LAND USE REGULATION COMMISSION GRID SCALE WIND ENERGY DEVELOPMENT APPLICATION

EXHIBIT 11A
Wetland and Waterbody Resource Delineation Report
Bowers Wind Project
Penobscot and Washington Counties, Maine

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1.0 INTRODUCTION

Champlain Wind, LLC, has proposed construction of the Bowers Wind Project (Project), a utility-scale wind energy facility to be located in Carroll Plantation, Penobscot County, and in Kossuth Township, Washington County. The Bowers Wind Project will include up to 27 turbines, associated access roads, up to four permanent 80-meter meteorological towers, a 34.5-kilovolt electrical collector system, an electrical collection substation, and an Operations and Maintenance building.

The project will be constructed on three ridges in the project area: Bowers Mountain and an unnamed ridge to the south ("South Peak") in Carroll Plantation, and Dill Hill in Kossuth Township. Access roads will connect each turbine location and will provide construction and maintenance access from Route 6. The electrical collector line will connect each turbine location and will then travel north for approximately 5 miles towards a proposed substation located adjacent to Line 56, an existing transmission corridor owned by First Wind.

In 2009 and 2010, Stantec Consulting (Stantec) completed wetland and waterbody resource delineations in association with the proposed project area (Appendix A). Surveys for wetlands and waterbodies were conducted within the Project area that includes the following.

- The summit corridors where turbines, roads and electrical collector lines will be located, including the ridges of Bowers Mountain, Dill Hill, and an unnamed peak south of Bowers Mountain ("South Peak"). Each corridor is approximately 1,000 to 1,200 feet wide.
- Potential access road corridors, approximately 400 to 800 feet wide, connecting Route 6 to the Project area, and connecting Moose Road to the Project area. These connector roads will provide Project area access from Route 6 and access between the two easternmost turbine corridors.
- An approximately five-mile long "express" electrical collector line corridor extending from the turbine areas described above to a substation on the northern border of Carroll Plantation that will connect the Project to a substation at the existing Line 56 transmission line.

This report includes descriptions of the wetland resources within the Project area as identified above. These findings provide information normally required for the Land Use Regulation Commission (LURC) and U.S. Army Corps of Engineers (Corps) permitting processes.

2.0 SURVEY METHODS

2.1. WETLAND AND WATERBODY RESOURCE DELINEATION

Surveys for wetland and waterbody resources were conducted in November 2009 and April through November 2010 under seasonally-appropriate field conditions. Wetland boundaries under federal and state jurisdiction were determined using the technical criteria described in the Corps *Wetland Delineation Manual*[1] during 2009 delineations and in the *Interim Regional Supplement*[2] for 2010 delineations. Wetland boundaries were marked with pink, alphanumeric-coded flags. Boundary flags were located using Trimble® Pro Series Global Positioning System (GPS) receivers. Stream locations were also recorded using GPS receivers. Stream and *Wetland of Special Significance* determinations made during the wetland and waterbody resource delineations are based on the criteria in the LURC *Land Use Districts and Standards* (Chapter 10). Identification of streams and *Wetlands of Special Significance* was limited to observable conditions within the Project area and available background information. GPS data were used to produce the attached resource maps (Appendix B). Additional wetland and stream resource

[1] Environmental Laboratory. 1987. United States Army Corps of Engineers Wetland Delineation Manual, Technical Report Y-87-1, U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.
[2] U.S. Army Corps of Engineers. 2009. *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-09-19. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

information is available in Appendix C. Corps wetland delineation data forms are presented in Exhibit 11B of this application.

2.2. VERNAL POOL SURVEY

Stantec completed vernal pool surveys in April and May 2010 throughout the turbine area and along the length of the proposed collector line corridor A second site visit was performed in late May to those pools with potential to meet the Maine Department of Environmental Protection (MDEP) classification of a Significant Vernal Pool (SVP) (i.e., those pools that were determined to be natural) and to those man-made potential vernal pools with no activity at the first visit. The purpose of the vernal pool survey was to identify and evaluate vernal pool habitat. The results of this vernal pool survey were derived using standard field techniques and represent observations made during the amphibian breeding season. 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, is dependent 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 the 2010 survey event. Based on observations of the on-site vernal pools, the survey event conducted by Stantec was at the appropriate seasonal period for characterizing vernal pools.

Vernal pool survey methodology followed the 2010 criteria established by the Maine Association of Wetland Scientists. Each vernal pool area was thoroughly surveyed by slowly wading through the pool basin, counting amphibian egg masses, and noting other vernal pool-dependent species use. Data were collected on the physical and biological characteristics of the pool such as the presence/absence of a permanently flowing inlet or outlet and the presence/absence of fish. The data were used to determine if the pools met the criteria of an SVP as defined in Chapter 335 Section 9 of the Natural Resources Protection Act (NRPA). As defined by 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 of the following:

- 40 or more wood frog (*Lithobates 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 a wetland but are man-made are not regulated under NRPA Chapter 335. However, regardless of whether or not the pool is natural, the Corps, the U.S. Environmental Protection Agency (USEPA), and the U.S. Fish and Wildlife Service (USFWS) may regulate each vernal pool under the Clean Water Act if the project involves impacts to Corps-jurisdictional wetlands.

The boundary of each vernal pool depression was located using GPS Trimble ® Pro-Series 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., 01MG, 10BE) that appears on the map and within this report. Additional information regarding vernal pools within the Project Area are provided in Appendix D. Maine Department of Inland Fisheries and Wildlife (MDIFW) data forms are presented in Appendix E.

Stantec also identified potential vernal pools (PVPs) during wetland delineations conducted between June and November 2010. These pools exhibited characteristics typical of vernal pools, but were surveyed

outside of the appropriate time period to conduct vernal pool surveys. PVPs are also shown on the attached resource maps.

2.3. RARE, THREATENED, AND ENDANGERED SPECIES SURVEY

In the fall of 2009 and spring of 2010, Stantec wetland scientists and ecologists completed a series of ecological field surveys, some concurrent with wetland and vernal pool surveys, throughout the Project area. These field surveys provided an initial characterization and assessment of the existing condition and quality of the natural communities within the Project area. In addition to the initial field surveys, a landscape analysis was completed by reviewing high-resolution aerial photographs available from the Maine Office of Geographic Information Systems, as well as other pertinent information such as topography, wetland locations, and stream locations. The results of the initial field surveys and the subsequent landscape analysis were used to identify and target areas within the Project area that could potentially support rare plant populations. On June 8 and June 9, 2010, Stantec completed targeted rare, threatened, and endangered (RTE) plant field surveys within the Project area. Surveys were completed along the proposed turbine areas, associated roads and electrical collector routes on the summit as well the proposed express electrical collector corridor. RTE plant populations were located using a Trimble® GEO GPS receiver. Appropriate data were collected on population size, associated habitat, habitat condition, and location.

2.4. AGENCY CONTACTS

Stantec contacted the MDEP, Maine Natural Areas Program (MNAP), MDIFW, and the USFWS 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. Responses are presented in Appendix F.

3.0 SURVEY RESULTS

3.1. GENERAL SITE DESCRIPTION

The turbine area consists of a series of hills within the Project area. The ridgelines range in elevation from 750 to 1,120 feet above sea level and consist of moderately steep to gently sloping sides. There is existing access to each of the proposed turbine strings, primarily unimproved logging roads. Most of the turbine area has been harvested over the last 10-20 years. The proposed electrical collector line runs north from the turbine areas through primarily undeveloped forest, crossing Route 6, to a substation along the Line 56 transmission line at the northern border of Carroll Plantation. Topography along the route consists mostly of rolling hills. Several unimproved logging roads provide access to the collector line corridor.

The Project is located in the Eastern Lowlands biophysical region.[3] This region is characterized by extensive lowlands with elevations generally below 600 feet, except for several hills within the Project area. The Project area is primarily dominated by a regenerating Beech-Birch-Maple forest. The entire Project area has been heavily logged in the past, with harvesting activities occurring largely between 10 and 20 years ago. Dominant canopy species include sugar maple (*Acer saccharum*), gray birch (*Betula populifolia*), yellow birch (*Betula alleghaniensis*), and green ash (*Fraxinus pennsylvanica*), with occasional white pine (*Pinus strobus*) scattered throughout. Common shrub species include the aforementioned tree species, along with American beech (*Fagus grandifolia*), striped maple (*Acer pensylvanicum*), hobblebush (*Viburnum lantanoides*), and red raspberry (*Rubus idaeus*). Dominant herbaceous species include wild sarsaparilla (*Aralia nudicaulis*), evergreen wood fern (*Dryopteris intermedia*), and starflower (*Trientalis borealis*). Areas of timber harvesting disturbance were largely dominated by herbaceous and shrub

[3] McMahon, Janet. 1998 (July). An Ecological Reserves System Inventory. Augusta, ME. ME State Planning Office. 122 pp.

species, including red raspberry, Canada goldenrod (*Solidago canadensis*), and fireweed (*Epilobium angustifolium*).

According to the Class L soil survey completed for the Project, the turbine area contains a variety of soil types. The predominant mapped soils are associations of Monson and Elliotsville on ridgetops and upper sideslopes, interspersed with moderately well drained Chesuncook and Howland and somewhat poorly drained Telos soils. The hydric soils Monarda and Burnham were identified in wetland areas, where prevalence of hydrophytic vegetation and wet hydrology are present. These soil associations are generally silty and very stony. A modified Class L soil survey showed the proposed collector line corridor is also dominated by a variety of coarse silt loam soils formed in glacial till. The dominant soil series mapped along the collector line include Bangor, Dixmont, Howland, Monarda and Burnham, Plaisted, and Monson. For a summary of these surveys, refer to Exhibit 15A.

3.2. WETLAND AND WATERBODY DELINEATION RESULTS

The results of the wetland and waterbody delineation are presented in Appendices B and C. Appendix B includes wetland delineation maps that depict the location of each delineated wetland and stream identified within the Project area. A total of 337 wetland resources and 123 stream resources were identified within the Project area. The resources described below correspond to numbered resources shown in Table C-1 and on the figures in Appendix B, which are numbered based on the project segment in which they are located. Stantec identified palustrine forested[4], palustrine scrub-shrub, palustrine emergent, and palustrine open water/unconsolidated bottom wetlands within the Project area. Many of the wetlands identified as PEM in Table C-1 are more accurately described as areas disturbed or cleared during recent logging activity. These wetlands are dominated by emergent vegetation, yet they lack the hydrologic characteristics typical of true emergent wetlands (i.e., marshes, bogs). Table C-1 in Appendix C provides the wetland identifier, wetland classification, presence of LURC-jurisdictional streams, presence of vernal pools, and presence and type of *Wetlands of Special Significance*. Table C-1 also includes detailed information about each wetland's dominant vegetation, hydric soil indicators, and indicators of wetland hydrology. Stantec also identified 123 LURC-jurisdictional streams within the Project area, which are described in Table C-2. Fifty-four of the Project area streams were determined to be perennial, 65 were determined to be intermittent, and 4 streams had both perennial and intermittent portions; these are considered perennial for the purposes of this report. Sixty-eight of the Project area streams had associated wetlands, while 55 had no associated wetlands. The Project area contains a total of four named streams, including Getchell Brook, Barker Brook, Lindsey Brook, and Tolman Brook. Table C-2 provides the stream identifier, associated wetland identifier (if present), whether the stream is shown on U.S. Geological Survey maps, perennial or intermittent nature, and the width of the stream. Corps wetland delineation data forms are presented in Exhibit 11B of this application. Of the 337 wetland resources identified, 80 met the criteria to be located in the P-WL1 subdistrict, *Wetlands of Special Significance*. This designation was due primarily to their proximity to a stream channel or because they contained greater than 20,000 square feet of open water or emergent vegetation.

3.3. VERNAL POOL SURVEY RESULTS

Stantec identified 59 vernal pools within the Project area. The majority of the vernal pools identified were determined to be man-made, with only 5 naturally occurring vernal pools. Most of the man-made vernal pools are located either in all-terrain vehicle trails, in borrow pits created near road crossings, or in vehicular ruts formed by skidders or other logging equipment. Each vernal pool identified during Stantec's survey was located within a jurisdictional wetland. LURC typically follows the MDEP standards detailed in Chapter 335 of the NRPA for regulation of SVPs. Based on the definitions set forth in the NRPA, a vernal pool must be natural to be considered Significant. Of the natural vernal pools identified, one was found to be an SVP as defined by the NRPA (06BESVP). This pool is located in the eastern portion of the Project area near the Carroll Plantation and Kossuth Township town line (see Appendix B,

[4] Wetland classifications per Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. Office of Biological Services, U.S. Fish and Wildlife Service. FWS/OBS-79/31.

Map 5). Stantec also identified one natural vernal pool (52MGVP) near the end of the amphibian breeding season that contained wood frog tadpoles but in which an accurate count of wood frog egg masses could not be obtained. In keeping with MDIFW protocol, this pool must be treated as a potential SVP (PSVP) because it is a natural pool that was not identified during the proper survey period. A comprehensive table detailing the amphibian breeding activity in each pool, its associated wetland, and use by vernal pool-dependent species is presented in Appendix D. MDIFW vernal pool data forms are presented in Appendix E. The vernal pools are also presented on the attached Resource Maps.

Stantec also identified 10 PVPs within the Project area. These pools exhibited characteristics typical of vernal pools, but they were identified outside of the appropriate time frame to perform vernal surveys. Of these 10 pools, 9 were determined to be man-made while 1 was determined to be natural. Similar to the PSVP described above, the one natural PVP (PVP01MA-N) has been treated as a PSVP.

3.4. RARE, THREATENED, AND ENDANGERED SPECIES SURVEY RESULTS

As a result of the field surveys, four rare plant species were located within the Project area, including large toothwort (*Cardamine maxima*), male fern (*Dryopteris filix-mas*), Orono sedge (*Carex oronensis*), and swamp fly-honeysuckle (*Lonicera oblongifolia*). A summary of the RTE species locations is provided below. Refer to Section 13 of the LURC application for additional information regarding the RTE species identified within the Project area.

In Maine, large toothwort is listed as Special Concern with a state-rarity rank of S1[5] by the MNAP. Two populations were observed within the Project area. One population was located along a gravel logging road in a small wetland seep (Wetland W218). Four plants were observed within this area. A second population of large toothwort was located within the proposed express line corridor in a small streamside floodplain wetland along Barker Brook and associated tributaries (Streams S083, S084, and S085). Several hundred plants were observed growing within the habitat area.

In Maine, male fern is listed as Endangered with a state-rarity rank of S1 by MNAP. A small population with 9 plants was located at the west end of Bowers Mountain within a maturing sugar maple forest near the proposed Turbine 1 location. The plants were growing near the crest of the slope within an area characterized by several small rocky ledges and an open understory.

In Maine, Orono sedge is listed as Threatened with a state-rarity rank of S3[6] by MNAP. A small population with approximately eight clumps was located along the eastern edge of an open agricultural field north of Route 6 within the proposed express line corridor (north of Wetland W283).

In Maine, swamp fly-honeysuckle is listed as Special Concern with a state-rarity rank of S3 by MNAP. A dense clump of plants with approximately 50 stems was located within an old skidder trail through a moderately calcareous northern white cedar (*Thuja occidentalis*) swamp along Tolman Brook (Wetland W329).

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, MDEP, and USFWS to determine if there are any documented occurrences of RTE species and communities within or in the vicinity of the Project area. MHPC and tribal nations were also contacted to determine if there are any documented historic features in the vicinity of the Project area. Following is a brief discussion of their responses. Full responses are presented in Appendix F.

[5] A state-rarity rank of S1 indicates that the species is "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."
[6] A state-rarity rank of S3 indicates that the species is "Rare in Maine (20-100 occurrences)."

- MNAP indicated that there are no rare or exemplary botanical features documented within the Project area, but this may reflect minimal survey efforts rather than confirm the absence of rare botanical features.
- MDIFW responded that in terms of fisheries, Dipper Pond is unofficially known to have an abundance of minnows and is utilized by local residents as a source of bait fish. The outlet of Dipper Pond may be important seasonally to brook trout (*Salvelinus fontinalis*). MDIFW also noted that four streams in the Project area (Barker Brook, Getchell Brook, Lindsey Brook, and Wallace Brook) have a high probability of supporting wild populations of Eastern brook trout and other native resident species of fish. Small unnamed tributaries of Pleasant Lake in Kossuth Township are important spawning areas for landlocked rainbow smelt, the critical forage base for the cold water fish species inhabiting the lake (landlocked salmon [*Salmo salar m. sebago*], lake trout [*Salvelinus namaycush*] and lake whitefish [*Coregonus clupeaformis*]).
- MDEP responded with a map that shows mapped Inland Waterfowl and Wading Bird Habitat in the vicinity of the Project. No other Significant Wildlife Habitats are shown within or around the Project area.
- The USFWS responded that the proposed Project is on the boundary of the critical habitat for the federally endangered Gulf of Maine Distinct Population Segment (GOM DPS) of Atlantic salmon (*Salmo salar*). USFWS recommended consultation according to Section 7 of the Endangered Species Act if the proposed Project includes stream crossings or if it may cause sedimentation into salmon habitat. UFWS indicated that the Project is not within the designated critical habitat of the federally threatened Canada lynx (*Lynx canadensis*), but lynx occur throughout northern Maine and could occur within the Project area. Their correspondence also noted the possibility of migratory or transient bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) in the vicinity of the Project. These two species are protected from take under the federal Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.
- MHPC recommended that archaeological surveys be performed at rock outcrops and streams within the Project area. MHPC also recommended that the Project area be surveyed for above ground resources with historic properties.
- The Penobscot Nation responded that the Project appears to have no impact on a structure or site of historic, architectural or archaeological significance to the Penobscot Nation as defined by the National Historic Preservation Act of 1966.

4.2. STATE AND FEDERAL WETLAND REGULATIONS

LURC 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 re-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, in unorganized plantations and townships are regulated under LURC's Land Use Districts and Standards (Chapter 10). The following provides information regarding LURC's zoning subdistricts. The purpose of this system of subdistricts is to protect valuable resources such as waterbodies, wetlands, wildlife habitat, and mountain areas above 2,700 feet, and to prevent conflicts between incompatible land uses.

Development and Management Subdistricts
LURC's jurisdiction includes 10 development subdistricts and 3 management subdistricts. This Project area includes the General Management Subdistrict (M-GN). The M-GN subdistrict includes those areas that LURC determined were appropriate for forestry or agricultural management activities, but that did not need the level of protection afforded by the Highly Productive Management Subdistrict (M-HP) or the Natural Character Management Subdistrict (M-NC). The M-GN subdistrict also includes those areas that do not fit within any other subdistrict.

Protection Subdistricts:
Within LURC jurisdiction, the level of regulatory review for wetland alterations depends upon the size of the proposed impact and the Wetland Protection Subdistrict (P-WL) involved. Generally, projects that

alter less than 4,300 square feet of P-WL2 or P-WL3 wetlands are exempt from the Tier permitting process. For all other projects, three categories of review exist: Tier 1, 2 and 3.

- Tier 1 reviews are limited to projects that alter between 4,300 square feet and 14,999 square feet of P-WL2 or P-WL3 wetlands.
- Tier 2 reviews are limited to projects that alter between 15,000 square feet and 43,560 square feet (1 acre) P-WL2 or P-WL3 wetlands provided the wetlands do not contain critically imperiled (S1) or imperiled (S2) natural communities.
- Tier 3 reviews are for projects that alter any area of a P-WL1 wetland; between 15,000 square and 43,559 square feet of P-WL2 or P-WL3 wetlands that contain critically imperiled (S1) or imperiled (S2) natural communities; or 43,560 square feet (1 acre) or more of a P-WL2 or P-WL3 wetlands.

Alterations of P-WL1 wetlands may be eligible for Tier 1 or 2 review if LURC determines that the activity will have no undue adverse impact on the freshwater wetlands or other protected natural resources present. The applicant must specifically request that LURC review the project's eligibility in order to reduce the level of regulatory review.

Based upon the available LURC *Land Use Guidance Maps for Carroll Plantation and Kossuth Township* and fieldwork conducted by Stantec, the Project area includes P-WL1, P-WL2 and P-WL3 wetlands. Stantec identified 80 *Wetlands of Special Significance* within the Project area. Of these *Wetlands of Special Significance*, 20 wetlands occur solely within the P-WL1 subdistrict, and 60 wetlands include the P-WL1 subdistrict in conjunction with one or both of the other wetland subdistricts. In addition, the 123 identified streams would be considered *Wetlands of Special Significance* and occur within the P-WL1 subdistrict. The remaining 257 wetlands identified within the Project area occur within either the P-WL2 or P-WL3 subdistrict or within some combination of these two subdistricts.

LURC jurisdiction also includes 13 other protection subdistricts. The only other applicable subdistrict for this Project is the shoreland protection subdistrict.

The Shoreland Protection Subdistricts (P-SL) are intended to protect water quality, habitat for plants, fish and wildlife, and scenic and recreational opportunities. There are two defined shoreland protection subdistricts, P-SL1 and P-SL2; however only the P-SL2 subdistrict occurs within this Project area. The P-SL2 is defined as those areas within 75 feet measured as a horizontal distance landward of the normal high water mark of stream channels upstream from the point where such channels drain 50 square miles, the upland edge of those coastal and inland wetlands as defined in LURC Chapter 10, and the normal high water mark of bodies of standing water less than 10 acres in size, excluding bodies of standing water which are less than three acres in size and which are not fed or drained by a flowing water. Each of the identified stream and wetland resources has an associated 75 foot Shoreland Protection Subdistrict, P-SL2.

Depending upon the type of activities, projects located within a P-SL subdistrict may require a permit from LURC. Those uses that require a permit are described in Section 10.23, L of LURC's *Land Use Districts and Standards*. Wind energy development within designated expedited wind energy development areas is an allowed use that requires a permit from LURC.

Regulatory Summary

The Project area includes one management subdistrict, M-GN, and two protection subdistricts, P-WL and P-SL. The M-GN subdistrict encompasses the entire Project area exclusive of those areas within one of the other Protection subdistricts. Each of the identified stream and wetland resources occurs within the Wetland Protection Subdistrict, P-WL, and has an associated 75 foot Shoreland Protection Subdistrict, P-SL2.

Any proposed development is subject to the provisions and regulatory requirements of these respective subdistricts as outlined in the *Land Use Districts and Standards,* (Chapter 10). If the proposed Project is a "prohibited use" for the given subdistrict(s), an applicant can petition LURC for a change in subdistrict

boundaries or zoning classification to allow for new uses. Such a zoning change can only be approved if it is (1) consistent with LURC's Comprehensive Land Use Plan, (2) satisfies a demonstrated need in the community or area, and (3) would have no undue adverse impacts on resources or uses [12 M.R.S.A. §685-A(8-A)].

Based on a review of the final project plans, the Project will impact 799.57 square feet of P-WL1 wetland, 2961.85 square feet of P-WL2 wetland, and 400 square feet of P-WL3 wetland, for a total area of wetland alteration of 4161.42 square feet. The project will also include 64 square feet of stream impact for a 24" culvert that needs to be replaced and lengthened to 32 feet.

4.3. STATE AND FEDERAL VERNAL POOL REGULATIONS

LURC and the Corps regulate vernal pools in the Project area. LURC typically follows the MDEP and MDIFW standards detailed in Chapter 335 of the Natural NRPA for regulation of SVPs. 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 PSVP 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.

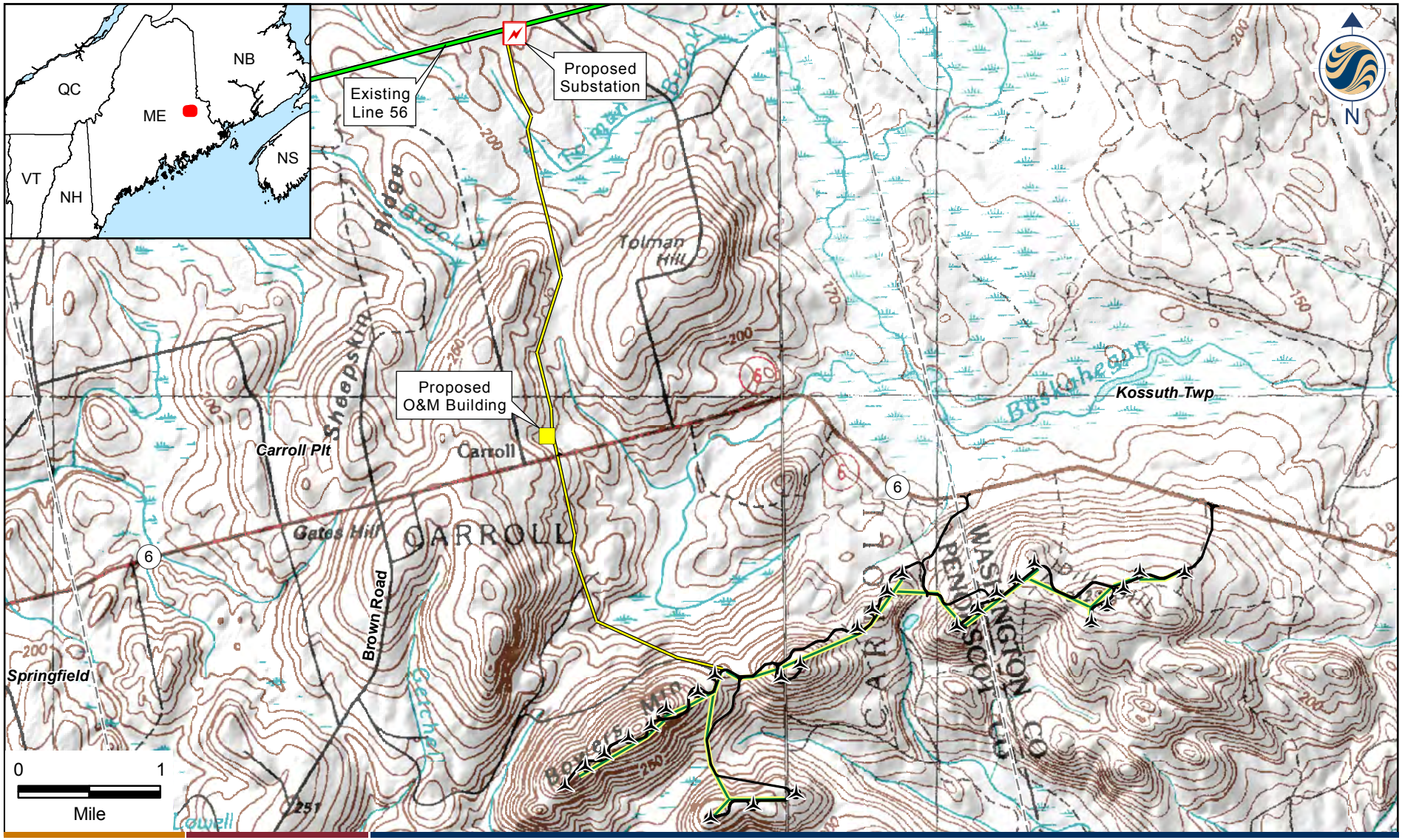
The GP for the State of Maine, which was re-issued by the Corps on October 12, 2010, for projects involving "minimal-impact activities", also addresses protection of vernal pools. Under the new Maine GP, the Corps has revised its definition of a vernal pool and adopted specific management standards for 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.

