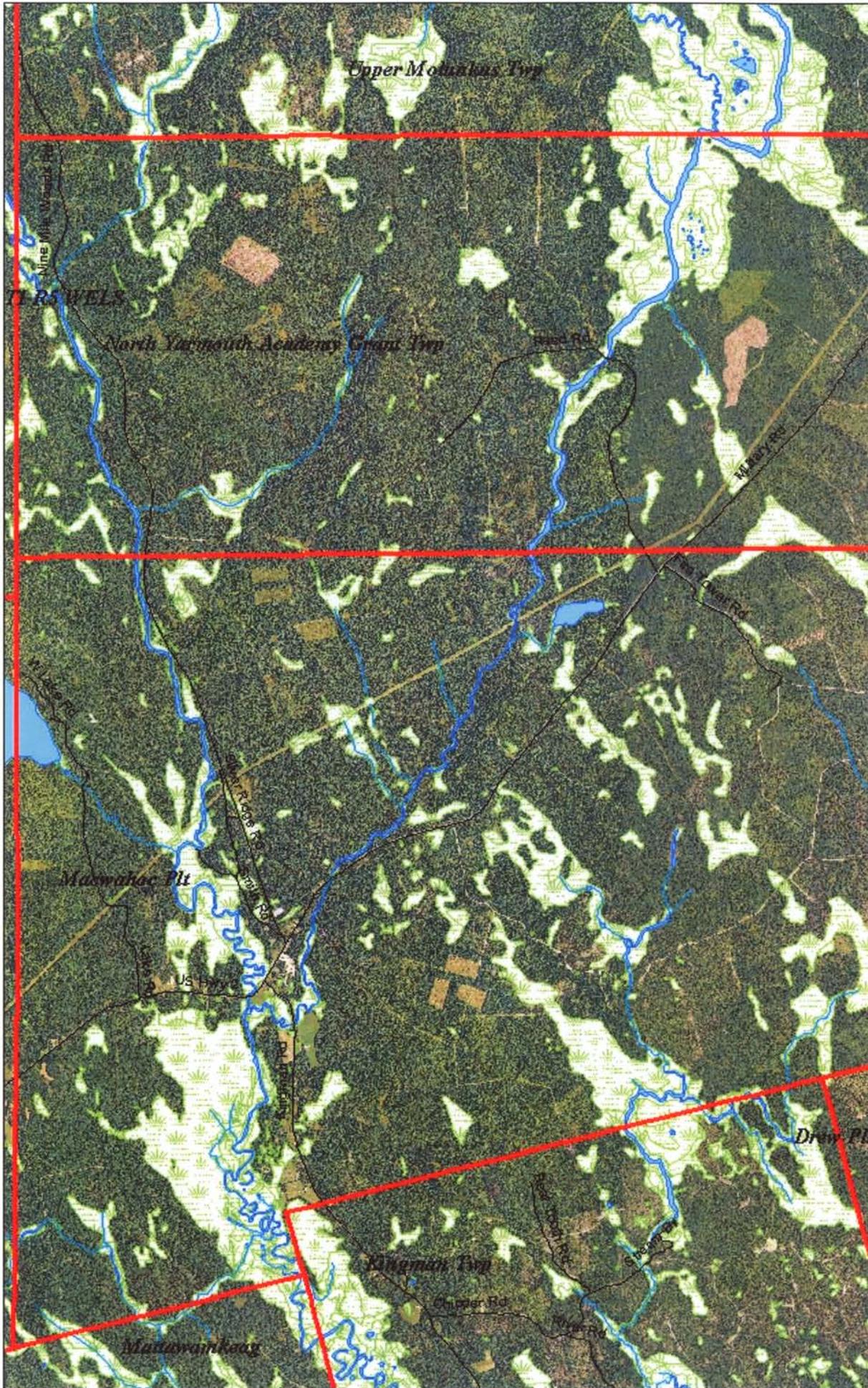




Map 10
Glenood Pt, ME
Inland Wading
Bird Habitat

1:60,000
1 inch = 5,000 feet





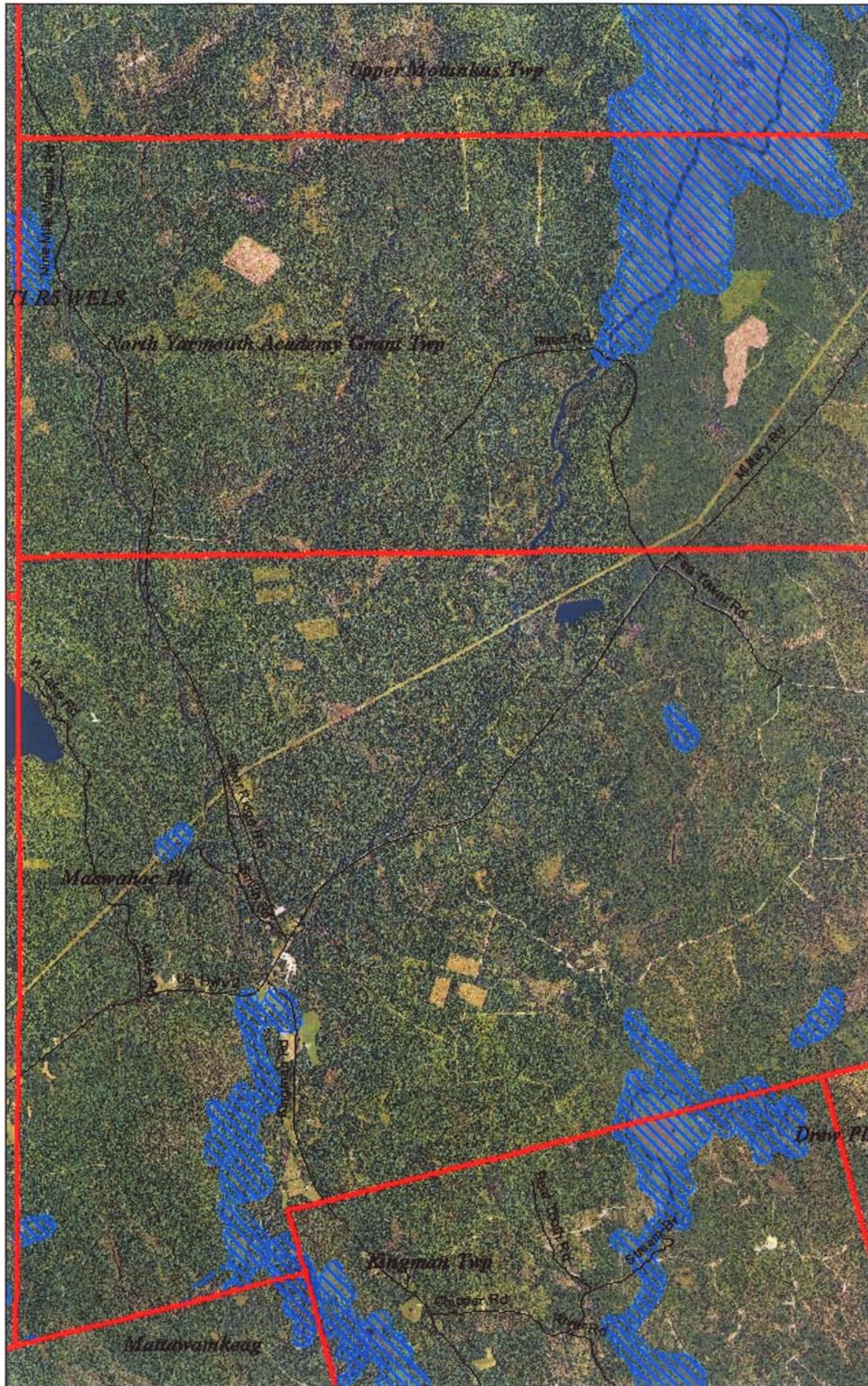
Map 11

Macwahoc PLT, ME

Streams and
Wetlands

1:60,000
1 inch = 5,000 feet





Map 12
Macwahoc PLT, ME
Inland Wading
Bird Habitat

1:60,000
1 inch = 5,000 feet

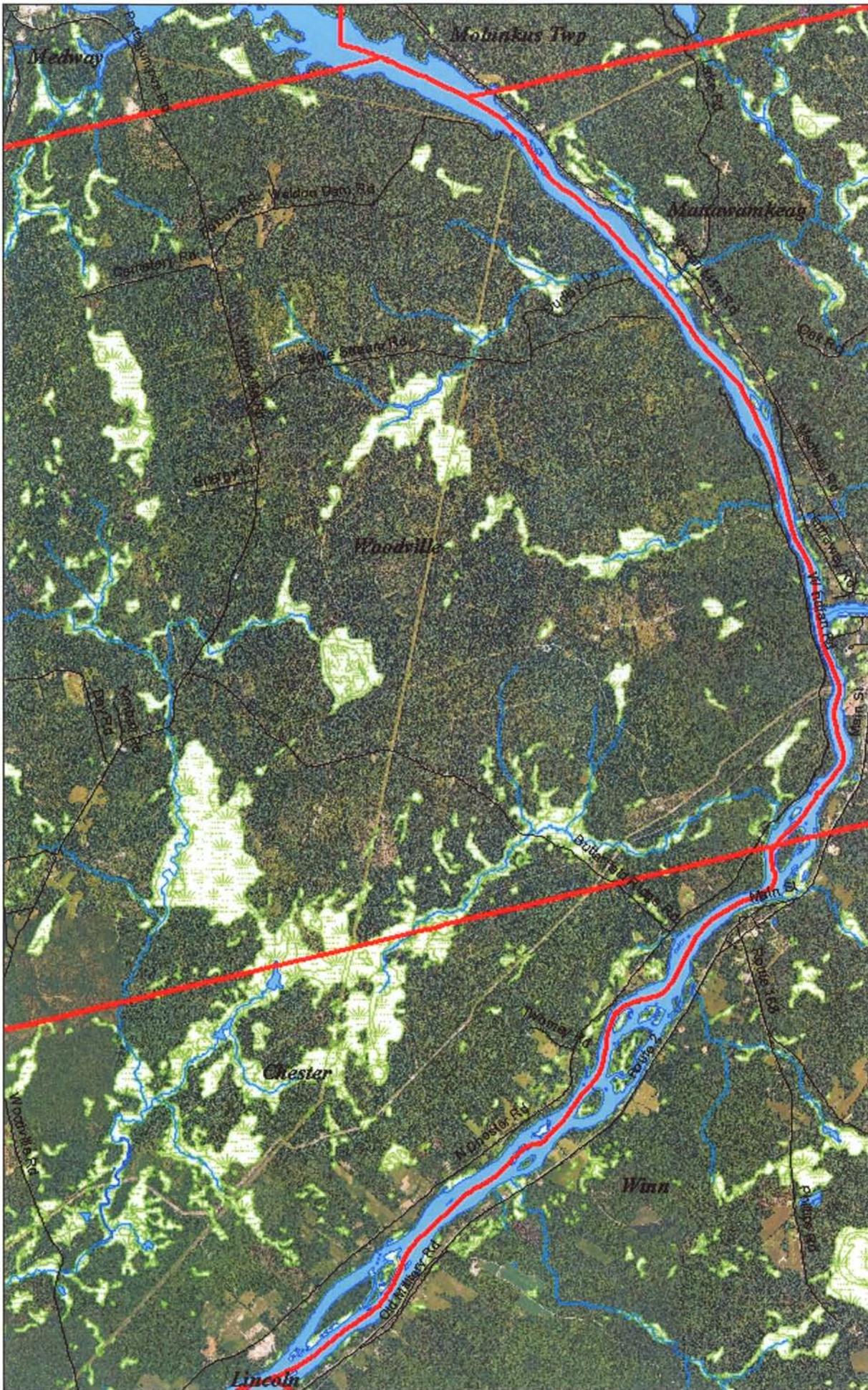




Map 13
Molunkus TWP, ME
Streams and
Wetlands

1:60,000
1 inch = 5,000 feet





Map 15
Woodville, ME
Streams and
Wetlands

1:60,000
1 inch = 5,000 feet

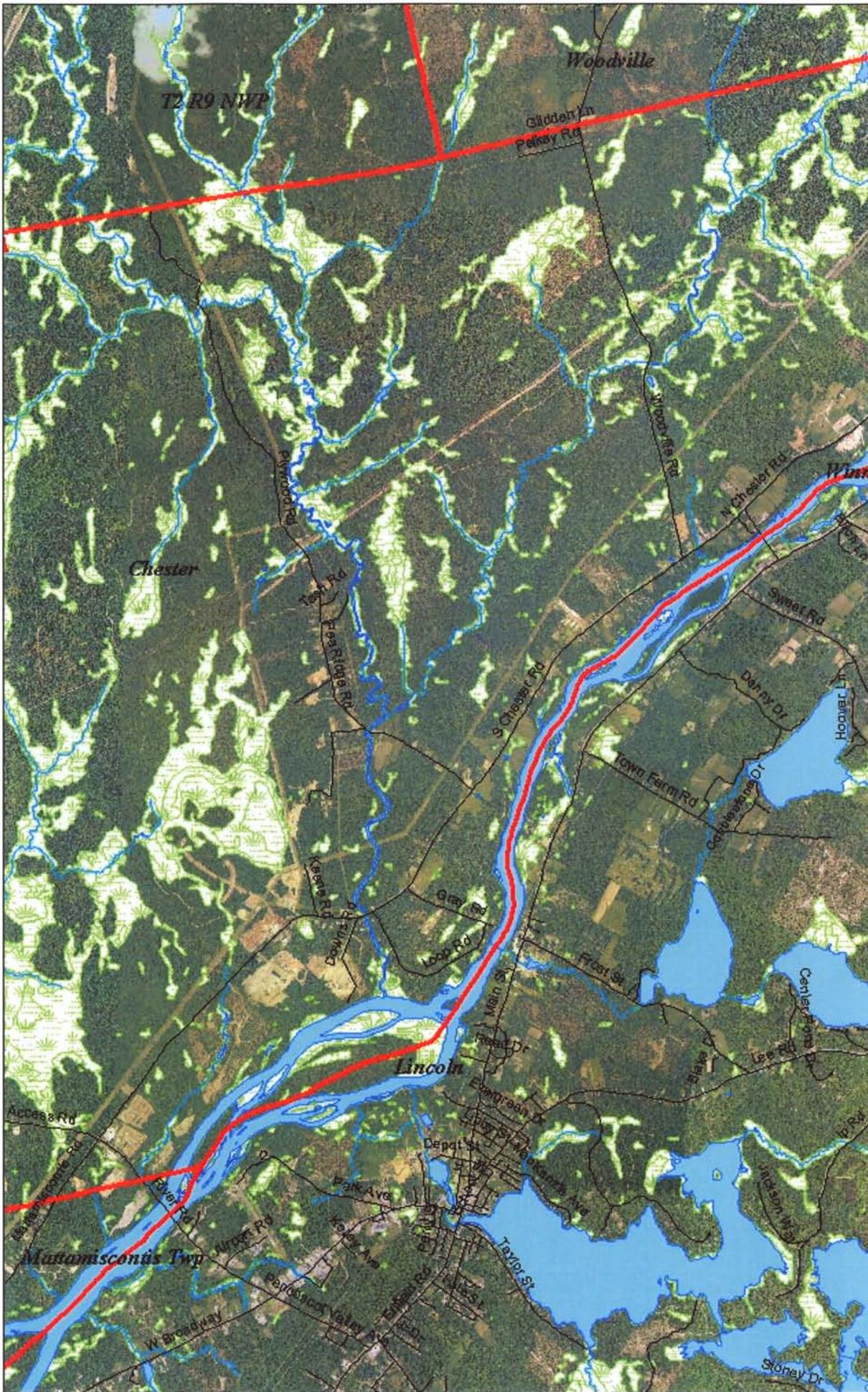




Map 16
Woodville, ME
Inland Wading
Bird Habitat

1:60,000
1 inch = 5,000 feet





Map 17
Chester, ME
Streams and
Wetlands

1:60,000
1 inch = 5,000 feet





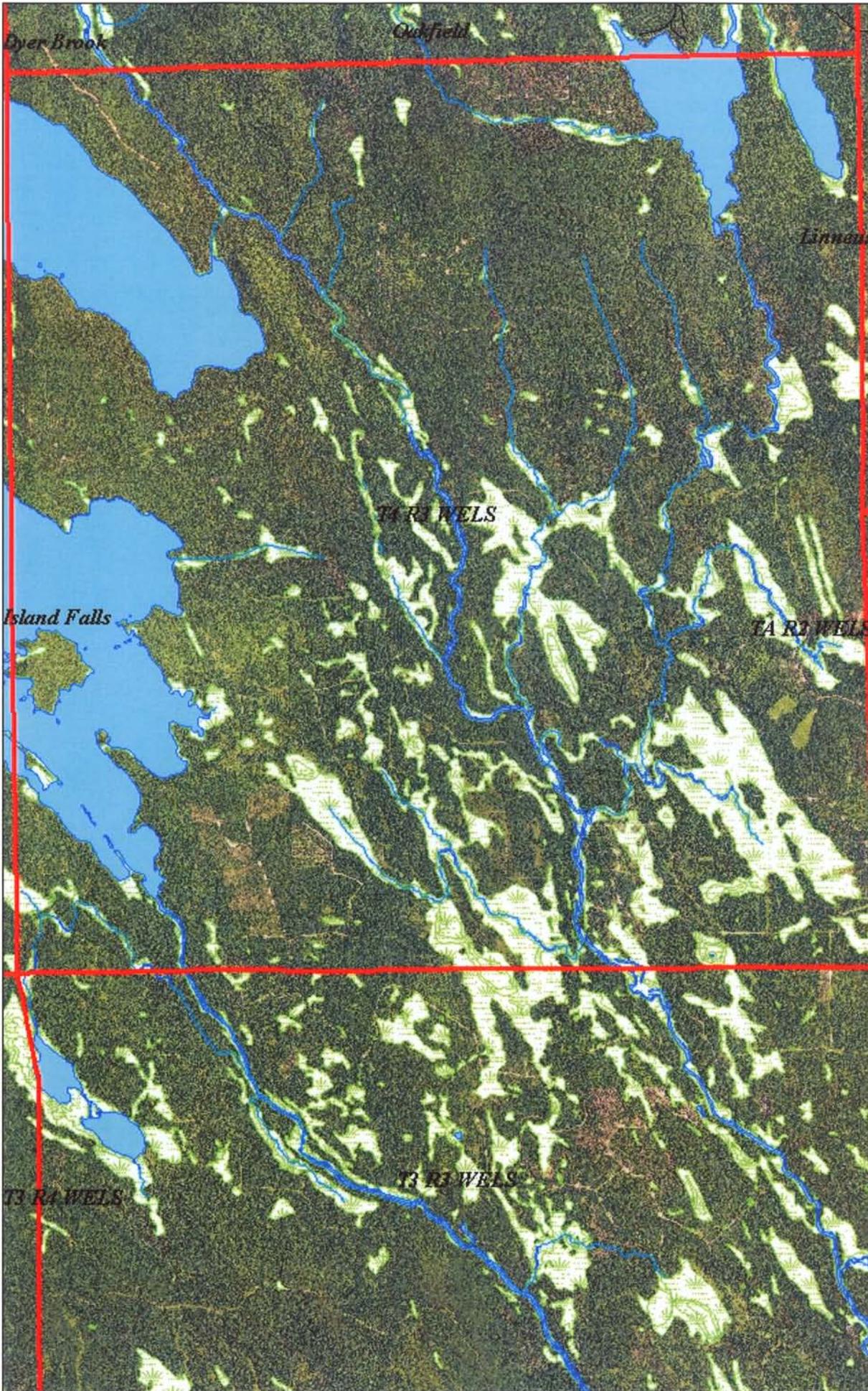
Map 18

Chester, ME

Inland Wading
Bird Habitat

1:60,000
1 inch = 5,000 feet





Map 19

T4 R3 WELS, ME

Streams and
Wetlands

1:60,000
1 inch = 5,000 feet



T4 R3 WELS

T4 R2 WELS

Map 8

T3 R3, ME

Inland Wading
Bird Habitat

1:60,000

1 inch = 5,000 feet

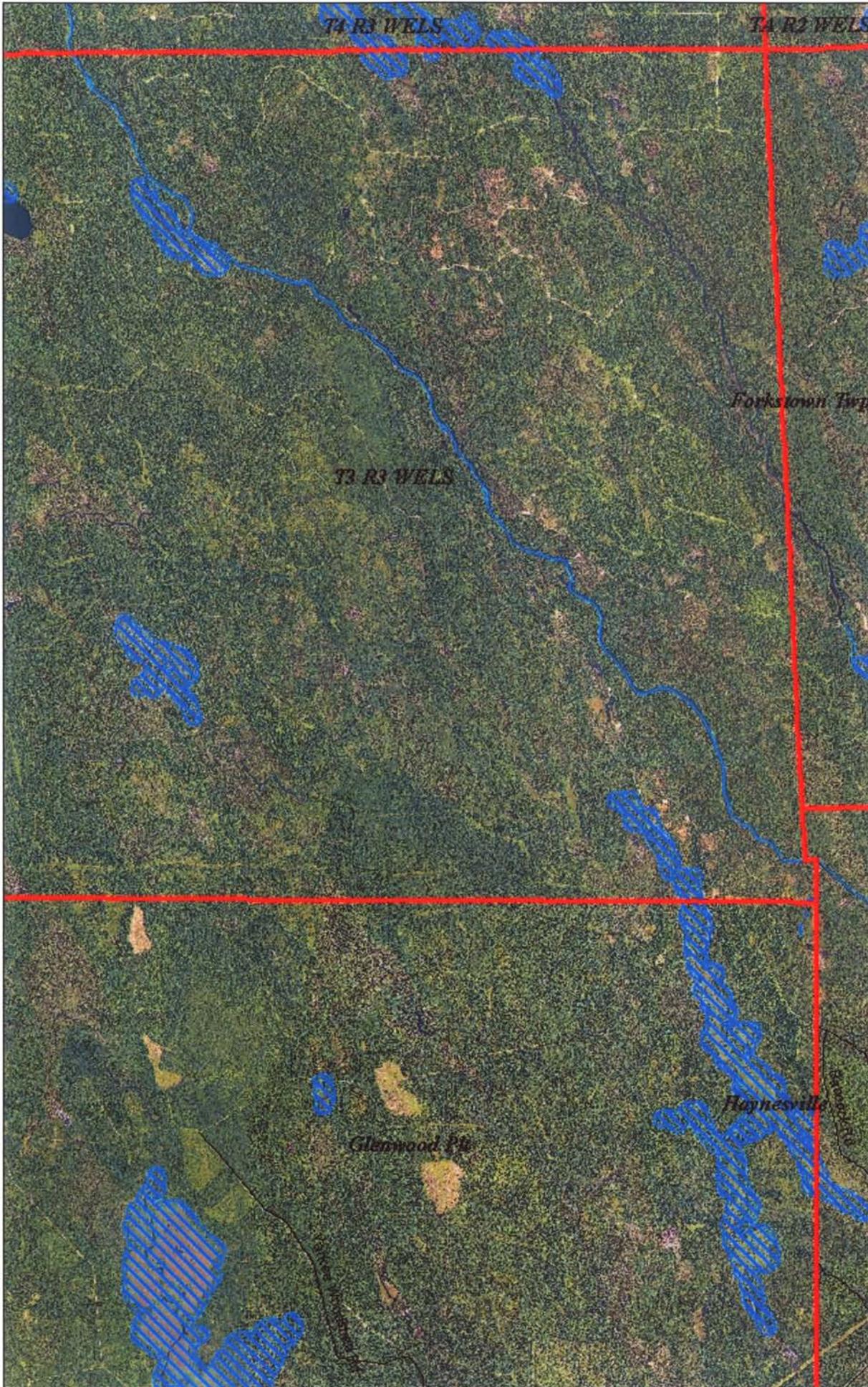
Forkston Twp

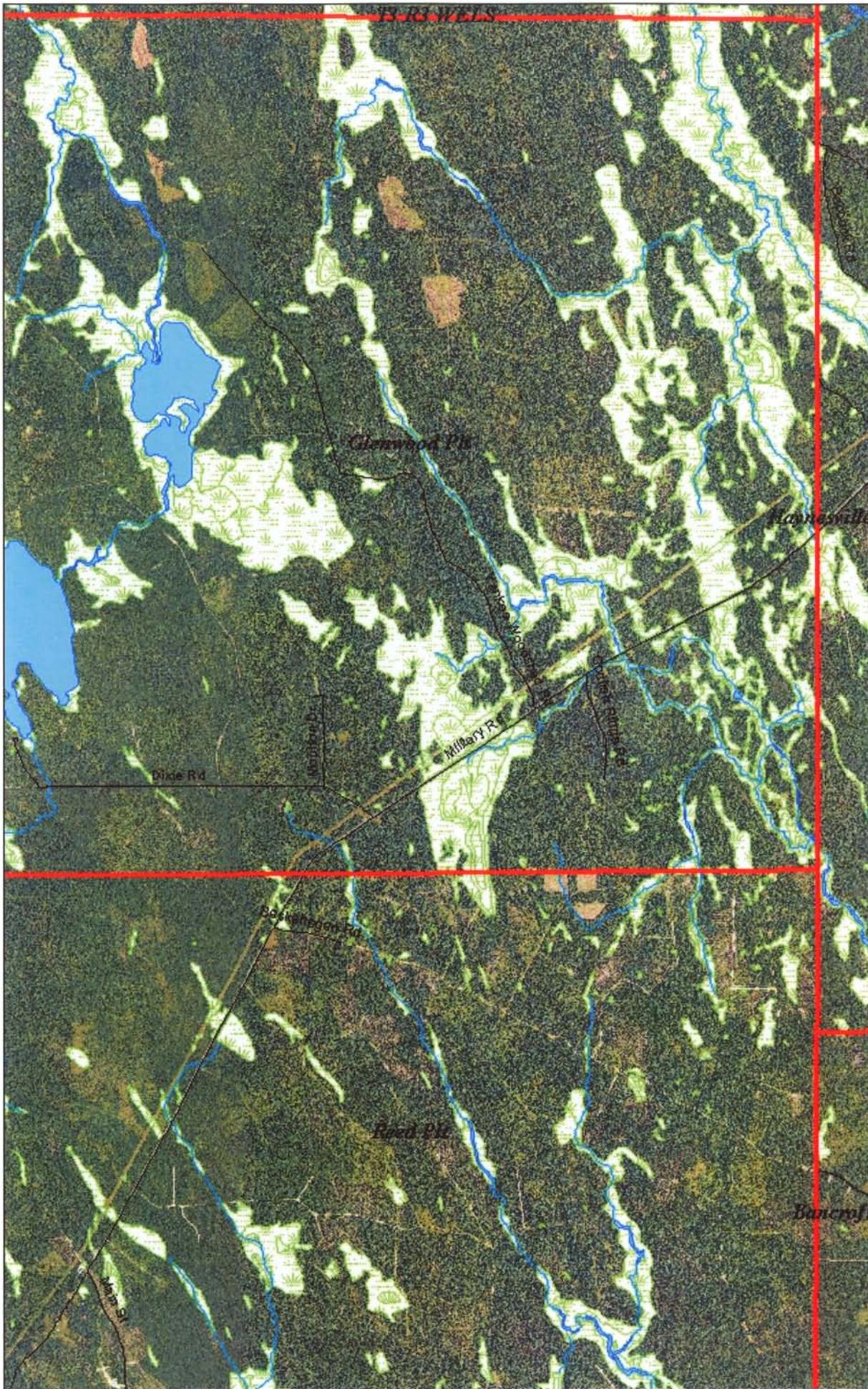
T3 R3 WELS



Haynesville

Glenwood Pt

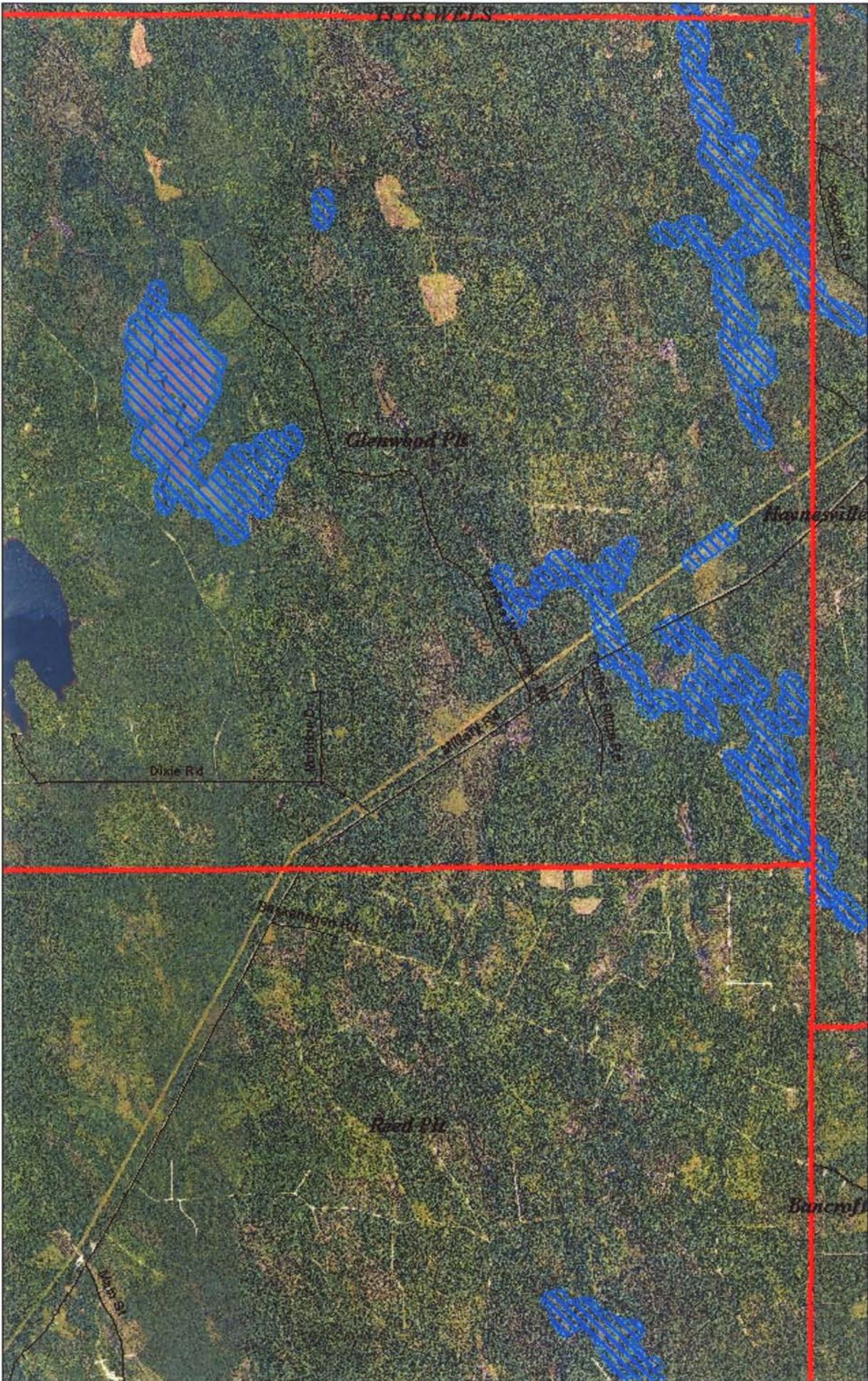




Map 9
Glenwood Pt, ME
Streams and Wetlands

1:60,000
1 inch = 5,000 feet

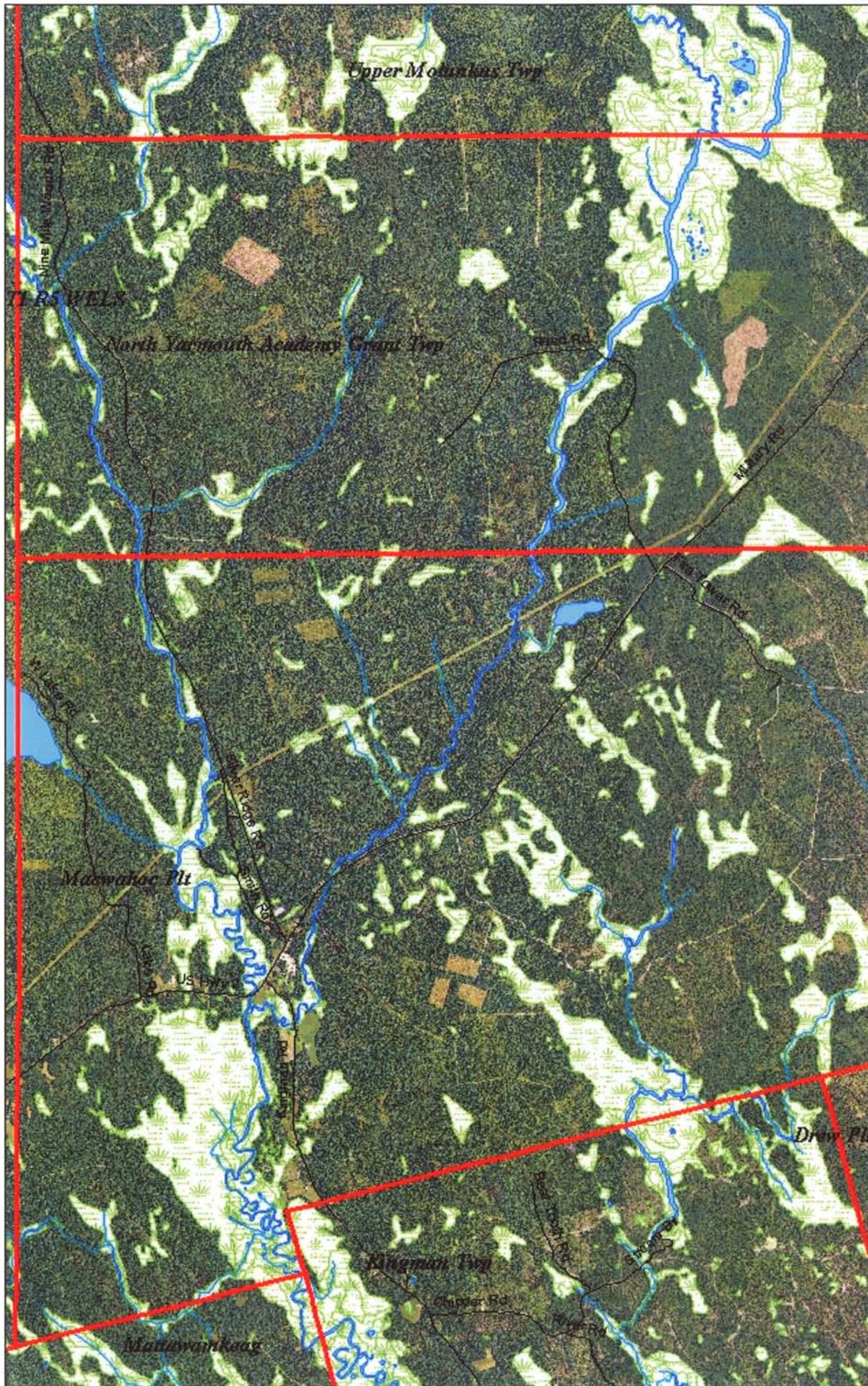




Map 10
Glenood Pt, ME
Inland Wading
Bird Habitat

1:60,000
1 inch = 5,000 feet

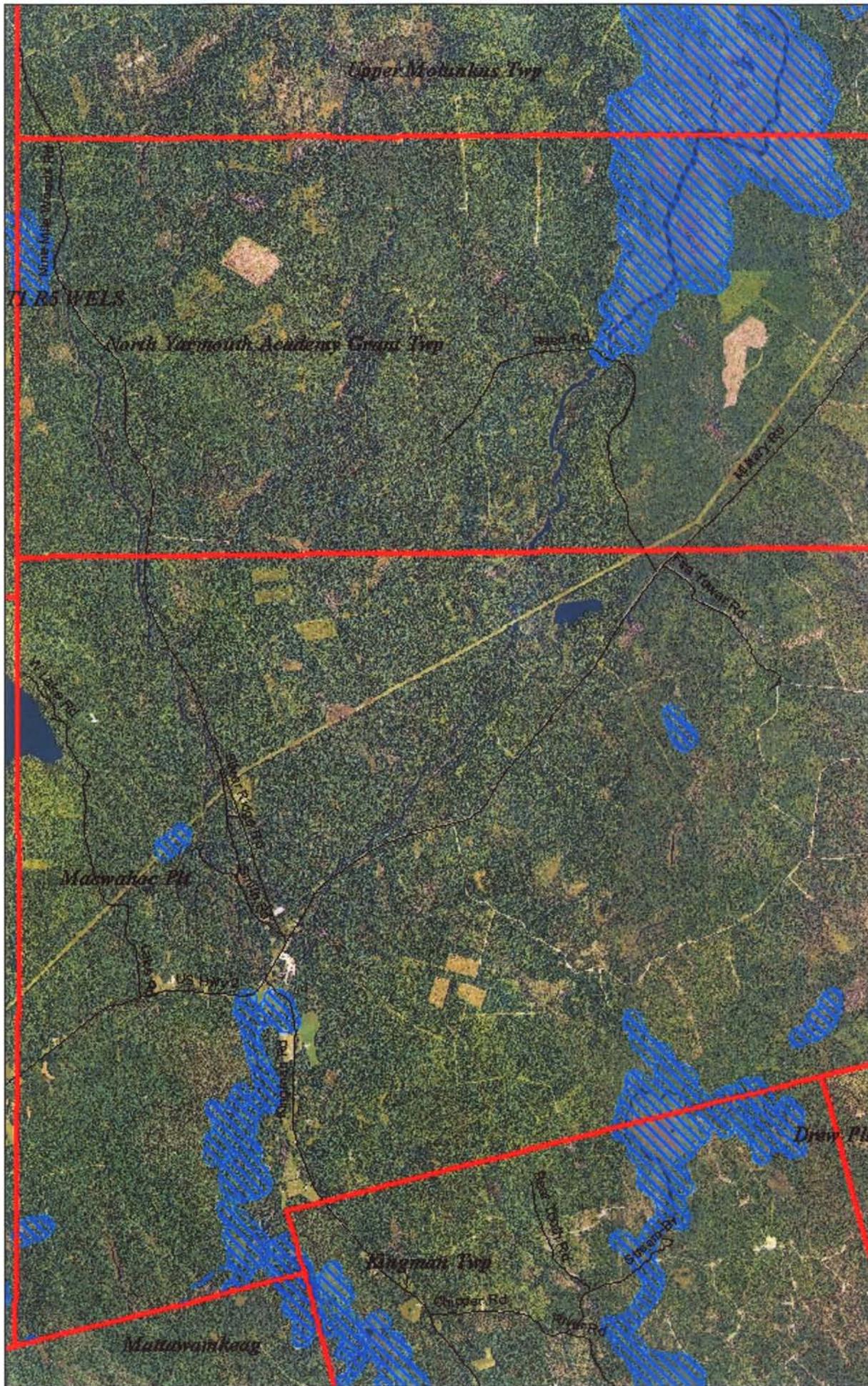




Map 11
Macwahoc PLT, ME
Streams and
Wetlands

1:60,000
1 inch = 5,000 feet





Map 12
Macwahoc PLT, ME
Inland Wading
Bird Habitat

1:60,000
1 inch = 5,000 feet



Oakfield

Map 6

T4 R3, ME

Inland Wading
Bird Habitat

Linneus

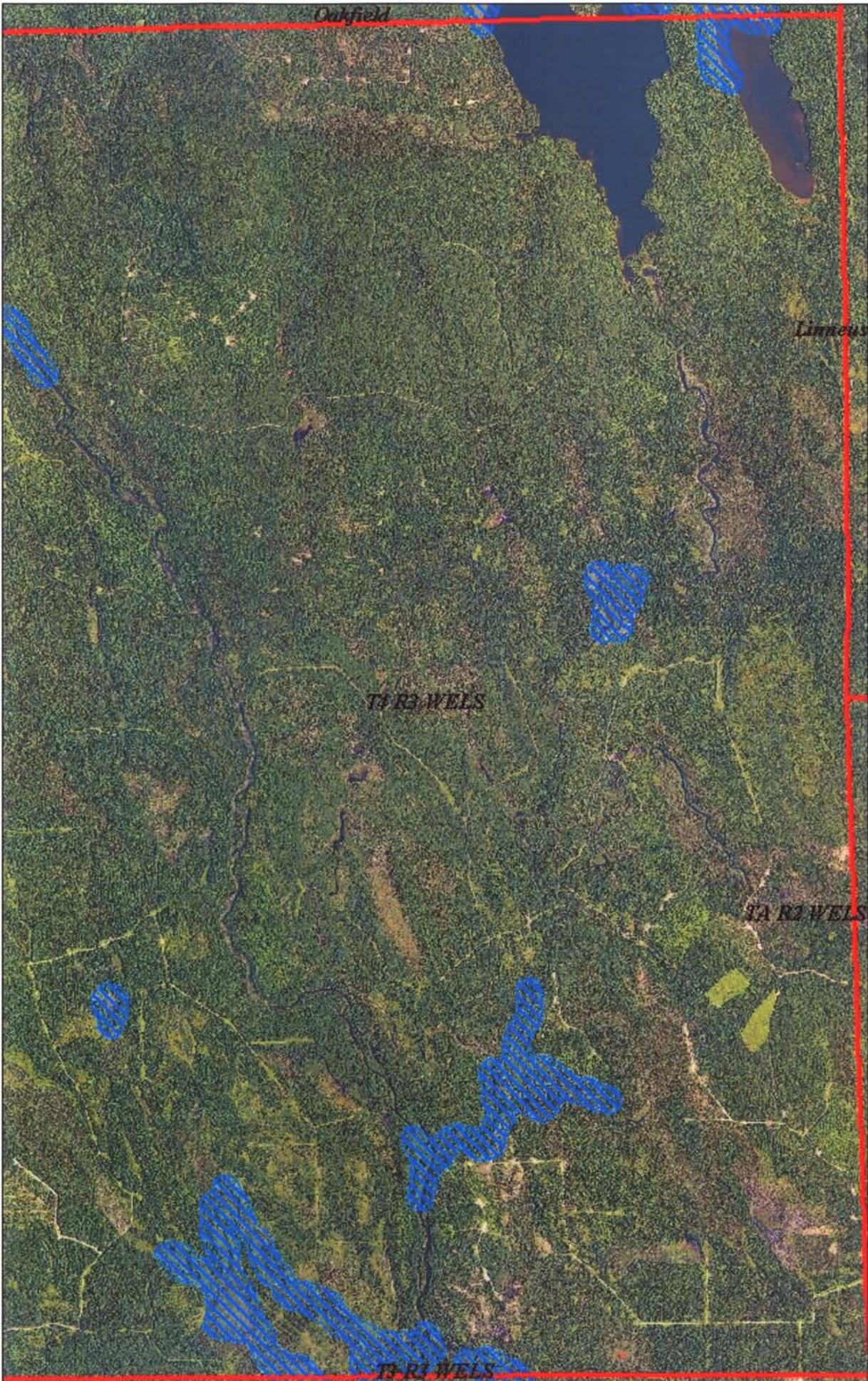
1:40,000
1 inch = 3,333.33 feet



T4 R3 WELS

T4 R3 WELS

T4 R3 WELS



T4 R3 WELS

T4 R2 WELS

T3 R3 WELS

Parkston Twp

Glenwood Pt

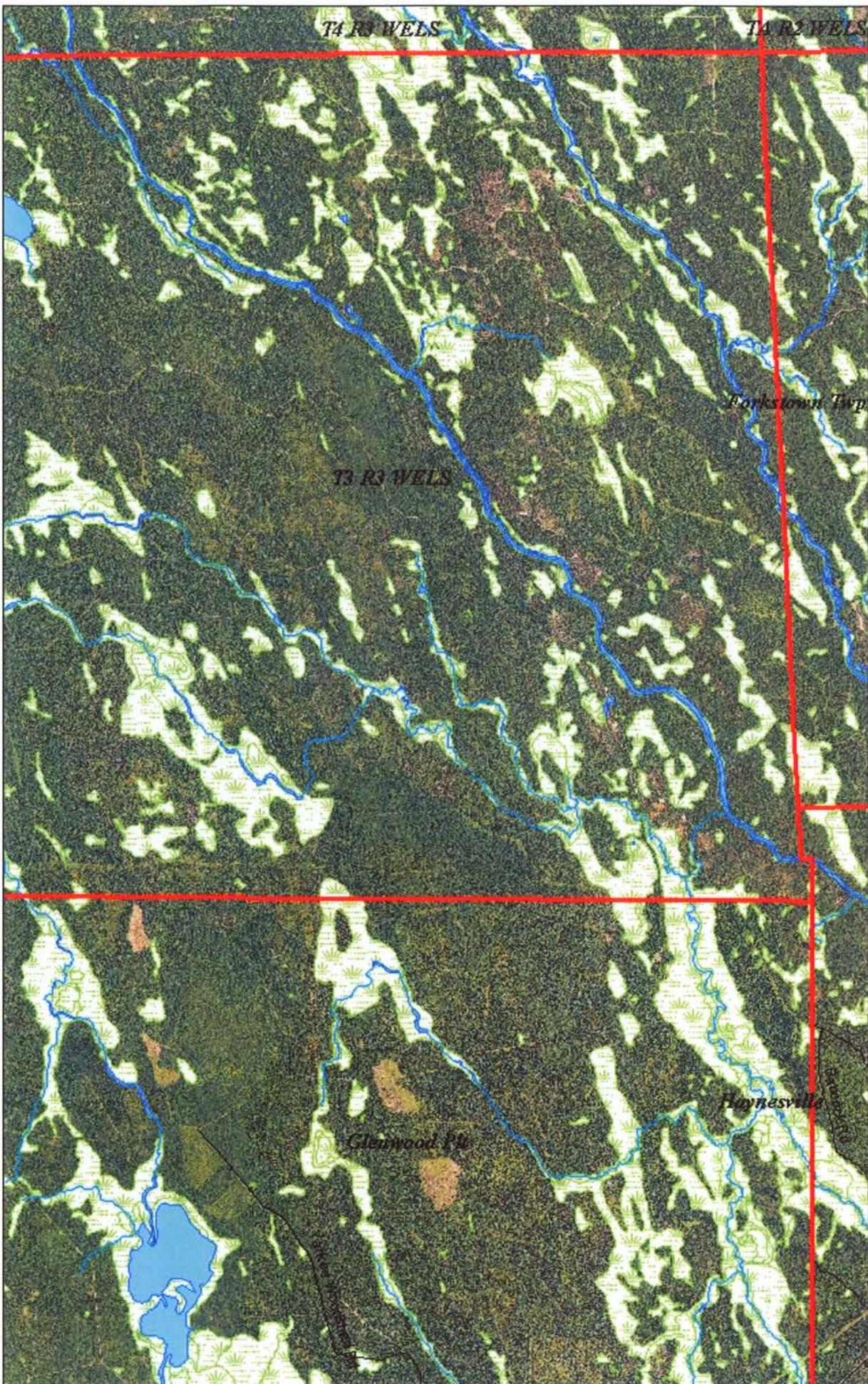
Haynesville

Map 7

T3 R3, ME

Streams and
Wetlands

1:60,000
1 inch = 5,000 feet



Outfield

Map 5

T4 R3, ME

Streams and
Wetlands

Linneus

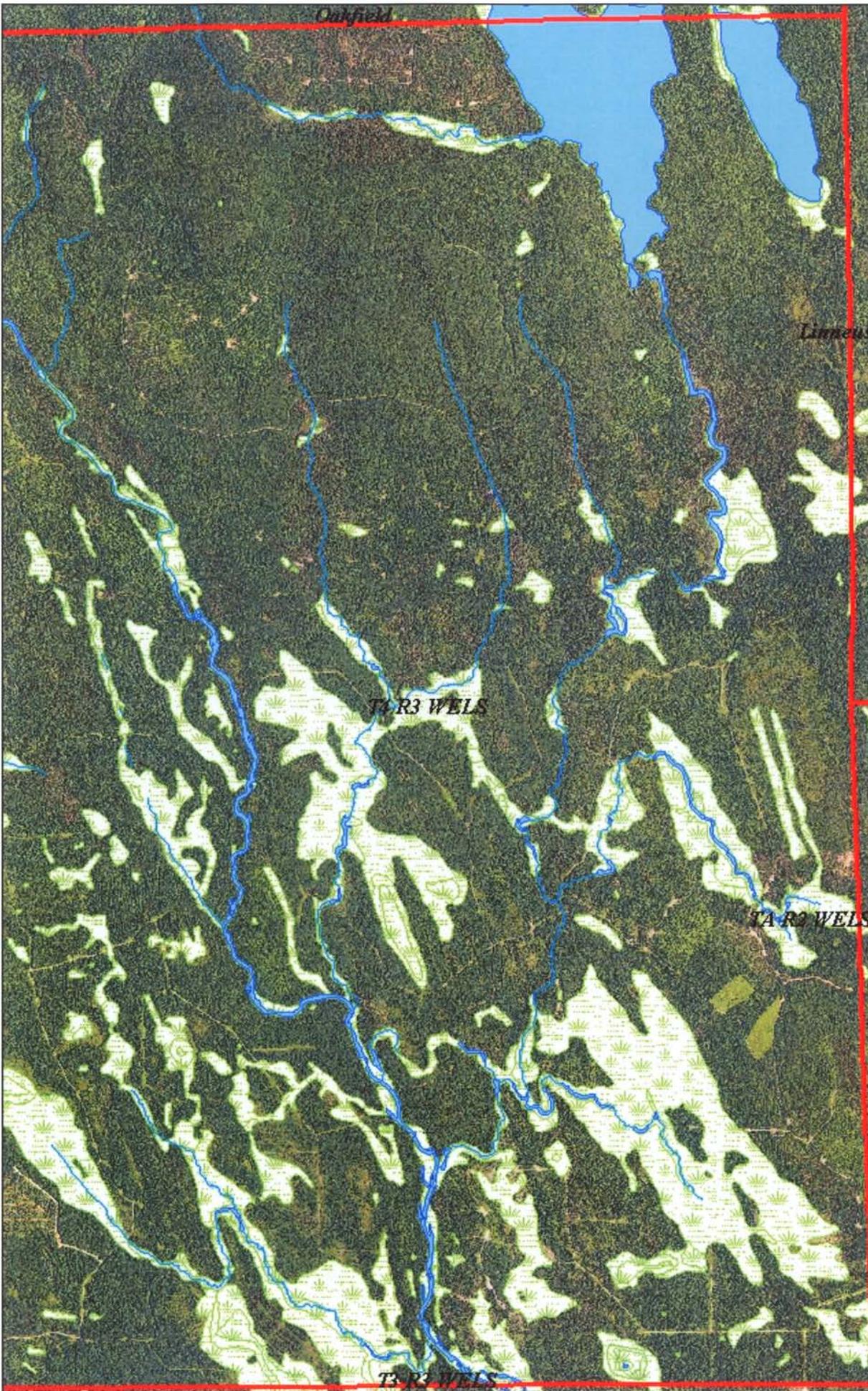
1:40,000
1 inch = 3,333.33 feet

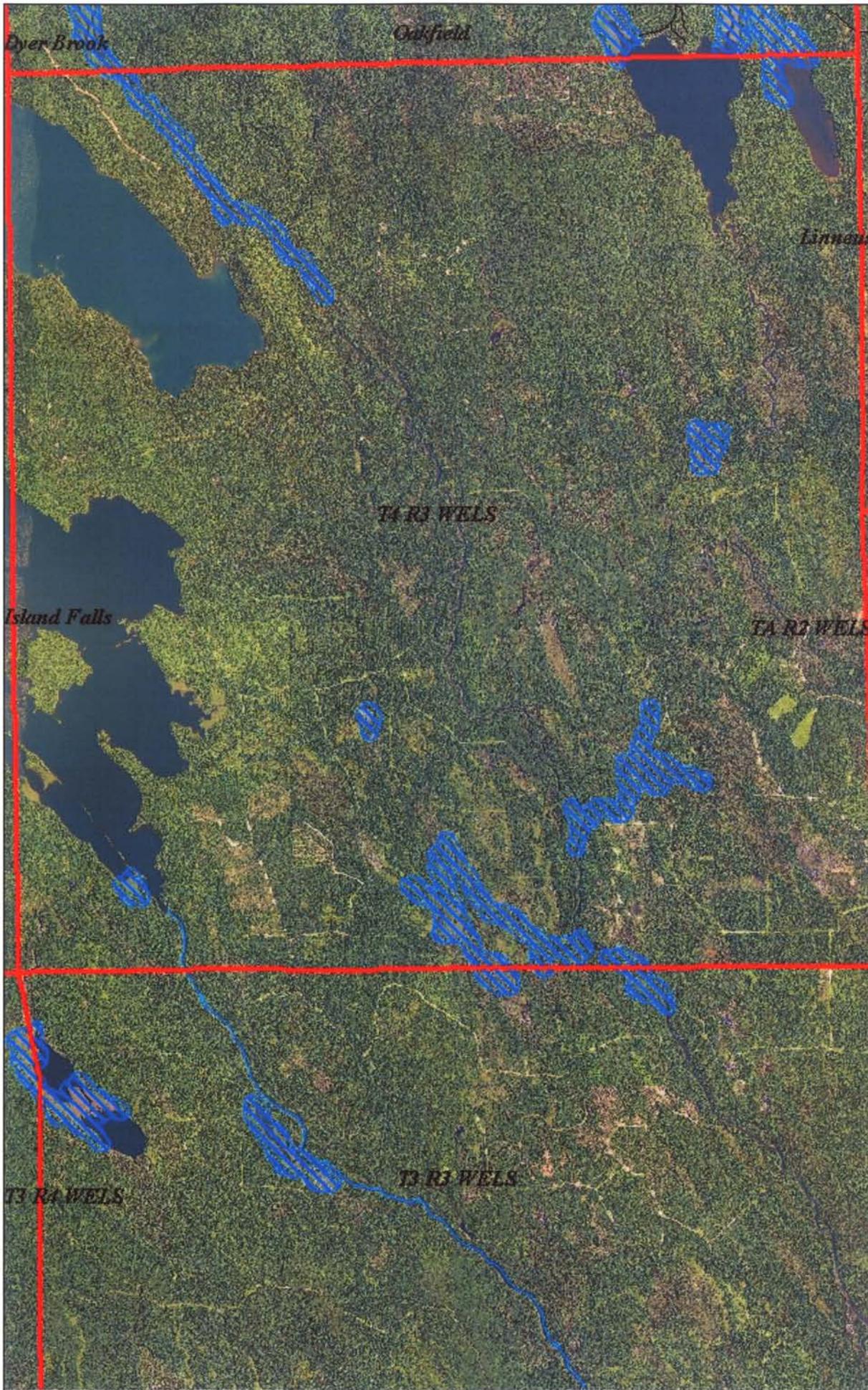


T4 R3 WELS

T4 R2 WELS

T4 R3 WELS





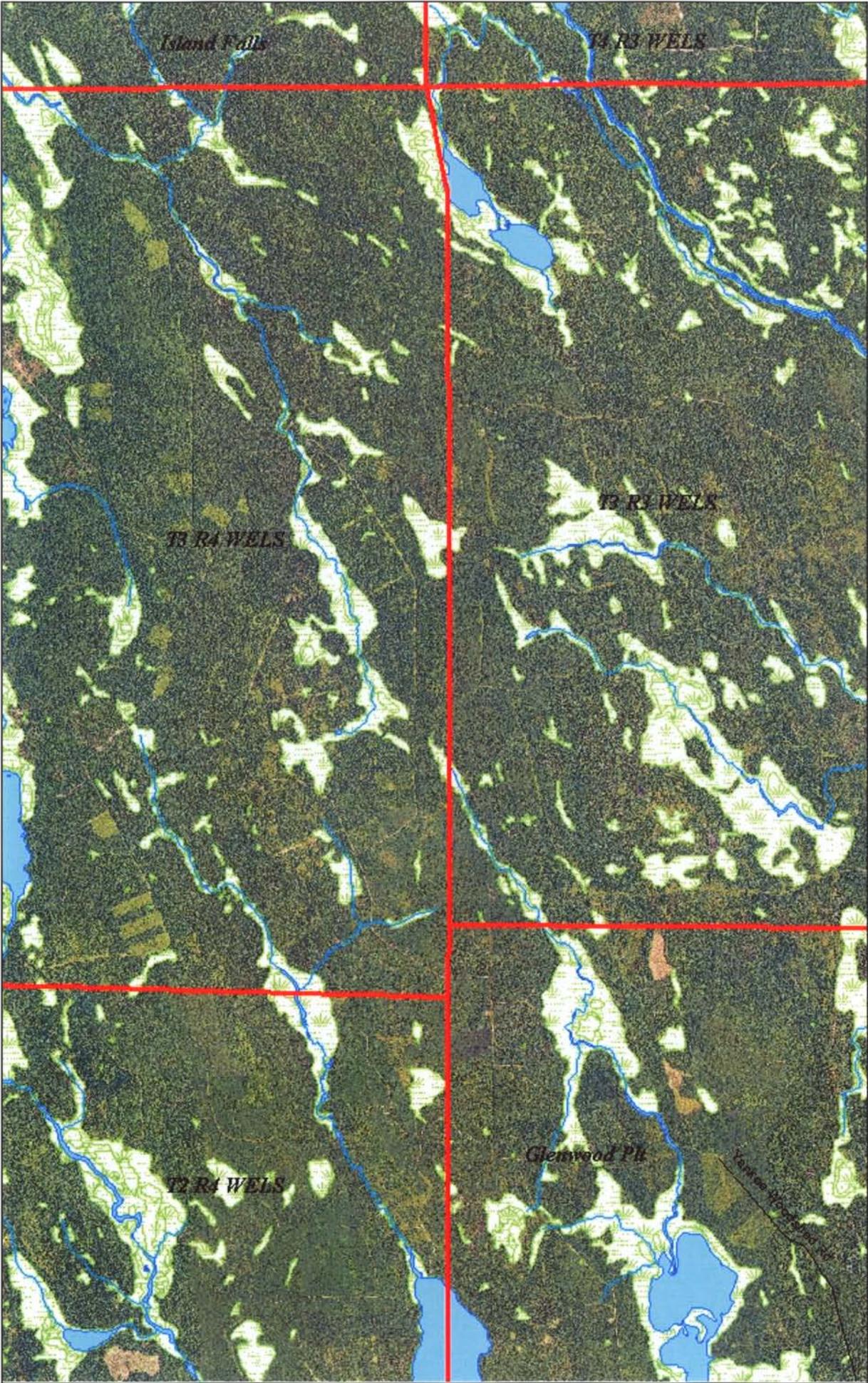
Map 20

T4 R3 WELS, ME

Inland Wading
Bird Habitat

1:60,000
1 inch = 5,000 feet





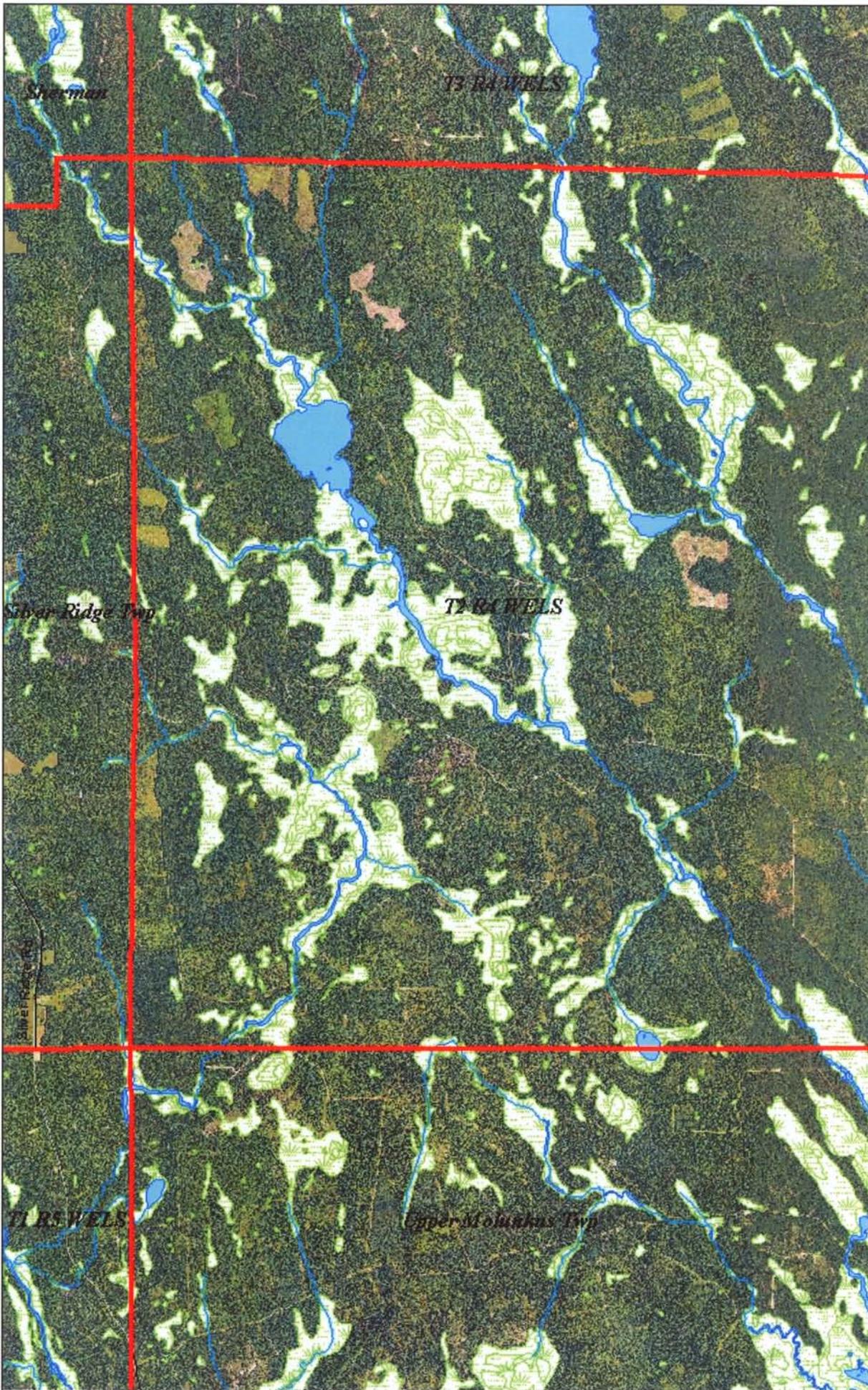
Map 21

T3 R3, T3R4, ME

Streams and
Wetlands

1:60,000
1 inch = 5,000 feet





Map 23
Silver Ridge,
T2R4, ME
Streams and
Wetlands

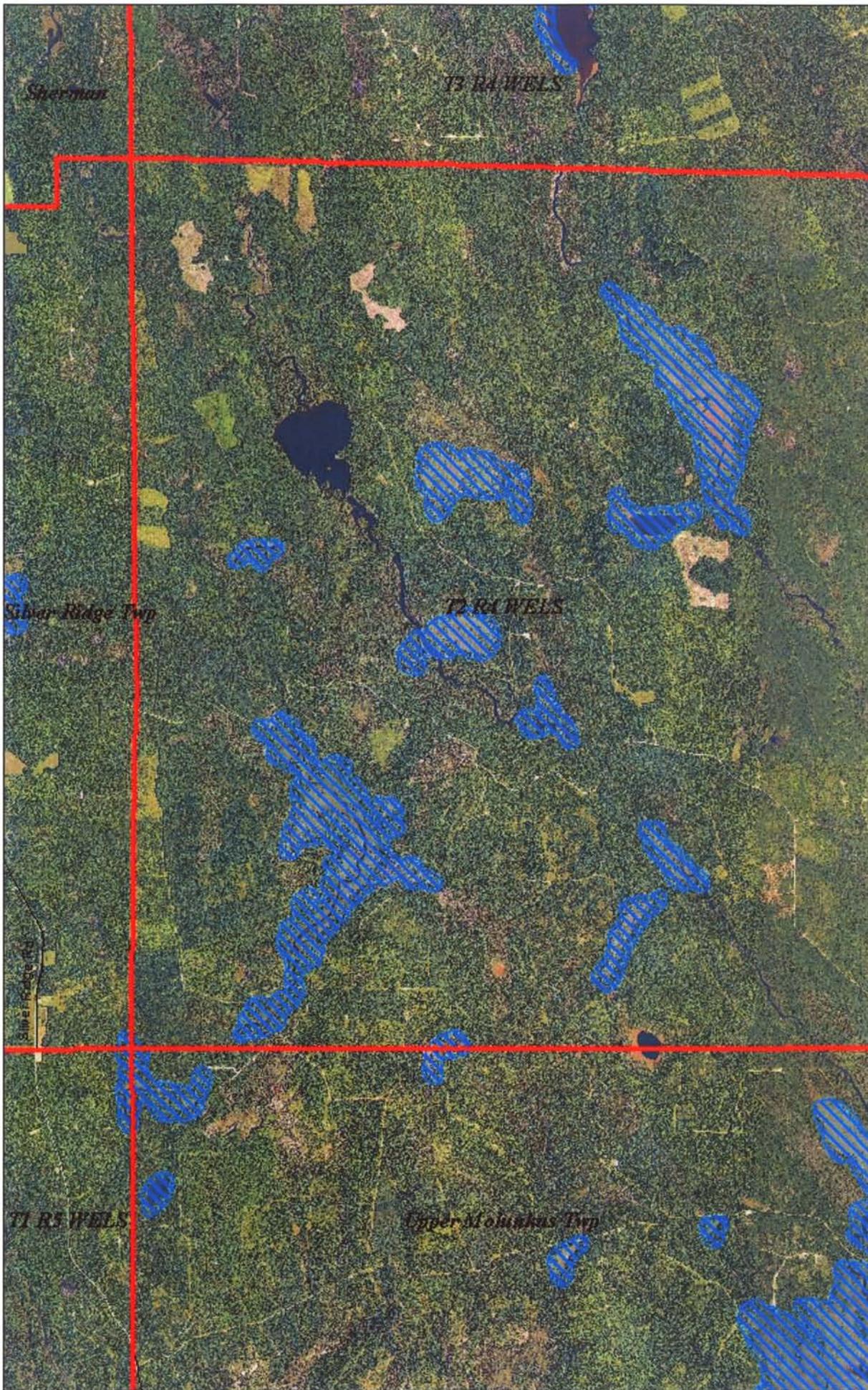
