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Syracuse, NY 13202
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December 29, 2008

US Army Corps of Engineers
Buffalo District
ATTN: Regulatory Branch
1776 Niagara Street
Buffalo, NY 14207-3199

NYS Dept. of Environmental Conservation
Regional Permit Administrator
Lawrence Ambeau
Region 6 Headquarters
317 Washington St.
Watertown, NY 13601

**RE: Roaring Brook Wind Power Project; Atlantic Wind LLC
Town of Martinsburg, Lewis County, New York
Corps Project No. 2008-01529
EDR Project No. 07025**

Dear Sirs:

On behalf of Atlantic Wind LLC, EDR respectfully submits the attached Joint Application for Permit and supporting documentation for the above referenced project, and requests your review and permit decision in consideration of proposed impacts to wetlands, streams and Waters of the US. Atlantic Wind LLC, a wholly owned subsidiary of Iberdrola Renewables (part-owner, Maple Ridge Wind Farm), is proposing to develop the Roaring Brook Wind Power Project in the Town of Martinsburg, Lewis County. The project includes 39 wind turbines and associated gravel access roads, buried and overhead electrical lines, a wind measurement tower, an operation and maintenance facility, a temporary staging area, and a substation.

Significant efforts were made to avoid and/or minimize potential impacts to delineated wetland and stream areas that are present within the project site. However, unavoidable temporary and permanent impacts to federal jurisdictional and state regulated wetlands, streams and adjacent areas (state) will result from project construction activities. These impacts must be authorized by the issuance of permits pursuant to Article 15 of the NYS Protection of Waters Program, Article 24 of the NYS Freshwater Wetlands Act, Section 401 Water Quality Certification, and the Nationwide Permit Program (NWP 12 and 14) from the Corps.

To assist in your review, please note that EDR and Atlantic Wind have been working with Margaret Crawford (Corps Auburn Field Office), Mark Wiggins (NYSDEC, Region 6), Mark Craig (NYSDEC, Region 6), and Steve Tomasik (NYSDEC, Central Office) in a pre-application context, in preparation of the enclosed materials. Each has conducted on-site investigations of the project site and its immediate vicinity.

Environmental Design & Research,
Landscape Architecture, Planning,
Environmental Services,
Engineering and Surveying, P.C.

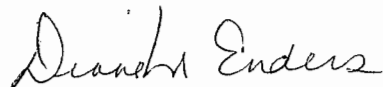
December 29, 2008
Page 2

As described in the attached narrative, the overall project is currently being reviewed pursuant to the State Environmental Quality Review Act and the NYSDEC is an involved agency. A Draft Environmental Impact Statement was prepared and circulated to the public in February 2008. A Supplement to the Draft Environmental Impact Statement is anticipated to be made available to the public in January 2009.

Also enclosed please find a list of all landowner names, corresponding tax parcel identification numbers, and contact information for all participating land parcels involved in the project.

Thank you for your anticipated review of the enclosed materials. Please do not hesitate to contact me if you should have any questions or comments.

Sincerely,



Diane M. Enders
Sr. Project and Division Manager

Cc: Jenny Burke, Iberdrola Renewables
David Decaro, Iberdrola Renewables
Douglas Ward, Young, Sommer, Ward...LLC
Steve Tomasik, NYSDEC

Enclosures: Joint Application for Permit; Volume I (Permit Application, Narrative and Figures)
Joint Application for Permit: Volume II (Appendices B – I)
Participating Landowners List

Roaring Brook Wind Power Project
Participating Landowners

Parcel Tax Map ID	Owner	Street Address	City, State, Zip Code
239.00-02-14.000	Daskiewich, William	115 Carol Ave	Boonville, NY 13309
239.00-02-15.000	Daskiewich, William	115 Carol Ave	Boonville, NY 13309
241.00-01-19.000	Szewil, Helen	6569 West Rd	Lowville, NY 13367
254.00-02-01.100	Moore, Bruce P		Marathon, NY 13803
254.00-02-03.000	Walseman, Robert E	7609 Easton St	Lowville, NY 13367
254.00-02-04.100	Brown, Michael J	10645 Station Rd	Lowville, NY 13367
254.00-02-08.000	Zeager Partnership LTD	4000 E Harrisburg	Middletown, PA 17057
254.00-02-09.000	Brown, Michael J	10645 Station Rd	Lowville, NY 13367
254.00-02-11.000	Zeager Partnership LTD	4000 E Harrisburg Pike	Middletown, PA 17057
254.00-02-12.000	Zeager Partnership LTD	4000 E Harrisburg Pike	Middletown, PA 17057
254.00-02-13.000	Zeager Partnership LTD	4000 E Harrisburg Pike	Middletown, PA 17057
254.00-02-14.000	Zeager Partnership LTD	4000 E Harrisburg Pike	Middletown, PA 17057
254.00-02-15.000	Zeager Partnership LTD	4000 E Harrisburg Pike	Middletown, PA 17057
255.00-01-11.000	Zeager Partnership LTD	4000 E Harrisburg Pike	Middletown, PA 17057
255.00-01-12.000	Zeager Partnership LTD	4000 E Harrisburg Pike	Middletown, PA 17057
255.00-01-13.000	Daskiewich, William	115 Carol Ave	Boonville, NY 13309
255.00-01-17.000	Zeager Partnership LTD	4000 E Harrisburg Pike	Middletown, PA 17057
255.00-01-18.000	Zeager Partnership LTD	4000 E Harrisburg Pike	Middletown, PA 17057
255.00-02-06.000	Waligory, John	7188 Beaver Trl	Alder Creek, NY 13301-3520
255.00-02-11.000	Waligory, Clare J	7558 Cedar St	Lowville, NY 13367
256.00-01-02.000	Waligory, John	7188 Beaver Trl	Alder Creek, NY 13301-3520
256.00-01-03.000	Waligory, John	7188 Beaver Trl	Alder Creek, NY 13301-3520
256.00-01-05.000	Stanton Living Trust, Lucian W	7580 E State St	Lowville, NY 13367
256.00-01-07.000	Hindman Trust, Robert W	724 S Ashland Ave	LaGrange, IL 60525
256.00-01-11.000	Thisse, Jerome A	6094 Glenfield Rd	Glenfield, NY 13343
256.00-01-12.000	Toth, Tina L		Martinsburg, NY 13404
257.00-01-17.000	Widrick, Michael A	6303 West Rd	Lowville, NY 13367
257.00-01-18.110	Coteldo, James and Beverly	5388 Stewart St	Lowville, NY 13367
258.00-01-06.111	Jantzi, Loren W	6343 St Rte 26	Lowville, NY 13367
258.00-01-06.112	Demko, Jerome J	6329 St Rte 26	Lowville, NY 13367
258.00-01-07.200	Demko, John	6334 St Rte 26	Lowville, NY 13367
269.00-01-01.000	Zeager Partnership LTD	4000 E Harrisburg Pike	Middletown, PA 17057
269.00-01-03.000	Zeager Partnership LTD	4000 E Harrisburg Pike	Middletown, PA 17057
269.00-01-04.000	Zeager Partnership LTD	4000 E Harrisburg Pike	Middletown, PA 17057
269.00-01-06.000	Zeager Partnership LTD	4000 E Harrisburg Pike	Middletown, PA 17057
270.00-01-01.000	Zeager Partnership LTD	4000 E Harrisburg Pike	Middletown, PA 17057
270.00-01-04.000	Zehr, Thomas	RR1 Box 106B	Castorland, NY 13620

Roaring Brook Wind Power Project

Participating Landowners

Parcel Tax Map ID	Owner	Street Address	City, State, Zip Code
270.00-01-07.000	Waligory, John M	7188 Beaver Trl	Alder Creek, NY 13301-3520
270.00-01-09.000	Thisse, Patrick F	5623 Water St	Lowville, NY 13367
270.00-01-14.100	North Country Properties	5434 Shady Ave	Lowville, NY 13367
270.00-01-15.000	Zeager Partnership LTD	4000 E Harrisburg Pike	Middletown, PA 17057
270.00-01-16.000	Zeager Partnership LTD	4000 E Harrisburg Pike	Middletown, PA 17057
270.00-01-17.000	Zeager Partnership LTD	4000 E Harrisburg Pike	Middletown, PA 17057
270.00-01-19.000	Zeager Partnership LTD	4000 E Harrisburg Pike	Middletown, PA 17057
271.00-01-08.000	Toth, Tina L		Martinsburg, NY 13404
271.00-01-09.000	Nortz John H	6383 West Rd	Lowville, NY 13367
272.00-01-01.000	Town Of Martinsburg		Martinsburg, NY 13404

Joint Application For Permit

Roaring Brook Wind Power Project

Town of Martinsburg, Lewis County, New York



Prepared By:
Environmental Design & Research,
Landscape Architecture, Planning,
Environmental Services, Engineering, and Survey, P.C. (EDR)

Prepared For:
Atlantic Wind, LLC

Respectfully Submitted To:
NYS Department of Environmental Conservation (Region 6 and Central Office)
U.S. Army Corps of Engineers (Buffalo District)

December 29, 2008

Joint Application For Permit

Roaring Brook Wind Power Project

**Town of Martinsburg
Lewis County, New York**

Submitted to: U.S. Army Corps of Engineers, Buffalo District Office
NYS Dept. of Environmental Conservation, Region 6

Prepared for: Atlantic Wind, LLC
c/o Iberdrola Renewables
7557 S. State St. Suite 201
Lowville, New York 13367
Contact: Jenny Burke, Project Developer

Prepared by: Environmental Design & Research,
Landscape Architecture, Planning,
Environmental Services, Engineering and Surveying, P.C. (EDR)
217 Montgomery Street, Suite 1000
Syracuse, New York 13202
Contact: Diane Enders, Project Manager

Submitted: December 2008

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Appendix I:	Introduction to the Deer River Trout Habitat Restoration and Enhancement Project



New York
State

JOINT APPLICATION FORM

For Permits/Determinations to undertake activities affecting streams, waterways waterbodies, wetlands, coastal areas and sources of water supply.



Separate Permits/Determinations must be obtained from each involved agency prior to proceeding with work. Please read all instructions.

US Army Corps of
Engineers (USACE)

1. Check All That Apply: NYS Department of Environmental Conservation <input checked="" type="checkbox"/> Stream Disturbance <input type="checkbox"/> Excavation and Fill in Navigable Waters <input type="checkbox"/> Docks, Moorings or Platforms <input type="checkbox"/> Dams and Impoundment Structures <input checked="" type="checkbox"/> 401 Water Quality Certification <input checked="" type="checkbox"/> Freshwater Wetlands <input type="checkbox"/> Tidal Wetlands <input type="checkbox"/> Coastal Erosion Management <input type="checkbox"/> Wild, Scenic and Recreational Rivers <input type="checkbox"/> Water Supply <input type="checkbox"/> Long Island Well <input type="checkbox"/> Aquatic Vegetation Control <input type="checkbox"/> Aquatic Insect Control <input type="checkbox"/> Fish Control US Army Corps of Engineers <input type="checkbox"/> Section 404 Clean Water Act <input type="checkbox"/> Section 10 Rivers and Harbors Act <input checked="" type="checkbox"/> Nationwide Permit(s) - Identify Number(s): 12, 14 Preconstruction Notification - <input checked="" type="checkbox"/> Y / <input type="checkbox"/> N NYS Office of General Services (State Owned Lands Under Water) <input type="checkbox"/> Utility Easement (pipelines, conduits, cables, etc.) <input type="checkbox"/> Docks, Moorings or Platforms NYS Department of State <input type="checkbox"/> Coastal Consistency Concurrence	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td colspan="2">2. Name of Applicant (use full name) Atlantic Wind, LLC</td> <td colspan="2">Applicant must be (check all that apply): <input type="checkbox"/> Owner <input checked="" type="checkbox"/> Operator <input checked="" type="checkbox"/> Lessee </td> </tr> <tr> <td colspan="2">Street Address Attn: Jenny Burke 7557 South State Street, Suite 201</td> <td colspan="2">Taxpayer ID (If applicant is NOT an individual): 760801145</td> </tr> <tr> <td>Post Office City Lowville</td> <td>State NY</td> <td>Zip Code 13367</td> <td>Telephone (daytime) 315-376-4316</td> </tr> <tr> <td colspan="2"></td> <td colspan="2">Email jenny.burke@iberdrolausa.com</td> </tr> </table> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td colspan="4">3. 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6. If applicant is not the owner, both must sign the application. I hereby affirm that information provided on this form and all attachments submitted herewith is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law. Further, the applicant accepts full responsibility for all damage, direct or indirect, of whatever nature, and by whomever suffered, arising out of the project described herein and agrees to indemnify and save harmless the State from suits, actions, damages and costs of every name and description resulting from said project. In addition, Federal Law, 18 U.S.C., Section 1001 provides for a fine of not more than \$10,000 or imprisonment for not more than 5 years, or both where an applicant knowingly and willingly falsifies, conceals, or covers up a material fact; or knowingly makes or uses a false, fictitious or fraudulent statement.