The GP states that the VPMA applies to all vernal pools identified within the Project area. However, based on conversations with the regional office of the Corps, the Corps is most concerned with protecting vernal pools that meet one or more of the following criteria:

- Naturally occurring vernal pools that meet MDEP's definition of an SVP;
- Man-made vernal pools that meet MDEP's SVP thresholds for egg mass counts;
- Any vernal pool containing diverse species (i.e., blue-spotted salamanders, fairy shrimp);
- Any vernal pool that contains other rare species (e.g., spotted turtle, Blanding's turtle); and
- Clusters of vernal pools, regardless of origin, especially if the combined egg mass totals exceed MDEP's SVP thresholds.

Based on Stantec's field surveys, a total of 59 vernal pools were identified within the Project area. Details for each pool are provided in Appendix D, and the pools are shown on the attached Resource Maps. Of these 59 vernal pools, 5 are naturally occurring, and 1 meets the criteria to be considered an SVP under Chapter 335 of the NRPA. All 59 of the vernal pools identified meet the Corps' definition of a vernal pool. However, only 11 of the pools meet one of criteria described above. Four of these pools were part of vernal pool clusters, resulting in nine VPMAs. One additional VMPA is applied to the one natural PVP associated with the Project, resulting in a total of 10 VMPA's in the Project area.

Appendix A
Site Location Map



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00522-F001-USGS-Project-Map.mxd

Legend

- Proposed Turbine Layout
- Express Collector Corridor
- Mountain Top Collector Corridor
- Proposed Access Road

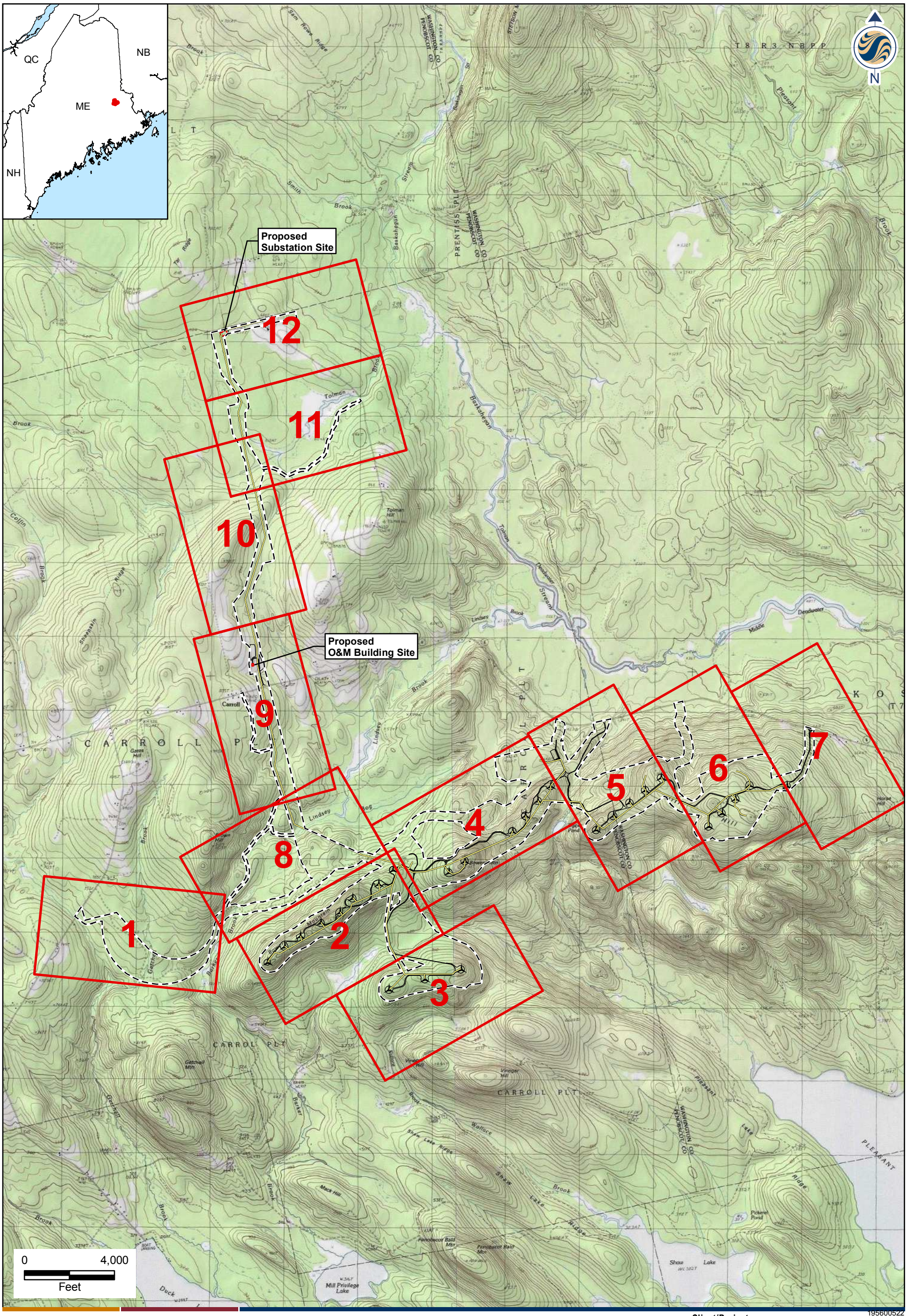
Client/Project
Bowers Mountain Wind Project
Carroll Plt. and Kossuth TWP, Maine

Figure No.
1

Title
Site Location Map

January 10, 2011

Appendix B
Resource Maps



195600522

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Legend

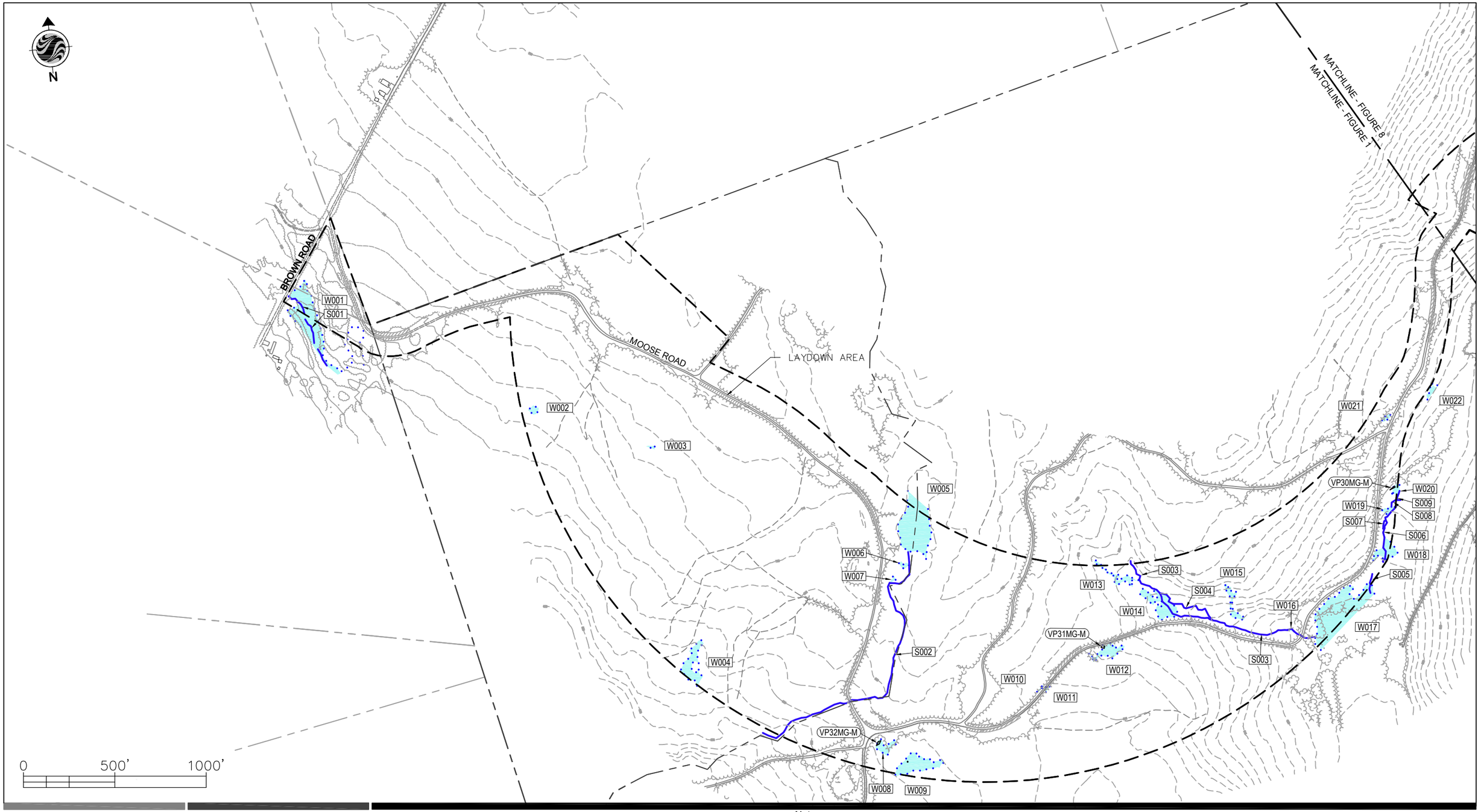
- Proposed Civil Design (01/13/11)
- Complete Electrical Design (12/8/10)
- Delineation Limits
- Map Extents

Client/Project
Champlain Wind, LLC
Bowers Mountain Wind Project
Carroll Plt. and Kossuth Twp., Maine

Figure No.
Key

Title
Delineated Natural Resource Map

January 2011



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00522-F000-NRMaps-.dwg

Legend

- Stream identified by Stantec
- Project limits
- 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

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Client/Project
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Bowers Mountain Wind Project
Carroll Plt. and Kossuth Twp., Maine

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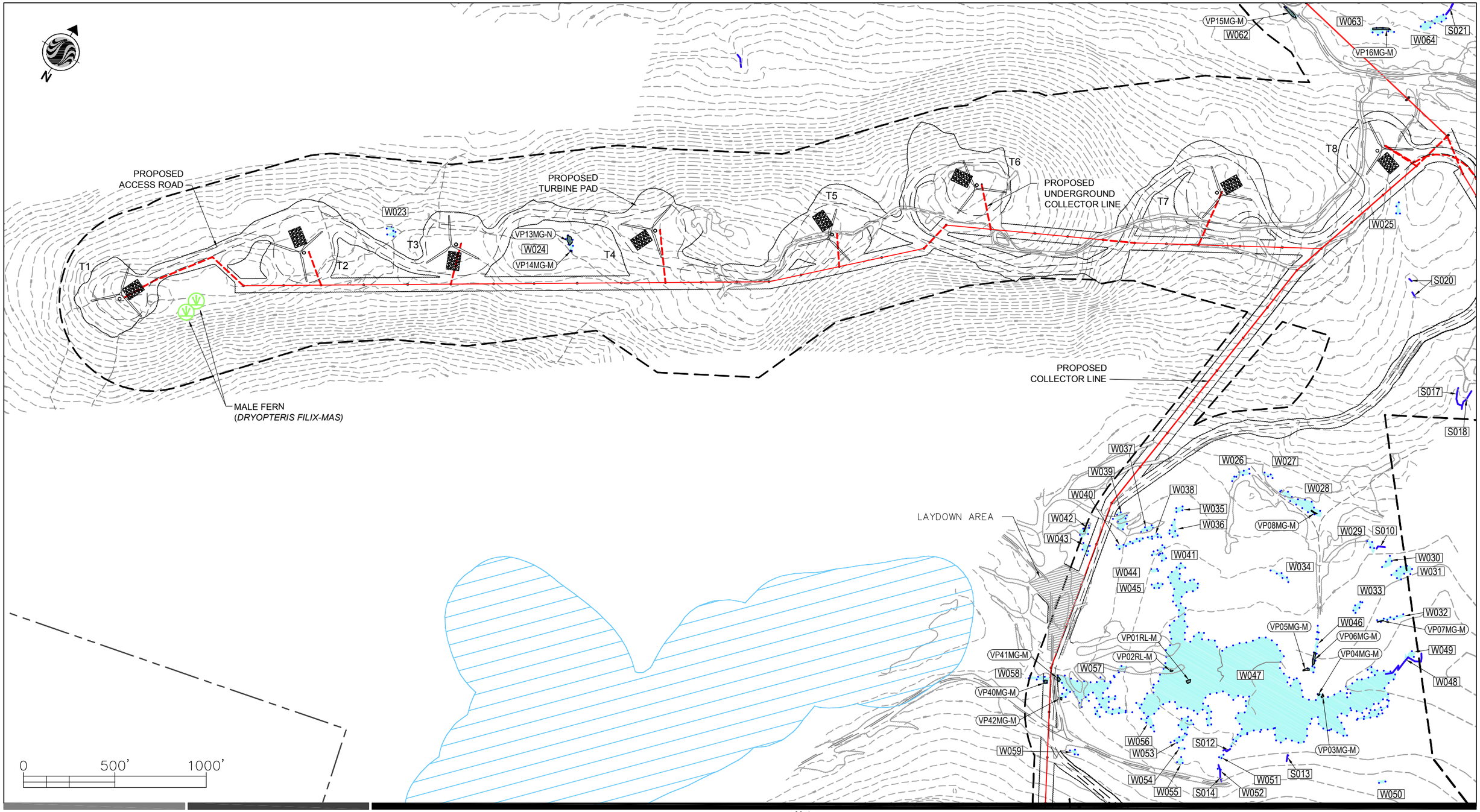
Figure No.
1

Title
Delineated Natural Resource Map

January 2011



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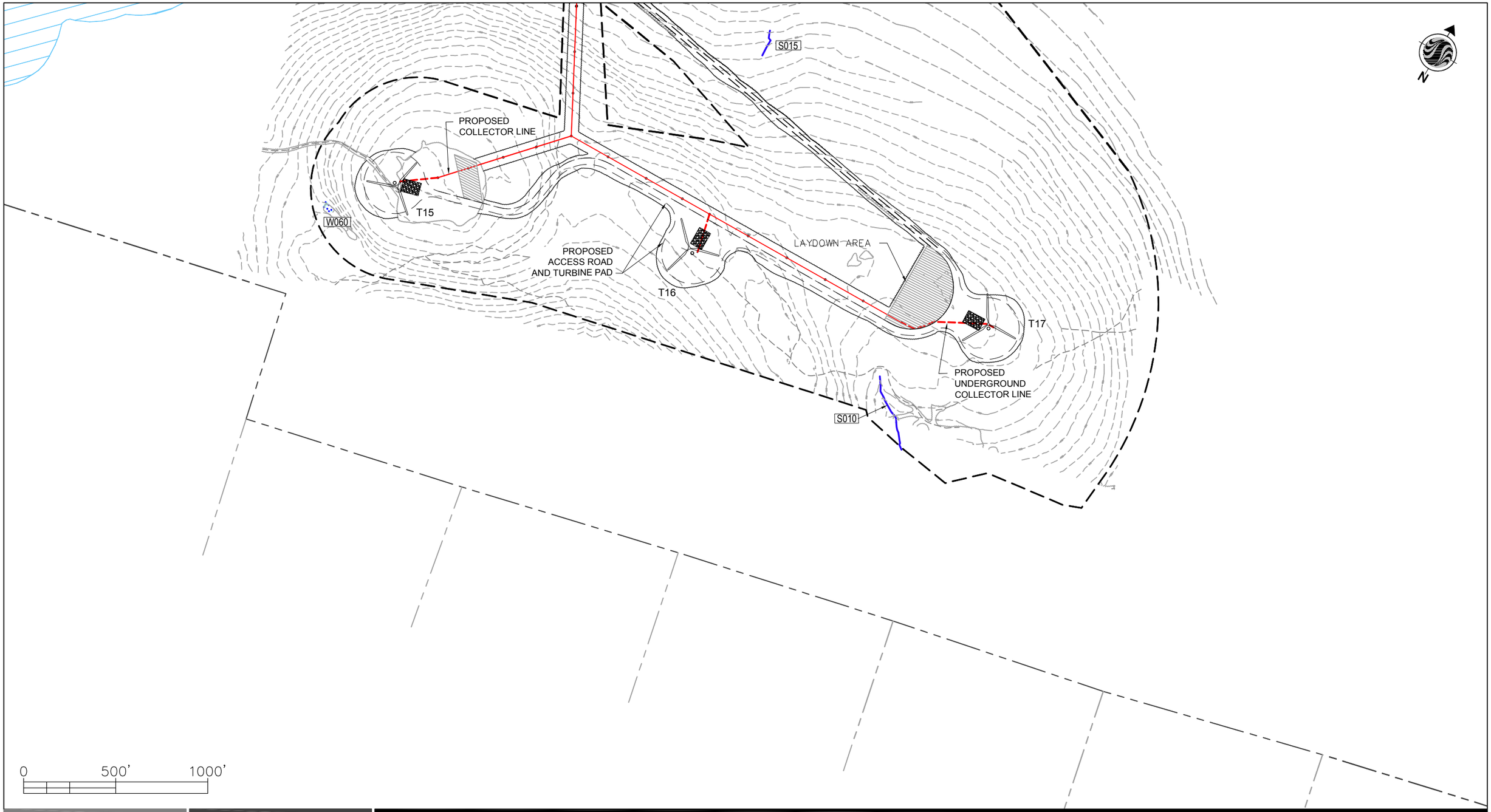
Champlain Wind, LLC
Bowers Mountain Wind Project
Carroll Plt. and Kossuth Twp., Maine

Figure No.
2

Title
Delineated Natural Resource Map

January 2011



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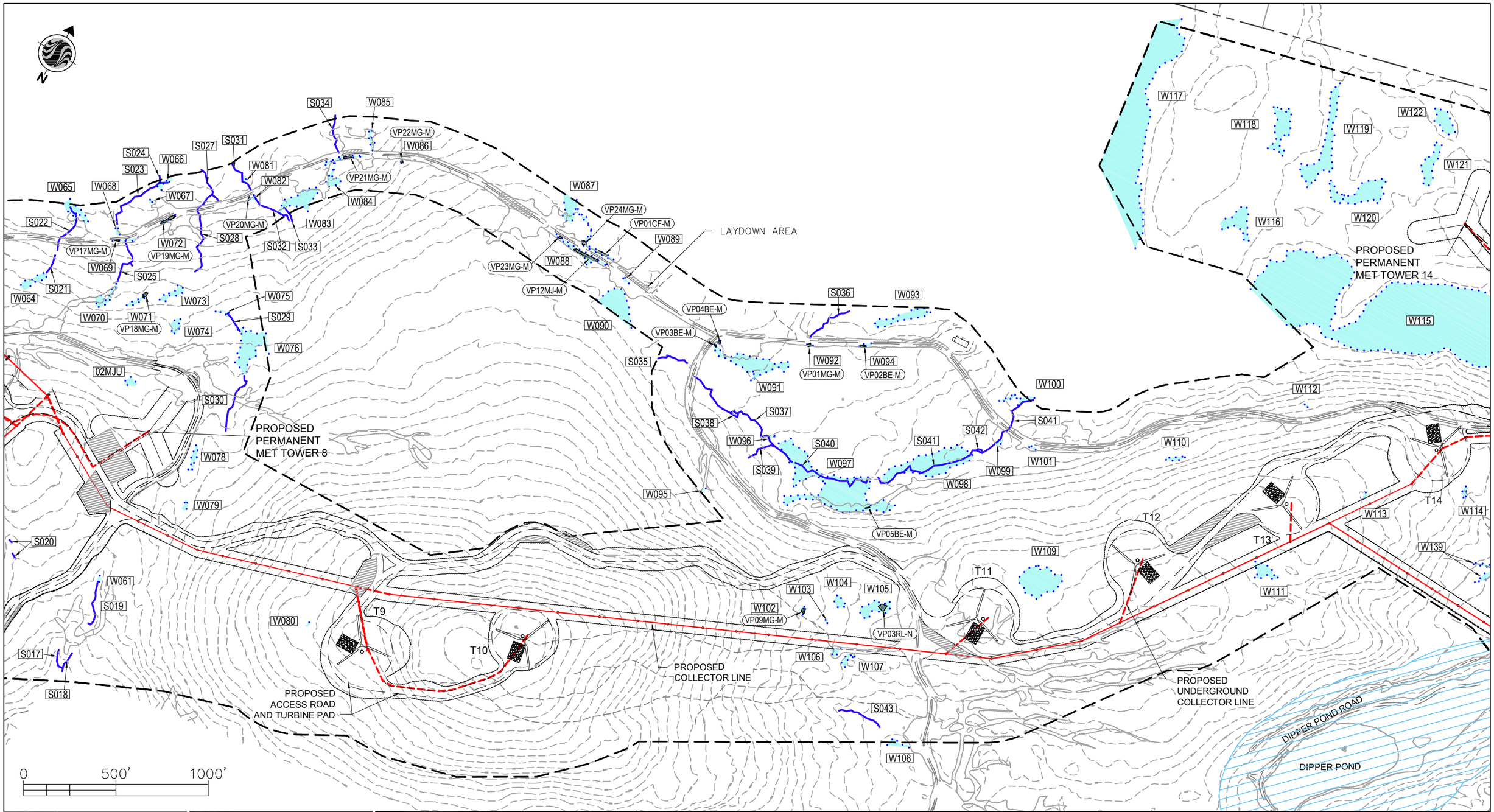
Champlain Wind, LLC
Bowers Mountain Wind Project
Carroll Plt. and Kossuth Twp., Maine

Figure No.
3

Title
Delineated Natural Resource Map

January 2011



W030

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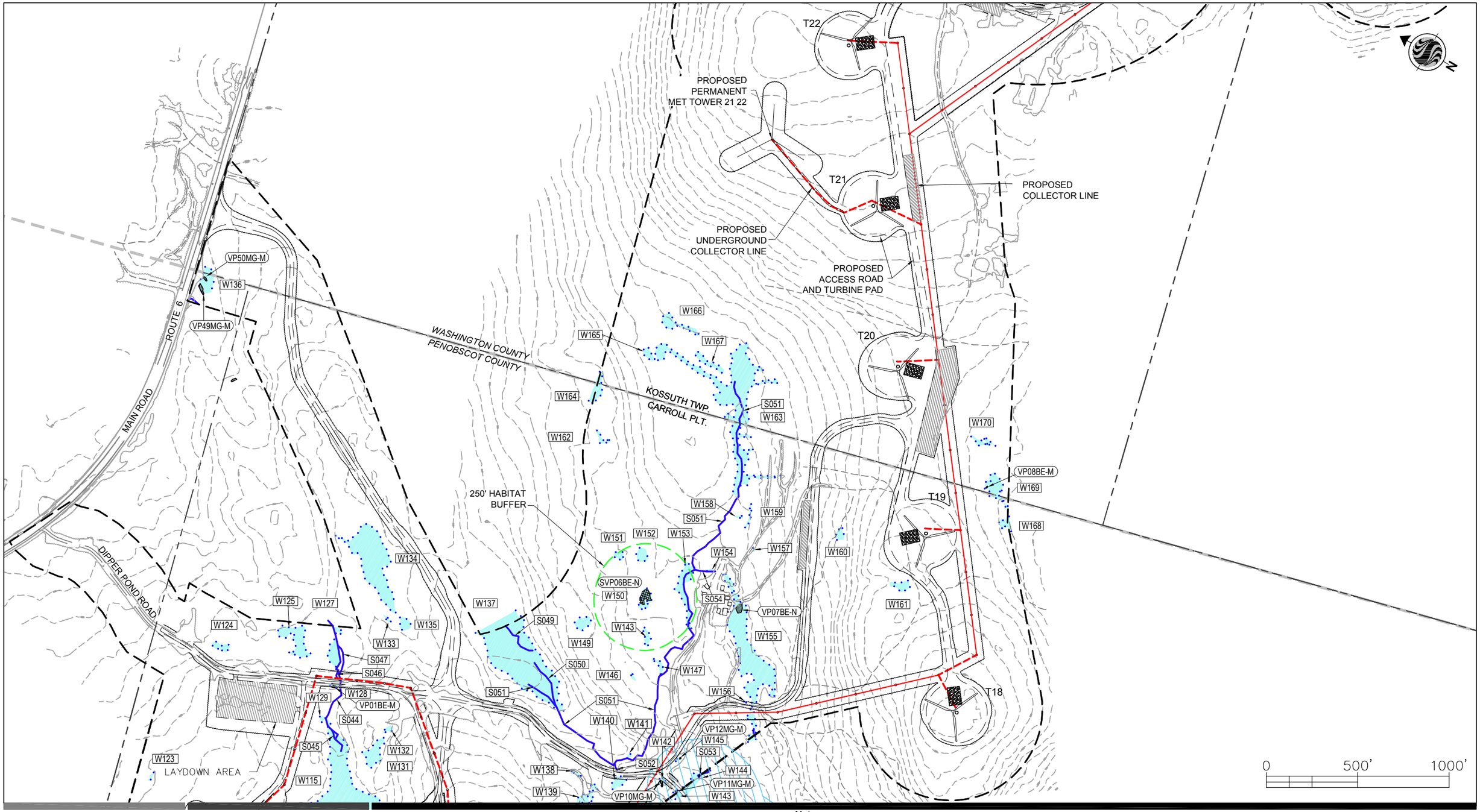
Client/Project 195600522
Champlain Wind, LLC
Bowers Mountain Wind Project
Carroll Plt. and Kossuth Twp., Maine