1:60,000
1 inch = 5,000 feet



11 R5 WELS

11 R5 WELS

Upper Molokas Twp



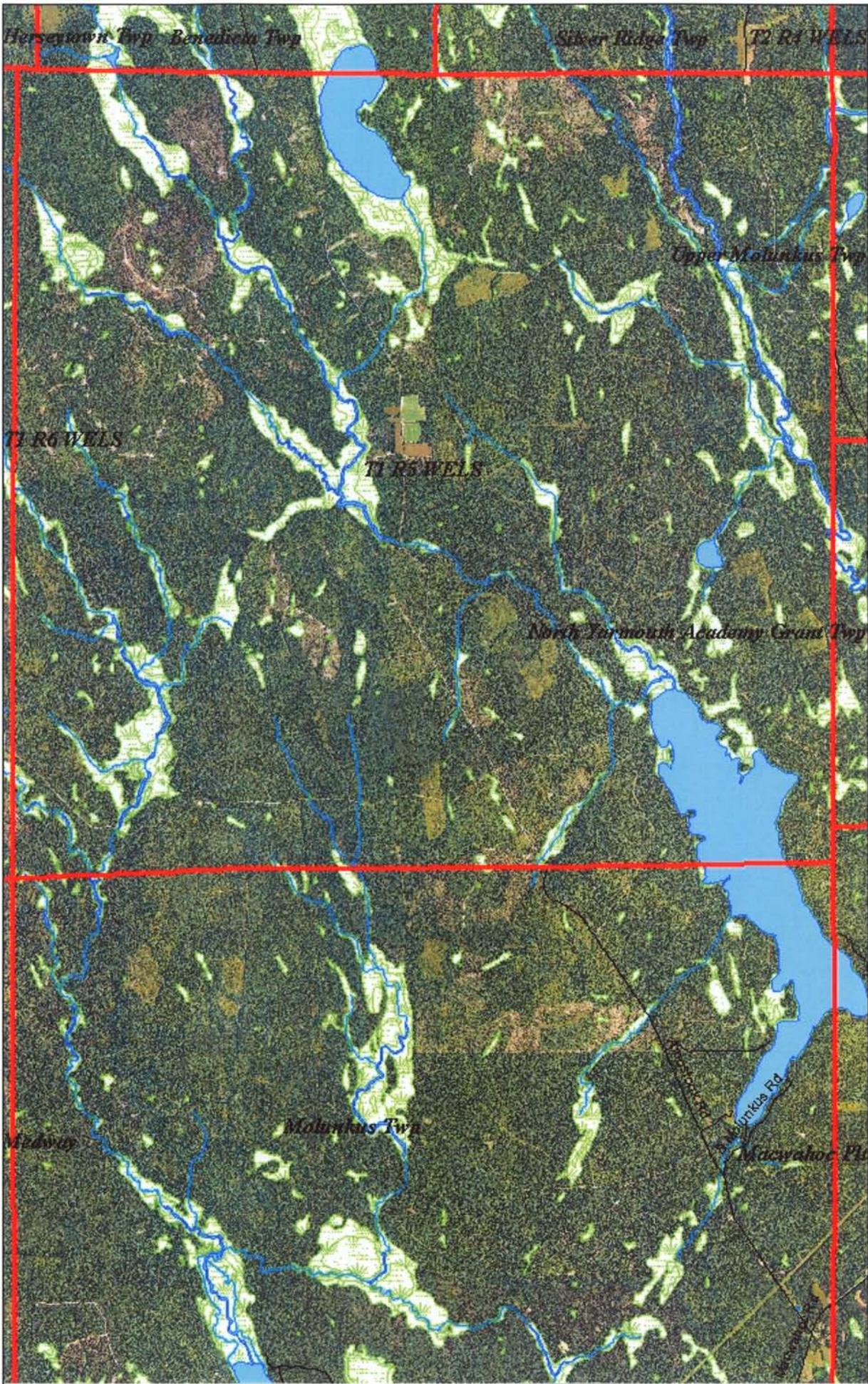
Map 24

Silver Ridge,
T2R4, ME

Inland Wading
Bird Habitat

1:60,000
1 inch = 5,000 feet





Map 25

T1R5, ME

Streams and
Wetlands

1:65,000
1 inch = 5,416.67 feet





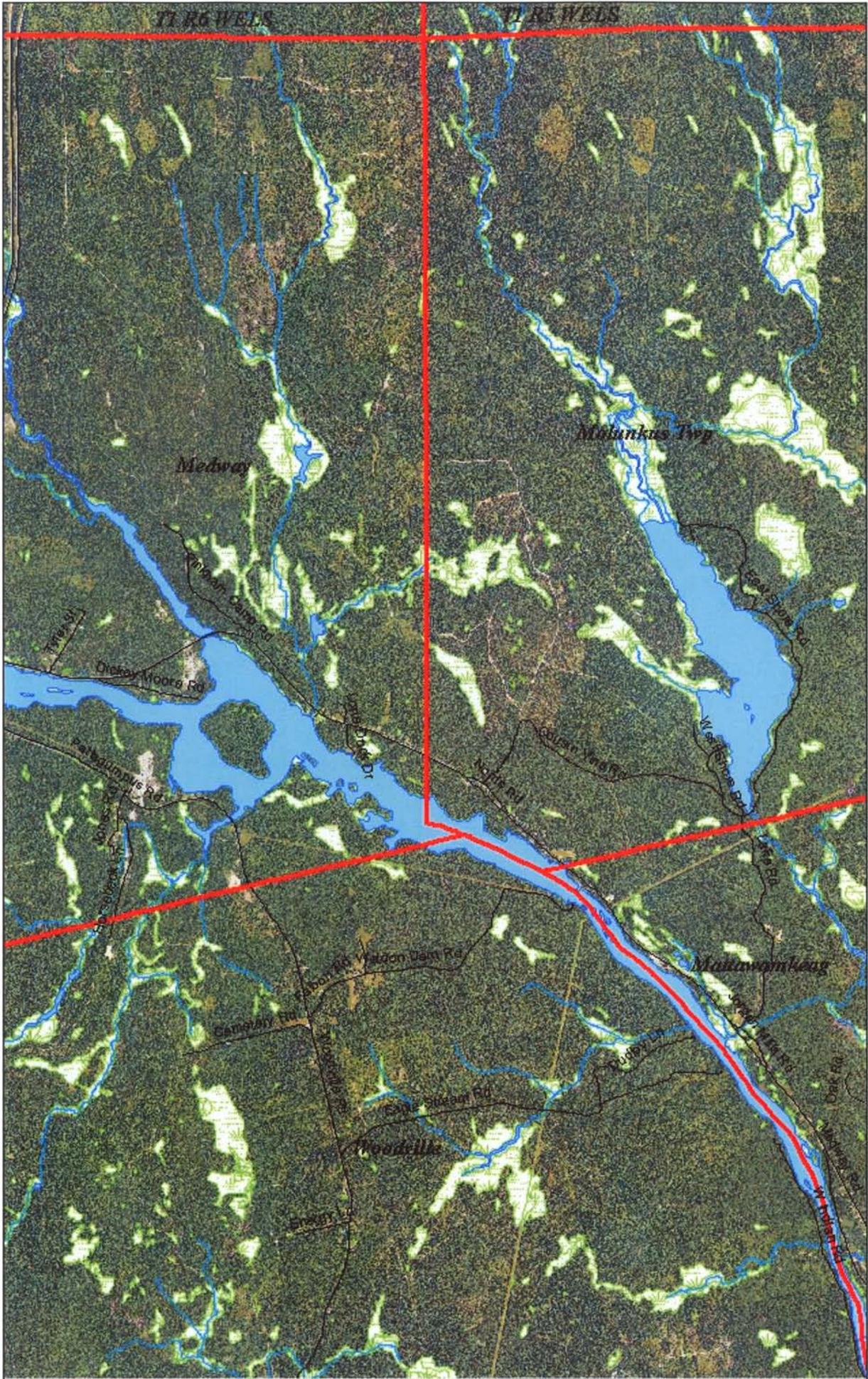
Map 26

T1R5, ME

Inland Wading
Bird Habitat

1:65,000
1 inch = 5,416.67 feet





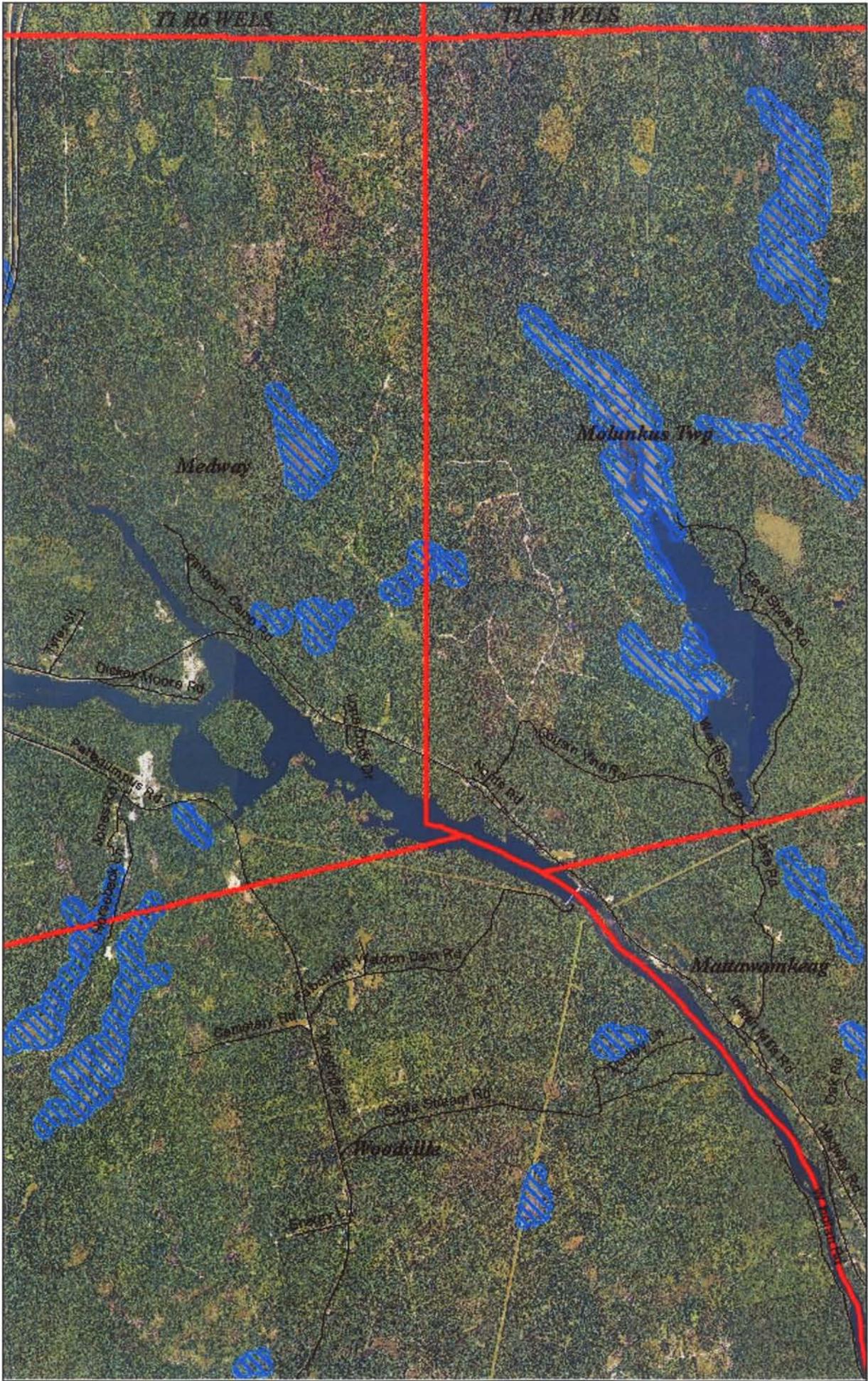
Map 27

Medway, ME

Streams and
Wetlands

1:65,000
1 inch = 5,416.67 feet





Map 28

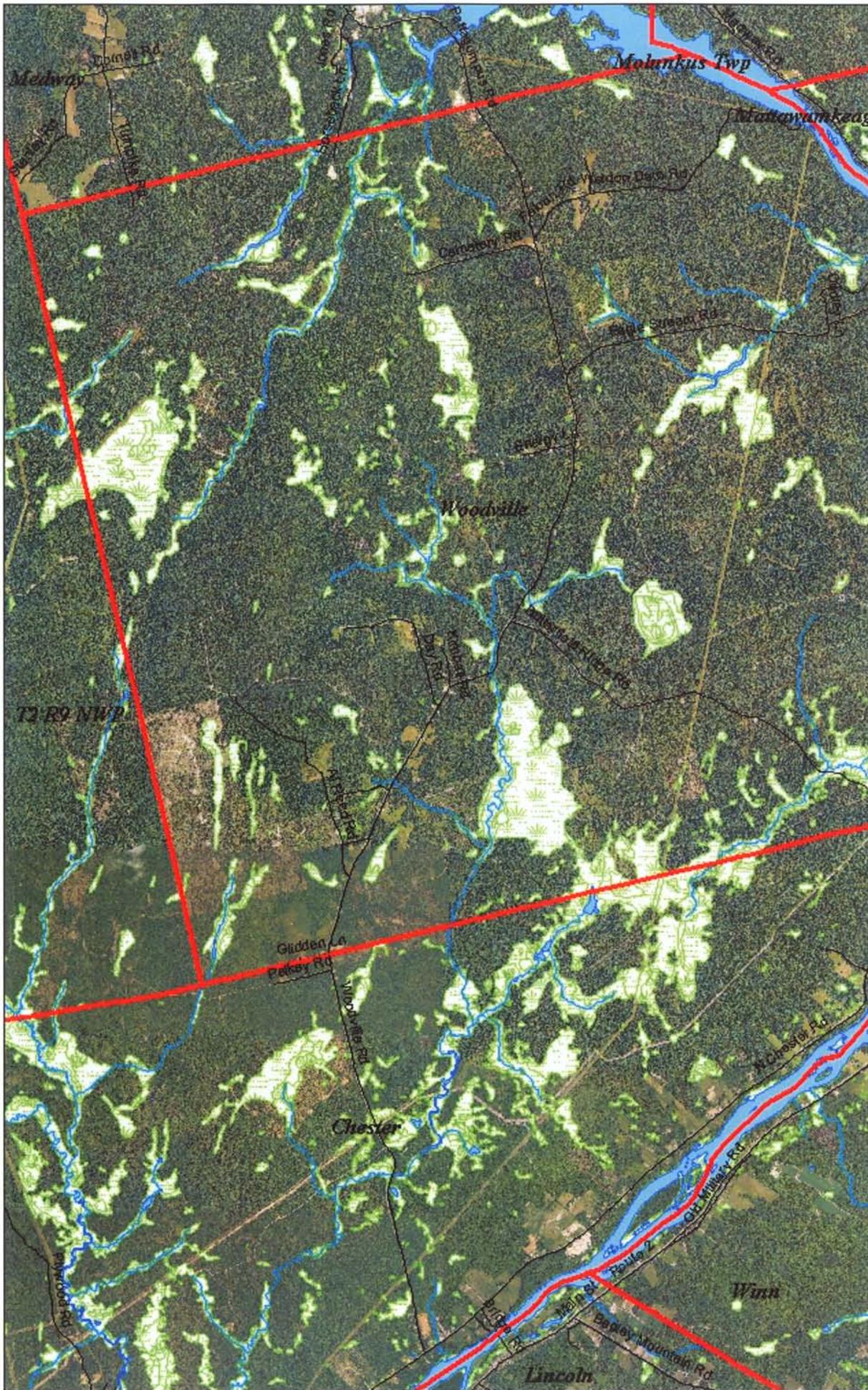
Medway, ME

Inland Wading
Bird Habitat

1:65,000

1 inch = 5,416.67 feet

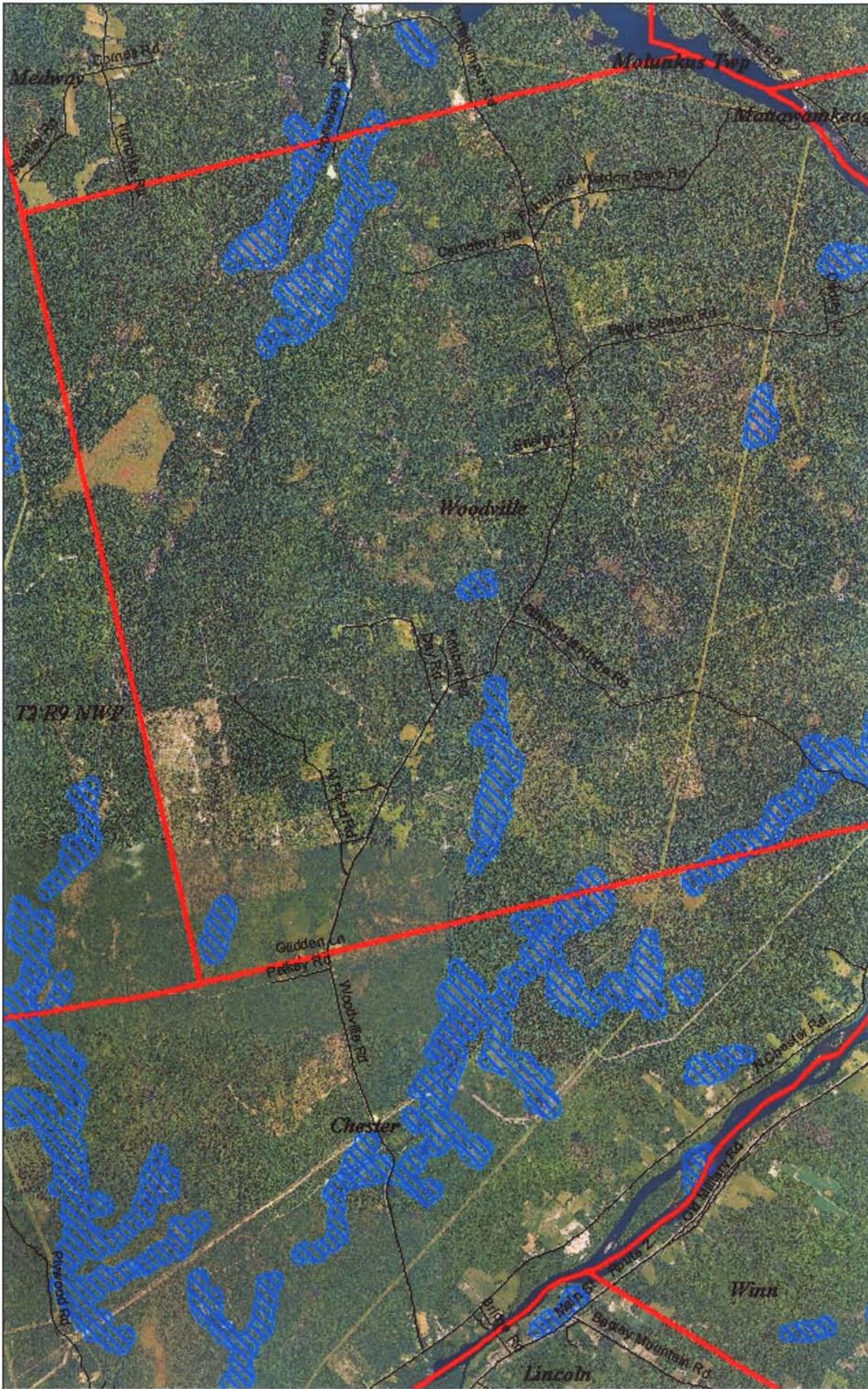




Map 29
Woodville T2R9, ME
Streams and
Wetlands

1:65,000
1 inch = 5,416.67 feet





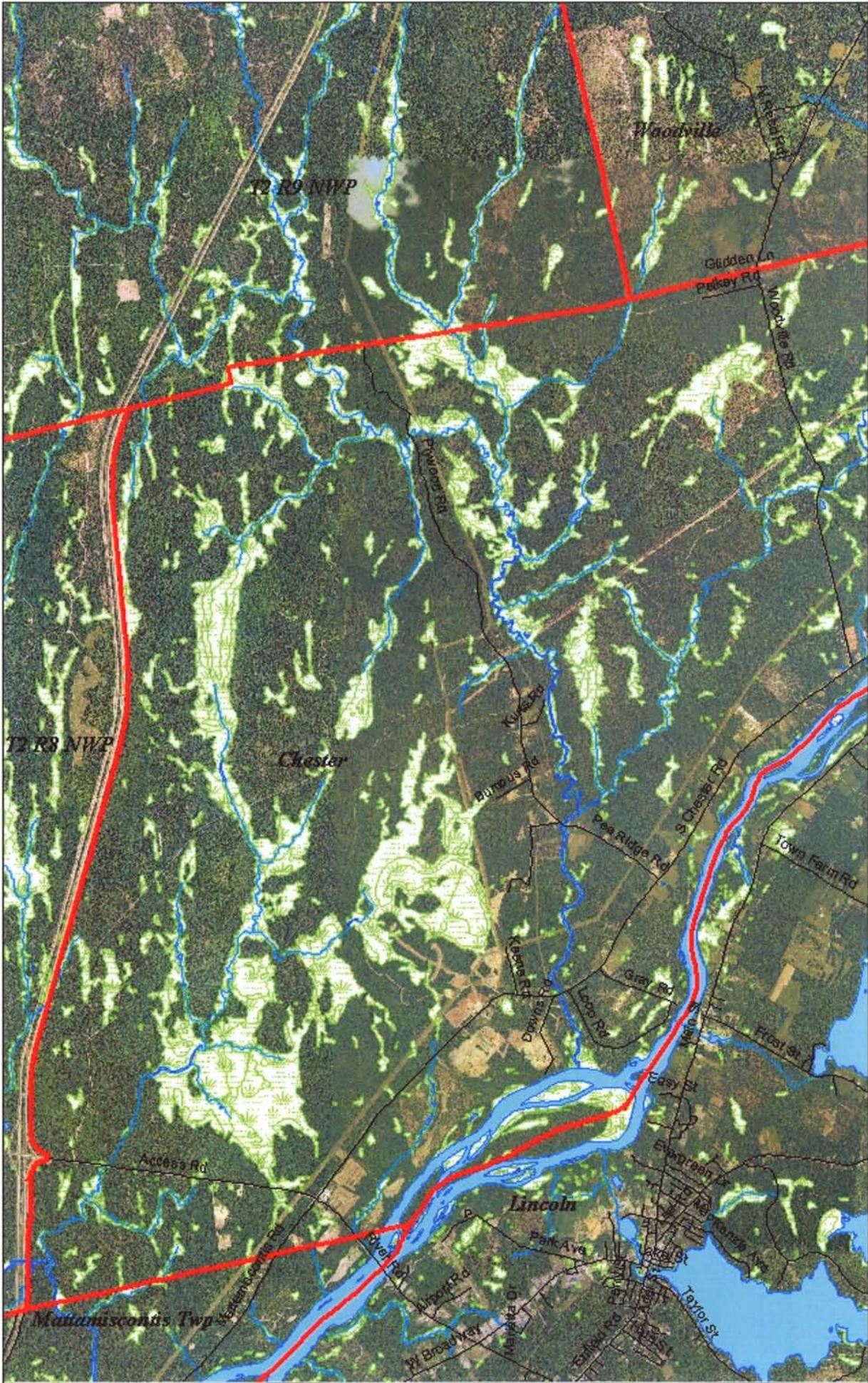
Map 30

Woodville T2R9, ME

Inland Wading
Bird Habitat

1:65,000
1 inch = 5,416.67 feet





Map 31
Chester, ME
Streams and Wetlands

1:65,000
1 inch = 5,416.67 feet

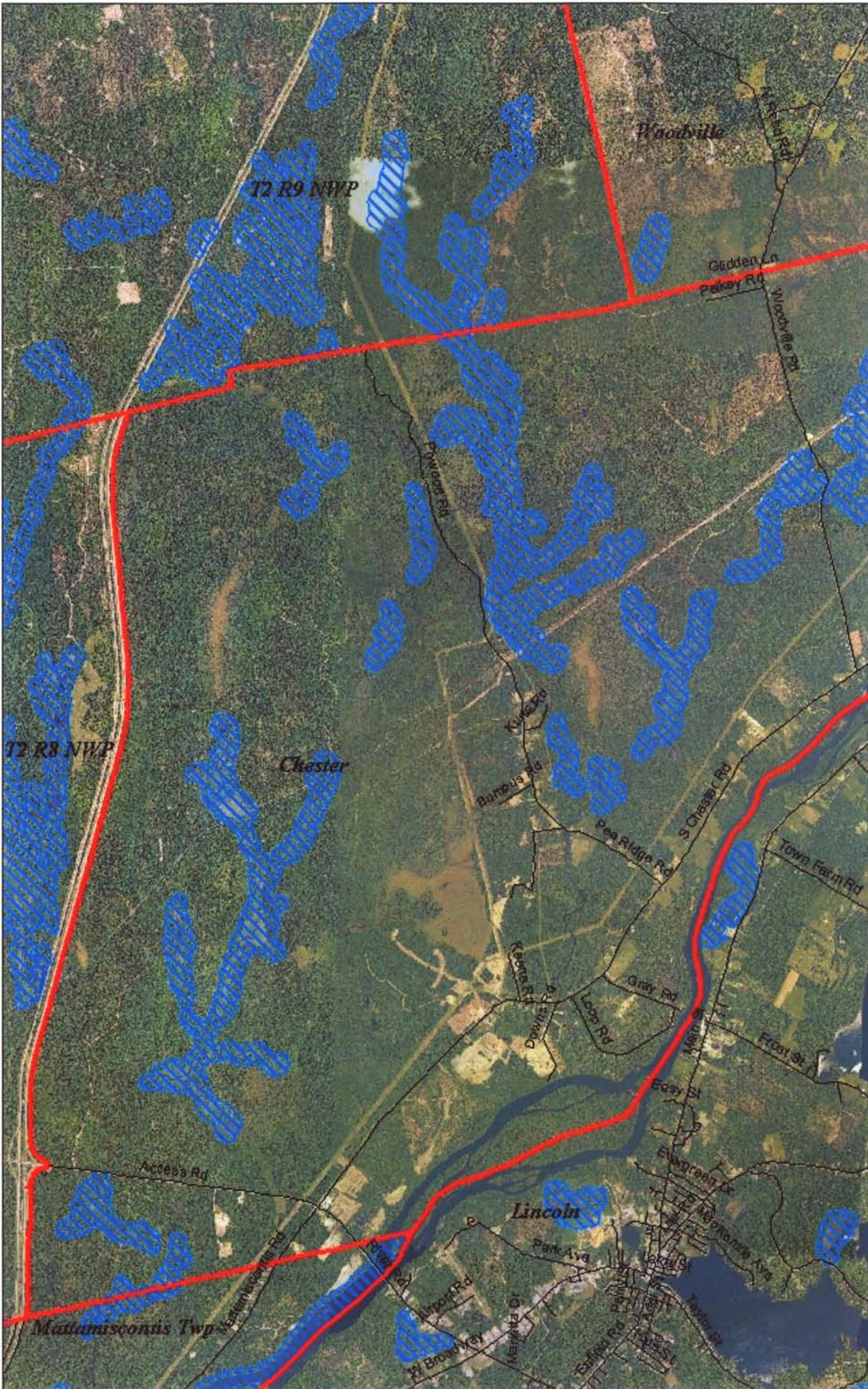


Map 32

Chester, ME

Inland Wading
Bird Habitat

1:65,000
1 inch = 5,416.67 feet





MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

JOHN ELIAS BALDACCI
GOVERNOR

April 2, 2010

EARLE G. SHETTLEWORTH, JR.
DIRECTOR

Mr. Brooke E. Barnes
Stantec Consulting
30 Park Drive
Topsham, ME 04086

Project: MHPC# 0464-10 - potential wind energy facility and associated transmission line routes; request for significant resources associated with Oakfield, Island Falls, Dyer Brook and other areas

Towns: Oakfield, Island Falls, Dyer Brook, T4 R3 Wels, ME

Dear Mr. Barnes:

In response to your recent request, I have reviewed the information received March 3, 2010 to initiate consultation on the above referenced project.

Based on the information provided, I have concluded that the project areas possibly contain one or more prehistoric and/or historic archaeological sites based on our predictive model of archaeological site location. Therefore, archaeological survey for both prehistoric and historic archaeology are necessary for the areas identified on the enclosed four maps (known archaeological sites and areas which may be sensitive for archaeological sites) prior to any ground disturbance. Lists of qualified historic and prehistoric archaeologists are enclosed along with material explaining the Phase I/II/III approach to archaeological survey. This information can also be found on our website: www.maine.gov/mhpc/project_review This office must approve any proposal for archaeological fieldwork.