Signature of Applicant 	Printed Name Allan Query	Title Vice President	Date 12-19-08
Signature of Owner 	Printed Name David De Caro	Title Senior Permit Manager	Date 12-19-08
Signature of Agent	Printed Name	Title	Date

For Agency Use Only	DEC Application Number:	USACE Number:
----------------------------	-------------------------	---------------

JOINT APPLICATION FORM 05/08

Reset

Application Form Page 1 of 2

JOINT APPLICATION FORM - PAGE 2 OF 2

Submit this completed page as part of your Application.

7. Project Description and Purpose: Provide a complete narrative description of the proposed work and its purpose. Attach additional page(s) if necessary. Include: description of current site conditions and how the site will be modified by the proposed project; structures and fill materials to be installed; type and quantity of materials to be used (i.e., cubic yds or square ft of fill material below ordinary high water, or of structures below mean high water); area of excavation or dredging, volumes of material to be removed and location of dredged material disposal or use; work methods and type of equipment to be used; pollution control methods and mitigation activities proposed to compensate for resource impacts; and where applicable, the phasing of activities.

See attached permit narrative and associated appendices.

Proposed Use: ☒ Private ☐ Public ☐ Commercial Will Project Occupy Federal, State or Municipal Land? ☐ Yes ☒ No
If yes, please specify.

Has Work Begun on Project? ☐ Yes ☒ No If Yes, explain.

Proposed Start Date: Spring 2009

Estimated Completion Date: November 2009

8. List Previous Permit / Application Numbers (if any) and Dates:
none

9. Will this project require additional Federal, State, or Local Permits ☒ Yes ☐ No If Yes, please list:
including zoning changes?

FAA Lighting Plan, SPDES, DOT Special Use Permit and Highway Work Permit, Town Building Permit and Special Use Permit

10. Based on the permits and determinations requested and project location, check all the boxes corresponding to each of the Agencies and Offices to which you are filing an application. For Agency addresses and areas covered, refer to the Agency Contact Information on the Application Instructions - Page 2.

☒ **NYS Department of Environmental Conservation**

☐ REGION 1 Stony Brook
☐ REGION 2 Long Island City
☐ REGION 3 New Paltz
☐ REGION 4 Schenectady
☐ REGION 4 Stamford Sub-Office

☐ REGION 5 Ray Brook
☐ REGION 5 Warrensburg Sub-Office
☒ REGION 6 Watertown
☐ REGION 6 Utica Sub-Office

☐ REGION 7 Syracuse
☐ REGION 7 Cortland Sub-Office
☐ REGION 8 Avon
☐ REGION 9 Buffalo
☐ REGION 9 Allegany Sub-Office

☒ **US Army Corps of Engineers**

☐ NY District, NYC

☐ NY District, Watervliet

☒ Buffalo District

☐ **NYS Department of State**

☐ **NYS Office of General Services**

For Agency Use Only

DETERMINATION OF NO PERMIT REQUIRED

Agency Project Number _____

(Agency Name) _____

has determined that No Permit is required from this Agency for the project described in this application.

Agency Representative:

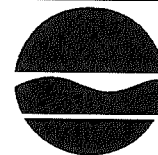
Name (printed) _____

Title _____

Signature _____

Date _____

**New York State
Department of Environmental Conservation**



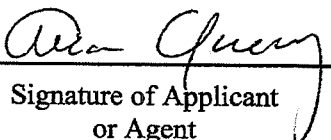
PERMISSION TO INSPECT PROPERTY

The applicant (or the agent of the applicant), by submitting an application for a permit to the Department of Environmental Conservation ("DEC") and by signing this permission form, consents to inspection by DEC staff of the project site or facility for which a permit is sought and, to the extent necessary, the property owned by the applicant adjacent to the project site or facility. This consent allows DEC staff to enter upon and pass through such property in order to inspect the project site or facility, without prior notice, between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday. If DEC staff should wish to conduct an inspection at any other times, DEC staff will so notify the applicant and will obtain a separate consent for such an inspection.

Inspections may take place as part of the application review prior to a decision to grant or deny the permit(s) sought. By signing this consent form, the applicant agrees that this consent remains in effect as long as the application is pending, and is effective regardless of whether the landowner or agent are present at the time of the inspection. In the event that the project site or facility is posted with any form of "posted" or "keep out" notices, or fenced in with an unlocked gate, this permission authorizes DEC staff to disregard such notices or unlocked gates at the time of inspection.

The applicant further agrees that during an inspection in connection with this application, among other things, DEC staff may take measurements, may analyze physical characteristics of the site including, but not limited to, soils and vegetation (and may take samples for analysis), and may make drawings and take photographs.

Failure to grant consent for an inspection can be grounds for, and may result in, denial of the permit(s) sought by the application.

 _____ Signature of Applicant or Agent	Allan Query Vice President _____ Printed Name	12-19-08 _____ Date
--	--	----------------------------------

1.0 Introduction

Atlantic Wind, LLC a wholly owned subsidiary of Iberdrola Renewables (Project Sponsor) is proposing to develop the Roaring Brook Wind Power Project (the Project), in the Town of Martinsburg, Lewis County. The proposed Project is a 39 turbine wind-powered generating facility with a rated capacity of up to 78 megawatts (MW). In addition to the wind turbines, the Project will involve construction of a permanent meteorological tower, an operation and maintenance (O&M) facility, upgrade of existing unpaved logging and Town roads, construction of new gravel access roads, installation of buried electrical lines and a temporary construction staging area. The Project will deliver power to the New York state grid via electrical interconnection line, comprised of both buried and overhead lines on single wood poles structures, and a new substation.

Environmental Design & Research Landscape Architecture, Planning, Environmental Services, Engineering and Surveying, P.C. (EDR) delineated all wetlands, streams, and water bodies within and adjacent to the proposed Project components described above. The Wetland Delineation Report prepared for the Project was subsequently submitted to the U.S. Army Corps of Engineers (Corps) with a request for boundary verification/preliminary jurisdictional determination. Corps and EDR personnel conducted a boundary verification/preliminary jurisdictional determination site visit. Assumptions regarding calculated impacts to Waters of the U.S. are based upon this site visit. EDR also conducted site visits with New York State Department of Environmental Conservation (NYSDEC) regional biologists Mark Craig and Mark Wiggins (Region 6) to confirm the boundaries of NYSDEC Freshwater Wetlands. Assumptions regarding the regulated nature of NYSDEC Freshwater Wetlands described herein are based upon this site visit.

Significant siting efforts were made to avoid and/or minimize potential impacts to delineated wetland areas. However, both permanent and temporary disturbance to NYSDEC regulated freshwater wetlands, regulated adjacent areas (buffers), protected streams, and federal jurisdictional Waters of the U.S. will result from Project construction activities. These impacts must be authorized by the issuance of permits pursuant to Article 15 of New York State's Protection of Waters Program, Article 24 of New York State's Freshwater Wetlands Act, Section 401 Water Quality Certification, and the Nationwide Permit Program (NWP) (NWP's 12 and 14) from the Corps. Mitigation for Project impacts is proposed to occur both onsite and offsite.

2.0 Project Site Description

2.1 Project Area

In a regional context, the Project is located within the Central Tug Hill physiographic region of New York State (Reschke, 1990) (Appendix A; Figure 1). The Project area is in the far southwestern portion of the Town of Martinsburg, approximately 4.7 miles south of State Highway 177 (see Appendix A; Figure 2). It is situated on the Tug Hill Plateau, and is characterized by level to undulating topography. Elevations in the Project area range from 1125 to 2024 feet amsl. According to the Lewis County Soil Survey (1960), slopes within the overall Project area range from 0-25% with smaller ranges in the vicinity of the proposed wind turbines (west end of Project area), which generally range from 0 to 15%. Encompassing portions of the Tug Hill Plateau, the escarpment to the east, and portions of the Black River Valley, the electrical collection line site includes a wider array of topographical features. Elevations in the electrical interconnect site range from 1125 to 1920 feet amsl, while slopes generally range from 0 to 25% (USDA Soil Conservation Service, 1960).

The Tug Hill region is heavily wooded and dominated by northern hardwoods. The upland core of the region is dominated by maples, American beech and yellow birch, mixed with spruce-fir and hemlock. Beyond the core forest, there is successional forest comprised of hardwood species overtaking abandoned agricultural fields. The water resources on Tug Hill include about 117,000 acres of wetlands, nearly 4000 miles of stream channels, three reservoirs and an unlimited supply of groundwater.

The Project area is divided amongst the Black River and Oneida Lake drainage basins (USGS Hydrologic Units 04150101 and 04140202, respectively) (See Appendix A; Figure 3). It contains the headwaters of Roaring Brook, Atwater Creek and several unnamed tributaries as it flows east through the electrical interconnect site and ultimately flows into the Black River (located approximately 10 miles to the east of the Project area in the Black River Valley). The watershed of the Black River is approximately 1,920 square miles in size, including the northern portion of the generating site (Roaring Brook watershed) and almost the entire interconnect site. The North Branch of Fish Creek and its unnamed tributaries flow through the southern portion of the generating site and eventually into Oneida Lake located approximately 45 miles to the south. Oneida Lake has a watershed of approximately 1,470 square miles.

2.2 Project Site

The Project will be developed on leased private land totaling approximately 7,600 acres (Project site). The Project site is comprised of two main areas: the parcels encompassing the locations of the wind turbines (generating site); and the parcels encompassing the electrical interconnection, substation (electrical interconnection site) and an operations and maintenance facility. The proposed location for the generating site is located on approximately 5,280 acres of leased private land, in the far southwestern portion of the Town of Martinsburg. The generating site is bordered to the east roughly by Carey Road, to the west by the Montague town line, to the north of Flat Rock Road one half mile, and to the south by private land bordering French Road and paralleling the town line of West Turin (see Appendix A; Figure 2). Power generated by the Project will be delivered via a 34.5 kV electrical interconnection line to the substation following land under private easement (see Figure 3). The electrical collection site abuts the generating site to the west, has a northern boundary along Centerville Road, a southern boundary approximately one quarter mile north of Fykes Road, and an eastern boundary approximately one half mile east of NYS Route 26.

Prior disturbance, primarily associated with logging, has occurred throughout much of the Project Site, and includes a network of unpaved forest/logging roads. Several seasonal cabins are also located within the generating site. Other previously disturbed areas are associated with road construction, including sites excavated for gravel fill, large mounds of soil pushed up along the roadsides and installed culverts. The locations and extent of previous disturbance areas, culverts, within the generating site are illustrated in Appendix A; Figure 4. Much of the forest road system on site, and its associated culverts through regulated wetlands and streams, were previously authorized by the NYSDEC by permit in 1994 (6-2340-00022/00001). The Project is utilizing this extensively developed system of existing unpaved



Photo 1. Existing Logging Road on Site

forest roads, in order to minimize impacts to both forested and wetland/stream areas and reduce construction costs.

Vegetative communities within the Project site (generating site and electrical interconnection site) include mixed coniferous/deciduous forest, a mosaic of freshwater wetlands and open water systems, streams, and field and active agricultural land. Forestland on the generating site greatly ranges from heavily/recently logged (1999) successional northern hardwood forest primarily dominated by blackberry and sapling yellow birch to spruce-fir forests co-dominated by black spruce and balsam fir. Forestland and wetlands are the dominant community types within the generating site. Similar ecological communities occur along the electrical interconnect site, along with land under active agricultural cultivation.

2.2.1 Project Site Wetlands and Surface Waters

National Wetland Inventory (NWI) mapping covers approximately one third of the Project area. Review of the portion that is covered by the NWI mapping indicates that there are numerous federally mapped wetlands located within and adjacent to the Project Site. The federally mapped wetlands that are available are presented in Appendix A; Figure 6. The NWI maps indicate that forested wetlands are the dominant wetland type on-site. Broad-leaved forested wetlands and needle leaved evergreen wetlands dominate. Less common (on area covered by available data) are emergent wetlands with beaver activity and open water systems.