Figure No.
4

Title
Delineated Natural Resource Map

January 2011



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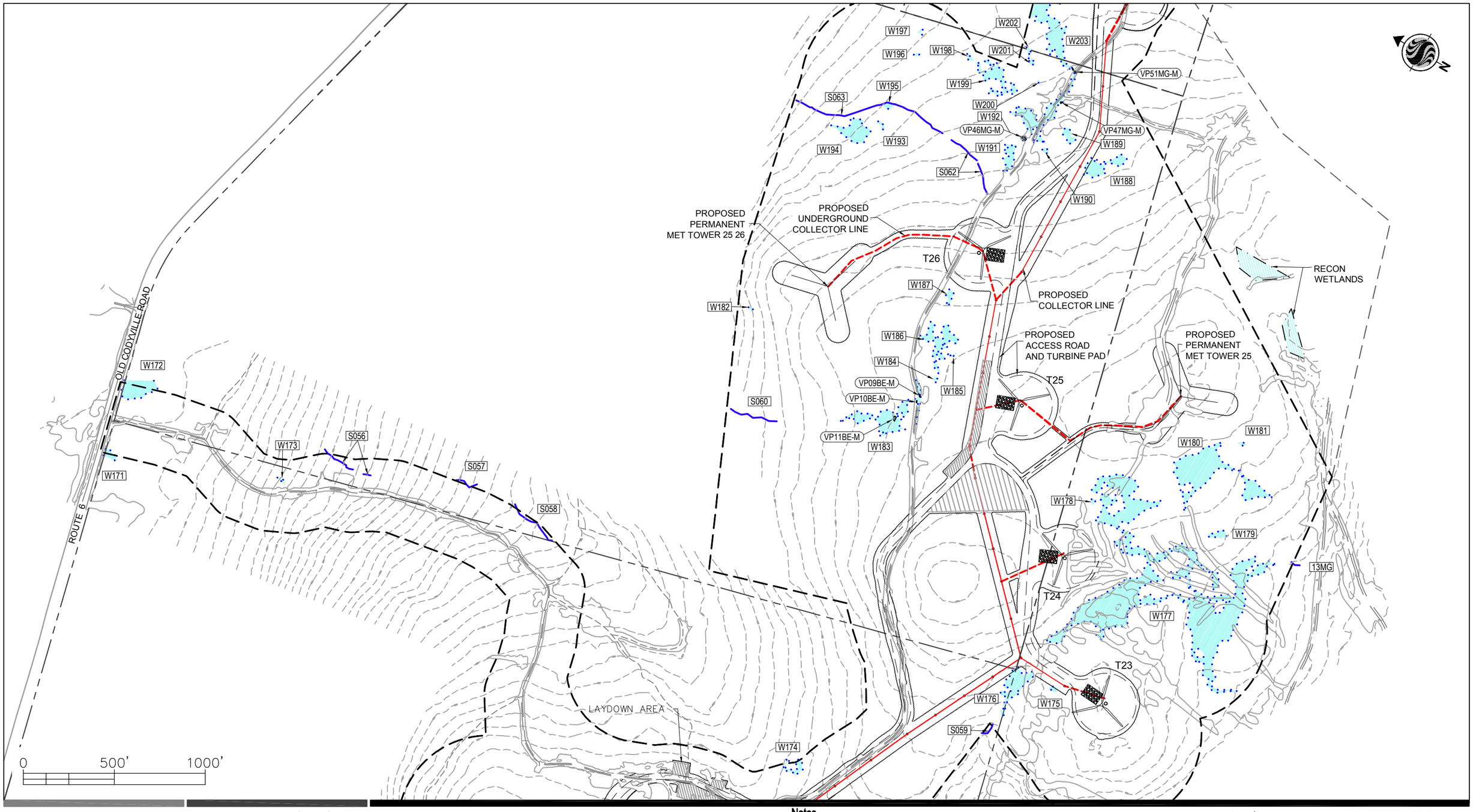
Client/Project 195600522
Champlain Wind, LLC
Bowers Mountain Wind Project
Carroll Plt. and Kossuth Twp., Maine

Figure No.
5

Title
Delineated Natural Resource Map

January 2011



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Client/Project 195600522
Champlain Wind, LLC
Bowers Mountain Wind Project
Carroll Plt. and Kossuth Twp., Maine

Figure No.
6

Title
Delineated Natural Resource Map

January 2011

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Legend

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Bowers Mountain Wind Project
Carroll Plt. and Kossuth Twp., Maine
Figure No.
7
Title
Delineated Natural Resource Map

January 2011

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N

MATCHLINE - FIGURE 8
MATCHLINE - FIGURE 1

MATCHLINE - FIGURE 9
MATCHLINE - FIGURE 8

W260 W261 W257 W258 S095 S094 S097 W256 W259 W255 S093 S096 W259 S092 S089 S087 S088 W251 S090 S091 W252 W253 PVP01AA-M S086 W250 W249 S083 W248 W247 W246 S083 S084 S081 W245 S082 W244 W243 S080 S079 S078 S078 W241 W241 W240 W239 W228 W226 W225 W227 S072 S070 S070 W229 S071 W231 W230 W232 W236 W238 S075 S073 W237 W233 W234 W235 S077 S076 W224 W223 W211 W213 S066 W214 W216 W210 W209 S064 W212 W217 W215 W219 W220 S069 W221 S068 W222 W218 VP29MG-M VP28MG-M VP27MG-M VP26MG-M VP25MG-M

TP9 TP10 TP11 TP12 TP13 TP14 TP15

B1 11

LARGE TOOTHWORT
(CARDAMINE MAXIMA)

SURFACE DRAINAGE

BOULDER AREA

PROPOSED COLLECTOR LINE

OUTCROP

BOULDER AREA

BOULDER AREA

OUTCROP

BOULDER AREA

LAYDOWN AREA

MOOSE ROAD

LARGE TOOTHWORT
(CARDAMINE MAXIMA)

Soil Features
- B1 Boring
- TP2 Test pit
- Boulder area
- Surface drainage
- Outcrop
- Hydrologically Sensitive Area

0 500' 1000'

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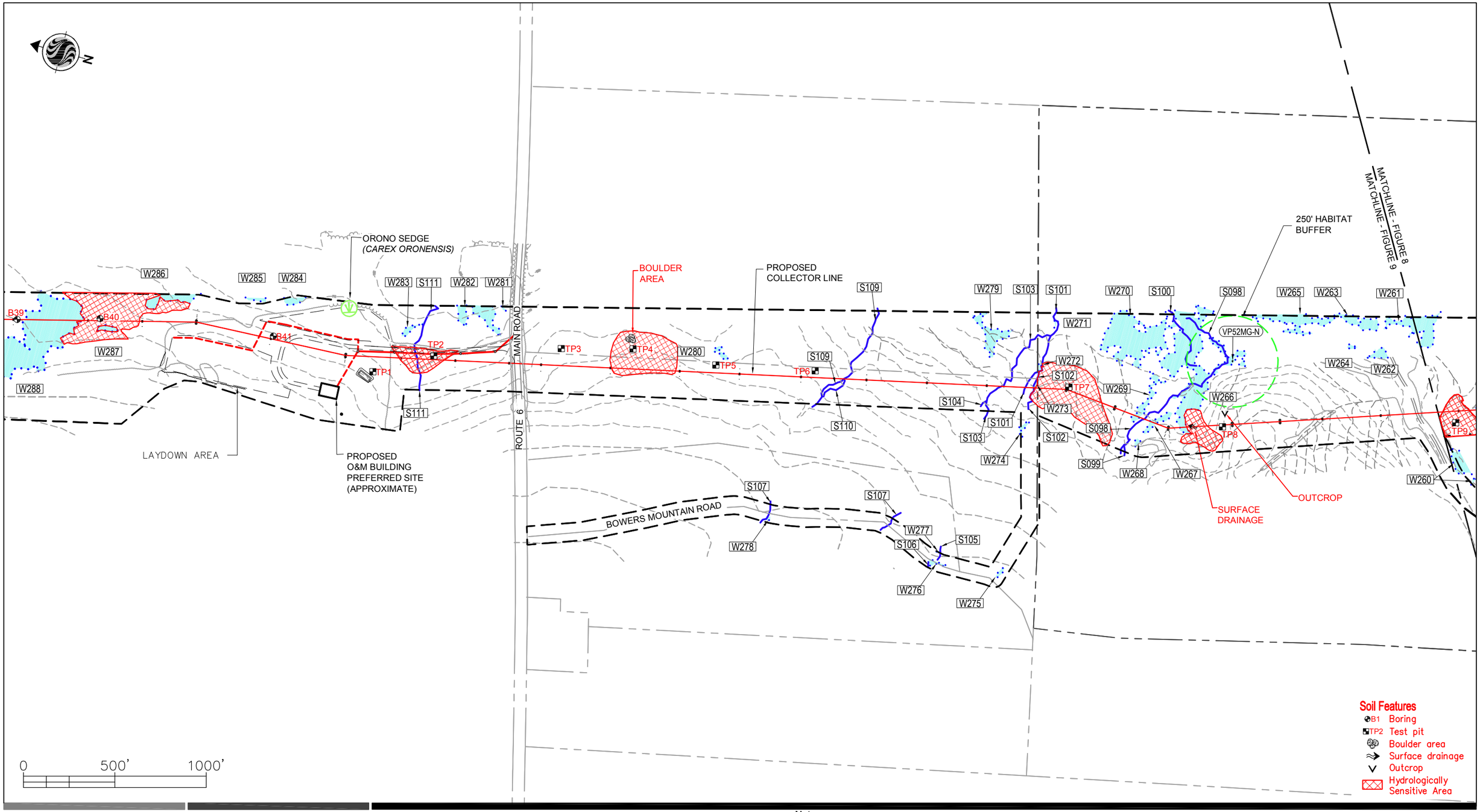
Client/Project 195600522
Champlain Wind, LLC
Bowers Mountain Wind Project
Carroll Plt. and Kossuth Twp., Maine
Figure No.
8
Title
Delineated Natural Resource Map

January 2011



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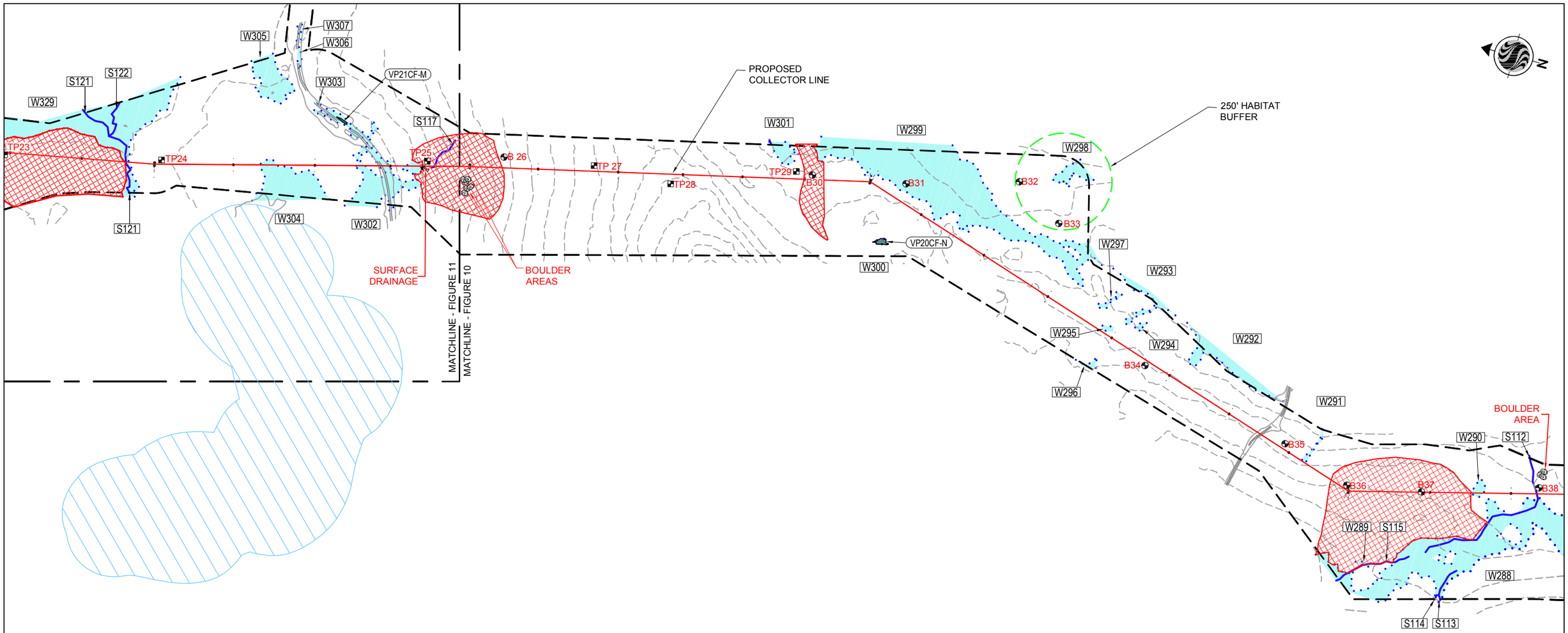
Client/Project 195600522
Champlain Wind, LLC
Bowers Mountain Wind Project
Carroll Plt. and Kossuth Twp., Maine

Figure No.
9

Title
Delineated Natural Resource Map

January 2011



Soil Features

- B1 Boring
- TP2 Test pit
- Boulder area
- Surface drainage
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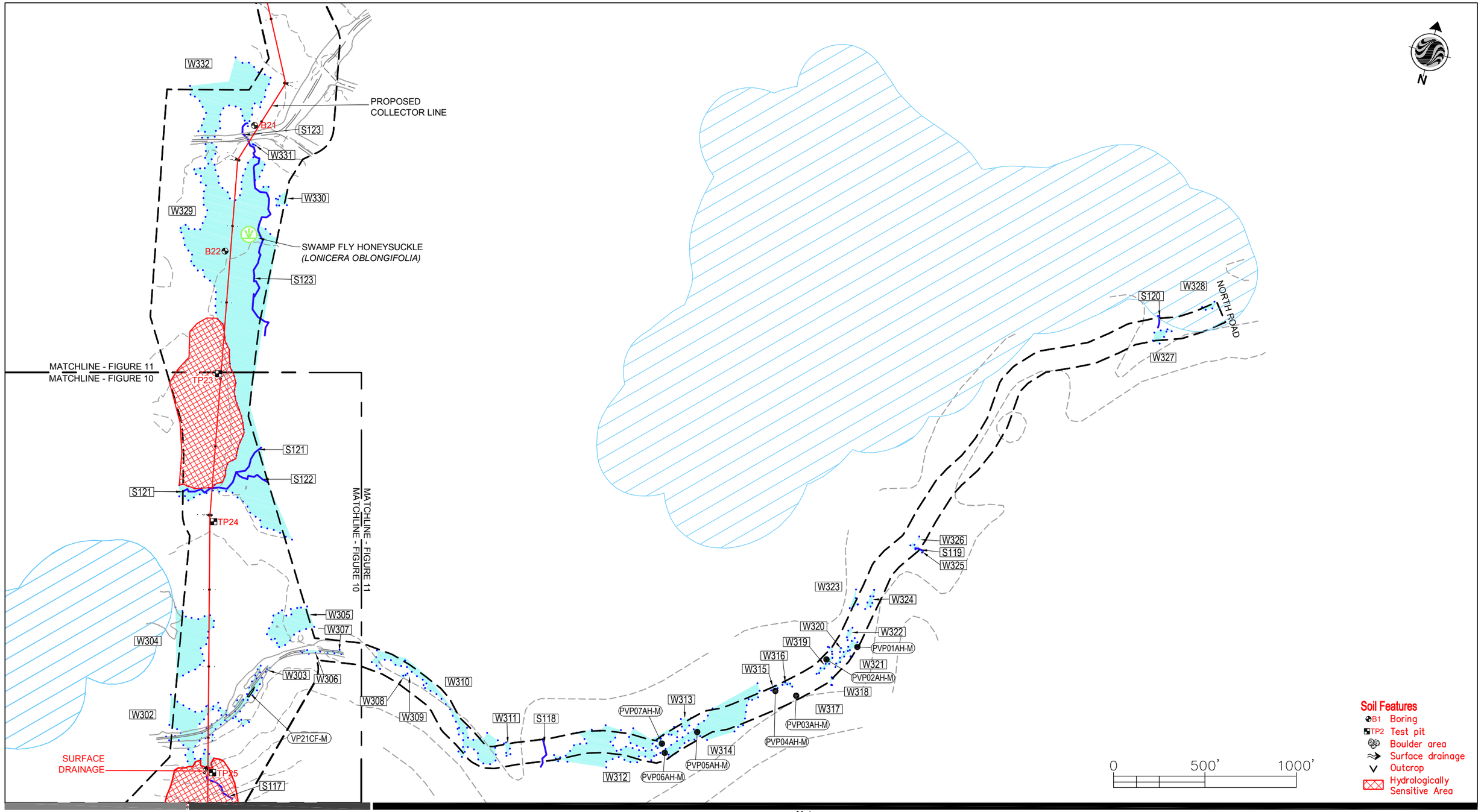
Client/Project 195600522
Champlain Wind, LLC
Bowers Mountain Wind Project
Carroll Plt. and Kossuth Twp., Maine

Figure No.
10

Title
Delineated Natural Resource Map

January 2011



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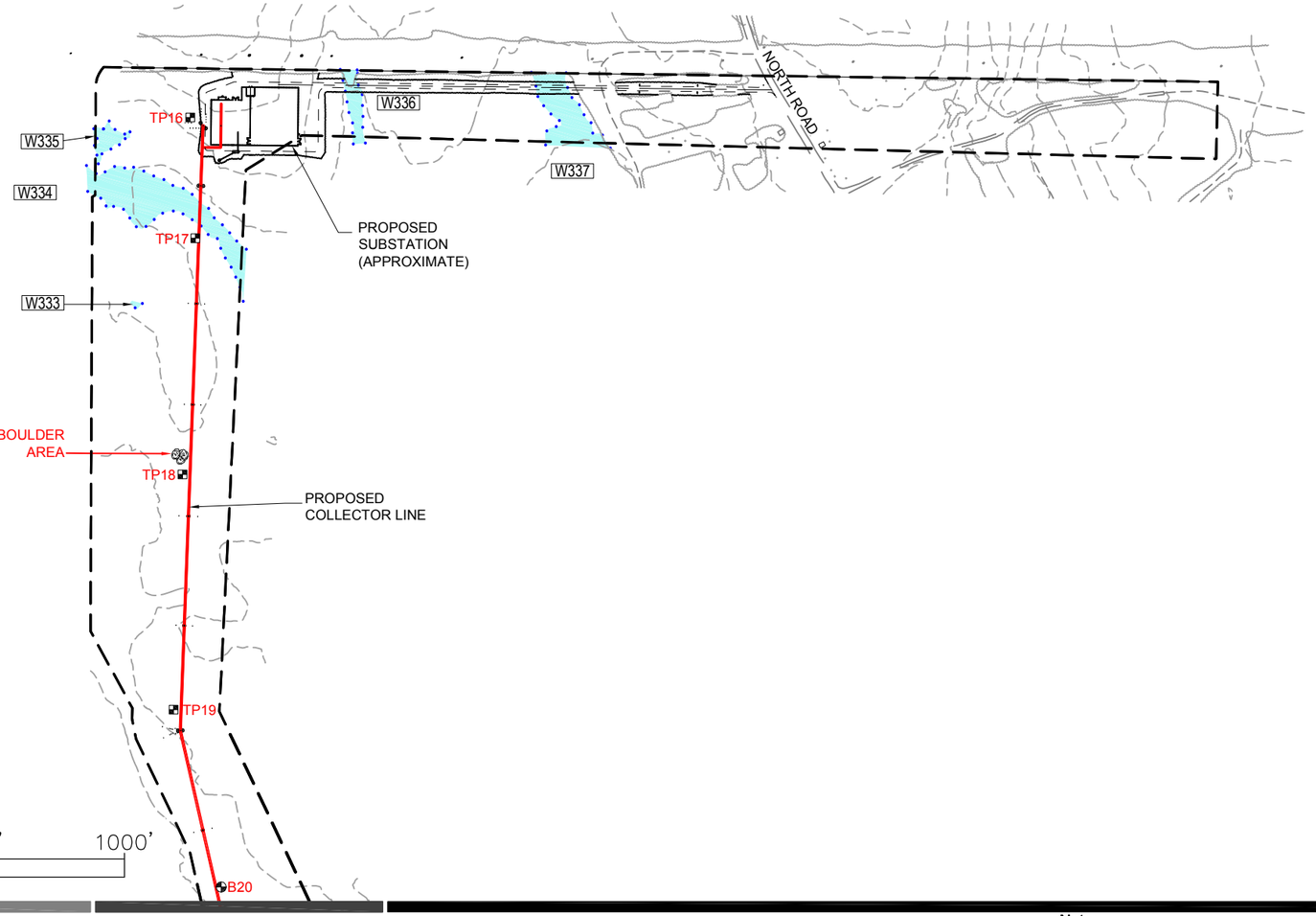
Client/Project 195600522
Champlain Wind, LLC
Bowers Mountain Wind Project
Carroll Plt. and Kossuth Twp., Maine

Figure No.
11

Title
Delineated Natural Resource Map

January 2011



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Client/Project 195600522
Champlain Wind, LLC
Bowers Mountain Wind Project
Carroll Plantation, Maine

Figure No.
12

Title
Delineated Natural Resource Map

January 2011

Appendix C
Wetland and Waterbody Resource Tables

Table C-1. Wetland Resources Table

Wetland ID	Map #	Wetland Classification[1, 2]				Associated Stream	Vernal Pool Code	Wetland Protection Subdistrict[3]	Wetland Information			Wetland Notes	Additional Stream Notes
		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W001	1	D	D			S001		P-WL3, P-WL1c(vi)	yellow birch, northern white-cedar, black ash, balsam fir, common woolsedge, fowl manna grass	Gleyed matrix with redoximorphic concentrations	Areas of inundation, wetland drainage patterns	USGS-mapped stream	
W002	1		D					P-WL2a	black ash, red maple, yellow birch, common woolsedge, fowl manna grass, sensitive fern	Dark horizon over a depleted matrix with redoximorphic concentrations	Areas of inundation, soil saturated to the surface		
W003	1			D				P-WL2a	Common woolsedge, mosquito bulrush, nodding sedge, greater bladder sedge	2" dark horizon over a depleted matrix with redoximorphic concentrations	Water-stained leaves		
W004	1		D	D				P-WL2a	yellow birch, gray birch, red maple, common woolsedge, fowl manna grass, sensitive fern	Areas of thick, dark surface horizon over depleted matrix; areas with 9" organic over rock	Water-stained leaves, soil saturated to the surface		
W005	1				D	S002		P-WL1c(ii), P-WL1c(vi)	standing dead trees	Ponded	Ponded, inundated	Recently flooded beaver pond	
W006	1				D	S002		P-WL2a, P-WL1c(vi)	no vegetation	Ponded	Ponded, inundated		
W007	1			D		S002		P-WL2a, P-WL1c(vi)	green ash, sensitive fern, nodding sedge	Depleted matrix with redoximorphic concentrations	Water-stained leaves, soil saturated to the surface		
W008	1		D				VP32MG-M	P-WL2a	speckled alder, long beaked willow, woolsedge, broad-leaved cat-tail, nodding sedge, path rush	5" Dark A horizon over depleted B horizon with redoximorphic concentrations	Soil saturated to the surface, areas of inundation		