Regarding above ground historic architectural resources, please forward maps which clearly indicate the Areas of Potential Effect (APE) for this project in order for us to respond properly to your request. As you know, we usually require some architectural survey for most wind projects and associated transmission lines in order to identify resources which are potentially eligible for listing in the National Register of Historic Places. Survey will need to be completed in accordance with our Section 106 specific architectural survey guidelines and associated forms.

It would be helpful for us to know early on what federal and state agencies will be involved with funding, permitting or licensing for this proposed project.

Once this information is received, we will forward a response regarding the results of our evaluation. Please contact Dr. Arthur Spiess of my staff concerning prehistoric archaeology, Lee Cranmer of my staff regarding historic archaeology or Robin Stancampiano of my staff regarding architecture if we can be of further assistance in this matter.

Sincerely,

Kirk F. Mohney
Deputy State Historic Preservation Officer



PRINTED ON RECYCLED PAPER



JOHN ELIAS BALDACCI
GOVERNOR

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

**Prehistoric Archaeologists Approved List:
Review and Compliance Consulting/Contracting (Active)**

EARLE G. SHETTLEWORTH, JR.
DIRECTOR

LEVEL 1

Ms Edna Feighner (603-228-8091)
5 Thomas Street, Apt 3.
Concord NH 03301
Edna.Feighner@dcr.nh.gov

Richard P Corey (207-778-7012)
PO Box 68
E Wilton ME 04234-0068
rcorey@maine.edu

Ms. Sarah Haugh (207-879-9496 x238)
Tetra Tech
451 Presumpscot St
Portland ME 04103
sarah.haugh@tetrattech.com

James A Clark (207-667-4055)
TRC/Northeast Cultural Resources
71 Oak St
Ellsworth ME 04605
clark.ja@gmail.com
Edward Kitson (207-778-7012)
Archaeology Research Center
University of Maine at Farmington
139 Quebec St
Farmington ME 04938
kitson@maine.edu

Mr. Michael Brigham
P. O. Box 274
New Vineyard, ME 04956
brigham@maine.edu

Mr Brian Valimont (207-251-9467)
New England Archaeology Co LLC
79 Pond St.
Newton, NH 03858-3416
newarch1@myfairpoint.net

Mark Penney (518-432-9545)
The Louis Berger Group Inc.
20 Corporate Woods Blvd.
Albany, NY 12211-2370
mpenney@louisberger.com

LEVEL 2

Dr Richard Will (207-667-4055)
TRC/Northeast Cultural Resources
71 Oak St
Ellsworth ME 04605
FAX: 207-667-0485
willtrc@adelphia.net

Dr Ellen Cowie (207-778-7012)
Northeast Archaeology Research Center
139 Quebec St
Farmington ME 04938-1507
cowie@nearchaeology.com

Dr Bruce J Bourque (207-287-3909)
Maine State Museum
83 State House Station
Augusta ME 04333-0083
bbourque@abacus.bates.edu

Dr Nathan Hamilton (207-780-5324)
Dept of Geography & Anthropology
University of Southern Maine
Gorham ME 04038

Geraldine Baldwin (914-271-0897)
John Milner Associates Inc
1 Croton Point Ave Ste B
Croton-on-Hudson NY 10520
FAX: 914-271-0898
GeraldineBaldwin@aol.com

Robert N Bartone
Archaeology Research Center
University of Maine at Farmington
139 Quebec St
Farmington ME 04938
b_bartone@maine.edu

Dr Leslie Shaw (207-725-3815)
Dept of Sociology & Anthropology
Bowdoin College
Brunswick ME 04011
e-mail: lshaw@bowdoin.edu

Dr William R Belcher
US Army CILHI
310 Worchester Ave Bldg 45
Hickam AFB HI 96853-5530
wbelcher@msn.com

Dr. Robert Goodby (603-446-2366)
Monadnock Archaeological Consulting
16 Fox Hill Rd
Stoddard NH 03464
MonadArch@surfglobal.net

Dr Stuart Eldridge (207-879-9496)
Tetra Tech
451 Presumpscot St
Portland ME 04103
stuart.eldridge@tetrattech.com

Dr Victoria Bunker (603-776-4306)
PO Box 16
New Durham NH 03809-0016
vbi@worldpath.net

David Putnam (207-762-6078)
47 Hilltop Rd
Chapman ME 04757
putnamd@umpi.edu

Dr Steven L Cox (207-348-6859)
P. O. Box 97
Little Deer Isle, ME 04650
steven@juniperlodge.us

Edward Moore
TRC/Northeast Cultural Resources
71 Oak St
Ellsworth ME 04605
FAX: 207-667-0485



05/18/09



MAINE HISTORIC PRESERVATION COMMISSION
 55 CAPITOL STREET
 65 STATE HOUSE STATION
 AUGUSTA, MAINE
 04333

JOHN ELIAS BALDACCI
 GOVERNOR

**Historic Archaeologists Approved List:
 Review and Compliance Consulting/Contracting (Active)**

EARLE G. SHETTLEWORTH, JR.
 DIRECTOR

LEVEL 1

Stephen R. Scharoun
 Northeast Archaeology Research Center
 139 Quebec St.
 Farmington, Maine 04938
 207/778-7012(Work)
Scharoun@nearcarchaeology.com

Timothy Dinsmore
 57 Walpole Meeting House Road
 Walpole, Maine 04573
 207/563-3473
 cell:207/380-2836
sugar@tidewater.net

Barry H. Rodrigue
 75 Russell Street
 Bath, Maine 04530
 207/442-7779 (Home)
 207/753-6574(Work)
rodrigue@usm.maine.edu

Norman Buttrick
 168 Clinton Street
 Portland, Maine 04103
 207/773-4070
nbuttr1@maine.rr.com

Franklin Price♦
 1516 Chuli Nene
 Tallahassee, Florida 32301
 207/664-9857
franklinhprice@hotmail.com

LEVEL 2

Pamela B. Crane, M.A.
 33 Sequoia Drive
 Freeport, Maine 04032
 207/865-4129
cranemorriso@suscom-maine.net

Gretchen F. Faulkner, M.A.
 Hudson Museum
 University of Maine
 Orono, Maine 04469
 207/581-1909

Emerson W. Baker, Ph.D.
 38 Old East Scituate Road
 York, Maine 03909
 207/363-0255
ebaker@maine.rr.com

Neill DePaoli, Ph. D.
 76 Northwest Street
 Portsmouth, New Hampshire 03801
 603/766-0561
ndppquid@yahoo.com

Alexandra Chan, Ph.D.
 300 Cass Street
 Portsmouth, New Hampshire 03801
 603/431-8397
alexkachan@gmail.com

Peter Morrison
 33 Sequoia Drive
 Freeport, Maine 04032
 207/865-4129
cranemorriso@suscom-maine.net

Alaric Faulkner, Ph.D.
 Department of Anthropology
 Stevens Hall South
 Orono, Maine 04469
 207/581-1900
ric@univ.maine.edu.umat

Rick Morris, M.A.
 In Depth Archaeology
 382 College Street
 Lewiston, Maine 04240
 207/782-8224
rmorris@InDepthArchaeology.com

Martha E. Pinello, M.A.
 318 Smith Road
 Antrim, New Hampshire 03440
 603/588-3761
mpinello@conknet.com

Stefan Claesson, Ph.D.♦
 University of New Hampshire
 Ocean Process Analysis Laboratory
 8 College Road, 142 Morse Hall
 Durham, New Hampshire 03824
 603/862-0639
stefan.claesson@unh.edu
<http://www.opal.sr.unh.edu>

David S. Robinson, M.A.♦
 Fathom Research, LLC
 Quest Center, Suite 315
 1213 Purchase Street
 New Bedford, Massachusetts 02740
 Cell: 401/578-5506
 Office: 208/990-0997
drobinson@fathomresearch.info
www.fathomresearch.info

Anthony Booth
 Booth Archaeology
 192 Cilleyville Road
 Andover, New Hampshire 03216
 603/748-2289
tonybooth@archaeologist.com
www.bootharchaeology.com

Kathleen Wheeler, Ph.D.
 Independent Archaeological Consulting
 97 Morning Street
 Portsmouth, New Hampshire 03801
 603/430-2970
kwheeler@iac-llc.net

♦Underwater and Maritime





ANGUS S. KING, JR.
GOVERNOR

EARLE G. SHETTLEWORTH, JR.
DIRECTOR

CONTRACT ARCHAEOLOGY GUIDELINES

June 10, 2002

This document is provided as background information to agencies, corporations, professional consultants or individuals needing contract archaeological services (also known as Cultural Resources Management archaeology) in Maine. These guidelines are based on state rules (94-089 Chapter 812).

Project Types

The vast majority of contract archaeology survey work falls into one of three categories. **Phase I** surveys are designed to determine whether or not archaeological sites exist on a particular piece of land. Such work involves checking records of previous archaeology in the area, walking over the landscape to inspect land forms and look for surface exposures of soil and possible archaeological material, and the excavation of shovel test pits in areas of high probability.

Phase II surveys are designed to focus on one or more sites that are already known to exist, find site limits by digging test pits, and determine site content and preservation. Information from Phase II survey work is used by the Maine Historic Preservation Commission (MHPC) to determine site significance (eligibility for listing in the National Register of Historic Places). **Phase III** archaeological work, often called data recovery, is careful excavation of a significant archaeological site to recover the artifacts and information it contains in advance of construction or other disturbance.

Archaeological sites are further divided into two broad categories of culture, **prehistoric** (or Native American), and **historic** (or European-American). Different archaeological specialists are usually needed for prehistoric or historic sites because the nature of content and preservation and site locations are quite different.

Scope of Work

In responding to a project submission, the MHPC may issue a letter specifying which type of archaeological survey is needed (prehistoric, historic or both) and at what level (Phase I, II, or III). Often the response letter contains further information, such as the suspected presence of an historic site of a certain age, or a statement that only a portion of the project parcel in question is sensitive for prehistoric sites and only that portion needs archaeological survey.

Once the project applicant has one or more scopes of work (proposals) from appropriate archaeologists (see below), the applicant should submit their preferred proposal (*without attached financial information or bid total*) to the MHPC for approval. MHPC will not comment upon cost, but will comment on the appropriateness of the scale and scope of the work. An approval from MHPC of the scope of work is the applicant's guarantee that, if the field and laboratory work are done according to the scope, and appropriately described in writing, the results will be accepted by MHPC.

The final written report on the project must also be submitted to MHPC for review and comment.



Finding an Archaeologist

At the time that MHPC issues a letter requiring archaeological survey work, MHPC will also supply one (or more) lists of archaeologists (Levels 1 and/or 2, historic or prehistoric) appropriate to the type of work (Phase I, II, III, historic or prehistoric). Archaeologists on the Level 2 Approved Lists can do projects of any level, including Phase I archaeological survey projects. Level 1 archaeologists are restricted to doing Phase I surveys, and certain planning projects for municipal governments.

MHPC maintains lists of archaeologists interested in working in different geographic areas of Maine, and those who are qualified in different types of work. The archaeologists themselves indicate their availability (except for short-term absence) to MHPC on a periodic basis, so archaeologists on the list can be expected to respond to inquiries. The applicant should solicit proposals or bids for work from archaeologists whose names appear on the list supplied by MHPC.

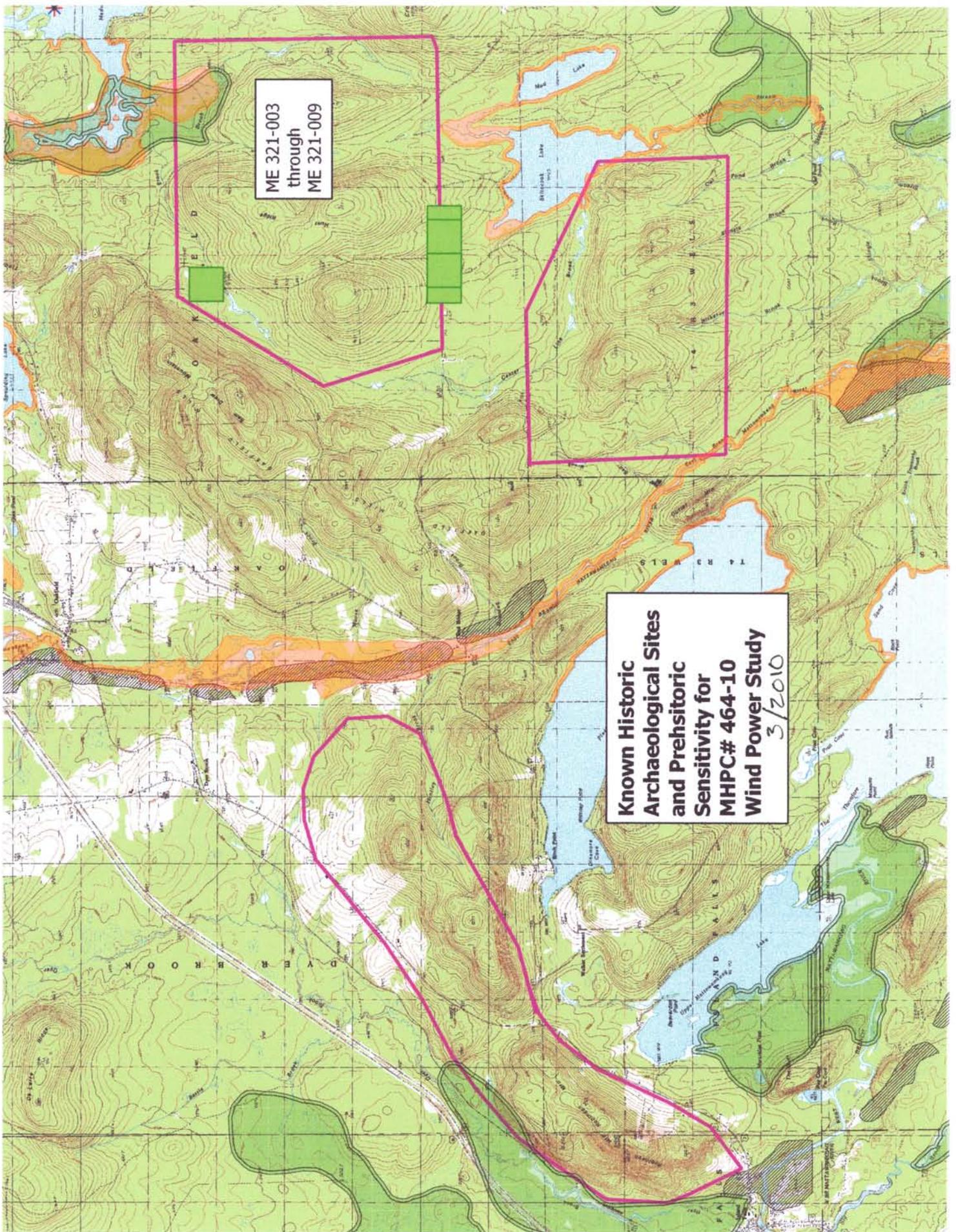
These archaeologists' names are taken from lists of archaeologists approved for work in Maine by MHPC under a set of rules establishing minimal qualifications, such as previous supervisory experience in northern New England, and an appropriate graduate degree. *However, the inclusion of an archaeologist on one of these lists should not be interpreted as an endorsement by the MHPC beyond these limited qualification criteria. Moreover, the MHPC cannot recommend the services of an individual archaeologist.*

Project Final Report

Whatever the archaeological survey result, a final report on the project should be submitted by the applicant to the MHPC. The MHPC will review the report, and issue further guidance or issue a "clearance" letter for the project.

ME 321-003
through
ME 321-009

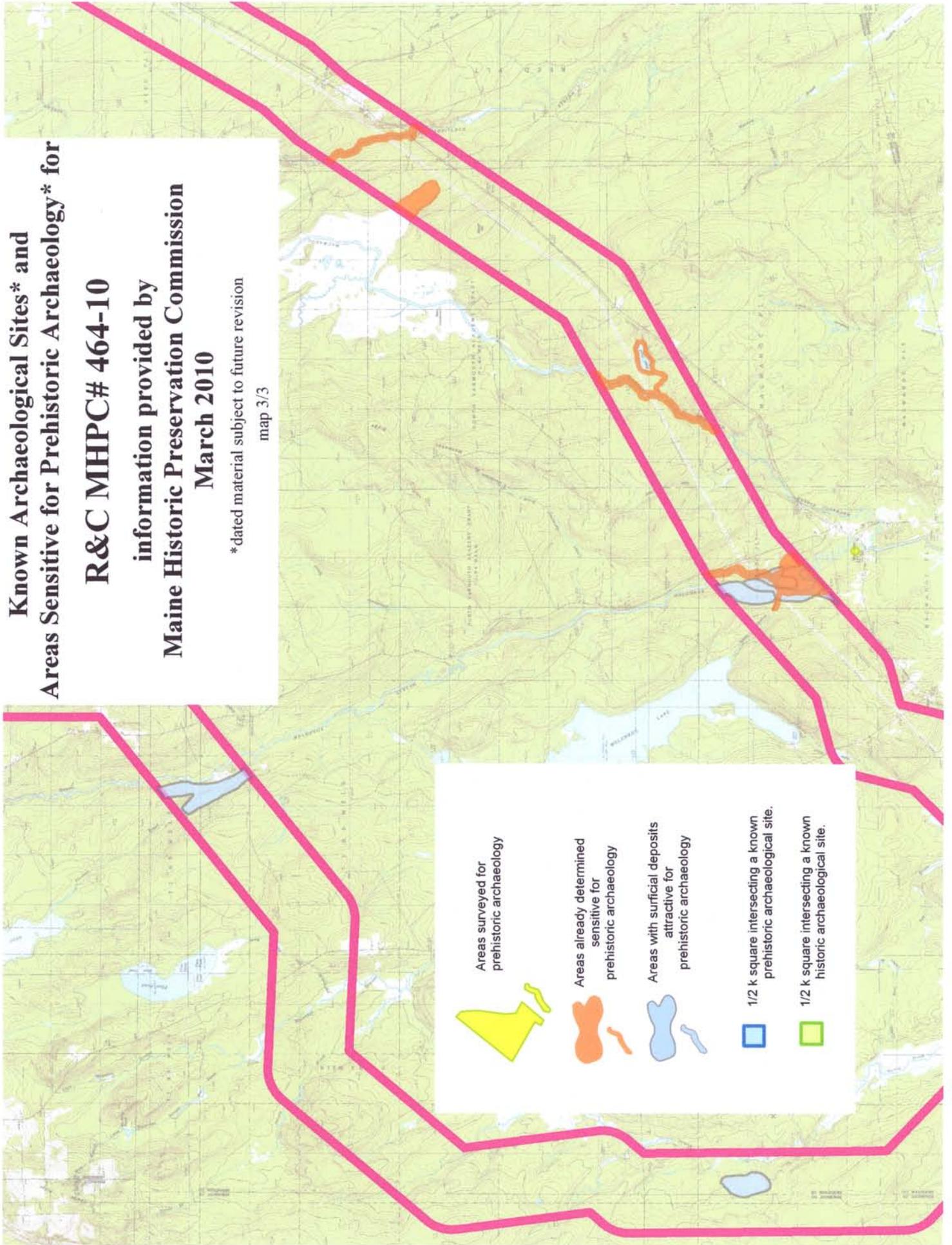
**Known Historic Sites
Archaeological Sites
and Prehistoric
Sensitivity for
MHPC# 464-10
Wind Power Study**
3/2010



**Known Archaeological Sites* and
Areas Sensitive for Prehistoric Archaeology* for
R&C MHPC# 464-10**

**information provided by
Maine Historic Preservation Commission
March 2010**

*dated material subject to future revision
map 3/3



Areas surveyed for prehistoric archaeology

Areas already determined sensitive for prehistoric archaeology

Areas with surficial deposits attractive for prehistoric archaeology

1/2 k square intersecting a known prehistoric archaeological site.

1/2 k square intersecting a known historic archaeological site.

**Known Archaeological Sites* and
Areas Sensitive for Prehistoric Archaeology* for**

R&C MHP C# 464-10

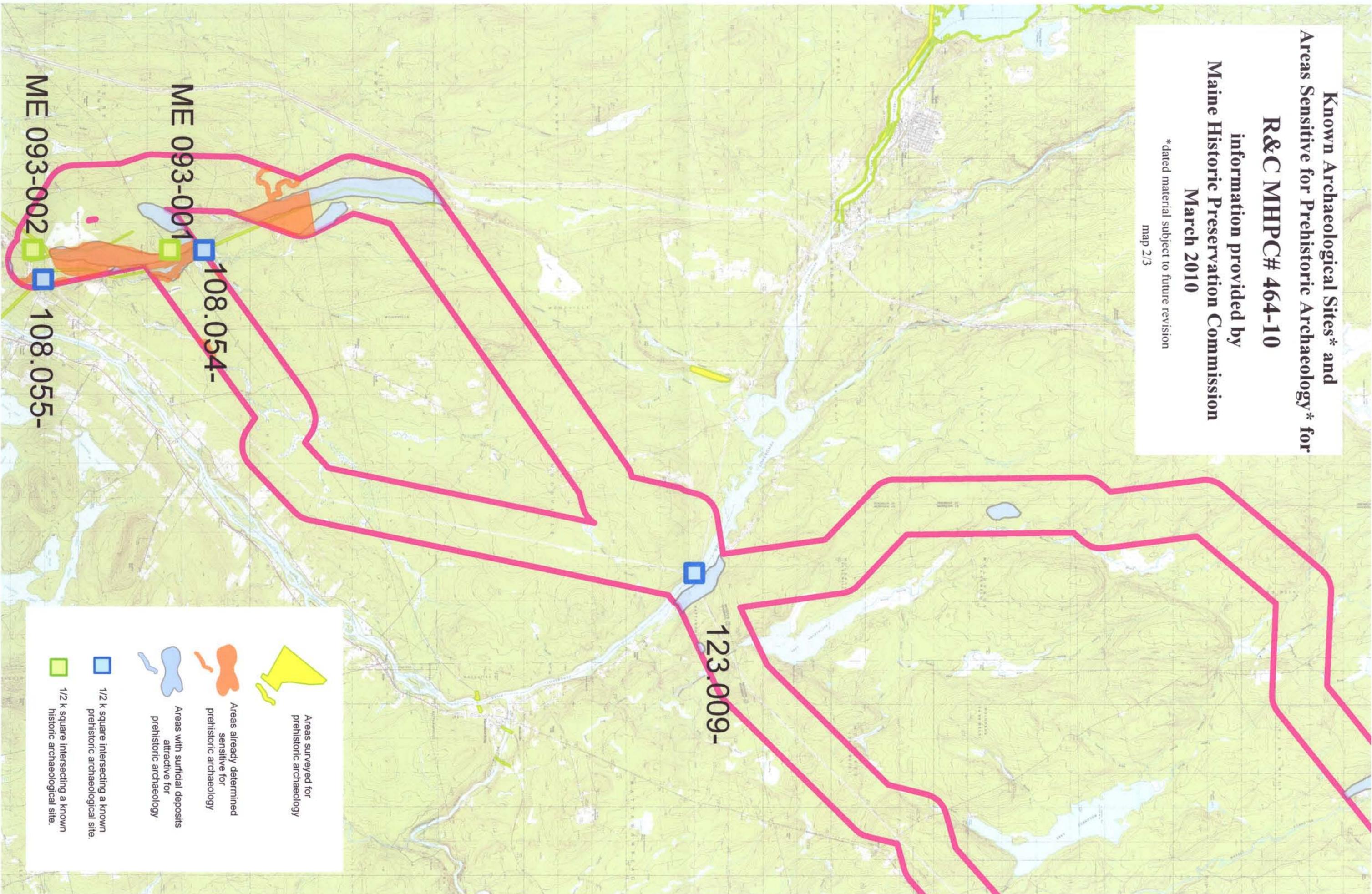
information provided by

Maine Historic Preservation Commission

March 2010

*dated material subject to future revision

map 2/3



**Areas surveyed for
prehistoric archaeology**

**Areas already determined
sensitive for
prehistoric archaeology**

**Areas with surficial deposits
attractive for
prehistoric archaeology**

**1/2 k square intersecting a known
prehistoric archaeological site.**

**1/2 k square intersecting a known
historic archaeological site.**

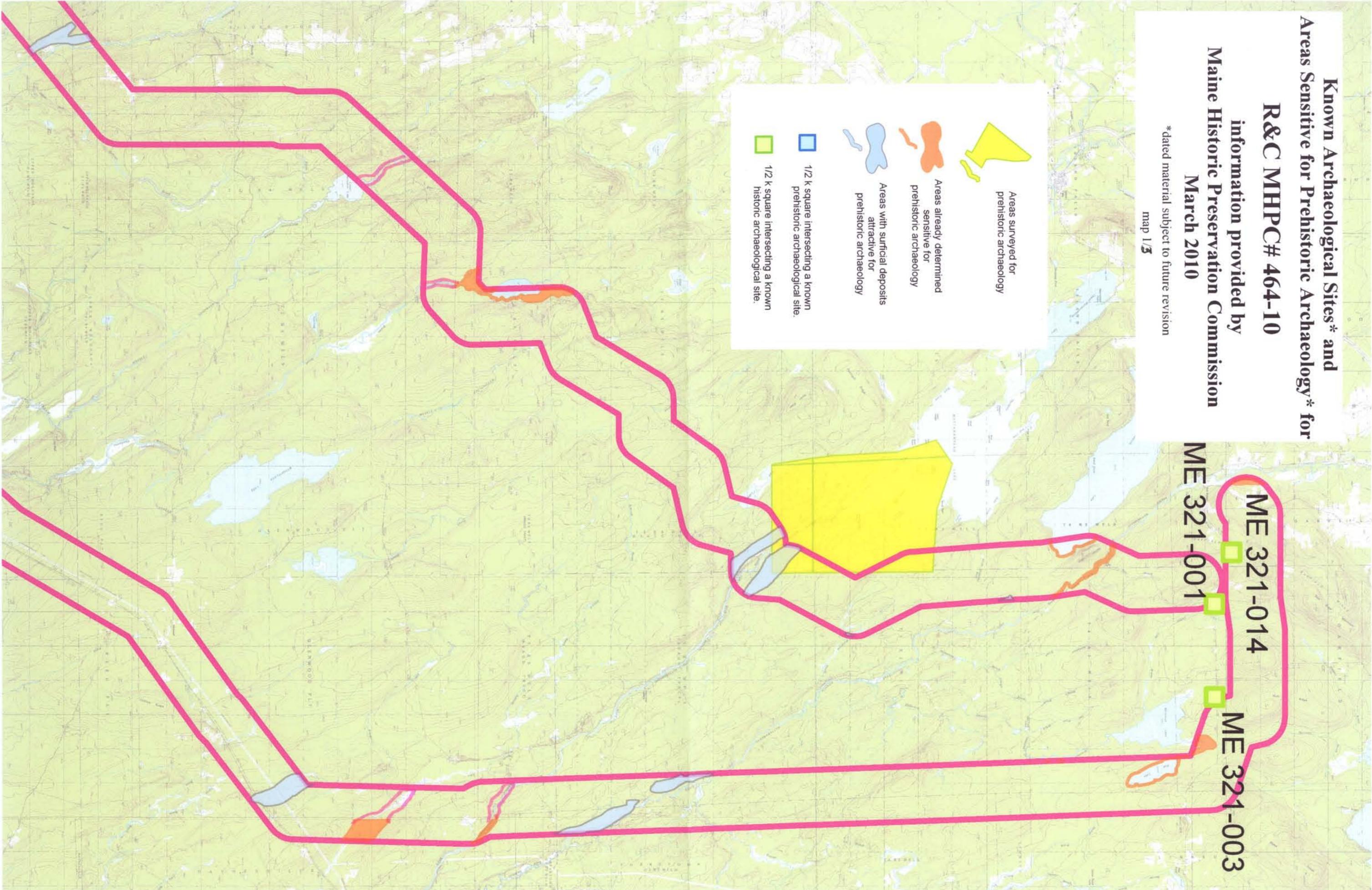
**Known Archaeological Sites* and
Areas Sensitive for Prehistoric Archaeology* for**

R&C MHP C# 464-10
information provided by
Maine Historic Preservation Commission
March 2010

*dated material subject to future revision
map 1/3

Legend for archaeological sites and sensitive areas:

- Areas surveyed for prehistoric archaeology (Yellow polygon)
- Areas already determined sensitive for prehistoric archaeology (Orange polygon)
- Areas with surficial deposits attractive for prehistoric archaeology (Light blue polygon)
- 1/2 k square intersecting a known prehistoric archaeological site. (Blue square)
- 1/2 k square intersecting a known historic archaeological site. (Green square)





STATE OF MAINE
DEPARTMENT OF CONSERVATION
93 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0093

JOHN ELIAS BALDACCI
GOVERNOR

ELIZA TOWNSEND
COMMISSIONER

March 31, 2010

Brooke Barnes
Stantec Consulting
30 Park Drive
Tosham, ME 04086

Re: Rare and exemplary botanical features, Proposed Potential Transmission Lines and Wind Development Areas, Project 195600518, Chester to Oakfield, Maine.

Dear Mr. Barnes:

I have searched the Natural Areas Program's Biological and Conservation Data System files in response to your request of March 1, 2010 for information on the presence of rare or unique botanical features documented within 250 feet of the two proposed transmission line alignments and at the potential wind development sites in the area between the Towns of Chester and Oakfield, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. For certain types of projects, we also incorporate review of landscape analysis sites, which are areas determined to have a high potential to support significant natural features. Our review involves examining maps, manual and computerized records, aerial photography, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

This finding is for project scoping purposes only and should not be considered as a final review of the proposed project. When specific location options for facilities and/or transmission lines have been determined and updated environmental assessments have been completed, a subsequent review request should be submitted to us for recommendations regarding impacts to significant natural features prior to application submittal.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are several botanical features documented along the potential transmission line corridors and within the potential wind development area.

Please refer to the table below and enclosed maps and fact sheets for more information about these features.

Specific commentary follows:

Hunt Ridge, Oakfield (Map 1). This site supports an exemplary Beech – Birch – Maple Forest. If wind infrastructure is planned within the natural community mapped here, please submit site plans for further commentary.

Dyer Brook and Robinson Mountain, Dyer Brook (Map 2). This site supports an exemplary Red Oak – Northern Hardwoods – White Pine Forest and a population of the rare plant Large Toothwort, *Cardamine maxima*. If wind infrastructure is planned within the natural community mapped here, please submit site plans for further commentary.

Table 1. Rare and Exemplary Botanical Features

Feature	Global Rank	State Rank	State Status	Occurrence Rank	Last Observed
Beech – Birch – Maple Forest (Map 1)	G3G5	S4	NA	Good	2004
Red Oak – Northern Hardwood Forest (Map 2)	GNR	S4	NA	Fair	2003
Large Toothwort, <i>Cardamine maxima</i> (Map 2)	G5	S1	Special Concern	Fair	2003
Streamshore Ecosystem (Map 3)		S4	NA	Good	2009
Small Yellow Water Crowfoot, <i>Ranunculus gmelinii</i> var. <i>purshii</i> (Map 3)	G5T5	S2	Threatened	Good	2008
Showy Lady's-slipper, <i>Cypripedium reginae</i> (Map 3)	G4	S3	Threatened	Good	2008
Marsh Valerian, <i>Valeriana uliginosa</i> (Map 3)	G4	S2	Special Concern	Good	2008
Swamp Fly-honeysuckle, <i>Lonicera oblongifolia</i> (Map 3)	G4	S3	Special Concern	Fair	2008
Northern Bog Sedge, <i>Carex gynocrates</i> (Map 3)	G5	S2	Special Concern	Good	2008
Eccentric Bog Ecosystem (Map 4)	GNR	S3	NA	Good	2007
Swarthy Sedge, <i>Carex adusta</i> (Map 5)	G5	S2	Endangered	Fair	1997

Alder Brook, Glenwood PLT (Map 3). This site supports an exemplary Streamshore Ecosystem and has indicators of enrichment. We recommend that you survey this area for rare calciphilic plant species.

Alder Brook Headwaters (Map 3). The rare plants at this site (Small Yellow Water Crowfoot, Showy Lady's-slipper, Marsh Valerian, Swamp Fly-honeysuckle, and Northern Bog Sedge) occur at the MEPCO Transmission Line, at the Headwaters of Alder Brook site, along the potential easterly alignment. Some accommodation should be made to provide continued survival of these populations at this site.

Flinn Pond, T1 R5 WELS and Benedicta TWP (Map 4). The potential westerly alignment (Greenfield Glenwood Options 090209) intersects the edge of an Eccentric Bog Ecosystem at this site. The transmission line as proposed poses no concerns and should not impact the ecosystem.

Horseback, Chester (Map 5). A single stem of the rare Swarthy Sedge, an early successional species, was found on the existing R.O.W. of the potential westerly alignment in 1997. The alignment as proposed is not a concern for this population.

Skitacook Stream Flats, T4 R3 WELS and Linneus (Map 6). The potential alignment in this area crosses the easterly edge of this landscape analysis site. We recommend that you survey the area for rare species in this area of the transmission line alignment.

Ebhorse Stream Bog, Woodville and Chester (Map 7). The potential alignment crosses through a landscape analysis site, however, we believe it is unlikely that any natural communities or ecosystems would be mapped at this site. We do, however, suggest botanical survey work where the northern white cedar grows on the northeast side.

Keene Bog, Chester (Map 8). This landscape analysis site has not been surveyed by MNAP and but we believe it has the potential for natural community mapping. The current alignment to the east of the existing easterly line (Oakfield T Line) is preferred. If the westerly alignment (Greenfield Glenwood Options 090209) is the preferred alignment, we suggest exploring options to move the line farther away from the bog on the southwest side of this site. Straightening the line by removing the last two angles before the terminus would sufficiently move the line from this bog.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

The Natural Areas Program is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. The Natural Areas Program welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by the Natural Areas Program are to be published in any form, the Program should be informed at the outset and credited as the source.

The Natural Areas Program has instituted a fee structure of \$75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for \$300.00 for our services.

Thank you for using the Natural Areas Program in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,



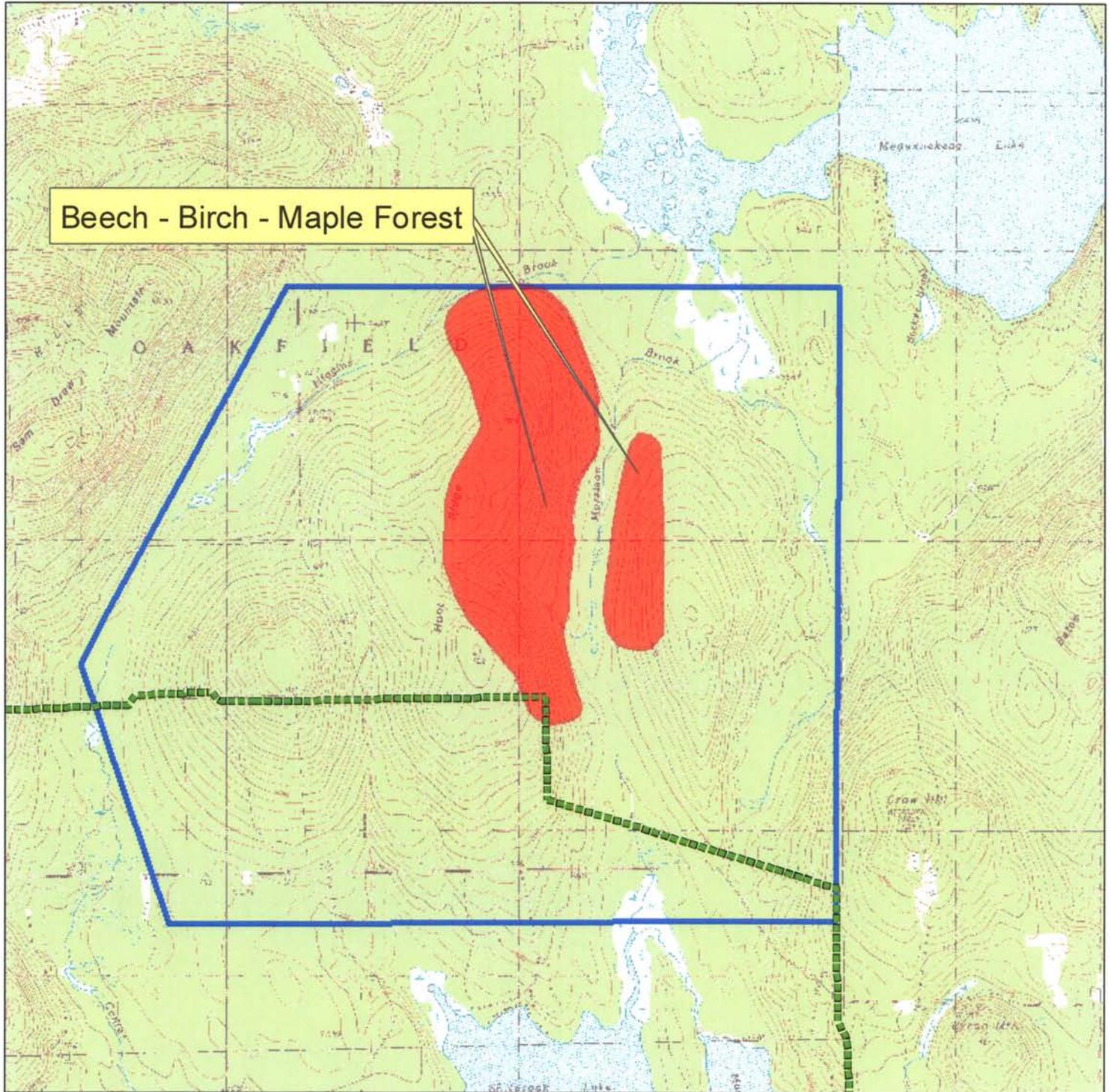
Lisa St. Hilaire
Information Manager
Maine Natural Areas Program
207-287-8046

Lisa.St.Hilaire@maine.gov

Enclosures

Map 1. Hunt Ridge, Oakfield, Maine

Potential Transmission Line Corridors and Potential Wind Development Areas Stantec PN 195600518



Beech - Birch - Maple Forest



-  Natural Community
-  Potential Transmission Line Oakfield T Line
-  Approximate Project Boundary

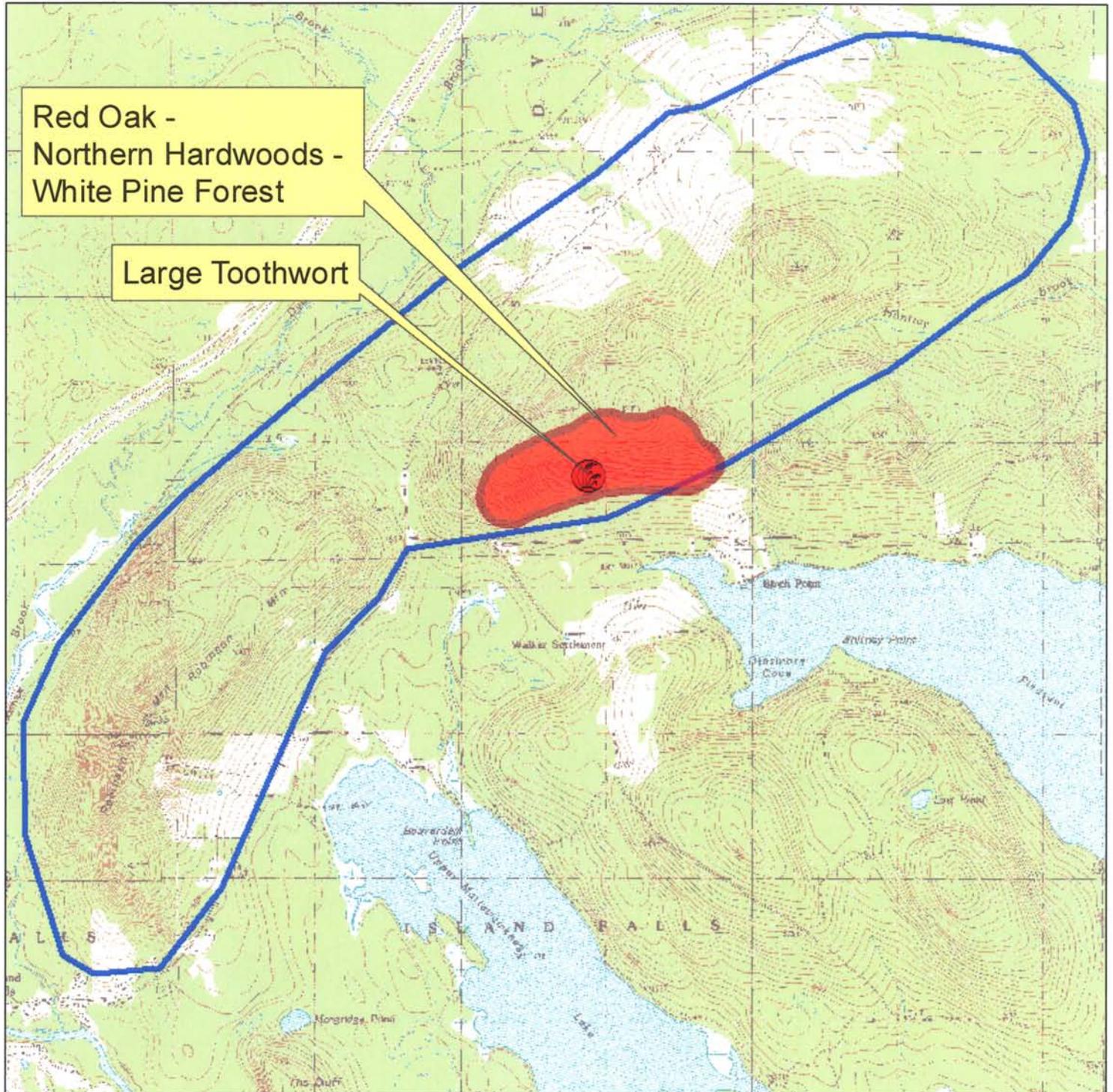
0 0.2 0.4 0.8 1.2 1.6 Miles

Maine Natural Areas Program
March 2010



Map 2. Dyer Brook and Robinson Mountain, Dyer Brook, Maine

Potential Transmission Line Corridors and
Potential Wind Development Areas Stantec PN 195600518



-  Rare Plant
-  Natural Community
-  Approximate Project Boundary

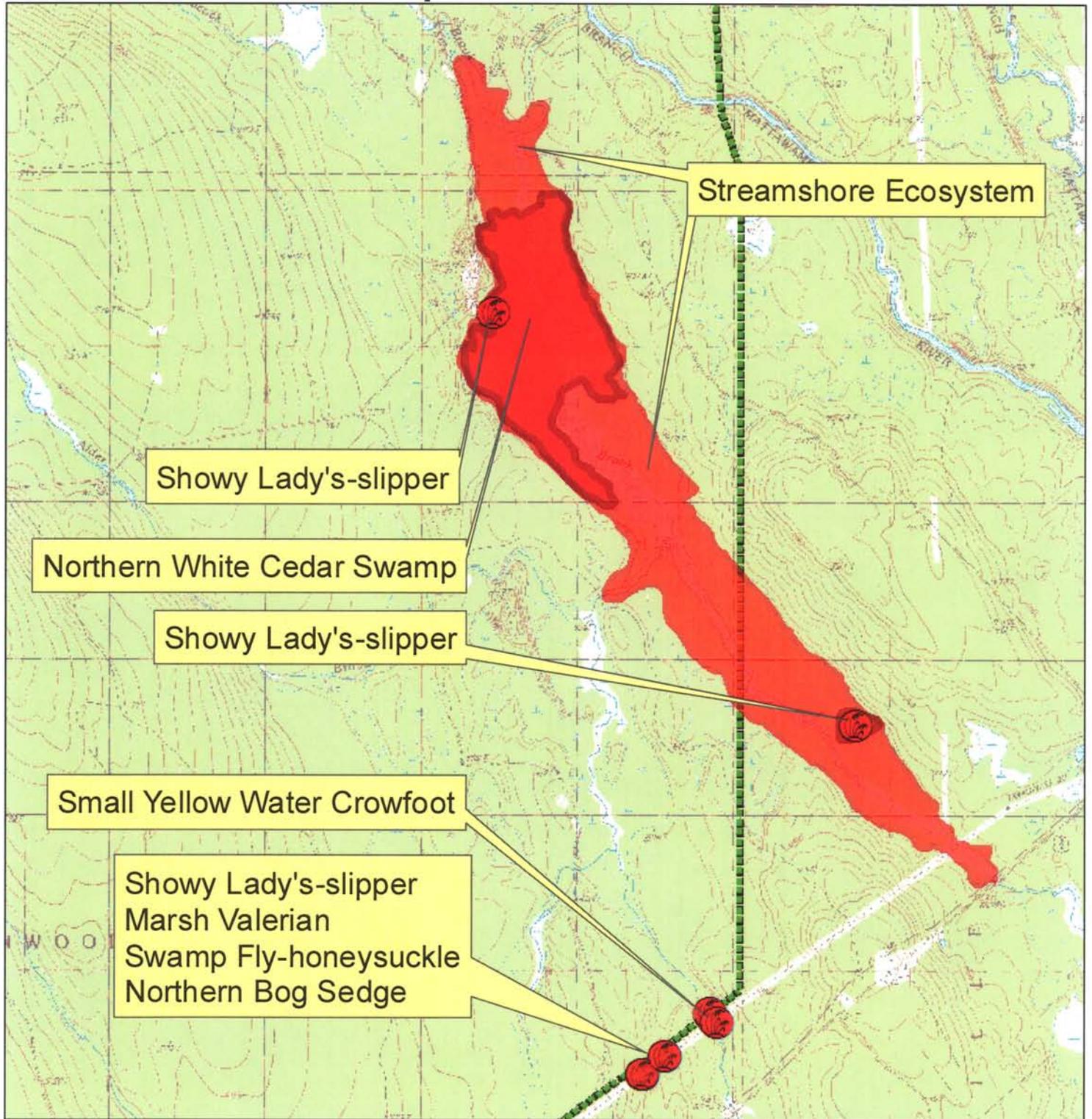
0 0.150.3 0.6 0.9 1.2
Miles

Maine Natural Areas Program
March 2010

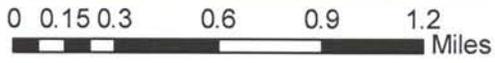


Map 3. Alder Brook and Alder Brook Headwaters, Haynesville, Glenwood PLT, T3 R3 WELS

Potential Transmission Line Corridors and Potential Wind Development Areas Stantec PN 195600518