According to NYSDEC freshwater wetlands and streams mapping and USGS topographic mapping, the Project area contains a significant number of surface water features ranging from small streams and forested wetlands to larger waterways and marshes. NYSDEC mapping indicates that there are 27 wetlands located in the vicinity of the Project site that are regulated under Article 24 of the Environmental Conservation Law (See Appendix A; Figure 7). The state regulatory program classifies its wetlands into four classes. Class I wetlands are the highest quality of wetlands and would be defined as such, for example, due to its large size, variety of cover types, or because it supports important or rare plant communities. At the other end of the spectrum, a Class IV wetland is not as valuable a wetland, and would be identified as such, for example, due to its smaller sizes, monotypic vegetative stands, or low value cover types. All of the State-regulated wetlands on site are Class II, III, or IV. (See Table 1, below and Appendix A; Figure 7). The boundaries of mapped wetlands varied, in some cases significantly, from the delineated wetland boundaries.

Table 1. Mapped State Regulated Wetlands Within the Project Area¹

Wetland	Class¹	Total Size (Acres)	Size Within Project Area (Acres)	Location
P-1	II	449.18	16.98	Generating Site
P-4	II	19.63	19.63	Electrical Interconnect Site
P-8	II	290.63	283.46	Generating Site
P-9	II	49.60	38.66	Generating Site
P-10	II	287.96	152.67	Generating Site & Electrical Interconnect Site
P-11	II	96.11	12.05	Electrical Interconnect Site
P-12	II	16.29	13.04	Electrical Interconnect Site
P-13	III	11.65	7.86	Electrical Interconnect Site
P-14	III	12.25	11.81	Electrical Interconnect Site
P-16	II	20.46	8.87	Electrical Interconnect Site
P-17	III	21.06	3.49	Electrical Interconnect Site
P-18	II	205.21	164.99	Generating Site & Electrical Interconnect Site
P-19	II	333.53	327.63	Generating Site
P-20	III	19.65	19.65	Generating Site
P-21	II	1040.19	35.42	Generating Site
P-22	II	179.58	116.51	Generating Site
P-23	III	26.44	25.60	Generating Site
P-24	II	116.30	29.95	Generating Site
P-26	III	57.78	13.49	Generating Site
P-27	III	80.43	79.95	Generating Site
P-28	II	31.97	27.26	Generating Site
SP-21	III	20.15	9.60	Generating Site
SP-22	III	34.56	8.01	Generating Site
SP-38	IV	29.32	29.32	Generating Site
SP-39	II	434.37	122.91	Generating Site
SP-41	III	51.39	51.39	Generating Site
SP-42	IV	20.64	20.64	Generating Site
SP-43	II	22.00	22.00	Generating Site
SP-44	II	359.53	6.02	Generating Site

¹ Refer to Figure 7 for a map of state regulated wetlands.

² NYS classification system. Four separate classes that rank wetlands according to their ability to provide functions and values (Class I having the highest rank, descending through Class IV).

Under Article 15 of the Environmental Conservation Law (Protection of Waters), the New York State Department of Environmental Conservation (NYSDEC) has regulatory jurisdiction over any activity that disturbs the bed or banks of protected streams. In addition, small lakes and ponds with a surface area of 10 acres or less, located within the course of a stream, are considered to be part of a stream and are subject to regulation under the stream protection category of Article 15. Protected stream means any stream, or particular portion of a stream, that has been assigned by the NYSDEC any of the following classifications or standards: AA, AA(t), A, A(t), B, B(t) or C(t) (6 NYCRR Part 701). A classification of AA or A indicates that the best use of the stream is as a source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. The best usages of Class B waters are primary and secondary contact recreation and fishing. The best usage of Class C waters is fishing. Streams designated (t) indicate that they support trout, and also include those more specifically designated (ts) which support trout spawning. On-site streams are classified by the NYSDEC as Class C, Class C(t), and Class C(ts) waters.

Class C waters are not subject to regulation under the stream protection category of the Environmental Conservation Law, Article 15 (Protection of Waters). However, streams and small water bodies located in the course of a stream that are designated as C(t) or higher (i.e., C(ts), B, or A) are collectively referred to as "protected streams," and are subject to the stream protection provisions of the Protection of Waters regulations. These streams, along with all other perennial and intermittent streams in the study area, are also protected by the Corps of Engineers under Section 404 of the Clean Water Act. .

Based on available NYSDEC stream classification mapping, there are 12 protected streams and tributaries within the Project Area, including Atwater Creek, Edick Creek, North Branch of Fish Creek and Roaring Brook, in addition to numerous unnamed unprotected streams (See Table 2, and Appendix A; Figure 8). There are no streams regulated by Section 10 of the Rivers and Harbors Act of 1899 (navigable waters) within the Project site.

Table 2. Mapped Streams within the Project Area

Name	Class	Status
Atwater Creek	C	Unprotected
Atwater Creek	AA	Protected
Edick Creek	C(t)	Protected
North Branch of Fish Creek	C(t)	Protected
Roaring Brook	C(t)	Protected
Unnamed Tributaries of Atwater Creek	C	Unprotected
Unnamed Tributary of Atwater Creek	AA	Protected
Unnamed Tributary of Edick Creek	C(t)	Protected
Unnamed Tributary of Mulligan Creek	C(ts)	Protected
Unnamed Tributaries of Roaring Brook	C	Unprotected
Unnamed Tributaries of Roaring Brook	C(t)	Protected

2.3 Project Study Area Waters and Wetlands

Qualified EDR ecologists performed identification and delineation of wetlands and streams within the project footprint of the proposed wind power project during the 2007 and 2008 growing seasons (see Appendix B for Wetland Delineation Report). The surveys were conducted within 100 feet either side of the centerline of a proposed access road, 200 feet from a proposed turbine coordinate, 100 feet either side of the buried and overhead collection lines, 50 feet either side of the centerline of Flat Rock Road (between Carey Road and the western side of project area), within the footprint of the wind measurement tower, within the footprint of the staging area/laydown yard, and within the footprint of the building and grading limits of a proposed O&M facility and substation. These areas are collectively referred to as the "study area". Wetland delineations and wetland reconnaissance level investigation were also performed within the vicinity of various project alternatives. However, these wetlands are not substantially described herein.

Wetland delineation methods are as described in the Wetland Delineation Report (Appendix B).

As previously described, wetland delineations were performed only in areas that occur within the vicinity or footprint of proposed Project components. There are numerous large, complex wetland systems within the overall Project Site that were not delineated, or had just a small periphery of the entire system delineated. As previously described, many of these large wetland systems are regulated by the NYSDEC. Correspondence from the New York Natural Heritage Program (NYNHP)

dated November 3, 2008, indicates that the Project area contains four wetland and stream communities considered significant from a statewide perspective: shallow emergent marsh, shrub swamp, marsh headwater stream, and rocky headwater stream. None of these communities are inherently rare within the state. However, the on-site occurrences are considered high quality examples of more common community types due to their large size, diversity, remote location, and undisturbed condition within an intact landscape. NYNHP correspondence is provided in Appendix C.

A total of one hundred seventeen (117) wetlands and streams were delineated by EDR personnel in areas within or immediately adjacent to the Roaring Brook Wind Project study area. These wetlands were identified based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. The delineated areas include forested, scrub-shrub, wet meadows and emergent wetlands, as well as streams and open water areas. Wetland types are described further in the appended Wetland Delineation Report (See Appendix B). Within the Project site, the highest value wetlands are the larger, more diverse wetlands regulated by NYSDEC. Of the 117 wetlands and streams delineated on-site, 17 are protected streams, and 44 are part of the 15 larger state-regulated wetlands within the study area as designated by NYSDEC.

As indicated in Table 5 of the Wetland Delineation Report, 30 of the delineated areas within the Project study area are streams. Fourteen of the delineated jurisdictional wetlands within the Project study area are associated with streams, such as wetlands A and B, which are a part of a larger sedge meadow-stream system. Seventeen delineated streams are part of a protected stream as designated by NYSDEC, which include Roaring Brook, Edick Creek, North Branch of Fish Creek and Atwater Creek and their associated tributaries. On-site streams are mostly lower-gradient streams that meander through wetlands and broad undulating settings. Most streams on the Project site are perennial, with pebble/cobble and silt/mud substrate, and aquatic vegetation. Water depths within the majority of perennial streams are typically 2 to 6 inches in riffles, with pool depths of 0.5 and 2 feet.

The study area for the wetland delineation included many areas where wetland and stream resources were crossed by roads with existing culverts or fords. The existing culvert and roadway network is highly variable including functioning triple metal culvert pipe crossing to small box culverts. A photographic inventory of on-site culverts is provided in Appendix D.

It is important to note that delineated wetland areas were free from invasive non-native species with the exception of a small area of common reed (*Phragmites australis*), found within a previously disturbed area adjacent to the culvert and streambank of delineated wetland MM.

The primary functions provided by on-site wetlands include maintaining surface water flows, recharging groundwater supplies, storm water detention, flood protection and abatement, water quality improvement, wildlife habitat, and nutrient production and cycling. Several of the larger forested wetlands provide habitat for forest-nesting songbirds while the open emergent wetlands offer habitat to migrating and resident waterfowl. Many of the delineated wetlands are portions of much larger systems, which may provide more significant functions and values. Within the Project site, the highest-value wetlands are the larger, more diverse wetlands regulated by NYSDEC.

On August 21, 2008, EDR ecologist Diane Enders and NYSDEC regional biologists Mark Craig and Mark Wiggins (Region 6) performed a site visit to confirm the boundaries of NYSDEC Freshwater Wetlands. Of the 117 wetlands and streams delineated in the survey area, the NYSDEC regional biologists confirmed that 17 are protected streams and 44 are part of 15 larger state-regulated wetlands within the study area as designated by NYSDEC.

On September 29, 2008, EDR submitted a request for a Preliminary Jurisdictional Determination and Wetland Delineation Report to the Buffalo District of the Corps. On October 24, 2008, EDR ecologist Diane Enders and Corps biologist Margaret Crawford (Buffalo District) performed a site visit to confirm the boundaries of the delineated wetlands.

3.0 Project Description

The proposed Project is the construction and operation of a 39 turbine wind-powered generating facility. As presently envisioned, the Project will use the Gamesa Eolica G90 wind turbine (or equivalent), each with a rated capacity of 2.0 megawatts (MW), resulting in a generating capacity of approximately 78 MW for the overall Project. In addition to the erection of the 39 wind turbines, the Project will involve construction of one permanent 100 meter tall free standing meteorological tower, an approximately 4,000 square foot, single story operations and maintenance (O&M) facility, upgrade of 9 miles of existing unpaved forest roads, total replacement of 14 undersized or poor condition culverts, construction of 6.5 miles of new gravel access roads, installation of approximately 12.7 miles of buried electrical gathering lines and a temporary construction staging area. The Project will deliver power to the New York state grid via an electrical interconnection line consisting of 6 miles of 4-circuit buried electrical lines, 3.5 miles of overhead electrical line on 61 treated wood pole structures, and a substation adjacent to an existing National Grid 115 kilovolt (kV) transmission line. Total net generation delivered to National Grid's existing 115 kV line is expected to be approximately 204 GWh, or enough electricity to meet the average annual consumption of approximately 40,000 homes.

Components of the proposed Roaring Brook Wind Power Project are described below and depicted in Appendix A; Figure 5. These descriptions also provide a summary of anticipated construction measures and efforts to minimize impacts, where applicable. Project construction is anticipated to start in the spring of 2009 and be completed by the end of 2009.

3.1 Wind Turbines, Foundations and Associated Workspaces

The wind turbine proposed for this Project is the Gamesa Eolica G90 wind turbine (or equivalent), with a rated capacity of 2.0 MW. Each wind turbine consists of three major components; the tower, the nacelle, and the rotor. The total turbine height (i.e., height at the highest blade tip position) will be approximately 476 feet. The towers used for this Project are 100-meter (328-foot) tubular steel towers. The towers are manufactured in five sections, each of which are trucked separately to the site and bolted together using internal flanges. Each wind turbine is mounted on a buried, poured concrete foundation. The concrete bases have a diameter of approximately 70 feet and a top diameter of approximately 26 feet, and are approximately 9 feet deep. A mobile concrete batch plant is not anticipated or proposed at this time. If it is subsequently determined necessary, it would be located within the proposed staging area, O&M facility or another available upland area on or near the Project. Once the foundation concrete is sufficiently cured, the excavation area around and over it is backfilled with the excavated on-site material.