Wetland ID	Map #	Wetland Classification[1, 2]				Associated Stream	Vernal Pool Code	Wetland Protection Subdistrict[3]	Wetland Information			Wetland Notes	Additional Stream Notes
		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W009	1	D					PVP02AA-M	P-WL3	long-beaked willow, yellow birch, red maple, northeastern manna grass, northern white cedar, cinnamon fern, New England aster, sensitive fern	Histosol	Saturated soils, water-stained leaves		
W010	1		D					P-WL2a	speckled alder, nodding sedge, royal fern, dwarf raspberry, common wrinkle-leaved goldenrod, sensitive fern	8" Dark A horizon over depleted with redoximorphic concentrations	Soil saturated to the surface, water-stained leaves		
W011	1		D					P-WL2a	speckled alder, nodding sedge, royal fern, dwarf raspberry, common wrinkle-leaved goldenrod, sensitive fern	Dark A horizon over depleted with redoximorphic concentrations	Soil saturated to the surface		
W012	1	D					VP31MG-M	P-WL3	red maple, yellow birch, black ash, cinnamon fern, sensitive fern, fowl manna grass, broad-leaved cat-tail, woolsedge	Histosol	Soil saturated to the surface, water-stained leaves		
W013	1		D			S003		P-WL2a, P-WL1c(vi)	yellow birch, red maple, nodding sedge, golden saxifrage, interrupted fern, cinnamon fern	Histic epipedon	Inundation, wetland drainage patterns, algal mat		
W014	1	D				S003, S004		P-WL1c(vi), P-WL3	balsam fir, yellow birch, eastern hemlock, sensitive fern, cinnamon fern, interrupted fern, tall meadow rue	7"Organic horizon over depleted B horizon with redoximorphic concentrations	Soil saturated to the surface, areas of inundation		
W015	1		D					P-WL2a	yellow birch, red maple, beaked sedge, American willow-herb, sensitive fern, jewelweed	2" organic horizon over depleted matrix with redoximorphic concentrations	Soil saturated to the surface, areas of inundation		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W016	1			D		S003		P-WL1c(vi)	fowl manna grass, Canada reed grass, jack in-the-pulpit, New England American-aster	8" Dark A horizon over depleted B horizon	Soil saturated to the surface		
W017	1		x		D	S003, S005		P-WL1c(vi), P-WL2a, P-WL1c(ii)	balsam fir, red maple, speckled alder, Canada reed grass, nodding sedge, northern bugleweed, northeastern manna grass	10" Oe horizon over gleyed B horizon, Histosol in areas	Ponded, soil saturation at the surface		
W018	1	D				S006		P-WL1c(vi), P-WL3	balsam fir, yellow birch, northeastern manna grass, spotted touch-me-not, sensitive fern, cinnamon fern, white turtlehead	8" Oe horizon over depleted B horizon with redoximorphic concentrations	Soil saturated to the surface, water-stained leaves, aquatic fauna		
W019	1			D		S006, S008		P-WL1c(vi)	long-beaked willow, northeastern manna grass, tall meadow rue, sensitive fern, dwarf raspberry	8" Oe horizon over rock	Soil saturated to the surface, areas of inundation		
W020	1		D			S009	VP30MG-M	P-WL1c(vi)	black ash, yellow birch, speckled alder, rosy meadowsweet, royal fern, woolsedge, white turtlehead, northeastern manna grass	8" Oe horizon over depleted B horizon with redoximorphic concentrations	Soil Saturated to the surface, areas of inundation		
W021	1		D					P-WL2a	long-beaked willow, nodding sedge, rosy meadowsweet, sensitive fern	Disturbed - Depleted matrix with redoximorphic concentrations	Water-stained leaves		
W022	1	D						P-WL3	yellow birch, green ash, mountain maple, interrupted fern, cinnamon fern, eastern rough sedge, nodding sedge, fringed willow-herb	Disturbed - Dark A horizon over depleted B horizon with redoximorphic concentrations	Soil saturated to the surface, areas of inundation, flowing seep		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W023	2			D				P-WL2a	yellow birch, common woolsedge, common soft rush,	5" dark A horizon over gravelly depleted B horizon	soil saturated to the surface to the surface		
W024	2			D			VP13MG-M, VP14MG-M	P-WL2a	yellow birch, red raspberry, common soft rush, common woolsedge	5" dark A horizon over gravelly depleted B horizon	free water at 4"		
W025	2		D					P-WL2a	yellow birch, common woolsedge	10" O horizon over depleted sandy loam with redoximorphic features	standing water, soil saturated to the surface to surface		
W026	2			D				P-WL2a	common wrinkle-leaved goldenrod, common woolsedge, cinnamon fern, common soft rush, sensitive fern, fringed willow-herb	10" dark A horizon over depleted B horizon with 50% redoximorphic features	soil saturated to the surface to the surface		
W027	2			D				P-WL2a	common grass-leaved goldenrod, calico American-aster, common wrinkle-leaved goldenrod, common woolsedge, speckled alder, red maple, cinnamon fern, yellow birch	8" O horizon over 5" depleted B horizon over rock	standing water, soil inundated		
W028	2			D			VP08MG-M	P-WL2a	common woolsedge, lance-leaved American aster, Canada reed grass, Canada goldenrod, red maple	8" O horizon over 5" depleted B horizon with redoximorphic features	inundated at surface with some flow through culvert		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W029	2	D						P-WL3	yellow birch, black ash, red maple, fowl manna grass, cinnamon fern, eastern rough sedge	disturbed soil with 6" mucky very dark A horizon overlying depleted B horizon with redoximorphic features at 6"	flowing water through ruts, soil saturated to the surface to the surface throughout wetland		
W030	2			D				P-WL2a	common woolsedge, common wrinkle-leaved goldenrod, fowl manna grass, common soft rush, fringed willow-herb, yellow birch, American beech	disturbed soil with 10" dark A horizon overlying depleted B horizon with 50% redoximorphic features	flowing water, soil saturated to the surface to the surface		
W031	2			D				P-WL2a	common wrinkle-leaved goldenrod, common woolsedge, cinnamon fern, common soft rush, rosy meadowsweet, red raspberry	11" O horizon over depleted B horizon with 50% redoximorphic features	soil saturated to the surface to the surface		
W032	2			D			VP07MG-M	P-WL2a	common woolsedge, common wrinkle-leaved goldenrod, red raspberry, red fescue, common soft rush, evergreen wood fern, lance-leaved American-aster, wood horsetail, rosy meadowsweet	10" O horizon over depleted B with 30% redoximorphic features	standing water in ruts, soils inundated		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W033	2			D				P-WL2a	red maple, common wrinkle-leaved goldenrod, Canada reed grass, common woolsedge, fowl manna grass	disturbed soil with depleted matrix, redoximorphic features at 5" below mineral surface	>4" standing water in ruts, soil saturated to the surface to the surface, water-stained leaves		
W034	2		D	D				P-WL2a	red maple, red raspberry, yellow birch, common woolsedge, common wrinkle-leaved goldenrod, fringed willow-herb, common soft rush, sensitive fern, Canada reed grass, New York fern	10" dark A horizon over depleted B horizon with 30-50% redoximorphic features	standing water, soil saturated to the surface to the surface		
W035	2		D					P-WL2a	yellow birch, red raspberry, common woolsedge, common wrinkle-leaved goldenrod, fowl manna grass, wood horsetail	depleted B horizon with 25% redoximorphic concentrations	standing water and flowing surface drainage		
W036	2		D					P-WL2a	eastern hemlock, balsam fir, yellow birch, red maple, common winterberry, fowl manna grass, sensitive fern, common wrinkle-leaved goldenrod, evergreen wood fern, cinnamon fern	depleted B horizon beneath 5" O horizon; redoximorphic features at 4" below mineral surface	surface drainage feeding wetland between flags 1 and 15; > 5" flowing water		
W037	2			D				P-WL2a	yellow birch, red maple, rough stemmed goldenrod, Canada reed grass, bristly blackberry	depleted B horizon with redoximorphic features at 6"	soil saturated at surface		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W038	2			D				P-WL2a	yellow birch, red maple, northern white-cedar, rosy meadowsweet, common woolsedge, common wrinkle-leaved goldenrod, tall white-aster, evergreen wood fern, fowl manna grass, Canada reed grass	depleted B horizon with redoximorphic features at 4" below mineral soil surface	> 2" standing water in ruts, soil saturated to the surface to the surface		
W039	2			D				P-WL2a	red maple, bristly blackberry, rough stemmed goldenrod, Canada reed grass	depleted B horizon with redoximorphic features at 3"	soil saturated at surface		
W040	2			D				P-WL2a	yellow birch, red maple, rough stemmed goldenrod, Canada bluejoint, bristly blackberry	depleted B horizon with redoximorphic features at 6"	soil saturated at surface		
W041	2		D	D				P-WL2a	red maple, northern white-cedar, balsam fir, common woolsedge, sensitive fern, common wrinkle-leaved goldenrod, Canada reed grass	soils disturbed; depleted B horizon with 40% redoximorphic concentrations	standing water in ruts, soil saturated to the surface		
W042	2			D				P-WL2a	red maple, yellow birch, Canada reed grass, woodland horsetail	depleted B horizon with redoximorphic features at 6"	soil saturated at surface		
W043	2			D				P-WL2a	red maple, yellow birch, Canada reed grass, woodland horsetail, sensitive fern, cinnamon fern	depleted B horizon with redoximorphic features at 6"	soil saturated at surface		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W044	2			D				P-WL2a	red spruce, common wrinkle-leaved goldenrod, fowl manna grass, tall white-aster, northern white-cedar, red maple, rosy meadowsweet, cinnamon fern, calico American-aster, common woolsedge	depleted B horizon with redoximorphic features at mineral soil surface	soil saturated to the surface to the surface, stained leaves		
W045	2			D				P-WL2a	common woolsedge, common wrinkle-leaved goldenrod, common grass-leaved goldenrod, Canada goldenrod, common soft rush, nodding sedge, sensitive fern, fringed willow-herb, crested wood fern	10" dark A horizon over depleted B horizon with 50% redoximorphic features	soil saturated to the surface to the surface		
W046	2		D	D			VP06MG-M, VP05MG-M	P-WL2a	long-beaked willow, red maple, sensitive fern, common woolsedge, gray birch, broad-leaved cat-tail, fowl manna grass	soils very disturbed, depleted B horizon	> 12" standing water		
W047	2	D	D	D	D	S011, S012	VP03MG-M, VP04MG-M, VP01RL-M, VP02RL-M	P-WL1c(ii), P-WL3, P-WL2a	eastern hemlock, yellow birch, northern white-cedar, red spruce, red maple, gray birch, necklace sedge, sensitive fern, eastern rough sedge, fowl manna grass, cinnamon fern, common wrinkle-leaved goldenrod, Canada reed grass, smooth goldenrod, common woolsedge, nodding sedge, evergreen wood fern	8" O horizon over gleyed silty clay	> 10 acres open water with 2 streams; soil saturated to the surface to the surface		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W048	2	D				S011		P-WL1c(vi)	balsam fir, red maple, eastern rough sedge, fowl manna grass	4" O horizon over depleted silty clay loam	standing water, evidence of seasonal flooding, saturated soils		
W049	2	D				S011		P-WL1c(vi)	eastern hemlock, green ash, red maple, black ash, yellow birch, fowl manna grass, evergreen wood fern	4" O horizon over depleted silty clay loam	standing water, evidence of seasonal flooding, saturated soils		
W050	2			D				P-WL2a	sensitive fern, common woolsedge, common wrinkle-leaved goldenrod, cinnamon fern	Depleted B horizon	wetland drainage patterns		
W051	2			D				P-WL2a	eastern rough sedge, sallow sedge, cinnamon fern, sweet fern, common wrinkle-leaved goldenrod, speckled alder	depleted B horizon with 30% redoximorphic features	soil saturated to the surface		
W052	2			D		S014		P-WL1c(vi)	eastern rough sedge, sallow sedge, cinnamon fern, sweet fern, common wrinkle-leaved goldenrod, speckled alder	depleted B horizon with 30% redoximorphic features	floodplain of small stream		
W053	2		D	D				P-WL2a	red maple, Canada reed grass, red spruce, sensitive fern, balsam fir, fowl manna grass, yellow birch, tall white-aster, calico American-aster, common wrinkle-leaved goldenrod	depleted B horizon with redoximorphic features at mineral surface	soil saturated to the surface to the surface		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W054	2			D				P-WL2a	common woolsedge, common wrinkle-leaved goldenrod, sallow sedge, common soft rush	disturbed soil with depleted B horizon containing 35% redoximorphic features	standing water in ruts		
W055	2			D				P-WL2a	nodding sedge, common woolsedge, sallow sedge, red raspberry, common wrinkle-leaved goldenrod	disturbed soil with depleted B horizon containing 35% redoximorphic features	standing water		
W056	2			D				P-WL2a	red spruce, common wrinkle-leaved goldenrod, Canada reed grass, fowl manna grass, tall white-aster	depleted B horizon with redoximorphic features at mineral surface	4-5" standing water, soil saturated to the surface to the surface		
W057	2		D	D			VP41MG-M, VP42MG-M	P-WL2a	red maple, yellow birch, red raspberry, nodding sedge, common wrinkle-leaved goldenrod, Canada reed grass, common woolsedge, eastern hemlock, New York fern, sensitive fern, northern white cedar, steeplebush, cinnamon fern, evergreen wood fern	depleted B horizon with 15-20% redoximorphic concentrations at 3"	soil saturated to the surface, standing water in skid ruts		
W058	2		D				VP40MG-M	P-WL2a	yellow birch, balsam fir, northern white cedar, sensitive fern, woodland horsetail, cinnamon fern, rough stemmed goldenrod	depleted B horizon with redoximorphic features at 5"	soil saturated at surface		
W059	2			D				P-WL2a	yellow birch, sensitive fern, steeplebush, rough stemmed goldenrod	depleted B horizon with redoximorphic features at 4"	standing water at 2-3", soil saturated at surface		old skid road

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W060	3			D				P-WL2a	common woolsedge, rosy meadowsweet, yellow birch, American beech,	12" O horizon over rock	standing water, inundated		
W061	4			D		S019		P-WL2a	common woolsedge, northeastern manna grass, fringed sedge, rosy meadowsweet, common wrinkle-leaved goldenrod	10-14" O horizon over 1" depleted sandy loam B horizon	standing water, soil saturated to the surface		
W062	2			D			VP15MG-M	P-WL2a	common woolsedge, short-tailed rush, common soft rush	disturbed mineral soil, depleted B horizon with redoximorphic features	soil saturated to the surface, 6" of standing water		
W063	2			D			VP16MG-M	P-WL2a	fringed sedge, crested wood fern, fowl manna grass, common wrinkle-leaved goldenrod, common woolsedge	6" dark A horizon over depleted B horizon with 10% redoximorphic features	4-8" standing water in ruts, soil saturated to the surface, water staining		
W064	4	D		D				P-WL2a, P-WL3	yellow birch, eastern hemlock, red maple, fringed sedge, evergreen wood fern, cinnamon fern, broad-leaved cat-tail, fowl manna grass	>16" O horizon	soil saturated to the surface, water staining		
W065	4			D		S022		P-WL1c(vi), P-WL2a	yellow birch, green ash, red maple, sensitive fern, evergreen wood fern	6" dark A horizon over depleted B horizon with redoximorphic features	soil saturated to the surface with water staining		
W066	4			D		S023, S024		P-WL1c(vi), P-WL2a	cinnamon fern, fowl manna grass	6" dark A horizon over 2" depleted B horizon with redoximorphic features	soil saturated to the surface, drainage patterns, water staining		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W067	4		D					P-WL2a	yellow birch, red maple, sensitive fern, great bladder sedge	6" dark A horizon over depleted B horizon with 5% redoximorphic concentrations	soil saturated to the surface to the surface		
W068	4			D				P-WL2a	sensitive fern, tall white-aster, fowl manna grass, nodding sedge	6" "road wash" overlying 4" very dark A horizon over depleted B horizon with redoximorphic features	soil saturated to the surface, water staining		
W069	4			D			VP17MG-M	P-WL2a	rosy meadowsweet, yellow birch, common woolsedge, fringed sedge, fringed willow-herb, sensitive fern	6" dark A horizon over depleted B horizon with 15% concentrations	small area of 6-8" of standing water, soil saturated to the surface to the surface		
W070	4		D					P-WL2a	yellow birch, red maple, evergreen wood fern, cinnamon fern, nodding sedge, Canada goldenrod, common wrinkle-leaved goldenrod, eastern rough sedge, fringed willow-herb	4-6" Organic horizon over depleted B horizon with 10% redoximorphic concentrations	drainage patterns, surface water, soil saturated to the surface to the surface		
W071	4			D			VP18MG-M	P-WL2a	common woolsedge, fowl manna grass, sensitive fern, fringed sedge	4" dark A horizon over depleted B horizon with 20% redoximorphic features	6-8" of standing water, soil saturated to the surface to the surface		
W072	4			D			VP19MG-M	P-WL2a	common woolsedge, common soft rush, short-tailed rush	1-4" A horizon overlying depleted B horizon with 15% redoximorphic concentrations	5-10" standing water		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W073	4	D						P-WL3	yellow birch, green ash, fowl manna grass, evergreen wood fern, common wrinkle-leaved goldenrod, sensitive fern, cinnamon fern	8-16" dark A horizon over depleted B horizon with 5-10% redoximorphic concentrations	surface water, soil saturated to the surface to the surface, drainage patterns		
W074	4	D						P-WL3	yellow birch, eastern hemlock, green ash, cinnamon fern, evergreen wood fern, common wrinkle-leaved goldenrod	8-10" Organic horizon over depleted B horizon with 50% redoximorphic concentrations	surface water, soil saturated to the surface to the surface		
W075	4			D		S029		P-WL1c(vi), P-WL2a	fowl manna grass, evergreen wood fern, sensitive fern	8" dark A horizon over depleted B horizon with redoximorphic features	soil saturated to the surface, drainage patterns		
W076	4	D				S029, S030		P-WL1c(vi), P-WL3	red maple, balsam fir, yellow birch, northeastern manna grass, tall white-aster, fringed sedge, cinnamon fern	>16" O horizon over rock	soil saturated to the surface, drainage patterns		
W077	4	D						P-WL3	yellow birch, red maple, cinnamon fern, fringed sedge, evergreen wood fern	6" O horizon over 2" A horizon with refusal at 8"	soil saturated to the surface to the surface, water staining		
W078	4			D				P-WL2a	yellow birch, common woolsedge, common wrinkle-leaved goldenrod, sensitive fern	4" dark A horizon over depleted B horizon	standing water		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W079	4			D				P-WL2a	common soft rush, common woolsedge, nodding sedge	6" Organic horizon over loamy sand with depleted matrix and 50% redoximorphic concentrations	standing water		
W080	4			D				P-WL2a	red maple, yellow birch, eastern rough sedge, common woolsedge,	4" dark A horizon over depleted B horizon	soil saturated to the surface to the surface		
W081	4			D		S031		P-WL1c(vi), P-WL2a	cinnamon fern, sensitive fern, evergreen wood fern, fowl manna grass	10" dark A horizon over depleted B horizon with redoximorphic features	soil saturated to the surface, drift lines, water staining		
W082	4			D		S032	VP20MG-M	P-WL1c(vi), P-WL2a	sensitive fern, fringed sedge, common wrinkle-leaved goldenrod	4-6" dark A horizon over depleted B horizon with redoximorphic concentrations	standing water, soil saturated to the surface to the surface		
W083	4	D				S032, S033		P-WL1c(vi), P-WL3	yellow birch, red spruce, red maple, cinnamon fern, eastern rough sedge, evergreen wood fern, fringed willow-herb, tall white-aster, fowl manna grass, sensitive fern, fringed sedge	6-8" Organic horizon over depleted B horizon	standing water, soil saturated to the surface to the surface		
W084	4	x		D			VP21MG-M	P-WL2a, P-WL3	common woolsedge, fowl manna grass, broad-leaved cat-tail, sensitive fern, balsam fir, red maple, cinnamon fern, evergreen wood fern, pussy willow	4" Organic horizon over 2" dark A horizon over depleted B horizon with redoximorphic concentrations at mineral soil surface	soils saturated to the surface, water stained leaves, 6-10" standing water in the VP		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W085	4		D	D				P-WL2a	gray birch, red maple, yellow birch, sensitive fern, fringed sedge, fowl manna grass, fringed willow-herb, tall white-aster, common woolsedge, evergreen wood fern	10" dark A horizon over depleted B horizon with redoximorphic features	soil saturated to the surface		
W086	4		D				VP22MG-M	P-WL2a	pussy willow, sensitive fern, broad-leaved cat-tail, common woolsedge	disturbed; depleted B horizon	10-24" of standing water		
W087	4			D			VP24MG-M, VP01CF-M	P-WL2a	yellow birch, red maple, common woolsedge, sensitive fern, tall white-aster, Canada reed grass, fringed willow-herb, northeastern manna grass	4-8" Organic horizon over depleted B horizon with 15% redoximorphic concentrations and some redoximorphic depletions	areas with 10" of standing water, soil saturated to the surface to the surface, some drainage patterns		
W088	4	D		D			VP23MG-M, VP12MJ-M	P-WL2a, P-WL3	red maple, green ash, evergreen wood fern, cinnamon fern, common woolsedge, fowl manna grass, sensitive fern	8" dark A horizon over gleyed B horizon	soil saturated to the surface, ponding in PVP and water staining		
W089	4			D				P-WL2a	common woolsedge, fringed willow-herb, common wrinkle-leaved goldenrod	4-5" dark A horizon over depleted B horizon with 20% redoximorphic concentrations	surface water, soil saturated to the surface to the surface		
W090	4	D						P-WL3	yellow birch, red maple, eastern hemlock, sensitive fern, cinnamon fern, northeastern manna grass, fringed sedge	12" Organic horizon over depleted B horizon with redoximorphic features	soil saturated to the surface, water staining		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W091	4	D					VP03BE-M, VP04BE-M	P-WL3	green ash, red maple, yellow birch, evergreen wood fern, sensitive fern, common wool sedge, Canada reed grass, cinnamon fern, common wrinkle-leaved goldenrod	6" dark A horizon over depleted B horizon with redoximorphic features	soil saturated to the surface, drift lines, water staining		
W092	4			D			VP01MG-M	P-WL2a	fowl manna grass, common woolsedge	1" A horizon overlying depleted B horizon with redoximorphic features; refusal at 8"	6-18" standing water		
W093	4			D				P-WL2a	eastern hemlock, red spruce, yellow birch, common woolsedge, Canada reed grass, cinnamon fern, sensitive fern, royal fern, fowl manna grass	16" Organic horizon, refusal at 16"	6-10" of water in PVP		
W094	4			D			VP02BE-M	P-WL2a	fowl manna grass, common woolsedge	1" A horizon overlying depleted B horizon with redoximorphic features; refusal at 8"	6-10" of standing water		
W095	4			D				P-WL2a	sallow sedge, common wrinkle-leaved goldenrod, nodding sedge, Canada goldenrod, common soft rush	depleted B horizon with 25% redoximorphic concentrations	soil saturated to the surface with areas of surface flow		
W096	4			D		S037		P-WL1c(vi)	fowl manna grass, sensitive fern, yellow birch	depleted B horizon with 20% redoximorphic concentrations at 7"	soil saturated to the surface, mucky soils with free water at 3" in pits		