- Rare Plant
- Natural Community
- Potential Transmission Line Oakfield T Line

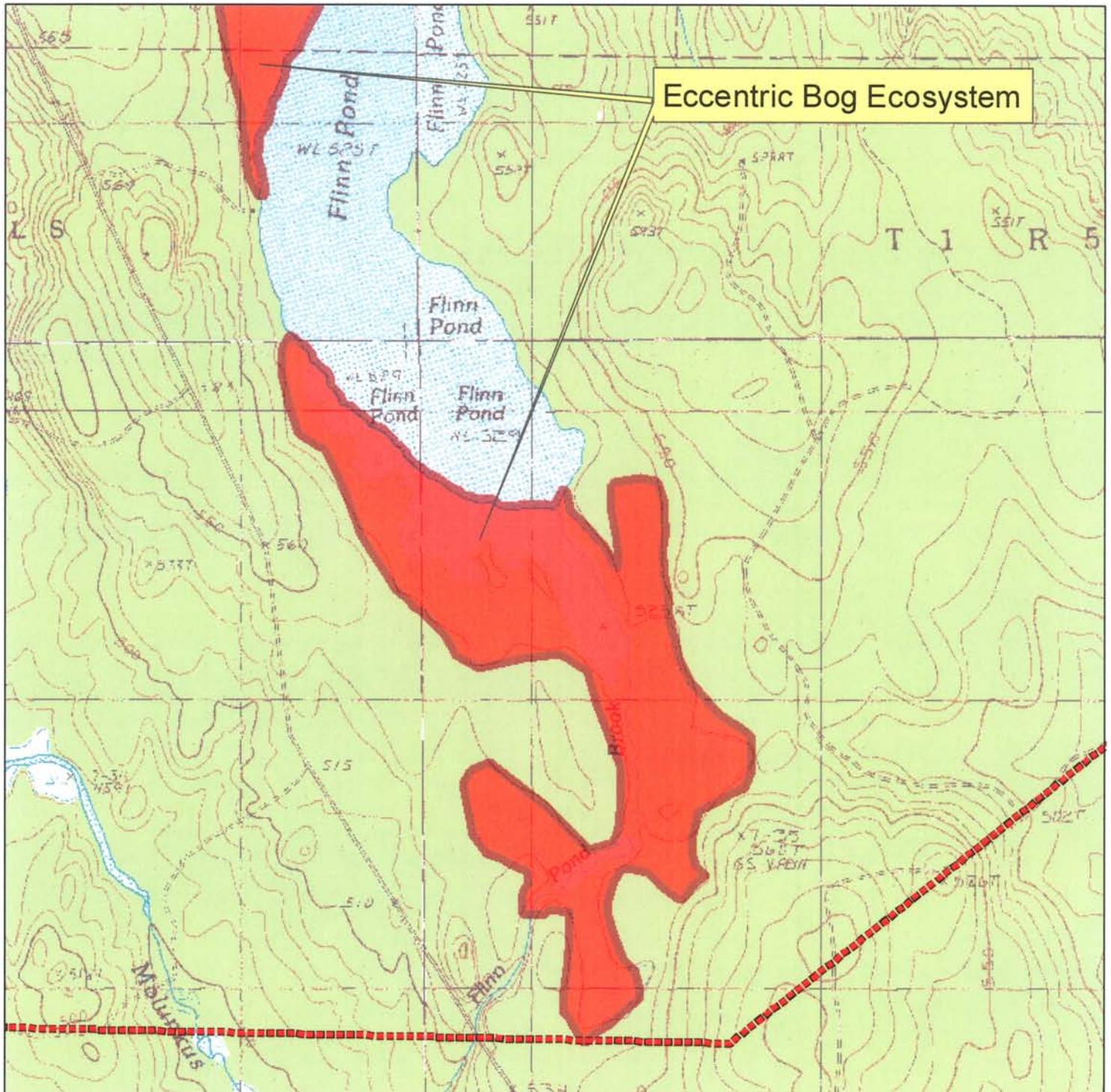


Maine Natural Areas Program
March 2010



Map 4. Flinn Pond, T1 R5 WELS, Maine

Potential Transmission Line Corridors and Potential Wind Development Areas Stantec PN 195600518



Natural Community



Potential Transmission Line Greenfield Glenwood

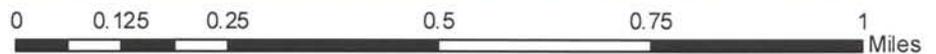
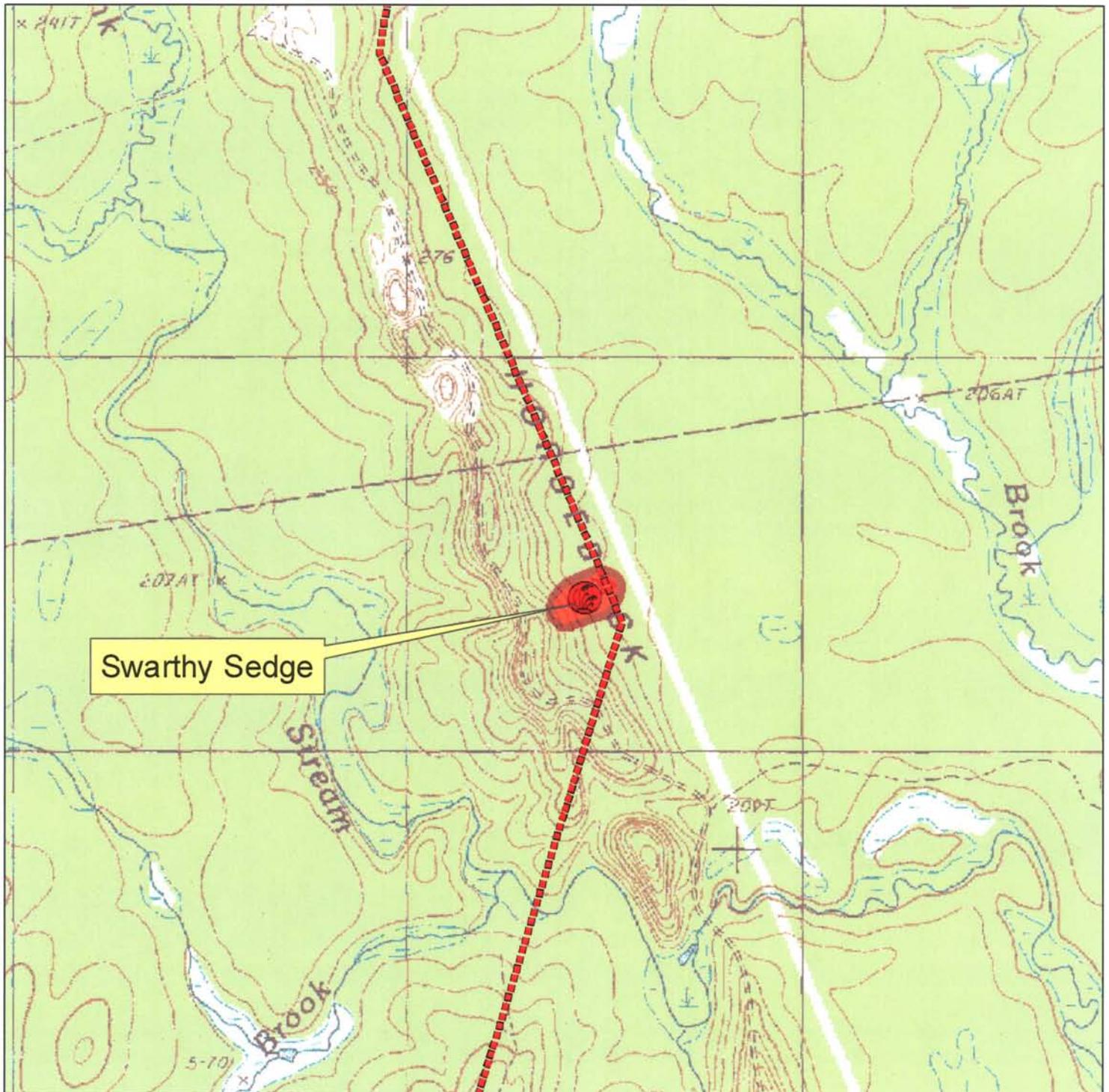
0 0.1 0.2 0.4 0.6 0.8 Miles

Maine Natural Areas Program
March 2010



Map 5. Horseback, Chester, Maine

Potential Transmission Line Corridors and Potential Wind Development Areas Stantec PN 195600518



Rare Plant

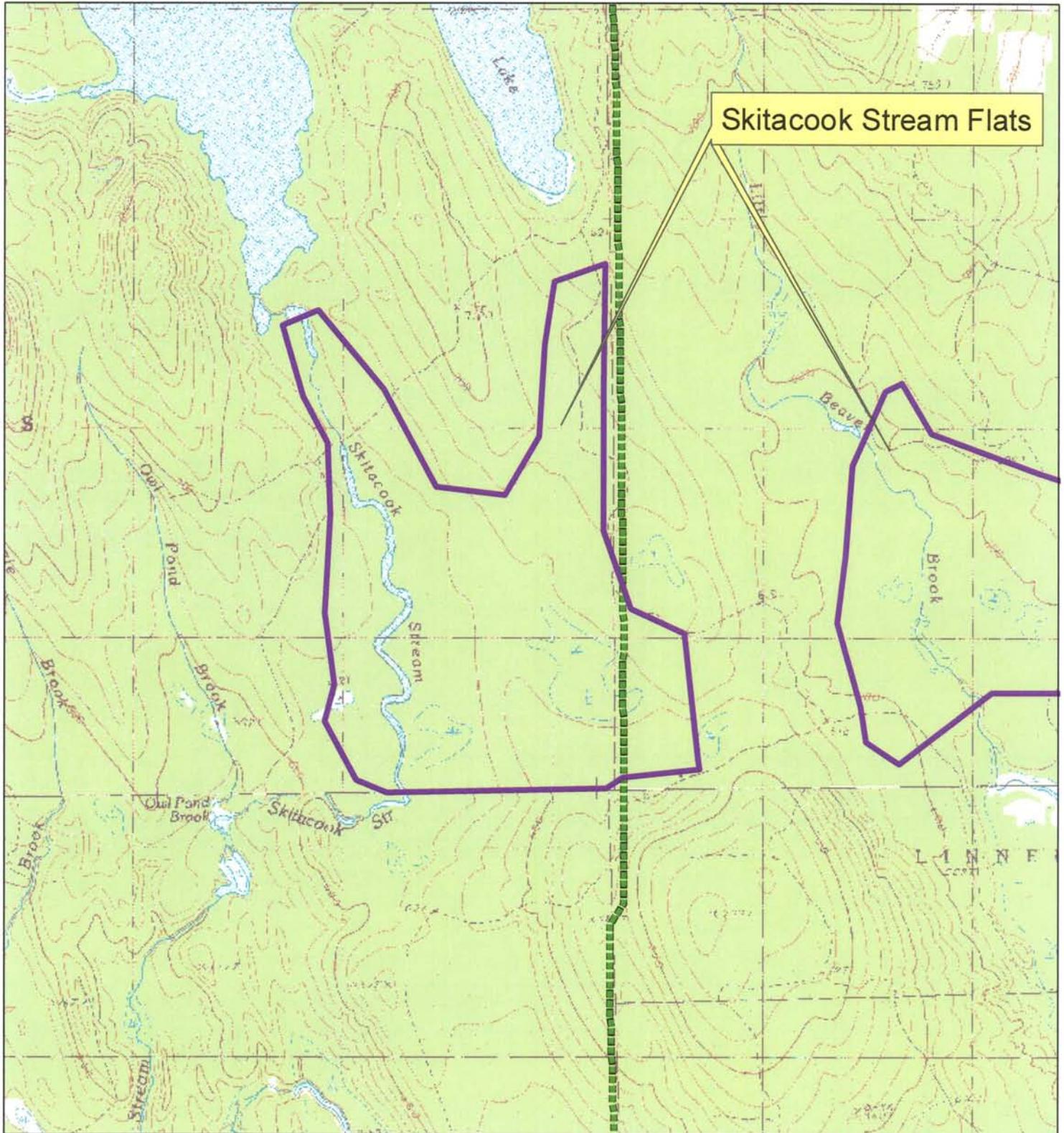


Potential Transmission Line Greenfield Glenwood

Maine Natural Areas Program
March 2010



Map 6. Skitacook Stream Flats, T4 R3 WELS, Linneus Potential Transmission Line Corridors and Potential Wind Development Areas Stantec PN 195600518



Landscape Analysis Site



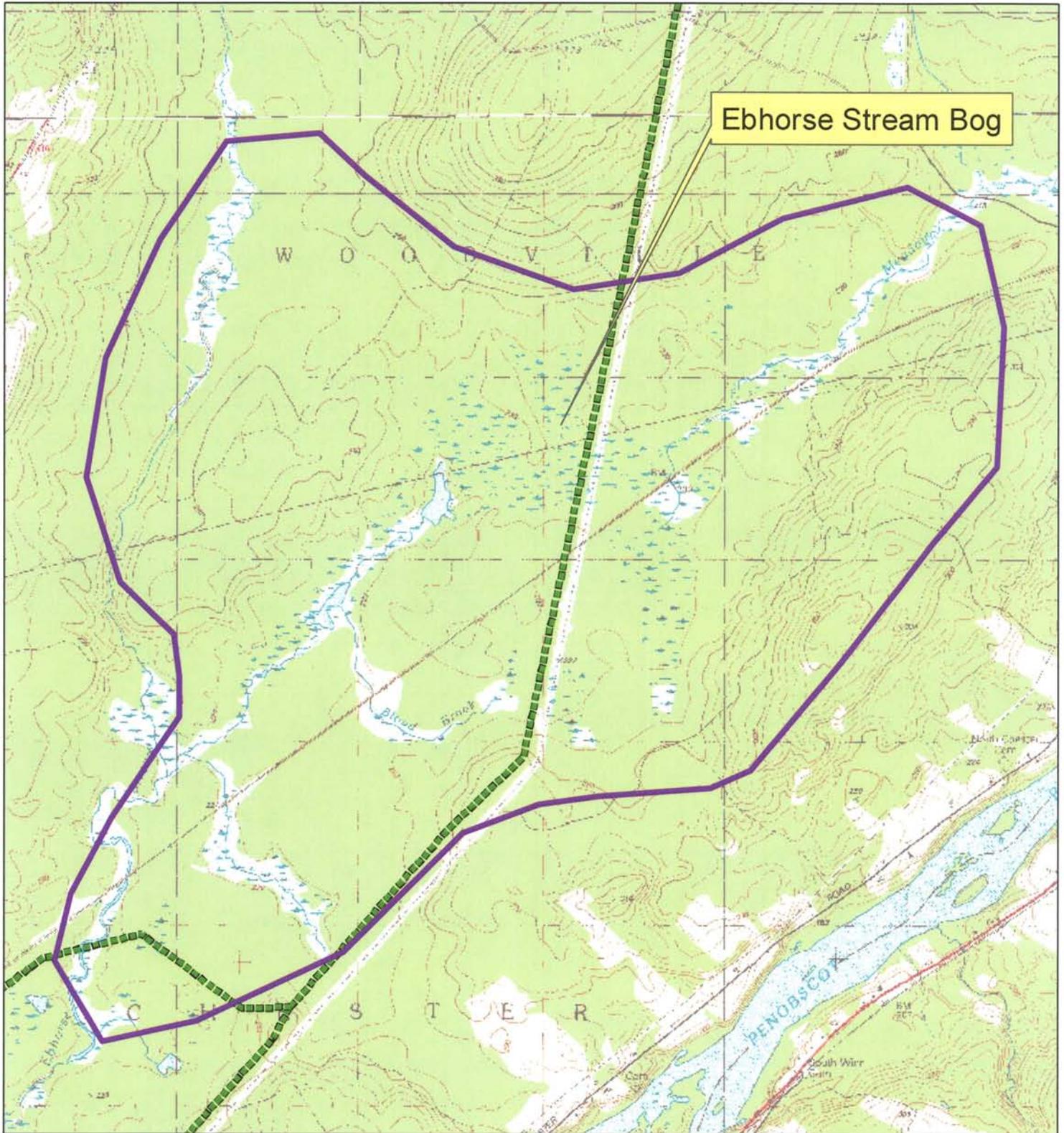
Potential Transmission Line Oakfield T Line

0 0.1250.25 0.5 0.75 1 Miles

Maine Natural Areas Program
March 2010



Map 7. Ebhorse Stream Bog, Woodville and Chester Potential Transmission Line Corridors and Potential Wind Development Areas Stantec PN 195600518



-  Landscape Analysis Site
-  Potential Transmission Line Oakfield T Line

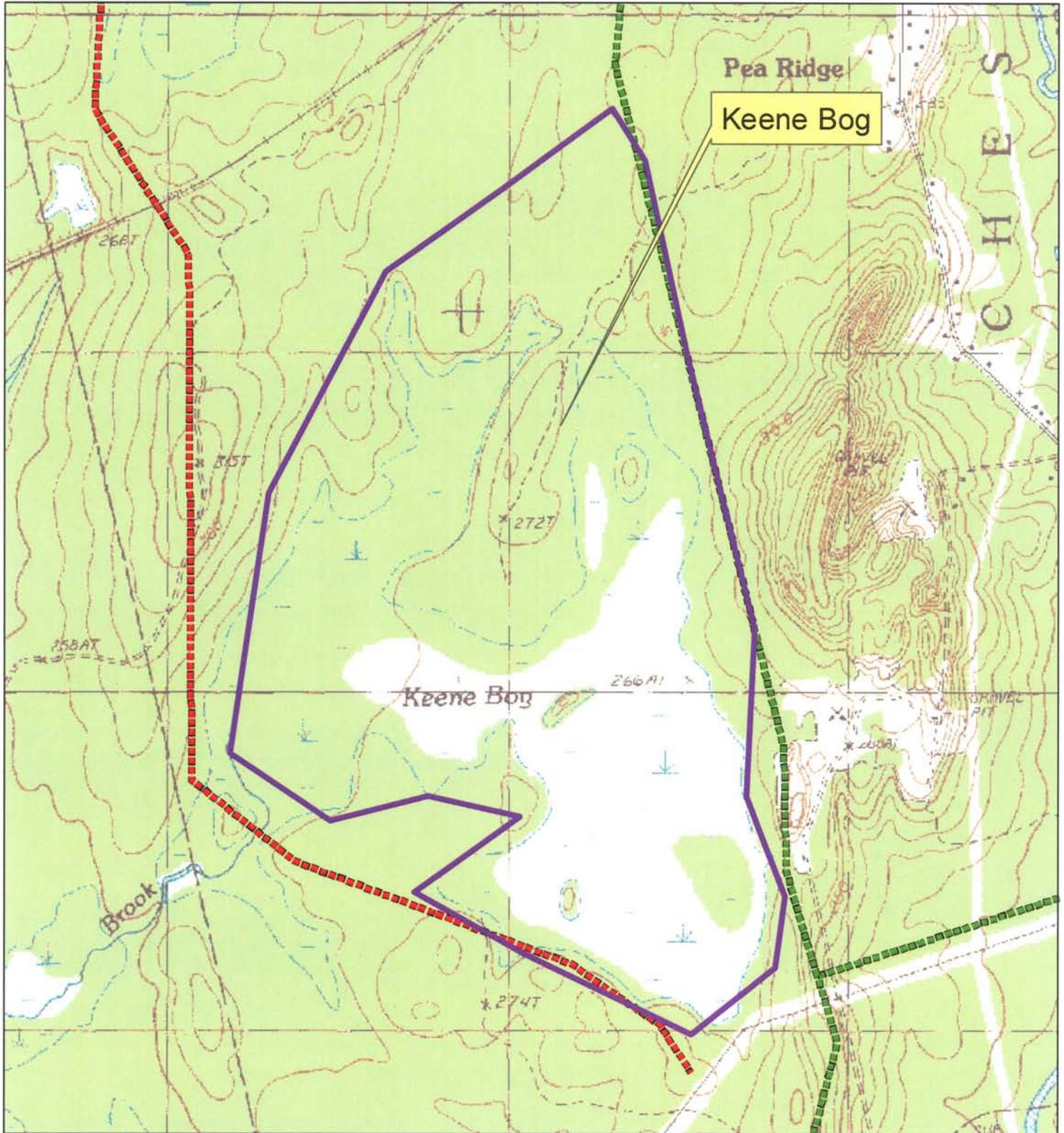


Maine Natural Areas Program
March 2010



Map 8. KeeneBog, Chester

Potential Transmission Line Corridors and Potential Wind Development Areas Stantec PN 195600518



-  Landscape Analysis Site
-  Potential Transmission Line Greenfield Glenwood
-  Potential Transmission Line Oakfield T Line

0 0.05 0.1 0.2 0.3 0.4
Miles

Maine Natural Areas Program
March 2010





Northern Hardwoods Forest

State Rank S5

Community Description

These closed canopy forests are dominated by a combination of beech, yellow birch, and sugar maple. Paper birch, red maple, conifers, and red oak may be present at lower cover. Conifers and red oak can each have <25% cover. Striped maple is a common subcanopy tree. The variable shrub layer is dominated by tree regeneration. Cover, richness and composition vary with site conditions.

Soil and Site Characteristics

Sites are typically found on the lower to middle portion of hillslopes (slopes generally 10-50%). Soils are generally mesic and well drained, though not deep (typically 15-50 cm) silt loams to sandy loams to loamy sands formed over glacial till, with pH 5.0-5.6; some occur on stabilized talus. Elevations range up to 2000'.

Diagnostics

A combination of beech, sugar maple, and yellow birch distinguishes this type. Though red oak is often entirely absent, conifers and red oak can be present and have up to 25% cover each. The herb layer lacks rich site indicators such as Dutchman's breeches, maidenhair fern, and blue cohosh.



Diseased Beech Bark

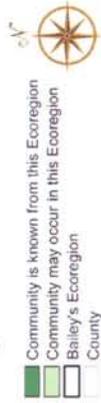
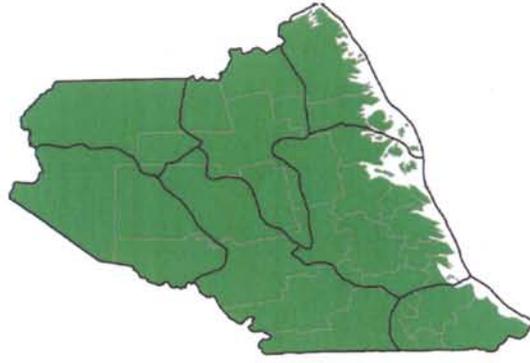
Similar Types

Maple - Basswood - Ash Forests and Sugar Maple Forests are similar to, and often contiguous with, this type. In them, beech is far less abundant, white ash is usually well represented in the canopy, and the herb layer contains species indicative of rich-soil areas. Red Oak - Northern Hardwoods - White Pine Forests have a higher proportion of red oak and can have a higher proportion of conifers (>25%). Spruce - Northern Hardwoods Forests also have >25% conifers in the canopy.

Conservation, Wildlife, and Management Considerations

This is the dominant hardwood type in Maine, and therefore it is extensively harvested and managed. Most management techniques diverge from the natural gap

Location Map



Characteristic Plants

These plants are frequently found in this community type. Those with an asterisk are often diagnostic of this community.

Canopy

- American beech*
- Eastern hemlock*
- Paper birch*
- Sugar maple*
- Yellow birch*

Sapling/shrub

- American beech*
- Hobblebush*
- Striped maple*
- Sugar maple*
- Yellow birch*

Herb

- Bluebead lily*
- Canada mayflower
- Shining clubmoss*
- Starflower
- Striped maple*
- Sugar maple*

Associated Rare Plants

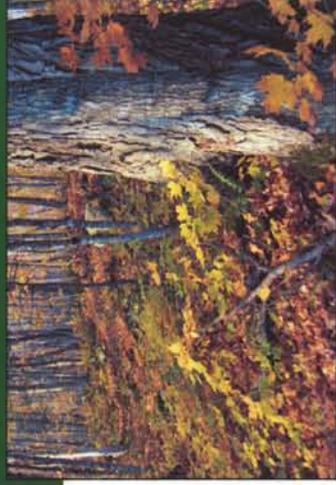
- Autumn coral-root
- Boreal bedstraw
- Broad beech fern
- Cut-leaved toothwort
- Nodding pogonia
- Tall white violet

Associated Rare Animals

- Early hairstreak

Examples on Conservation Lands You Can Visit

- Baxter State Park - Piscataquis Co.
- Big & Little Squaw Mountain Public Lands - Piscataquis Co.
- Bigelow Preserve Public Lands - Franklin/Somerset Co.
- Deboulle Ponds Public Lands - Aroostook Co.
- Grafton Notch State Park & Mahoosuc Public Lands - Oxford Co.
- White Mountain National Forest - Oxford Co.



Northern Hardwoods Forest

pattern, which is at the scale of single trees or small groups of trees. Large (>1000 acres) examples reflecting only natural disturbance are scarce statewide, and intact examples in central and southern Maine tend to be smaller and more isolated.

Beech scale disease (Nectria) has devastated beech in many stands in eastern Maine. Although beech regenerates vigorously from sprouts after the trees have died, most sprouts succumb to the disease by the time they reach maturity. There are indications that some trees may express a genetic resistance to this disease.

Distribution

One of the predominant forest types in the New England - Adirondack Province and Laurentian Mixed Forest Province. Extends east, west, and north from Maine; occurs only as scattered areas southward.



Landscape
 Pattern: Matrix,
 typically
 hundreds of
 acres; high-
 quality patches
 usually now
 smaller.

American Beech
with Beech Nuts



Maine Department of Conservation
Natural Areas Program

Carex adusta Boott

Swarthy Sedge

Habitat: Dry, open places. [Rocky coastal (non-forested, upland)]

Range: Newfoundland south to New Brunswick, Maine and northern New York, west to Michigan, Minnesota, and British Columbia.

Phenology: Fruits July - September.

Family: Cyperaceae

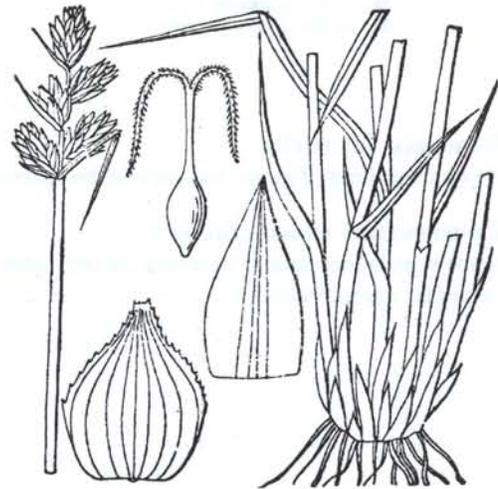


Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

Aids to Identification: Identification of species of the genus *Carex* is usually difficult and dependent upon rather technical characters. *C. adusta* is in the section *Ovales* and it is distinguished by the following characteristics: densely tufted growth; lower leaves are merely scales; 4-15 spikes are crowded into a cluster 2-3 cm long; perigynia are 4.2-5.2 mm long and half as wide, with fine dorsal nerves; floral scales as long as the perigynia; upper portion of the leaf sheath is smooth, lacking minute papillae.

Ecological characteristics: Known to occur in Maine on sandy roadsides and disturbed, dry clearings. This is a pioneer species of open areas that have been recently disturbed by fire or mechanical means, so that mineral soil is exposed. In Maine, it seems to be most common in the coastal region.

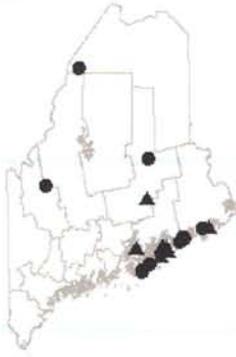
Synonyms:

Rarity of *Carex adusta*

State Rank:	S2	Imperiled in Maine because of rarity or vulnerability to further decline.
New England Rank:	Division 2	Regionally rare plant: Fewer than 20 current (seen since 1970) occurrences within New England.
Global Rank:	G5	Demonstrably widespread, abundant, and secure globally.

Status of *Carex adusta*

Federal Status:	None	No Federal Status.
State Status:	Endangered	Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered. Listing criteria met: Few individuals, At edge of range, Declining populations, Vulnerable to human activity



- ▲ Historical (before 1982)
- Recent (1982 - present)

Known Distribution in Maine:

This rare plant has been documented from a total of 14 town(s) in the following county(ies): Aroostook, Franklin, Hancock, Knox, Penobscot, Washington.

Dates of documented observations are: 1883, 1890, 1891 (2), 1897, 1898, 1899 (2), 1914, 1916, 1949, 1988, 1991 (3), 1995 (2), 1997 (3), 1999, 2000 (2), 2002

Reason(s) for rarity:

At southern limit of range; habitat may be ephemeral.

Conservation considerations:

Some populations appear to persist for only a few years. All occur in locations where natural or artificial disturbance maintains open conditions.

Plant rarity and status is based on 2008 data and the rest of the information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 06 MAY 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

If you know of locations for this plant or would like more information on this species,
please contact the Natural Areas Program
State House Station 93, Augusta, Maine 04333; telephone (207) 287-8044.





Carex gynocrates Wormsk. ex Drej.

Northern Bog Sedge

Habitat: Peaty soils, often with circumneutral pH.
[Conifer forest (forest, upland); Forested wetland]

Range: Circumboreal, south to Pennsylvania, Michigan, Minnesota, and Utah.

Phenology: Fruits June - August.

Family: Cyperaceae

Aids to Identification: Identification of species of the genus *Carex* is usually difficult and dependent upon rather technical characters. *C. gynocrates* is the only member of the section *Dioicae* in this region. It is identified by its loosely rhizomatous growth, lenticular achenes, slender leaves (1mm wide), solitary spike, and ovoid perigynia, 3-3.5mm long.

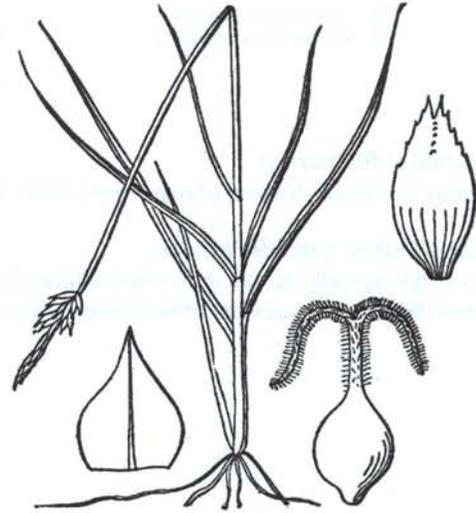


Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

Ecological characteristics: This sedge is often found in association with Northern White Cedar fens in Maine.

Synonyms: Sometimes placed as subspecies *gynocrates* in the circumboreal taxon *C. dioica* (Gleason and Cronquist second ed., 1991), but separated by most authors as a distinct species.

Rarity of *Carex gynocrates*

State Rank:	S2	Imperiled in Maine because of rarity and vulnerability to further decline.
New England Rank:	INDT	Indeterminate. Under review for inclusion in appropriate division. Taxonomy, nomenclature, or status not clearly understood.
Global Rank:	G5	Demonstrably widespread, abundant, and secure globally.

Status of *Carex gynocrates*

Federal Status:	None	No Federal Status.
State Status:	Special Concern	
Proposed State Status:	Special Concern	Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.



Known Distribution in Maine:

This rare plant has been documented from a total of 11 town(s) in the following county(ies): Aroostook, Penobscot, Piscataquis.

Dates of documented observations are: 1898, 1984, 1987, 1989 (2), 1990, 1991, 1993, 2001 (2), 2002, 2003

- ▲ Historical (before 1983)
- Recent (1983 - present)

Reason(s) for rarity:

Scarcity of suitable habitat. May be more common than records indicate.

Conservation considerations:

This sedge typically occurs in forested habitats. Effects of logging are unknown, but partial removal of the canopy would be less likely to have adverse effects than would complete removal of the canopy.

The information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 06 MAY 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

If you know of locations for this plant or would like more information on this species,
please contact the Natural Areas Program
State House Station 93, Augusta, Maine 04333; telephone (207) 287-8044.





Maine Department of Conservation
Natural Areas Program

Cypripedium reginae Walt.

Showy Lady's-slipper

Habitat: Circumneutral peatlands (often at edges) or sunlit openings of mossy woods. [Forested wetland; Open wetland, not coastal nor rivershore (non-forested, wetland)]

Range: Newfoundland to North Dakota and Manitoba, south in Appalachians to Georgia.

Phenology: In Maine flowers late June to July.

Family: Orchidaceae

Aids to Identification: The largest and showiest of our lady's-slippers. Foliage of non-flowering plants emerging in early spring may be mistaken for false hellebore. Flowering plants are unique with their tall leafy stems bearing one or two large flowers with white petals and sepals contrasting with magenta pink pouch. Densely pubescent throughout, the hairs may cause a rash similar to poison ivy.

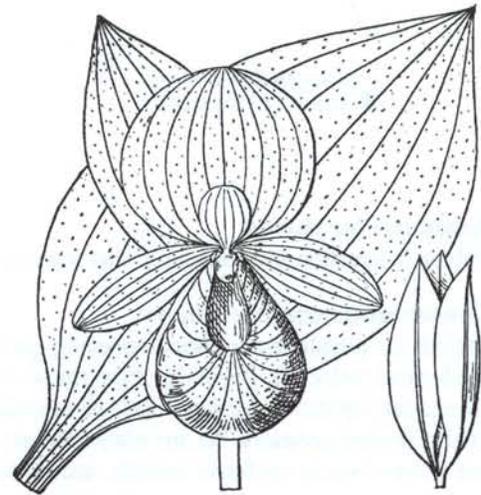


Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

Ecological characteristics: Showy lady's-slippers apparently require constant moisture, some sunlight and circumneutral soil conditions. In acid bogs their roots go under the acid *Sphagnum* to more neutral groundwater below. In clearings or woods edges colonies may be very large and flowering abundant, but plants in deep shade often lack flowers. *C. reginae* seeds seem to germinate best at depths of at least 5 cm. It has been suggested that this may account for the presence of dense colonies in deer yards where the deer hooves may help to push seeds to the appropriate depth. *C. reginae* takes about 15 years to reach flowering age, which explains why they are slow to reappear after colonies have been dug up.

Synonyms: Formerly known as *Cypripedium spectabile* Salisb.

Rarity of *Cypripedium reginae*

State Rank:	S3	Rare in Maine.
New England Rank:	None	
Global Rank:	G4	Widespread, abundant, and apparently secure globally, but with cause for long-term concern.

Status of *Cypripedium reginae*

Federal Status:	None	No Federal Status.
State Status:	Threatened	Rare and, with further decline, could become endangered; or federally listed as Threatened. Listing criteria met: Declining populations, Vulnerable to human activity



○ Historical (before 1983)
● Recent (1983- present)

Known Distribution in Maine:

This rare plant has been documented from a total of 52 town(s) in the following county(ies): Androscoggin, Aroostook, Cumberland, Hancock, Kennebec, Knox, Oxford, Penobscot, Piscataquis, Somerset, Washington.

Dates of documented observations are: 1874, 1880, 1889 (2), 1891, 1896, 1903, 1904, 1906, 1907 (2), 1908, 1910 (3), 1914, 1924, 1925, 1935, 1940 (2), 1943, 1950, 1978, 1981 (6), 1982, 1983 (3), 1984, 1985, 1989 (3), 1990 (4), 1991, 1992, 1993, 1995, 1997, 1998 (3), 19XX (2), 2000 (2), 2001 (2), 2002 (6)

Reason(s) for rarity:

Habitat destruction and collecting, also scarcity of suitable habitat.

Conservation considerations:

Orchids are popular among some speciality gardeners, and populations of this species are vulnerable to unscrupulous or uneducated collectors. Plants dug from the wild usually do not survive; more importantly, removing these plants harms the natural population and may cause its eventual disappearance. Tissue-culture propagation of this species has been tried in limited instances, but any plants offered for sale have almost certainly been dug from the wild. This orchid grows and flowers best in moderate sunlight, and partial removal of the canopy can benefit the populations, if done correctly.

Plant rarity and status is based on 2008 data and the rest of the information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 29 APR 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

If you know of locations for this plant or would like more information on this species,
please contact the Natural Areas Program
State House Station 93, Augusta, Maine 04333; telephone (207) 287-8044.





Maine Department of Conservation
Natural Areas Program

Lonicera oblongifolia (Goldie) Hook.

Swamp Fly-honeysuckle

- Habitat:** Bogs, swampy thickets and wet woods.
[Forested wetland; Open wetland, not coastal nor rivershore (non-forested, wetland)]
- Range:** New Brunswick and Quebec to Manitoba, New York, Pennsylvania, Michigan and Minnesota.
- Phenology:** Flowers May - June.
- Family:** Caprifoliaceae



Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

Aids to Identification: Swamp fly-honeysuckle is a shrub that grows up to 1.5 m high with upward pointing branches covered with small hairs, and opposite oval leaves 2-5 cm in length. The flowers, borne in pairs, are yellow, two-lipped, and narrow. The fleshy red berries also occur in pairs. The only other honeysuckle that is found in similar communities is *Lonicera villosa*, the mountain fly honeysuckle. It is distinguished by its blue berries and winter buds covered by 2 valvate scales (vs. several imbricate scales).

Ecological characteristics: Because of the specific habitat requirements of swamp fly-honeysuckle -- open areas of cool cedar swamps underlain by limestone -- it is not widespread, but populations may be plentiful where it does occur.

Synonyms:

Rarity of *Lonicera oblongifolia*

State Rank:	S3	Rare in Maine.
New England Rank:	None	
Global Rank:	G4	Widespread, abundant, and apparently secure globally, but with cause for long-term concern.

Status of *Lonicera oblongifolia*

Federal Status:	None	No Federal Status.
State Status:	Special Concern	Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.



▲ Historical (before 1983)
● Recent (1983 - present)

Known Distribution in Maine:

This rare plant has been documented from a total of 25 town(s) in the following county(ies): Aroostook, Penobscot, Piscataquis, Somerset, Washington.

Dates of documented observations are: 1883 (2), 1937, 1938 (2), 1941, 1945, 1983, 1984, 1985, 1986, 1987, 1988, 1989 (2), 1993 (4), 1994, 1997, 2001 (2), 2002 (5), 2003 (2)

Reason(s) for rarity:

Specific habitat requirements.

Conservation considerations:

Appears reasonably secure; known populations are persistent.

The information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 13 MAY 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

If you know of locations for this plant or would like more information on this species,
please contact the Natural Areas Program
State House Station 93, Augusta, Maine 04333; telephone (207) 287-8044.





Maine Department of Conservation
Natural Areas Program

Ranunculus gmelinii DC.
Small Yellow Water Crowfoot

Habitat: Springy rills, clear cold ponds, shores and meadows. [Open water (non-forested, wetland)]

Range: Eastern Quebec and Nova Scotia to Alaska, south to Maine, Michigan and Minnesota. Also in Asia.

Phenology: Flowers in July and August.

Family: Ranunculaceae



Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

Aids to Identification: This species differs from the common buttercup in being semi-aquatic, the elongate stems creeping or floating in shallow water or sprawling on muddy shores or in meadows. The underwater leaves have long stalks, are flaccid in texture and are semi-transparent. The above-water leaves are thicker with 3 to 5 lobes. The golden-yellow, 5-petaled flowers occur in clusters of one to four, and mature into a cluster of achenes (dry fruits containing seeds) in a rounded head. These achenes have a persistent style that protrudes like a beak. It somewhat resembles *R. flabellaris*, the yellow water crowfoot, a species that is more common in Maine. *R. gmelinii* is recognized by its smaller size (petals 3-7 mm long, achenes 1-1.6 mm long with a beak 0.4-0.8 mm long) and achenes that are not thickened and spongy in the basal half.

Ecological characteristics: Ecological relationships in Maine are not well known.

Synonyms: Formerly known as *Ranunculus gmelinii* DC. var. *hookeri* (D. Don) L. Benson and also var. *purshii* (Richards.) Hara.

Rarity of *Ranunculus gmelinii*

State Rank:	S2	Imperiled in Maine because of rarity or vulnerability to further decline.
New England Rank:	Division 2	Regionally rare plant. Fewer than 20 current (seen since 1970) occurrences in New England.
Global Rank:	G5T5	Species demonstrably widespread, abundant, and secure globally.

Status of *Ranunculus gmelinii*

Federal Status:	None	No Federal Status.
State Status:	Threatened	Rare and, with further decline, could become endangered; or federally listed as Threatened.



Maine Department of Conservation
Natural Areas Program

Valeriana uliginosa (Torr. & Gray) Rydb.

Marsh Valerian

- Habitat:** Circumneutral fens, in open areas.
[Forested wetland; Open wetland, not coastal nor rivershore (non-forested, wetland)]
- Range:** Quebec to Ontario, Maine, Vermont, New York, Ohio, Indiana, Michigan, and Wisconsin.
- Phenology:** Perennial, flowers May - June.
- Family:** Caprifoliaceae



Illustration from Britton & Brown's Illustrated Flora of the Northern United States and Canada, 2nd ed.

Aids to Identification: Valerians are perennial herbs with opposite, pinnately compound leaves. The flowers are small and white. During flowering, the sepals appear as 5-20 narrow bristles; in fruit these elongate and form a plume that aids in wind dispersal of the fruits, similar to dandelion. *V. uliginosa* is a native species of circumneutral fens with simple basal leaves and glabrous leaflets. The introduced *V. officinalis* occurs in fields and disturbed areas. This similar looking species has pinnately-divided leaves and pubescent leaflets (on the undersurface).

Ecological characteristics: Found in cool, limy swamps associated with larch (*Larix laricina*) and white cedar (*Thuja occidentalis*). May decline as trees encroach on the openings in which it grows.

Synonyms: Former names include *Valeriana sitchensis* Bong. ssp. *uliginosa* (Torr. & Gray) Boivin.

Rarity of *Valeriana uliginosa*

State Rank:	S2	Imperiled in Maine because of rarity or vulnerability to further decline.
New England Rank:	Division 2	Regionally rare plant: Fewer than 20 current (seen since 1970) occurrences within New England.
Global Rank:	G4Q	Widespread, abundant, and apparently secure globally, but with cause for long-term concern (questionable taxonomy).

Status of *Valeriana uliginosa*

Federal Status:	None	No Federal Status.
State Status:	Special Concern	Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.



▲ Historical (before 1982)
● Recent (1982- present)

Known Distribution in Maine:

This rare plant has been documented from a total of 22 town(s) in the following county(ies): Aroostook.

Dates of documented observations are: 1896 (2), 1898, 1900, 1909, 1916, 1956, 1983, 1985 (2), 1986, 1987 (2), 1989, 1992, 1998 (2), 1999, 2001 (2), 2002 (4)

Reason(s) for rarity:

Habitat naturally scarce.

Conservation considerations:

Most often found in openings within its cedar bog habitat, suggesting that decreased light with canopy closure may be limiting. Partial removal of the canopy could be beneficial to the species; complete canopy removal could cause more drastic habitat changes and would be more likely to be detrimental.

The information in this fact sheet was downloaded from the Natural Areas Program's Biological and Conservation Database on 17 MAY 2004. We are grateful to our Botanical Advisory Group for additional information on particular species, and in particular, to Arthur Haines for his assistance with identifying characteristics and taxonomic questions. Nomenclature follows Haines and Vining's *Flora of Maine* (V.F. Thomas Press, 1998); where older works refer to a plant by another name, it is given under "Synonyms". The Natural Areas Program, within the Department of Conservation, maintains the most comprehensive source of information on Maine's rare or endangered plants and rare or exemplary natural communities, and is a member of the Association for Biodiversity Information.

If you know of locations for this plant or would like more information on this species,
please contact the Natural Areas Program
State House Station 93, Augusta, Maine 04333; telephone (207) 287-8044.



Rare and Exemplary Botanical Features in the Project Vicinity

Documented within a four-mile radius of the Proposed Potential Transmission Line Corridors, , Project #195600518, Chester to Oakfield, Maine.

Feature Name	Global Rank	State Rank	State Status	EO Number	Last Seen	Habitat
Maple - basswood - ash forest	GNR	S3		38	2004-06-24	Hardwood to mixed forest (forest, upland)
Beech - birch - maple forest	G3G5	S4		49	2004-06-09	Hardwood to mixed forest (forest, upland)
Carex oronensis	G3	S3	T	59	1996-07-10	Old field/roadside (non-forested, wetland or upland)
Valeriana uliginosa	G4Q	S2	SC	28	1988-06-28	Open wetland, not coastal nor rivershore (non-forested, wetland)
Cypripedium reginae	G4	S3	T	70	1988-06-28	Forested wetland
Carex gynocrates	G5	S2	SC	16	1988-06-28	Forested wetland
Northern white cedar woodland fen	GNR	S4		12	2006-09-12	Forested wetland
Sheep laurel dwarf shrub bog	G5	S4		43	2006-07-13	Open wetland, not coastal nor rivershore (non-forested, wetland)
Silver maple floodplain forest	GNR	S3		30	2006-07-18	Forested wetland
Hemlock forest	G4G5	S4		26	2006-06-21	Conifer forest (forest, upland)
Cypripedium reginae	G4	S3	T	71	2006-08-23	Open wetland, not coastal nor rivershore (non-forested, wetland)
Cypripedium reginae	G4	S3	T	72	2006-08-24	Forested wetland
Leatherleaf boggy fen	G5	S4		18	2006-09-07	Open wetland, not coastal nor rivershore (non-forested, wetland)
Unpatterned fen ecosystem	GNR	S4		59	2007-08-15	Forested wetland
Northern white cedar swamp	GNR	S4		20	2007-09-19	Forested wetland
Hypericum ascyron	G4	S1	E	2	2007-07-26	Forested wetland
Northern white cedar woodland fen	GNR	S4		15	2007-06-14	Forested wetland

Rare and Exemplary Botanical Features in the Project Vicinity

Documented within a four-mile radius of the Proposed Potential Transmission Line Corridors, , Project #195600518, Chester to Oakfield, Maine.

Feature Name	Global Rank	State Rank	State Status	EO Number	Last Seen	Habitat
Unpatterned fen ecosystem	GNR	S4		64	2007-07-25	Open wetland, not coastal nor rivershore (non-forested, wetland)
Unpatterned fen ecosystem	GNR	S4		65	2007-09-26	Forested wetland
Northern white cedar swamp	GNR	S4		22	2007-09-26	Forested wetland
Leatherleaf boggy fen	G5	S4		20	2007-09-26	Open wetland, not coastal nor rivershore (non-forested, wetland)
Silver maple floodplain forest	GNR	S3		32	2007-09-18	Forested wetland
Cypripedium reginae	G4	S3	T	75	2008-07-02	Open wetland, not coastal nor rivershore (non-forested, wetland)
Valeriana uliginosa	G4Q	S2	SC	29	2008-07-02	Open wetland, not coastal nor rivershore (non-forested, wetland)
Lonicera oblongifolia	G4	S3	SC	44	2008-07-02	Forested wetland
Carex gynocrates	G5	S2	SC	19	2008-07-02	Forested wetland
Dryopteris goldiana	G4	S2	SC	27	2008-09-02	Hardwood to mixed forest (forest, upland)
Carex oronensis	G3	S3	T	53	2007-06-22	Old field/roadside (non-forested, wetland or upland)

Rare and Exemplary Botanical Features in the Project Vicinity

Documented within a four-mile radius of the Proposed Potential Transmission Line Corridors, , Project #195600518, Chester to Oakfield, Maine.

