BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

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|---|---|
| David Boyd | Chair |
| J. Dennis O'Brien | Commissioner |
| Phyllis Reha | Commissioner |
| Thomas Pugh | Commissioner |
| Betsy Wergin | Commissioner |

Peter K. Kennon
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SERVICE DATE: December 2, 2010

DOCKET NO. IP-6684/WS-08-1448

In the Matter of the Application of Buffalo Ridge Power Partners, LLC, for an up to 138 MW Large Wind Energy Conversion System in Yellow Medicine and Lincoln Counties

The above entitled matter has been considered by the Commission and the following disposition made:

**Adopted the attached proposed Findings of Fact, Conclusion of Law and Order prepared for the 138 MW Bitter Root Wind Farm Project in Yellow Medicine and Lincoln counties.**

**Issued the proposed LWECS Site Permit for the 138 Bitter Root Wind Farm Project to Buffalo Ridge Power Partners, LLC.**

The Commission agrees with and adopts the recommendations of the Office of Energy Security which are attached and hereby incorporated in the Order.

BY ORDER OF THE COMMISSION

Burl W. Haar
Executive Secretary

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# BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

## COMMENTS AND RECOMMENDATIONS OF THE MINNESOTA OFFICE OF ENERGY SECURITY ENERGY FACILITY PERMITTING STAFF

DOCKET NO. IP6684/WS-08-1448

Meeting Date: November 23, 2010 Agenda Item # _____

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Company: Buffalo Ridge Power Partners, LLC

Docket No. IP6684/WS-08-1448

**In the Matter of the Application of Buffalo Ridge Power Partners, LLC, for an up to 138 MW Large Wind Energy Conversion System in Yellow Medicine and Lincoln Counties**

Issue(s): Should the Commission issue a site permit for a 138 MW Large Wind Energy Conversion System in Yellow Medicine and Lincoln counties?

OES Staff: Suzanne Lamb Steinhauer….……...651-296-2888

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**Relevant Documents**

Buffalo Ridge Power Partners Site Permit Application ……..…..……. October 13, 2009
Public Comments 1-12…….……...…….……..…..……April 28, 2010
ALJ Summary of Public Comments and Recommendation…….……...…….….May 3, 2010
Buffalo Ridge Power Partners Letter……..November 4, 2010

The enclosed materials are work papers of the Department of Commerce Office of Energy Security Energy Facility Permitting Staff. They are intended for use by the Public Utilities Commission and are based on information already in the record unless otherwise noted.

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**Documents Attached**

1. Bitter Root Wind Farm Project Site Maps (constraint maps and turbine layout maps)
2. Proposed Findings of Fact, Conclusion of Law and Order
3. OES EFP Staff Exhibit List
4. Proposed Site Permt

(Relevant documents and additional information can be found on eDockets (08-1448) at https://www.edockets.state.mn.us/EFiling/search.jsp or the Commission website http://energyfacilities.puc.state.mn.us/)

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## Statement of the Issues

Should the Public Utilities Commission (Commission) issue a site permit for the proposed 138 MW Large Wind Energy Conversion System in Yellow Medicine and Lincoln counties?

## Introduction and Background

Buffalo Ridge Power Partners, LLC (Applicant or BRPP), has submitted a site permit application for a proposed 138 megawatt (MW) wind farm in Yellow Medicine and Lincoln counties (Exhibit 1). Buffalo Ridge Power Partners, LLC, a Delaware limited liability company based in Minneapolis, is a joint venture of ACCIONA Wind Energy USA, LLC, and Global Winds Harvest, LLC. The Applicant anticipates that the Project will be owned and operated exclusively by ACCIONA Wind Energy once constructed and commercially operable. Neither the Applicant nor any of its related entities own or operate any other LWECS in Minnesota.

***Project Location and Land Control***
The Applicant proposes to locate the Bitter Root Wind Farm Project (Project) west and southwest of the city of Canby and has identified a Project Area of approximately 35 square miles (22,500 acres) located in Fortier and Florida townships of Yellow Medicine County and Hansonville Township in Lincoln County (see attached map). Depending upon final design, the Applicants anticipate that the Project would occupy approximately 120 acres. BRPP controls approximately 11,100 acres within the project site boundary under Option to Lease Agreements with 51 landowners, sufficient to allow siting flexibility to ensure that appropriate setbacks are met. Attachments 1A and 1B to the site permit show Project boundaries and preliminary layouts for layouts using either 1.5 MW turbines or 3.0 MW turbines.

***Project Description***
The Applicant proposes to use up to 92 1.5 Megawatt (MW) wind turbine generators, or up to 46 3.0 MW wind turbine generators. In addition to the turbines, the proposed Project would consist of:

1. Associated turbine access roads and electric collector lines;
2. Up to three (3) permanent meteorological towers;

3. An operations and maintenance building;
4. A project substation; and
5. An interconnect to the transmission grid;

The Applicant anticipates that construction of the Project will begin in early 2012, with commercial operation expected by the end of 2012.