Each tower will have an access door, internal lighting, and an internal ladder to access the nacelle. The main mechanical components of the wind turbine are housed in the nacelle, which sits atop the tower. These components include the drive train, gearbox, and generator. The nacelle is housed in a steel reinforced fiberglass shell that protects internal machinery from the environment and dampens noise emissions. A rotor assembly is mounted to the nacelle to operate upwind of the tower. Each rotor consists of three composite blades that will be approximately 44 meters (144 feet) in length (total rotor diameter of 90 meters or 295 feet). The rotor attaches to the drive train at the front of the nacelle. Hydraulic motors within the rotor hub feather each blade according to wind conditions, which enables the turbine to operate efficiently at varying wind speeds.

Turbine erection is performed in multiple stages including vegetation removal, topsoil stripping and stockpiling, excavation of the foundation hole, pouring the foundation, backfilling the foundation, erection of the tower (in 5 sections), installation of the nacelle, assembly and attachment of the rotor, connection and termination of the internal cables, and inspection and testing of the electrical system

prior to energization. Initial activity at each tower site will involve clearing and grading in an area of approximately 150-foot radius around each tower. This turbine workspace is required for rotor assembly, so that the three 144-foot blades may be laid out and assembled on the ground. Following turbine construction, the workspace will be reduced to an approximately 100 foot by 115 foot level crane pad and the remainder of the workspace will be restored utilizing stockpiled topsoil. Cleared areas within the rotor laydown area will be stabilized/seeded with an appropriate seed mix, allowed to regenerate, but will be maintained to prohibit mature tree growth. See a typical turbine workspace diagram in Appendix E.

No delineated wetlands or streams occur within the footprint of proposed grading or clearing for wind turbines and their associated workspaces.

3.2 Electrical System

The proposed Project is anticipated to have an electrical system that consists of an electrical gathering line system, electrical interconnection line system and point of interconnection/collection station, as described below.

Electrical Gathering Line System: A transformer located near the base of the tower or the interior of the nacelle, will raise the voltage of electricity produced by the turbine generator up to the 34.5 kV voltage level of the collection system. From the transformer, power cables along with the fiber optic communication cables will collect the electricity produced by wind turbine generators to be connected to one of four underground circuits. These power lines will be installed primarily within Project access roads and the system of existing Project site roads to be upgraded.

Electrical Interconnection Line System: Off of the generating site, buried electrical lines will continue eastward for approximately 5 miles, at which point the underground power lines will become overhead, with each of two overhead 34.5 kV circuits hung from a 3.5-mile long series of 61 wooden poles. This overhead line will terminate at the 115 kV substation and interconnection point.

Point of Interconnection/Collection Station: The collection substation will be located on a private parcel of land located off of Lee Road adjacent to the existing National Grid 115kV Taylorville-Boonville Line. It is the terminus of the collection system, and will transform the voltage of this system from 34.5 kV to 115 kV. The fence line of the station will be approximately 200 by 250 feet in size and will include 34.5 and 115 kV busses, a transformer, circuit breakers, towers, a control building, and related structures. The substation will be enclosed by chain link fencing and will be accessed by a new gravel access road 16 feet in width (see Appendix E). The point of interconnection station (POI station) will be located immediately adjacent to the collection substation. The fence line will be approximately 250 by 250 feet in size and will encompass electrical switches and related equipment necessary to tie into one of the two existing circuits that comprise the National Grid 115 kV Taylorville-Boonville line.

Impacts associated with buried sections of 34.5 kV electrical interconnect will result from soil disturbance and the clearing of vegetation necessary to accommodate installation machinery and bury the cable. These impacts are temporary because, no grubbing or removal of stumps are required and vegetation will be allowed to grow back along the 34.5 kV right of way and pre-construction grades and soil conditions will be restored following installation. The overall temporary footprint of buried electrical interconnect disturbance will not exceed a maximum width of 30 feet for vegetation clearing and 25 feet for soil disturbance.

Direct burial of the interconnect line through use of a cable plow, rock saw, and/or trencher will be the preferred form of installation whenever possible (see Appendix E for typical buried interconnect details). Direct burial with a cable plow will involve the installation of bundled cable (electrical and fiber optic bundles) directly into a “rip” in the ground created by the plow blade. Four buried electrical circuits will be installed parallel with bundled cable installed to a minimum depth of 36 inches and an overall soil disturbance corridor of 25 feet. An area up to 30 feet wide may be cleared of tall-growing woody vegetation and may be disturbed by the tracks of the installation machinery. However, this disturbance does not involve excavation of the soil or removal of stumps. Generally, no restoration of the rip is anticipated, other than surficial compaction and smoothing. Similarly, surface disturbance associated with the passage of machinery is typically minimal. Should additional surface restoration be required, a small excavator or bulldozer will closely follow the installation, to restore pre-construction contours.

Direct burial with a trencher involves the installation of bundled cable in a similar fashion to cable plow installation. The trencher or rock saw uses a large blade or “saw” to cut a narrow open trench through the soil. Similar to cable plow, this direct burial method installs the cable a minimum of 36 inches deep. However, a clearing width of up to 30 feet is still required to accommodate the installation machinery. A small excavator or bulldozer will replace sidecast material. All areas will be returned to pre-construction grades, and restoration efforts will be as described above for cable plow installation.

Open trench installation with a backhoe or excavator will be used only in areas where the previously described direct burial methods are not practicable. Open trench installation will generally result in a disturbed trench 36 inches wide and a minimum of 36 inches deep. Excavated topsoil and subsoil are piled on either side of the trench. The overall temporary footprint of vegetation and soil disturbance may be up to 15 feet per each trench, due to machinery activity and backfill/spoil pile placement during installation. Replacement of spoil material will occur immediately after installation of the buried cable. Subgrade soil will be replaced around the cable, and topsoil will be replaced at the surface. Restoration of these areas will be completed through seeding and mulching of all exposed soils.

Overhead portions of the electrical interconnection line will generally be constructed from one end to the other, without skipping any pole. Poles will be placed into augured holes (auger diameter is approx. 24”). Holes are augured with a vehicle mounted boom and hydraulic head. To the largest extent possible, each pole’s hardware and appurtenances will be assembled and mounted to the pole while the pole is laying upon the ground, before each pole is set into an augured hole. Once all structures have been set, wire stringing operations will begin and all new conductors will be pulled into place in sections. The length of sections will be largely dependent upon site conditions and length of wire on each reel. Temporary access will be required to construct the overhead and underground sections of the 34.5 kV electrical interconnection line between the POI/collection station and the generating site. Clearing and minor grading will only be done to the extent necessary for access by off-road type construction vehicles. In the vicinity of protected streams along the electrical interconnection site, clearing or vehicular access within 50 feet of protected streams will be restricted to avoid impacts to protected streams. See Wetland/Stream 7V (WSI 43; Appendix G) for an example of the restricted area.

Any stockpiled soil and/or spoil material will only be temporary and will be restored (i.e., spread and graded to match original contours following construction activities). In addition, appropriate sediment and erosion control measures will be implemented, which will ensure that temporarily stockpiled soil and/or spoil material will not result in significant sedimentation or turbidity to local surface waters.

3.3 New and Upgraded Access Roads

The Project will require the construction of new roads, or the upgrade of existing unpaved forest/logging roads to provide access to the proposed turbines and substation. The total length of access road required to service the project is approximately 15.5 miles, of which 9 miles will be upgraded unpaved forest roads and 6.5 miles will be new gravel access roads. Road widths vary and will either be 16 feet or 38 feet (driving surface) depending upon crane travel activity. Figure 9 of Appendix A illustrates which road segments will be 16 feet, and which will be 38 feet. Typical construction (pick-up trucks, dump trucks, etc.) equipment will require a driving surface of 16 feet with some turn-offs/turn-arounds to safely move around the Project site during construction and long term operation and maintenance. Certain road segments will be built or improved to a driving surface of 38 feet wide to accommodate safe movement of erection cranes and oversized delivery equipment during the construction and operation/maintenance of the facility. Turning corner radii will also be created to accommodate safe crane travel around the site.

The Project is utilizing an extensively developed system of existing unpaved forest roads in order to reduce construction costs and to minimize impacts to both forested and wetland/stream areas. Existing unpaved forest roads on the generating site are between 10 and 16 feet wide with multiple existing culvert crossings of primarily protected streams and associated riparian wetlands. Improvements to existing roads will involve vegetation clearing (only as needed), earthwork to widen existing roads to between 16 and 38 feet, and the replacement of 14 undersized, poor condition culverts (primarily metal) with appropriately sized high-density polyethylene (HDPE) culverts. As previously described, an existing culvert survey is provided in Appendix D. Proposed culvert replacements in locations where regulated impacts are anticipated are described in Appendix G. Once construction is complete most roadway areas will be maintained at their constructed surface width for the long term maintenance and access of the wind turbines. However, in five locations where existing road widths are only 10 feet and are located in the vicinity of high-quality fish-bearing streams, restoration will be performed to restore 38-foot wide roads to 16 foot wide roads post-construction. Specifically, disturbed areas at delineated wetlands/streams Y, 2A, 2V, 2W and 2X will be restored (including removal of excess road material, de-compaction, and rock removal in wetland areas) and returned to an operational width of 16 feet (see operational widths provided in Figure 9). Pre-construction surveys of road width and grade have occurred in these locations. Additionally, in these five wetland locations, upgraded culverts will be installed (if specified), in only one activity and maintained for the duration of Project operation (no further culvert replacement will occur for a final road alignment). Post construction restoration will be focused on removal of fill, re-establishment of contours, and revegetation in the disturbed areas around these five wetlands. Total and permanent fill in these five wetland areas is illustrated on separate sheets (total wetland impacts and permanent wetland impacts) in Appendix G, Sheets WSI 19, 20 and 24.

Where an existing forest road is unavailable or unsuitable, new 38-foot wide gravel-surfaced access roads will be constructed. New road construction will involve topsoil stripping and grubbing of stumps, as necessary. Stripped topsoil will be stockpiled along the road corridor for use in site restoration (within designated limit of disturbance illustrated in Appendix G. Any grubbed stumps will be removed, chipped, or buried. Following removal of topsoil, subsoil will be graded, compacted, and surfaced with 8 to 12 inches of gravel or crushed stone. A geotextile fabric or grid will be installed beneath the road surface, if necessary, to provide additional support.

Where access roads are adjacent to, or cross wetlands, streams or drainage ditches/swales, appropriate sediment and erosion control measures (e.g., silt fence) will be installed. A typical

installation is indicated in Appendix E. Sediment and erosion control measures will be implemented in compliance with an approved Stormwater Pollution Prevention Plan (SWPPP) prepared and accepted for the Project. A Preliminary SWPPP, detailing proposed measures, is included as Appendix F.

3.4 Public Road Improvements

The Project will utilize local town roads to deliver oversized equipment to the Project site. Minor widening and improvements to a 1.5-mile segment of Flat Rock Road will be necessary to accommodate tractor-trailer access to the site. The improvements include widening the existing 14' wide gravel road to a 16' wide gravel road, and the replacement or installation of new 18" CMP culverts to improve drainage. The improvement area includes a segment located west of Carey Road to the construction entrance located north of Turbine 3. Based upon transportation evaluation performed by CME, only this limited portion of Flat Rock Road will be improved to allow for the transport of wind turbine components by over-sized vehicles. Improvements are similar to those described above for other existing unpaved forest roads.

3.5 Meteorological/Wind Measurement Tower

One 100-meter (328-foot) tall wind measurement tower (meteorological tower) will be installed to collect wind data and support performance testing of the Project. The tower will be a self-supporting galvanized tubular or lattice steel structure, and will be equipped with wind velocity and directional measuring instruments at three different elevations. The wind measurement tower is located in the northwest corner of the generating site adjacent to Turbine 1 (See Appendix A; Figure 5).

No impacts to wetlands or stream resources are anticipated as a result of the construction or operation of the meteorological tower.

3.6 Staging Area

Construction of the Project will require the development of a temporary construction staging area. It is currently anticipated that only one staging area will be necessary for the turbine facilities, which will accommodate construction trailers, storage containers, large project components, and parking for construction workers. The staging area is anticipated to be up to ten acres in size, and will be located near the vicinity of Turbine 8 at the intersection of two private roads (Alaska Hwy./Joe's Pond Rd.). No fencing or lighting of the staging area is proposed (See Appendix A; Figure 5).

No impacts to wetlands and/or stream resources are anticipated as a result of the temporary construction staging area use.