Wetland ID	Map #	Wetland Classification[1, 2]				Associated Stream	Vernal Pool Code	Wetland Protection Subdistrict[3]	Wetland Information			Wetland Notes	Additional Stream Notes
		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W097	4	D		D		S037, S040	VP05BE-M	P-WL1c(vi), P-WL2a, P-WL3	fowl manna grass, sensitive fern, cinnamon fern, yellow birch, red maple, eastern hemlock, balsam fir, northern white-cedar, green ash, cinnamon fern, dew drop, evergreen wood fern, bunchberry, three-leaved goldthread, New York fern	12" O horizon overlying depleted B horizon	standing water and inundation		07mj - 2-3' channel, 5% rock, 5% cobble, 30% gravel, 50% sand, 10% silt, aquatic moss, Pennsylvania bitter-cress present, meandering channel broken in areas
W098	4	D				S041		P-WL1c(vi), P-WL3	cinnamon fern, three-leaved goldthread, yellow birch, eastern hemlock, balsam fir, red maple, fowl manna grass, evergreen wood fern	2" O horizon over depleted B horizon with redoximorphic features	soils saturated to the surface, water stained leaves, drainage patterns		
W099	4			D		S041		P-WL1c(vi), P-WL2a	fowl manna grass, evergreen wood fern	alluvial soils with depleted B horizon and redoximorphic features	soils saturated to the surface, drainage patterns		
W100	4			D		S041		P-WL1c(vi), P-WL2a	Canada reed grass, evergreen wood fern, fowl manna grass	2" dark A horizon over depleted B horizon with redoximorphic features	soil saturated to the surface, water staining, flowing water		
W101	4			D				P-WL2a	common woolsedge, fringed willow-herb, fowl manna grass	disturbed soils; depleted with redoximorphic features	12-18" standing water		
W102	4			D			VP09MG-M	P-WL2a	common woolsedge, sallow sedge	10-12" O horizon over 6" dark A horizon over mucky disturbed B	standing water		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W103	4			D				P-WL2a	three-seeded sedge, common woolsedge, yellow birch	gleyed silt loam, very rocky	soil saturated to the surface to 1" from the surface		
W104	4			D				P-WL2a	common woolsedge, fringed sedge, sallow sedge, nodding sedge, cinnamon fern, barber-pole bullrush	12" O horizon over 3" dark A horizon over rock	soil saturated to the surface to the surface, water stained leaves		
W105	4			D			VP03RL-N	P-WL2a	common woolsedge, fringed sedge, three-seeded sedge, sallow sedge, nodding sedge, paper birch, yellow birch,	10-12" O horizon over 1" dark A horizon over rock	soil saturated to the surface to the surface, water stained leaves		
W106	4			D				P-WL2a	red maple, yellow birch, common wrinkle-leaved goldenrod, eastern rough sedge,	10" O horizon over rock	soil saturated to the surface to the surface		
W107	4			D				P-WL2a	common woolsedge, common wrinkle-leaved goldenrod, common grass-leaved goldenrod, hobble bush, common blackberry, yellow birch	12" O horizon over rock	standing water, inundated		
W108	4			D				P-WL2a	yellow birch, hobblebush, common wrinkle-leaved goldenrod, Canada reed grass, rosy meadowsweet	12" O horizon over 8" dark A horizon over depleted B horizon with redoximorphic features	soils saturated at the surface		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W109	4		D					P-WL2a	red spruce, yellow birch, common woolsedge, three-seeded sedge, short tailed rush,	10" histic epipedon over 4" depleted silty loam	saturated to surface, water stained leaves		
W110	4			D				P-WL2a	common woolsedge, fringed sedge, fowl manna grass	8" dark A horizon over depleted B horizon with redoximorphic features	soil saturated to the surface, water in ruts, water staining		
W111	4	X		D				P-WL2a	common woolsedge, common wrinkle-leaved goldenrod, nodding sedge, yellow birch	depleted silt loam under dark A horizon	inundated, standing water		
W112	4			D				P-WL2a	common woolsedge, nodding sedge, common soft rush, common wrinkle-leaved goldenrod, fringed sedge	depleted B horizon with 10% redoximorphic concentrations	soil saturated to the surface to the surface, flowing water		
W113	4			D				P-WL2a	common woolsedge, fowl manna grass	12" O horizon over 1" B horizon with depleted matrix	standing water, soils saturated at the surface		
W114	4		D					P-WL2a	pussy willow, yellow birch, common woolsedge, common soft rush, cinnamon fern, evergreen wood fern	2" dark A horizon over depleted B horizon with redoximorphic concentrations	1-2" ponded water, soil saturated to the surface, water staining		
W115	4	D			D	S044, S045		P-WL1c(ii, vi), P-WL3	eastern hemlock, yellow birch, speckled alder, red maple, evergreen wood fern, cinnamon fern, balsam fir, red spruce, common soft rush, common woolsedge, interrupted fern	2-3" O horizon over sandy, depleted, rocky B horizon; Histosol in areas	huge beaver pond, standing water, soil saturated to the surface		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W116	4	D						P-WL3	red maple, eastern hemlock, yellow birch, three-seeded sedge, pointed broom sedge	4" O horizon over depleted Bw gleyed horizon	Soil saturated to the surface		
W117	4	D						P-WL3	northern white cedar, red maple, yellow birch, red spruce, rhodora, winterberry, wild raisin, common woolsedge, cinnamon fern, three seeded sedge, woodland horsetail	10" O horizon over gleyed B horizon	soil saturated at surface, free water at 4" of surface		
W118	4	D						P-WL3	yellow birch, balsam fir, red maple, black ash, interrupted fern, rough stemmed goldenrod, bristly blackberry, common woolsedge, bunchberry	4" O horizon over depleted B horizon with 15% redoximorphic concentrations	areas of inundation (2-3"), soil saturated to surface		
W119	4	D	D					P-WL2a, P-WL3	yellow birch, red maple, eastern hemlock, balsam fir, evergreen wood fern, cinnamon fern, rough stemmed goldenrod, bunchberry, Canada mayflower, three seeded sedge	4" O horizon over depleted B horizon with 15% redoximorphic concentrations	soil saturated to the surface		
W120	4	D						P-WL3	eastern hemlock, red maple, red spruce, gray birch, yellow birch, three seeded sedge, sensitive fern	5" O horizon over gleyed B horizon	soil saturated to the surface		
W121	4	D						P-WL3	red spruce, eastern hemlock, yellow birch, red maple, pussy willow, sensitive fern, Canada reed grass, manna grass species, rough stemmed goldenrod	4" O horizon over 4" dark A horizon over depleted B horizon with redoximorphic features at 9"	soil saturated to the surface		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W122	4	D						P-WL3	eastern hemlock, yellow birch, red spruce, red maple, cinnamon fern, sensitive fern, bristly blackberry, northern wood sorrel, interrupted fern, bunchberry	4-6" O horizon over depleted B horizon with 20% redoximorphic concentrations	1-2" water at surface, soil saturated to surface, water stained leaves		
W123	5	D						P-WL3	yellow birch, red maple, rough stemmed goldenrod, sensitive fern, manna grass species	7" mucky A horizon over depleted B horizon with redoximorphic features at 8"	soil saturated at the surface		
W124	5		D					P-WL2a	yellow birch, dwarf raspberry, sensitive fern, common wrinkle-leaved goldenrod, nodding sedge, fowl manna grass, evergreen wood fern, white ash	depleted B horizon with 15% redoximorphic concentrations	standing water in ruts		
W125	5		D					P-WL2a	eastern hemlock, yellow birch, balsam fir, cinnamon fern, nodding sedge, red spruce, bunchberry	depleted B horizon	standing water, soil saturated to the surface to the surface		
W126	5	D				S044		P-WL1c(vi)	eastern hemlock, yellow birch, speckled alder, evergreen wood fern, cinnamon fern, balsam fir, fowl manna grass, nodding sedge, bristle-stalked sedge, hobblebush, greater bladder sedge, red maple	depleted loamy sand B horizon	seasonally flooded, soils saturated		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W127	5	D				S044		P-WL1c(vi)	eastern hemlock, balsam fir, hobblebush, cinnamon fern, evergreen wood fern, fringed sedge	depleted fine sandy loam B horizon	standing water, soils saturated		
W128	5	D				S044	VP01BE-M	P-WL1c(vi)	red maple, yellow birch, cinnamon fern, common soft rush	depleted B horizon with redoximorphic features	water-stained leaves, areas of ponded water		
W129	5		D			S044		P-WL1c(vi)	yellow birch, speckled alder, cinnamon fern, evergreen wood fern	2" O horizon over 2" dark A horizon over depleted B horizon with redoximorphic features at the mineral soil surface	soils saturated at the surface, water stained leaves		
W130	5	D				S044		P-WL1c(vi)	eastern hemlock, yellow birch, speckled alder, evergreen wood fern, cinnamon fern	depleted silt loam with heavy sand content in some areas	standing water, evidence of seasonal flooding, saturated soils		
W131	5	D						P-WL3	balsam fir, red maple, speckled alder, fringed sedge, three-seeded sedge, cinnamon fern	8" O horizon over very depleted B horizon with redoximorphic concentrations within 4" of the mineral soil surface	6" standing water, water staining		
W132	5		D					P-WL2a	yellow birch, eastern hemlock, sensitive fern, cinnamon fern, evergreen wood fern	2" O horizon over depleted B horizon with redoximorphic concentrations within 6" of mineral surface	soil saturated to the surface, shallow ponds, water staining		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W133	5		D					P-WL2a	yellow birch, rough stemmed goldenrod, Canada reed grass, fowl manna grass	6" O horizon over 8" very dark A horizon over depleted B horizon	soil saturated at surface		
W134	5	D	D	x				P-WL2a, P-WL3	northern white cedar, red maple, red spruce, sheep laurel, rhodora, yellow birch, meadowsweet, speckled alder, Canada reed grass, fowl manna grass, woodland horsetail	5" O horizon over 6" very dark A horizon over depleted B horizon	soil saturated at surface, areas of inundation		
W135	5		D	D				P-WL2a	red maple, cinnamon fern, sensitive fern, bristly blackberry, rough stemmed goldenrod	6-8" O horizon over rock, 4" O horizon over depleted B horizon	soil saturated to the surface to the surface, water stains	regenerated PFO, lots of slash in wetland	
W136	5	D					VP49MG-M, VP50MG-M	P-WL3	yellow birch, paper birch, red maple, eastern hemlock	histic epipedon over a depleted B horizon	>10" standing water		
W137	5	D				S049, S050, S051		P-WL1c(vi), P-WL3	balsam fir, yellow birch, red maple, speckled alder, tussock sedge, cinnamon fern, evergreen wood fern, bristly blackberry, sensitive fern	> 20" O horizon	soils saturated to the surface, ponded water		
W138	5			D				P-WL2a	common woolsedge, common wrinkle-leaved goldenrod, nodding sedge, sensitive fern, fringed sedge, rosy meadowsweet	4" dark A horizon over depleted B horizon with redoximorphic features	soil saturated to the surface, ponded in ruts		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W139	5		D	D				P-WL2a	yellow birch, sensitive fern, common wrinkle-leaved goldenrod, nodding sedge, common woolsedge, tussock sedge, Canada reed grass, fringed sedge, common soft rush	in PEM - 4" dark A horizon over depleted B horizon with redoximorphic features, refusal at 10"; in PSS - disturbed soils with 3-4" O horizon overlying depleted B horizon with 5-10% redoximorphic concentrations	soil saturated to the surface, water staining, flowing water, standing water in ruts		
W140	5	D						P-WL2a	eastern hemlock, yellow birch, cinnamon fern, common wrinkle-leaved goldenrod, sensitive fern, Canada reed grass	>16" O horizon	soil saturated to the surface to the surface		
W141	5			D		S051		P-WL1c(vi), P-WL2a	evergreen wood fern, cinnamon fern, northeastern manna grass	2" dark A horizon over depleted sandy loam B horizon with redoximorphic features	soil saturated to the surface, water-stained leaves, flowing seep		
W142	5		D				VP10MG-M	P-WL2a	pussy willow, white meadowsweet, red maple, Canada reed grass, sensitive fern, tussock sedge	6" very dark A horizon over gleyed B horizon	soil saturated to the surface, water staining		
W143	5	D		D			VP11MG-M	P-WL2a, P-WL3	red maple, yellow birch, white meadowsweet, rosy meadowsweet, tussock sedge, Canada reed grass, common woolsedge	16" O horizon over 2" very dark A horizon over depleted B horizon with redoximorphic features	soil saturated to the surface, ponding and water stained leaves		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W144	5			D		S053		P-WL1c(vi), P-WL2a	leatherleaf, rosy meadowsweet, tussock sedge, Canada reed grass, common soft rush	deep flooded muck	partially flooded with stream flowing through wetland		bankful 3' wide, sand and cobble substrate, flows into large open wetland complex abutting Dipper Pond
W145	5			D			VP12MG-M	P-WL2a	white meadowsweet, rosy meadowsweet, Canada reed grass, fowl manna grass, fringed sedge	8" dark A horizon over depleted B horizon with redoximorphic features	soil saturated to the surface, standing water and water stained leaves		
W146	5			D				P-WL2a	common soft rush, common woolsedge, tussock cottonsedge	4" dark A horizon over depleted B with redoximorphic features	4-6" standing water, water-stained leaves		
W147	5	D				S051		P-WL1c(vi)	balsam fir, yellow birch, red maple, cinnamon fern, sensitive fern	10" dark A horizon over depleted B horizon with redoximorphic concentrations	soil saturated to the surface, drift lines, water-stained leaves		
W148	5	D						P-WL3	balsam fir, yellow birch, red maple, crested wood fern, eastern hemlock	4" O horizon over 3" dark A horizon over depleted B horizon with redoximorphic concentrations	soil saturated to the surface to the surface, water stains		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W149	5		D	D				P-WL2a	yellow birch, speckled alder, red maple, common woolsedge, Canada reed grass, red spruce, tussock cottonsedge, tussock sedge, common wrinkle-leaved goldenrod	8" O horizon over 4" very dark A horizon over depleted B horizon with redoximorphic concentrations	soil saturated to the surface, standing water in ruts, water-stained leaves		
W150	5		D	D			SVP-06BE-N	P-WL2a	balsam fir, eastern hemlock, speckled alder, common woolsedge, hoary sedge	2" dark A horizon over depleted B horizon	soils inundated		
W151	5		D					P-WL2a	yellow birch, red maple, nodding sedge, common woolsedge, common wrinkle-leaved sedge	mucky mixed O/A horizons over depleted B horizon with 3-5% concentrations at 7" below mineral soil surface - soil very rocky	partially flooded and soil saturated to the surface to the surface		
W152	5		D					P-WL2a	yellow birch, common woolsedge, cinnamon fern	very rocky - depleted B horizon with 10% redoximorphic concentrations	soils inundated		
W153	5	D				S051		P-WL1c(vi), P-WL3	balsam fir, yellow birch, red maple, cinnamon fern, sensitive fern	10" dark A horizon over depleted B horizon with redoximorphic concentrations	soil saturated to the surface, drift lines, water-stained leaves		
W154	5		D			S054		P-WL1c(vi)	pussy willow, red maple, sensitive fern, fringed sedge, common wrinkle-leaved goldenrod, evergreen wood fern	2" O horizon overlying depleted B horizon with redoximorphic concentrations	saturated to surface, water stained leaves, drift lines		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W155	5	D	D			S055	VP07BE-N	P-WL1c(vi), P-WL2a, P-WL3	eastern hemlock, yellow birch, balsam fir, red maple, cinnamon fern, common wrinkle-leaved goldenrod, fowl manna grass, crested wood fern, Canada reed grass, fringed willow-herb, common woolsedge, northern white-cedar, speckled alder, red spruce, rattlesnake manna grass, sensitive fern	6" O horizon over 2" A horizon over depleted B horizon with redoximorphic features	soil saturated to the surface, standing water and surface flow		
W156	5		D					P-WL2a	balsam willow, yellow birch, rosy meadowsweet, broad-leaved cat-tail, common wrinkle-leaved goldenrod, sensitive fern, wood horsetail	disturbed; 4" of mixed O/A horizon overlying depleted B horizon with 25% redoximorphic concentrations	soil saturated to the surface, standing water		
W157	5			D				P-WL2a	sallow sedge, common wrinkle-leaved goldenrod, common woolsedge, fringed willow-herb	depleted B horizon with 25% redoximorphic concentrations	standing water		
W158	5			D				P-WL2a	fowl manna grass, sensitive fern, cinnamon fern	4" very dark A horizon over depleted B horizon with redoximorphic features	soil saturated to the surface, water staining		
W159	5			D				P-WL2a	fowl manna grass, sensitive fern, cinnamon fern	4" very dark A horizon over depleted B horizon with redoximorphic features	soil saturated to the surface, water staining		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W160	5			D				P-WL2a	hobblebush, red raspberry, common wrinkle-leaved goldenrod, common woolsedge, eastern rough sedge	8" O horizon over depleted B horizon	soil saturated to the surface to the surface, standing water present		
W161	5			D				P-WL2a	hoary sedge, three-seeded sedge, eastern rough sedge, sensitive fern, cinnamon fern, yellow birch, red maple, nodding sedge	10" O horizon over 1" depleted B horizon with 25% redoximorphic concentrations	standing water, soils saturated at the surface		
W162	5		D					P-WL2a	yellow birch, limp mannagrass, cinnamon fern	depleted B horizon with 50% redoximorphic concentrations underlying 3" mixed O/A horizon	standing water in ruts		
W163	5	D	X			S051		P-WL1c(vi), P-WL3	balsam fir, northern white-cedar, eastern hemlock, red maple, speckled alder, yellow birch, cinnamon fern, evergreen wood fern, fringed sedge, fowl manna grass, fiddlehead fern, tall white-aster, New York fern	8" O horizon over 4" very dark A horizon over depleted B horizon with redoximorphic concentrations	soils saturated to the surface, water stained leaves, ponding		
W164	5	D						P-WL3	eastern hemlock, yellow birch, red maple, sensitive fern, nodding sedge, cinnamon fern, crested wood fern, fowl manna grass	depleted B horizon with 20% redoximorphic concentrations	standing water, soil saturated to the surface to the surface		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W165	5		D					P-WL2a	red maple, red spruce, yellow birch, common woolsedge, common wrinkle-leaved goldenrod, sensitive fern, fowl manna grass	soils rocky and depleted	standing water in ruts		
W166	5	D	D					P-WL2a, P-WL3	red maple, yellow birch, gray birch, Canada reed grass, sensitive fern, tall white-aster, fringed sedge, fringed willow-herb	3" O horizon overlying 1" A horizon over depleted B horizon with redoximorphic concentrations	6-12" water in PVP, soil saturated to the surface, drift marks, water stains		
W167	5		D					P-WL2a	yellow birch, gray birch, red maple, balsam fir, red spruce, common wrinkle-leaved goldenrod, common soft rush, Canada reed grass, bristly blackberry, Virginia strawberry	depleted B horizon with 10-15% redoximorphic concentrations	soil saturated to the surface, standing water in ruts		
W168	5			D				P-WL2a	yellow birch, red maple, red spruce, common woolsedge, cinnamon fern, nodding sedge	depleted silt loam, with 15% redoximorphic features	soil saturated to the surface to the surface, water stained leaves		
W169	5		D				VP08BE-M	P-WL2a	yellow birch, paper birch, red maple, white meadowsweet, common woolsedge, Canada reed grass, nodding sedge, three-leaved goldthread, evergreen woodfern,	3" dark A horizon over depleted loamy sand with 50% redoximorphic features	soil saturated to the surface to the surface, water stained leaves		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W170	5		D	D				P-WL2a	common softrush, common wrinkle-leaved goldenrod, rosy meadowsweet, yellow birch, hobble bush, cinnamon fern, fowl manna grass, red maple	10" disturbed silt loam A horizon, over depleted B horizon with 10% redoximorphic features	soil saturated to the surface to the surface, water stained leaves		
W171	6	D		X				P-WL3	northern white cedar, balsam fir, common winterberry, red maple, Canada reed grass, American twinflower, cinnamon fern, sensitive fern, fowl manna grass	6" highly decomposed O horizon over depleted B horizon with > 20% redoximorphic features at mineral soil surface	> 10" standing water		
W172	6	D						P-WL3	speckled alder, red maple, New York fern, gray birch, black ash, green ash, yellow birch, cinnamon fern, smooth white violet	disturbed soils; 30% redoximorphic concentrations in a depleted B horizon	surface flow down slope into standing water with stained leaves; soils inundated		
W173	6			D				P-WL3	yellow birch, eastern rough sedge, common wrinkle-leaved goldenrod, calico American-aster, sensitive fern, cinnamon fern	mucky at surface, depleted B horizon	soil saturated to the surface at the surface, water stained leaves, strong sulfur odor		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W174	6			D				P-WL2a	common wrinkle-leaved goldenrod, tall white-aster, fowl manna grass, slender wood-reed, necklace sedge, wood horsetail, calico American-aster, sensitive fern, cinnamon fern, long beech fern, mad dog skullcap, purple-stemmed American aster, alternate-leaved dogwood	depleted B horizon with 50% redoximorphic features at 4"	free water at 1" below soil surface		
W175	6			D				P-WL2a	balsam fir, red spruce, yellow birch, common woolsedge	8" dark A horizon over depleted loamy sand with 15% redoximorphic concentrations	soil saturated to the surface to the surface		
W176	6	D						P-WL3	red maple, yellow birch, green ash, red spruce, common woolsedge, cinnamon fern, evergreen wood fern, golden-saxifrage, New York fern, eastern rough sedge	6" dark A horizon over depleted sandy loam	soil saturated to the surface to the surface, some standing water		
W177	6	x	D	D				P-WL1c(ii), P-WL2, P-WL3	red spruce, red maple, yellow birch, creeping spicy-wintergreen, common woolsedge, common wrinkle-leaved goldenrod, three-seeded sedge, New York American-aster, cinnamon fern, creeping snowberry	14" O horizon over rock, depleted B horizon with redoximorphic features at mineral soil surface	inundated, soil saturated at surface		
W178	6			D				P-WL2a	soft rush, common woolsedge, yellow birch, red spruce	4" O horizon over depleted matrix	Soil saturated to the surface		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W179	6		D					P-WL2a	yellow birch, red spruce, red maple, rhodora, common woolsedge	Depleted matrix at 3-4" with redoximorphic concentrations	Soil saturated to the surface, areas of inundation, water-stained leaves		
W180	6	D	D					P-WL2a, P-WL3	red spruce, yellow birch, creeping snowberry, cinnamon fern	8" O horizon over depleted B horizon	areas of inundation, soil saturated at surface		
W181	6			D				P-WL2a	common woolsedge, yellow birch	Depleted matrix at 3" with redoximorphic concentrations and depletions	Water-stained leaves, soil saturated within 12 inches of the surface		
W182	6			D				P-WL2a	yellow birch, purple violet, white violet, New York fern, eastern rough sedge, rough stemmed goldenrod	4" dark A horizon over depleted B horizon with 15% redoximorphic concentrations	soil saturated to the surface		
W183	6	x	D	x			VP09BE-M, VP10BE-M, VP11BE-M	P-WL2a, P-WL3	yellow birch, paper birch, speckled alder, red maple, northern white-cedar, sensitive fern, common wrinkle-leaved goldenrod, cinnamon fern, Canada dwarf-dogwood	4" dark A horizon over 9" depleted B horizon with redoximorphic concentrations	soil saturated to the surface to the surface		
W184	6		D					P-WL2a	yellow birch, fowl manna grass, nodding sedge, sensitive fern	5" dark A horizon over depleted silt loam with 15% redoximorphic concentrations	soil saturated to the surface to the surface		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W185	6		D					P-WL2a	red maple, yellow birch, balsam fir, evergreen wood fern, eastern rough sedge, sensitive fern, common woolsedge,	6" dark A horizon over depleted B horizon	soil saturated to the surface to the surface, 3" standing water		
W186	6		D					P-WL2a	yellow birch, common woolsedge, flaccid manna grass, evergreen wood fern, cinnamon fern	depleted sandy loam with abundant redoximorphic concentrations	soil saturated to the surface to the surface, some standing water		
W187	6			D				P-WL2a	common wrinkle-leaved goldenrod, sensitive fern, common woolsedge, toothed white-topped aster, red maple, paper birch, black ash	4" O horizon over 9" B1 horizon over 1" B2 horizon with depleted matrix	water stained leaves, soil saturated to the surface to the surface		
W188	6		D					P-WL2a	yellow birch, red maple, sensitive fern, woodland horsetail, cinnamon fern	2" O horizon over depleted B horizon with redoximorphic features at 2" from mineral soil surface	areas of inundation, soil saturated at surface		
W189	6	D		D				P-WL2a, P-WL3	red spruce, yellow birch, red maple, pussy willow, cinnamon fern, manna grass species	7" O horizon over gleyed B horizon with redoximorphic features at 4" from mineral soil surface	soil saturated at surface		
W190	6		D					P-WL2a	red maple, hobblebush, yellow birch, sensitive fern, rough stemmed goldenrod, violet species	3" mucky A horizon over a depleted B horizon with redoximorphic features 6" from mineral soil surface	soil saturated at surface		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W191	6		D	D				P-WL2a	green ash, yellow birch, red maple, Canada reed grass, manna grass species, sensitive fern, rough stemmed goldenrod, cinnamon fern	6" mucky A horizon over depleted B horizon with redoximorphic features	ground seep, soil saturated at surface		
W192	6				D		VP46MG-M	P-WL2a	pussy willow, yellow birch, sensitive fern, common soft rush, fowl manna grass	gleyed with redoximorphic features at surface	>15" of water		
W193	6			D				P-WL2a	tall white aster, flaccid mannagrass, red raspberry, Canada reed grass, common wrinkle-leaved goldenrod, yellow birch, hobble bush	1" O horizon over 8" B horizon with depletions and 10% redoximorphic features	free water 1" below surface		
W194	6		D					P-WL2a	yellow birch, paper birch, red maple, red spruce, cinnamon fern, common woolsedge, evergreen wood fern, interrupted fern	depleted silt loam with 5-10% redoximorphic concentrations	standing water, soil saturated to the surface		
W195	6		D			S063		P-WL1c(vi), P-WL2a	speckled alder, cinnamon fern, paper birch, sensitive fern, common woolsedge	2" O horizon over 8" B horizon over depleted matrix	free water at 4"		
W196	6		D					P-WL2a	speckled alder, yellow birch, paper birch, northern white-cedar, cinnamon fern, fowl manna grass, three-leaved goldthread	3" O horizon over 8" depleted B horizon with 30% redoximorphic concentrations	free water at 3"		
W197	6		D					P-WL2a	cinnamon fern, sensitive fern, three-leaved goldthread, speckled alder, red maple, yellow birch, striped maple, three-seeded sedge	5" O horizon over 9" sandy loam with depletions	free water at 3"		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W198	6		D					P-WL2a	cinnamon fern, common woolsedge	depleted sandy loam with 15% redoximorphic features	free water at 2" from surface		
W199	6		D	x				P-WL2a	cinnamon fern, common woolsedge, red maple, yellow birch, red spruce, common wrinkle-leaved goldenrod, blue bead lily	gleyed B horizon with > 20% redoximorphic features at 3" from mineral soil surface	soils saturated at the surface, buttress roots		
W200	6		D					P-WL2a	Bebb's willow, gray birch, northern white cedar, rough stemmed goldenrod, bristly blackberry	2" O horizon over depleted B horizon, ledge or rock at 8"	soil saturated at surface		
W201	6		D					P-WL2a	red maple, northern white cedar, Bebb's willow, cinnamon fern	3" O horizon over depleted B horizon with redoximorphic features	soil saturated at surface		
W202	6	D						P-WL3	northern white cedar, balsam fir, three leaved goldthread	3" O horizon over depleted B horizon with redoximorphic features	soil saturated at surface		
W203	6	D		D			VP51MG-M, VP47MG-M	P-WL2a, P-WL3	balsam fir, red maple, yellow birch, northern white cedar, speckled alder, Bebb's willow, pussy willow, cinnamon fern, sensitive fern, jewelweed, manna grass species, three leaved goldthread, Canada mayflower, woodland horsetail, rough stemmed goldenrod	2" organic over gleyed B horizon with redoximorphic features at 2" from mineral soil surface	areas of inundation along road, buttressed tree roots, soil saturated at surface		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W204	7		D					P-WL2a	jewelweed, rough stemmed goldenrod, violet species, manna grass species	4" mucky dark A horizon over gleyed B horizon with redoximorphic features	soil saturated at surface, surface drainage flows out of wetland		
W205	7	D						P-WL3	red maple, balsam fir, yellow birch, manna grass species, jewelweed, evergreen wood fern, sensitive fern, cinnamon fern, sweet-scented bedstraw, woodland horsetail	3" O horizon over gleyed B horizon with redoximorphic features at 6" from mineral soil surface	flowing water from surface drainage above wetland		
W206	7	D					VP43MG-M	P-WL3	yellow birch, red maple	gleyed B horizon at soil surface	12" standing water		
W207	7		D					P-WL2a	Bebb's willow, red maple, gray birch, sensitive fern, manna grass species, woodland horsetail	depleted B horizon with redoximorphic features at 2"	flowing water from culvert through wetland		
W208	7		D					P-WL2a	American larch, grey birch, Bebb's willow, woodland horsetail, sweet-scented bedstraw	gleyed B horizon with redoximorphic features at the mineral soil surface	flowing water		
W209	8	D	D			S064, S065		P-WL1c(vi), P-WL2a, P-WL3	yellow birch, black ash, green ash, cinnamon fern, interrupted fern, fowl manna grass, golden-saxifrage	Histosol	Areas of inundation, soil saturated to the surface		
W210	8	D		D		S064, S066, S067		P-WL1c(vi), P-WL2a, P-WL3	yellow birch, balsam fir, green ash, rosy meadowsweet, fowl manna grass, dwarf raspberry, nodding sedge	Histosol, Histic Epipedon in spots	Areas of inundation, soil saturated to the surface		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W211	8		D					P-WL2a	speckled alder, yellow birch, balsam fir, royal fern, fowl manna grass, sensitive fern	Disturbed - Dark A horizon over depleted B horizon with redoximorphic concentrations	Soil saturated to the surface, water-stained leaves		
W212	8		D					P-WL2a	yellow birch, fowl manna grass, jewelweed, nodding sedge,	8" dark soil over low chroma matrix	Water-stained leaves, saturated soils		
W213	8	x		D	D			P-WL1c(ii), P-WL2a	Canada reed grass, yellow birch, balsam fir	Ponded	Ponded		
W214	8		D					P-WL2a	yellow birch, balsam fir, black ash, red maple, nodding sedge, jack-in-the-pulpit, jewelweed	Histosol in areas; Histic epipedon in others	Areas of inundation, water-stained leaves		
W215	8		D					P-WL2a	yellow birch, speckled alder, red maple, sensitive fern, spotted touch-me-not, fowl manna grass	Dark A horizon over depleted matrix with redoximorphic concentrations	Water-stained leaves, soil saturated to the surface		
W216	8	D						P-WL3	northern white-cedar, balsam fir, yellow birch, black ash, cinnamon fern, three-seeded sedge, sensitive fern, interrupted fern	Histosol	Areas of inundation, saturated soils		
W217	8	D			x			P-WL3	yellow birch, northern white-cedar, green ash, speckled alder, sensitive fern, fowl manna grass, nodding sedge	Areas of histosol; areas with depleted matrix and redoximorphic concentrations	Ponded, soil saturation at the surface	Active beaver pond	