## Regulatory Process and Procedures

A site permit from the Commission is required to construct an LWECS, which is any combination of wind turbines and associated facilities with the capacity to generate five megawatts or more of electricity. This requirement became law in 1995. The Minnesota Wind Siting Act is found at Minnesota Statutes chapter 216F. The rules to implement the permitting requirement for LWECS are found in Minnesota Rules chapter 7854.

### *Certificate of Need*

Because the Project is larger than 50 MW, it is considered a large electric power generating plant under Minnesota Statute 216B.2421 and a Certificate of Need (CN) from the Commission is required for the Project under Minnesota Statute 216B.243. The Applicant applied to the Commission for a Certificate of Need for the Project on April 27, 2009, and the Commission accepted the application as complete in its order of July 17, 2009. A combined hearing on the certificate of need and issues related to the site permit was held in Canby on March 30, 2010. The Commission granted a Certificate of Need for the proposed project in its order of June 10, 2010.

### *Site Permit Application Acceptance*

BRPP filed an application with the Commission for a LWECS site permit on October 13, 2009 (Exhibit 1). The Commission accepted the application as complete in an Order issued November 13, 2009 (Exhibit 3). On November 12, 2009, the Applicant distributed the EFP notice of application acceptance and the site permit application pursuant to Minnesota Rules 7854.0600, subparts 2 and 3, which included landowners within the Project boundaries, county board, city councils, township boards, local newspapers, and the Minnesota Historical Society (Exhibits 5 and 6). This notice was also published on eDockets and the Commission's Energy Facility Permitting Website. A Notice of Application Acceptance was also published in the *Canby News* on November 18, 2009 (Exhibit 4).

In practice, Office of Energy Security (EFP) staff also distributes copies of the application along with a cover memo requesting comments on the application or the project to technical representatives from state agencies that may have permitting or review authority over the project. A Notice of Application Acceptance was distributed to the state agency technical representatives on November 19, 2009.

### *Preliminary Determination on Draft Site Permit*

Pursuant to Minnesota Rule 7854.0800, the Commission has 45 days after application acceptance to make a preliminary determination on whether a draft site permit may be issued or denied. On December 21, 2009, the Commission issued its order granting variance to this rule to extend the

period to make a preliminary determination on whether a permit may be issued in order for the Applicant to provide the Commission with additional layout information for both the 1.5 and 3.0 MW turbines (Exhibit 9). The Applicant provided this information to the Commission, and on March 9, 2010, the Commission issued an order authorizing a preliminary draft site permit and approved distribution of the proposed draft site permit for comment under the public participation process outlined in Minnesota Rule 7854.0900 (Exhibit 11). On March 30, 2010, the Commission issued an Erratum correcting language in the Draft Site Permit (Exhibit 12).

Notice of draft site permit availability and the public hearing covering both the certificate of need and the issues related to the site permit was sent to all persons or agencies that received a copy of the permit application, was published in the *EQB Monitor,the Canby News*, and the *Hendricks Pioneer* and was posted on eDockets and on the Commission's Energy Facility Permitting Website (Exhibits 13, 14, 15, and 16).

**Public Participation Process and Public Comments**

Public participation in the LWECS site permitting process is guided by Minnesota Rule 7854.0900. EFP staff received two written comments before the December 1, 2009, close of the comment period following acceptance of the site permit application (Exhibit 7).

A public hearing on both the application for the Certificate of Need and the application for an LWECS site permit was held on March 30, 2010, in Canby. The meeting was presided over by Administrative Law Judge Steven Mihalchick. The meeting provided members of the public with an opportunity to learn about the proposed project and the Commission's role in review and approval of LWECS and to ask questions of the applicant and EFP staff. The meeting was also an opportunity for the public to offer comments on the permit application and draft site permit, which serve as the environmental documents for the project.

Approximately 13 people attended the meeting. Questions and comments at the meeting were related to noise, aesthetics, role of local units of government in the review of the process, availability of transmission capacity, turbine size, and impacts on plant and wildlife species. A complete record of the meeting including all comments, questions, and answers is documented in the public meeting transcript (Exhibit 17).

Twelve comments were received by the comment deadline of April 21, 2010. The comments received expressed support for the Project as well as concerns about concern with noise, aesthetic impacts, use of 3.0 MW turbines, involvement of local governments, impacts to wildlife and sensitive natural resources, and local wind ordinances.

Minnesota Rule 7854.0900, subp. 5, provides the opportunity for any person to request that a contested case hearing be held on the proposed LWECS project. During the comment period one request for a contested case hearing on the proposed project was submitted during the prescribed comment period. The Commission issued an order denying the request for a contested case hearing on June 11, 2010 (Exhibit 21).