Feature Name	Global Rank	State Rank	State Status	EO Number	Last Seen	Habitat
Red oak - northern hardwoods - white pine forest	GNR	S4		12	1986-11-08	Hardwood to mixed forest (forest, upland)
Red oak - northern hardwoods - white pine forest	GNR	S4		13	2003-06-04	Hardwood to mixed forest (forest, upland)
Mixed graminoid - shrub marsh	GNR	S5		8	1985-07-17	Open wetland, not coastal nor rivershore (non-forested, wetland)
Ranunculus gmelinii var. purshii	G5T5	S2	T	2	2003-09-02	Open water (non-forested, wetland)
Carex oronensis	G3	S3	T	18	2006-06-22	Old field/roadside (non-forested, wetland or upland)
Carex oronensis	G3	S3	T	21	1987-07-13	Old field/roadside (non-forested, wetland or upland)
Carex oronensis	G3	S3	T	22	1987-07-13	Old field/roadside (non-forested, wetland or upland)
Carex oronensis	G3	S3	T	23	2006-06-22	Old field/roadside (non-forested, wetland or upland)
Carex oronensis	G3	S3	T	24	1998-07-10	Old field/roadside (non-forested, wetland or upland)
Carex oronensis	G3	S3	T	32	2006-06-20	Old field/roadside (non-forested, wetland or upland)
Carex oronensis	G3	S3	T	55	1993-07-24	Old field/roadside (non-forested, wetland or upland)
Panax quinquefolius	G3G4	S3	E	31	1999-07-15	Hardwood to mixed forest (forest, upland)
Ranunculus gmelinii var. purshii	G5T5	S2	T	9	1991	Open water (non-forested, wetland)
Juncus subtilis	G4	S1	T	2	1901-09-25	Open wetland, not coastal nor rivershore (non-forested, wetland)
Platanthera flava var. herbiola	G4T4Q	S2	SC	7	1916-07-11	Non-tidal rivershore (non-forested, seasonally wet)
Trichophorum clintonii	G4	S3	SC	6	1916-07-10	Non-tidal rivershore (non-forested, seasonally wet)

Rare and Exemplary Botanical Features in the Project Vicinity

Documented within a four-mile radius of the Proposed Potential Transmission Line Corridors, , Project #195600518, Chester to Oakfield, Maine.

Feature Name	Global Rank	State Rank	State Status	EO Number	Last Seen	Habitat
Carex oronensis	G3	S3	T	66	1916-07-10	Old field/roadside (non-forested, wetland or upland)
Carex praticola	G5	SX	PE	1	1898-06-09	Hardwood to mixed forest (forest, upland)
Valeriana uliginosa	G4Q	S2	SC	15	1896-07	Open wetland, not coastal nor rivershore (non-forested, wetland)
Hypericum ascyron	G4	S1	E	1	1951-08-05	Forested wetland
Carex oronensis	G3	S3	T	3	1916-07-10	Old field/roadside (non-forested, wetland or upland)
Viola novae-angliae	G4Q	S2	SC	13	1916-07-10	Non-tidal rivershore (non-forested, seasonally wet)
Sedge - leatherleaf fen lawn	G4G5	S4		3	2006-06-13	Open wetland, not coastal nor rivershore (non-forested, wetland)
Eccentric bog ecosystem	GNR	S3		7	1987-08-14	Forested wetland
Eccentric bog ecosystem	GNR	S3		8	1987-08-13	Open wetland, not coastal nor rivershore (non-forested, wetland)
Eccentric bog ecosystem	GNR	S3		9	2007-06-14	Forested wetland
Eccentric bog ecosystem	GNR	S3		10	1987-08-07	Open wetland, not coastal nor rivershore (non-forested, wetland)
Eccentric bog ecosystem	GNR	S3		12	2007-08-16	Open wetland, not coastal nor rivershore (non-forested, wetland)
Eccentric bog ecosystem	GNR	S3		16	2006-07-11	Forested wetland
Carex adusta	G5	S2	E	19	1997-08-25	Rocky coastal (non-forested, upland)
Valeriana uliginosa	G4Q	S2	SC	13	1909-06-09	Open wetland, not coastal nor rivershore (non-forested, wetland)
Cardamine maxima	G5	S1	SC	2	2003-06-04	
Hemlock forest	G4G5	S4		21	2003-06-05	Conifer forest (forest, upland)

STATE RARITY RANKS

- S1 Critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine.
- S2 Imperiled in Maine because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- S3 Rare in Maine (20-100 occurrences).
- S4 Apparently secure in Maine.
- S5 Demonstrably secure in Maine.
- SU Under consideration for assigning rarity status; more information needed on threats or distribution.
- S#? Current occurrence data suggests assigned rank, but lack of survey effort along with amount of potential habitat create uncertainty (e.g. S3?).

Note: State Rarity Ranks are determined by the Maine Natural Areas Program.

GLOBAL RARITY RANKS

- G1 Critically imperiled globally because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extinction.
- G2 Globally imperiled because of rarity (6-20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- G3 Globally rare (20-100 occurrences).
- G4 Apparently secure globally.
- G5 Demonstrably secure globally.
- GNR Not yet ranked.

Note: Global Ranks are determined by NatureServe.

STATE LEGAL STATUS

Note: State legal status is according to 5 M.R.S.A. § 13076-13079, which mandates the Department of Conservation to produce and biennially update the official list of Maine's **Endangered** and **Threatened** plants. The list is derived by a technical advisory committee of botanists who use data in the Natural Areas Program's database to recommend status changes to the Department of Conservation.

- E ENDANGERED; Rare and in danger of being lost from the state in the foreseeable future; or federally listed as Endangered.
- T THREATENED; Rare and, with further decline, could become endangered; or federally listed as Threatened.

NON-LEGAL STATUS

- SC SPECIAL CONCERN; Rare in Maine, based on available information, but not sufficiently rare to be considered Threatened or Endangered.
- PE Potentially Extirpated; Species has not been documented in Maine in past 20 years or loss of last known occurrence has been documented.

ELEMENT OCCURRENCE RANKS - EO RANKS

Element Occurrence ranks are used to describe the quality of a rare plant population or natural community based on three factors:

- **Size**: Size of community or population relative to other known examples in Maine. Community or population's viability, capability to maintain itself.
- **Condition**: For communities, condition includes presence of representative species, maturity of species, and evidence of human-caused disturbance. For plants, factors include species vigor and evidence of human-caused disturbance.
- **Landscape context**: Land uses and/or condition of natural communities surrounding the observed area. Ability of the observed community or population to be protected from effects of adjacent land uses.

These three factors are combined into an overall ranking of the feature of **A, B, C, or D**, where **A** indicates an excellent example of the community or population and **D** indicates a poor example of the community or population. The Maine Natural Areas Program tracks all occurrences of rare (S1-S3) plants and natural communities as well as A and B ranked common (S4-S5) natural communities.

Note: **Element Occurrence Ranks** are determined by the Maine Natural Areas Program.

Visit our website for more information on rare, threatened, and endangered species!
<http://www.maine.gov/doc/nrimc/mnap>

Tribal Historic Preservation Office

Passamaquoddy Tribe

PO Box 159 Princeton, Me. 04668

207-796-2301

Stantec
30 Park Dr
Topsham, Me
David.huntress@stantec.com

April 20, 2010

Re: Oakfield
Island Falls
Dyer Brook

Dear David;

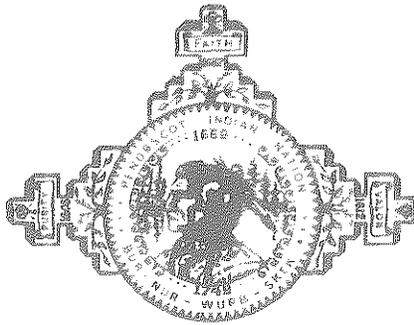
The Passamaquoddy THPO has reviewed the following application regarding the historic properties and significant religious and cultural properties in accordance with NHPA, NEPA, AIRFA, NAGPRA, ARPA, Executive Order 13007 Indian Sacred Sites, Executive Order 13175 Consultation and Coordination with Indian Tribal Governments, and Executive Order 12898 Environmental Justice.

There will be no impact of cultural issues at these sites for the Passamaquoddy Tribe.

Sincerely;
Donald Soctomah
Soctomah@ainop.com
THPO
Passamaquoddy Tribe

PENOBSCOT NATION

TRIBAL ADMINISTRATION



COMMUNITY CENTER
INDIAN ISLAND, MAINE 04468
TEL.: 207/827-7776

3/10/2010

Mr. Brooke Barnes
Stantec Consulting
30 Park Drive
Topsham, ME 04086

RE: Oakfield, Island Falls, Dyer Brook Review

Dear Brooke,

I am writing as a follow-up to our conversation today on the Oakfield, Island Falls, and Dyer Brook wind farm project. I understand that the transmission line for this project is designed to cross the Penobscot River within an existing utilities corridor. Before the Penobscot Nation can comment, we need to review the design of the transmission line at the River crossing. Please forward design information to me and John Banks, our Natural Resources Director.

I also understand that you are conducting an archaeological survey as part of this project. Please forward the results of that survey to me once completed.

Thank you for consulting with the Penobscot Nation. Should you have any questions please do not hesitate to contact me at (207) 817-7332.

Sincerely,

A handwritten signature in black ink, appearing to read "Bonnie Newsom".

Bonnie Newsom

cc: John Banks, Director DNR



JOHN E. BALDACCI
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0041

ROLAND MARTIN
COMMISSIONER

March 16, 2010

Brooke:

I have enclosed two printouts showing the project areas around the Towns of Oakfield and Dyer Brook, Aroostook County, Maine. As in the past I would suggest you contact DOC, Natural Areas to inquire about flora in the area. I would also suggest you contact Tom Hodgman, Avian biologist and Jonathan Mays, the Herpetologist both out of our Bangor Office concerning special habitats which may not have come up on my search.

Of significance would be the active eagle nest site off the West end of Drews Lake dead water, in the Town of Oakfield. If there are any other issues or concerns which I can help you with please don't hesitate to call or email.

Regards,

A handwritten signature in cursive script that reads 'Richard Hoppe'.

Richard Hoppe
Regional Wildlife Biologist, Region G, Ashland
PO Box 447
Ashland, ME 04732

AqETSc

These are observations of endangered, threatened, or special concern species associated with aquatic habitats that MAY be affected by a project in the search area.

This list is a 'heads-up' for further consideration. You may wish to contact MDIFW staff about these observations:

Herps: Phillip deMaynadier or Jonathan Mays

Mussels: Beth Swartz

Other Inverts: Phillip deMaynadier or Beth Swartz

Fish: Merry Gallagher

Birds: Tom Hodgman, Lindsay Tudor, or Danielle D'Auria

=====

AQUATIC ETSC OBSERVATIONS WITHIN 2.5 MILES OF SEARCH AREA:

None

RARE MUSSELS WITHIN 5 MILES OF SEARCH AREA:

IMBIV02100/178 - Brook Floater
IMBIV21050/1007 - Yellow Lampmussel
IMBIV42030/1371 - Creeper

=====

OPTIONS TO FORWARD/SAVE THIS INFORMATION:

- 1) Cut-and-paste this text into an email message by doing the following:
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 - right-click and select COPY
 - Switch from Citrix to your own desktop
 - Open a new email in Outlook
 - Go to the email message area, right-click, and select PASTE
- 2) Print this file from Notepad, OR
- 3) Save this Notepad file for future reference
 - Click FILE, then SAVE AS....
 - Save as a NEW file under your personal folder.

SITE-SPECIFIC SEARCH OF WILDLIFE OBSERVATIONS and HABITAT

=====

Search Parameters

County: Aroostook
IF&W Region: G
Township(s): T4 R3 WELS, Oakfield, Linneus, New Limerick
Search Center: 572694 east, 5102652 north (UTM NAD83 coordinates)
Search Area: 31.20 sq. miles
Date: Monday, March 15, 2010

Results

ESSENTIAL WILDLIFE HABITATS

Essential Habitats are areas currently or historically providing physical/biological features essential to conserving an endangered/threatened species in Maine and that may require special management consideration. These areas are identified and mapped by MDIFW and adopted through public rulemaking procedures following Maine's Administrative Procedures Act. Since 1989, designation criteria and protection guidelines have been developed for bald eagles, roseate terns, least terns, and piping plovers. Addition of new areas and deletion of areas no longer eligible is a continuing process.

The Maine Endangered Species Act prohibits state agencies or municipal governments from permitting, licensing, funding, or carrying out projects that would significantly alter a designated Essential Habitat or that would violate its protection guidelines. If a project site is partly or wholly within an Essential Habitat, it must be evaluated by MDIFW before state/municipal permits can be approved or project activities can occur. Designation of Essential Habitat establishes a standardized review process within existing state and municipal permitting processes. Activities of private landowners are not affected by Essential Habitat designation unless they require a state or municipal permit or are funded or carried out by a state agency or municipality.

This regulatory tool is used only when habitat loss is a major limit to species recovery. Criteria for designating Essential Habitats, protection guidelines listing types of projects that must be reviewed, factors considered during project evaluations, and maps showing designated Essential Habitats are adopted in Inland Fisheries and Wildlife Rules. Essential Habitat maps and information are available from the permitting officials, MDIFW offices, and the Maine Office of GIS at <http://megis.maine.gov>.

Bald Eagle Nest Sites

Bald eagle Essential Habitat focuses on the nest site to maintain breeding habitat and prevent disturbances that may cause nest failure. A "nesting area" is a locality that contains at least one nest site and has been used by a pair of nesting bald eagles. "Occupied" means that at least one adult eagle, eagle eggs, or eagle chicks are present at any time between March 1 and July 15.

To be identified and mapped as Essential Habitat, a bald eagle nest site must be within a nesting area occupied in at least 1 of the last 3 years and have either a nest that has existed for 2 consecutive years or have the only nest in that nesting area. All nest sites in a nesting area designated as Essential Habitat will be deleted if the nesting area has not been occupied at any time during the last 5 years. An individual nest site within an active nesting area will be deleted if a nest structure has not existed at any time during the last 5 years or the

Commissioner of MDIFW determines that the site is no longer suitable nesting habitat.

Nest Site Number
344A

Piping Plover / Least Tern Nesting, Feeding, and Brood-rearing Areas
None Found

Roseate Tern Nesting Areas
None Found

NATURAL RESOURCE PROTECTION ACT (NRPA) HABITATS

Title 38, Chapter 3, Article 5-A, Section 480 of M.R.S.A. identifies habitats protected under the Natural Resources Protection Act (NRPA). Included in the definitions section (480-B) is "significant wildlife habitat," which means areas that have been mapped by MDIFW or are within any other protected natural resource including habitat for listed endangered/threatened animal species; high/moderate value deer wintering areas; high/moderate value waterfowl/wading bird habitat; shorebird nesting, feeding, and staging areas; seabird nesting islands; and significant vernal pools (http://www.maine.gov/ifw/wildlife/habitat_data/significant_habitat_data.htm). Data requested for NRPA purposes should be obtained from Maine DEP.

Seabird Nesting Islands
None Found

Deer Winter Areas

A forested area used by deer when snow depth in the open/hardwoods is > 12", deer sinking depth in the open/hardwoods is > 8", and mean daily temperatures are below 32 degrees F. Non-forested wetlands, non-stocked clearcuts, hardwood types, and stands predominated by Eastern Larch are included within the DWA only if less than 10 acres in size. Agricultural and development areas within DWAs are excluded regardless of size.

Ratings for Deer Winter Areas were based on aerial and/or ground surveys. If only an aerial survey was done (most DWAs), the rating was "indeterminate." If a follow-up ground survey was done also, the evaluation was based on 1) quality of softwood shelter, 2) intensity of deer use, and 3) size. The final rating of the DWA was determined by summing the scores for the three criteria and assigning a rating as follows: high (score of 10-12), moderate (score of 7-9.9), or low (score of 0-6.9). A regional biologist may recommend a rating change with justification and approval by the management section supervisor. No delisting criteria for regulated NRPA DWAs have been developed.

Code	Size (acres)	Rating
123002	49.3182343196	indeterminate

CODE = unique identifier of Deer Wintering Area

RATING = DWAs must have a moderate or high rating to qualify under NRPA

Inland waterfowl/wading Bird Habitats

Areas rated as high or moderate qualify as NRPA habitats. The mapped boundary includes a 250-ft upland zone that is used by wildlife associated with the

wetland. This data set was developed in accordance with NRPA and the Comprehensive Planning and Land Use Regulation Act (Growth Management).

Code	Rating	Wetland Acres
Iwwh131086	M	23.6
Iwwh131085	H	111.4
Iwwh204999	M	12.6
Iwwh131652	M	80.6358374768
Iwwh131076	H	508.9

CODE = Unique identifier assigned by MDIFW to the polygon.

RATING = Inland waterfowl/wading bird habitats with a "high" or "moderate" rating are considered as NRPA.

WETLAND ACRES = size of wetland in acres (this does not include 250-ft upland zone).

Tidal waterfowl/wading Bird Habitats
None Found

Shorebird Areas
None Found

Significant Vernal Pools
None Found

LAND USE REGULATION COMMISSION (LURC) DEER WINTER AREAS AND SEABIRD NESTING ISLANDS
None Found

ENDANGERED, THREATENED, OR SPECIAL CONCERN SPECIES OBSERVATIONS
ETSc is designed to manage mapped habitats based on observations of wildlife species that are Endangered, Threatened, or of Special Concern. Until a habitat polygon has been mapped for an observation, the environmental review polygon is represented by a 0.25-mile circle around the observation point.

Environmental Review Polygons
Classification of ETSc observations as Use = "Environmental Review" indicates that the habitat around the observation should receive special management consideration based on the species involved (endangered, threatened, or special concern), importance or rarity of the habitat, or whether the observation is recent or historical. Any questions regarding ETSc observations should be directed to MDIFW's species specialists in WRAS.

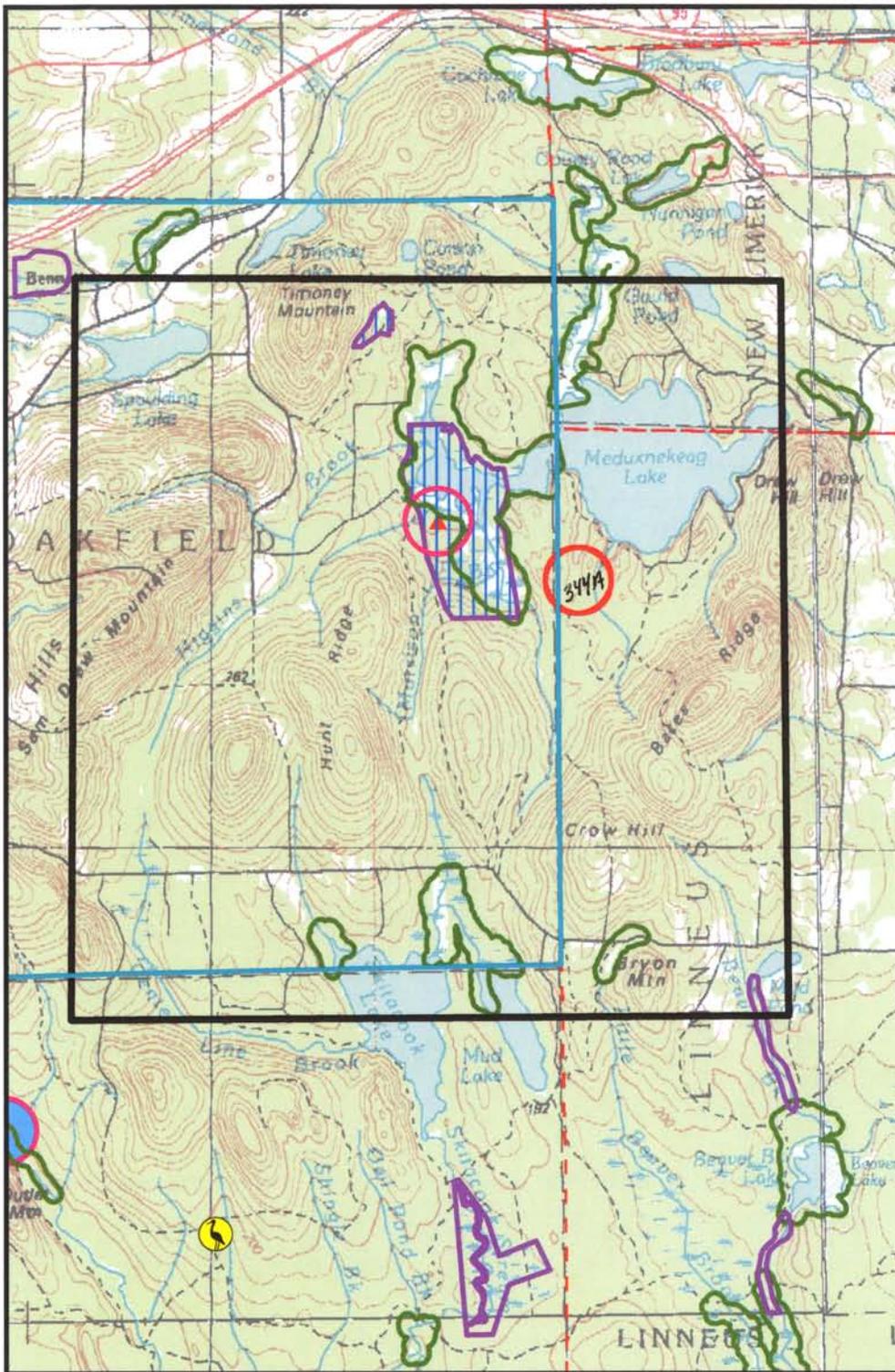
Code	ObsID	Use	Common Name
Poly_5059	4797	ER	Bald Eagle

CODE = unique identifier of habitat

OBSID = unique identifier of species observation linked to ER polygon

USE = observations are rated as environmental review (ER) or internal only (IO)

Search for Wildlife Observations & Habitat-Oakfield



- Bald Eagle Nest Site
- Piping Plover / Least Tern Nesting, Feeding, & Brood-rearing Area
- Roseate Tern Nesting Area
- Deer Winter Area
- Inland Waterfowl / Wading Bird Habitat
- Tidal Waterfowl / Wading Bird Habitat
- Seabird Nesting Island
- Shorebird Area
- Significant Vernal Pool
- Endangered, Threatened, & Special Concern Species Habitat
- Township Boundary
- County

wind energy project-Stantec

0 0.7 1.4 2.1 2.8 Miles

1 = 83,692

UTM Projection, Zone 19N, NAD83



P.O. Box 447
 Ashland, ME 04732-0447
 Voice: (207) 435-3231
 Fax: (207) 435-2009
 March 15, 2010



AqETSC

These are observations of endangered, threatened, or special concern species associated with aquatic habitats that MAY be affected by a project in the search area.

This list is a 'heads-up' for further consideration. You may wish to contact MDIFW staff about these observations:

Herps: Phillip deMaynadier or Jonathan Mays

Mussels: Beth Swartz

Other Inverts: Phillip deMaynadier or Beth Swartz

Fish: Merry Gallagher

Birds: Tom Hodgman, Lindsay Tudor, or Danielle D'Auria

=====

AQUATIC ETSC OBSERVATIONS WITHIN 2.5 MILES OF SEARCH AREA:

None

RARE MUSSELS WITHIN 5 MILES OF SEARCH AREA:

IMBIV02100/115 - Brook Floater
IMBIV02100/176 - Brook Floater
IMBIV02100/177 - Brook Floater
IMBIV02100/178 - Brook Floater
IMBIV21050/977 - Yellow Lampmussel
IMBIV21050/1007 - Yellow Lampmussel
IMBIV21050/1012 - Yellow Lampmussel
IMBIV42030/1369 - Creeper
IMBIV42030/1371 - Creeper
IMBIV42030/2539 - Creeper

=====

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 - Switch from Citrix to your own desktop
 - Open a new email in Outlook
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- 2) Print this file from Notepad, OR
- 3) Save this Notepad file for future reference
 - Click FILE, then SAVE AS....
 - Save as a NEW file under your personal folder.

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MAINE DEPARTMENT OF INLAND FISHERIES & WILDLIFE
P.O. Box 447, Ashland, ME 04732-0447
Phone: (207) 435-3231, FAX: (207) 435-2009

SITE-SPECIFIC SEARCH OF WILDLIFE OBSERVATIONS and HABITAT

=====

Search Parameters

County: Aroostook
IF&W Region: G
Township(s): T4 R3 WELS, Hersey, Island Falls, Dyer Brook, Crystal, Oakfield
Search Center: 559514 east, 5099256 north (UTM NAD83 coordinates)
Search Area: 37.99 sq. miles
Date: Monday, March 15, 2010

Results

ESSENTIAL WILDLIFE HABITATS

Bald Eagle Nest Sites
None Found

Piping Plover / Least Tern Nesting, Feeding, and Brood-rearing Areas
None Found

Roseate Tern Nesting Areas
None Found

NATURAL RESOURCE PROTECTION ACT (NRPA) HABITATS

Title 38, Chapter 3, Article 5-A, Section 480 of M.R.S.A. identifies habitats protected under the Natural Resources Protection Act (NRPA). Included in the definitions section (480-B) is "significant wildlife habitat," which means areas that have been mapped by MDIFW or are within any other protected natural resource including habitat for listed endangered/threatened animal species; high/moderate value deer wintering areas; high/moderate value waterfowl/wading bird habitat; shorebird nesting, feeding, and staging areas; seabird nesting islands; and significant vernal pools (http://www.maine.gov/ifw/wildlife/habitat_data/significant_habitat_data.htm). Data requested for NRPA purposes should be obtained from Maine DEP.

Seabird Nesting Islands
None Found

Deer Winter Areas

A forested area used by deer when snow depth in the open/hardwoods is > 12", deer sinking depth in the open/hardwoods is > 8", and mean daily temperatures are below 32 degrees F. Non-forested wetlands, non-stocked clearcuts, hardwood types, and stands predominated by Eastern Larch are included within the DWA only if less than 10 acres in size. Agricultural and development areas within DWAs are excluded regardless of size.

Ratings for Deer winter Areas were based on aerial and/or ground surveys. If only an aerial survey was done (most DWAs), the rating was "indeterminate." If a follow-up ground survey was done also, the evaluation was based on 1) quality of softwood shelter, 2) intensity of deer use, and 3) size. The final rating of the DWA was determined by summing the scores for the three criteria and assigning a

HMaprpt

rating as follows: high (score of 10-12), moderate (score of 7-9.9), or low (score of 0-6.9). A regional biologist may recommend a rating change with justification and approval by the management section supervisor. No delisting criteria for regulated NRPA DWAs have been developed.

Code	Size (acres)	Rating
100169	978.721761345	indeterminate
123301	666.498269154	indeterminate
100170	2955.54191317	indeterminate
123300	3598.3676899	indeterminate
100169	289.49654995	indeterminate

CODE = unique identifier of Deer Wintering Area

RATING = DWAs must have a moderate or high rating to qualify under NRPA

Inland Waterfowl/Wading Bird Habitats

Areas rated as high or moderate qualify as NRPA habitats. The mapped boundary includes a 250-ft upland zone that is used by wildlife associated with the wetland. This data set was developed in accordance with NRPA and the Comprehensive Planning and Land Use Regulation Act (Growth Management).

Code	Rating	Wetland Acres
Iwwh202669	H	369.1
Iwwh202670	M	5.4
Iwwh204384	M	23.8
Iwwh204385	M	12.2
Iwwh111450	H	157.9
Iwwh111461	H	24.0650707761
Iwwh205357	M	37.8627280338
Iwwh111441	H	285.121101652
Iwwh111442	H	11.7829745518
Iwwh111443	M	14.3481829948
Iwwh111456	M	13.7236400954

CODE = Unique identifier assigned by MDIFW to the polygon.

RATING = Inland waterfowl/wading bird habitats with a "high" or "moderate" rating are considered as NRPA.

WETLAND ACRES = size of wetland in acres (this does not include 250-ft upland zone).

Tidal Waterfowl/Wading Bird Habitats

None Found

Shorebird Areas

None Found

Significant Vernal Pools

None Found

LAND USE REGULATION COMMISSION (LURC) DEER WINTER AREAS AND SEABIRD NESTING ISLANDS

None Found

ENDANGERED, THREATENED, OR SPECIAL CONCERN SPECIES OBSERVATIONS

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ETSc is designed to manage mapped habitats based on observations of wildlife species that are Endangered, Threatened, or of Special Concern. Until a habitat polygon has been mapped for an observation, the environmental review polygon is represented by a 0.25-mile circle around the observation point.

Environmental Review Polygons

Classification of ETSc observations as Use = "Environmental Review" indicates that the habitat around the observation should receive special management consideration based on the species involved (endangered, threatened, or special concern), importance or rarity of the habitat, or whether the observation is recent or historical. Any questions regarding ETSc observations should be directed to MDIFW's species specialists in WRAS.

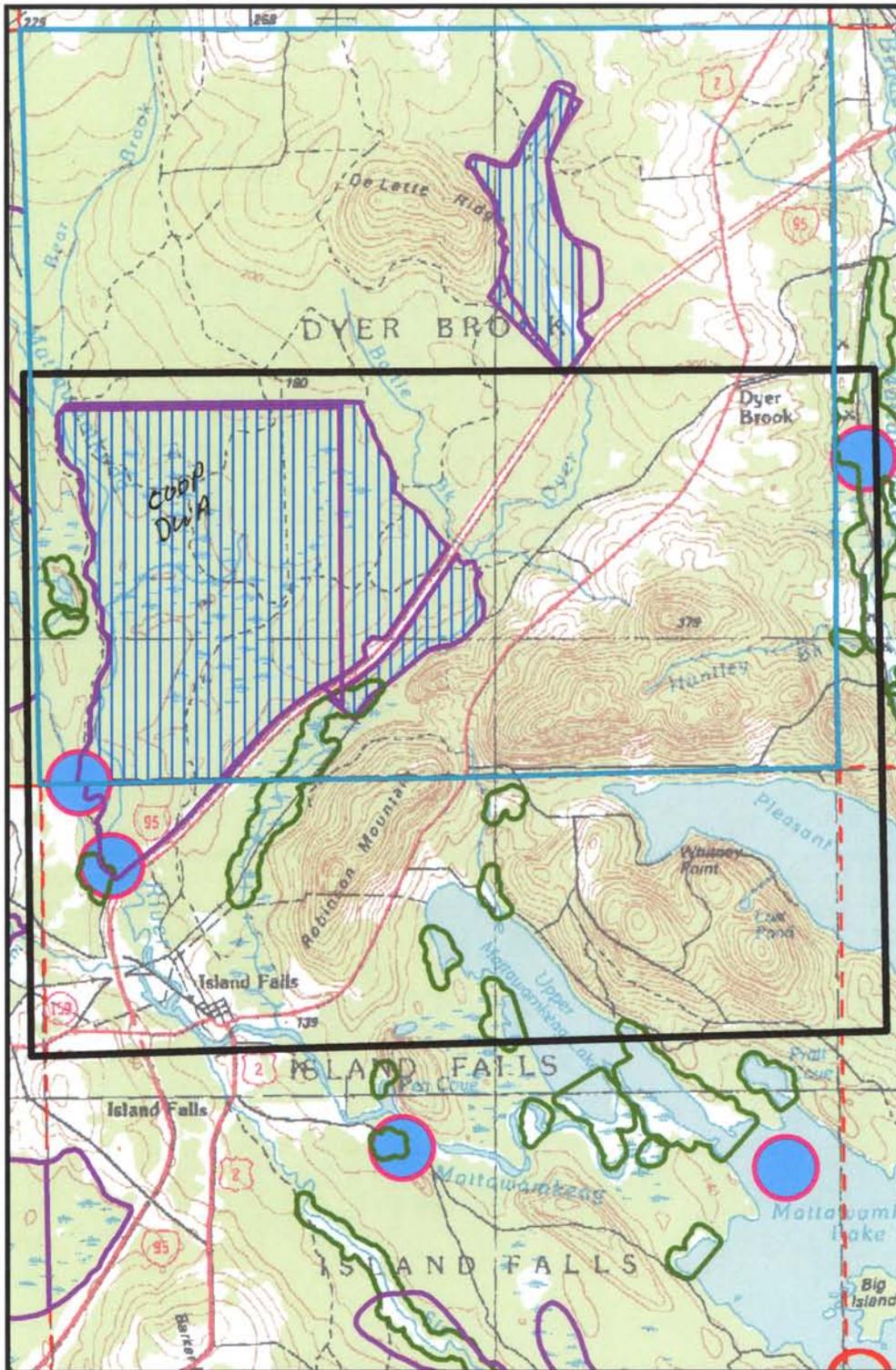
Code	ObsID	Use	Common Name
Poly_117	115	ER	Brook Floater
Poly_1373	1371	ER	Creeper
Poly_2541	2539	ER	Creeper

CODE = unique identifier of habitat

OBSID = unique identifier of species observation linked to ER polygon

USE = observations are rated as environmental review (ER) or internal only (IO)

Search for Wildlife Observations & Habitat-Dyer Bk.



- Bald Eagle Nest Site
- Piping Plover / Least Tern Nesting, Feeding, & Brood-rearing Area
- Roseate Tern Nesting Area
- Deer Winter Area
- Inland Waterfowl / Wading Bird Habitat
- Tidal Waterfowl / Wading Bird Habitat
- Seabird Nesting Island
- Shorebird Area
- Significant Vernal Pool
- Endangered, Threatened, & Special Concern Species Habitat
- Township Boundary
- County

Wind Energy-Stantec

0 0.75 1.5 2.25 3 Miles

1 = 88,400

UTM Projection, Zone 19N, NAD83



P.O. Box 447
 Ashland, ME 04732-0447
 Voice: (207) 435-3231
 Fax: (207) 435-2009
 March 15, 2010







GOVERNOR
John E. Baldacci



COMMISSIONER
Roland D. Martin

Wildlife Division
73 Cobb Road
Enfield, ME 04493

March 15, 2010

Stantec Consulting
Attn: Dale Knapp
30 Park Drive
Topsham, ME 04086

Dear Dale:

I have received your letter requesting Essential and Significant Habitat information for your project located in Island Falls and T4 R3 WELS.

Essential Habitats:

Essential Habitats are defined as “areas currently or historically providing physical or biological features essential to the conservation of an endangered or threatened species in Maine and which may require special management considerations”. Essential Habitat protection in Maine currently applies to roseate and least terns, and piping plover nest sites. Additional listed species may receive attention in the future.

According to MDIFW records, there are no Essential Habitats known to be associated with your project areas located in Island Falls and T4 R3 WELS.

Significant Wildlife Habitats:

The Natural Resources Protection Act (NRPA), administered by the Maine Department of Environmental Protection (DEP), provides protection to certain natural resources including Significant Wildlife Habitats. Significant Wildlife Habitats are defined by the NRPA as:

Habitat for state and federally listed endangered and threatened species.

High and moderate value deer wintering areas (DWAs) and travel corridors.

High and moderate value waterfowl and wading bird habitats (WWHs), including nesting and feeding areas.

Shorebird nesting, feeding, and staging areas.

Seabird nesting islands.

According to MDIFW records, there is a Waterfowl/Wadingbird Habitat associated with each of your project areas. Please refer to the enclosed maps.

Finally, MDIFW maintains a statewide database of endangered, threatened and special concern wildlife species and their habitats. These include endangered and threatened species not included under Essential Habitat and species that are of special concern to MDIFW but for which sufficient data may be currently lacking. The State Threatened brook floater has been surveyed in the East Branch of the Mattawamkeag River.

Sincerely,

Mark A. Caron

Mark A. Caron
Regional Wildlife Biologist
Phone: 207-732-4132
Fax: 207-732-4405
E-Mail: mark.caron@maine.gov

Appendix G
Representative Site Photographs



Photo 1. Rare plant: *Cardamine maxima*.
Stantec, May 14, 2009.



Photo 2. Intermittent Stream Number STR05.
Stantec, November 4, 2009.



Photo 3. Perennial stream number STR61.
Stantec, April 27, 2010.



Photo 4. Upland hardwood forest.
Stantec, June 11, 2010.



Photo 5. Wetland A062, Significant Vernal Pool 36MA.
Stantec, May 14, 2009.



Photo 6. Wetland A066, Natural Vernal Pool 034DD.
Stantec, May 20, 2009.



Photo 7. Wetland A110, Anthropogenic Vernal Pool, VP04SM_M.
Stantec, May 5, 2009.



Photo 8. Wetland A169, Emergent Wetland.
Stantec, August 19, 2009.



Photo 9. Wetland A157, Scrub-Shrub Wetland.
Stantec, June 3, 2010.



Photo 10. Wetland A159, Forested Wetland.
Stantec, June 3, 2010.

Appendix H
U.S. Army Corps of Engineers Wetland Delineation Data Forms

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Oakfield II / 195600518

City/County: Oakfield / Aroostook

Sampling Date: 6/3/2010

Applicant/Owner: Evergreen Wind Power II, LLC

State: Maine

Sampling Point: A087 Upland

Investigator(s): E. Doucette

Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): hill slope

Local relief (concave, convex, none): none

Slope (%): 0%

Lat:

Long:

Datum:

Soil Map Unit Name:

NWI Classification: n/a

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="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area Within a wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID:
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks (Explain alternative procedures here or in a separate report): none		

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u>		<u>Secondary Indicators (minimum of two required)</u>
<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 on 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="checkbox"/> No <input checked="" type="checkbox"/> Depth (Inches): Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (Inches): Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (Inches):		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: none available		
Remarks: no evidence of wetland hydrology.		

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status																																	
Tree Stratum (Plot size: 30 feet)																																				
1. Acer saccharum	60%	Yes	FACU	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A) Total Number of Dominant Species Across All Strata: 5 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)																																
2. Fraxinus americana	10%	No	FACU																																	
3. Fagus grandifolia	10%	No	FACU																																	
4.																																				
5.																																				
6.																																				
7.																																				
	80%	= Total Cover		Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 20%; text-align: center;">Total % Cover of:</th> <th style="width: 20%;"></th> <th style="width: 30%; text-align: center;">Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL Species</td> <td style="text-align: center;">0</td> <td></td> <td style="text-align: center;">x 1 = 0</td> </tr> <tr> <td>FACW Species</td> <td style="text-align: center;">0</td> <td></td> <td style="text-align: center;">x 2 = 0</td> </tr> <tr> <td>FAC Species</td> <td style="text-align: center;">60</td> <td></td> <td style="text-align: center;">x 3 = 180</td> </tr> <tr> <td>FACU Species</td> <td style="text-align: center;">125</td> <td></td> <td style="text-align: center;">x 4 = 500</td> </tr> <tr> <td>UPL species</td> <td style="text-align: center;">0</td> <td></td> <td style="text-align: center;">x 5 = 0</td> </tr> <tr> <td>Column Totals</td> <td style="text-align: center;">185 (A)</td> <td></td> <td style="text-align: center;">680 (B)</td> </tr> <tr> <td colspan="4" style="text-align: center;">Prevalence Index = B/A = 3.68</td> </tr> </tbody> </table>		Total % Cover of:		Multiply by:	OBL Species	0		x 1 = 0	FACW Species	0		x 2 = 0	FAC Species	60		x 3 = 180	FACU Species	125		x 4 = 500	UPL species	0		x 5 = 0	Column Totals	185 (A)		680 (B)	Prevalence Index = B/A = 3.68			
	Total % Cover of:		Multiply by:																																	
OBL Species	0		x 1 = 0																																	
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UPL species	0		x 5 = 0																																	
Column Totals	185 (A)		680 (B)																																	
Prevalence Index = B/A = 3.68																																				
Sapling/Shrub Stratum (Plot size: 15 feet)																																				
1. Acer saccharum	10%	No	FACU	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.																																
2. Betula alleghaniensis	10%	No	FAC																																	
3. Fagus grandifolia	10%	No	FACU																																	
4. Viburnum alnifolium	35%	Yes	FAC																																	
5.																																				
6.																																				
7.																																				
	65%	= Total Cover																																		
Herb Stratum (Plot size: 5 feet)																																				
1. Trillium erectum	15%	Yes	FACU	Definitions of Vegetation Strata: Tree – Woody plants 3 in. (76 cm) or more in diameter (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																																
2. Dryopteris intermedia	10%	Yes	FACU																																	
3. Athyrium angustum	10%	Yes	FAC																																	
4. Oxalis montana	5%	No	FAC																																	
5.																																				
6.																																				
7.																																				
8.																																				
9.																																				
10.																																				
11.																																				
12.																																				
	40%	= Total Cover																																		
Woody Vine Stratum (Plot size:)																																				
1.																																				
2.																																				
3.																																				
4.																																				
		= Total Cover																																		
Remarks (Include photo numbers here or on a separate sheet.): none																																				

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Oakfield II / 195600518

City/County: T4R3 WELS/ Aroostook

Sampling Date: 6/3/2010

Applicant/Owner: Evergreen Wind Power II, LLC

State: Maine

Sampling Point: A087
Wetland

Investigator(s): E. Doucette

Section, Township, Range: T4R3 WELS

Landform (hillslope, terrace, etc.): valley

Local relief (concave, convex, none): none

Slope (%): 0%

Lat:

Long:

Datum:

Soil Map Unit Name:

NWI Classification: n/a

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="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area Within a wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID: A087
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks (Explain alternative procedures here or in a separate report): none		

HYDROLOGY

Wetland Hydrology Indicators:		<u>Secondary Indicators (minimum of two required)</u>
<u>Primary Indicators (minimum of one is required; check all that apply)</u>		
<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 on 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 checked="" type="checkbox"/> No <input type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (Inches):	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (Inches):	
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (Inches): surface	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: none available		
Remarks: MDEP stream STR34 is associated with this wetland resource		

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status																	
<u>Tree Stratum</u> (Plot size: 30 feet)				<p>Dominance Test worksheet:</p> <p>Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)</p> <p>Total Number of Dominant Species Across All Strata: 7 (B)</p> <p>Percent of Dominant Species That Are OBL, FACW, or FAC: 71.4% (A/B)</p> <hr/> <p>Prevalence Index worksheet:</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL Species</td> <td style="text-align: right;">x 1 =</td> </tr> <tr> <td>FACW Species</td> <td style="text-align: right;">x 2 =</td> </tr> <tr> <td>FAC Species</td> <td style="text-align: right;">x 3 =</td> </tr> <tr> <td>FACU Species</td> <td style="text-align: right;">x 4 =</td> </tr> <tr> <td>UPL species</td> <td style="text-align: right;">x 5 =</td> </tr> <tr> <td>Column Totals</td> <td style="text-align: right;">(A) (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A =</td> </tr> </table> <hr/> <p>Hydrophytic Vegetation Indicators:</p> <p><input type="checkbox"/> Rapid Test for Hydrophytic Vegetation</p> <p><input checked="" type="checkbox"/> Dominance Test is > 50%</p> <p><input type="checkbox"/> Prevalence Index is ≤ 3.0¹</p> <p><input checked="" type="checkbox"/> Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)</p> <p><input type="checkbox"/> Problematic Hydrophytic Vegetation¹ (Explain)</p> <p>¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p> <hr/> <p>Definitions of Vegetation Strata:</p> <p>Tree – Woody plants 3 in. (76 cm) or more in diameter (DBH), regardless of height.</p> <p>Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p>Woody vines – All woody vines greater than 3.28 ft in height.</p> <hr/> <p>Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input type="checkbox"/></p>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL Species	x 1 =	FACW Species	x 2 =	FAC Species	x 3 =	FACU Species	x 4 =	UPL species	x 5 =	Column Totals	(A) (B)	Prevalence Index = B/A =	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL Species	x 1 =																			
FACW Species	x 2 =																			
FAC Species	x 3 =																			
FACU Species	x 4 =																			
UPL species	x 5 =																			
Column Totals	(A) (B)																			
Prevalence Index = B/A =																				
1. Fraxinus pennsylvanica	10%	Yes	FACW																	
2. Betula alleghaniensis	20%	Yes	FAC																	
3.																				
4.																				
5.																				
6.																				
7.																				
	30%	= Total Cover																		
<u>Sapling/Shrub Stratum</u> (Plot size: 15 feet)																				
1. Picea glauca	10%	Yes	FACU																	
2. Betula alleghaniensis	20%	Yes	FAC																	
3. Acer saccharum	10%	Yes	FACU																	
4.																				
5.																				
6.																				
7.																				
	40%	= Total Cover																		
<u>Herb Stratum</u> (Plot size: 5 feet)																				
1. Osumunda cinnamomea	50%	Yes	FACW																	
2. Athyrium angustum	10%	No	FACW																	
3. Carex scabrata	15%	No	OBL																	
4. Impatiens capensis	40%	Yes	FACW																	
5. Acer spicatum	5%	No	FACU																	
6. Chrysosplenium americanum	5%	No	OBL																	
7.																				
8.																				
9.																				
10.																				
11.																				
12.																				
	125%	= Total Cover																		
<u>Woody Vine Stratum</u> (Plot size:)																				
1.																				
2.																				
3.																				
4.																				
		= Total Cover																		
<p>Remarks (Include photo numbers here or on a separate sheet.): Acer saccharum and Fagus grandifolia trees are rooted at the wetland/upland edge. Not included in this plot's calculations. Acer saccharum shrubs/saplings are growing on hummocks</p>																				

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Oakfield II / 195600518

City/County: Oakfield / Aroostook

Sampling Date: 6/3/2010

Applicant/Owner: Evergreen Wind Power II, LLC

State: Maine

Sampling Point: A114 Upland

Investigator(s): E. Doucette

Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): hill slope

Local relief (concave, convex, none): none

Slope (%): 0%

Lat:

Long:

Datum:

Soil Map Unit Name:

NWI Classification: n/a

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="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area Within a wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID:
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks (Explain alternative procedures here or in a separate report): none		

HYDROLOGY

Wetland Hydrology Indicators:		<u>Secondary Indicators (minimum of two required)</u>
<u>Primary Indicators (minimum of one is required; check all that apply)</u>		
<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 on 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="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (Inches):	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (Inches):	
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (Inches):	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: none available		
Remarks: no evidence of wetland hydrology		

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: 30 feet)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	Dominance Test worksheet:														
1. <i>Fagus grandifolia</i>	15%	Yes	FACU	Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A) Total Number of Dominant Species Across All Strata: 9 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 55.5% (A/B)														
2. <i>Betula alleghaniensis</i>	10%	No	FAC															
3. <i>Abies balsamea</i>	20%	Yes	FAC															
4. <i>Fraxinus pennsylvanica</i>	10%	No	FACW															
5.																		
6.																		
7.																		
	55%	= Total Cover																
<u>Sapling/Shrub Stratum</u> (Plot size: 15 feet)				Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"><u>Total % Cover of:</u></th> <th style="width: 40%;"><u>Multiply by:</u></th> </tr> </thead> <tbody> <tr> <td>OBL Species 0</td> <td>x 1 = 0</td> </tr> <tr> <td>FACW Species 30</td> <td>x 2 = 60</td> </tr> <tr> <td>FAC Species 70</td> <td>x 3 = 210</td> </tr> <tr> <td>FACU Species 52</td> <td>x 4 = 208</td> </tr> <tr> <td>UPL species 0</td> <td>x 5 = 0</td> </tr> <tr> <td>Column Totals 152 (A)</td> <td>478 (B)</td> </tr> </tbody> </table> Prevalence Index = B/A = 3.14	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL Species 0	x 1 = 0	FACW Species 30	x 2 = 60	FAC Species 70	x 3 = 210	FACU Species 52	x 4 = 208	UPL species 0	x 5 = 0	Column Totals 152 (A)	478 (B)
<u>Total % Cover of:</u>	<u>Multiply by:</u>																	
OBL Species 0	x 1 = 0																	
FACW Species 30	x 2 = 60																	
FAC Species 70	x 3 = 210																	
FACU Species 52	x 4 = 208																	
UPL species 0	x 5 = 0																	
Column Totals 152 (A)	478 (B)																	
1. <i>Acer spicatum</i>	15%	Yes	FACU															
2. <i>Abies balsamea</i>	15%	Yes	FAC															
3. <i>Betula alleghaniensis</i>	10%	Yes	FAC															
4. <i>Acer pennsylvanicum</i>	10%	Yes	FACU															
5. <i>Thuja occidentalis</i>	5%	No	FACW															
6.																		
7.																		
		= Total Cover																
<u>Herb Stratum</u> (Plot size: 5 feet)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" 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>Abies balsamea</i>	15%	Yes	FAC															
2. <i>Fagus grandifolia</i>	10%	Yes	FACU															
3. <i>Thuja occidentalis</i>	10%	Yes	FACW															
4. <i>Equisetum sylvaticum</i>	5%	No	FACW															
5. <i>Dryopteris intermedia</i>	2%	No	FACU															
6.																		
7.																		
8.																		
9.																		
10.																		
11.																		
12.																		
		= Total Cover																
<u>Woody Vine Stratum</u> (Plot size:)				Definitions of Vegetation Strata: Tree – Woody plants 3 in. (76 cm) or more in diameter (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height.														
1.																		
2.																		
3.																		
4.																		
		= Total Cover																
Remarks (Include photo numbers here or on a separate sheet.): Vegetation does not meet the Prevalence Index, but does meet the Dominance test.				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>														

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Oakfield II / 195600518

City/County: Oakfield / Aroostook

Sampling Date: 6/3/2010

Applicant/Owner: Evergreen Wind Power II, LLC

State:

Sampling Point: A114
Wetland

Investigator(s): E. Doucette

Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): hill slope

Local relief (concave, convex, none): none

Slope (%): 0%

Lat:

Long:

Datum:

Soil Map Unit Name:

NWI Classification: n/a

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="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area Within a wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID: A114
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks (Explain alternative procedures here or in a separate report): none		

HYDROLOGY

Wetland Hydrology Indicators:		<u>Secondary Indicators (minimum of two required)</u>
<u>Primary Indicators (minimum of one is required; check all that apply)</u>		
<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 checked="" type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input checked="" 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 checked="" type="checkbox"/> No <input type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (Inches):	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (Inches):	
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (Inches): 2"	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: none available		
Remarks: none.		