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W218	8		D	D				P-WL2a	yellow birch, green ash, speckled alder, fowl manna grass, sensitive fern, jewelweed	Dark A horizon over depleted matrix with redoximorphic concentrations	Areas of inundation, wetland drainage patterns, water-stained leaves	Rare plant, large toothwort, located in wetland	
W219	8	D	D				VP29MG-M	P-WL3, P-WL2a	yellow birch, green ash, northern white-cedar, balsam fir, willow, fowl manna grass, three-seeded sedge, sensitive fern, nodding sedge	Histic epipedon	Soil saturated to the surface, areas of inundation, water-stained leaves		
W220	8	D						P-WL3	yellow birch, northern white-cedar, red maple, balsam fir, nodding sedge, fowl manna grass, northeastern manna grass	Disturbed - low chroma matrix with redoximorphic concentrations	Soil saturated		
W221	8			D				P-WL2a	beaked sedge, fowl mannagrass, jewelweed, Canada reed grass	3" dark A horizon over gleyed matrix; areas of histosol	Wetland drainage patterns, soil saturated to the surface		
W222	8			D				P-WL2a	common woolsedge, American willow-herb, sensitive fern, red raspberry, jewelweed	Disturbed - depleted matrix with 10% redoximorphic concentrations	Water-stained leaves		
W223	8			D				P-WL2a	yellow birch, green ash, nodding sedge, eastern rough sedge, spotted touch-me-not, sensitive fern	Disturbed - Dark A horizon over depleted matrix with 25% redoximorphic features	Water-stained leaves, soil saturated to the surface		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W224	8			D		S070		P-WL2a	beaked sedge, fowl manna grass, jewelweed	Disturbed - stratified layers of gravel/sand with redoximorphic concentrations	Wetland drainage patterns		
W225	8			D		S070		P-WL2a	beaked sedge, jewelweed, sensitive fern, interrupted fern	Depleted sand with redoximorphic concentrations	Soil saturated to the surface, free water at the surface		
W226	8	D				S070		P-WL1c(vi), P-WL3	black ash, yellow birch, eastern rough sedge, sensitive fern, evergreen woodfern	20" depleted B horizon with 10% organic streaking and redoximorphic concentrations	Soil saturated to the surface		
W227	8		D	x			VP28MG-M, VP27MG-M	P-WL2a	yellow birch, black ash, fowl manna grass, common wrinkle-leaved goldenrod, spotted touch-me-not, interrupted fern	4" Dark A horizon over depleted Bw horizon with redoximorphic concentrations	Soil saturated to the surface, water-stained leaves, areas of inundation		
W228	8			D				P-WL2a	pussy willow, yellow birch, spotted touch-me-not, woolsedge, sensitive fern, fowl manna grass	7" Organic over rock	Soil saturated to the surface		
W229	8			D				P-WL2a	Golden-saxifrage, beaked sedge, jewelweed, jack-in-the-pulpit	3" organic layer over gleyed matrix	Areas of inundation, soil saturation, wetland drainage patterns		
W230	8			D				P-WL2a	yellow birch, rosy meadowbush, eastern rough sedge, nodding sedge, common woolsedge, spotted touch-me-not	Disturbed - 9" Oe horizon over depleted B horizon with 15% redoximorphic features	Soil saturated to the surface		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W231	8	D				S072, S073, S074	VP26MG-M, VP25MG-M	P-WL1c(vi), P-WL3	yellow birch, balsam fir, green ash, red maple, cinnamon fern, fowl manna grass, sensitive fern	Histic epipedon, Histosol in spots	Areas of inundation, soil saturated to the surface		
W232	8	D				S073		P-WL1c(vi), P-WL3	yellow birch, red maple, black ash, eastern rough sedge, spotted touch-me-not, sensitive fern, smooth white violet	10" Organic over rock	Soil saturated to the surface		
W233	8	D				S074		P-WL1c(vi), P-WL3	red maple, yellow birch, spotted touch-me-not, evergreen woodfern	10" Organic over rock	Soil saturated to the surface		
W234	8	D				S073		P-WL1c(vi), P-WL3	red maple, yellow birch, spotted touch-me-not, evergreen woodfern	10" Organic over rock	Soil saturated to the surface		
W235	8	D				S073		P-WL1c(vi), P-WL3	red maple, yellow birch, rosy twisted stalk, sharp-toothed nodding aster, interrupted fern, spotted touch-me-not	12" Organic over rock	Soil saturated to the surface, flowing seep		
W236	8	D				S073		P-WL1c(vi), P-WL3	red maple, green ash, spotted touch-me-not, jack in-the-pulpit, sharp-toothed nodding aster, eastern rough sedge, three-seeded sedge	Histosol - 24" O horizon over silt loam with organic streaking	Soil saturated to the surface		
W237	8	D				S073		P-WL1c(vi), P-WL3	yellow birch, eastern hemlock, ostrich fern, spotted touch-me-not, sensitive fern	Histosol	Soil saturated to the surface		
W238	8			D				P-WL2a	yellow birch, fowl manna grass, broad-leaved cat-tail, cinnamon fern, dwarf raspberry, common wrinkle-leaved goldenrod	Histic epipedon with 4% redoximorphic features in depleted B horizon	Areas of inundation, soil saturated to the surface		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W239	8	D						P-WL3	northern white cedar, black ash, balsam fir, yellow birch, sensitive fern, fowl manna grass, interrupted fern, spotted touch-me-not, northern bugleweed.	7" O horizon over depleted Bw horizon with redoximorphic concentrations, Histosol in spots	Soil saturated to the surface, water-stained leaves		
W240	8	D						P-WL3	yellow birch, eastern hemlock, balsam fir, woodland horsetail, evergreen wood fern, sensitive fern, rough stemmed goldenrod, three leaved goldthread	2" O horizon over gleyed B horizon with redoximorphic features at 7"	soil saturated to the surface		
W241	8	D						P-WL3	yellow birch, eastern hemlock, red maple, foam flower, jewelweed, sensitive fern	2" O horizon over gleyed B horizon with redoximorphic features at 8"	soil saturated to the surface		
W242	8	D						P-WL2a	balsam fir, red maple, black ash, long beaked willow, sensitive fern, fowl manna grass, sharp-toothed nodding aster, spotted touch-me-not	5" O horizon over depleted Bw horizon with redoximorphic concentrations	Soil saturated to the surface		
W243	8			D				P-WL2a	eastern rough sedge, common wrinkle-leaved goldenrod, spotted touch-me-not, nodding sedge	4" Mucky O horizon over depleted Bw horizon with redoximorphic concentrations	Soil saturated to the surface		
W244	8	D		x		S081, S083		P-WL1c(vi), P-WL3	yellow birch, red maple, black ash, rosy meadowsweet, tall meadow rue, spotted touch-me-not, fowl manna grass, Canada reed grass, northern wood sorrel, sweet-scented bedstraw	12" mucky A horizon over sandy depleted B horizon	Soil saturated to the surface, area of inundation		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W245	8			D		S082		P-WL1c(vi), P-WL2a	common woolsedge, nodding sedge, boneset, rosy meadowsweet, northern bugleweed, common soft rush, sensitive fern	Disturbed - Dark A horizon over depleted B horizon	Soil saturated to the surface, area of inundation		
W246	8			D		S083		P-WL1c(vi), P-WL2a	fowl manna grass, tall meadow rue, spotted touch-me-not, swollen beaked sedge	8" Dark A horizon over depleted B horizon with redox concentrations	Soil saturated to the surface		
W247	8	D				S085		P-WL1c(vi), P-WL3	yellow birch, balsam fir, red maple, stripped maple, dwarf raspberry, spotted touch-me-not, tall meadow rue, slender wood-reed	2" O horizon over sandy depleted Bw horizon with 20% redoximorphic concentrations	Soil saturated to the surface, sulfide odor		
W248	8	D		D	D	S083, S092		P-WL1c(ii, vi), P-WL3	yellow birch, American elm, eastern hemlock, green ash, mountain maple, red maple, jewelweed, ostrich fern, sensitive fern, foamflower	histosol	soil saturated to the surface, permanent ponded water		
W249	8	D						P-WL3	yellow birch, balsam fir, black ash, eastern hemlock, cinnamon fern, eastern rough sedge, nodding sedge, common wrinkle-leaved goldenrod	Histosol	Soil saturation to the surface, areas of inundation		
W250	8	D				S086		P-WL1c(vi), P-WL3	yellow birch, balsam fir, black ash, eastern hemlock, cinnamon fern, eastern rough sedge, nodding sedge, common wrinkle-leaved goldenrod	Histosol	Soil saturation to the surface, areas of inundation		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W251	8			D				P-WL2a	yellow birch, red maple, ostrich fern, spotted joe-pye weed, hooded skullcap, spotted touch-me-not, sensitive fern	Dark Mucky A horizon over depleted B horizon with redoximorphic concentrations	Soil saturation to the surface, areas of inundation		
W252	8		D					P-WL2a	mountain maple, yellow birch, nodding sedge, fowl manna grass, interrupted fern, cinnamon fern, sensitive fern	Histic Epipedon with redoximorphic concentrations	Soil saturation to the surface, water-stained leaves		
W253	8		D			S091	PVP01AA-M	P-WL1c(vi), P-WL2a	black ash, red maple, yellow birch, nodding sedge, sensitive fern	Disturbed - 10" Dark A horizon over depleted B horizon; Histosol in areas	Areas of inundation		
W254	8	D				S092, S093		P-WL1c(vi), P-WL3	yellow birch, balsam fir, jack-in-the-pulpit, foamflower, sweet-scented bedstraw, jewelweed, sensitive fern, violet species	10" mucky dark A horizon over sandy, depleted B horizon with redoximorphic features	flowing water, soil saturated at surface		
W255	8			D		S093, S094		P-WL1c(vi), P-WL2a	red raspberry, jewelweed, sweet-scented bedstraw, ostrich fern	10"mucky A horizon over rock	flowing water		
W256	8		D			S093, S094, S095		P-WL1c(vi), P-WL2a	yellow birch, red raspberry, red maple, ostrich fern, jewelweed, broad leaved goldenrod, sensitive fern	10" mucky A horizon over depleted B horizon over rock	soil saturated to the surface, surface drainage connecting streams		
W257	8		D			S095		P-WL2a	long beaked willow, pussy willow, yellow birch, red maple, fowl manna grass, fringed willow herb, ostrich fern, nodding sedge	4" O horizon over sandy depleted Bw horizon with 20% redoximorphic concentrations	Soil saturated to the surface, water-stained leaves		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W258	8		D	D				P-WL2a	red raspberry, yellow birch, bristly swamp currant, jewelweed, Pennsylvania bitter-cress, eastern rough sedge, Canada reed grass	10" O horizon over depleted B horizon	soil saturated to the surface, surface drainage		
W259	8			D		S096, S097		P-WL1c(vi), P-WL2a	jewelweed, rough stemmed goldenrod, eastern rough sedge, broad-leaved cattail, foam flower	5" mucky A horizon over depleted B horizon	channelized flow, floodplain		
W260	9		D					P-WL2a	yellow birch, willow, red maple, nodding sedge, drooping sedge, common woolsedge	Areas of depleted matrix with redoximorphic concentrations, areas with histic epipedon	Inundation, soil saturated		
W261	9	D		D				P-WL2a, P-WL3	American elm, red spruce, red maple, yellow birch, sensitive fern, manna grass species, ostrich fern, interrupted fern, rough stemmed goldenrod	10" dark A horizon over depleted B horizon with redoximorphic features at 11"	soil saturated to the surface		
W262	9			D				P-WL2a	red raspberry, dwarf raspberry, fowl manna grass, sensitive fern	4" mucky A horizon over depleted B horizon	soil saturated to the surface		
W263	9	D						P-WL3	eastern hemlock, American elm, green ash, yellow birch, northern wood sorrel, jewelweed, sensitive fern, ostrich fern	10" mucky A horizon over depleted sandy B horizon	soil saturated to the surface, surface water in ditch and culvert		

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		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W264	9			D				P-WL2a	Bebb's willow, yellow birch, interrupted fern, sensitive fern, foamflower, rough stemmed goldenrod, manna grass species, woodland horsetail	6" O horizon over depleted B horizon	soil saturated to the surface		
W265	9	D						P-WL3	northern white cedar, yellow birch, balsam fir, eastern hemlock, jewelweed, sensitive fern, cinnamon fern, manna grass species, three seeded sedge	histosol	soil saturated at the surface		
W266	9	D		x		S098	VP52MG-N	P-WL1c(vi), P-WL2a, P-WL3	eastern hemlock, yellow birch, balsam fir, black ash, nodding sedge, Canada reed grass, sensitive fern, cinnamon fern, eastern rough sedge, common soft rush, sallow sedge	12" Dark A horizon over depleted B horizon, histosol in areas	Soil saturated to the surface, floodplain of associated streams		
W267	9	D						P-WL3	yellow birch, balsam fir, interrupted fern, fowl manna grass, ostrich fern, sensitive fern, lady fern	8" Mucky A horizon over depleted Bw horizon with 10% redoximorphic concentrations	Soil saturated to the surface,		
W268	9		D					P-WL2a	balsam fir, slender wood-reed, common wrinkle-leaved goldenrod	8" Mucky A horizon over gleyed Bw horizon	Soil saturated to the surface, active seep		
W269	9	D						P-WL3	yellow birch, eastern hemlock, balsam fir, nodding sedge, eastern rough sedge, sensitive fern, cinnamon fern, fringed willow herb	8" Mucky A horizon over depleted Bw horizon with 5% redoximorphic concentrations	Soil saturated to the surface, active seep		

Wetland ID	Map #	Wetland Classification[1, 2]				Associated Stream	Vernal Pool Code	Wetland Protection Subdistrict[3]	Wetland Information			Wetland Notes	Additional Stream Notes
		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W270	9	D		D		S100		P-WL3, P-WL2a, P-WL1c(vi)	green ash, American elm, yellow birch, red maple, beaked hazelnut, sensitive fern, rough stemmed goldenrod, interrupted fern, Canada reed grass, fowl manna grass	10' dark A horizon over depleted B horizon with redoximorphic features	soil saturated at the surface		
W271	9	D				S101		P-WL1c(vi), P-WL3	yellow birch, black ash, eastern rough sedge, jack-in-the-pulpit, broad leaved goldenrod, sweet-scented bedstraw	gravely depleted B horizon with redoximorphic features	Soil saturated to the surface, floodplain of associated stream		
W272	9	D				S101, S102		P-WL1c(vi)	balsam fir, yellow birch, American elm, silky dogwod, interrupted fern, sensitive fern, burdock	gravely depleted B horizon with redoximorphic features	soil saturated to the surface		
W273	9	D				S102		P-WL1c(vi)	green ash, yellow birch, nodding sedge, lady fern, dwarf raspberry	6" A horizon over depleted Bw horizon with 5% redoximorphic concentrations	Soil saturated to the surface, wetland drainage patterns		
W274	9			D				P-WL2a	fowl manna grass, nodding sedge, common woolsedge, woodland horsetail, sensitive fern	3" organic layer over 5-6" dark, mucky A horizon over depleted matrix with 10% redoximorphic concentrations	Soil saturated to the surface		
W275	9		D					P-WL2a	speckled alder, white meadowsweet, long-beaked willow, common woolsedge, fowl manna grass	1-2" organic layer over dark A horizon over depleted matrix with 5% redoximorphic concentrations	Soil saturated to the surface		

Wetland ID	Map #	Wetland Classification[1, 2]				Associated Stream	Vernal Pool Code	Wetland Protection Subdistrict[3]	Wetland Information			Wetland Notes	Additional Stream Notes
		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W276	9		D			S106		P-WL2a	speckled alder, white meadowsweet, red maple, fowl manna grass, common wrinkle-leaved goldenrod, sensitive fern	10-12" dark, mucky A horizon with 5% redoximorphic concentrations	Soil saturated to the surface, wetland drainage patterns		
W277	9			D				P-WL2a	fowl manna grass, Canada reed grass, common wrinkle-leaved goldenrod, white meadowsweet	6-8" dark, mucky A horizon over rock	Soil saturated to the surface		
W278	9	D				S108		P-WL3	green ash, black ash, red maple, white meadowsweet, speckled alder, fowl manna grass, sensitive fern	15" dark, mucky A horizon with 5% redoximorphic concentrations	Soil saturated to the surface, wetland drainage patterns		
W279	9	x		D				P-WL2a	yellow birch, balsam fir, green ash, sensitive fern, fowl manna grass, whorled bedstraw	Disturbed - Depleted B horizon with redoximorphic concentrations	Soil saturated to the surface, areas of inundation		
W280	9			D				P-WL2a	yellow birch, balsam fir, meadowsweet, sweet-scented bedstraw, sensitive fern, evergreen wood fern, fowl manna grass, cinnamon fern	18" dark A horizon over depleted B horizon with redoximorphic features	soil saturated to the surface		
W281	9	D						P-WL3	green ash, northern white cedar, northern arrowwood, woodland horsetail, bristly blackberry, red currant, sensitive fern, eastern hemlock	2-4"dark A horizon over depleted B horizon with organic streaking and 10% redoximorphic concentrations	1" water at surface, soil saturated at surface, drainage patterns		

Wetland ID	Map #	Wetland Classification[1, 2]				Associated Stream	Vernal Pool Code	Wetland Protection Subdistrict[3]	Wetland Information			Wetland Notes	Additional Stream Notes
		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W282	9	D						P-WL3	northern white cedar, balsam fir, green ash, speckled alder, yellow birch, sensitive fern, cinnamon fern, interrupted fern, bristly blackberry, rough stemmed goldenrod, common woolsedge, manna grass species	8-10" dark A horizon over depleted B horizon with 15% redoximorphic features	surface water seeps 1" deep, soil saturated to surface, drainage patterns		
W283	9	D				S111		P-WL1c(vi), P-WL3	green ash, speckled alder, northern white cedar, ostrich fern, sensitive fern, Jack-in-the-pulpit	16" dark A horizon with 20% redoximorphic concentrations over sandy soil with 20% redoximorphic concentrations	drainage patterns present		
W284	9	D						P-WL3	northern white cedar, yellow birch, green ash, balsam fir, speckled alder, eastern rough sedge, fowl manna grass, Canada reed grass	10" O horizon over depleted B horizon with 20% redoximorphic concentrations	soil saturated at surface		
W285	9	D						P-WL3	northern white cedar, yellow birch, red maple, red spruce, northern arrowwood, speckled alder, eastern rough sedge, interrupted fern, sensitive fern, fowl manna grass	10" O horizon over depleted B horizon with 10-15% redoximorphic concentrations	1" surface water, soil saturated to surface		

Wetland ID	Map #	Wetland Classification[1, 2]				Associated Stream	Vernal Pool Code	Wetland Protection Subdistrict[3]	Wetland Information			Wetland Notes	Additional Stream Notes
		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W286	9	D						P-WL3	northern white cedar, yellow birch, green ash, red maple, balsam fir, speckled alder, northern arrowwood, fowl manna grass, meadowsweet, Canada reed grass, interrupted fern, Jack-in-the-pulpit, sensitive fern	10" O horizon OR 6-8" dark mucky A horizon over depleted B horizon with 10% redoximorphic concentrations	drainage patterns present, soil saturated at surface		
W287	9		D					P-WL2a	red maple, balsam fir, speckled alder, meadowsweet, sensitive fern, red currant, Canada reed grass, woodland horsetail, bristly blackberry, fowl manna grass	4-6" dark O/A horizon over depleted B horizon with 15% redoximorphic concentrations	soil saturated at surface, water stained leaves		
W288	10	D				S112, S113, S114, S115		P-WL1c(vi), P-WL3	green ash, red maple, yellow birch, northern white cedar, black ash, balsam fir, speckled alder, meadowsweet, northern arrowwood, eastern rough sedge, fowl manna grass, sensitive fern, ostrich fern	areas with 30" organic, histosol and areas with 10-20" O horizon over depleted B horizon	surface water in areas 1-2", drainage patterns, soil saturated to surface		
W289	10			D		S115		P-WL1c(vi)	eastern rough sedge, cinnamon fern, lady fern, dwarf raspberry, fragrant bedstraw	6" Mucky A horizon over sandy depleted Bw horizon	Soil saturated to the surface, wetland drainage patterns		

Wetland ID	Map #	Wetland Classification[1, 2]				Associated Stream	Vernal Pool Code	Wetland Protection Subdistrict[3]	Wetland Information			Wetland Notes	Additional Stream Notes
		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W290	10	D						P-WL3	green ash, red maple, American elm, balsam fir, yellow birch, speckled alder, interrupted fern, sensitive fern, lady fern, bristly black currant, three seeded sedge	4-8" O horizon over depleted B horizon with 15% redoximorphic features	soil saturated to surface		
W291	10		D					P-WL2a	northern white cedar, red maple, balsam fir, yellow birch, speckled alder, eastern rough sedge, Canada reed grass, sensitive fern, rough stemmed goldenrod, Canada goldenrod	6" O horizon over depleted B horizon with 20% redoximorphic concentrations	soil saturated at surface, 1-2" surface water, drainage patterns		
W292	10			D				P-WL1c(ii)	northern white cedar, red spruce, balsam fir, red maple, yellow birch, tussock sedge, manna grass species, common woolsedge, common duckweed	ponded wetland	10-20" standing water		
W293	10	D		D				P-WL3, P-WL1c(ii)	yellow birch, balsam fir, red maple, speckled alder, eastern rough sedge, ostrich fern, tussock sedge, common duckweed	6" O horizon over depleted B horizon with 5% redoximorphic concentrations in sandy soil	drainage patterns, 2" water at surface, soil saturated to surface		
W294	10		D					P-WL2a	speckled alder, eastern rough sedge, rough stemmed goldenrod, sensitive fern, glyceria species	4" dark A horizon over depleted B horizon with 15% redoximorphic concentrations	6" water at surface, soil saturated to surface		

Wetland ID	Map #	Wetland Classification[1, 2]				Associated Stream	Vernal Pool Code	Wetland Protection Subdistrict[3]	Wetland Information			Wetland Notes	Additional Stream Notes
		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W295	10	D						P-WL3	balsam fir, American elm, red maple, green ash, gray birch, speckled alder, manna grass species, sensitive fern, cinnamon fern	4" dark A horizon over depleted B horizon with 15% redoximorphic concentrations	water stained leaves, soil saturated to 6"		
W296	10		D					P-WL2a	yellow birch, red maple, balsam fir, speckled alder, Canada bluejoint, interrupted fern, sensitive fern, glyceria species	histosol, 20" organic over depleted B horizon with 15% redoximorphic concentrations	soil saturated to surface, drainage patterns		
W297	10			D				P-WL2a	yellow birch, balsam fir, red maple, eastern rough sedge, sensitive fern, bristly blackberry, manna grass species, cinnamon fern	6" O horizon over depleted B horizon with 15% redoximorphic concentrations	soil saturated to surface		
W298	10	D					PVP01MA-N	P-WL3	eastern hemlock, yellow birch, balsam fir, red maple, cinnamon fern, dwarf raspberry, bristle-stalked sedge, billings sedge	2" Dark A over depleted Bw horizon with increasing redoximorphic concentrations	soil saturated to the surface		
W299	10	D						P-WL3, P-WL1c(ii)	northern white cedar, red spruce, balsam fir, red maple, yellow birch, black ash, winterberry, cinnamon fern, interrupted fern, sensitive fern, three seeded sedge, eastern rough sedge	histosol, 24" organic over gleyed B horizon	soil saturated to surface, drainage patterns		

Wetland ID	Map #	Wetland Classification[1, 2]				Associated Stream	Vernal Pool Code	Wetland Protection Subdistrict[3]	Wetland Information			Wetland Notes	Additional Stream Notes
		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W300	10			D			VP20CF-N	P-WL2a	American beech (on mound), sensitive fern	4" dark A horizon over depleted B horizon with organic streaking	6 to 8" standing water, water-stained leaves, soils saturated to the surface in areas without standing water		
W301	10	D				S116		P-WL3	yellow birch, balsam fir, eastern hemlock, hobblebush, cinnamon fern, eastern rough sedge, tall meadowrue, mountain wood sorrell	8-12" O horizon over depleted silt loam Bw horizon	soil saturated to surface, wetland drainage patterns		
W302	10, 11			D			VP21CF-M	P-WL3	red maple, quaking aspen, yellow birch, black ash, American elm, Bebb's willow, pussy willow, silky dogwood, northern white cedar, steeplebush, Canada bluejoint, sensitive fern, common woolsedge	3-6" O horizon over depleted B horizon with 20% redoximorphic concentrations, soil disturbed in areas	6-12" standing water in roadside ditches, soil saturated to surface		
W303	10, 11		D					P-WL2a	steeplebush, gray birch, Bebb's willow, red maple, common woolsedge, Canada goldenrod	2-4" dark A horizon over depleted B horizon with 20% redoximorphic concentrations throughout	soil saturated to the surface		
W304	10, 11	D						P-WL3	gray birch, yellow birch, red spruce, woodland horsetail, interrupted fern, balsam fir, mountain holly	Histosol	Soil saturated to the surface		

Wetland ID	Map #	Wetland Classification[1, 2]				Associated Stream	Vernal Pool Code	Wetland Protection Subdistrict[3]	Wetland Information			Wetland Notes	Additional Stream Notes
		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W305	10, 11	D						P-WL3	quaking aspen, red maple, gray birch, American elm, Bebb's willow, black ash, steeplebush, silky dogwood, common woolsedge, sensitive fern, rough stemmed goldenrod, interrupted fern, manna grass species	6" dark A horizon over depleted B horizon with 15% redoximorphic concentrations	3-6" surface water in skid ruts, soil saturated to the surface		
W306	10, 11		D	x				P-WL2a	gray birch, balsam fir, long beaked willow, northern white cedar, three-seeded sedge, barber pole sedge, sensitive fern, Canada reed grass	Depleted with redoximorphic concentrations at the surface	Soil saturated to the surface		
W307	10, 11		D	x				P-WL2a	gray birch, balsam fir, long beaked willow, northern white cedar, three-seeded sedge, barber pole sedge, sensitive fern, Canada reed grass	Depleted with redoximorphic concentrations at the surface	Soil saturated to the surface		
W308	11			D				P-WL2a	red maple, lance leaved aster, nodding sedge, common soft rush, common wrinkle-leaved goldenrod, interrupted fern	Depleted with redoximorphic concentrations at the surface	Ponding		
W309	11			D				P-WL2a	pussy willow, black ash, calico American-aster, lance leaved American-aster, eastern rough sedge, colts foot	Gleyed depleted matrix at the surface	Ponding		

Wetland ID	Map #	Wetland Classification[1, 2]				Associated Stream	Vernal Pool Code	Wetland Protection Subdistrict[3]	Wetland Information			Wetland Notes	Additional Stream Notes
		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W310	11	D		x				P-WL3	northern white cedar, balsam fir, yellow birch, red maple, black ash, pussy willow, interrupted fern, broad-leaved cat-tail, fowl manna grass, nodding sedge	Histosol	Soil saturated to the surface, areas of inundation		
W311	11	D						P-WL3	red maple, yellow birch, green ash, jack in-the-pulpit, sensitive fern, fowl manna grass	8" O horizon over depleted B horizon with redoximorphic concentrations	Soil saturated to the surface, areas of inundation		
W312	11	D		D			PVP07AH-M	P-WL2a, P-WL3	balsam fir, northern white cedar, green ash, mountain maple, nodding sedge, cinnamon fern, three-seeded sedge	5" O horizon over 2" Dark A horizon over depleted Bw horizon with redoximorphic concentrations	Soil saturated to the surface, water-stained leaves		
W313	11	D						P-WL3	balsam fir, northern white cedar, green ash, mountain maple, nodding sedge, cinnamon fern, three-seeded sedge	5" O horizon over 2" Dark A horizon over depleted Bw horizon with redoximorphic concentrations	Soil saturated to the surface, water-stained leaves		
W314	11	D		D			PVP06AH-M, PVP05AH-M	P-WL2a	northern white cedar, red maple, black spruce, long beaked willow, broad-leaved cat-tail, woolsedge, sensitive fern, common wrinkle-leaved goldenrod	Gleyed horizon at 3"	Soil saturation to the surface, areas of inundation		
W315	11			D			PVP04AH-M	P-WL2a	broad-leaved cattail, woolsedge	Disturbed - 3" A horizon over gleyed B horizon with redoximorphic concentrations	Ponding		

Wetland ID	Map #	Wetland Classification[1, 2]				Associated Stream	Vernal Pool Code	Wetland Protection Subdistrict[3]	Wetland Information			Wetland Notes	Additional Stream Notes
		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W316	11			D				P-WL2a	red maple, broad-leaved cat-tail, woolsedge, common wrinkle-leaved goldenrod	Disturbed - 3" A horizon over gleyed B horizon with redoximorphic concentrations	Soil saturated to the surface, buttressed roots		
W317	11			D	D		PVP03AH-M	P-WL2a	broad-leaved cattail	More than 25" Unconsolidated Muck	Ponding		
W318	11			D				P-WL2a	woolsedge, common grass-leaved goldenrod, nodding sedge, cinnamon fern, sensitive fern	Disturbed - 3" A horizon over gleyed B horizon with redoximorphic concentrations	Soil saturated to the surface		
W319	11			D			PVP02AH-M	P-WL2a	red maple, green ash, broad-leaved cat-tail, woolsedge, wood horsetail, common wrinkle-leaved goldenrod	Depleted matrix (gleyed) at 5"	Soil saturated to the surface, areas of inundation		
W320	11			D				P-WL2a	broad-leaved cat-tail, woolsedge, whorled bedstraw, sensitive fern	Depleted matrix with redoximorphic concentrations at 4"	Soil saturated to the surface, areas of inundation		
W321	11			D			PVP01AH-M	P-WL2a	broad-leaved cat-tail, woolsedge, whorled bedstraw	Depleted matrix with redoximorphic concentrations at 4"	Soil saturated to the surface, areas of inundation		
W322	11			D				P-WL2a	long beaked willow, yellow birch, woolsedge, broad-leaved cattail, sensitive fern	Depleted matrix with redoximorphic concentrations at 4"	Soil saturated to the surface, areas of inundation		
W323	11	D						P-WL3	yellow birch, balsam fir, northern white cedar, red maple, fowl manna grass, Canada reed grass, foam flower, colts foot	Depleted matrix with redoximorphic concentrations at 4"	Water-stained leaves, buttress roots		

Wetland ID	Map #	Wetland Classification[1, 2]				Associated Stream	Vernal Pool Code	Wetland Protection Subdistrict[3]	Wetland Information			Wetland Notes	Additional Stream Notes
		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W324	11			D				P-WL2a	pussy willow, gray birch, broad-leaved cat-tail, woolsedge, nodding sedge, sensitive fern	4" Sand over depleted B horizon with redoximorphic concentrations	Ponding		
W325	11		D			S119		P-WL1c(vi), P-WL2a	yellow birch, balsam fir, red maple, bristly black currant, fowl manna grass, sensitive fern	6" Mucky A horizon over rock	Soil saturated to the surface, water-stained leaves		
W326	11			D				P-WL2a	woolsedge, common grass-leaved goldenrod, nodding sedge	4" Bs horizon over depleted Bw horizon; both with redoximorphic concentrations	Soil saturated to the surface		
W327	11	D						P-WL3	balsam fir, yellow birch, red maple, cinnamon fern, broad-leaved cat-tail, fowl manna grass, jack in-the-pulpit	6" O horizon over Depleted B horizon with redoximorphic concentrations	Soil saturated to the surface		
W328	11	D						P-WL3	red maple, long beaked willow, speckled alder, calico aster, common wrinkle-leaved goldenrod, sensitive fern, fowl manna grass	Disturbed - 4" Mucky A horizon over Depleted B horizon with redoximorphic concentrations	Soil saturated to the surface, water-stained leaves		
W329	10, 11	D	D			S121, S122, S123		P-WL1c(ii, vi), P-WL2a, P-WL3	northern white cedar, red spruce, yellow birch, black ash, speckled alder, sensitive fern, tall meadow rue, three seeded sedge, greater bladder sedge, common woolsedge, hooked crowfoot	8-10" O horizon over depleted B horizon with 20% redoximorphic concentrations, areas of histosol	drainage patterns, 3-6" surface water, soil saturated to the surface	Rare plant, swamp fly-honeysuckle, located in wetland	