## OES EFP Staff Analysis and Comments

OES EFP staff addresses oral and written comments by category of issues raised and how the proposed site permit or other jurisdictions address the issue.

**Emergency Services**

Fire Protection: In its comment letter, the Southwest Regional Development Commission (SWRDC) pointed out that the heading of "Fire Protection" at III.B.16, of the Draft Site Permit might more properly be termed "Emergency Services." SWRDC also requested that BRPP provide training for local emergency service providers.

*EFP Staff Response*: The heading at Section 7.16 of the site permit has been changed to "Emergency Response." BRPP has agreed to work with the local first responders (Fire, EMS, Law Enforcement) to provide training and information about how to best respond to incidents at the Project; the nature and extent of this training will be determined in coordination with the O&M staff and the first responders in development of the Emergency Response Plan required under this section.

**Turbine Types**

In its letter of April 21, 2010, DNR staff expressed a preference for 3.0 MW turbines, in order to reduce the overall number of turbines and potential for habitat fragmentation. One written comment and oral comments received at the hearing expressed concern about the use of 3.0 MW turbines that have not been commercially installed.

*EFP Response*: EFP staff notes DNR staff's preference for turbines, and also notes the reservations about using the 3 MW turbines noted by members of the public. Some of the concern related to the use of the 3.0 MW turbines is related to noise. The Project will be required to comply with noise standards identified in Minnesota Rules chapter 7030, regardless of what turbines are used, see site permit at Sections 4.2 and 4.3. Issues of noise are addressed in Findings 46 - 49.

**Natural Resources**

In its letter of April 21, 2010, DNR staff identified several specific concerns related to the Project. These concerns can be grouped into concerns related to sensitive natural resources (such as native prairie, the Yellow Medicine Coteau Macrosite, and calcareous fens), public waters and public lands, and effects on birds and bats. Effects on wildlife were also brought up generally in the public hearing.

<u>Sensitive Natural Resources</u>

The DNR letter identified concerns with the Project. Areas of concern were related to the presence of calcareous fens, native prairie, and the Yellow Medicine Coteau Macrosite, a large area of significant prairies and a matrix of connecting grasslands, which overlaps a portion of the Project area.

The letter noted that calcareous fens are located within the Project area, although the layouts reviewed by DNR staff appear to avoid known fens. Calcareous fens are subject to special regulation under the Wetland Conservation Act. DNR staff also requested that any previously unidentified calcareous fens found during site surveys or construction be identified to DNR for incorporation into the DNR's Natural Heritage Information System.

*EFP Response:* The site permit contains a number of provisions to identify sensitive natural resources and to mitigate impacts to these resources. The site permit, at 6.1, requires that BRPP perform a biological survey of the potentially impacted areas for the presence of resources such as wetlands and native prairie and report those results to the Commission and to DNR prior to construction.

Issues related to native prairie and the Yellow Medicine Coteau Macrosite are addressed in Findings 83, 88, 89, and 90. The Applicant has committed to avoiding Native Prairie. The Prairie Protection and Management Plan (Section 4.7) that will be prepared for the Project requires the Permittee to identify measures taken to avoid areas identified as native prairie and measures taken to mitigate unavoidable impacts to native prairie. Section 13.2 requires that the Prairie Protection and Management Plan also identify efforts to avoid and minimize impacts to the Yellow Medicine Coteau Macrosite.

<u>Public Lands</u>:
The DNR letter noted that the Tatley WMA is not identified in site maps The letter also identified the requirement for a license to cross public waters if any project infrastructure would cross any public water.

*EFP Response*: Site maps have been corrected to include the Tatley WMA.

<u>Wildlife Impacts</u>
The DNR letter expressed concerns related to the potential for turbines sited within native prairie or the Yellow Medicine Coteau Macrosite to act as a habitat barrier or cause avoidance behavior for wildlife using this landscape feature. The DNR's comments also noted the abundance of bird and bat habitat and expressed concern for flight barrier or collision risk as birds fly between habitats. The DNR comments recommended that the Project avoid siting turbines within the Yellow Medicine Coteau Macrosite or native prairie and that BRPP be required to perform additional pre-construction avian and bat surveys. The DNR comments also recommended a permit condition for post-construction mortality studies with DNR consultation.

*EFP Response*: A series of wildlife studies including, fixed-point bird use surveys, breeding bird transect surveys, a raptor nest survey, acoustic bat surveys, prairie grouse lek surveys, and incidental wildlife observations were conducted at the project site between late March, 2008, and early October, 2008. The results of those surveys are reported in Appendix F of the Site Permit Application (Exhibit 1). This information was summarized by the Applicant in their letter of November 4, 2010 (Exhibit 22), which concluded that, based on the information gathered in the wildlife studies and literature from Buffalo Ridge and other sites in the upper Midwest, avian impacts from the Project are anticipated to be similar to those from other wind projects evaluated in the literature. EFP staff believes that the information in the record thus far does not indicate a high probability for adverse impacts to birds. It is not clear what additional information further

pre-construction surveys for bird species would provide the Commission for their permit decision.