3.7 Operations and Maintenance Facility

An O&M facility will house the command center of the Project's supervisory control and data acquisition (SCADA) system. The building will be linked by fiber optic cables to each of the turbines through the SCADA system, which allows an operator to control critical functions and the overall performance of each turbine. A storage yard adjacent to the O&M building will house equipment and materials necessary to service the Project. It is anticipated to be up to 4,000 square feet in size and located on a private parcel of land located on Flat Rock Road, east of the generating site and north of the electrical collection site (See Appendix A; Figure 5).

No wetland impacts associated with the construction or operation of the O&M facility are anticipated or proposed.

4.0 Project Impacts

Although Project activities are occurring in close proximity to significant areas of wetland and stream resources, permanent loss to federal jurisdictional and state regulated wetlands and even temporary impacts to these resources are relatively small as a result of adherence to specific design criteria aimed at avoiding or mitigating such impacts. These relatively small impacts from the Project primarily occur within fish-bearing perennial protected streams located on the generating site, as a result of culvert replacement activities and road widening. Additionally, there will be some disturbance within the 100-foot regulated adjacent areas to NYSDEC freshwater wetlands as a result of clearing and earthwork activities. Therefore, the majority of Project's relatively small impacts to regulated areas are primarily stream and watershed disturbances. Wetland/stream impact and regulated adjacent area avoidance/minimization was a key consideration during the siting of wind turbines and associated infrastructure.

A total of 78 areas of temporary and permanent impact, including 24 stream crossings, are anticipated to occur due to Project construction. This section characterizes and quantifies all Project impacts within regulated areas. Impacts to wetlands and streams are illustrated in Appendix G; Proposed Wetland and Stream Impacts (labeled WSI). Disturbance within NYSDEC regulated adjacent areas are illustrated in Appendix G; Proposed Regulated Adjacent Area Disturbances (labeled AAI). Impacts to all regulated areas are summarized in tabular form in Appendix G; Summary of Stream and Wetland Impacts.

4.1 Efforts to Avoid and Minimize Impacts

Significant effort has been made to avoid/minimize impacts to wetlands and streams and regulated NYSDEC adjacent areas. Project design and development has undergone continuous alternatives analysis with a focus on avoiding or minimizing impacts on wetlands and streams. Based upon wetland delineations and stream surveys, Project components and construction limits were altered to avoid/minimize impacts to the maximum extent practicable. Impacts were further avoided/minimized by utilizing existing forest roads to access turbine sites, burying electrical lines in the footprint of access road improvements, burying the majority of all electrical interconnection lines and using a small workspace around each turbine during construction. Through these efforts, consideration of engineering constraints, and by working with the private landowners that have agreed to host various project components, the Project sponsor ultimately defined a project layout that avoids/minimizes wetland and/or stream impacts to the maximum extent practicable -- in that this Project design avoids/minimizes Project impacts while still achieving the Project Sponsor's objectives, and other social and economic policy goals supported by the Project.

In an effort to avoid or minimize overall impacts to jurisdictional streams and wetlands and NYSDEC regulated adjacent areas, Project design was guided by the following basic criteria during the siting of wind turbines and associated infrastructure:

- All wind turbine foundations, crane pads, the substation, the staging area, the meteorological tower, and the O&M building have been sited to avoid temporary or permanent impacts to streams and wetlands.
- A substantial system of unpaved roads, previously used for tractor-trailer based logging activities performed by a previous landowner, exist on the generating site. Use of these

existing roads for construction access and buried electrical lines significantly avoids/minimizes additional wetland impacts on site.

- The number and overall impacts resulting from access road crossings and culverts have been significantly minimized by avoiding wetlands to the extent practicable and utilizing existing culverted crossings wherever possible.
- When access roads must cross wetland areas, these roads have been routed so that wetland impacts are minimized by crossing the wetland in the narrowest location practicable.
- No breaching or removal of beaver dams is anticipated or proposed.
- Buried electrical lines to be installed under replacement culverts will be conducted in one continuous action to avoid repeated disturbances at crossings associated at different construction staging sequences.
- In some sensitive wetland/stream crossing locations where such restoration is feasible, proposed roadways would be reduced to a permanent driving surface width of 16 feet.
- Buried electrical lines will avoid crossing wetlands when possible and will utilize installation techniques that minimize temporary wetland impacts when crossings are necessary.
- On the generating site, all buried electrical lines will be installed coincident with the footprint of disturbance of all new or existing access roads and turbine grading limits to consolidate impacts areas.
- No temporary or permanent stockpiling of spoil or other construction debris or material will occur within wetland or stream areas.
- With respect to regulated adjacent areas, where available, these areas were preferred in an effort to minimize impacts to delineated wetlands and streams. A significant portion of the existing roadway system on site used to develop the project access roads are located within the regulated adjacent areas of NYSDEC freshwater wetlands.

All wetland, stream and regulated 100' adjacent area disturbances described herein are based upon a preliminary engineering plan, with limits of disturbance based upon conceptual grading, clearing and installation of buried electrical lines, as prepared by Creighton Manning Engineers (CME) and delineated wetland and stream boundaries delineated by EDR. Impacts to wetlands and streams are depicted by delineated wetland alphanumeric identification in Appendix G. Project plans are provided in Appendix E.

4.2 Temporary Wetland and Stream Impacts

Temporary impacts to wetlands and streams are anticipated to occur as a result of two activities:

1. Temporary placement of fill to create 38-foot wide (driving surface) access roads at existing or new wetland and stream crossings. Roadway grading and minor non-forested clearing, culvert replacement/upgrade and installation of buried electrical gathering lines are included in this activity.
2. Temporary ground disturbance and clearing (no grubbing) in emergent, wet meadow, and scrub-shrub wetlands associated with the installation of 4-parallel buried circuits to interconnect the generating site to the substation.

A total of 2.88 acres of temporary wetland impact, plus 270 linear feet of temporary stream impacts, are anticipated to occur. Of these temporary impacts, 1.45 acres of temporary wetland impacts are within State regulated wetlands (including portions of NYSDEC Freshwater Wetlands P-4, P-11, P-14, P-19 and P-27), and 65 linear feet of protected streams (including portions of Roaring Brook).

Temporary impacts are illustrated and described at each wetland crossing location in Appendix G.

4.3 Permanent Wetland and Stream Impacts

Permanent wetland impacts (loss of wetland acreage) resulting from the Project will be associated with two activities:

1. Permanent placement of fill to create 16 to 38-foot wide access roads at existing or new wetland and stream crossings. Total culvert replacement/upgrade and associated outfall stabilization (rip-rap) is included in this activity.
2. Installation of permanent single wood poles associated with the overhead electrical interconnection line.

Fill and pole installation activities described above are estimated to result in approximately 0.38 acre of permanent impacts to wetlands and 295 linear feet of streams. Of the permanent impacts estimated above, 0.30 acres are impacts to state regulated wetlands (including portions of NYSDEC Freshwater Wetlands P-1, P-8, P-10, P-19, P-22, P-27, and P-28) and 267 linear feet of state protected streams (including portions of Roaring Brook, tributary to Roaring Brook, tributary to Edick Creek, tributary to Mulligan Creek, North Branch of Fish Creek, and tributary to North Branch of Fish Creek).

4.4 Conversion of Forested Wetland to Non-forested Wetland Types

Conversion of forested wetlands to other non-forested wetland covertypes may occur associated with the installation of 4-parallel buried circuits to interconnect the generating site to the substation, and clearing along the edges of roadways on the generating site. No grubbing of stumps is anticipated along the buried electrical interconnection line and root systems will be left in tact. Clearing in forested wetlands is anticipated to convert up to 0.3 acre of forested wetlands (of which 0.01 acre is state regulated including a portion of NYSDEC Freshwater Wetland P-10).

4.5 Project Activities within NYSDEC 100' Regulated Adjacent Areas

Disturbances to the 100-foot regulated adjacent areas to all NYSDEC Freshwater wetlands will occur primarily as a result of the following two activities:

1. Clearing (no grubbing) and earthwork associated with the creation of work staging/turbine assembly areas located at the base of each turbine.
2. Clearing (no grubbing) and earthwork associated for the creation of 16 to 38-foot wide access roads at existing or new wetland and stream crossings. Total culvert replacement/upgrade and associated outfall stabilization (rip-rap), and installation of buried electrical gathering lines are included in this activity.

The above-described activities will occur within approximately 11.84 acres of regulated areas adjacent to NYSDEC Freshwater wetlands (including portions of P-1, P-8, P-10, P-11, P-14, P-18, P-19, P-22, P-23, P-26, P-27, P-28, SP-38, SP-39, and SP-43). Approximately five acres of this total is previously disturbed/developed land consisting primarily of unpaved logging roads and previously cleared spoil pile areas.

4.6 Summary of Impacts

In summary, construction activities will result in a total of 78 individual crossings of streams/wetlands and disturbances to regulated adjacent areas. The total permanent impact (wetland loss) to wetlands/streams at the revised Project site is anticipated to be 0.38 acre, and primarily associated with the upgrade of existing access roads or the construction of new access roads. Additionally, upgrade of existing access roads, Flat Rock Road, and the construction of new roads will involve permanent impacts to 295 linear feet of streams. These calculations include impacts to portions of 0.30 NYSDEC mapped-regulated Freshwater Wetlands, and 267 linear feet of 9 protected streams.

Other minor impacts to wetlands will result from construction-related clearing activities (e.g. brush-hogging before installation of buried electrical interconnects) in forested wetlands that will not result in a loss of wetland acreage, but will result in the conversion of forested wetlands to systems dominated by shrub and herbaceous vegetation (scrub-shrub/wet meadow/emergent). Activities that will result in the conversion of forested wetland vegetation are primarily and total up to 0.30 acre, including 0.01 acre of NYSDEC Freshwater Wetlands.

Approximately 2.88 acres of disturbance to wetlands, and 270 linear feet of streams will be temporary in nature. This includes approximately 1.45 acres of state regulated wetlands and 65 linear feet of protected streams. Proposed restoration areas include portions of access roads at sensitive crossings, and electrical interconnect crossings. These areas will incur temporary impacts, as they will be restored to preexisting grade and allowed to revegetate following construction. Restoration activities in wetland areas or wetland or streams will be conducted in accordance with issued NYSDEC and/or Corps permits, as applicable. It is anticipated that restoration activities will generally involve fine grading to re-establish grades to the preconstruction contours, seeding with an appropriate wetland seed mix containing only native species, and mulching as necessary. Restoration activities will be conducted during the growing season. All erosion control devices will remain in place until seed is established.

Finally, because avoidance of delineated wetlands and streams was a priority during Project siting, upland areas located within regulated 100' adjacent areas of NYSDEC freshwater wetlands were preferred over wetland/stream impacts. Disturbances to the 100-foot regulated adjacent areas to NYSDEC Freshwater wetlands will occur primarily as a result of preparation of turbine workspaces and upgrade of existing access roads. The above-described activities will occur within approximately 11.84 acres of regulated areas adjacent to NYSDEC Freshwater wetlands of which approximately five acres is previously disturbed/developed land consisting primarily of unpaved logging roads and previously cleared spoil pile areas.

5.0 Proposed Mitigation

Mitigation for unavoidable permanent impacts (acreage loss) to regulated/jurisdictional wetlands and streams are proposed both onsite and offsite. These include measures implemented on-site during construction, in addition to off-site concurrent with construction. Total permanent impacts to wetlands are anticipated to be 0.38 acres, while permanent impacts are proposed to 295 linear feet of streams. Direct mitigation for these impacts is proposed at a ratio of approximately 10:1 (mitigation to impacts), as further described below. No mitigation for temporary impacts to streams or wetlands is proposed, as these areas will be restored and no loss of their long-term functions or values is anticipated. Additionally, no direct mitigation for disturbance to regulated adjacent areas is proposed, although significant restoration and watershed level improvements are proposed.

The following four mitigation measures are proposed to mitigate for unavoidable adverse environmental impacts to state regulated freshwater wetlands, protected streams, and federal jurisdictional activities within waters of the U.S. resulting in the loss of wetlands:

Mitigation Measure #1: Significant improvements to onsite water quality, fisheries habitat, and fish passage through installation of appropriately sized culverts at elevations that improve flows.