Wetland ID	Map #	Wetland Classification[1, 2]				Associated Stream	Vernal Pool Code	Wetland Protection Subdistrict[3]	Wetland Information			Wetland Notes	Additional Stream Notes
		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W330	11	D	D					P-WL2a, P-WL3	northern white cedar, yellow birch, sensitive fern, manna grass species, awl-fruited sedge, greater bladder sedge, common soft rush, crested wood fern	8" Dark A/O over cobbly depleted Bw with 20% redoximorphic concentrations	Soil saturated to the surface, sulfide odor		
W331	11	D				S123		P-WL1c(vi)	northern white cedar, yellow birch, sensitive fern, manna grass species	histosol, 20" organic over depleted B horizon	soil saturated to surface		
W332	11	D				S123		P-WL3, P-WL1c(vi)	northern white cedar, yellow birch, red maple, black ash, speckled alder, balsam fir, long beaked willow, cinnamon fern, sensitive fern, broad-leaved cat-tail, nodding sedge, Canada reed grass, silvery sedge, awl-fruited sedge, blue iris	Dark Mucky A horizon over depleted Bw horizon with 15% redoximorphic concentrations	Ponding, soil saturated to surface		
W333	12		D					P-WL2a	gray birch, red maple, evergreen wood fern, Canada mayflower	4" dark A horizon over depleted B horizon with 10% redoximorphic concentrations	shallow water in ruts, soils saturated to the surface		
W334	12	D						P-WL3	northern white cedar, red maple, balsam fir, black ash, mountain maple, cinnamon fern, three-seeded sedge, sensitive fern, crested wood fern, royal fern, dwarf raspberry, sharp-toothed nodding aster	Histosol in center, histic epipedon on edges	soil saturated to the surface, water-stained leaves		

Wetland ID	Map #	Wetland Classification[1, 2]				Associated Stream	Vernal Pool Code	Wetland Protection Subdistrict[3]	Wetland Information			Wetland Notes	Additional Stream Notes
		PFO	PSS	PEM	PUB				Dominant Vegetation	Hydric Soil Indicators	Indicators of Wetland Hydrology		
W335	12	D						P-WL3	yellow birch, black ash, balsam fir, red maple, sugar maple, red spruce, cinnamon fern, sensitive fern, woodland horsetail, dwarf raspberry, field horsetail, narrow lady fern, Jack-in-the-pulpit	6" O horizon over depleted B horizon with redoximorphic concentrations	soil saturated to the surface, multiple surface drainages		
W336	12			D				P-WL2a	white spruce, balsam fir, Bebb's willow, meadowsweet, sensitive fern, nodding sedge, cinnamon fern, dwarf raspberry, sweet-scented bedstraw, interrupted fern	histic epipedon in interior with depleted B horizon on edges, disturbed	soil saturated to the surface, multiple surface drainages, areas of inundation		
W337	12	D		D				P-WL3, P-WL2a	northern white cedar, red spruce, gray birch, quaking aspen, gray birch, balsam fir, Bebb's willow, meadowsweet, sensitive fern, common soft rush, grass leaved goldenrod, rough stemmed goldenrod, calico American-aster, woodland horsetail, larch	disturbed area, dark A horizon over depleted B horizon with 15% redoximorphic features	soil saturated to the surface, surface drainage patterns		

[1] Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-79/31, U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C.
[2] D = Dominant; x = Present
[3] P-WL1: Wetland Protection Subdistrict

a) Areas enclosed by the normal high water mark of flowing waters, stream channels, and bodies of standing water, except for constructed ponds less than 10 acres in size which are not fed or drained by flowing waters;
b) Coastal wetlands, together with areas below the high water mark of tidal waters and extending seaward to the limits of the State's jurisdiction; or
c) Freshwater wetlands, as follows:
   i) Within 250' of a coastal wetland or of the normal high water mark of any body of standing water greater than 10 acres;

ii) Containing at least 20,000 square feet in total of the following: aquatic vegetation, emergent marsh vegetation, or open water, unless the wetlands are the result of constructed ponds less than 10 acres in size which are not fed or drained by flowing waters;
iii) That are inundated with floodwater during a 100 year flood event;
iv) Containing significant wildlife habitat;
v) Consisting of, or containing, peatlands, except that LURC may determine that a previously mined, peatland or portion thereof, is not a wetland of special significance; or
vi) Within 25' of a stream channel.

P-WL2: Wetland Protection Subdistrict

a) Scrub shrub and other non-forested freshwater wetlands, excluding those covered under P-WL1;
b) Constructed ponds less than 10 acres in size which are not fed or drained by flowing waters.

P-WL3: Wetland Protection Subdistrict – Forested freshwater wetlands, excluding those covered under P-WL1 and P-WL2.

Table C-2. Stream Resources Table

Stream ID	Natural Resource Map Number	Associated Wetland ID	MDEP or LURC	Perennial or Intermittent	USGS Mapped	Width (feet)
S001	1	W001	MDEP	Intermittent	Yes	2
S002	1	W005, W006, W007	MDEP	Perennial	Getchell Brook	10-15
S003	1	W013, W014, W016, W017	MDEP	Perennial		2-6'
S004	1	W014	MDEP	Perennial		2-6'
S005	1	W017	LURC	Perennial		1'
S006	1	W018, W019	MDEP	Intermittent		2'
S007	1		MDEP	Intermittent		2'
S008	1	W019	MDEP	Intermittent		2-4'
S009	1	W020	MDEP	Intermittent		2-4'
S010	2		LURC	Intermittent		1'-2'
S011	2	W047, W048, W049	MDEP	Perennial		2.5-5
S012	2	W047		Intermittent		
S013	2		LURC	Intermittent		1-2.5
S014	2	W052		Intermittent		
S015	3		LURC	Intermittent		1-2
S016	3		DEP	Intermittent		2-3
S017	4		MDEP	Intermittent	Blue line on map	1'-4'
S018	4		MDEP	Intermittent	Blue line on map	3'-7'
S019	4	W061	MDEP	Perennial	Blue line on map	4'-12'
S020	4		LURC	Intermittent		2'
S021	4		LURC	Intermittent		1-2
S022	4	W065	LURC	Intermittent		1-2
S023	4	W066	LURC	Intermittent		1-3
S024	4	W066	LURC	Intermittent		1-3
S025	4		LURC	Intermittent		1-2
S026	4		LURC	Intermittent		1-2
S027	4		MDEP	Perennial		2-4
S028	4		MDEP / LURC	Perennial / Intermittent		1-3
S029	4	W075, W076	MDEP	Perennial		1-2
S030	4	W076	MDEP	Perennial		1-2
S031	4	W081	MDEP	Perennial		5-6
S032	4	W082, W083	MDEP	Perennial		2-3
S033	4	W083	MDEP	Intermittent		1-2
S034	4		MDEP	Intermittent		2
S035	4		MDEP	Intermittent		3-4
S036	4		MDEP	Intermittent		2-4

Stream ID	Natural Resource Map Number	Associated Wetland ID	MDEP or LURC	Perennial or Intermittent	USGS Mapped	Width (feet)
S037	4	W096, W097	MDEP	Intermittent / Perennial		3-4
S038	4		MDEP	Intermittent		2-3
S039	4		LURC	Intermittent		2
S040	4	W097	LURC	Intermittent		2-3
S041	4	W098, W099, W100	MDEP	Perennial		5-10
S042	4		MDEP	Perennial		5-10
S043	4		MDEP	Intermittent		1-5
S044	5	W115, W126, W127, W128, W129	MDEP	Perennial		5-8
S045	5	W115	MDEP	Perennial		5-8
S046	5		MDEP	Perennial		5-8
S047	5		MDEP	Intermittent		4
S048	5		MDEP	Perennial	Blue line on map	9'
S049	5	W137	MDEP	Perennial		5
S050	5	W137	MDEP	Perennial		3-4
S051	5	W137, W141, W147, W153, W163	MDEP	Perennial		3
S052	5		MDEP	Perennial		2-5
S053	5	W144	MDEP	Intermittent		3
S054	5	W154	MDEP	Intermittent		1-2
S055	5	W155		Intermittent		2
S056	6		LURC	Intermittent		1-2
S057	6		MDEP	Perennial		2-3
S058	6		MDEP	Perennial		2-3
S059	6		LURC	Intermittent		7
S060	6		MDEP	Intermittent	Blue line on map	2'
S061	6		MDEP	Intermittent		2'-3'
S062	6		MDEP	Intermittent		3-5'
S063	6	W195	LURC	Intermittent / Perennial		2
S064	8	W209, W210	MDEP	Perennial		4'
S065	8	W209	MDEP	Perennial		4'
S066	8	W210	MDEP	Perennial		2-4'
S067	8	W210	MDEP	Perennial		2-4'
S068	8		MDEP	Intermittent		1.5-4'
S069	8		MDEP	Intermittent		1.5-4'
S070	8	W224, W225, W226	MDEP	Intermittent		2-5'
S071	8		MDEP	Intermittent		2'
S072	8	W231	MDEP	Intermittent		2'
S073	8	W231	MDEP	Perennial		4-7'

Stream ID	Natural Resource Map Number	Associated Wetland ID	MDEP or LURC	Perennial or Intermittent	USGS Mapped	Width (feet)
S074	8	W231	MDEP	Intermittent		1-3'
S075	8		MDEP	Intermittent		3'
S076	8		MDEP	Intermittent		3'
S077	8		MDEP	Intermittent		1-2
S078	8		MDEP	Intermittent / Perennial		2-4', 4-12'
S079	8		LURC	Intermittent		2-3'
S080	8		LURC	Intermittent		2-3'
S081	8	W244	LURC	Intermittent		2-3'
S082	8	W245	MDEP	Perennial	Blue line on map	2'
S083	8	W244, W248, W246	MDEP	Perennial	Blue line on map	4-10'
S084	8		MDEP	Perennial		4-10'
S085	8	W247	MDEP	Perennial		4-10'
S086	8	W250	MDEP	Perennial		1-3'
S087	8		MDEP	Intermittent		2.5-4'
S088	8		MDEP	Intermittent		1.5-3'
S089	8		LURC	Intermittent		3'
S090	8		MDEP	Perennial		2-4'
S091	8	W253	MDEP	Perennial		3-7'
S092	8	W248, W254	MDEP	Perennial		2-8'
S093	8	W254, W255, W256	MDEP	Perennial		1.5-4'
S094	8	W256	LURC	Perennial		1-3'
S095	8	W256, W257	LURC	Perennial		9-24"
S096	8	W259	LURC	intermittent		1-2'
S097	8	W259	MDEP	Perennial		1-5'
S098	9	W266	MDEP	Perennial		4-6'
S099	9		MDEP	Perennial		4-5'
S100	9	W266, W270	MDEP	Perennial		1-7'
S101	9	W271	LURC	Intermittent		2-3'
S102	9	W273	LURC	Intermittent		4'
S103	9		MDEP	Intermittent	Blue line on map	3-4'
S104	9		LURC	Intermittent		4'
S105	9		MDEP	Intermittent		2-3'
S106	9	W275	MDEP	Intermittent		2-3'
S107	9		MDEP	Intermittent		3-4'
S108	9	W278	MDEP	Perennial		4-6'
S109	9		MDEP	Perennial		7'
S110	9		MDEP	Perennial		2-4'
S111	9	W283	MDEP	Intermittent	blue line on map	3-5'

Stream ID	Natural Resource Map Number	Associated Wetland ID	MDEP or LURC	Perennial or Intermittent	USGS Mapped	Width (feet)
S112	10	W288	MDEP	Perennial	Blue line on map	2-4'
S113	10	W288	MDEP	Intermittent		3'
S114	10	W288	MDEP	Intermittent		3'
S115	10	W288, W289	MDEP	Intermittent		4'
S116	10	W301	MDEP	Perennial		3'
S117	10, 11		LURC	Intermittent		3'
S118	11		MDEP	Perennial	Tolman Brook	5-9'
S119	11	W325	MDEP	Perennial		1.5-5'
S120	11		LURC	Perennial		3.5'
S121	10, 11	W329	MDEP	Perennial	Blue line on map	3-6'
S122	10, 11	W329	MDEP	Perennial	Blue line on map	2-3'
S123	11	W329, W331, W332	MDEP	Perennial	Blue line on map	2-6'

Appendix D
Vernal Pool Summary Table

Table D-1. Vernal Pool Table

Vernal Pool Identifier	Origin	Associated Wetland Identifier	NRPA		Corps Regulated Vernal Pool	Apply 750' Corps VP Management Area	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			
VP32MG-M	Man-made	W008			X	X	67	-	62	-	0	-	-	-	Meets MDEP's SVP egg mass threshold for wood frogs and spotted salamanders
VP31MG-M	Man-made	W012			X		11	-	14	-	0	-	-	-	
VP30MG-M	Man-made	W020			X		0	-	1	-	0	-	-	-	
VP13MG-M	Man-made	W024	X		X		8	-	0	-	0	-	-	-	
VP14MG-M	Man-made	W024			X		0	-	4	-	0	-	-	-	
VP08MG-M	Man-made	W028			X		0	-	2	-	0	-	-	-	
VP07MG-M	Man-made	W032			X		4	-	2	-	0	-	-	-	
VP05MG-M	Man-made	W046			X		10	-	2	-	0	-	-	-	
VP06MG-M	Man-made	W046			X		14	-	7	-	0	-	-	-	
VP01RL-M	Man-made	W047			X		5	-	0	-	0	-	-	-	
VP02RL-M	Man-made	W047			X		0	-	1	-	0	-	-	-	
VP03MG-M	Man-made	W047			X	X	21	-	0	-	0	-	-	-	Clustered with VP04MG-M, combined wood frog egg mass count exceeds MDEP's SVP significance threshold

Vernal Pool Identifier	Origin	Associated Wetland Identifier	NRPA		Corps Regulated Vernal Pool	Apply 750' Corps VP Management Area	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			
VP04MG-M	Man-made	W047			X	X	31	-	0	-	0	-	-	-	Clustered with VP03MG-M, combined wood frog egg mass count exceeds MDEP's SVP significance threshold
VP41MG-M	Man-made	W057			X		11	-	7	-	0	-	-	-	
VP42MG-M	Man-made	W057			X		9	-	8	-	0	-	-	-	
VP40MG-M	Man-made	W058			X	X	4	-	22	-	0	-	-	-	Meets MDEP's SVP egg mass threshold for spotted salamanders
VP15MG-M	Man-made	W062			X		21	-	1	-	0	-	-	-	
VP16MG-M	Man-made	W063			X		15	-	11	-	0	-	-	-	
VP17MG-M	Man-made	W069			X		4	-	0	-	0	-	-	-	
VP18MG-M	Man-made	W071			X		3	-	0	-	0	-	-	-	
VP19MG-M	Man-made	W072			X		23	-	3	-	0	-	-	-	
VP20MG-M	Man-made	W082			X		0	-	4	-	0	-	-	-	
VP21MG-M	Man-made	W084			X		1	-	1	-	0	-	-	-	
VP22MG-M	Man-made	W086			X		3	-	1	-	0	-	-	-	
VP24MG-M	Man-made	W087			X		24	-	6	-	0	-	-	-	
VP01CF-M	Man-made	W087			X		1	-	4	-	0	-			
VP23MG-M	Man-made	W088			X		3	-	0	-	0	-	-	-	

Vernal Pool Identifier	Origin	Associated Wetland Identifier	NRPA		Corps Regulated Vernal Pool	Apply 750' Corps VP Management Area	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			
VP12MJ-M	Man-made	W088			X		0	-	6	-	0	-	-	-	
VP03BE-M	Man-made	W091			X		0	-	1	-	0	-	-	-	
VP04BE-M	Man-made	W091			X		6	-	0	-	0	-	-	-	
VP01MG-M	Man-made	W092			X		8	-	0	-	0	-	-	-	
VP02BE-M	Man-made	W094			X		0	-	6	-	0	-	-	-	
VP05BE-M	Man-made	W097			X		3	-	0	-	0	-	-	-	
VP09MG-M	Man-made	W102			X		6	-	4	-	0	-	-	-	
VP03RL-N	Natural	W105	X		X		1	0	1	1	0	0	-	-	
VP01BE-M	Man-made	W128			X		0	-	3	-	0	-	-	-	
VP49MG-M	Man-made	W136			X	X	0	-	42	-	0	-	-	-	Meets MDEP's SVP egg mass threshold for spotted salamanders
VP50MG-M	Man-made	W136			X	X	0	-	10	-	0	-	-	-	Clustered with VP49MG-M, combined spotted salamander egg mass count exceeds MDEP's SVP significance threshold
VP10MG-M	Man-made	W142			X		1	-	0	-	0	-	-	-	
VP11MG-M	Man-made	W143			X		0	0	11	-	0	-	-	-	
VP12MG-M	Man-made	W145			X		0	-	1	-	0	-	-	-	
SVP06BE-N	Natural	W150	X	X	X	X	53	tads	5	11	4	0	-	-	Significant Vernal Pool

Vernal Pool Identifier	Origin	Associated Wetland Identifier	NRPA		Corps Regulated Vernal Pool	Apply 750' Corps VP Management Area	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			
VP07BE-N	Natural	W155	X		X		4	0	2	0	0	0	-	-	
VP08BE-M	Man-made	W169			X		0	-	2	-	0	-	-	-	
VP09BE-M	Man-made	W183			X		0	-	1	-	0	-	-	-	
VP10BE-M	Man-made	W183			X		0	-	5	-	0	-	-	-	
VP11BE-M	Man-made	W183			X		0	-	1	-	0	-	-	-	
VP46MG-M	Man-made	W192			X	X	0	-	69	-	0	-	-	-	Meets MDEP's SVP egg mass threshold for spotted salamanders
VP47MG-M	Man-made	W203			X		0	-	10	-	0	-	-	-	
VP51MG-M	Man-made	W203			X		0	-	4	-	0	-	-	-	
VP43MG-M	Man-made	W206			X	X	0	-	49	-	0	-	-	-	Meets MDEP's SVP egg mass threshold for spotted salamanders
VP29MG-M	Man-made	W219			X		4	-	0	-	0	-	-	-	
VP27MG-M	Man-made	W227			X		2	-	2	-	0	-	-	-	
VP28MG-M	Man-made	W227			X		0	-	5	-	0	-	-	-	
VP25MG-M	Man-made	W231			X		0	-	1	-	0	-	-	-	
VP26MG-M	Man-made	W231			X		8	-	1	-	0	-	-	-	
PSVP52MG-N	Natural	W266	X		X	X	-	tads	-	7	0	-	-	-	Wood frog tadpoles present, but identified outside of wood frog season

Vernal Pool Identifier	Origin	Associated Wetland Identifier	NRPA		Corps Regulated Vernal Pool	Apply 750' Corps VP Management Area	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			
VP20CF-N	Natural	W300	**X**		**X**		3	0	17	9	0	0	-	-	Pool was completely dry on second visit
VP21CF-M	Man-made	W302			**X**	**X**	36	-	24	-	0	-	-	-	Meets MDEP's SVP egg mass threshold for spotted salamanders

[1] The number in column V1 represents the results of the first site visit, and the number in column V2 represents the results of the second site visit.
[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 E
Maine Department of Inland Fisheries and Wildlife
Vernal Pool Data Forms

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

Project Name/#: Bowers / 195600522 **Organization Name:** Stantec Consulting **Pool ID:** 03rl

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: Phone:

Street Address: City: State: Zip:

1. OBSERVER RECOMMENDATION

This pool is:	☐ **Significant**	☐ **Potentially Significant** (include notes in section 3d on Page 2)	☒ **Not significant due to**:	☒ **does not meet MDEP SVP biological criteria** ☐ **does not meet MDEP vernal pool definition criteria** **Notes:**

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: Carroll Plt, Penobscot County, Maine

Brief site directions to the pool (using mapped landmarks): Use main site entrance and veer right through gate, take first left and drive to MET Tower, pool is 200' east

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

Brand and Model of GPS unit**: Trimble GeoExplorer 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
☐ Floodplain Depression
☐ Pool associated with larger wetland complex
☒ 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): Evidence of logging (stumps) but natural landscape depression

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

3. VERNAL POOL SURVEY INFORMATION (*continued*) **Pool ID:** 03rl

ii. Hydrology

• Approximate size of pool (at max. capacity): Width 40 ☐ m ☒ ft (check one) Length 35 ☐ 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) shallow to ledge bowl that holds rainwater but likely drains completely late in summer

☐ 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): 4/13/2010; 5/6/2010

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:	4/13	5/6	4/13	5/6	4/13	5/6	4/13	5/6	4/13	5/6	4/13	5/6
Wood frog		1	0	S	N/A	3	N/A	M	N/A	N/A	N/A	N/A	N/A
Spotted Salamander		1	1	S	S	3	3	M	A	N/A	N/A	N/A	N/A
Blue-spotted Salamander		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fairy Shrimp		0	0	N/A	N/A	N/A	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: _____

■ 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	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		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: _____ Date _____

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 of 03rl on 4/13/2010

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

Project Name/#: Bowers Wind Project / 195600522 **Organization Name:** _Stantec Consulting_ **Pool ID:** 06be

Observer Contact Information

Primary Observer (include secondary, if applicable) : __Bryan Emerson_____ 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: _____ Phone: _____

Street Address:_____City:_____ State: _____ Zip: _____

1. OBSERVER RECOMMENDATION

This pool is:	☒ Significant	☐ Potentially Significant (include notes in section 3d on Page 2)	☐ Not significant due to:	☐ does not meet MDEP SVP biological criteria
				☐ does not meet MDEP vernal pool definition criteria
				Notes:

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township:_____Carroll Plt, Penobscot County, ME_____

Brief site directions to the pool (using mapped landmarks):___approx. 3000' south of Rte 6 and 1000' west of county line_____

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

Brand and Model of GPS unit**:__Trimble GeoExplorer__ 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):

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

3. VERNAL POOL SURVEY INFORMATION (*continued*) **Pool ID:** 06be

ii. Hydrology

• Approximate size of pool (at max. capacity): Width 60 ☐ m ☒ ft (check one) Length 60 ☐ m ☒ ft (check one)

• Maximum depth at time of survey: 2 ☐ 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) sphagnum and woolsedge in deepest parts of pool

☐ 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): 4/14/2010; 6/8/2010

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:	4/14	6/8	4/14	6/8	4/14	6/8	4/14	6/8	4/14	6/8	4/14	6/8
Wood frog		53	0	S	N/A	3	3	M	H	N/A	S	N/A	3
Spotted Salamander		5	11	S	S	3	3	F	A	N/A	N/A	N/A	N/A
Blue-spotted Salamander		4	0	S	N/A	3	3	M	N/A	N/A	N/A	N/A	N/A
Fairy Shrimp		0	0	N/A	N/A	N/A	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: _____

■ 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	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		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: _____ Date _____

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 of 06be taken 4/14/2010

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

Project Name/#: _Bowers / 195600522_____ **Organization Name:** _Stantec Consulting_____ **Pool ID:** 07be

Observer Contact Information

Primary Observer (include secondary, if applicable) : __Bryan Emerson_____ 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: _____ Phone: _____

Street Address:_____City:_____ State: _____ Zip: _____

1. OBSERVER RECOMMENDATION

This pool is:	☐ Significant	☐ Potentially Significant (include notes in section 3d on Page 2)	☒ Not significant due to:	☒ does not meet MDEP SVP biological criteria
				☐ does not meet MDEP vernal pool definition criteria
				Notes:

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township:__Carroll Plt, Penobscot County Maine

Brief site directions to the pool (using mapped landmarks):__Travel main site entrance south of Rte. 6, after 3000' feet veer left up gated road toward cabin complex, pool is along that dirt road near cabins

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

Brand and Model of GPS unit**:__Trimble GeoExplorer__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 part of a natural wetland but water depth may have increased as a result of fill for cabins and logging road berming wetland edges

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

3. VERNAL POOL SURVEY INFORMATION (*continued*) **Pool ID:** 07be

ii. Hydrology

• Approximate size of pool (at max. capacity): Width 30 ☐ m ☒ ft (check one) Length 30 ☐ 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) Second visit in early May showed very little standing 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): 4/14/2010; 5/6/2010

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:	4/14	5/6	4/14	5/6	4/14	5/6	4/14	5/6	4/14	5/6	4/14	5/6
Wood frog		4	0	S	N/A	3	N/A	M	N/A	N/A	N/A	N/A	N/A
Spotted Salamander		2	0	S	N/A	3	N/A	M	N/A	N/A	N/A	N/A	N/A
Blue-spotted Salamander		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fairy Shrimp		0	0	N/A	N/A	N/A	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: _____

■ 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	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		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: _____ Date _____

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 of 07be taken on 4/14/2010

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

Project Name/#: Bowers / 195600522 **Organization Name:** Stantec Consulting **Pool ID:** 20cf

Observer Contact Information

Primary Observer (include secondary, if applicable) : Charles Ferris 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: Phone:

Street Address: City: State: Zip:

1. OBSERVER RECOMMENDATION

This pool is:	☐ Significant	☐ Potentially Significant (include notes in section 3d on Page 2)	☒ Not significant due to:	☒ does not meet MDEP SVP biological criteria
				☐ does not meet MDEP vernal pool definition criteria
				Notes:

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: Carroll Plt, Penobscot County, Maine

Brief site directions to the pool (using mapped landmarks): Approx. 1 mile north of Rte. 6, ½ mile east of Danforth Road

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

Brand and Model of GPS unit**: Trimble GeoExplorer 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): skidder trail through natural landscape depression

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

3. VERNAL POOL SURVEY INFORMATION (*continued*) **Pool ID:** 20cf

ii. Hydrology

• Approximate size of pool (at max. capacity): Width 25 ☐ m ☒ ft (check one) Length 75 ☐ m ☒ ft (check one)

• Maximum depth at time of survey: 8 ☒ 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) only 2" free water at early May 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): 4/29/2010; 5/11/2010

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:	4/29	5/11	4/29	5/11	4/29	5/11	4/29	5/11	4/29	5/11	4/29	5/11
Wood frog		3	0	S	N/A	3	N/A	M	N/A	N/A	N/A	N/A	N/A
Spotted Salamander		17	9	S	S	3	3	M	A	N/A	N/A	N/A	N/A
Blue-spotted Salamander		0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fairy Shrimp		0	0	N/A	N/A	N/A	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: _____

■ 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	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		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: _____ Date _____

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 of 20cf taken on 4/29/2010

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

Project Name/#: Bowers / 19560052 **Organization Name:** Stantec Consulting **Pool ID:** 52mg

Observer Contact Information

Primary Observer (include secondary, if applicable) : Michael Glessner 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: _____ Phone: _____

Street Address: _____ City: _____ State: _____ Zip: _____

1. OBSERVER RECOMMENDATION

This pool is:	☐ Significant	☐ Potentially Significant (include notes in section 3d on Page 2)	☐ Not significant due to:	☒ does not meet MDEP SVP biological criteria
				☐ does not meet MDEP vernal pool definition criteria
				Notes:

2. VERNAL POOL LOCATION INFORMATION

Municipality or Township: Carroll Plt, Penobscot County, Maine

Brief site directions to the pool (using mapped landmarks): 4000' south of Rte 6 / Danforth Road intersection

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

Brand and Model of GPS unit**: Trimble GeoExploer 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)
	☐ 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): Pool in tip-up depression

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

3. VERNAL POOL SURVEY INFORMATION (*continued*) **Pool ID:** 52mg

ii. Hydrology

• Approximate size of pool (at max. capacity): Width 8 ☐ m ☒ ft (check one) Length 4 ☐ 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) thick mucky soil surface

☐ 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 in floodplain of stream but no flowing water in pool

iv. Faunal Indicators:

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

c. Significant Vernal Pool Status under NRPA

i. Survey Date(s): 5/19/2010 (one visit only)

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:	5/19	N/A	5/19	N/A	5/19	N/A	5/19	N/A	5/19	N/A	5/19	N/A
Wood frog		0	N/A	N/A	N/A	N/A	N/A	H	N/A	S	N/A	3	N/A
Spotted Salamander		7	N/A	S	N/A	3	N/A	M	N/A	N/A	N/A	N/A	N/A
Blue-spotted Salamander		0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fairy Shrimp		0	N/A	N/A	N/A	N/A	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: _____

■ 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	☐	☐	☐		Wood Turtle	☐	☐	☐	
Spotted Turtle	☐	☐	☐		Ribbon Snake	☐	☐	☐	
Ringed Boghaunter	☐	☐	☐		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: _____ Date _____

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 of 52mg taken 5/20/2010

Appendix F
Agency Correspondence

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA, ME 04333-0041
TEL: 207-287-8000

JOHN ELIAS BALDACCI
GOVERNOR

ROLAND D. MARTIN
COMMISSIONER

August 21, 2009

Joy Prescott, Project Manager
Stantec Consulting
30 Park Drive
Topsham, Maine 04086

RE: Significant fisheries resources associated with land in Carroll Plantation and Kossuth Township, ME

Dear Ms. Prescott,

Following are my comments regarding your request for information of any significant fishery resources associated with land located in Carroll Plantation and Kossuth Township in the proposed project area (referred to hereafter as "the project area") depicted in the map sent to this office on July 15, 2009.