The bat monitoring did show a high level of bat activity. As the literature on impacts to bats from wind turbines is not as conclusive as the literature regarding avian impacts, it is not clear whether or not higher bat fatality would be expected from this Project compared to other projects. BRPP, in their letter of November 4, 2010, did acknowledge that, given the high level of bat activity identified in the surveys, additional pre-construction bat surveys are warranted. BRPP stated its willingness to work with the USFWS and DNR to design and implement additional pre-construction bat surveys.

Bases on the DNR's recommendation, the presence of numerous WMAs and WPAs, and the high level of bird and bat activity shown in the 2008 pre-construction surveys, EFP staff recommends that post-construction avian and bat monitoring be performed for the Project. The Permit, at Section 6.7, requires preparation of an Avian and Bat Protection Plan for the Project. Section 13 of the site permit directs BRPP to incorporate pre-construction bat monitoring and post-construction bird and bat monitoring into the Avian and Bat Protection Plan.

**Local government involvement and WECS standards**

The comments of the SWRDC requested that BRPP consult early with County Highway Departments to address road issues involved with the construction of the Project and that county highway and zoning administrators be invited to the pre-construction meeting. The SWRDC also requested that the permit language regarding turbine access roads be modified to specify that access roads be located, as well as constructed, in accordance with all necessary local and state road requirements and permits.

Both Lincoln and Yellow Medicine counties had passed resolutions assuming permitting authority for WECS projects under 25 MW, pursuant to MS 216F.08, at the time that the Draft Site Permit was approved for distribution. Both counties also have WECS ordinances that contain certain setbacks that are more stringent than those identified in the General Permit Standards. The Draft Site Permit identified these more stringent setbacks in a Special Condition.

In its comment letter of April 21, 2010, BRPP recommended that the Commission revise and clarify language in the special condition. To support their recommendation, BRPP provided information on the Lincoln County and Yellow Medicine County ordinances, and a letter from the Lincoln County Administrator clarifying the County's interpretation of their ordinance.

*EFP Response*:

EFP practice is to invite local units of government to the pre-construction meeting, and to provide opportunities for the local officials to participate in a location convenient to them, or by phone if that is their preference. The site permit, at Section 7.8 requires the Permittee to notify the state, county or township governing boards having jurisdiction over roads, as well as the Commission, of the roads that will be used during the construction of the Project. EFP staff has modified the site permit, at Section 7.8.2, to include the recommended change.

Based on the information provided by the Lincoln County Administrator, through BRPP's letter, the site permit clarifies the setback requirements from roads, trails and power lines, and other

rights-of-way recorded with the County, structures other than homes or dwellings, and Shoreland Districts. Because there are no other wind projects in the area of the Project, reference to setbacks from other project boundaries has been removed.

On March 23, 2010, the Yellow Medicine County Board passed a resolution rescinding its decision to permit WECS under 25 MW; the resolution made no changes to the WECS Zoning Ordinance. On August 10, 2010, the County Board adopted a new renewable energy ordinance which removed the wetland setbacks identified in the Draft Site Permit. The site permit, at Section 13.1.2, incorporates the road setbacks from the renewable energy ordinance; reference to setbacks from wetlands has been removed.

**Other Comments**

Of the 12 written comments submitted into the hearing record, seven primarily expressed support for the Project. Other comments addressed issues of noise, aesthetics, and decommissioning of turbines.

*EFP Response:* EFP Staff notes the comments of support for the Project, but has no further response. Issues of Noise are addressed in Findings 46-48. Issues of Aesthetics are addressed in Findings 53 – 56. Decommissioning is addressed in Findings 98 – 100 and in the site permit at Section 9.

**********

Based on the record of this proceeding, EFP staff concludes that the Bitter Root Wind Farm Project meets the procedural requirements and the criteria and standards for issuance of a site permit identified in Minnesota Statutes and Rules. The site permit application has been reviewed pursuant to the requirements of Minnesota Statutes chapter 216F and Minnesota Rules Chapter 7854 (Wind Siting Rules).

In accordance with Minnesota Rule 7854.0500, Subp. 2, the Commission may not issue a site permit for an LWECS, for which a certificate of need is required, until an applicant obtains such a certificate from the Commission.

OES EFP staff has prepared, for consideration by the Commission, proposed Findings of Fact, Conclusions of Law, and Order (Attachment 2), an Exhibit List (Exhibit 3), and a proposed Site Permit (Attachment 4) for the 138 MW Bitter Root Wind Farm Project.