In selected locations, potential high quality fisheries habitat exists, but poor culvert design is impacting fish-passage. The Applicant consulted with regional NYSDEC biologists, to select three specific locations for specific fisheries improvements. These include delineated streams A/B (Roaring Brook), 2E (unnamed tributary to North Branch of Fish Creek), and 2Z (North Branch of Fish Creek), which will be crossed by structures designed using an embedded round culvert streambed simulation strategies, as illustrated in Appendix E. This streambed simulation strategy will involve installation of round culverts of corrugated plastic, which will replace existing variable sized metal culverts. They are suitable for use at these sites where slopes range from 0% to 3%. When properly installed, embedded round culverts are another means of simulating streambeds, and can be “fish friendly” (USFWS, 2008). These culverts should be slightly wider than the bankfull width, installed at the same slope as the natural channel slope, and embedded 20% below grade for the full length of the culvert. Natural stream substrates provide habitat features that support plant and animal stream life, including shelter, food, and spawning areas. According to the US Fish & Wildlife Service (2008), natural substrates such as gravel, rock, sand, and woody debris are just as valuable when contained within culverts.

Mitigation Measure #2: Professional engineering treatment of existing unpaved forest roads, to improve grades, stabilize road edges, and reduce soil erosion on site through appropriate restoration.

The condition of logging roads on the generating site includes significant areas of unstabilized side slopes, steep banks, improper drainage or no drainage treatments, and exposed soils. In many culvert crossing locations adjacent to sensitive fish-bearing streams and riparian habitats, erosion around culverts and undercut road banks are causing siltation and water quality impacts.

Improvements to the existing site will include a professional engineering treatment of site drainage, soil stabilization, and erosion control during construction and post-construction restoration. Approximately nine miles of existing logging roads will be used for Project construction which will be regraded with 1:3 side slopes and improved erosion control measures (rock check dams, waterbars) adjacent to wetland areas. Although some of the professional engineering treatment to improve site conditions will result in minor permanent wetland impacts as described in Section 3.3, these stabilizing measures will improve the long-term water quality on the Project site through significantly stabilizing site soils. All disturbed areas along road edges will be regraded, stabilized and seeded with an appropriate seed mix, and allowed to regenerate.

Mitigation Measure #3: Use of Best Management Practices during construction, to protect onsite water quality.

Stream and wetland siltation and sedimentation impacts will be limited by keeping soil distribution to a minimum, and employing a comprehensive erosion and sediment control program. The direct impacts of wetland and stream crossings will be minimized by utilizing existing disturbed crossing locations whenever possible. Special dry crossing techniques, equipment restrictions, herbicide use restrictions and erosion and sedimentation control measures will be utilized to reduce impacts to

water quality, surface water hydrology and aquatic organisms. Clearing of vegetation along stream banks and in wetland areas will be kept to the absolute minimum necessary to allow safe Project construction and operation.

Where crossings of surface waters and wetlands are required, the Project sponsor will employ Best Management Practices and the latest construction measures associated with particular, applicable streamside and wetland activities. Specific mitigation measures for protecting wetlands and surface water resources will include the following:

- *No Equipment Access Areas* - Whenever available and practical, alternate access will be used and the stream channel or wetland will be designated "No Equipment Access," thus prohibiting the use of motorized equipment. For example, see delineated stream 7V/Atwater Creek (WSI 43 of Appendix G).
- *Restricted Activities Area* - A buffer zone of 50 feet will be established where project construction traverses protected streams. Restrictions will include:
 - No deposition of slash within or adjacent to a waterbody;
 - No accumulation of construction debris within area;
 - Herbicide restrictions;
 - No degradation of stream banks;
 - No equipment washing or refueling within restricted area; and
 - No storage of any petroleum or chemical material.
- *Temporary Access* - When accessing transmission poles within wetlands, temporary roads, consisting of timber and/or plastic mats will be utilized if necessary (i.e. flowing water across the work site). See delineated wetlands 6K (WSI 54 of Appendix G).
- *Sediment and Siltation Control* - Wetlands which are not directly impacted by construction activities will be protected from indirect impacts during construction by utilizing various erosion and sediment control measures, including silt fences and/or hay bales placed between the wetland boundaries and construction areas. Exposed soil will be seeded and/or mulched to assure that erosion and siltation is kept to a minimum along the wetland boundaries. Refer to specific control measure specified in the project Preliminary SWPPP included as Appendix E. To assure impacts are minimized to the maximum extent practicable, sediment and erosion control measures will be implemented wherever project construction occurs within, or adjacent to, wetlands and/or streams. In addition, a SWPPP will be implemented during construction. The Preliminary SWPPP is included as Appendix E.
- *Low Impact Stream Crossings* - The Applicant and its contractors will adhere to any permit special conditions pertaining to low impact stream crossing techniques and seasonal work restrictions in stream crossings. Wetlands temporarily disturbed during construction will be restored to their original grade and stabilized with an appropriate seed mix. This will allow preconstruction wetland vegetation and hydrology to become reestablished following construction.
- *Implementation of an Invasive Species Control Plan* – The Applicant will require its contractors to adhere to an invasive species control plan to minimize spread of invasive non-native species propagules into regulated wetland areas. The plan is included as Appendix H.

To assure compliance with proposed impact minimization measures during construction, the Applicant will provide the construction contractor copies of all applicable Corps permits (Section

404), NYSDEC permits (Article 24 and 15, 401 Water Quality Certification), and site specific plans detailing construction methodologies sediment and erosion control plans and required natural resource protection measures. The Applicant will employ one Environmental Monitor during construction. The Environmental Monitor will be familiar with all wetland permitting conditions and will provide construction observation during the installation of all sediment and erosion control and wetland and stream crossings. The monitor will oversee the stabilization and restoration of all stream and wetland areas temporarily disturbed during construction, to assure that preconstruction conditions, functions and values are restored.

Mitigation Measure #4: Implementation of a trout habitat restoration and enhancement plan on NYSDEC Land at Sears Pond, located within the watersheds of Edick Creek, Mulligan Creek, and Deer River.

The Project sponsor proposes to partner with Lewis County Soil and Water Conservation District to provide technical and financial assistance towards the Sears Pond Trout Habitat Restoration and Enhancement Project. Located in the Sears Pond State Forest (NYS reforestation area), the restoration project is located at the site of a former large sawmill impoundment on the East Branch of Deer River. Preliminary plans contemplated by Lewis County, in association with the Tug Hill Commission and NYSDEC, specify primary activities to include riparian buffer restoration and installation of habitat enhancement features along 3,000 feet of the Deer River streambank downstream of the dam. Restoration and enhancement measures may include tree planting to restore stream cover and lower water temperatures, installation of J-hook rock/log vanes and creation of in-stream pools. Project plans may also include public fishing access improvements including a small gravel parking lot and improvements to a gravel access drive or pedestrian path. To measure success of each enhancement and restoration measure, a pre and post-water quality assessment will be completed at each location. Parameters that will be compared include stream width, depth, velocity, temperature, dissolved oxygen, and total suspended solids. Biological assessment of fish and macroinvertebrate assemblages will also be utilized to characterize stream health.

The Project sponsor has had preliminary discussions with Lewis County Soil and Water Conservation District and NYSDEC regarding steps needed to detail financial assistance that may be provided towards the habitat restoration and enhancement plan. Additional information will be provided to the NYSDEC and Corps as plans develop further on this mitigation measure. Additional information regarding the Sears Pond habitat restoration and enhancement plans are included as Appendix I.

6.0 Alternatives

The Applicant has prepared a Draft Environmental Impact Statement, which outlines, in some detail, the alternatives analysis undertaken for the proposed project including alternative project sites, alternative project design/layout, alternative project size and the no action alternative (EDR, 2008). Subsequently, the Applicant has submitted a draft Supplemental Draft Environmental Impact Statement with additional discussion regarding alternatives analysis including an amplified discussion of the details on the micro-siting of wind turbines and project components, and a description of key alternatives considered (EDR, 2008a)

As stated in Section 4.1, significant effort has been made to avoid impacts to wetlands and streams, and NYSDEC regulated adjacent areas. Project design and development has undergone continuous alternatives analysis with a focus on wetland and stream impact avoidance. The Project sponsor has minimized impacts to the maximum extent practical, primarily through utilizing existing forest roads to access turbine sites, burying electrical lines in the footprint of access road improvements, burying

the majority of all electrical interconnection lines and using a small workspace around each turbine during construction.

Permanent impacts have been reduced to only locations where new access roads are required (no existing crossings are available), in locations of undersized/poor condition culverts, and where upgrades to existing roads are necessary to allow safe crane travel and construction access. Minor impacts are also anticipated along the overhead portion of electrical collection line where three wood poles will be sited in wetlands that cannot be spanned. Where initial layouts sited turbines in wetlands, turbines were relocated to avoid these areas. Additionally, areas of forested wetlands have been avoided to the maximum extent practicable, largely as a result of staying within the footprint of existing roadways. Clearing related impacts to forested wetlands is largely isolated to the electrical interconnection site, is relatively minor in scale, and will not involve grubbing.

Temporary impacts are primarily associated with the electrical gather lines, and the interconnection line, which connects the generating site to the substation. As a matter of general economical design preference, the Project sponsor would prefer to build all electrical lines in the shortest, most direct alignment between turbines. However, on the generating site, the Project's electrical gathering system will be buried along existing and proposed access roads to significantly consolidate and minimize crossing impacts to on site vegetative communities and wetland/stream systems. Other potential alternatives including overhead gathering lines, or gathering lines that were not adjacent to access roads were not considered, as they provided significant impacts over the Project proposal including significant clearing and soil disturbance in previously undisturbed areas, primarily within larger NYSDEC freshwater wetlands.

Due to limited voluntary landowner participation along the electrical interconnection line connecting to the substation, only two alternative routes were available for consideration in lieu of the current proposal. One route, primarily installed in the existing right of way of French Road from the southern portion of the generating site and running east to the substation, would likely significantly reduce temporary wetland impacts as a result of buried electrical lines and clearing through wetlands. However, the State of New York owns to the centerline of French Road. Representatives from DEC advised that this land was protected as "Forest Preserve" lands pursuant to Article XIV of the NYS Constitution and as such the State could not grant any lease or easement for the use of this property by the Project Sponsor. Alternatively, a significantly longer route through private land north of the generating site and then running east and southeast through forestland between Flat Rock Road and the substation would result in significantly more impacts to wetlands. This route, though feasible to construct, is not the preferred route as it is significantly longer and more expensive to construct and would have significantly more impacts than the current alternative. Furthermore the Project Sponsor has not obtained any lease or easements for use of property along this route.

7.0 Compatibility, Weighing and Permit Standards For State Regulated Wetlands

In accordance with NYCRR 663.5 (e) of the NYSDEC Freshwater Wetlands Act, three tests are to be used to determine the compatibility of all activities identified as requiring a permit and are compatible or usually not compatible [P(C) or P(N)] in Subdivision 663.4 (d). If all three of the following tests of compatibility are met, no other weighing standards need be met, regardless of the wetland class:

- would be compatible with preservation, protection and conservation of the wetland and its benefits;
- would result in no more than insubstantial degradation to, or loss of, any part of the wetland;
- would be compatible with the public health and welfare.

Weighing standards must be applied to all activities identified as requiring a permit and not compatible [P(X)] in subdivision 663.4 (d), and to all those activities listed as compatible or usually not compatible [P(C) or (N)] that do not meet the three tests of compatibility listed above. If the proposed activity is listed as not compatible or cannot meet the three tests for compatibility, then a permit may be issued only if the proposed activity meets each of the standards below for the class of wetland affected:

- For wetland Classes I, II, III and IV, the proposed activity must be compatible with the public health and welfare, be the only practicable alternative that could accomplish the applicant's objectives and have no practicable alternative on a site that is not a freshwater wetland or adjacent area.
- For wetland Classes I, II, and III, the proposed activity must minimize degradation to, or loss of, any part of the wetland or its adjacent area and must minimize any adverse impacts on the functions and benefits that the wetland provides.
- For wetland Class IV, the proposed activity must make a reasonable effort to minimize degradation to, or loss of,

In review of the activities listed in 663.4, the proposed Project activities in State regulated areas may most closely be matched to descriptions provided in Items 13, 14, 24, and 28 as described below in Table 3.