The only named pond or lake in the project area is Dipper Pond located in Carroll Plantation in Penobscot County. This pond has not been officially surveyed by DIFW, subsequently there are no records for fish species inhabiting the pond, basic water chemistry, or bathymetry data for the pond. The district game warden reports that Dipper Pond has an abundance of minnows and is utilized by many local residents as a source of bait fish. He has observed catches of brook trout by anglers coming from the outlet, but downstream, of the pond. Dipper Pond may be important seasonally to brook trout in that system; however this is mere speculation at this time.

There are four named streams that fall within the proposed project area (Barker Brook, Getchell Brook, Lindsey Brook, and Wallace Brook). In addition there are several unnamed streams, including two small tributaries to Pleasant Lake in Kossuth Township. None of these streams have been surveyed by regional fisheries staff, but there is a high probability that all support wild populations of Eastern brook trout, along with other native resident species of fish. These streams may have been surveyed as part of the ongoing Eastern Brook Trout Joint Venture Project, in which case a report should be available in the future. DIFW Streams Research Biologist Merry Gallagher is the Principal Investigator, and can be contacted at 650 State Street in Bangor, Maine 04401.

While Pleasant Lake in Kossuth TWP is outside of the project area, the small unnamed tributaries to the lake that originate within the project area are important spawning areas for landlocked rainbow smelt, the critical forage base for the cold water fish species (landlocked salmon, lake trout, and lake whitefish) inhabiting the lake.

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA, ME 04333-0041
TEL: 207-287-8000

JOHN ELIAS BALDACCI
GOVERNOR

ROLAND D. MARTIN
COMMISSIONER

Please contact me at (207) 732-4131 or richard.dill@maine.gov with any questions.

Sincerely,

Richard Dill
Regional Fisheries Biologist
MDIFW, Region F

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

JOHN ELIAS BALDACCI
GOVERNOR

EARLE G. SHETTLEWORTH, JR.
DIRECTOR

August 10, 2009

Ms. Joy Prescott
Stantec Consulting
30 Park Drive
Topsham, ME 04086

Project: MHPC# 1325-09 – Bowers Mountain; potential wind facility
Towns: Carroll Plantation and Kossuth Township, ME

Dear Ms. Prescott:

In response to your recent request, I have reviewed the information received July 16, 2009 to initiate consultation on the above referenced project.

Based on the predictive model of prehistoric archaeological site location, Phase I prehistoric archaeological survey is necessary for the rock outcrops and streams that lie within the project area. A list of qualified prehistoric archaeologists is 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 resources, the project area must be surveyed and an assessment made of project impact on any identified historic properties. Depending on the area of potential effect (APE) that is defined for this project, some of this area may have been surveyed by your firm during the Stetson Wind Project. The architectural survey must be completed according to our "Above Ground Cultural Resource Survey Manual Guidelines for Identification: Architecture and Cultural Landscapes Section 106 Specific" and associated forms, which are both downloadable from our website: www.maine.gov/mhpc/project_review Please find attached our revised photographic policy to be referenced in lieu of the policy in our on-line survey manual. Any computer generated template other than that provided by MHPC must be approved by MHPC prior to submission. No changes to the survey forms are to be made without consulting MHPC. In order to determine whether portions of the project area have been previously surveyed, please contact Christi Mitchell of our office. A list of historic preservation consultants is enclosed for your information.

Once this information is received, we will forward a response regarding the results of our evaluation. Please contact Robin Stancampiano of my staff if we can be of further assistance in this matter.

Sincerely,

Kirk F. Mohney

Kirk F. Mohney
Deputy State Historic Preservation Officer

enc.

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

JOHN ELIAS BALDACCI
GOVERNOR

ELIZA TOWNSEND
COMMISSIONER

May 5, 2010

Joy Prescott
Stantec Consulting
30 Park Drive
Topsham, Maine 04086

Re: Rare and exemplary botanical features in proximity PN19560522: Proposed Windpower Development, Carroll P and Kossuth Plt., Maine.

Dear Ms. Prescott:

I have searched the Natural Areas Program's Biological and Conservation Data System files in response to your request of April 30, 2010 for information on the presence of rare or unique botanical features documented from the vicinity of the project site in Carroll and Kossuth Plantations, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

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 no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

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.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site 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.

MAINE NATURAL AREAS PROGRAM
MOLLY DOCHERTY, DIRECTOR

PHONE: (207) 287-8044
FAX: (207) 287-8040
TTY: (207) 287-2213

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 $75.00 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,

Sarah Demers

Sarah Demers
Environmental Review Coordinator
Maine Natural Areas Program
207-287-8670
sarah.demers@maine.gov

Enclosures

Rare and Exemplary Botanical Features in the Project Vicinity

Documented within a four-mile radius of the proposed wind power project, Carroll Plt. and Kossuth Plt, Maine.

Feature Name	Global Rank	State Rank	State Status	EO Number	Last Seen	Habitat
Minuartia glabra	G4	S3	SC	6	1937-07-21	Rocky summits and outcrops (non-forested, upland)
Malaxis monophyllos	G5	S1	E	21	1988-08-16	Forested wetland
Eccentric bog ecosystem	GNR	S3		3	1987-07-28	Open wetland, not coastal nor rivershore (non-forested, wetland)
Lonicera oblongifolia	G4	S3	SC	21	1937-07-22	Forested wetland

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.
SNR	Not yet ranked.
SNA	Rank not applicable.
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 for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines State Rarity Ranks for animals.

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. A rank of **E** indicates that the community or population is **extant** but there is not enough data to assign a quality rank. 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 for rare plants and rare and exemplary natural communities and ecosystems. The Maine Department of Inland Fisheries and Wildlife determines Element Occurrence ranks for animals.

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

PENOBSCOT NATION

TRIBAL ADMINISTRATION

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

Bonnie Newsom, THPO
Penobscot Indian Nation
12 Wabanaki Way
Indian Island, ME 04468
Phone No.: (207) 817-7332
Fax No.: (207) 817-7463

FAX SHEET

DATE: 7-27-09

FAX NO.: 729-2715
No. of Page(s) 2

TO: Joy Prescott

FROM: Bonnie Newsom

SUBJECT: Carroll PH - Kossuth Twp.

MESSAGE:

Please find attached a no objection letter from Bonnie Newsom, THPO for the Penobscot Nation.

If you have any questions, please do not hesitate to contact her.

Thank you!

Catha Lewey
Office Manager

PENOBSCOT INDIAN NATION
BONNIE NEWSOM - ARCHAEOLOGY DEPARTMENT
12 WABANAKI WAY, INDIAN ISLAND, ME 04468
E-MAIL: bnewsom@penobscotnation.org Fax: 207-817-7463

NAME	Joy Prescott
ADDRESS	Stantec Consulting 30 Park Drive Topsham, ME 04086
OWNER'S NAME	Unidentified
TELEPHONE	(207) 729-1199
FAX	(207) 729-2715
EMAIL	
PROJECT NAME	Wind Facility
PROJECT SITE	Caroll Plt./Kossuth Twp., ME
DATE OF REQUEST	July 15, 2009
DATE REVIEWED	July 27, 2009

Thank you for the opportunity to comment on the above referenced project. This project appears to have no impact on a structure or site of historic, architectural or archaeological significance to the Penobscot Nation as defined by the National Historic Preservation Act of 1966, and subsequent updates.

Also, if Native American cultural materials are encountered during the course of the project, please contact me at (207) 817-7332. Thank you.

BONNIE NEWSOM, THPO
Penobscot Nation

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 Gaspe 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

provides the Service's guidance on locating and operating wind turbines and associated structures. Employing these guidelines will help avoid and minimize impacts to wildlife and facilitate permit review.

6. In addition to the recommendations above, we suggest:
    - Minimize area disturbed by site development, construction, and operation. Minimize number and length of access roads. Maintain minimum road width after construction. Avoid long road cuts that block wildlife movements.
    - Time site-clearing and developing activities to avoid the bird nesting period.
    - Avoid degrading high-value habitats (e.g. vernal pools, emergent wetland, streams, eel grass beds and estuaries)
    - Minimize construction and management activities that may attract birds and bats (e.g. remove sources of carrion that could attract raptors and revegetate turbine pads to forest to deter foraging raptors).
    - To reduce bird collisions, place collector transmission lines underground unless prohibitively expensive or where greater impacts to biological resources would result. Transmission infrastructure should comply with the *Suggested Practices for Avian Protection on Power Lines* (2006)(http://www.aplic.org/). Overhead lines may be acceptable if located away from high use bird areas (gaps between ridges, crossings between roosting and feeding areas) and if deterrent devices are deployed (especially over water and wetland crossings).
    - Use tubular towers (not lattice) and avoid guy wires to reduce perching opportunities and risk of collision.
    - To avoid disorienting or attracting migratory birds, turbines should not be placed near other light sources (e.g. lighthouses). FAA-required visibility lighting should employ only strobe lighting. Solid red or pulsating red incandescent lights should not be used, as they appear to attract night-migrating birds.
    - Use native plants to revegetate turbine pads and road edges. Reserve soils and chipped wood on site to use as mulch to promote revegetation.

Stage 3: Facility Operation, Monitoring and Adaptive Management

The Service's *Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines* (2003) include operational guidelines that are important to follow for avoiding and minimizing risk to wildlife. Other operational measures to reduce the likelihood of bird and bat mortality and adverse effects to habitat are possible, and will be developed based on post-construction monitoring at the facility. The degree of post-construction monitoring will be determined by a combination of factors including the size and location of the facility and the species and habitats at risk at the site.

1. A post-construction plan should be developed to describe the design and duration of post-construction studies and surveys. The plan should also document how the developer will avoid, minimize, and mitigate effects on birds, bats, and habitat fragmentation. The post construction plan should incorporate methods used in the pre-construction study design to

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.

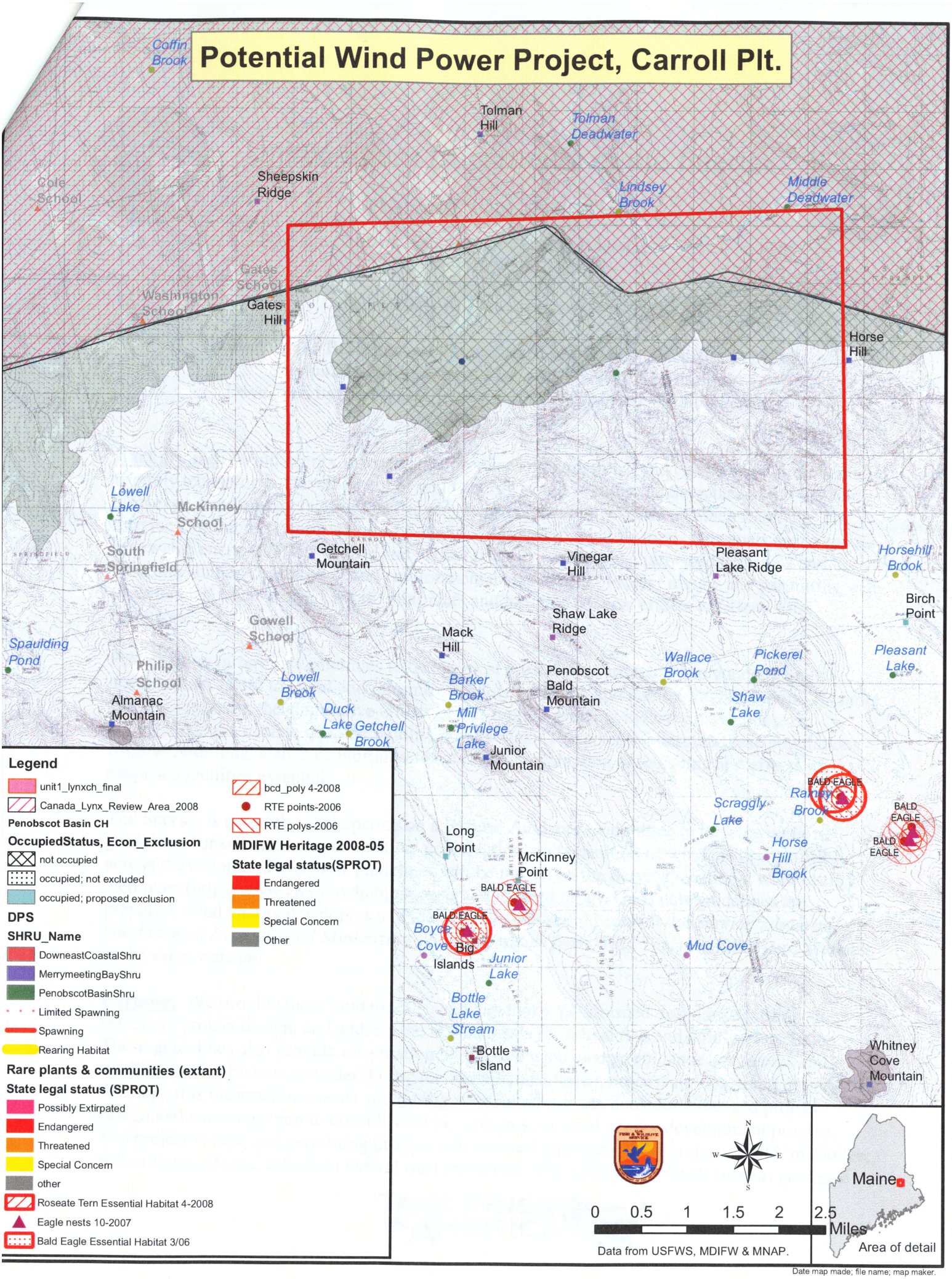
In summary, the guidelines provided above and the Service's *Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines* (2003) are intended to guide wind power developers in Maine while protecting federal trust fish, wildlife and their habitats.

If you have any questions, please call or email:

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

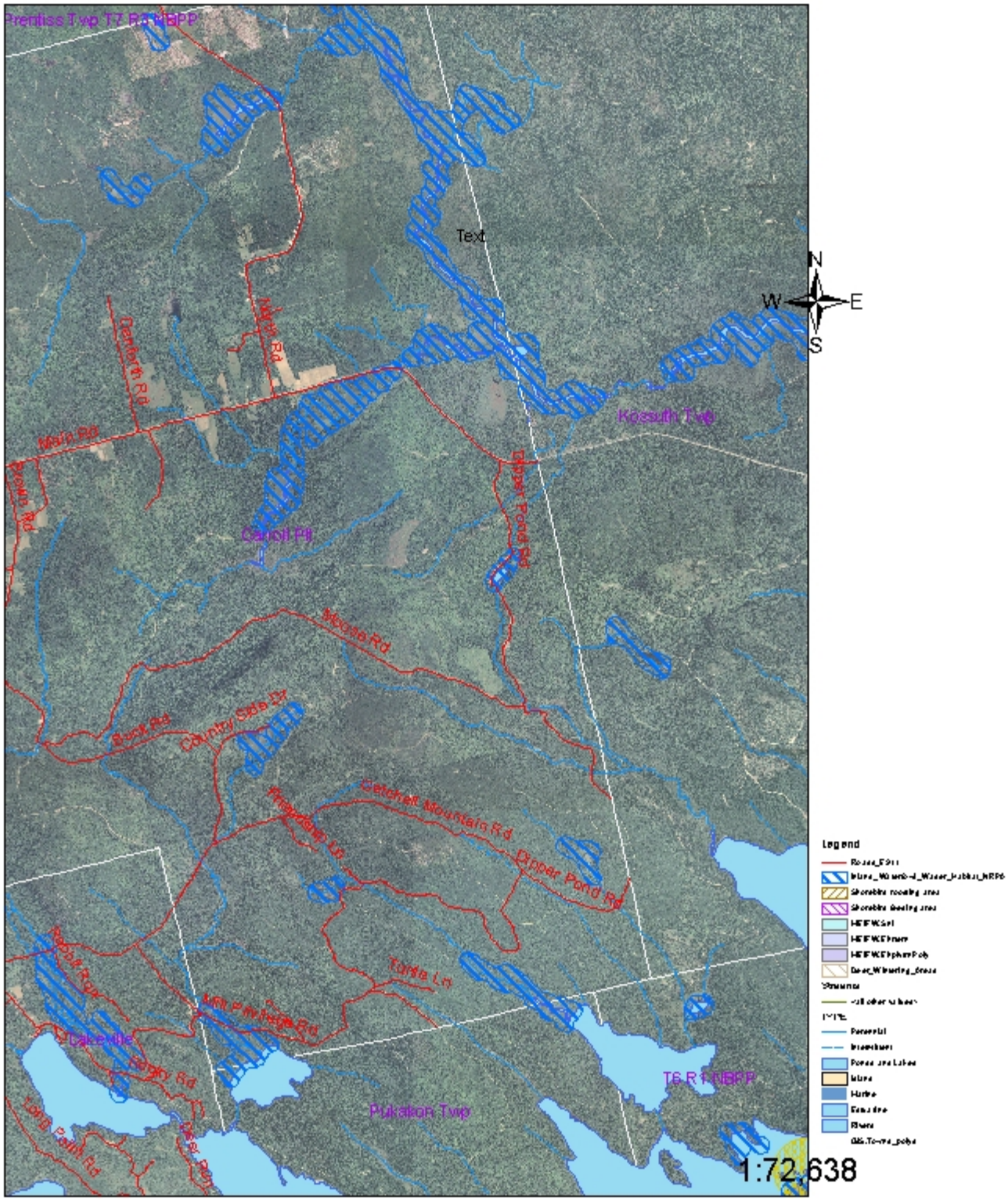
Mark McCollough, endangered species biologist (Canada lynx, Furbish's lousewort, roseate terns, piping plovers, and bald eagles) at (207) 866-3344 x115 mark_mccollough@fws.gov

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

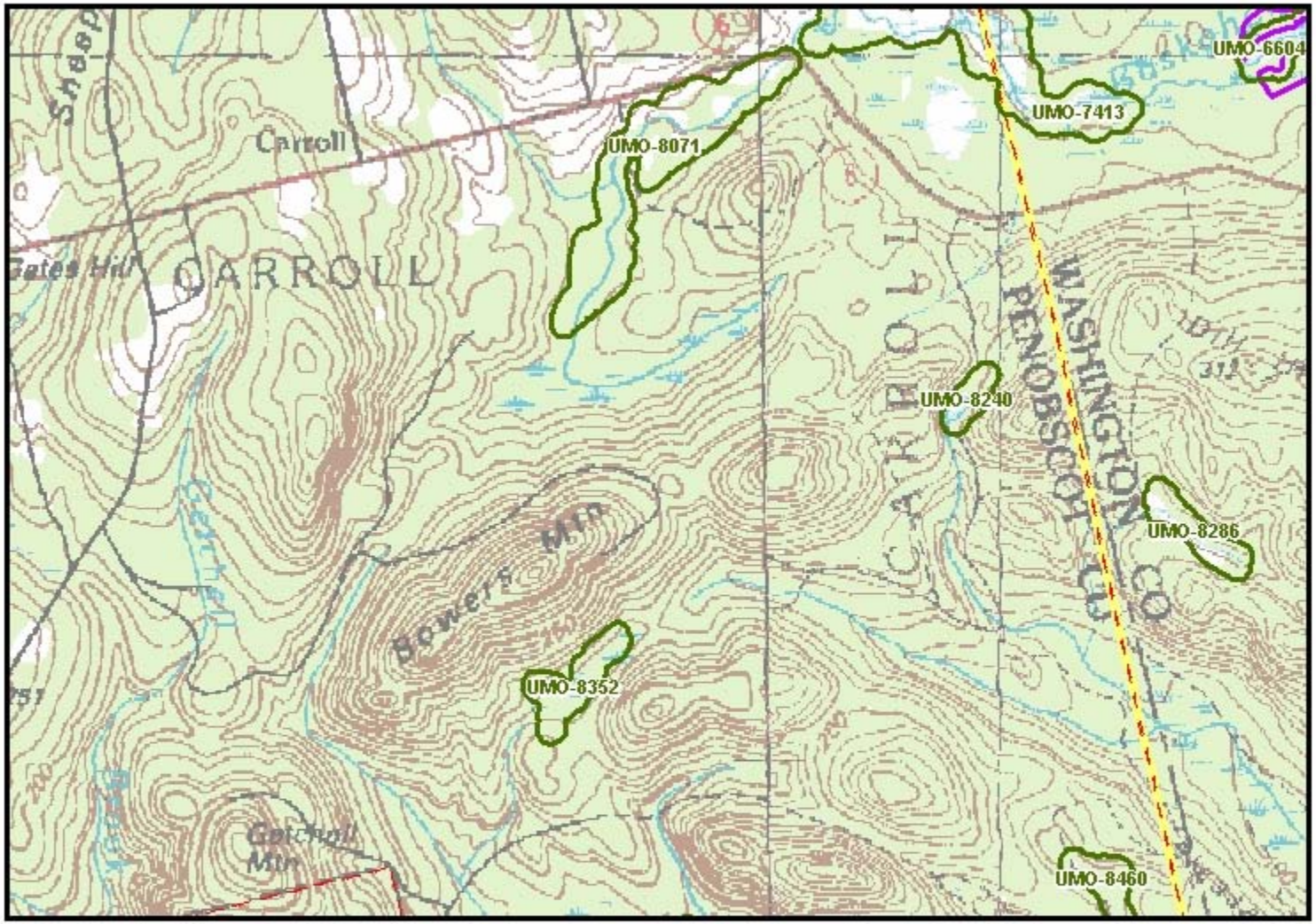

Potential Wind Power Project, Carroll Plt.
Coffin Brook
Tolman Hill
Tolman Deadwater
Sheepskin Ridge
Cole School
Lindsey Brook
Middle Deadwater
Gates School
Washington School
Gates Hill
Horse Hill
Lowell Lake
McKinney School
South Springfield
Getchell Mountain
Vinegar Hill
Pleasant Lake Ridge
Horsehill Brook
Birch Point
Shaw Lake Ridge
Gowell School
Mack Hill
Spaulding Pond
Philip School
Almanac Mountain
Lowell Brook
Duck Lake
Getchell Brook
Barker Brook
Mill Privilege Lake
Junior Mountain
Penobscot Bald Mountain
Wallace Brook
Pickerel Pond
Shaw Lake
Pleasant Lake
BALD EAGLE
Rainey Brook
Scraggly Lake
Long Point
McKinney Point
Horse Hill Brook
Boyce Cove
Big Islands
Junior Lake
Mud Cove
Bottle Lake Stream
Bottle Island
Whitney Cove Mountain
Legend
unit1_lynxch_final
Canada_Lynx_Review_Area_2008
Penobscot Basin CH
OccupiedStatus, Econ_Exclusion
not occupied
occupied; not excluded
occupied; proposed exclusion
DPS
SHRU_Name
DowneastCoastalShru
MerrymeetingBayShru
PenobscotBasinShru
Limited Spawning
Spawning
Rearing Habitat
Rare plants & communities (extant)
State legal status (SPROT)
Possibly Extirpated
Endangered
Threatened
Special Concern
other
Roseate Tern Essential Habitat 4-2008
Eagle nests 10-2007
Bald Eagle Essential Habitat 3/06
bcd_poly 4-2008
RTE points-2006
RTE polys-2006
MDIFW Heritage 2008-05
State legal status(SPROT)
Endangered
Threatened
Special Concern
Other
N
W
E
S
0 0.5 1 1.5 2 2.5 Miles
Data from USFWS, MDIFW & MNAP.
Maine
Area of detail
Date map made; file name; map maker.

GIS Map for Jessica Haider

GIS map created by Jim Beyer on 11/23/09
of the Maine Dept. of Environmental Protection



Stantec-Carroll Plt/Kossuth



- 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

0 0.5 1 1.5 2 Miles

1 = 48,781

UTM Projection, Zone 19N, NAD83

N

73 Cobb Road
Enfield, ME 04493
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July 21, 2009

Appendix G
Representative Site Photographs

Photo 1. Rare plant large toothwort, (*Cardamine maxima*) near Barker Brook.
Stantec, May 6, 2010

Photo 2. Typical intermittent stream, S016.
Stantec, November 18, 2009

Photo 3. Typical perennial stream, S098.
Stantec, August 3, 2010.

Photo 4. Typical upland hardwood forest.
Stantec, November 9, 2009.

Photo 5. Significant Vernal Pool 06BE in Wetland W150.
Stantec, April 14, 2010.

Photo 6. Natural Vernal Pool 52MG in Wetland W266.
Stantec, May 19, 2010.

Photo 7. Man-made vernal pool 15MG in Wetland W062.
Stantec, April 14, 2010.

Photo 8. Wetland W097, typical emergent wetland impacted by timber harvesting.
Stantec, November 10, 2009.

Photo 9. Wetland W109, typical scrub-shrub wetland.
Stantec, November 10, 2009.

Photo 10. Wetland W282, typical forested wetland.
Stantec, May 18, 2010.