***Proposed Findings of Fact***

The proposed findings of fact, conclusion of law and order (see Attachment 2) address the procedural requirements and process followed, describe the project and address the environmental and other considerations of the project. The relevant site considerations addressed in the findings of fact (such as human settlement, public health and safety, noise, recreational resources, community benefits, effects on land based economies, archaeological and historical resources, animals and wildlife and surface water) track the factors described in the

Commission's rules for other types of power plants that are pertinent to wind projects. The following outline identifies the categories of the findings of fact.

**Category** **Findings**
Background and Procedure……...……1-14
Certificate of Need……...15
Permittee and Project Description……..……16-28
Site Location, Characteristics, Topography……..…….29-31
Wind Resource Considerations…….....32-34
Wind Rights and Easement/Lease Agreements……...…...35-36
Site Considerations……..37
Human Settlement, Zoning, and Land Use…….38-45
Noise, Shadow Flicker, Visual Values……...46-56
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Community Benefits, Land-Based Economics……...75-78
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Soils, Surface Water and Wetlands……91-93
Future Development and Expansion……...94-96
Maintenance, Decommissioning, and Restoration……...97-100
Site Permit Conditions……101-103

***Exhibit List***

OES EFP staff has prepared an exhibit list of documents that are part of the record in this permit proceeding. See Attachment 3.

***Proposed Site Permit***

The OES EFP staff has prepared a site permit for the Commission's consideration. See Attachment 4. The conditions in the proposed site permit are consistent with conditions included in other LWECS site permits issued by the Commission.

The proposed site permit is different from the draft site permit issued by the Commission. The site permit headings and requirements have been reorganized and modified for clarity and conditions were added consistent with the findings for this Project.

## Commission Decision Options

### A. Bitter Root Wind Farm Project Findings of Fact, Conclusion of Law and Order

1. Adopt the attached proposed Findings of Fact, Conclusion of Law and Order prepared for the 138 MW Bitter Root Wind Farm Project in Yellow Medicine and Lincoln counties.

2. Amend the proposed Findings of Fact, Conclusion of Law and Order as deemed appropriate.

3. Make some other decision deemed more appropriate.

**B. LWECS Site Permit for the 138 MW Bitter Root Wind Farm Project**

1. Issue the proposed LWECS Site Permit for the 138 Bitter Root Wind Farm Project to Buffalo Ridge Power Partners, LLC.

2. Amend the proposed LWECS Site Permit as deemed appropriate.

3. Deny the LWECS Site Permit.

4. Make some other decision deemed more appropriate.

**EFP Staff Recommendation:** The staff recommends options A1 and B1.

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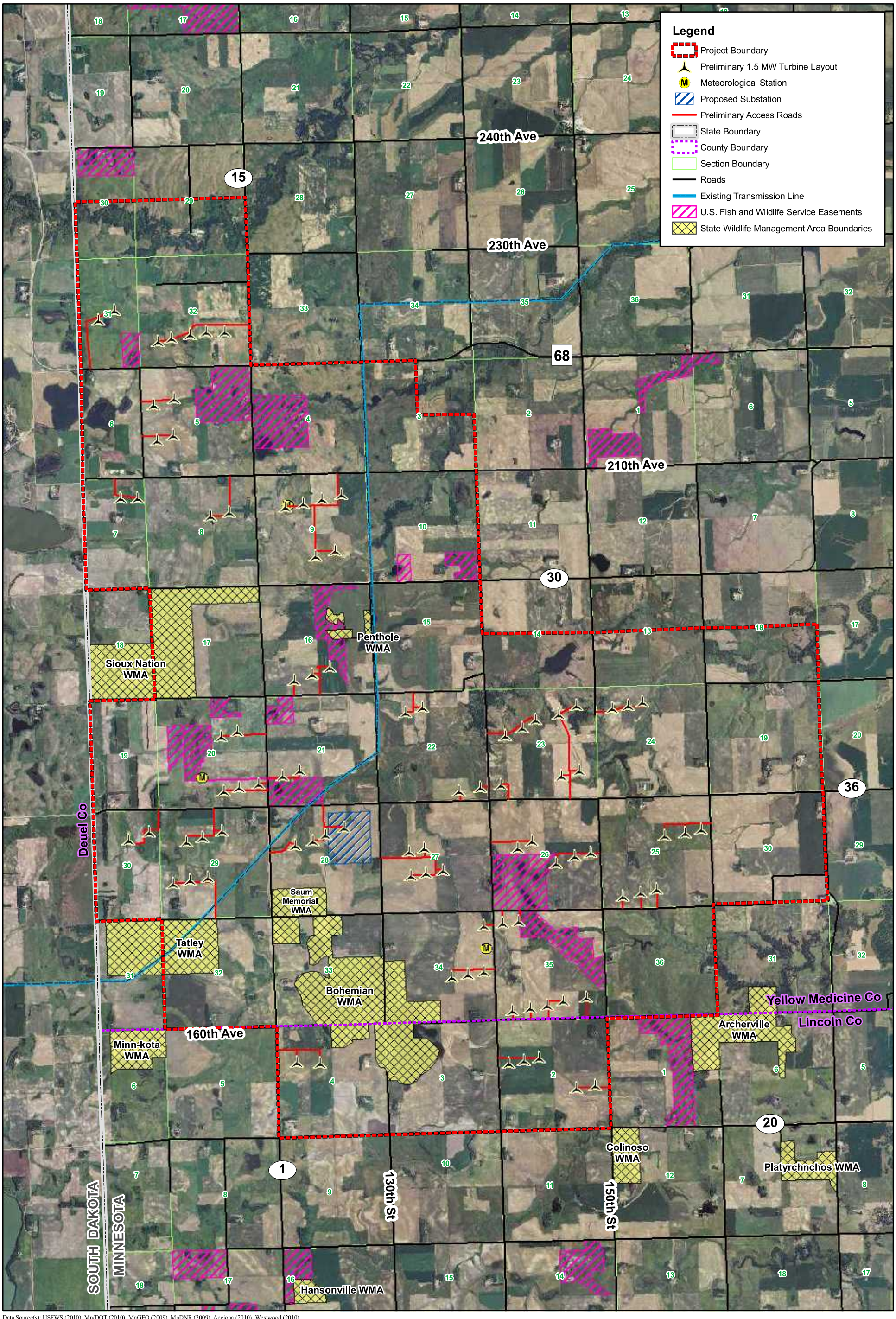