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: 30 feet)					
1. <i>Betula alleghaniensis</i>	20%	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A) Total Number of Dominant Species Across All Strata: 7 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 85.7% (A/B)	
2. <i>Picea rubens</i>	20%	Yes	FACU		
3.					
4.					
5.					
6.					
7.					
	40%	= Total Cover		Prevalence Index worksheet: <div style="display: flex; justify-content: space-between;"> <u>Total % Cover of:</u> <u>Multiply by:</u> </div> OBL Species x 1 = FACW Species x 2 = FAC Species x 3 = FACU Species x 4 = UPL species x 5 = Column Totals (A) (B) Prevalence Index = B/A =	
Sapling/Shrub Stratum (Plot size: 15 feet)					
1. <i>Abies balsamea</i>	25%	Yes	FAC		
2. <i>Betula alleghaniensis</i>	10%	Yes	FAC		
3. <i>Acer rubrum</i>	5%	No	FAC		
4.					
5.					
6.					
7.					
	40%	= Total Cover			
Herb Stratum (Plot size: 5 feet)					
1. <i>Glyceria striata</i>	30%	Yes	OBL	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" 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.	
2. <i>Carex disperma</i>	15%	Yes	FACW		
3. <i>Athyrium angustum</i>	5%	No	FAC		
4. <i>Arisaema triphyllum</i>	5%	No	FACW		
5. <i>Abies balsamea</i>	10%	No	FAC		
6. <i>Acer rubrum</i>	15%	Yes	FAC		
7.					
8.					
9.					
10.					
11.					
12.					
		= Total Cover			
Woody Vine Stratum (Plot size: 0)					
1. none observed				Definitions of Vegetation Strata: Tree – Woody plants 3 in. (76 cm) or more in diameter (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height.	
2.					
3.					
4.					
		= Total Cover		Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks (Include photo numbers here or on a separate sheet.): none.					

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Oakfield II / 195600518

City/County: Oakfield / Aroostook

Sampling Date: 6/3/2010

Applicant/Owner: Evergreen Wind Power II, LLC

State: Maine

Sampling Point: A152 Upland

Investigator(s): E. Doucette

Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): hill slope

Local relief (concave, convex, none): none

Slope (%): 0%

Lat:

Long:

Datum:

Soil Map Unit Name:

NWI Classification: n/a

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="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area Within a wetland? Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID:
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks (Explain alternative procedures here or in a separate report): none		

HYDROLOGY

Wetland Hydrology Indicators:		<u>Secondary Indicators (minimum of two required)</u>
<u>Primary Indicators (minimum of one is required; check all that apply)</u>		
<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 on 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="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (Inches):	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (Inches):	
Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (Inches):	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: none available		
Remarks: No wetland hydrology observed.		

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: 30 feet)	Absolute % Cover	Dominant Species?	Indicator Status																																	
1. Populus balsamifera	10%	No	FACW	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A) Total Number of Dominant Species Across All Strata: 4 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)																																
2. Abies balsamea	20%	Yes	FAC																																	
3. Fraxinus pennsylvanica	10%	No	FACW																																	
4. Acer saccharum	20%	Yes	FACU																																	
5.																																				
6.																																				
7.																																				
	60%	= Total Cover		Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 20%; text-align: center;"><u>Total % Cover of:</u></th> <th style="width: 20%;"></th> <th style="width: 30%; text-align: center;"><u>Multiply by:</u></th> </tr> </thead> <tbody> <tr> <td>OBL Species</td> <td style="text-align: center;">0</td> <td></td> <td style="text-align: center;">x 1 = 0</td> </tr> <tr> <td>FACW Species</td> <td style="text-align: center;">40%</td> <td></td> <td style="text-align: center;">x 2 = 80</td> </tr> <tr> <td>FAC Species</td> <td style="text-align: center;">110%</td> <td></td> <td style="text-align: center;">x 3 = 330</td> </tr> <tr> <td>FACU Species</td> <td style="text-align: center;">25%</td> <td></td> <td style="text-align: center;">x 4 = 100</td> </tr> <tr> <td>UPL species</td> <td style="text-align: center;">0</td> <td></td> <td style="text-align: center;">x 5 = 0</td> </tr> <tr> <td>Column Totals</td> <td style="text-align: center;">175 (A)</td> <td></td> <td style="text-align: center;">510 (B)</td> </tr> <tr> <td colspan="4" style="text-align: center;">Prevalence Index = B/A = 2.91</td> </tr> </tbody> </table>		<u>Total % Cover of:</u>		<u>Multiply by:</u>	OBL Species	0		x 1 = 0	FACW Species	40%		x 2 = 80	FAC Species	110%		x 3 = 330	FACU Species	25%		x 4 = 100	UPL species	0		x 5 = 0	Column Totals	175 (A)		510 (B)	Prevalence Index = B/A = 2.91			
	<u>Total % Cover of:</u>		<u>Multiply by:</u>																																	
OBL Species	0		x 1 = 0																																	
FACW Species	40%		x 2 = 80																																	
FAC Species	110%		x 3 = 330																																	
FACU Species	25%		x 4 = 100																																	
UPL species	0		x 5 = 0																																	
Column Totals	175 (A)		510 (B)																																	
Prevalence Index = B/A = 2.91																																				
<u>Sapling/Shrub Stratum</u> (Plot size: 15 feet)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input 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. Populus balsamifera	20%	Yes	FACW																																	
2.																																				
3.																																				
4.																																				
5.																																				
6.																																				
		= Total Cover																																		
<u>Herb Stratum</u> (Plot size: 5 feet)				Definitions of Vegetation Strata: Tree – Woody plants 3 in. (76 cm) or more in diameter (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																																
1. Rubus idaeus	70%	Yes	FAC																																	
2. Ranunculus acris	20%	No	FAC																																	
3. Lonicera canadensis	5%	No	FACU																																	
4.																																				
5.																																				
6.																																				
7.																																				
8.																																				
9.																																				
10.																																				
11.																																				
12.																																				
	95%	= Total Cover																																		
<u>Woody Vine Stratum</u> (Plot size:)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																																
1.																																				
2.																																				
3.																																				
4.				= Total Cover																																

Remarks (Include photo numbers here or on a separate sheet.): Rubus idaeus would not have been a wetland plant with the previous Corps Manual.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Oakfield II / 195600518

City/County: Oakfield / Aroostook

Sampling Date: 6/3/2010

Applicant/Owner: Evergreen Wind Power II, LLC

State: Maine

Sampling Point: A152
Wetland

Investigator(s): E. Doucette

Section, Township, Range: n/a

Landform (hillslope, terrace, etc.): hill slope

Local relief (concave, convex, none): none

Slope (%): 0%

Lat:

Long:

Datum:

Soil Map Unit Name:

NWI Classification: n/a

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="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area Within a wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, optional Wetland Site ID:
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks (Explain alternative procedures here or in a separate report): none		

HYDROLOGY

Wetland Hydrology Indicators:		<u>Secondary Indicators (minimum of two required)</u>
<u>Primary Indicators (minimum of one is required; check all that apply)</u>		
<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 on 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="checkbox"/> No <input type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (Inches):	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (Inches):	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (Inches): surface	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: none available		
Remarks: none		

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status																	
Tree Stratum (Plot size: 30 feet)				<p>Dominance Test worksheet:</p> <p>Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)</p> <p>Total Number of Dominant Species Across All Strata: 5 (B)</p> <p>Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)</p> <hr/> <p>Prevalence Index worksheet:</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL Species</td> <td style="text-align: right;">x 1 =</td> </tr> <tr> <td>FACW Species</td> <td style="text-align: right;">x 2 =</td> </tr> <tr> <td>FAC Species</td> <td style="text-align: right;">x 3 =</td> </tr> <tr> <td>FACU Species</td> <td style="text-align: right;">x 4 =</td> </tr> <tr> <td>UPL species</td> <td style="text-align: right;">x 5 =</td> </tr> <tr> <td>Column Totals</td> <td style="text-align: right;">(A) (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A =</td> </tr> </table> <hr/> <p>Hydrophytic Vegetation Indicators:</p> <p><input checked="" type="checkbox"/> Rapid Test for Hydrophytic Vegetation</p> <p><input checked="" type="checkbox"/> Dominance Test is > 50%</p> <p><input type="checkbox"/> Prevalence Index is ≤ 3.0¹</p> <p><input type="checkbox"/> Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)</p> <p><input type="checkbox"/> Problematic Hydrophytic Vegetation¹ (Explain)</p> <p>¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p> <hr/> <p>Definitions of Vegetation Strata:</p> <p>Tree – Woody plants 3 in. (76 cm) or more in diameter (DBH), regardless of height.</p> <p>Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p>Woody vines – All woody vines greater than 3.28 ft in height.</p> <hr/> <p>Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL Species	x 1 =	FACW Species	x 2 =	FAC Species	x 3 =	FACU Species	x 4 =	UPL species	x 5 =	Column Totals	(A) (B)	Prevalence Index = B/A =	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL Species	x 1 =																			
FACW Species	x 2 =																			
FAC Species	x 3 =																			
FACU Species	x 4 =																			
UPL species	x 5 =																			
Column Totals	(A) (B)																			
Prevalence Index = B/A =																				
1. Fraxinus pennsylvanica	20%	Yes	FACW																	
2. Abies balsamea	15%	Yes	FAC																	
3. Populus balsamifera	10%	No	FACW																	
4.																				
5.																				
6.																				
7.																				
	45%	= Total Cover																		
Sapling/Shrub Stratum (Plot size: 15 feet)																				
1. Populus balsamifera	40%	Yes	FACW																	
2. Fraxinus nigra	15%	Yes	FACW																	
3. Abies balsamea	10%	No	FAC																	
4. Lonicera canadensis	10%	No	FACU																	
5.																				
6.																				
7.																				
	75%	= Total Cover																		
Herb Stratum (Plot size: 5 feet)																				
1. Scirpus microcarpus	50%	Yes	OBL																	
2. Carex echinata	15%	No	OBL																	
3. Rubus pubescens	15%	No	FACW																	
4. Onoclea sensibilis	10%	No	FAC																	
5. Carex brunnescens	5%	No	FACW																	
6.																				
7.																				
8.																				
9.																				
10.																				
11.																				
12.																				
	95%	= Total Cover																		
Woody Vine Stratum (Plot size: 0 feet)																				
1. none observed																				
2.																				
3.																				
4.																				
		= Total Cover																		
Remarks (Include photo numbers here or on a separate sheet.): none.																				

Appendix I
Vernal Pool Survey Data Forms

Maine Association of Wetland Scientists (MAWS)

Vernal Pool Data Collection Form

Project Name/#: Oakfield Amendment **Organization Name:** Stantec Consulting **Pool ID:** SVP29ED N

Observer Contact Information

Primary Observer (include secondary, if applicable) : R. Lichwell Phone or Email 207-729-1199

Primary Observer has Submitted the MAWS VP Credential Form: Previously Submitted Included w/this Submission

Landowner Contact Information

Landowner permission obtained for this survey & submission: Yes No Notes: _____

Landowner contact information (REQUIRED): Name: Evergreen Wind Power II, LLC Phone: _____

Street Address: 179 Lincoln St. Suite 500 City: Boston State: MA Zip: 02111

1. OBSERVER RECOMMENDATION

This pool is:	<input checked="" type="checkbox"/> Significant	<input type="checkbox"/> Potentially Significant <small>(include notes in section 3d on Page 2)</small>	<input type="checkbox"/> Not significant due to:	<input type="checkbox"/> does not meet MDEP SVP biological criteria
				<input type="checkbox"/> does not meet MDEP vernal pool definition criteria
				Notes:

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: Oakfield

Brief site directions to the pool (using mapped landmarks): Wetland #A128. Pool is located along proposed access road, northwest of proposed turbine # E09

Location of Vernal Pool* (Required Coordinate System, Datum and Units: UTM, NAD83, Zone 19 North, meters)

Brand and Model of GPS unit**: Trimble Pro-XT Mapping grade GPS with post processed corrections: Yes No

Check / submit one: GPS-location of center point of the pool included in shapefile named* _____

GPS-location of pool perimeter included as polygon shapefile named* _____

Pool Center Point Easting***: _____ Pool Center Point Northing***: _____

* Observers must check the information on an aerial photo to ensure data quality.

** If mapping grade GPS or Professional Survey is not available, observers must use the most current MDIF&W Vernal Pool Data Collection Form.

*** Center points entered on this form must be submitted with a paper map showing the pool location on USGS Topo Quad or large scale aerial photo.

3. VERNAL POOL SURVEY INFORMATION

a. Pool or Wetland Habitat Characterization

i. Choose the best descriptor for the physical setting:

- Isolated Upland Depression Pool associated with larger wetland complex
 Floodplain Depression Other: Isolated wetland depression

ii. Check all palustrine types that best apply to this pool or wetland:

- Forested wetland Wet meadow Slow stream
 Shrub wetland Shallow pond Floodplain overflow / Oxbow
 Peatland (acidic fen or bog) Abandoned beaver flowage Headwater seepage
 Emergent marsh Active beaver flowage Other:

iii. Predominate substrate in order of increasing hydroperiod:

- Mineral soil (bare, leaf-litter bottom, or upland mosses present)
 Mineral soil (sphagnum moss present)
 Organic matter (peat/muck) shallow or restricted to deepest portion
 Organic matter (peat/muck) deep and widespread

iv. Nonwoody pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.) Sphagnum moss (anchored or suspended)
 Dry site ferns (e.g. spinulose wood fern, lady fern, polypody fern) Wet site ferns (e.g. royal fern, marsh fern)
 Moist site ferns (e.g. sensitive, cinnamon, interrupted, New York) Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail)
 Moist site vasculars (skunk cabbage, jewelweed, blue flag iris, swamp candle) Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
 Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)

b. Vernal Pool Origin or Impacts

i. Pool's Origin: **Natural** **Natural-Modified** **Non-Natural** **Unknown**

• Describe any modern or historic modifications to the pool and associated wetland (REQUIRED):

None observed.

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

3. VERNAL POOL SURVEY INFORMATION (continued)

Pool ID: SVP29ED N

ii. Hydrology

- Approximate size of pool (at max. capacity): Width 20 m ft (check one) Length 50 m ft (check one)
- Maximum depth at time of survey: 14 in ft cm m (check one)

Select the pool's likely hydroperiod and give evidence in the space to the right.

- Permanent _____
- Semi-permanent (drying partially in all years and completely in drought years) _____
- Ephemeral (drying out completely in most years) no water in pool during fall visit to the pool
- Recommend dry out period observation _____

iii. Inlet/Outlet Permanency

- No inlet / outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- Ephemeral inlet / outlet Other _____

iv. Faunal Indicators:

- Fish (species): _____ Bullfrog or Green frog tadpoles Other: _____

c. Significant Vernal Pool Status under NRPA

i. Survey Date(s): 4/28/10

ii. Abundance Criteria

- Was the entire pool comprehensively surveyed for egg masses? Yes No
- For each indicator species, indicate the exact number of egg masses, verification method (VM), confidence level (CL), and egg mass integrity (EI) for each life stage (separate cells are provided for separate survey dates).

Indicator Species	Observation:	Egg Masses (or Adult Fairy Shrimp)						Tadpoles/Larvae					
	Information:	#		VM*		CL**		EMI***		VM*		CL**	
	Date:	4/28		4/28		4/28		4/28		4/28		4/28	
Wood frog		7		S		3		M		n/a		3	
Spotted Salamander		37		S		3		M		n/a		3	
Blue-spotted Salamander		0		n/a		3		n/a		n/a		3	
Fairy Shrimp		0		n/a		3		n/a					

*Verification Method: S= Seen, H= Handled, P= Photographed

**Confidence Level (species ID): 1= <60%, 2= 60-95%, 3= >95%

*** Egg Mass Integrity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

iii. Rarity Criteria

- Was a specific effort made to survey for rare species? Yes No
- If yes, indicate which species were targeted: Specific surveys were not performed, but the entire pool was comprehensively surveyed.
- Note any rare species associated with vernal pools using the box below. Observations should be accompanied photographs (labeled with observer name, pool location, and date).

Species	Verification Method*			CL**	Species	Verification Method*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Wood Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spotted Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ribbon Snake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ringed Boghaunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Other:				

*Verification Method: P= Photographed, H= Handled, S= Seen

**CL-Confidence level in verification: 1= <60%, 2= 60-95%, 3= >95%

d. General Comments:

No second site visit performed.

- Completed Vernal Pool Survey per guidelines outlined in the MAWS 2010 Interim Vernal Pool Survey Protocol
- Sent hard copy of MAWS Vernal Pool Data Collection Form to: MDIF&W, Attn: Vernal Pools; 650 State Street; Bangor, ME 04401
- Sent hard copy map of pool center point with coordinates on MAWS Vernal Pool Data Collection Form to MDIF&W (address above)
- Sent shapefile of pool perimeter / center point on CD to MDIF&W (address above) or emailed to: vernalpools.mdifw@maine.gov

OBSERVER SIGNATURE

I hereby certify that the information contained in this report is true and complete to the best of my knowledge:

Signature: REID LICHWELL Date 5/10/2011

For MDIF&W Use Only:

Reviewed by MDIF&W Date: _____ Initials: _____

This pool is:

- Significant Potentially significant but lacking critical data Not significant due to: does not meet biological criteria and/or does not meet definition criteria



Photo 1. SVP29ED_N during first site visit.
Stantec, April 28, 2010.

Maine Association of Wetland Scientists (MAWS)

Vernal Pool Data Collection Form

Project Name/#: Oakfield Amendment **Organization Name:** Stantec Consulting **Pool ID:** VP19SM N

Observer Contact Information

Primary Observer (include secondary, if applicable) : S. Moriarty, M. Arsenault Phone or Email 207-729-1199

Primary Observer has Submitted the MAWS VP Credential Form: Previously Submitted Included w/this Submission

Landowner Contact Information

Landowner permission obtained for this survey & submission: Yes No Notes: _____

Landowner contact information (REQUIRED): Name: Evergreen Wind Power II, LLC Phone: _____

Street Address: 179 Lincoln St. Suite 500 City: Boston State: MA Zip: 02111

1. OBSERVER RECOMMENDATION

This pool is:	<input checked="" type="checkbox"/> Significant	<input type="checkbox"/> Potentially Significant <small>(include notes in section 3d on Page 2)</small>	<input type="checkbox"/> Not significant due to:	<input type="checkbox"/> does not meet MDEP SVP biological criteria
				<input type="checkbox"/> does not meet MDEP vernal pool definition criteria
				Notes: Insufficient egg mass numbers

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: T4R3 WELS

Brief site directions to the pool (using mapped landmarks): Wetland #A042. East of proposed access road and northwest of proposed Turbine PT01.

Location of Vernal Pool* (Required Coordinate System, Datum and Units: UTM, NAD83, Zone 19 North, meters)

Brand and Model of GPS unit**: Trimble Pro-XT Mapping grade GPS with post processed corrections: Yes No

Check / submit one: GPS-location of center point of the pool included in shapefile named* _____

GPS-location of pool perimeter included as polygon shapefile named* _____

Pool Center Point Easting***: _____ Pool Center Point Northing***: _____

* Observers must check the information on an aerial photo to ensure data quality.

** If mapping grade GPS or Professional Survey is not available, observers must use the most current MDIF&W Vernal Pool Data Collection Form.

*** Center points entered on this form must be submitted with a paper map showing the pool location on USGS Topo Quad or large scale aerial photo.

3. VERNAL POOL SURVEY INFORMATION

a. Pool or Wetland Habitat Characterization

i. Choose the best descriptor for the physical setting:

Isolated Upland Depression Pool associated with larger wetland complex

Floodplain Depression Other: _____

ii. Check all palustrine types that best apply to this pool or wetland:

Forested wetland Wet meadow Slow stream

Shrub wetland Shallow pond Floodplain overflow / Oxbow

Peatland (acidic fen or bog) Abandoned beaver flowage Headwater seepage

Emergent marsh Active beaver flowage Other: _____

iii. Predominate substrate in order of increasing hydroperiod:

Mineral soil (bare, leaf-litter bottom, or upland mosses present)

Mineral soil (sphagnum moss present)

Organic matter (peat/muck) shallow or restricted to deepest portion

Organic matter (peat/muck) deep and widespread

iv. Nonwoody pool vegetation indicators in order of increasing hydroperiod (check all that apply):

Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.) Sphagnum moss (anchored or suspended)

Dry site ferns (e.g. spinulose wood fern, lady fern, polypody fern) Wet site ferns (e.g. royal fern, marsh fern)

Moist site ferns (e.g. sensitive, cinnamon, interrupted, New York) Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail)

Moist site vasculars (skunk cabbage, jewelweed, blue flag iris, swamp candle) Aquatic vascular spp. (e.g. pickerelweed, arrowhead)

Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)

b. Vernal Pool Origin or Impacts

i. Pool's Origin: Natural Natural-Modified Non-Natural Unknown

• Describe any modern or historic modifications to the pool and associated wetland (REQUIRED):

Pool previously affected by forest management activity.

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

3. VERNAL POOL SURVEY INFORMATION (continued)

Pool ID: VP19SM N

ii. Hydrology

- Approximate size of pool (at max. capacity): Width 10 m ft (check one) Length 40 m ft (check one)
- Maximum depth at time of survey: 6 in ft cm m (check one)

Select the pool's likely hydroperiod and give evidence in the space to the right.

- Permanent _____
- Semi-permanent (drying partially in all years and completely in drought years) _____
- Ephemeral (drying out completely in most years) Shallow water at time of survey
- Recommend dry out period observation _____

iii. Inlet/Outlet Permanency

- No inlet / outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- Ephemeral inlet / outlet Other _____

iv. Faunal Indicators:

- Fish (species): _____ Bullfrog or Green frog tadpoles Other: _____

c. Significant Vernal Pool Status under NRPA

i. Survey Date(s): 5/14/2009, 6/4/2009

ii. Abundance Criteria

- Was the entire pool comprehensively surveyed for egg masses? Yes No
- For each indicator species, indicate the exact number of egg masses, verification method (VM), confidence level (CL), and egg mass integrity (EI) for each life stage (separate cells are provided for separate survey dates).

Indicator Species	Observation:	Egg Masses (or Adult Fairy Shrimp)								Tadpoles/Larvae			
	Information:	#		VM*		CL**		EMI***		VM*		CL**	
	Date:	5/14	6/4	5/14	6/4	5/14	6/4	5/14	6/4	5/14	6/4	5/14	6/4
Wood frog		0	0	n/a	n/a	3	3	n/a	n/a	n/a	n/a	3	3
Spotted Salamander		35	27	S	S	3	3	M	M	n/a	n/a	3	3
Blue-spotted Salamander		0	0	n/a	n/a	3	3	n/a	n/a	n/a	n/a	3	3
Fairy Shrimp		0	0	n/a	n/a	3	3	n/a	n/a				

*Verification Method: S= Seen, H= Handled, P= Photographed

**Confidence Level (species ID): 1= <60%, 2= 60-95%, 3= >95%

*** Egg Mass Integrity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

iii. Rarity Criteria

- Was a specific effort made to survey for rare species? Yes No
- If yes, indicate which species were targeted: Specific surveys were not performed, but the entire pool was comprehensively surveyed.
- Note any rare species associated with vernal pools using the box below. Observations should be accompanied photographs (labeled with observer name, pool location, and date).

Species	Verification Method*			CL**	Species	Verification Method*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Wood Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spotted Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ribbon Snake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ringed Boghaunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Other:				

*Verification Method: P= Photographed, H= Handled, S= Seen

**CL-Confidence level in verification: 1= <60%, 2= 60-95%, 3= >95%

d. General Comments:

- Completed Vernal Pool Survey per guidelines outlined in the MAWS 2010 Interim Vernal Pool Survey Protocol
- Sent hard copy of MAWS Vernal Pool Data Collection Form to: MDIF&W, Attn: Vernal Pools; 650 State Street; Bangor, ME 04401
- Sent hard copy map of pool center point with coordinates on MAWS Vernal Pool Data Collection Form to MDIF&W (address above)
- Sent shapefile of pool perimeter / center point on CD to MDIF&W (address above) or emailed to: vernalpools.mdifw@maine.gov

OBSERVER SIGNATURE

I hereby certify that the information contained in this report is true and complete to the best of my knowledge:

Signature: SEAN MORIARTY Date 5/9/2011

For MDIF&W Use Only:

Reviewed by MDIF&W Date: _____ Initials: _____

This pool is:

- Significant Potentially significant but lacking critical data Not significant due to: does not meet biological criteria and/or does not meet definition criteria



Photo 1. VP19SM during second site visit.
Stantec, June 4, 2009.

Maine Association of Wetland Scientists (MAWS)

Vernal Pool Data Collection Form

Project Name/#: Oakfield Amendment **Organization Name:** Stantec Consulting **Pool ID:** SVP04CF N

Observer Contact Information

Primary Observer (include secondary, if applicable) : D. Dyer Phone or Email danielle.dyer@stantec.com

Primary Observer has Submitted the MAWS VP Credential Form: Previously Submitted Included w/this Submission

Landowner Contact Information

Landowner permission obtained for this survey & submission: Yes No Notes: _____

Landowner contact information (REQUIRED): Name: Evergreen Wind Power II, LLC Phone: _____

Street Address: 179 Lincoln St. Suite 500 City: Boston State: MA Zip: 02111

1. OBSERVER RECOMMENDATION

This pool is:	<input checked="" type="checkbox"/> Significant	<input type="checkbox"/> Potentially Significant <small>(include notes in section 3d on Page 2)</small>	<input type="checkbox"/> Not significant due to:	<input type="checkbox"/> does not meet MDEP SVP biological criteria
				<input type="checkbox"/> does not meet MDEP vernal pool definition criteria
				Notes:

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: Oakfield, ME

Brief site directions to the pool (using mapped landmarks): Pool in wetland complex adjacent to gravel road (South Oakfield Road) but undisturbed by road activity or creation. Wetland #A018

Location of Vernal Pool* (Required Coordinate System, Datum and Units: UTM, NAD83, Zone 19 North, meters)

Brand and Model of GPS unit**: Trimble Pro-XT Mapping grade GPS with post processed corrections: Yes No

Check / submit one: GPS-location of center point of the pool included in shapefile named* _____

GPS-location of pool perimeter included as polygon shapefile named* _____

Pool Center Point Easting***: _____ Pool Center Point Northing***: _____

* Observers must check the information on an aerial photo to ensure data quality.

** If mapping grade GPS or Professional Survey is not available, observers must use the most current MDIF&W Vernal Pool Data Collection Form.

*** Center points entered on this form must be submitted with a paper map showing the pool location on USGS Topo Quad or large scale aerial photo.

3. VERNAL POOL SURVEY INFORMATION

a. Pool or Wetland Habitat Characterization

i. Choose the best descriptor for the physical setting:

Isolated Upland Depression Pool associated with larger wetland complex

Floodplain Depression Other: _____

ii. Check all palustrine types that best apply to this pool or wetland:

Forested wetland Wet meadow Slow stream

Shrub wetland Shallow pond Floodplain overflow / Oxbow

Peatland (acidic fen or bog) Abandoned beaver flowage Headwater seepage

Emergent marsh Active beaver flowage Other: _____

iii. Predominate substrate in order of increasing hydroperiod:

Mineral soil (bare, leaf-litter bottom, or upland mosses present)

Mineral soil (sphagnum moss present)

Organic matter (peat/muck) shallow or restricted to deepest portion

Organic matter (peat/muck) deep and widespread

iv. Nonwoody pool vegetation indicators in order of increasing hydroperiod (check all that apply):

Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.) Sphagnum moss (anchored or suspended)

Dry site ferns (e.g. spinulose wood fern, lady fern, polypody fern) Wet site ferns (e.g. royal fern, marsh fern)

Moist site ferns (e.g. sensitive, cinnamon, interrupted, New York) Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail)

Moist site vasculars (skunk cabbage, jewelweed, blue flag iris, swamp candle) Aquatic vascular spp. (e.g. pickerelweed, arrowhead)

Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)

b. Vernal Pool Origin or Impacts

i. Pool's Origin: **Natural** **Natural-Modified** **Non-Natural** **Unknown**

• Describe any modern or historic modifications to the pool and associated wetland (REQUIRED):

None observed.

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

3. VERNAL POOL SURVEY INFORMATION (continued)

Pool ID: SVP04CF N

ii. Hydrology

- Approximate size of pool (at max. capacity): Width 40 m ft (check one) Length 125 m ft (check one)
- Maximum depth at time of survey: 6 in ft cm m (check one)

Select the pool's likely hydroperiod and give evidence in the space to the right.

- Permanent _____
- Semi-permanent (drying partially in all years and completely in drought years) _____
- Ephemeral (drying out completely in most years) within a pit/mound wetland complex with an ephemeral outlet.
- Recommend dry out period observation _____

iii. Inlet/Outlet Permanency

- No inlet / outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- Ephemeral inlet / outlet Other _____

iv. Faunal Indicators:

- Fish (species): _____ Bullfrog or Green frog tadpoles Other: _____

c. Significant Vernal Pool Status under NRPA

i. Survey Date(s): 5/14/2008, 5/27/2008

ii. Abundance Criteria

- Was the entire pool comprehensively surveyed for egg masses? Yes No
- For each indicator species, indicate the exact number of egg masses, verification method (VM), confidence level (CL), and egg mass integrity (EI) for each life stage (separate cells are provided for separate survey dates).

Indicator Species	Observation:	Egg Masses (or Adult Fairy Shrimp)								Tadpoles/Larvae			
	Information:	#		VM*		CL**		EMI***		VM*		CL**	
	Date:	5/14	5/27	5/14	5/27	5/14	5/27	5/14	5/27	5/14	5/27	5/14	5/27
Wood frog		96	0	S,H	n/a	3	3	M	n/a	n/a	S	n/a	3
Spotted Salamander		176	138	S,H	S,H	3	3	M	A	n/a	n/a	n/a	n/a
Blue-spotted Salamander		0	3	n/a	S,H	3	3	n/a	A	n/a	n/a	n/a	n/a
Fairy Shrimp		0	0	n/a	n/a	3	n/a	n/a	n/a				

*Verification Method: S= Seen, H= Handled, P= Photographed

**Confidence Level (species ID): 1= <60%, 2= 60-95%, 3= >95%

*** Egg Mass Integrity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

iii. Rarity Criteria

- Was a specific effort made to survey for rare species? Yes No
- If yes, indicate which species were targeted: Specific surveys were not performed, but the entire pool was comprehensively surveyed.
- Note any rare species associated with vernal pools using the box below. Observations should be accompanied photographs (labeled with observer name, pool location, and date).

Species	Verification Method*			CL**	Species	Verification Method*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Wood Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spotted Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ribbon Snake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ringed Boghaunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Other:				

*Verification Method: P= Photographed, H= Handled, S= Seen

**CL-Confidence level in verification: 1= <60%, 2= 60-95%, 3= >95%

d. General Comments:

- Completed Vernal Pool Survey per guidelines outlined in the MAWS 2010 Interim Vernal Pool Survey Protocol
- Sent hard copy of MAWS Vernal Pool Data Collection Form to: MDIF&W, Attn: Vernal Pools; 650 State Street; Bangor, ME 04401
- Sent hard copy map of pool center point with coordinates on MAWS Vernal Pool Data Collection Form to MDIF&W (address above)
- Sent shapefile of pool perimeter / center point on CD to MDIF&W (address above) or emailed to: vernalpools.mdifw@maine.gov

OBSERVER SIGNATURE

I hereby certify that the information contained in this report is true and complete to the best of my knowledge:

Signature: DANIELLE M. DYER Date 5/10/2011

For MDIF&W Use Only:

Reviewed by MDIF&W Date: _____ Initials: _____

This pool is:

- Significant Potentially significant but lacking critical data Not significant due to: does not meet biological criteria and/or does not meet definition criteria



Photo 1. SVP04CF_N during first site visit.
Stantec, May 14, 2008.

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

Project Name/#: Oakfield Amendment **Organization Name:** Stantec Consulting **Pool ID:** SVP30ED N

Observer Contact Information

Primary Observer (include secondary, if applicable) : R. Lichwell Phone or Email 207-729-1199

Primary Observer has Submitted the MAWS VP Credential Form: Previously Submitted Included w/this Submission

Landowner Contact Information

Landowner permission obtained for this survey & submission: Yes No Notes: _____

Landowner contact information (REQUIRED): Name: Evergreen Wind Power II, LLC Phone: _____

Street Address: 179 Lincoln St. Suite 500 City: Boston State: MA Zip: 02111

1. OBSERVER RECOMMENDATION

This pool is:	<input checked="" type="checkbox"/> Significant	<input type="checkbox"/> Potentially Significant <small>(include notes in section 3d on Page 2)</small>	<input type="checkbox"/> Not significant due to:	<input type="checkbox"/> does not meet MDEP SVP biological criteria
				<input type="checkbox"/> does not meet MDEP vernal pool definition criteria
				Notes:

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: Oakfield

Brief site directions to the pool (using mapped landmarks): Wetland #A126. Pool is located between proposed turbines E05 and E06.

Location of Vernal Pool* (Required Coordinate System, Datum and Units: UTM, NAD83, Zone 19 North, meters)

Brand and Model of GPS unit**: Trimble Pro-XT Mapping grade GPS with post processed corrections: Yes No

Check / submit one: GPS-location of center point of the pool included in shapefile named* _____

GPS-location of pool perimeter included as polygon shapefile named* _____

Pool Center Point Easting***: _____ Pool Center Point Northing***: _____

* Observers must check the information on an aerial photo to ensure data quality.

** If mapping grade GPS or Professional Survey is not available, observers must use the most current MDIF&W Vernal Pool Data Collection Form.

*** Center points entered on this form must be submitted with a paper map showing the pool location on USGS Topo Quad or large scale aerial photo.

3. VERNAL POOL SURVEY INFORMATION

a. Pool or Wetland Habitat Characterization

i. Choose the best descriptor for the physical setting:

- Isolated Upland Depression Pool associated with larger wetland complex
 Floodplain Depression Other: Isolated Wetland Depression

ii. Check all palustrine types that best apply to this pool or wetland:

- Forested wetland Wet meadow Slow stream
 Shrub wetland Shallow pond Floodplain overflow / Oxbow
 Peatland (acidic fen or bog) Abandoned beaver flowage Headwater seepage
 Emergent marsh Active beaver flowage Other:

iii. Predominate substrate in order of increasing hydroperiod:

- Mineral soil (bare, leaf-litter bottom, or upland mosses present)
 Mineral soil (sphagnum moss present)
 Organic matter (peat/muck) shallow or restricted to deepest portion
 Organic matter (peat/muck) deep and widespread

iv. Nonwoody pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.) Sphagnum moss (anchored or suspended)
 Dry site ferns (e.g. spinulose wood fern, lady fern, polypody fern) Wet site ferns (e.g. royal fern, marsh fern)
 Moist site ferns (e.g. sensitive, cinnamon, interrupted, New York) Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail)
 Moist site vasculars (skunk cabbage, jewelweed, blue flag iris, swamp candle) Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
 Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)

b. Vernal Pool Origin or Impacts

i. Pool's Origin: **Natural** **Natural-Modified** **Non-Natural** **Unknown**

• Describe any modern or historic modifications to the pool and associated wetland (REQUIRED):

None observed.

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

3. VERNAL POOL SURVEY INFORMATION (continued)

Pool ID: SVP30ED N

ii. Hydrology

- Approximate size of pool (at max. capacity): Width 40 m ft (check one) Length 55 m ft (check one)
- Maximum depth at time of survey: 12 in ft cm m (check one)

Select the pool's likely hydroperiod and give evidence in the space to the right.

- Permanent _____
- Semi-permanent (drying partially in all years and completely in drought years) Mucky soil indicates longer hydroperiod.
- Ephemeral (drying out completely in most years) _____
- Recommend dry out period observation _____

iii. Inlet/Outlet Permanency

- No inlet / outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- Ephemeral inlet / outlet Other _____

iv. Faunal Indicators:

- Fish (species): _____ Bullfrog or Green frog tadpoles Other: _____

c. Significant Vernal Pool Status under NRPA

i. Survey Date(s): 4/28/2010, 5/11/2011

ii. Abundance Criteria

- Was the entire pool comprehensively surveyed for egg masses? Yes No
- For each indicator species, indicate the exact number of egg masses, verification method (VM), confidence level (CL), and egg mass integrity (EI) for each life stage (separate cells are provided for separate survey dates).

Indicator Species	Observation:	Egg Masses (or Adult Fairy Shrimp)								Tadpoles/Larvae			
	Information:	#		VM*		CL**		EMI***		VM*		CL**	
	Date:	4/28	5/11	4/28	5/11	4/28	5/11	4/28	5/11	4/28	5/11	4/28	5/11
Wood frog		36	~10	S,H	S	3	3	M	H	n/a	S	3	3
Spotted Salamander		79	109	S,H	S,H	3	3	M	A	n/a	n/a	3	3
Blue-spotted Salamander		0	0	n/a	n/a	3	3	n/a	n/a	n/a	n/a	3	3
Fairy Shrimp		0	0	n/a	n/a	3	3	n/a	n/a				

*Verification Method: S= Seen, H= Handled, P= Photographed

**Confidence Level (species ID): 1= <60%, 2= 60-95%, 3= >95%

*** Egg Mass Integrity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

iii. Rarity Criteria

- Was a specific effort made to survey for rare species? Yes No
- If yes, indicate which species were targeted: Specific surveys were not performed, but the entire pool was comprehensively surveyed
- Note any rare species associated with vernal pools using the box below. Observations should be accompanied photographs (labeled with observer name, pool location, and date).

Species	Verification Method*			CL**	Species	Verification Method*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Wood Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spotted Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ribbon Snake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ringed Boghaunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Other:				

*Verification Method: P= Photographed, H= Handled, S= Seen

**CL-Confidence level in verification: 1= <60%, 2= 60-95%, 3= >95%

d. General Comments:

- Completed Vernal Pool Survey per guidelines outlined in the MAWS 2010 Interim Vernal Pool Survey Protocol
- Sent hard copy of MAWS Vernal Pool Data Collection Form to: MDIF&W, Attn: Vernal Pools; 650 State Street; Bangor, ME 04401
- Sent hard copy map of pool center point with coordinates on MAWS Vernal Pool Data Collection Form to MDIF&W (address above)
- Sent shapefile of pool perimeter / center point on CD to MDIF&W (address above) or emailed to: vernalpools.mdifw@maine.gov

OBSERVER SIGNATURE

I hereby certify that the information contained in this report is true and complete to the best of my knowledge:

Signature: REID LICHWELL Date 6/29/2010

For MDIF&W Use Only:

Reviewed by MDIF&W Date: _____ Initials: _____

This pool is:

- Significant Potentially significant but lacking critical data Not significant due to: does not meet biological criteria and/or does not meet definition criteria



Photo 1. SVP30ED_N during first site visit.
Stantec, April 28, 2010.



Photo 2. SVP30ED_N during second site visit.
Stantec, May 11, 2010.

Maine Association of Wetland Scientists (MAWS)

Vernal Pool Data Collection Form

Project Name/#: Oakfield Amendment **Organization Name:** Stantec Consulting **Pool ID:** SVP34MA N

Observer Contact Information

Primary Observer (include secondary, if applicable) : M. Arsenault Phone or Email 207-729-1199

Primary Observer has Submitted the MAWS VP Credential Form: Previously Submitted Included w/this Submission

Landowner Contact Information

Landowner permission obtained for this survey & submission: Yes No Notes: _____

Landowner contact information (REQUIRED): Name: Evergreen Wind Power II, LLC Phone: _____

Street Address: 179 Lincoln St. Suite 500 City: Boston State: MA Zip: 02111

1. OBSERVER RECOMMENDATION

This pool is:	<input checked="" type="checkbox"/> Significant	<input type="checkbox"/> Potentially Significant <small>(include notes in section 3d on Page 2)</small>	<input type="checkbox"/> Not significant due to:	<input type="checkbox"/> does not meet MDEP SVP biological criteria
				<input type="checkbox"/> does not meet MDEP vernal pool definition criteria
				Notes:

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: T4R3 WELS

Brief site directions to the pool (using mapped landmarks): Wetland #A042. Pool is along proposed access road, northwest of proposed turbine PT01.

Location of Vernal Pool* (Required Coordinate System, Datum and Units: UTM, NAD83, Zone 19 North, meters)

Brand and Model of GPS unit**: Trimble Pro-XT Mapping grade GPS with post processed corrections: Yes No

Check / submit one: GPS-location of center point of the pool included in shapefile named* _____

GPS-location of pool perimeter included as polygon shapefile named* _____

Pool Center Point Easting***: _____ Pool Center Point Northing***: _____

* Observers must check the information on an aerial photo to ensure data quality.

** If mapping grade GPS or Professional Survey is not available, observers must use the most current MDIF&W Vernal Pool Data Collection Form.

*** Center points entered on this form must be submitted with a paper map showing the pool location on USGS Topo Quad or large scale aerial photo.

3. VERNAL POOL SURVEY INFORMATION

a. Pool or Wetland Habitat Characterization

i. Choose the best descriptor for the physical setting:

Isolated Upland Depression Pool associated with larger wetland complex

Floodplain Depression Other: _____

ii. Check all palustrine types that best apply to this pool or wetland:

Forested wetland Wet meadow Slow stream

Shrub wetland Shallow pond Floodplain overflow / Oxbow

Peatland (acidic fen or bog) Abandoned beaver flowage Headwater seepage

Emergent marsh Active beaver flowage Other: _____

iii. Predominate substrate in order of increasing hydroperiod:

Mineral soil (bare, leaf-litter bottom, or upland mosses present)

Mineral soil (sphagnum moss present)

Organic matter (peat/muck) shallow or restricted to deepest portion

Organic matter (peat/muck) deep and widespread

iv. Nonwoody pool vegetation indicators in order of increasing hydroperiod (check all that apply):

Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.) Sphagnum moss (anchored or suspended)

Dry site ferns (e.g. spinulose wood fern, lady fern, polypody fern) Wet site ferns (e.g. royal fern, marsh fern)

Moist site ferns (e.g. sensitive, cinnamon, interrupted, New York) Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail)

Moist site vasculars (skunk cabbage, jewelweed, blue flag iris, swamp candle) Aquatic vascular spp. (e.g. pickerelweed, arrowhead)

Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)

b. Vernal Pool Origin or Impacts

i. Pool's Origin: Natural Natural-Modified Non-Natural Unknown

• Describe any modern or historic modifications to the pool and associated wetland (REQUIRED):

Pool has been affected by previous forest management activity.

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

3. VERNAL POOL SURVEY INFORMATION (continued)

Pool ID: SVP34MA N

ii. Hydrology

- Approximate size of pool (at max. capacity): Width 30 m ft (check one) Length 100 m ft (check one)
- Maximum depth at time of survey: 7 in ft cm m (check one)

Select the pool's likely hydroperiod and give evidence in the space to the right.

- Permanent _____
- Semi-permanent (drying partially in all years and completely in drought years) _____
- Ephemeral (drying out completely in most years) Vascular plants and sensitive fern growing in pool depression
- Recommend dry out period observation _____

iii. Inlet/Outlet Permanency

- No inlet / outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- Ephemeral inlet / outlet Other _____

iv. Faunal Indicators:

- Fish (species): _____ Bullfrog or Green frog tadpoles Other: _____

c. Significant Vernal Pool Status under NRPA

i. Survey Date(s): 5/14/2009, 6/4/2009

ii. Abundance Criteria

- Was the entire pool comprehensively surveyed for egg masses? Yes No
- For each indicator species, indicate the exact number of egg masses, verification method (VM), confidence level (CL), and egg mass integrity (EI) for each life stage (separate cells are provided for separate survey dates).

Indicator Species	Observation:	Egg Masses (or Adult Fairy Shrimp)								Tadpoles/Larvae			
	Information:	#		VM*		CL**		EMI***		VM*		CL**	
	Date:	5/14	6/4	5/14	6/4	5/14	6/4	5/14	6/4	5/14	6/4	5/14	6/4
Wood frog		5	0	S,H	n/a	3	3	A,H	n/a	n/a	S	3	3
Spotted Salamander		26	16	S,H	S,H	3	3	M	M	n/a	0	3	3
Blue-spotted Salamander		0	0	n/a	n/a	3	3	n/a	n/a	n/a	0	3	3
Fairy Shrimp		0	0	n/a	n/a	3	3	n/a	n/a				

*Verification Method: S= Seen, H= Handled, P= Photographed

**Confidence Level (species ID): 1= <60%, 2= 60-95%, 3= >95%

*** Egg Mass Integrity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

iii. Rarity Criteria

- Was a specific effort made to survey for rare species? Yes No
- If yes, indicate which species were targeted: Specific surveys were not performed, but the entire pool was comprehensively surveyed
- Note any rare species associated with vernal pools using the box below. Observations should be accompanied photographs (labeled with observer name, pool location, and date).

Species	Verification Method*			CL**	Species	Verification Method*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Wood Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spotted Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ribbon Snake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ringed Boghaunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Other:				

*Verification Method: P= Photographed, H= Handled, S= Seen

**CL-Confidence level in verification: 1= <60%, 2= 60-95%, 3= >95%

d. General Comments:

- Completed Vernal Pool Survey per guidelines outlined in the MAWS 2010 Interim Vernal Pool Survey Protocol
- Sent hard copy of MAWS Vernal Pool Data Collection Form to: MDIF&W, Attn: Vernal Pools; 650 State Street; Bangor, ME 04401
- Sent hard copy map of pool center point with coordinates on MAWS Vernal Pool Data Collection Form to MDIF&W (address above)
- Sent shapefile of pool perimeter / center point on CD to MDIF&W (address above) or emailed to: vernalpools.mdifw@maine.gov

OBSERVER SIGNATURE

I hereby certify that the information contained in this report is true and complete to the best of my knowledge:

Signature: MATT ARSENAULT Date 5/13/2011

For MDIF&W Use Only:

Reviewed by MDIF&W Date: _____ Initials: _____

This pool is:

- Significant Potentially significant but lacking critical data Not significant due to: does not meet biological criteria and/or does not meet definition criteria



Photo 1. SVP34MA_N during first site visit.
Stantec, May 14, 2009.