Table 3.NYSDEC Procedural Requirements and Compatibility

Activity Item in 663.4(d)	Description of Activity	Procedure and Compatibility by Area	
		Wetland	Regulated Adjacent Area
13	Restoring, reconstructing or modifying existing functional structures involving less than 540 square feet of ground surface.	Permit	Letter of Permission
14	Expanding or substantially modifying existing functional structures.	Permit/Usually Incompatible	Permit/Compatible
24	Cutting but not elimination or destruction of vegetation, such that the functions and benefits of the wetland are not significantly adversely affected	Letter of Permission	Letter of Permission
28	Constructing Roads	Permit/Incompatible	Permit/Usually Incompatible
37	Installing utilities, except for activities regulated by Article VII or the VIII of the Public service Law	Permit/Incompatible	Permit/Usually Incompatible

As described above in Section 2.2.1, wetlands on site are all Class II, III, and IV. Appendix G illustrates and includes a summary in tabular form of all wetland and stream impacts. Impacts to State regulated wetlands and adjacent areas will be caused by 1) clearing (no grubbing) and earthwork associated with the creation of work staging/turbine assembly areas located at the base of each turbine; and 2) clearing (no grubbing) and earthwork associated for the creation of 16 to 38-foot wide access roads at existing or new wetland and stream crossings. Total culvert replacement/upgrade and associated outfall stabilization (rip-rap), and installation of buried electrical gathering lines are included in this activity. Constructing access roads is usually incompatible, however, the Applicant submits that these activities are permissible because they pass the three compatibility tests, as a result of the significant measures proposed to stabilize site soils, restore disturbance areas, improve culverts and fish passage, and revegetation would not significantly alter the functions and values of the regulated adjacent areas. Additionally, these activities would not be incompatible with public health and welfare.

As stated previously in Section 2.2, much of the forest road system on site, and its associated culverts through regulated wetlands and streams, were previously authorized by the NYSDEC by permit in 1994 (6-2340-00022/00001).

8.0 Project Economic and Environmental Benefits Outweigh Impacts

The significant economic and environmental benefits of the proposed Project, outweighs the regulated area impacts resulting from Project construction and operation. The Project sponsor has minimized impacts to the maximum extent practical, primarily through utilizing existing forest roads to access turbine sites, burying electrical lines in the footprint of access road improvements, burying the majority of all electrical interconnection lines and using a small workspace around each turbine during construction. This section describes the purpose of the Project, how it would help meet economic and environmental needs, and how the proposed action is consistent with goals, objectives, orders and directives issued by the executive and congressional branches of the U.S. and State Government.

The purpose of the proposed Project is to create an economically viable wind-powered electrical-generating facility that will provide a significant source of renewable energy to the New York power grid to:

- Satisfy regional energy needs in an efficient and environmentally sound manner;
- Reduce the price volatility of fossil-fuel electricity generation in the region, as well as reduce the use of fossil fuels in the electrical sector;
- Realize the full potential of the wind resource on the land under lease;
- Promote the long-term economic viability of rural areas in Upstate New York; and
- Assist New York State in meeting its proposed Renewable Portfolio Standard for the consumption of renewable energy in the State (see below).

The Roaring Brook Wind Power Project is expected to have an average annual capacity of approximately 30%, which is comparable to other commercial wind farms in New York State. Total net generation delivered to National Grid's existing 115 kV line is expected to be approximately 204 GWh, or enough electricity to meet the average annual consumption of approximately 40,000 average NYS households.

The Project will facilitate compliance with Executive Order 111, issued by then Governor George Pataki on June 10, 2001 (and continued by Governor Spitzer in January 2007) directing state agencies, state authorities, and other affected entities to be more energy efficient and environmentally aware. Specifically, the Order requires all New York State agencies to purchase 10% of their electricity from renewable energy sources by 2005 and 20% by 2010. The project also responds to objectives identified in the 2002 State Energy Plan (New York State Energy Planning Board, 2002), and the Preliminary Investigation into Establishing a Renewable Portfolio Standard in New York (NYSERDA, 2003). The 2002 State Energy Plan required that the New York State Energy Research and Development Authority (NYSERDA) examine and report on the feasibility of establishing a Renewable Portfolio Standard (RPS). NYSERDA's Strategic Outlook Report 2007-2010 (2007) found that an RPS can be implemented in a manner that is consistent with the wholesale and retail marketplace in New York and that an RPS has the potential to improve energy security and help diversify the state's electricity generation mix. The report also concluded that an RPS would likely spur increased economic development opportunities in the renewable energy industry, including the attraction of renewable technology manufacturers and installers to New York State. In September 2004, The Public Service Commission (PSC) approved the RPS and identified a renewable energy policy, which calls for an increase in renewable energy used in the State to 25% by the year 2013 (PSC, 2004).

Further, Federal policy has recognized the need for increased supply of energy to the U.S., and for new renewable energy resources. The Project fulfills a need for the production and transmission of renewable energy, which would serve the public interest. The Project is consistent with Executive Order 13212 (dated May 18, 2001), which states:

“The increased production and transmission of energy in a safe and environmentally sound manner is essential to the well being of the American people. In general, it is the policy of this Administration that executive departments and agencies shall take appropriate actions, to the extent consistent with applicable law, to expedite projects that will increase the production, transmission, or conservation of energy.”

In addition to partly satisfying goals set by the Executive Branch of New York State and Federal Policy, other benefits of the proposed action include:

- Local socioeconomic benefits:
 - Increased tax revenues to local municipalities,
 - Short-term employment of construction workers and long-term employment of operating workers (Ouderkirk and Pedden 2004).
- Environmental benefits:
 - Wind-generated electricity displaces the use of fossil fuels in conventional power plants, producing a reduction in the emission of key air pollutants; sulfur dioxide and nitrogen oxides (acid rain precursors); mercury; and carbon dioxide (tied to global climate change). NYSERDA found that if wind energy supplied 10% (3,300 MW) of the state's peak electricity demand, 65% of the energy it displaced would come from natural gas, 15% from coal, and 10% from electricity imports. This equates to an annual displacement of 6,400 tons of nitrogen oxides and 12,000 tons of sulfur dioxide (GE Energy, 2005).
 - Energy efficiencies and renewable generation together will reduce New York's greenhouse gas emission, helping to achieve the State's CO₂ reduction goals (NYSERDA, 2007).
- Statewide economic benefits:
 - New York is the fourth largest energy user, yet only 10% of its requirements come from in state resources. New Yorker's spent more than \$57 billion for energy in 2005 and 90% of that was imported from outside of New York (NYSERDA, 2007). The State Energy Plan goals promote diversity of the State's economy through the use of alternative energy sources, including renewable based energy (State Energy Plan, 2002).
 - Reduction in the use of natural gas at New York State power plants will reduce both the demand for and the cost of natural gas, creating benefits for both electric ratepayers and natural gas consumers (ACENY, 2007).

By reducing the reliance on fossil fuels the Project will help contribute to the reduction of the adverse environmental effects of these energy generation sources. Some of the ecosystems in upstate New York are especially at risk from the combustion of fossil fuels. Airborne mercury released by coal combustion has contaminated many lakes in New York State to the extent that the NYSDEC now prohibits the eating of fish caught in those bodies of water (NYSDOH, 2007). The precipitation on the Tug Hill plateau is among the most acidic of any place in the US, one effect of which could be damage to local stands of sugar maple trees (Allan, D. et al., 1995).

Lower emissions of SO₂ and NO_x could also produce healthier rainwater on crops, and less pollution in sensitive ecosystems like the Adirondack area. The RPS started in January 2006 and according to the PSC, should reduce statewide air emissions of nitrogen oxide (NO_x) by 6.8%, sulfur

dioxide (SO₂) by 5.9%, and carbon dioxide (CO₂) by 7.7% (PSC, 2004). By offsetting the emission of key air pollutants and greenhouse gases, the Project will clearly benefit local ecosystems, water resources as well as human health.

In addition, as a result of the RPS, and the displacement of natural gas use described above, the PSC anticipates that wholesale energy prices are likely to be lower than they otherwise would be as the addition of substantial amounts of renewable energy offsets some of the program costs. The cumulative direct cost of RPS-related payments to renewable energy projects, expected to be in the range of \$582 million to \$762 million, is expected to be partly offset by approximately \$362 million in wholesale energy cost reductions as New York reduces its reliance upon fossil fuels (PSC, 2004).

9.0 Compliance with the Endangered Species Act

The issue of potential impacts to listed threatened and endangered species was thoroughly examined during the SEQRA process, as part of the DEIS (EDR, 2008). According to correspondence from New York Natural Heritage Program (NYNHP) dated November 3, 2008, several state-listed species and communities occur within or in the vicinity of the Project Site (see Appendix C). In addition, a query for endangered species within Lewis County was conducted on the U.S. Fish and Wildlife Service (USFWS) website (<http://www.fws.gov/northeast/nyfo/es/section7.htm>). This online consultation procedure was repeated on October 16, 2008 and confirmed that to date no federally listed, proposed, or candidate species of plants have been documented in Lewis County.

NYNHP correspondence dated November 3, 2008 also lacks any report concerning the presence of state-listed plant species documented within the vicinity of the revised Project site. However, five significant ecological communities have been documented within or adjacent to the Project site. This includes the five communities occurring within or adjacent to the generating portion of the site (shallow emergent marsh, shrub swamp, marsh headwater stream, rocky headwater stream, and beech-maple mesic forest). These areas are not located within the Project footprint. See locational information provided as an attachment to the NYNHP letter in Appendix C.

According to the NYNHP, Indiana bat (state - and federally listed as endangered) and small-footed bat (state-listed special concern) occur at several sites in Jefferson and St. Lawrence Counties within 40 miles of the Project site. The nearest Indiana Bat hibernacula are located approximately 24 miles to the northwest of the generating site in Glen Park, Jefferson County. NYNHP also documents loggerhead shrike (state-listed endangered), upland sandpiper (state-listed threatened), and northern harrier (state-listed threatened) as occurring within 10 miles of the Project site. The presence of several protected (although unlisted) bird species, including bay-breasted Warbler, three-toed woodpecker and clay colored sparrow, within 10 miles of the Project site is also noted in the NYNHP response (see Agency Correspondence in Appendix C).

The Applicant conducted various ecological studies in support of the SEQRA analysis, including two breeding bird surveys (Curry & Kerlinger, 2007 and 2008), and an on-site visual study of bird and bat migration and acoustic monitoring survey for bats (ABR, 2007 and 2008). The results of these studies indicate that the Project is unlikely to have an adverse effect on any state- or federally-listed threatened or endangered species. The Applicant has also committed to post-construction monitoring of avian/bat collision mortality.

Plant species and communities found within the Project area were identified and characterized during field surveys conducted by EDR during the fall of 2007, and the spring and summer of 2008. No state-listed threatened or endangered plant species were observed on-site during the field surveys.

The NYSDEC expressed concerns regarding potential impacts to Indiana bats during their review of some wind power projects in New York State. This concern has resulted primarily from sizeable bat kills that have occurred at wind power projects in recent years at the Mountaineer site in West Virginia and the Meyersdale site in Pennsylvania (although no Indiana bats are known to have been killed at these sites). To address these concerns relative to the Roaring Brook Project, an analysis of potential impacts to Indiana bat is provided below.

The nearest wintering cave (hibernaculum) used by Indiana bats is located 30 miles northwest, in Jefferson County. While the proposed Project site is within the potential dispersal distance of Indiana bats, Project-related impacts on this species are not considered likely for a variety of reasons, including:

1. The Project area is not in an area designated by regulatory agencies as critical habitat for Indiana bats.
2. Bats utilizing the Jefferson County hibernaculum are likely to be widely dispersed once they leave the cave. NYSDEC telemetry studies also indicate that most Indiana bats in New York breed within 30 miles of their hibernacula (A. Hicks, personal communication). Although the Project is located within 24 miles of the hibernacula, summer roost colonies are more prevalent in Jefferson County, and Indiana Bats have not been observed during 3 seasons of post-construction studies conducted at the adjacent Maple Ridge Wind Farm (A. Hicks, personal communication). Thus, relatively few individuals are likely to occur in the vicinity of the proposed Project.
3. There are no physiographic landscape features (e.g., abrupt ridge lines or water courses) that might direct or concentrate bats migrating to and from the Jefferson County hibernaculum toward the Project area.
4. High winds and low temperatures make the Project site less likely to receive use by Indiana bats, when compared to warmer, less exposed valley and lake plain areas located closer to the hibernaculum. Based on the results of previous NYSDEC studies of Indiana bats elsewhere in the state, it is reasonable to expect that Indiana bats (especially reproductive females) will remain within suitable habitat at lower elevation (e.g., lake plain areas along Lake Ontario and the St. Lawrence River). A 2005 radio telemetry study of Indiana bats at the Glen Park hibernaculum (Jefferson County) revealed that none of the bats traveled further than 17 miles from the cave.
5. The majority of documented turbine-related bat mortality has involved three species of migratory tree bat (hoary bat, red bat, and silver-haired bat). The Maple Ridge mortality study confirmed these results, and also documented mortality of little brown bats, big brown bats and unidentified species (*Myotis* and others). An Indiana bat fatality has never been documented at any wind power project site in the United States, even those in proximity to Indiana bat hibernacula and summer maternity roosts, and where sizable numbers of other bat species have been killed.