Data Source(s): USFWS (2010), Mn/DOT (2010), MnGEO (2009), MnDNR (2009), Acciona (2010), Westwood (2010).

# Bitter Root Wind Project

Yellow Medicine and Lincoln Counties, MN

Air Photo Map
1.5 MW Layout
EXHIBIT D

Westwood

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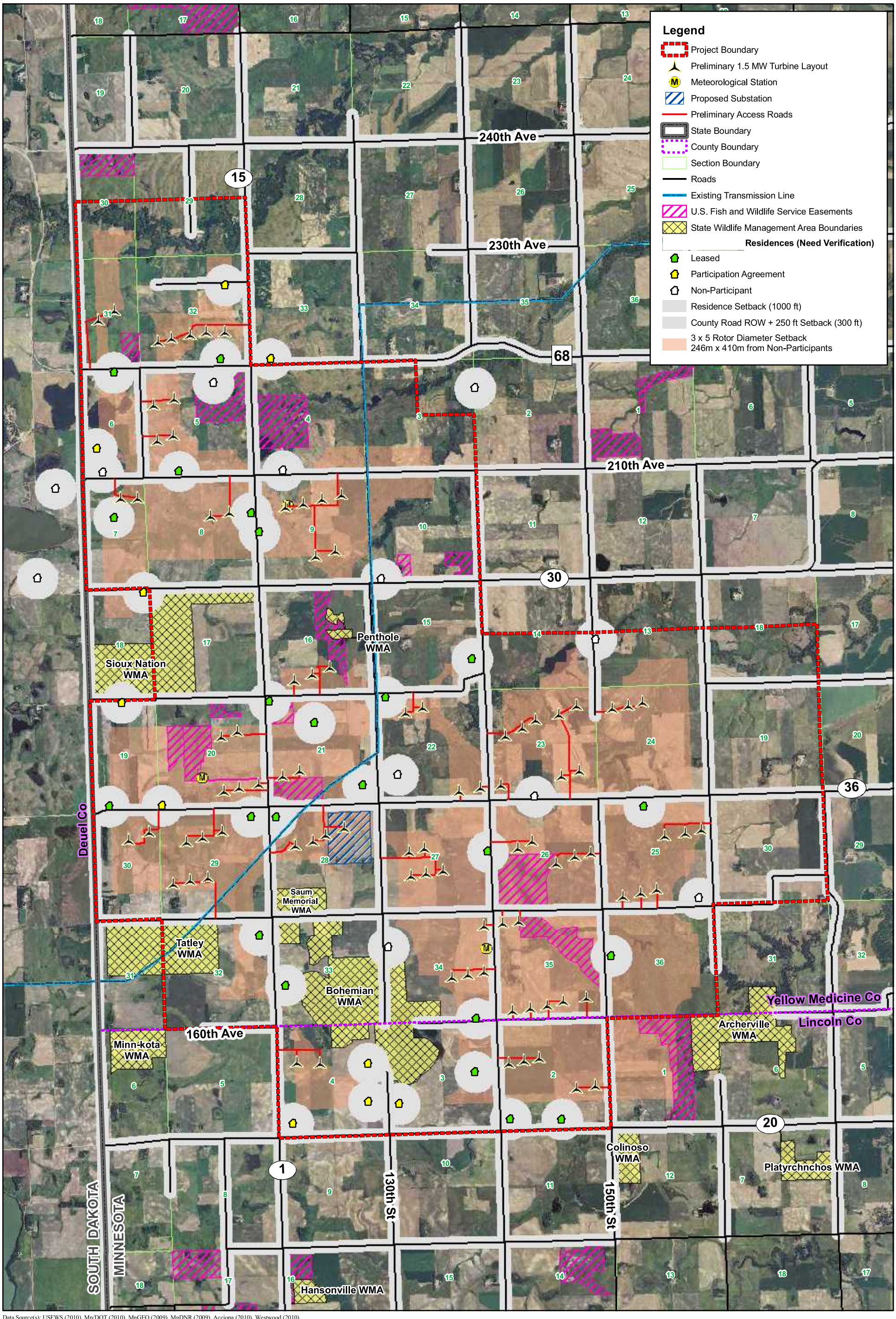