Photo 2. SVP34MA_N during second site visit.
Stantec, June 4, 2009.

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

Project Name/ #: Oakfield Amendment Organization Name: Stantec Consulting Pool ID: SVP36MA N

Observer Contact Information

Primary Observer (include secondary, if applicable) : M. Arsenault, D. Dyer Phone or Email 207-729-1199

Primary Observer has Submitted the MAWS VP Credential Form: Previously Submitted Included w/this Submission

Landowner Contact Information

Landowner permission obtained for this survey & submission: Yes No Notes: _____

Landowner contact information (REQUIRED): Name: Evergreen Wind Power II, LLC Phone: _____

Street Address: 179 Lincoln St. Suite 500 City: Boston State: MA Zip: 02111

1. OBSERVER RECOMMENDATION

This pool is:	<input type="checkbox"/> Significant	<input type="checkbox"/> Potentially Significant (include notes in section 3d on Page 2)	<input checked="" type="checkbox"/> Not significant due to:	<input checked="" type="checkbox"/> does not meet MDEP SVP biological criteria
				<input type="checkbox"/> does not meet MDEP vernal pool definition criteria
				Notes: <u>insufficient egg mass numbers</u>

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: Oakfield, ME

Brief site directions to the pool (using mapped landmarks): Wetland #A062. Southeast of proposed turbine PT01.

Location of Vernal Pool* (Required Coordinate System, Datum and Units: UTM, NAD83, Zone 19 North, meters)

Brand and Model of GPS unit**: Trimble Pro-XT Mapping grade GPS with post processed corrections: Yes No

Check / submit one: GPS-location of center point of the pool included in shapefile named* _____

GPS-location of pool perimeter included as polygon shapefile named* _____

Pool Center Point Easting***: _____ Pool Center Point Northing***: _____

* Observers must check the information on an aerial photo to ensure data quality.

** If mapping grade GPS or Professional Survey is not available, observers must use the most current MDIF&W Vernal Pool Data Collection Form.

*** Center points entered on this form must be submitted with a paper map showing the pool location on USGS Topo Quad or large scale aerial photo.

3. VERNAL POOL SURVEY INFORMATION

a. Pool or Wetland Habitat Characterization

i. Choose the best descriptor for the physical setting:

Isolated Upland Depression

Pool associated with larger wetland complex

Floodplain Depression

Other: Isolated wetland depression

ii. Check all palustrine types that best apply to this pool or wetland:

Forested wetland

Wet meadow

Slow stream

Shrub wetland

Shallow pond

Floodplain overflow / Oxbow

Peatland (acidic fen or bog)

Abandoned beaver flowage

Headwater seepage

Emergent marsh

Active beaver flowage

Other:

iii. Predominate substrate in order of increasing hydroperiod:

Mineral soil (bare, leaf-litter bottom, or upland mosses present)

Mineral soil (sphagnum moss present)

Organic matter (peat/muck) shallow or restricted to deepest portion

Organic matter (peat/muck) deep and widespread

iv. Nonwoody pool vegetation indicators in order of increasing hydroperiod (check all that apply):

Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.)

Sphagnum moss (anchored or suspended)

Wet site ferns (e.g. royal fern, marsh fern)

Dry site ferns (e.g. spinulose wood fern, lady fern, polypody fern)

Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail)

Moist site ferns (e.g. sensitive, cinnamon, interrupted, New York)

Aquatic vascular spp. (e.g. pickerelweed, arrowhead)

Moist site vasculars (skunk cabbage, jewelweed, blue flag iris, swamp candle)

Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)

b. Vernal Pool Origin or Impacts

i. Pool's Origin: Natural Natural-Modified Non-Natural Unknown

• Describe any modern or historic modifications to the pool and associated wetland (REQUIRED):

None observed.

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

3. VERNAL POOL SURVEY INFORMATION (continued)

Pool ID: SVP36MA N

ii. Hydrology

- Approximate size of pool (at max. capacity): Width 50 m ft (check one) Length 100 m ft (check one)
- Maximum depth at time of survey: 2.5 in ft cm m (check one)

Select the pool's likely hydroperiod and give evidence in the space to the right.

- Permanent _____
- Semi-permanent (drying partially in all years and completely in drought years) Mucky substrate indicates longer hydroperiod _____
- Ephemeral (drying out completely in most years) _____
- Recommend dry out period observation _____

iii. Inlet/Outlet Permanency

- No inlet / outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- Ephemeral inlet / outlet Other _____

iv. Faunal Indicators:

- Fish (species): _____ Bullfrog or Green frog tadpoles Other: _____

c. Significant Vernal Pool Status under NRPA

i. Survey Date(s): 5/14/2009, 6/5/2009

ii. Abundance Criteria

- Was the entire pool comprehensively surveyed for egg masses? Yes No
- For each indicator species, indicate the exact number of egg masses, verification method (VM), confidence level (CL), and egg mass integrity (EI) for each life stage (separate cells are provided for separate survey dates).

Indicator Species	Observation:	Egg Masses (or Adult Fairy Shrimp)								Tadpoles/Larvae			
	Information:	#		VM*		CL**		EMI***		VM*		CL**	
	Date:	5/14	6/5	5/14	6/5	5/14	6/5	5/14	6/5	5/14	6/5	5/14	6/5
Wood frog		28	0	S,H	n/a	3	3	M	H	n/a	S	3	3
Spotted Salamander		227	~200	S,H	S	3	3	M	H	n/a	n/a	3	3
Blue-spotted Salamander		0	0	n/a	n/a	3	3	n/a	n/a	n/a	n/a	n/a	n/a
Fairy Shrimp		0	0	n/a	n/a	3	3	n/a	n/a				

*Verification Method: S= Seen, H= Handled, P= Photographed

**Confidence Level (species ID): 1= <60%, 2= 60-95%, 3= >95%

*** Egg Mass Integrity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

iii. Rarity Criteria

- Was a specific effort made to survey for rare species? Yes No
- If yes, indicate which species were targeted: Specific surveys were not performed, but the entire pool was comprehensively surveyed.
- Note any rare species associated with vernal pools using the box below. Observations should be accompanied photographs (labeled with observer name, pool location, and date).

Species	Verification Method*			CL**	Species	Verification Method*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Wood Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spotted Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ribbon Snake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ringed Boghaunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Other:				

*Verification Method: P= Photographed, H= Handled, S= Seen

**CL-Confidence level in verification: 1= <60%, 2= 60-95%, 3= >95%

d. General Comments:

- Completed Vernal Pool Survey per guidelines outlined in the MAWS 2010 Interim Vernal Pool Survey Protocol
- Sent hard copy of MAWS Vernal Pool Data Collection Form to: MDIF&W, Attn: Vernal Pools; 650 State Street; Bangor, ME 04401
- Sent hard copy map of pool center point with coordinates on MAWS Vernal Pool Data Collection Form to MDIF&W (address above)
- Sent shapefile of pool perimeter / center point on CD to MDIF&W (address above) or emailed to: vernalpools.mdifw@maine.gov

OBSERVER SIGNATURE

I hereby certify that the information contained in this report is true and complete to the best of my knowledge:

Signature: MATT ARSENAULT Date 5/9/2011

For MDIF&W Use Only:

Reviewed by MDIF&W Date: _____ Initials: _____

This pool is:

- Significant Potentially significant but lacking critical data Not significant due to: does not meet biological criteria and/or does not meet definition criteria



Photo 1. SVP36MA_N during first site visit.
Stantec, May 14, 2009.



Photo 1. SVP36MA_N during second site visit.
Stantec, June 5, 2009.

Maine Association of Wetland Scientists (MAWS)

Vernal Pool Data Collection Form

Project Name/#: Oakfield Amendment **Organization Name:** Stantec Consulting **Pool ID:** VP05RL N

Observer Contact Information

Primary Observer (include secondary, if applicable) : Reid Lichwell Phone or Email 207-729-1199

Primary Observer has Submitted the MAWS VP Credential Form: Previously Submitted Included w/this Submission

Landowner Contact Information

Landowner permission obtained for this survey & submission: Yes No Notes: _____

Landowner contact information (REQUIRED): Name: Evergreen Wind Power II, LLC Phone: _____

Street Address: 179 Lincoln St. Suite 500 City: Boston State: MA Zip: 02111

1. OBSERVER RECOMMENDATION

This pool is:	<input type="checkbox"/> Significant	<input type="checkbox"/> Potentially Significant <small>(include notes in section 3d on Page 2)</small>	<input checked="" type="checkbox"/> Not significant due to:	<input checked="" type="checkbox"/> does not meet MDEP SVP biological criteria
				<input type="checkbox"/> does not meet MDEP vernal pool definition criteria
				Notes: Insufficient egg mass numbers

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: Oakfield

Brief site directions to the pool (using mapped landmarks) Wetland #A124. Pool is located between proposed turbines E04 and E05.

Location of Vernal Pool* (Required Coordinate System, Datum and Units: UTM, NAD83, Zone 19 North, meters)

Brand and Model of GPS unit**: Trimble Pro-XT Mapping grade GPS with post processed corrections: Yes No

Check / submit one: GPS-location of center point of the pool included in shapefile named* _____

GPS-location of pool perimeter included as polygon shapefile named* _____

Pool Center Point Easting***: _____ Pool Center Point Northing***: _____

* Observers must check the information on an aerial photo to ensure data quality.

** If mapping grade GPS or Professional Survey is not available, observers must use the most current MDIF&W Vernal Pool Data Collection Form.

*** Center points entered on this form must be submitted with a paper map showing the pool location on USGS Topo Quad or large scale aerial photo.

3. VERNAL POOL SURVEY INFORMATION

a. Pool or Wetland Habitat Characterization

i. Choose the best descriptor for the physical setting:

- Isolated Upland Depression Pool associated with larger wetland complex
 Floodplain Depression Other: _____

ii. Check all palustrine types that best apply to this pool or wetland:

- Forested wetland Wet meadow Slow stream
 Shrub wetland Shallow pond Floodplain overflow / Oxbow
 Peatland (acidic fen or bog) Abandoned beaver flowage Headwater seepage
 Emergent marsh Active beaver flowage Other: _____

iii. Predominate substrate in order of increasing hydroperiod:

- Mineral soil (bare, leaf-litter bottom, or upland mosses present)
 Mineral soil (sphagnum moss present)
 Organic matter (peat/muck) shallow or restricted to deepest portion
 Organic matter (peat/muck) deep and widespread

iv. Nonwoody pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.) Sphagnum moss (anchored or suspended)
 Dry site ferns (e.g. spinulose wood fern, lady fern, polypody fern) Wet site ferns (e.g. royal fern, marsh fern)
 Moist site ferns (e.g. sensitive, cinnamon, interrupted, New York) Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail)
 Moist site vasculars (skunk cabbage, jewelweed, blue flag iris, swamp candle) Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
 Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)

b. Vernal Pool Origin or Impacts

i. Pool's Origin: **Natural** **Natural-Modified** **Non-Natural** **Unknown**

• Describe any modern or historic modifications to the pool and associated wetland (REQUIRED):

None observed.

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

3. VERNAL POOL SURVEY INFORMATION (continued)

Pool ID: VP05RL N

ii. Hydrology

- Approximate size of pool (at max. capacity): Width 15 m ft (check one) Length 15 m ft (check one)
- Maximum depth at time of survey: 4 in ft cm m (check one)

Select the pool's likely hydroperiod and give evidence in the space to the right.

- Permanent _____
- Semi-permanent (drying partially in all years and completely in drought years) _____
- Ephemeral (drying out completely in most years) small pool with shallow water
- Recommend dry out period observation _____

iii. Inlet/Outlet Permanency

- No inlet / outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- Ephemeral inlet / outlet Other _____

iv. Faunal Indicators:

- Fish (species): _____ Bullfrog or Green frog tadpoles Other: _____

c. Significant Vernal Pool Status under NRPA

i. Survey Date(s): 4/28/10, 5/11/10

ii. Abundance Criteria

- Was the entire pool comprehensively surveyed for egg masses? Yes No
- For each indicator species, indicate the exact number of egg masses, verification method (VM), confidence level (CL), and egg mass integrity (EI) for each life stage (separate cells are provided for separate survey dates).

Indicator Species	Observation:	Egg Masses (or Adult Fairy Shrimp)								Tadpoles/Larvae			
	Information:	#		VM*		CL**		EMI***		VM*		CL**	
	Date:	4/28	5/11	4/28	5/11	4/28	5/11	4/28	5/11	4/28	5/11	4/28	5/11
Wood frog		0	0	n/a		3		n/a		n/a		3	
Spotted Salamander		1	3	S		3		M		n/a		3	
Blue-spotted Salamander		0	0	n/a		3		n/a		n/a		3	
Fairy Shrimp		0	0	n/a		3		n/a					

*Verification Method: S= Seen, H= Handled, P= Photographed

**Confidence Level (species ID): 1= <60%, 2= 60-95%, 3= >95%

*** Egg Mass Integrity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

iii. Rarity Criteria

- Was a specific effort made to survey for rare species? Yes No
- If yes, indicate which species were targeted: Specific surveys were not performed, but the entire pool was comprehensively surveyed
- Note any rare species associated with vernal pools using the box below. Observations should be accompanied photographs (labeled with observer name, pool location, and date).

Species	Verification Method*			CL**	Species	Verification Method*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Wood Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spotted Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ribbon Snake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ringed Boghaunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Other:				

*Verification Method: P= Photographed, H= Handled, S= Seen

**CL-Confidence level in verification: 1= <60%, 2= 60-95%, 3= >95%

d. General Comments:

- Completed Vernal Pool Survey per guidelines outlined in the MAWS 2010 Interim Vernal Pool Survey Protocol
- Sent hard copy of MAWS Vernal Pool Data Collection Form to: MDIF&W, Attn: Vernal Pools; 650 State Street; Bangor, ME 04401
- Sent hard copy map of pool center point with coordinates on MAWS Vernal Pool Data Collection Form to MDIF&W (address above)
- Sent shapefile of pool perimeter / center point on CD to MDIF&W (address above) or emailed to: vernalpools.mdfw@maine.gov

OBSERVER SIGNATURE

I hereby certify that the information contained in this report is true and complete to the best of my knowledge:

Signature: REID LICHWELL Date 5/13/2011

For MDIF&W Use Only:

Reviewed by MDIF&W Date: _____ Initials: _____

This pool is:

- Significant Potentially significant but lacking critical data Not significant due to: does not meet biological criteria and/or does not meet definition criteria



Photo 1. VP05RL_N during first site visit.
Stantec, April 28, 2010.



Photo 2. VP05RL_N during second visit.
Stantec, May 11, 2010.



Maine State Vernal Pool Assessment Form



INSTRUCTIONS: Complete all 3 pages of form as thoroughly as possible. Most fields are required for pool registration.

Observer's Pool ID: VP15BE_N MDIFW Pool ID: _____

1. PRIMARY OBSERVER INFORMATION

- a. Observer name: Bryan Emerson
- b. Contact and credentials previously provided? No (submit Addendum 1) Yes

2. PROJECT CONTACT INFORMATION

- a. Contact name: same as observer other _____
- b. Contact and credentials previously provided? No (submit Addendum 1) Yes
- c. Project Name: Oakfield Wind Project Amendment

NOTE: Clear photographs or digital images of a) the pool and b) the indicators (one example of each species egg mass) are required for nonprofessional observers and encouraged for all observers.

3. LANDOWNER CONTACT INFORMATION

- a. Are you the landowner? Yes No If no, was landowner permission obtained for survey? Yes No
- b. Landowner's contact information (required)
 - Name: Evergreen Wind Power II, LLC Phone: _____
 - Street Address: 179 Lincoln St, Suite 500 City: Boston State: MA Zip: 02111
- c. Large Projects: check if separate project landowner data file submitted

4. VERNAL POOL LOCATION INFORMATION

a. **Location** Township: Oakfield

Brief site directions to the pool (using mapped landmarks):

Wetland #A162. Pool is located along proposed collector line, east of proposed turbine E12.

b. **Mapping Requirements:** At least 2 of the 3 must be submitted (check those submitted):

- USGS topographic map with pool clearly marked.
- Large scale aerial photograph with pool clearly marked.
- GPS data (complete section below).

GPS location of vernal pool

Longitude/Easting: 572617.79 Latitude/Northing: 5101161.26

Check Datum: NAD27 NAD83 / WGS84 Coordinate system: UTM, Zone 19, meter

Check one: GIS shapefile
 - send to Jason.Czapiga@maine.gov; observer has reviewed shape accuracy (best)

The pool perimeter is delineated by multiple GPS points. (excellent)
 - Include map or spreadsheet with coordinates.

The above GPS point is at the center of the pool. (good)

The center of the pool is approximately _____ m /ft in the compass direction of _____ degrees from the above GPS point. (acceptable)

Maine State Vernal Pool Assessment Form

5. VERNAL POOL HABITAT INFORMATION

a. Habitat survey date (only if different from indicator survey dates on page 3): 5/12/11

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

- Isolated depression
 Floodplain depression
 Pool associated with larger wetland complex
 Other: _____

■ Check all wetland types that best apply to this pool:

- Forested swamp
 Shrub swamp
 Peatland (fen or bog)
 Emergent marsh
 Wet meadow
 Lake/Pond
 Abandoned beaver flowage
 Active beaver flowage
 Slow stream
 Floodplain overflow / oxbow
 Headwater seepage
 Other: _____

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: Natural Natural-Modified Unnatural Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

ii. Pool Hydrology

■ Select the pool's estimated hydroperiod AND provide rationale for opinion.

- Permanent
 Semi-permanent (drying partially in all years and completely in drought years)
 Ephemeral (drying out completely in most years)
 Unknown

Explain:

Shallow water depth located under a red spruce tip-up.

■ Maximum depth at survey: 0-12" (0-1 ft.) 12-36" (1-3 ft.) 36-60" (3-5 ft.) >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: 10 m ft Length: 10 m ft

■ Predominate substrate in order of increasing hydroperiod:

- Mineral soil (bare, leaf-litter bottom, or upland mosses present)
 Mineral soil (sphagnum moss present)
 Organic matter (peat/muck) shallow or restricted to deepest portion
 Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- | | |
|---|---|
| <input type="checkbox"/> Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.) | <input type="checkbox"/> Wet site ferns (e.g. royal fern, marsh fern) |
| <input type="checkbox"/> Dry site ferns (e.g. spinulose wood fern, lady fern, bracken fern) | <input type="checkbox"/> Wet site shrubs (e.g. highbush blueberry, maleberry, winterberry, mountain holly) |
| <input type="checkbox"/> Moist site ferns (e.g. sensitive fern, cinnamon fern, interrupted fern, New York fern) | <input type="checkbox"/> Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail, bulrushes) |
| <input type="checkbox"/> Moist site vasculars (e.g. skunk cabbage, jewelweed, blue flag iris, swamp candle) | <input type="checkbox"/> Aquatic vascular spp. (e.g. pickerelweed, arrowhead) |
| <input type="checkbox"/> Sphagnum moss (anchored or suspended) | <input type="checkbox"/> Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort) |
| | <input checked="" type="checkbox"/> No vegetation in pool |

■ Faunal indicators (check all that apply):

- Fish Bullfrog or Green Frog tadpoles Other: _____

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

- No inlet or outlet
 Intermittent inlet or outlet
 Permanent inlet or outlet (channel with well-defined banks and permanent flow)
 Other or Unknown (explain): _____

Maine State Vernal Pool Assessment Form

6. VERNAL POOL INDICATOR INFORMATION

a. Indicator survey dates: 5/12/11 _____

b. Indicator abundance criteria

■ Was the entire pool surveyed for egg masses? Yes No; what % of pool surveyed? _____

■ For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR SPECIES	Egg Masses (or adult Fairy Shrimp)						Tadpoles/Larvae					
	#		Confidence Level ¹		Egg Mass Maturity ²		Observed			Confidence Level ¹		
Wood Frog	2		3		A		0			3		
Spotted Salamander	2		3		M		0			3		
Blue-spotted Salamander	0		3		n/a		0			3		
Fairy Shrimp ³	0		3									

1-Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

2-Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

3-Fairy Shrimp: X = present

c. Rarity criteria

■ Note any rare species associated with vernal pools. Check the method(s) of verification and fill in the confidence level (CL) for each species observation. Observations should be accompanied by photographs (labeled with observer name, pool location, and date).

SPECIES	Method of Verification*			CL**	SPECIES	Method of Verification*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Wood Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spotted Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ribbon Snake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ringed Boghaunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

*Method of verification: P = Photographed, H = Handled, S = Seen

**CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

d. Optional observer recommendation:

SVP Potential SVP Non Significant VP Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

Send completed form and supporting documentation to: Maine Dept. of Inland Fisheries and Wildlife
Attn: Vernal Pools
650 State Street, Bangor, ME 04401

NOTE: Digital submission (to Jason.Czapiga@maine.gov) of vernal pool field forms and photographs is only acceptable for projects with 3 or fewer assessed pools; larger projects must be mailed as hard copies.

For MDIFW use only Reviewed by MDIFW Date: _____ Initials: _____

This pool is: Significant Potentially Significant but lacking critical data Not Significant due to: does not meet biological criteria. does not meet MDEP vernal pool criteria.

Comments:



Photo 1. VP15BE_N from the west.
Stantec, May 12, 2011.



Photo 2. VP15BE_N from the north.
Stantec, May 12, 2011.

Maine Association of Wetland Scientists (MAWS)

Vernal Pool Data Collection Form

Project Name/#: Oakfield Amendment **Organization Name:** Stantec Consulting **Pool ID:** VP19DD N

Observer Contact Information

Primary Observer (include secondary, if applicable) : D. Dyer Phone or Email: danielle.dyer@stantec.com

Primary Observer has Submitted the MAWS VP Credential Form: Previously Submitted Included w/this Submission

Landowner Contact Information

Landowner permission obtained for this survey & submission: Yes No Notes: _____

Landowner contact information (REQUIRED): Name: Evergreen Wind Power II, LLC Phone: _____

Street Address: 179 Lincoln St. Suite 500 City: Boston State: MA Zip: 02111

1. OBSERVER RECOMMENDATION

This pool is:	<input type="checkbox"/> Significant	<input type="checkbox"/> Potentially Significant <small>(include notes in section 3d on Page 2)</small>	<input checked="" type="checkbox"/> Not significant due to:	<input checked="" type="checkbox"/> does not meet MDEP SVP biological criteria
				<input type="checkbox"/> does not meet MDEP vernal pool definition criteria
				Notes: insufficient egg mass numbers

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: T4R3 WELS

Brief site directions to the pool (using mapped landmarks): Wetland #A042. This pool is located along a proposed access road, northwest of proposed turbine PT01

Location of Vernal Pool* (Required Coordinate System, Datum and Units: UTM, NAD83, Zone 19 North, meters)

Brand and Model of GPS unit**: Trimble Pro-XT Mapping grade GPS with post processed corrections: Yes No

Check / submit one: GPS-location of center point of the pool included in shapefile named* _____

GPS-location of pool perimeter included as polygon shapefile named* _____

Pool Center Point Easting***: _____ Pool Center Point Northing***: _____

* Observers must check the information on an aerial photo to ensure data quality.

** If mapping grade GPS or Professional Survey is not available, observers must use the most current MDIF&W Vernal Pool Data Collection Form.

*** Center points entered on this form must be submitted with a paper map showing the pool location on USGS Topo Quad or large scale aerial photo.

3. VERNAL POOL SURVEY INFORMATION

a. Pool or Wetland Habitat Characterization

i. Choose the best descriptor for the physical setting:

Isolated Upland Depression Pool associated with larger wetland complex

Floodplain Depression Other: _____

ii. Check all palustrine types that best apply to this pool or wetland:

Forested wetland Wet meadow Slow stream

Shrub wetland Shallow pond Floodplain overflow / Oxbow

Peatland (acidic fen or bog) Abandoned beaver flowage Headwater seepage

Emergent marsh Active beaver flowage Other: _____

iii. Predominate substrate in order of increasing hydroperiod:

Mineral soil (bare, leaf-litter bottom, or upland mosses present)

Mineral soil (sphagnum moss present)

Organic matter (peat/muck) shallow or restricted to deepest portion

Organic matter (peat/muck) deep and widespread

iv. Nonwoody pool vegetation indicators in order of increasing hydroperiod (check all that apply):

Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.) Sphagnum moss (anchored or suspended)

Dry site ferns (e.g. spinulose wood fern, lady fern, polypody fern) Wet site ferns (e.g. royal fern, marsh fern)

Moist site ferns (e.g. sensitive, cinnamon, interrupted, New York) Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail)

Moist site vasculars (skunk cabbage, jewelweed, blue flag iris, swamp candle) Aquatic vascular spp. (e.g. pickerelweed, arrowhead) Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)

b. Vernal Pool Origin or Impacts

i. Pool's Origin: **Natural** **Natural-Modified** **Non-Natural** **Unknown**

• Describe any modern or historic modifications to the pool and associated wetland (REQUIRED):

Adjacent to man-made pool in an old haul road.

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

3. VERNAL POOL SURVEY INFORMATION (continued)

Pool ID: VP19DD N

ii. Hydrology

- Approximate size of pool (at max. capacity): Width 10 m ft (check one) Length 10 m ft (check one)
- Maximum depth at time of survey: 12 in ft cm m (check one)

Select the pool's likely hydroperiod and give evidence in the space to the right.

- Permanent _____
- Semi-permanent (drying partially in all years and completely in drought years) _____
- Ephemeral (drying out completely in most years) _____
- Recommend dry out period observation _____

iii. Inlet/Outlet Permanency

- No inlet / outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- Ephemeral inlet / outlet Other _____

iv. Faunal Indicators:

- Fish (species): _____ Bullfrog or Green frog tadpoles Other: _____

c. Significant Vernal Pool Status under NRPA

i. Survey Date(s): 5/14/2009, 6/4/2009

ii. Abundance Criteria

- Was the entire pool comprehensively surveyed for egg masses? Yes No
- For each indicator species, indicate the exact number of egg masses, verification method (VM), confidence level (CL), and egg mass integrity (EI) for each life stage (separate cells are provided for separate survey dates).

Indicator Species	Observation:	Egg Masses (or Adult Fairy Shrimp)								Tadpoles/Larvae			
	Information:	#		VM*		CL**		EMI***		VM*		CL**	
	Date:	5/14	6/4	5/14	6/4	5/14	6/4	5/14	6/4	5/14	6/4	5/14	6/4
Wood frog		4	0	S,H	n/a	3	3	M	H	S	S	3	3
Spotted Salamander		8	19	S,H	s,h	3	3	M	M	0	0	3	3
Blue-spotted Salamander		0	0	n/a	n/a	3	3	n/a	n/a	0	0	3	3
Fairy Shrimp		0	0	n/a	n/a	3	3	n/a	n/a				

*Verification Method: S= Seen, H= Handled, P= Photographed

**Confidence Level (species ID): 1= <60%, 2= 60-95%, 3= >95%

*** Egg Mass Integrity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

iii. Rarity Criteria

- Was a specific effort made to survey for rare species? Yes No
- If yes, indicate which species were targeted: Specific surveys were not performed, but the entire pool was comprehensively surveyed.
- Note any rare species associated with vernal pools using the box below. Observations should be accompanied photographs (labeled with observer name, pool location, and date).

Species	Verification Method*			CL**	Species	Verification Method*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Wood Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spotted Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ribbon Snake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ringed Boghaunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Other:				

*Verification Method: P= Photographed, H= Handled, S= Seen

**CL-Confidence level in verification: 1= <60%, 2= 60-95%, 3= >95%

d. General Comments:

- Completed Vernal Pool Survey per guidelines outlined in the MAWS 2010 Interim Vernal Pool Survey Protocol
- Sent hard copy of MAWS Vernal Pool Data Collection Form to: MDIF&W, Attn: Vernal Pools; 650 State Street; Bangor, ME 04401
- Sent hard copy map of pool center point with coordinates on MAWS Vernal Pool Data Collection Form to MDIF&W (address above)
- Sent shapefile of pool perimeter / center point on CD to MDIF&W (address above) or emailed to: vernalpools.mdifw@maine.gov

OBSERVER SIGNATURE

I hereby certify that the information contained in this report is true and complete to the best of my knowledge:

Signature: DANIELLE DYER Date 5/10/2011

For MDIF&W Use Only:

Reviewed by MDIF&W Date: _____ Initials: _____

This pool is:

- Significant Potentially significant but lacking critical data Not significant due to: does not meet biological criteria and/or does not meet definition criteria



Photo 1. VP19DD_N during first site visit.
Stantec, May 14, 2009.



Photo 2. VP19DD_N during second site visit.
Stantec, June 4, 2009.

Maine Association of Wetland Scientists (MAWS)

Vernal Pool Data Collection Form

Project Name/#: Oakfield Amendment **Organization Name:** Stantec Consulting **Pool ID:** VP20SM N

Observer Contact Information

Primary Observer (include secondary, if applicable) : S. Moriarty Phone or Email 207-729-1199

Primary Observer has Submitted the MAWS VP Credential Form: Previously Submitted Included w/this Submission

Landowner Contact Information

Landowner permission obtained for this survey & submission: Yes No Notes: _____

Landowner contact information (REQUIRED): Name: Evergreen Wind Power II, LLC Phone: _____

Street Address: 179 Lincoln St. Suite 500 City: Boston State: MA Zip: 02111

1. OBSERVER RECOMMENDATION

This pool is:	<input type="checkbox"/> Significant	<input type="checkbox"/> Potentially Significant <small>(include notes in section 3d on Page 2)</small>	<input checked="" type="checkbox"/> Not significant due to:	<input checked="" type="checkbox"/> does not meet MDEP SVP biological criteria
				<input type="checkbox"/> does not meet MDEP vernal pool definition criteria
				Notes: insufficient egg mass numbers

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: T3R4 WELS

Brief site directions to the pool (using mapped landmarks): Wetland #A042. Pool is along proposed access road, northwest of proposed turbine PT01.

Location of Vernal Pool* (Required Coordinate System, Datum and Units: UTM, NAD83, Zone 19 North, meters)

Brand and Model of GPS unit**: Trimble Pro-XT Mapping grade GPS with post processed corrections: Yes No

Check / submit one: GPS-location of center point of the pool included in shapefile named* _____

GPS-location of pool perimeter included as polygon shapefile named* _____

Pool Center Point Easting***: _____ Pool Center Point Northing***: _____

* Observers must check the information on an aerial photo to ensure data quality.

** If mapping grade GPS or Professional Survey is not available, observers must use the most current MDIF&W Vernal Pool Data Collection Form.

*** Center points entered on this form must be submitted with a paper map showing the pool location on USGS Topo Quad or large scale aerial photo.

3. VERNAL POOL SURVEY INFORMATION

a. Pool or Wetland Habitat Characterization

i. Choose the best descriptor for the physical setting:

Isolated Upland Depression Pool associated with larger wetland complex

Floodplain Depression Other: _____

ii. Check all palustrine types that best apply to this pool or wetland:

Forested wetland Wet meadow Slow stream

Shrub wetland Shallow pond Floodplain overflow / Oxbow

Peatland (acidic fen or bog) Abandoned beaver flowage Headwater seepage

Emergent marsh Active beaver flowage Other: _____

iii. Predominate substrate in order of increasing hydroperiod:

Mineral soil (bare, leaf-litter bottom, or upland mosses present)

Mineral soil (sphagnum moss present)

Organic matter (peat/muck) shallow or restricted to deepest portion

Organic matter (peat/muck) deep and widespread

iv. Nonwoody pool vegetation indicators in order of increasing hydroperiod (check all that apply):

Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.) Sphagnum moss (anchored or suspended)

Dry site ferns (e.g. spinulose wood fern, lady fern, polypody fern) Wet site ferns (e.g. royal fern, marsh fern)

Moist site ferns (e.g. sensitive, cinnamon, interrupted, New York) Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail)

Moist site vasculars (skunk cabbage, jewelweed, blue flag iris, swamp candle) Aquatic vascular spp. (e.g. pickerelweed, arrowhead) Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)

b. Vernal Pool Origin or Impacts

i. Pool's Origin: **Natural** **Natural-Modified** **Non-Natural** **Unknown**

• Describe any modern or historic modifications to the pool and associated wetland (REQUIRED):

None observed.

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

3. VERNAL POOL SURVEY INFORMATION (continued)

Pool ID: VP32SM N

ii. Hydrology

- Approximate size of pool (at max. capacity): Width 20 m ft (check one) Length 30 m ft (check one)
- Maximum depth at time of survey: 6-12 in ft cm m (check one)

Select the pool's likely hydroperiod and give evidence in the space to the right.

- Permanent _____
- Semi-permanent (drying partially in all years and completely in drought years) _____
- Ephemeral (drying out completely in most years) shallow water and vegetated bottom
- Recommend dry out period observation _____

iii. Inlet/Outlet Permanency

- No inlet / outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- Ephemeral inlet / outlet Other _____

iv. Faunal Indicators:

- Fish (species): _____ Bullfrog or Green frog tadpoles Other: _____

c. Significant Vernal Pool Status under NRPA

i. Survey Date(s): 5/14/2009, 6/4/2009

ii. Abundance Criteria

- Was the entire pool comprehensively surveyed for egg masses? Yes No
- For each indicator species, indicate the exact number of egg masses, verification method (VM), confidence level (CL), and egg mass integrity (EI) for each life stage (separate cells are provided for separate survey dates).

Indicator Species	Observation:	Egg Masses (or Adult Fairy Shrimp)								Tadpoles/Larvae			
	Information:	#		VM*		CL**		EMI***		VM*		CL**	
	Date:	5/14	6/4	5/14	6/4	5/14	6/4	5/14	6/4	5/14	6/4	5/14	6/4
Wood frog		0	0	n/a	n/a	3	3	n/a	n/a	n/a	n/a	3	3
Spotted Salamander		11	12	S	S	3	3	M	A	n/a	n/a	3	3
Blue-spotted Salamander		0	0	n/a	n/a	3	3	n/a	n/a	n/a	n/a	3	3
Fairy Shrimp		0	0	n/a	n/a	3	3	n/a	n/a				

*Verification Method: S= Seen, H= Handled, P= Photographed

**Confidence Level (species ID): 1= <60%, 2= 60-95%, 3= >95%

*** Egg Mass Integrity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

iii. Rarity Criteria

- Was a specific effort made to survey for rare species? Yes No
- If yes, indicate which species were targeted: Specific surveys were not performed, but the entire pool was comprehensively surveyed
- Note any rare species associated with vernal pools using the box below. Observations should be accompanied photographs (labeled with observer name, pool location, and date).

Species	Verification Method*			CL**	Species	Verification Method*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Wood Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spotted Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ribbon Snake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ringed Boghaunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Other:				

*Verification Method: P= Photographed, H= Handled, S= Seen

**CL-Confidence level in verification: 1= <60%, 2= 60-95%, 3= >95%

d. General Comments:

* Data from the second field visit was recorded in a field book that was lost during the survey. Data presented here represents the results of the first site visit only.

- Completed Vernal Pool Survey per guidelines outlined in the MAWS 2010 Interim Vernal Pool Survey Protocol
- Sent hard copy of MAWS Vernal Pool Data Collection Form to: MDIF&W, Attn: Vernal Pools; 650 State Street; Bangor, ME 04401
- Sent hard copy map of pool center point with coordinates on MAWS Vernal Pool Data Collection Form to MDIF&W (address above)
- Sent shapefile of pool perimeter / center point on CD to MDIF&W (address above) or emailed to: vernalpools.mdifw@maine.gov

OBSERVER SIGNATURE

I hereby certify that the information contained in this report is true and complete to the best of my knowledge:

Signature: SEAN MORIARTY Date 5/26/2011

For MDIF&W Use Only:

Reviewed by MDIF&W Date: _____ Initials: _____

This pool is:

- Significant Potentially significant but lacking critical data Not significant due to: does not meet biological criteria and/or does not meet definition criteria



Photo 1. VP20SM_N from the north.
Stantec, May 19, 2011.

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

Project Name/#: Oakfield Amendment **Organization Name:** Stantec Consulting **Pool ID:** VP32SM N

Observer Contact Information

Primary Observer (include secondary, if applicable) : S. Moriarty Phone or Email 207-729-1199

Primary Observer has Submitted the MAWS VP Credential Form: Previously Submitted Included w/this Submission

Landowner Contact Information

Landowner permission obtained for this survey & submission: Yes No Notes: _____

Landowner contact information (REQUIRED): Name: Evergreen Wind Power II, LLC Phone: _____

Street Address: 179 Lincoln St. Suite 500 City: Boston State: MA Zip: 02111

1. OBSERVER RECOMMENDATION

This pool is:	<input type="checkbox"/> Significant	<input type="checkbox"/> Potentially Significant <small>(include notes in section 3d on Page 2)</small>	<input checked="" type="checkbox"/> Not significant due to:	<input checked="" type="checkbox"/> does not meet MDEP SVP biological criteria
				<input type="checkbox"/> does not meet MDEP vernal pool definition criteria
				Notes: insufficient egg mass numbers

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: T3R4 WELS

Brief site directions to the pool (using mapped landmarks): Wetland #A066. Pool is located between proposed turbines PT04 and PT05.

Location of Vernal Pool* (Required Coordinate System, Datum and Units: UTM, NAD83, Zone 19 North, meters)

Brand and Model of GPS unit**: Trimble Pro-XT Mapping grade GPS with post processed corrections: Yes No

Check / submit one: GPS-location of center point of the pool included in shapefile named* _____

GPS-location of pool perimeter included as polygon shapefile named* _____

Pool Center Point Easting***: _____ Pool Center Point Northing***: _____

* Observers must check the information on an aerial photo to ensure data quality.

** If mapping grade GPS or Professional Survey is not available, observers must use the most current MDIF&W Vernal Pool Data Collection Form.

*** Center points entered on this form must be submitted with a paper map showing the pool location on USGS Topo Quad or large scale aerial photo.

3. VERNAL POOL SURVEY INFORMATION

a. Pool or Wetland Habitat Characterization

i. Choose the best descriptor for the physical setting:

Isolated Upland Depression Pool associated with larger wetland complex

Floodplain Depression Other: _____

ii. Check all palustrine types that best apply to this pool or wetland:

Forested wetland Wet meadow Slow stream

Shrub wetland Shallow pond Floodplain overflow / Oxbow

Peatland (acidic fen or bog) Abandoned beaver flowage Headwater seepage

Emergent marsh Active beaver flowage Other: _____

iii. Predominate substrate in order of increasing hydroperiod:

Mineral soil (bare, leaf-litter bottom, or upland mosses present)

Mineral soil (sphagnum moss present)

Organic matter (peat/muck) shallow or restricted to deepest portion

Organic matter (peat/muck) deep and widespread

iv. Nonwoody pool vegetation indicators in order of increasing hydroperiod (check all that apply):

Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.) Sphagnum moss (anchored or suspended)

Dry site ferns (e.g. spinulose wood fern, lady fern, polypody fern) Wet site ferns (e.g. royal fern, marsh fern)

Moist site ferns (e.g. sensitive, cinnamon, interrupted, New York) Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail)

Moist site vasculars (skunk cabbage, jewelweed, blue flag iris, swamp candle) Aquatic vascular spp. (e.g. pickerelweed, arrowhead)

Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)

b. Vernal Pool Origin or Impacts

i. Pool's Origin: **Natural** **Natural-Modified** **Non-Natural** **Unknown**

• Describe any modern or historic modifications to the pool and associated wetland (REQUIRED):

None observed.

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

3. VERNAL POOL SURVEY INFORMATION (continued)

Pool ID: VP32SM N

ii. Hydrology

- Approximate size of pool (at max. capacity): Width 10 m ft (check one) Length 10 m ft (check one)
- Maximum depth at time of survey: 6 in ft cm m (check one)

Select the pool's likely hydroperiod and give evidence in the space to the right.

- Permanent _____
- Semi-permanent (drying partially in all years and completely in drought years) _____
- Ephemeral (drying out completely in most years) shallow water
- Recommend dry out period observation _____

iii. Inlet/Outlet Permanency

- No inlet / outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- Ephemeral inlet / outlet Other _____

iv. Faunal Indicators:

- Fish (species): _____ Bullfrog or Green frog tadpoles Other: _____

c. Significant Vernal Pool Status under NRPA

i. Survey Date(s): 5/15/2009, 6/5/2009

ii. Abundance Criteria

- Was the entire pool comprehensively surveyed for egg masses? Yes No
- For each indicator species, indicate the exact number of egg masses, verification method (VM), confidence level (CL), and egg mass integrity (EI) for each life stage (separate cells are provided for separate survey dates).

Indicator Species	Observation:	Egg Masses (or Adult Fairy Shrimp)								Tadpoles/Larvae			
	Information:	#		VM*		CL**		EMI***		VM*		CL**	
	Date:	5/15	6/5	5/15	6/5	5/15	6/5	5/15	6/5	5/15	6/5	5/15	6/5
Wood frog		0	0	n/a	n/a	3	3	n/a	n/a	n/a	n/a	3	3
Spotted Salamander		~10*	11	S	S	3	3	M	M	n/a	n/a	3	3
Blue-spotted Salamander		0	0	n/a	n/a	3	3	n/a	n/a	n/a	n/a	3	3
Fairy Shrimp		0	0	n/a	n/a	3	3	n/a	n/a				

*Verification Method: S= Seen, H= Handled, P= Photographed

**Confidence Level (species ID): 1= <60%, 2= 60-95%, 3= >95%

*** Egg Mass Integrity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

iii. Rarity Criteria

- Was a specific effort made to survey for rare species? Yes No
- If yes, indicate which species were targeted: Specific surveys were not performed, but the entire pool was comprehensively surveyed
- Note any rare species associated with vernal pools using the box below. Observations should be accompanied photographs (labeled with observer name, pool location, and date).

Species	Verification Method*			CL**	Species	Verification Method*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Wood Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spotted Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ribbon Snake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ringed Boghaunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Other:				

*Verification Method: P= Photographed, H= Handled, S= Seen

**CL-Confidence level in verification: 1= <60%, 2= 60-95%, 3= >95%

d. General Comments:

* Data from the first field visit was recorded in a field book that was lost during the survey. Data presented here represents the recollections of the observer, along with the results of the second site visit.

- Completed Vernal Pool Survey per guidelines outlined in the MAWS 2010 Interim Vernal Pool Survey Protocol
- Sent hard copy of MAWS Vernal Pool Data Collection Form to: MDIF&W, Attn: Vernal Pools; 650 State Street; Bangor, ME 04401
- Sent hard copy map of pool center point with coordinates on MAWS Vernal Pool Data Collection Form to MDIF&W (address above)
- Sent shapefile of pool perimeter / center point on CD to MDIF&W (address above) or emailed to: vernalpools.mdifw@maine.gov

OBSERVER SIGNATURE

I hereby certify that the information contained in this report is true and complete to the best of my knowledge:

Signature: SEAN MORIARTY Date 5/13/2011

For MDIF&W Use Only:

Reviewed by MDIF&W Date: _____ Initials: _____

This pool is:

- Significant Potentially significant but lacking critical data Not significant due to: does not meet biological criteria and/or does not meet definition criteria



Photo 1. VP32SM_N during the second site visit.
Stantec, June 5, 2009.

Maine Association of Wetland Scientists (MAWS)

Vernal Pool Data Collection Form

Project Name/#: Oakfield Amendment **Organization Name:** Stantec Consulting **Pool ID:** VP33SM N

Observer Contact Information

Primary Observer (include secondary, if applicable) : S. Moriarty, D. Dyer Phone or Email 207-729-1199

Primary Observer has Submitted the MAWS VP Credential Form: Previously Submitted Included w/this Submission

Landowner Contact Information

Landowner permission obtained for this survey & submission: Yes No Notes: _____

Landowner contact information (REQUIRED): Name: Evergreen Wind Power II, LLC Phone: _____

Street Address: 179 Lincoln St. Suite 500 City: Boston State: MA Zip: 02111

1. OBSERVER RECOMMENDATION

This pool is:	<input type="checkbox"/> Significant	<input type="checkbox"/> Potentially Significant <small>(include notes in section 3d on Page 2)</small>	<input checked="" type="checkbox"/> Not significant due to:	<input checked="" type="checkbox"/> does not meet MDEP SVP biological criteria
				<input type="checkbox"/> does not meet MDEP vernal pool definition criteria
				Notes: insufficient egg mass numbers

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: T4R3 WELS

Brief site directions to the pool (using mapped landmarks): Wetland #A073. Pool is located northeast of proposed turbine PT04.

Location of Vernal Pool* (Required Coordinate System, Datum and Units: UTM, NAD83, Zone 19 North, meters)

Brand and Model of GPS unit**: Trimble Pro-XT Mapping grade GPS with post processed corrections: Yes No

Check / submit one: GPS-location of center point of the pool included in shapefile named* _____

GPS-location of pool perimeter included as polygon shapefile named* _____

Pool Center Point Easting***: _____ Pool Center Point Northing***: _____

* Observers must check the information on an aerial photo to ensure data quality.

** If mapping grade GPS or Professional Survey is not available, observers must use the most current MDIF&W Vernal Pool Data Collection Form.

*** Center points entered on this form must be submitted with a paper map showing the pool location on USGS Topo Quad or large scale aerial photo.

3. VERNAL POOL SURVEY INFORMATION

a. Pool or Wetland Habitat Characterization

i. Choose the best descriptor for the physical setting:

- Isolated Upland Depression Pool associated with larger wetland complex
 Floodplain Depression Other: Isolated Wetland Depression

ii. Check all palustrine types that best apply to this pool or wetland:

- Forested wetland Wet meadow Slow stream
 Shrub wetland Shallow pond Floodplain overflow / Oxbow
 Peatland (acidic fen or bog) Abandoned beaver flowage Headwater seepage
 Emergent marsh Active beaver flowage Other:

iii. Predominate substrate in order of increasing hydroperiod:

- Mineral soil (bare, leaf-litter bottom, or upland mosses present)
 Mineral soil (sphagnum moss present)
 Organic matter (peat/muck) shallow or restricted to deepest portion
 Organic matter (peat/muck) deep and widespread

iv. Nonwoody pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.) Sphagnum moss (anchored or suspended)
 Dry site ferns (e.g. spinulose wood fern, lady fern, polypody fern) Wet site ferns (e.g. royal fern, marsh fern)
 Moist site ferns (e.g. sensitive, cinnamon, interrupted, New York) Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail)
 Moist site vasculars (skunk cabbage, jewelweed, blue flag iris, swamp candle) Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
 Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)

b. Vernal Pool Origin or Impacts

i. Pool's Origin: **Natural** **Natural-Modified** **Non-Natural** **Unknown**

• Describe any modern or historic modifications to the pool and associated wetland (REQUIRED):

None observed

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

3. VERNAL POOL SURVEY INFORMATION (continued)

Pool ID: VP33SM N

ii. Hydrology

- Approximate size of pool (at max. capacity): Width 10 m ft (check one) Length 20 m ft (check one)
- Maximum depth at time of survey: 6 in ft cm m (check one)

Select the pool's likely hydroperiod and give evidence in the space to the right.