Based on all of the information presented above, the Project is not expected to result in any impacts to the Indiana bat.

10.0 Status of State Environmental Quality Review

On November 16, 2007 a Full Environmental Assessment Form (EAF) addressing the proposed wind power project was submitted by Roaring Brook Wind to the Town of Martinsburg Town Planning Board pursuant to SEQRA. The submittal of the site plan review application initiated the SEQRA process for the subject action. On December 5, 2007, a solicitation of Lead Agency status was forwarded to involved SEQRA agencies by the Martinsburg Planning Board, along with a copy of the EAF document. No agency objected to the Town Board's assuming the role of Lead Agency.

On January 10, 2008, the Town of Martinsburg Planning Board, as Lead Agency, issued a Positive Declaration, requiring the preparation of a Draft Environmental Impact Statement (DEIS). Subsequently, a DEIS was prepared for the Project (EDR, 2008), accepted by the Lead Agency, and was the subject of a public comment period which concluded April 7, 2008. Project changes, and the development of additional Project information will be presented in a Supplement to the DEIS (SDEIS). The SDEIS is currently being reviewed for completeness by the Lead Agency and is anticipated to be released for public review in January 2009. These documents provide a detailed review and analysis of potential environmental impacts and proposed mitigation measures, and provide a basis for informed public comment and decision-making. The process has been conducted in accordance with the requirements of the New York State Environmental Quality Review Act (SEQRA).

11.0 Compliance with the Historic Preservation Act

John Milner Associates, Inc. (JMA) conducted a Phase 1A/1B Cultural Resources Investigation of the Project area. The purpose of this investigation was to identify previously recorded cultural resources (i.e., archaeological or historic sites) and to evaluate the potential for previously unrecorded cultural resources to occur within the Project site. The cultural resource investigation was conducted in accordance with the National Environmental Policy Act, SEQRA, the National Historic Preservation Act, the State Historic Preservation Act, the State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work (SHPO, 2006), and the New York Archaeological Council's Standards for Archaeological Investigations (NYAC, 1994). During the 1B investigation, JMA conducted 3,035 shovel tests. No prehistoric artifacts were recovered during the Phase 1B survey. JMA identified 15 historic-period archeological sites within the area of potential affect, which were primarily foundations of structures depicted on historic maps of the region. Of the 15 historic period sites identified, 11 are well removed from the Project area and have no potential to be impacted. The remaining sites are within the vicinity of the Project footprint, along Flat Rock Road and the proposed overhead electrical line, but are completely avoidable during construction. These areas will be entirely avoided during final siting and construction of the Project components. Once built, there will be no significant earth-disturbing activities associated with operation and maintenance of the Project. Therefore, Project operation will have no adverse effect on archaeological resources.

In addition, JMA conducted a Historic Architectural Resources Survey to a) identify architecturally and historically significant properties that might be affected by construction and operation of the Project, and b) evaluate the possible effects of the Project on those properties. The study area includes all areas within five-miles of proposed turbines that are within the topographic viewshed for the Project. There are five previously recorded historic and/or architecturally significant properties located within the five-mile radius of the Project area. These properties include three nineteenth-century cemeteries and two abandoned mid-to-late-nineteenth-century farmhouses. Four of these properties have been determined eligible for listing in the National and State Historic Registers (JMA 2004). In addition, historical maps and atlases identify the locations of a ca. 1870s sawmill and a ca. 1906 unidentified structure (likely a logging or hunting camp) within the Project area. Archeological features or artifact deposits associated with these map-documented structures may be located within the Project area (JMA 2007). No structures will be demolished or physically altered in connection with construction of the Project. However, the viewshed maps prepared as part of the preliminary visual assessment indicate that the Project may be visible throughout a portion of the visual study area. Therefore, Project construction (i.e., crane activity) will also be visible, which has the potential to result in a temporary visual effect on historic properties within the study area. However, according to the Historic Architectural Resources Survey, *"After taking into account moderating effects of distance, seasonality of views, and observer orientation in relation to the affected property, JMA*

concludes that none of the identified properties will incur an adverse visual impact as a result of Project construction or operation."

According to correspondence dated April 9, 2008 from New York State Office of Parks, Recreation and Historic Preservation (OPRHP), there are five resources within a 5-mile radius of the proposed wind turbine locations. However, the department determined that the proposed Project would not have an adverse impact on the five identified historic resources. This decision was based on the sparse nature of resource distribution in the survey area, proximity of the five identified resources to the proposed turbine locations, and the existing topographic conditions. The correspondence letter from OPRHP dated April 9, 2008 is attached as Appendix C.

12.0 References

ABR. 2007. *A Visual Study of Nocturnal Bird and Bat Migration at the Proposed Roaring Brook Wind Project, New York, Spring 2007*. Prepared for PPM Energy. Prepared by Mabee, T.J., J.B. Barna, and B.A. Cooper. August 2007.

ABR. 2008. *A Visual and Acoustic Study of Nocturnal Bird and Bat Migration at the Proposed Roaring Brook Wind Project, New York, Fall 2007*. Prepared for PPM Energy. Prepared by Mabee, T.J. and N.A. Schwab. January 2008.

ACENY (Alliance for Clean Energy New York, Inc). 2007. *Wind Energy Facts*. Available at: http://www.aceny.org/cleantechnologies/wind_facts.cfm (Accessed January 4, 2008).

Allan, D., A. Molloy, Cooke, R., Lachance, D., and Barnett, C. 1995. *North American Maple Project: Seven Year Report*. North American Maple Project, U.S. Dept. of Agriculture, Forest Service.

Brown et al. 1995. *New York State Freshwater Wetlands Delineation Manual*. Issued January 1995. Retrieved December 2005, from <http://www.dec.state.ny.us/website/dfwmr/habitat/wdelman.pdf>

Cowardin, L.M., V. Carter, F.C. Goblet and E.T. LaRoae. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish and Wildlife Service, OBS-79/31, Washington, D.C.

Curry and Kerlinger. 2007. *Breeding Bird Survey for the Roaring Brook Wind Power Project, Lewis County, New York*. Prepared for PPM Energy. August 2007.

Curry and Kerlinger. 2008. *Breeding Bird Survey II for the Roaring Brook Wind Power Project, Lewis County, New York*. Prepared for Iberdrola Energy. September 2008.

Environmental Design & Research, Landscape Architecture, Planning, Environmental Services, Engineering and Surveying, P.C. (EDR) 2008. *Draft Environmental Impact Statement for the Roaring Brook Wind Power Project, Town of Martinsburg, Lewis County, New York*. Prepared for Atlantic Wind, LLC. February 2008.

Environmental Design & Research, Landscape Architecture, Planning, Environmental Services, Engineering and Surveying, P.C. (EDR). 2008a. (Unpublished). *Supplemental Draft Environmental Impact Statement for the Roaring Brook Wind Power Project, Town of Martinsburg, Lewis County, New York*. Prepared for Atlantic Wind, LLC.

Environmental Laboratory. 1987. *Corps of Engineers Wetland Delineation Manual*. Technical Report Y-87-1. U.S. Army Corps of Engineers: Waterways Experiment Station; Vicksburg, MS.

GE Energy. 2005. *The Effects of Integrating Wind Power on Transmission System Planning, Reliability, and Operations. Report on Phase 2: System Performance Evaluation*. Prepared for The New York State Energy Research and Development Authority (NYSERDA). March 4, 2005.

Gleason, H.A. and A. Cronquist. 1991. *Manual of Vascular Plants of Northeastern United States and Adjacent Canada*. D. Van Nostrand Co., New York, NY.

Hicks, A. 2006. [Personal Communication]. Mammal Specialist, Endangered Species Unit, NYSDEC. Electronic mail conversation on February 9, 2006.

Hicks, A. 2008. [Personal Communication]. Mammal Specialist, Endangered Species Unit, NYSDEC. Electronic mail conversation on December 9, 2008.

JMA. 2004. *Historic-Architectural Resources Survey: Flat Rock Wind Power Project, Lewis County, New York*. Prepared for Flat Rock Wind Power, LLC. Croton-on-Hudson, NY.

JMA. 2007. *Roaring Brook Wind Farm: Phase 1A Cultural Resource Survey, GIS Landscape Analysis, and Phase 1B Archaeological Survey Research Design*. Prepared for PPM Energy, Inc. Croton-on-Hudson, NY. December 2007.

Klein, J.I., C. Wise, M.M.W. Schaeffer, and S.B. Marshall. 1985. *An Archeological Overview and Management Plan for Fort Drum*. Report prepared for the U.S. Department of the Interior, National Park Service, by Envirosphere Company, New York.

Kollmorgen Corporation. 1988. *Munsell Soil Color Charts*. Macbeth Division of Kollmorgen Corporation, Baltimore, MD.

Magee, Dennis W. 1981. *Freshwater Wetlands: A Guide to Common Indicator Plants of the Northeast*. The University of Massachusetts Press, Amherst, MA.

New York Archaeological Council (NYAC). 1994. *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State*. New York State Office of Parks, Recreation, and Historic Preservation, Waterford, NY.

New York State Department of Health (NYSDOH). 2007. *Health Advisories: Chemicals in Sportfish and Game, 2006-2007*. Retrieved February 6, 2006 from <http://www.health.state.ny.us/environmental/outdoors/fish/fish.htm>

New York State Energy Planning Board. 2002. *State Energy Plan and Final Environmental Impact Statement*. Issued June 19, 2002. Retrieved December 2005, from http://www.nyserda.org/Energy_Information/energy_state_plan.asp

New York State Energy Research and Development Authority (NYSERDA). 2003. *Preliminary Investigation into Establishing a Renewable Portfolio Standard in New York*. February 14, 2003.

NYSERDA. 2007. *Leading the Way in Energy Innovation: Strategic Outlook Report 2007-2010*. June 2007.

New York State Historic Preservation Office (SHPO). 2006. *Guidelines for Wind Farm Development Cultural Resources Survey Work*. New York State Historic Preservation Office, Office of Parks, Recreation and Historic Preservation, Peebles Island, Waterford.

Ouderkirk and Pedden. 2004. *Windfall from the Wind Farm Sherman County, Oregon*. Renewable Northwest Project. August 2004 (Revised December 2004).

Public Archaeology Facility (PAF). 1989. *Cultural Resource Management Survey, 1989 Highway Program: PIN 7011.15.101, Route 177, Towns of Harrisburg and Lowville, Lewis County*. Public Archaeology Facility, State University of New York, Binghamton. Report on file at the New York State Office of Parks, Recreation, and Historic Preservation.

Public Service Commission (PSC). 2004. *PSC Votes to Adopt Aggressive Renewable Energy Policy for New York State*. Press Release dated September 22, 2004. Retrieved on January 31, 2006 from <http://www3.dps.state.ny.us>.

Reed, P.B., Jr. 1986. *Wetland Plants of the State of New York*. U.S. Fish & Wildlife Service, St. Petersburg, FL.

Reed, P.B., Jr. 1988. *National List of Plant Species That Occur in Wetlands: Northeast (Region 1)*. U.S. Fish & Wildlife Botanical Report, No. 88 (24). St. Petersburg, FL.

Reschke, C. 1990. *Ecological Communities of New York State*. New York Natural Heritage Program, New York State Department of Environmental Conservation, Latham, NY.

SHPO. 2006. *New York State Historic Preservation Office: Guidelines for Wind Farm Development*. Cultural Resources Survey Work. Issued January 2006.

USDA Soil Conservation Service. 1960. *Soil Survey of Lewis County, New York*. In cooperation with Cornell University Agricultural Experiment Station. Washington, D.C.

USDA Soil Conservation Service (SCS). 1989. *Hydric Soils of the State of New York*. USDA Soil Conservation Service in Cooperation with Natural Technical Committee for Hydric Soils, Washington, D.C.

U.S. Fish and Wildlife Services (USFWS) 2003. *Draft Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines*. 55 pp.

U.S. Fish & Wildlife Service (USFWS). 2008. *Planning, Designing, and Construction of Fish Friendly Stream Crossings*. In cooperation with the U.S. Environmental Protection Agency, Great Lakes National Program Office. Available at: <http://www.fws.gov/midwest/Fisheries/streamcrossings/> (Accessed April 2008).