Data Source(s): USFWS (2010), Mn/DOT (2010), MnGEO (2009), MnDNR (2009), Acciona (2010), Westwood (2010).

# Bitter Root Wind Project

Yellow Medicine and Lincoln Counties, MN

Constraint Map
1.5 MW Layout
EXHIBIT A

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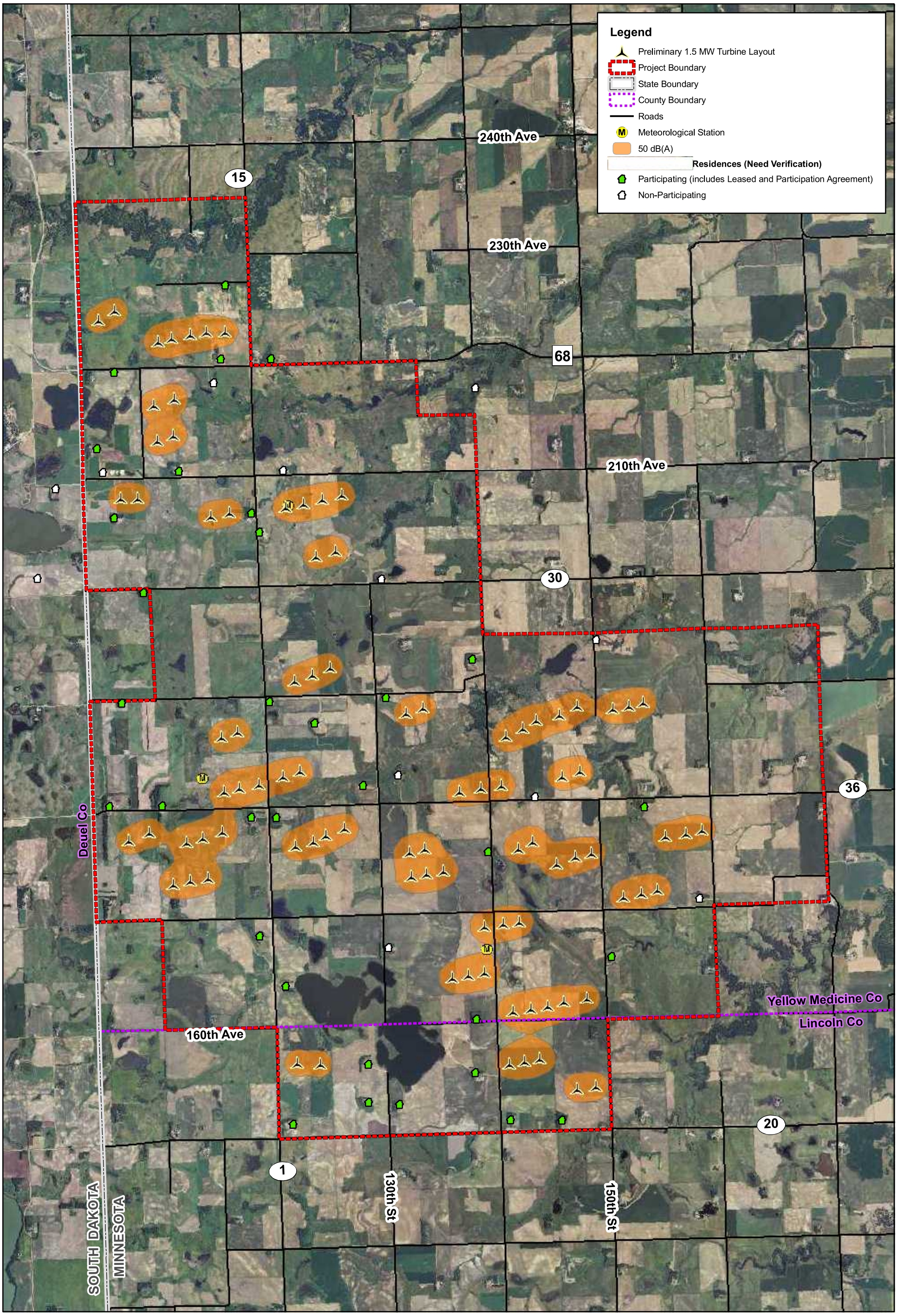