- Permanent _____
- Semi-permanent (drying partially in all years and completely in drought years) _____
- Ephemeral (drying out completely in most years) Pool nearly dry at second visit, several masses out of water
- Recommend dry out period observation _____

iii. Inlet/Outlet Permanency

- No inlet / outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- Ephemeral inlet / outlet Other _____

iv. Faunal Indicators:

- Fish (species): _____ Bullfrog or Green frog tadpoles Other: _____

c. Significant Vernal Pool Status under NRPA

i. Survey Date(s): 5/15/2009, 6/5/2009

ii. Abundance Criteria

- Was the entire pool comprehensively surveyed for egg masses? Yes No
- For each indicator species, indicate the exact number of egg masses, verification method (VM), confidence level (CL), and egg mass integrity (EI) for each life stage (separate cells are provided for separate survey dates).

Indicator Species	Observation:	Egg Masses (or Adult Fairy Shrimp)								Tadpoles/Larvae			
	Information:	#		VM*		CL**		EMI***		VM*		CL**	
	Date:	5/15	6/5	5/1	6/5	5/15	6/5	5/15	6/5	5/15	6/5	5/15	6/5
Wood frog		0	0	n/a	n/a	3	3	n/a	n/a	n/a	n/a	3	3
Spotted Salamander		~4*	2	S	S	3	3	M	M	n/a	n/a	3	3
Blue-spotted Salamander		0	0	n/a	n/a	3	3	n/a	n/a	n/a	n/a	3	3
Fairy Shrimp		0	0	n/a	n/a	3	3	n/a	n/a				

*Verification Method: S= Seen, H= Handled, P= Photographed

**Confidence Level (species ID): 1= <60%, 2= 60-95%, 3= >95%

*** Egg Mass Integrity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

iii. Rarity Criteria

- Was a specific effort made to survey for rare species? Yes No
- If yes, indicate which species were targeted: Specific surveys were not performed, but the entire pool was comprehensively surveyed
- Note any rare species associated with vernal pools using the box below. Observations should be accompanied photographs (labeled with observer name, pool location, and date).

Species	Verification Method*			CL**	Species	Verification Method*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Wood Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spotted Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ribbon Snake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ringed Boghaunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Other:				

*Verification Method: P= Photographed, H= Handled, S= Seen

**CL-Confidence level in verification: 1= <60%, 2= 60-95%, 3= >95%

d. General Comments:

* Data from the first field visit was recorded in a field book that was lost during the survey. Data presented here represents the recollections of the observer, along with the results of the second site visit.

- Completed Vernal Pool Survey per guidelines outlined in the MAWS 2010 Interim Vernal Pool Survey Protocol
- Sent hard copy of MAWS Vernal Pool Data Collection Form to: MDIF&W, Attn: Vernal Pools; 650 State Street; Bangor, ME 04401
- Sent hard copy map of pool center point with coordinates on MAWS Vernal Pool Data Collection Form to MDIF&W (address above)
- Sent shapefile of pool perimeter / center point on CD to MDIF&W (address above) or emailed to: vernalpools.mdifw@maine.gov

OBSERVER SIGNATURE

I hereby certify that the information contained in this report is true and complete to the best of my knowledge:

Signature: DANIELLE DYER SEAN MORIARTY Date 5/13/2011

For MDIF&W Use Only:

Reviewed by MDIF&W Date: _____ Initials: _____

This pool is:

- Significant Potentially significant but lacking critical data Not significant due to: does not meet biological criteria and/or does not meet definition criteria



Photo 1. VP33SM_N during second site visit.
Stantec, June 5, 2009.

Maine Association of Wetland Scientists (MAWS)

Vernal Pool Data Collection Form

Project Name/#: Oakfield Amendment **Organization Name:** Stantec Consulting **Pool ID:** VP34DD N

Observer Contact Information

Primary Observer (include secondary, if applicable) : D. Dyer Phone or Email danielle.dyer@stantec.com

Primary Observer has Submitted the MAWS VP Credential Form: Previously Submitted Included w/this Submission

Landowner Contact Information

Landowner permission obtained for this survey & submission: Yes No Notes: _____

Landowner contact information (REQUIRED): Name: Evergreen Wind Power II, LLC Phone: _____

Street Address: 179 Lincoln St. Suite 500 City: Boston State: MA Zip: 02111

1. OBSERVER RECOMMENDATION

This pool is:	<input type="checkbox"/> Significant	<input type="checkbox"/> Potentially Significant <small>(include notes in section 3d on Page 2)</small>	<input checked="" type="checkbox"/> Not significant due to:	<input checked="" type="checkbox"/> does not meet MDEP SVP biological criteria
				<input type="checkbox"/> does not meet MDEP vernal pool definition criteria
				Notes: insufficient egg mass numbers

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: T4R3 WELS

Brief site directions to the pool (using mapped landmarks): Wetland #A066. Pool is located between proposed turbines PT04 and PT05.

Location of Vernal Pool* (Required Coordinate System, Datum and Units: UTM, NAD83, Zone 19 North, meters)

Brand and Model of GPS unit**: Trimble Pro-XT Mapping grade GPS with post processed corrections: Yes No

Check / submit one: GPS-location of center point of the pool included in shapefile named* _____

GPS-location of pool perimeter included as polygon shapefile named* _____

Pool Center Point Easting***: _____ Pool Center Point Northing***: _____

* Observers must check the information on an aerial photo to ensure data quality.

** If mapping grade GPS or Professional Survey is not available, observers must use the most current MDIF&W Vernal Pool Data Collection Form.

*** Center points entered on this form must be submitted with a paper map showing the pool location on USGS Topo Quad or large scale aerial photo.

3. VERNAL POOL SURVEY INFORMATION

a. Pool or Wetland Habitat Characterization

i. Choose the best descriptor for the physical setting:

Isolated Upland Depression Pool associated with larger wetland complex

Floodplain Depression Other: _____

ii. Check all palustrine types that best apply to this pool or wetland:

Forested wetland Wet meadow Slow stream

Shrub wetland Shallow pond Floodplain overflow / Oxbow

Peatland (acidic fen or bog) Abandoned beaver flowage Headwater seepage

Emergent marsh Active beaver flowage Other: _____

iii. Predominate substrate in order of increasing hydroperiod:

Mineral soil (bare, leaf-litter bottom, or upland mosses present)

Mineral soil (sphagnum moss present)

Organic matter (peat/muck) shallow or restricted to deepest portion

Organic matter (peat/muck) deep and widespread

iv. Nonwoody pool vegetation indicators in order of increasing hydroperiod (check all that apply):

Terrestrial nonvascular spp. (e.g. haircap moss, Sphagnum moss (anchored or suspended)

lycopodium spp.) Wet site ferns (e.g. royal fern, marsh fern)

Dry site ferns (e.g. spinulose wood fern, lady fern, polypody fern) Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail)

Moist site ferns (e.g. sensitive, cinnamon, interrupted, New York) Aquatic vascular spp. (e.g. pickerelweed, arrowhead)

Moist site vasculars (skunk cabbage, jewelweed, blue flag iris, Floating or submerged aquatics (e.g. water lily, water shield, pond swamp candle) weed, bladderwort)

b. Vernal Pool Origin or Impacts

i. Pool's Origin: **Natural** **Natural-Modified** **Non-Natural** **Unknown**

• Describe any modern or historic modifications to the pool and associated wetland (REQUIRED):

None observed

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

3. VERNAL POOL SURVEY INFORMATION (continued)

Pool ID: VP34DD N

ii. Hydrology

- Approximate size of pool (at max. capacity): Width 15 m ft (check one) Length 50 m ft (check one)
- Maximum depth at time of survey: 12 in ft cm m (check one)

Select the pool's likely hydroperiod and give evidence in the space to the right.

- Permanent _____
- Semi-permanent (drying partially in all years and completely in drought years) _____
- Ephemeral (drying out completely in most years) shallow water and terrestrial vegetation on pool bottom
- Recommend dry out period observation _____

iii. Inlet/Outlet Permanency

- No inlet / outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- Ephemeral inlet / outlet Other _____

iv. Faunal Indicators:

- Fish (species): _____ Bullfrog or Green frog tadpoles Other: _____

c. Significant Vernal Pool Status under NRPA

i. Survey Date(s): 5/20/2009, 6/5/2009

ii. Abundance Criteria

- Was the entire pool comprehensively surveyed for egg masses? Yes No
- For each indicator species, indicate the exact number of egg masses, verification method (VM), confidence level (CL), and egg mass integrity (EI) for each life stage (separate cells are provided for separate survey dates).

Indicator Species	Observation:	Egg Masses (or Adult Fairy Shrimp)								Tadpoles/Larvae			
	Information:	#		VM*		CL**		EMI***		VM*		CL**	
	Date:	5/20	6/5	5/20	6/5	5/20	6/5	5/20	6/5	5/20	6/5	5/20	6/5
Wood frog		1	0	S	n/a	3	3	H	n/a	S	S	3	3
Spotted Salamander		4	3	S	S	3	3	M	M	n/a	n/a	3	3
Blue-spotted Salamander		0	0	n/a	n/a	3	3	n/a	n/a	n/a	n/a	3	3
Fairy Shrimp		0	0	n/a	n/a	3	3	n/a	n/a				

*Verification Method: S= Seen, H= Handled, P= Photographed

**Confidence Level (species ID): 1= <60%, 2= 60-95%, 3= >95%

*** Egg Mass Integrity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

iii. Rarity Criteria

- Was a specific effort made to survey for rare species? Yes No
- If yes, indicate which species were targeted: Specific surveys were not performed, but the entire pool was comprehensively surveyed
- Note any rare species associated with vernal pools using the box below. Observations should be accompanied photographs (labeled with observer name, pool location, and date).

Species	Verification Method*			CL**	Species	Verification Method*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Wood Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spotted Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ribbon Snake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ringed Boghaunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Other:				

*Verification Method: P= Photographed, H= Handled, S= Seen

**CL-Confidence level in verification: 1= <60%, 2= 60-95%, 3= >95%

d. General Comments:

- Completed Vernal Pool Survey per guidelines outlined in the MAWS 2010 Interim Vernal Pool Survey Protocol
- Sent hard copy of MAWS Vernal Pool Data Collection Form to: MDIF&W, Attn: Vernal Pools; 650 State Street; Bangor, ME 04401
- Sent hard copy map of pool center point with coordinates on MAWS Vernal Pool Data Collection Form to MDIF&W (address above)
- Sent shapefile of pool perimeter / center point on CD to MDIF&W (address above) or emailed to: vernalpools.mdifw@maine.gov

OBSERVER SIGNATURE

I hereby certify that the information contained in this report is true and complete to the best of my knowledge:

Signature: DANIELLE DYER Date 5/13/11

For MDIF&W Use Only:

Reviewed by MDIF&W Date: _____ Initials: _____

This pool is:

- Significant Potentially significant but lacking critical data Not significant due to: does not meet biological criteria and/or does not meet definition criteria



Photo 1. VP34DD_N during first site visit.
Stantec, May 20, 2009.



Photo 2. VP34DD_N during second site visit.
Stantec, June 5, 2009.

Maine Association of Wetland Scientists (MAWS)

Vernal Pool Data Collection Form

Project Name/#: Oakfield Amendment **Organization Name:** Stantec Consulting **Pool ID:** VP35MA N

Observer Contact Information

Primary Observer (include secondary, if applicable) : M. Arsenault Phone or Email 207-729-1199

Primary Observer has Submitted the MAWS VP Credential Form: Previously Submitted Included w/this Submission

Landowner Contact Information

Landowner permission obtained for this survey & submission: Yes No Notes: _____

Landowner contact information (REQUIRED): Name: Evergreen Wind Power II, LLC Phone: _____

Street Address: 179 Lincoln St. Suite 500 City: Boston State: MA Zip: 02111

1. OBSERVER RECOMMENDATION

This pool is:	<input type="checkbox"/> Significant	<input type="checkbox"/> Potentially Significant <small>(include notes in section 3d on Page 2)</small>	<input checked="" type="checkbox"/> Not significant due to:	<input checked="" type="checkbox"/> does not meet MDEP SVP biological criteria
				<input type="checkbox"/> does not meet MDEP vernal pool definition criteria
				Notes: Insufficient egg mass numbers

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: T4R3 WELS

Brief site directions to the pool (using mapped landmarks): Wetland #A042. Pool is along proposed access road, northwest of proposed turbine PT01.

Location of Vernal Pool* (Required Coordinate System, Datum and Units: UTM, NAD83, Zone 19 North, meters)

Brand and Model of GPS unit**: Trimble Pro-XT Mapping grade GPS with post processed corrections: Yes No

Check / submit one: GPS-location of center point of the pool included in shapefile named* _____

GPS-location of pool perimeter included as polygon shapefile named* _____

Pool Center Point Easting***: _____ Pool Center Point Northing***: _____

* Observers must check the information on an aerial photo to ensure data quality.

** If mapping grade GPS or Professional Survey is not available, observers must use the most current MDIF&W Vernal Pool Data Collection Form.

*** Center points entered on this form must be submitted with a paper map showing the pool location on USGS Topo Quad or large scale aerial photo.

3. VERNAL POOL SURVEY INFORMATION

a. Pool or Wetland Habitat Characterization

i. Choose the best descriptor for the physical setting:

Isolated Upland Depression Pool associated with larger wetland complex

Floodplain Depression Other: _____

ii. Check all palustrine types that best apply to this pool or wetland:

Forested wetland Wet meadow Slow stream

Shrub wetland Shallow pond Floodplain overflow / Oxbow

Peatland (acidic fen or bog) Abandoned beaver flowage Headwater seepage

Emergent marsh Active beaver flowage Other: _____

iii. Predominate substrate in order of increasing hydroperiod:

Mineral soil (bare, leaf-litter bottom, or upland mosses present)

Mineral soil (sphagnum moss present)

Organic matter (peat/muck) shallow or restricted to deepest portion

Organic matter (peat/muck) deep and widespread

iv. Nonwoody pool vegetation indicators in order of increasing hydroperiod (check all that apply):

Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.) Sphagnum moss (anchored or suspended)

Dry site ferns (e.g. spinulose wood fern, lady fern, polypody fern) Wet site ferns (e.g. royal fern, marsh fern)

Moist site ferns (e.g. sensitive, cinnamon, interrupted, New York) Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail)

Moist site vasculars (skunk cabbage, jewelweed, blue flag iris, swamp candle) Aquatic vascular spp. (e.g. pickerelweed, arrowhead) Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)

b. Vernal Pool Origin or Impacts

i. Pool's Origin: Natural Natural-Modified Non-Natural Unknown

• Describe any modern or historic modifications to the pool and associated wetland (REQUIRED):

Pool has been disturbed by historic forest harvest

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

3. VERNAL POOL SURVEY INFORMATION (continued)

Pool ID: VP35MA N

ii. Hydrology

- Approximate size of pool (at max. capacity): Width 20 m ft (check one) Length 20 m ft (check one)
- Maximum depth at time of survey: 6 in ft cm m (check one)

Select the pool's likely hydroperiod and give evidence in the space to the right.

- Permanent _____
- Semi-permanent (drying partially in all years and completely in drought years) _____
- Ephemeral (drying out completely in most years) shallow water in pool and vegetated bottom
- Recommend dry out period observation _____

iii. Inlet/Outlet Permanency

- No inlet / outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- Ephemeral inlet / outlet Other _____

iv. Faunal Indicators:

- Fish (species): _____ Bullfrog or Green frog tadpoles Other: _____

c. Significant Vernal Pool Status under NRPA

i. Survey Date(s): 5/14/2009, 6/4/2009

ii. Abundance Criteria

- Was the entire pool comprehensively surveyed for egg masses? Yes No
- For each indicator species, indicate the exact number of egg masses, verification method (VM), confidence level (CL), and egg mass integrity (EI) for each life stage (separate cells are provided for separate survey dates).

Indicator Species	Observation:	Egg Masses (or Adult Fairy Shrimp)								Tadpoles/Larvae			
	Information:	#		VM*		CL**		EMI***		VM*		CL**	
	Date:	5/14	6/4	5/14	6/4	5/14	6/4	5/14	6/4	5/14	6/4	5/14	6/4
Wood frog		0	0	n/a	n/a	3	3	n/a	n/a	n/a	n/a	n/a	n/a
Spotted Salamander		5	4	S	S	3	3	M	A	n/a	n/a	n/a	n/a
Blue-spotted Salamander		0	0	n/a	n/a	3	3	n/a	n/a	n/a	n/a	n/a	n/a
Fairy Shrimp		0	0	n/a	n/a	3	3	n/a	n/a				

*Verification Method: S= Seen, H= Handled, P= Photographed

**Confidence Level (species ID): 1= <60%, 2= 60-95%, 3= >95%

*** Egg Mass Integrity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

iii. Rarity Criteria

- Was a specific effort made to survey for rare species? Yes No
- If yes, indicate which species were targeted: Specific surveys were not performed, but the entire pool was comprehensively surveyed.
- Note any rare species associated with vernal pools using the box below. Observations should be accompanied photographs (labeled with observer name, pool location, and date).

Species	Verification Method*			CL**	Species	Verification Method*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Wood Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spotted Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ribbon Snake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ringed Boghaunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Other:				

*Verification Method: P= Photographed, H= Handled, S= Seen

**CL-Confidence level in verification: 1= <60%, 2= 60-95%, 3= >95%

d. General Comments:

- Completed Vernal Pool Survey per guidelines outlined in the MAWS 2010 Interim Vernal Pool Survey Protocol
- Sent hard copy of MAWS Vernal Pool Data Collection Form to: MDIF&W, Attn: Vernal Pools; 650 State Street; Bangor, ME 04401
- Sent hard copy map of pool center point with coordinates on MAWS Vernal Pool Data Collection Form to MDIF&W (address above)
- Sent shapefile of pool perimeter / center point on CD to MDIF&W (address above) or emailed to: vernalpools.mdifw@maine.gov

OBSERVER SIGNATURE

I hereby certify that the information contained in this report is true and complete to the best of my knowledge:

Signature: MATT ARSENAULT Date 5/10/2011

For MDIF&W Use Only:

Reviewed by MDIF&W Date: _____ Initials: _____

This pool is:

- Significant Potentially significant but lacking critical data Not significant due to: does not meet biological criteria and/or does not meet definition criteria



Photo 1. VP35MA_N during first site visit.
Stantec, May 14, 2009.



Photo 2. VP35MA_N during second site visit.
Stantec, June 4, 2009.

Maine Association of Wetland Scientists (MAWS)

Vernal Pool Data Collection Form

Project Name/#: Oakfield Amendment **Organization Name:** Stantec Consulting **Pool ID:** VP36DD N

Observer Contact Information

Primary Observer (include secondary, if applicable) : D. Dyer Phone or Email danielle.dyer@stantec.com

Primary Observer has Submitted the MAWS VP Credential Form: Previously Submitted Included w/this Submission

Landowner Contact Information

Landowner permission obtained for this survey & submission: Yes No Notes: _____

Landowner contact information (REQUIRED): Name: Evergreen Wind Power II, LLC Phone: _____

Street Address: 179 Lincoln St. Suite 500 City: Boston State: MA Zip: 02111

1. OBSERVER RECOMMENDATION

This pool is:	<input type="checkbox"/> Significant	<input type="checkbox"/> Potentially Significant <small>(include notes in section 3d on Page 2)</small>	<input checked="" type="checkbox"/> Not significant due to:	<input checked="" type="checkbox"/> does not meet MDEP SVP biological criteria
				<input type="checkbox"/> does not meet MDEP vernal pool definition criteria
				Notes: insufficient egg mass numbers

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: T4R3 WELS

Brief site directions to the pool (using mapped landmarks): Wetland #A074. Pool is located west of proposed turbine PT04.

Location of Vernal Pool* (Required Coordinate System, Datum and Units: UTM, NAD83, Zone 19 North, meters)

Brand and Model of GPS unit**: Trimble Pro-XT Mapping grade GPS with post processed corrections: Yes No

Check / submit one: GPS-location of center point of the pool included in shapefile named* _____

GPS-location of pool perimeter included as polygon shapefile named* _____

Pool Center Point Easting***: _____ Pool Center Point Northing***: _____

* Observers must check the information on an aerial photo to ensure data quality.

** If mapping grade GPS or Professional Survey is not available, observers must use the most current MDIF&W Vernal Pool Data Collection Form.

*** Center points entered on this form must be submitted with a paper map showing the pool location on USGS Topo Quad or large scale aerial photo.

3. VERNAL POOL SURVEY INFORMATION

a. Pool or Wetland Habitat Characterization

i. Choose the best descriptor for the physical setting:

Isolated Upland Depression Pool associated with larger wetland complex

Floodplain Depression Other: Isolated Wetland Depression

ii. Check all palustrine types that best apply to this pool or wetland:

Forested wetland Wet meadow Slow stream

Shrub wetland Shallow pond Floodplain overflow / Oxbow

Peatland (acidic fen or bog) Abandoned beaver flowage Headwater seepage

Emergent marsh Active beaver flowage Other:

iii. Predominate substrate in order of increasing hydroperiod:

Mineral soil (bare, leaf-litter bottom, or upland mosses present)

Mineral soil (sphagnum moss present)

Organic matter (peat/muck) shallow or restricted to deepest portion

Organic matter (peat/muck) deep and widespread

iv. Nonwoody pool vegetation indicators in order of increasing hydroperiod (check all that apply):

Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.) Sphagnum moss (anchored or suspended)

Dry site ferns (e.g. spinulose wood fern, lady fern, polypody fern) Wet site ferns (e.g. royal fern, marsh fern)

Moist site ferns (e.g. sensitive, cinnamon, interrupted, New York) Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail)

Moist site vasculars (skunk cabbage, jewelweed, blue flag iris, swamp candle) Aquatic vascular spp. (e.g. pickerelweed, arrowhead)

Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)

b. Vernal Pool Origin or Impacts

i. Pool's Origin: Natural Natural-Modified Non-Natural Unknown

• Describe any modern or historic modifications to the pool and associated wetland (REQUIRED):

The area has been previously harvested, many years ago.

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

3. VERNAL POOL SURVEY INFORMATION (continued)

Pool ID: VP36DD N

ii. Hydrology

- Approximate size of pool (at max. capacity): Width 25 m ft (check one) Length 80 m ft (check one)
- Maximum depth at time of survey: 12-36 (first visit), 0-12 (second visit) in ft cm m (check one)

Select the pool's likely hydroperiod and give evidence in the space to the right.

- Permanent _____
- Semi-permanent (drying partially in all years and completely in drought years) _____
- Ephemeral (drying out completely in most years) _____ due to the drop in water level from the first to second visit
- Recommend dry out period observation _____

iii. Inlet/Outlet Permanency

- No inlet / outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- Ephemeral inlet / outlet Other _____

iv. Faunal Indicators:

- Fish (species): _____ Bullfrog or Green frog tadpoles Other: _____

c. Significant Vernal Pool Status under NRPA

i. Survey Date(s): 5/20/09, 6/5/09

ii. Abundance Criteria

- Was the entire pool comprehensively surveyed for egg masses? Yes No
- For each indicator species, indicate the exact number of egg masses, verification method (VM), confidence level (CL), and egg mass integrity (EI) for each life stage (separate cells are provided for separate survey dates).

Indicator Species	Observation:	Egg Masses (or Adult Fairy Shrimp)								Tadpoles/Larvae			
	Information:	#		VM*		CL**		EMI***		VM*		CL**	
	Date:	5/20	6/5	5/20	6/5	5/20	6/5	5/20	6/5	5/20	6/5	5/20	6/5
Wood frog		3	0	S	n/a	3	3	m	m	n/a	n/a	3	3
Spotted Salamander		10	9	S,P	S,P	3	3	m	m	n/a	n/a	3	3
Blue-spotted Salamander		0	0	n/a	n/a	3	3	n/a	n/a	0	0	3	3
Fairy Shrimp		0	0	n/a	n/a	3	3	n/a	n/a				

*Verification Method: S= Seen, H= Handled, P= Photographed

**Confidence Level (species ID): 1= <60%, 2= 60-95%, 3= >95%

*** Egg Mass Integrity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

iii. Rarity Criteria

- Was a specific effort made to survey for rare species? Yes No
- If yes, indicate which species were targeted: Specific surveys were not performed, but the entire pool was comprehensively surveyed
- Note any rare species associated with vernal pools using the box below. Observations should be accompanied photographs (labeled with observer name, pool location, and date).

Species	Verification Method*			CL**	Species	Verification Method*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Wood Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spotted Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ribbon Snake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ringed Boghaunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Other:				

*Verification Method: P= Photographed, H= Handled, S= Seen

**CL-Confidence level in verification: 1= <60%, 2= 60-95%, 3= >95%

d. General Comments:

At the second visit, 6 spotted salamander egg masses were out of the water

- Completed Vernal Pool Survey per guidelines outlined in the MAWS 2010 Interim Vernal Pool Survey Protocol
- Sent hard copy of MAWS Vernal Pool Data Collection Form to: MDIF&W, Attn: Vernal Pools; 650 State Street; Bangor, ME 04401
- Sent hard copy map of pool center point with coordinates on MAWS Vernal Pool Data Collection Form to MDIF&W (address above)
- Sent shapefile of pool perimeter / center point on CD to MDIF&W (address above) or emailed to: vernalpools.mdifw@maine.gov

OBSERVER SIGNATURE

I hereby certify that the information contained in this report is true and complete to the best of my knowledge:

Signature: DANIELLE M. DYER Date 5/13/11

For MDIF&W Use Only:

Reviewed by MDIF&W Date: _____ Initials: _____

This pool is:

- Significant Potentially significant but lacking critical data Not significant due to: does not meet biological criteria and/or does not meet definition criteria



Photo 1. VP36DD_N during first field visit.
Stantec, May 20, 2009.



Photo 2. VP36DD_N during second field visit.
Stantec, June 5, 2009.

**Maine Association of Wetland Scientists (MAWS)
Vernal Pool Data Collection Form**

Project Name/#: Oakfield Amendment **Organization Name:** Stantec Consulting **Pool ID:** VP37DD N

Observer Contact Information

Primary Observer (include secondary, if applicable) : D. Dyer Phone or Email danielle.dyer@stantec.com

Primary Observer has Submitted the MAWS VP Credential Form: Previously Submitted Included w/this Submission

Landowner Contact Information

Landowner permission obtained for this survey & submission: Yes No Notes: _____

Landowner contact information (REQUIRED): Name: Evergreen Wind Power II, LLC Phone: _____

Street Address: 179 Lincoln St. Suite 500 City: Boston State: MA Zip: 02111

1. OBSERVER RECOMMENDATION

This pool is:	<input type="checkbox"/> Significant	<input type="checkbox"/> Potentially Significant <small>(include notes in section 3d on Page 2)</small>	<input checked="" type="checkbox"/> Not significant due to:	<input type="checkbox"/> does not meet MDEP SVP biological criteria
				<input checked="" type="checkbox"/> does not meet MDEP vernal pool definition criteria
				Notes:

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: T4R3 WELS

Brief site directions to the pool (using mapped landmarks): Wetland #A076. Pool is located along a proposed access road, west of proposed turbine # PT04.

Location of Vernal Pool* (Required Coordinate System, Datum and Units: UTM, NAD83, Zone 19 North, meters)

Brand and Model of GPS unit**: Trimble Pro-XT Mapping grade GPS with post processed corrections: Yes No

Check / submit one: GPS-location of center point of the pool included in shapefile named* _____

GPS-location of pool perimeter included as polygon shapefile named* _____

Pool Center Point Easting***: _____ Pool Center Point Northing***: _____

* Observers must check the information on an aerial photo to ensure data quality.

** If mapping grade GPS or Professional Survey is not available, observers must use the most current MDIF&W Vernal Pool Data Collection Form.

*** Center points entered on this form must be submitted with a paper map showing the pool location on USGS Topo Quad or large scale aerial photo.

3. VERNAL POOL SURVEY INFORMATION

a. Pool or Wetland Habitat Characterization

i. Choose the best descriptor for the physical setting:

Isolated Upland Depression Pool associated with larger wetland complex

Floodplain Depression Other: Isolated Wetland Depression

ii. Check all palustrine types that best apply to this pool or wetland:

Forested wetland Wet meadow Slow stream

Shrub wetland Shallow pond Floodplain overflow / Oxbow

Peatland (acidic fen or bog) Abandoned beaver flowage Headwater seepage

Emergent marsh Active beaver flowage Other:

iii. Predominate substrate in order of increasing hydroperiod:

Mineral soil (bare, leaf-litter bottom, or upland mosses present)

Mineral soil (sphagnum moss present)

Organic matter (peat/muck) shallow or restricted to deepest portion

Organic matter (peat/muck) deep and widespread

iv. Nonwoody pool vegetation indicators in order of increasing hydroperiod (check all that apply):

Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.) Sphagnum moss (anchored or suspended)

Dry site ferns (e.g. spinulose wood fern, lady fern, polypody fern) Wet site ferns (e.g. royal fern, marsh fern)

Moist site ferns (e.g. sensitive, cinnamon, interrupted, New York) Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail)

Moist site vasculars (skunk cabbage, jewelweed, blue flag iris, swamp candle) Aquatic vascular spp. (e.g. pickerelweed, arrowhead) Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)

b. Vernal Pool Origin or Impacts

i. Pool's Origin: Natural Natural-Modified Non-Natural Unknown

• Describe any modern or historic modifications to the pool and associated wetland (REQUIRED):

None observed.

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

3. VERNAL POOL SURVEY INFORMATION (continued)

Pool ID: VP37DD N

ii. Hydrology

- Approximate size of pool (at max. capacity): Width 50 m ft (check one) Length 100 m ft (check one)
- Maximum depth at time of survey: 12-36 (first visit), 0-12 (second visit) in ft cm m (check one)

Select the pool's likely hydroperiod and give evidence in the space to the right.

- Permanent _____
- Semi-permanent (drying partially in all years and completely in drought years) _____
- Ephemeral (drying out completely in most years) the areas close to the inlet are likely semi-permanent
- Recommend dry out period observation _____

iii. Inlet/Outlet Permanency

- No inlet / outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- Ephemeral inlet / outlet Other intermittent inlet

iv. Faunal Indicators:

- Fish (species): _____ Bullfrog or Green frog tadpoles Other: _____

c. Significant Vernal Pool Status under NRPA

i. Survey Date(s): 5/21/09, 6/5/09

ii. Abundance Criteria

- Was the entire pool comprehensively surveyed for egg masses? Yes No
- For each indicator species, indicate the exact number of egg masses, verification method (VM), confidence level (CL), and egg mass integrity (EI) for each life stage (separate cells are provided for separate survey dates).

Indicator Species	Observation:	Egg Masses (or Adult Fairy Shrimp)								Tadpoles/Larvae			
	Information:	#		VM*		CL**		EMI***		VM*		CL**	
	Date:	5/21	6/5	5/21	6/5	5/21	6/5	5/21	6/5	5/21	6/5	5/21	6/5
Wood frog		0	0	na	na	3	3	na	na	0	0	3	3
Spotted Salamander		3	0	S,H	na	3	3	m	na	0	0	3	3
Blue-spotted Salamander		0	0	na	na	3	3	na	na	0	0	3	3
Fairy Shrimp		0	0	na	na	3	3	na	na				

*Verification Method: S= Seen, H= Handled, P= Photographed

**Confidence Level (species ID): 1= <60%, 2= 60-95%, 3= >95%

*** Egg Mass Integrity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

iii. Rarity Criteria

- Was a specific effort made to survey for rare species? Yes No
- If yes, indicate which species were targeted: Specific surveys were not performed, but the entire pool was comprehensively surveyed.
- Note any rare species associated with vernal pools using the box below. Observations should be accompanied photographs (labeled with observer name, pool location, and date).

Species	Verification Method*			CL**	Species	Verification Method*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Wood Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spotted Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ribbon Snake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ringed Boghaunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Other:				

*Verification Method: P= Photographed, H= Handled, S= Seen

**CL-Confidence level in verification: 1= <60%, 2= 60-95%, 3= >95%

d. General Comments:

- Completed Vernal Pool Survey per guidelines outlined in the MAWS 2010 Interim Vernal Pool Survey Protocol
- Sent hard copy of MAWS Vernal Pool Data Collection Form to: MDIF&W, Attn: Vernal Pools; 650 State Street; Bangor, ME 04401
- Sent hard copy map of pool center point with coordinates on MAWS Vernal Pool Data Collection Form to MDIF&W (address above)
- Sent shapefile of pool perimeter / center point on CD to MDIF&W (address above) or emailed to: vernalpools.mdifw@maine.gov

OBSERVER SIGNATURE

I hereby certify that the information contained in this report is true and complete to the best of my knowledge:

Signature: DANIELLE M. DYER Date 5/10/2011

For MDIF&W Use Only:

Reviewed by MDIF&W Date: _____ Initials: _____

This pool is:

- Significant Potentially significant but lacking critical data Not significant due to: does not meet biological criteria and/or does not meet definition criteria



Photo 1. VP37DD_N during first site visit.
Stantec, May 21, 2009.

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

Project Name/#: Oakfield Amendment **Organization Name:** Stantec Consulting **Pool ID:** VP37MA N

Observer Contact Information

Primary Observer (include secondary, if applicable) : M. Arsenault, D. Dyer Phone or Email 207-729-1199
 Primary Observer has Submitted the MAWS VP Credential Form: Previously Submitted Included w/this Submission

Landowner Contact Information

Landowner permission obtained for this survey & submission: Yes No Notes: _____
 Landowner contact information (REQUIRED): Name: Evergreen Wind Power II, LLC Phone: _____
 Street Address: 179 Lincoln St. Suite 500 City: Boston State: MA Zip: 02111

1. OBSERVER RECOMMENDATION

This pool is:	<input type="checkbox"/> Significant	<input type="checkbox"/> Potentially Significant <small>(include notes in section 3d on Page 2)</small>	<input checked="" type="checkbox"/> Not significant due to:	<input checked="" type="checkbox"/> does not meet MDEP SVP biological criteria
				<input type="checkbox"/> does not meet MDEP vernal pool definition criteria
				Notes: insufficient egg mass numbers

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: T4R3 WELS
 Brief site directions to the pool (using mapped landmarks): Wetland #A085. Pool is located east of proposed turbine PT01.

Location of Vernal Pool* (Required Coordinate System, Datum and Units: UTM, NAD83, Zone 19 North, meters)

Brand and Model of GPS unit**: Trimble Pro-XT Mapping grade GPS with post processed corrections: Yes No
 Check / submit one: GPS-location of center point of the pool included in shapefile named* _____
 GPS-location of pool perimeter included as polygon shapefile named* _____
 Pool Center Point Easting***: _____ Pool Center Point Northing***: _____

* Observers must check the information on an aerial photo to ensure data quality.
 ** If mapping grade GPS or Professional Survey is not available, observers must use the most current MDIF&W Vernal Pool Data Collection Form.
 *** Center points entered on this form must be submitted with a paper map showing the pool location on USGS Topo Quad or large scale aerial photo.

3. VERNAL POOL SURVEY INFORMATION

a. Pool or Wetland Habitat Characterization

i. Choose the best descriptor for the physical setting:

- Isolated Upland Depression Pool associated with larger wetland complex
 Floodplain Depression Other: Isolated Wetland Depression

ii. Check all palustrine types that best apply to this pool or wetland:

- Forested wetland Wet meadow Slow stream
 Shrub wetland Shallow pond Floodplain overflow / Oxbow
 Peatland (acidic fen or bog) Abandoned beaver flowage Headwater seepage
 Emergent marsh Active beaver flowage Other:

iii. Predominate substrate in order of increasing hydroperiod:

- Mineral soil (bare, leaf-litter bottom, or upland mosses present)
 Mineral soil (sphagnum moss present)
 Organic matter (peat/muck) shallow or restricted to deepest portion
 Organic matter (peat/muck) deep and widespread

iv. Nonwoody pool vegetation indicators in order of increasing hydroperiod (check all that apply):

- Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.) Sphagnum moss (anchored or suspended)
 Dry site ferns (e.g. spinulose wood fern, lady fern, polypody fern) Wet site ferns (e.g. royal fern, marsh fern)
 Moist site ferns (e.g. sensitive, cinnamon, interrupted, New York) Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail)
 Moist site vasculars (skunk cabbage, jewelweed, blue flag iris, swamp candle) Aquatic vascular spp. (e.g. pickerelweed, arrowhead)
 Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)

b. Vernal Pool Origin or Impacts

i. Pool's Origin: **Natural** **Natural-Modified** **Non-Natural** **Unknown**

• Describe any modern or historic modifications to the pool and associated wetland (REQUIRED):
 None observed.

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

3. VERNAL POOL SURVEY INFORMATION (continued)

Pool ID: VP37MA N

ii. Hydrology

- Approximate size of pool (at max. capacity): Width 20 m ft (check one) Length 10 m ft (check one)
- Maximum depth at time of survey: 0-12 in ft cm m (check one)

Select the pool's likely hydroperiod and give evidence in the space to the right.

- Permanent _____
- Semi-permanent (drying partially in all years and completely in drought years) _____
- Ephemeral (drying out completely in most years) shallow water, only 6" of water in small central portion of pool during second site visit
- Recommend dry out period observation _____

iii. Inlet/Outlet Permanency

- No inlet / outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- Ephemeral inlet / outlet Other _____

iv. Faunal Indicators:

- Fish (species): _____ Bullfrog or Green frog tadpoles Other: _____

c. Significant Vernal Pool Status under NRPA

i. Survey Date(s): 5/14/09, 6/5/09

ii. Abundance Criteria

- Was the entire pool comprehensively surveyed for egg masses? Yes No
- For each indicator species, indicate the exact number of egg masses, verification method (VM), confidence level (CL), and egg mass integrity (EI) for each life stage (separate cells are provided for separate survey dates).

Indicator Species	Observation:	Egg Masses (or Adult Fairy Shrimp)								Tadpoles/Larvae			
	Information:	#		VM*		CL**		EMI***		VM*		CL**	
	Date:	5/14	6/5	5/14	6/5	5/14	6/5	5/14	6/5	5/14	6/5	5/14	6/5
Wood frog		0	0	na	na	3	3	na	na	na	na	3	3
Spotted Salamander		6	6	S,H	S,P	3	3	m	m	na	na	3	3
Blue-spotted Salamander		0	0	na	na	3	3	na	na	na	na	3	3
Fairy Shrimp		0	0	na	na	3	3	na	na				

*Verification Method: S= Seen, H= Handled, P= Photographed

**Confidence Level (species ID): 1= <60%, 2= 60-95%, 3= >95%

*** Egg Mass Integrity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

iii. Rarity Criteria

- Was a specific effort made to survey for rare species? Yes No
- If yes, indicate which species were targeted: Specific surveys were not performed, but the entire pool was comprehensively surveyed
- Note any rare species associated with vernal pools using the box below. Observations should be accompanied photographs (labeled with observer name, pool location, and date).

Species	Verification Method*			CL**	Species	Verification Method*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Wood Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spotted Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ribbon Snake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ringed Boghaunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Other:				

*Verification Method: P= Photographed, H= Handled, S= Seen

**CL-Confidence level in verification: 1= <60%, 2= 60-95%, 3= >95%

d. General Comments:

- Completed Vernal Pool Survey per guidelines outlined in the MAWS 2010 Interim Vernal Pool Survey Protocol
- Sent hard copy of MAWS Vernal Pool Data Collection Form to: MDIF&W, Attn: Vernal Pools; 650 State Street; Bangor, ME 04401
- Sent hard copy map of pool center point with coordinates on MAWS Vernal Pool Data Collection Form to MDIF&W (address above)
- Sent shapefile of pool perimeter / center point on CD to MDIF&W (address above) or emailed to: vernalpools.mdifw@maine.gov

OBSERVER SIGNATURE

I hereby certify that the information contained in this report is true and complete to the best of my knowledge:

Signature: DANIELLE M. DYER Date 5/16/11

For MDIF&W Use Only:

Reviewed by MDIF&W Date: _____ Initials: _____

This pool is:

- Significant Potentially significant but lacking critical data Not significant due to: does not meet biological criteria and/or does not meet definition criteria



Photo 1. VP37MA_N during first site visit.
Stantec, May 14, 2009.



Photo 2. VP37MA_N during second site visit.
Stantec, June 5, 2009.

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

Project Name/#: Oakfield Amendment **Organization Name:** Stantec Consulting **Pool ID:** VP107CF N

Observer Contact Information

Primary Observer (include secondary, if applicable) : C. Ferris, D. Dyer Phone or Email 207-729-1199

Primary Observer has Submitted the MAWS VP Credential Form: Previously Submitted Included w/this Submission

Landowner Contact Information

Landowner permission obtained for this survey & submission: Yes No Notes: _____

Landowner contact information (REQUIRED): Name: Evergreen Wind Power II, LLC Phone: _____

Street Address: 179 Lincoln St. Suite 500 City: Boston State: MA Zip: 02111

1. OBSERVER RECOMMENDATION

This pool is:	<input type="checkbox"/> Significant	<input type="checkbox"/> Potentially Significant <small>(include notes in section 3d on Page 2)</small>	<input checked="" type="checkbox"/> Not significant due to:	<input checked="" type="checkbox"/> does not meet MDEP SVP biological criteria
				<input type="checkbox"/> does not meet MDEP vernal pool definition criteria
				Notes: insufficient egg mass numbers

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: T4R3 WELS

Brief site directions to the pool (using mapped landmarks): Wetland #A094. Southeast of proposed turbine PT07.

Location of Vernal Pool* (Required Coordinate System, Datum and Units: UTM, NAD83, Zone 19 North, meters)

Brand and Model of GPS unit**: Trimble Pro-XT Mapping grade GPS with post processed corrections: Yes No

Check / submit one: GPS-location of center point of the pool included in shapefile named* _____

GPS-location of pool perimeter included as polygon shapefile named* _____

Pool Center Point Easting***: _____ Pool Center Point Northing***: _____

* Observers must check the information on an aerial photo to ensure data quality.

** If mapping grade GPS or Professional Survey is not available, observers must use the most current MDIF&W Vernal Pool Data Collection Form.

*** Center points entered on this form must be submitted with a paper map showing the pool location on USGS Topo Quad or large scale aerial photo.

3. VERNAL POOL SURVEY INFORMATION

a. Pool or Wetland Habitat Characterization

i. Choose the best descriptor for the physical setting:

Isolated Upland Depression Pool associated with larger wetland complex

Floodplain Depression Other: _____

ii. Check all palustrine types that best apply to this pool or wetland:

Forested wetland Wet meadow Slow stream

Shrub wetland Shallow pond Floodplain overflow / Oxbow

Peatland (acidic fen or bog) Abandoned beaver flowage Headwater seepage

Emergent marsh Active beaver flowage Other: _____

iii. Predominate substrate in order of increasing hydroperiod:

Mineral soil (bare, leaf-litter bottom, or upland mosses present)

Mineral soil (sphagnum moss present)

Organic matter (peat/muck) shallow or restricted to deepest portion

Organic matter (peat/muck) deep and widespread

iv. Nonwoody pool vegetation indicators in order of increasing hydroperiod (check all that apply):

Terrestrial nonvascular spp. (e.g. haircap moss, lycopodium spp.) Sphagnum moss (anchored or suspended)

Dry site ferns (e.g. spinulose wood fern, lady fern, polypody fern) Wet site ferns (e.g. royal fern, marsh fern)

Moist site ferns (e.g. sensitive, cinnamon, interrupted, New York) Wet site graminoids (e.g. blue-joint grass, tussock sedge, cattail)

Moist site vasculars (skunk cabbage, jewelweed, blue flag iris, swamp candle) Aquatic vascular spp. (e.g. pickerelweed, arrowhead)

Floating or submerged aquatics (e.g. water lily, water shield, pond weed, bladderwort)

b. Vernal Pool Origin or Impacts

i. Pool's Origin: **Natural** **Natural-Modified** **Non-Natural** **Unknown**

• Describe any modern or historic modifications to the pool and associated wetland (REQUIRED):

None observed.

Maine Association of Wetland Scientists (MAWS) Vernal Pool Data Collection Form

3. VERNAL POOL SURVEY INFORMATION (continued)

Pool ID: VP107CF N

ii. Hydrology

- Approximate size of pool (at max. capacity): Width 30 m ft (check one) Length 75 m ft (check one)
- Maximum depth at time of survey: 10 in ft cm m (check one)

Select the pool's likely hydroperiod and give evidence in the space to the right.

- Permanent _____
- Semi-permanent (drying partially in all years and completely in drought years) _____
- Ephemeral (drying out completely in most years) vegetated bottom and shallow water
- Recommend dry out period observation _____

iii. Inlet/Outlet Permanency

- No inlet / outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)
- Ephemeral inlet / outlet Other _____

iv. Faunal Indicators:

- Fish (species): _____ Bullfrog or Green frog tadpoles Other: _____

c. Significant Vernal Pool Status under NRPA

i. Survey Date(s): 4/20/2010, 5/10/2010

ii. Abundance Criteria

- Was the entire pool comprehensively surveyed for egg masses? Yes No
- For each indicator species, indicate the exact number of egg masses, verification method (VM), confidence level (CL), and egg mass integrity (EI) for each life stage (separate cells are provided for separate survey dates).

Indicator Species	Observation:	Egg Masses (or Adult Fairy Shrimp)								Tadpoles/Larvae			
	Information:	#		VM*		CL**		EMI***		VM*		CL**	
	Date:	4/20	5/10	4/20	5/10	4/20	5/10	4/20	5/10	4/20	5/10	4/20	5/10
Wood frog		1	2	S	S	3	3	M	M,H	n/a	n/a	3	3
Spotted Salamander		17	11	S	S	3	3	M	M	n/a	n/a	3	3
Blue-spotted Salamander		0	0	n/a	n/a	3	3	n/a	n/a	n/a	n/a	n/a	n/a
Fairy Shrimp		0	0	n/a	n/a	3	3	n/a	n/a				

*Verification Method: S= Seen, H= Handled, P= Photographed

**Confidence Level (species ID): 1= <60%, 2= 60-95%, 3= >95%

*** Egg Mass Integrity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (looser matrix, curved embryos), H= Hatched or hatching

iii. Rarity Criteria

- Was a specific effort made to survey for rare species? Yes No
- If yes, indicate which species were targeted: Specific surveys were not performed, but the entire pool was comprehensively surveyed.
- Note any rare species associated with vernal pools using the box below. Observations should be accompanied photographs (labeled with observer name, pool location, and date).

Species	Verification Method*			CL**	Species	Verification Method*			CL**
	P	H	S			P	H	S	
Blanding's Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Wood Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spotted Turtle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Ribbon Snake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ringed Boghaunter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Other:				

*Verification Method: P= Photographed, H= Handled, S= Seen

**CL-Confidence level in verification: 1= <60%, 2= 60-95%, 3= >95%

d. General Comments:

- Completed Vernal Pool Survey per guidelines outlined in the MAWS 2010 Interim Vernal Pool Survey Protocol
- Sent hard copy of MAWS Vernal Pool Data Collection Form to: MDIF&W, Attn: Vernal Pools; 650 State Street; Bangor, ME 04401
- Sent hard copy map of pool center point with coordinates on MAWS Vernal Pool Data Collection Form to MDIF&W (address above)
- Sent shapefile of pool perimeter / center point on CD to MDIF&W (address above) or emailed to: vernalpools.mdifw@maine.gov

OBSERVER SIGNATURE

I hereby certify that the information contained in this report is true and complete to the best of my knowledge:

Signature: CHARLES W. FERRIS Date 5/9/2011

For MDIF&W Use Only:

Reviewed by MDIF&W Date: _____ Initials: _____

This pool is:

- Significant Potentially significant but lacking critical data Not significant due to: does not meet biological criteria and/or does not meet definition criteria



Photo 1. VP107CF_N during first site visit.
Stantec, April 20, 2010.