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# Bitter Root Wind Project

Yellow Medicine and Lincoln Counties, MN

Noise Map

1.5 MW Layout

EXHIBIT B

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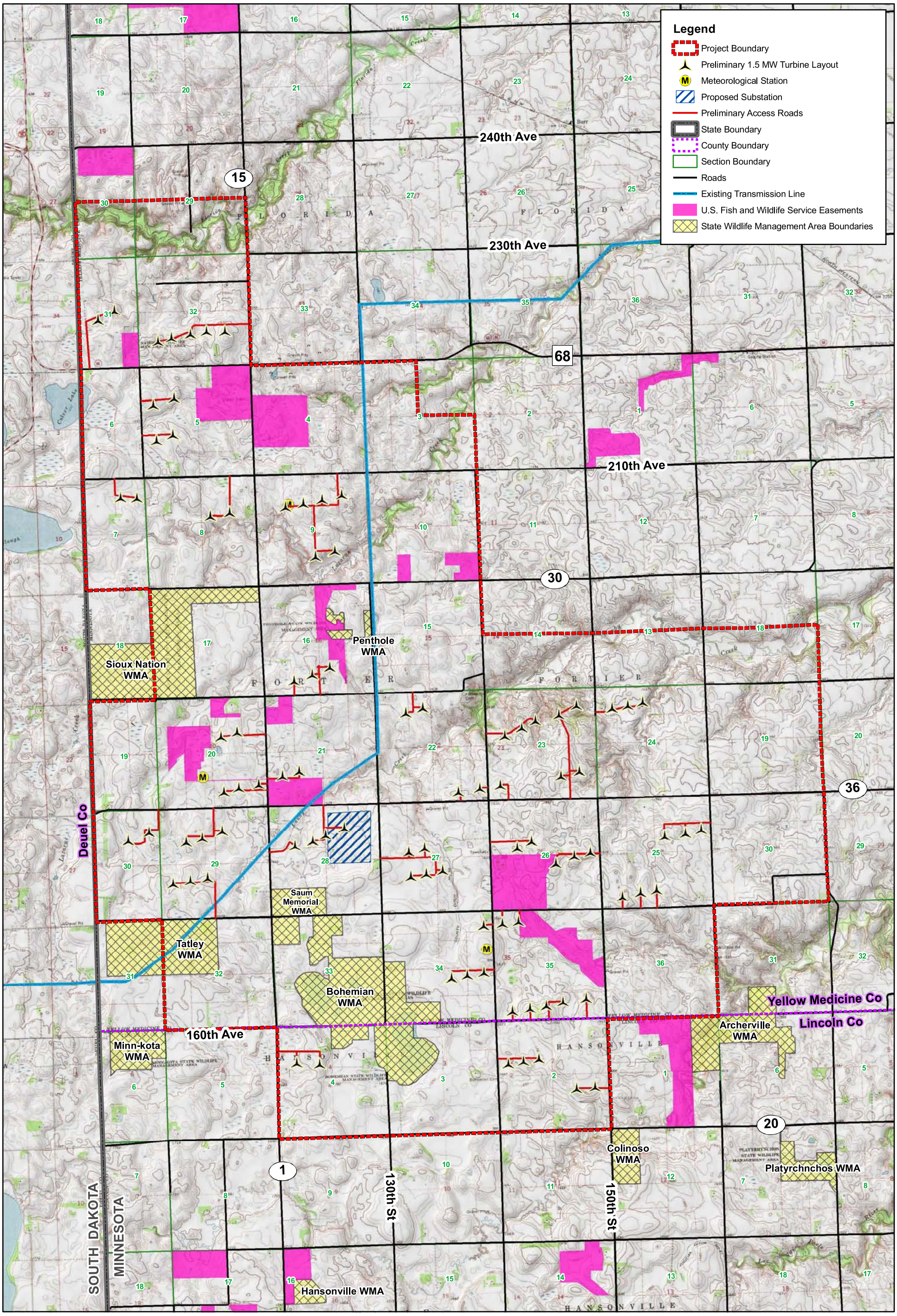


Data Source(s): USFWS (2010), Mn/DOT (2010), MnGEO (2009), MnDNR (2009), Acciona (2010), Westwood (2010).

# Bitter Root Wind Project

Yellow Medicine and Lincoln Counties, MN

Topographic Map
1.5 MW Layout
EXHIBIT E

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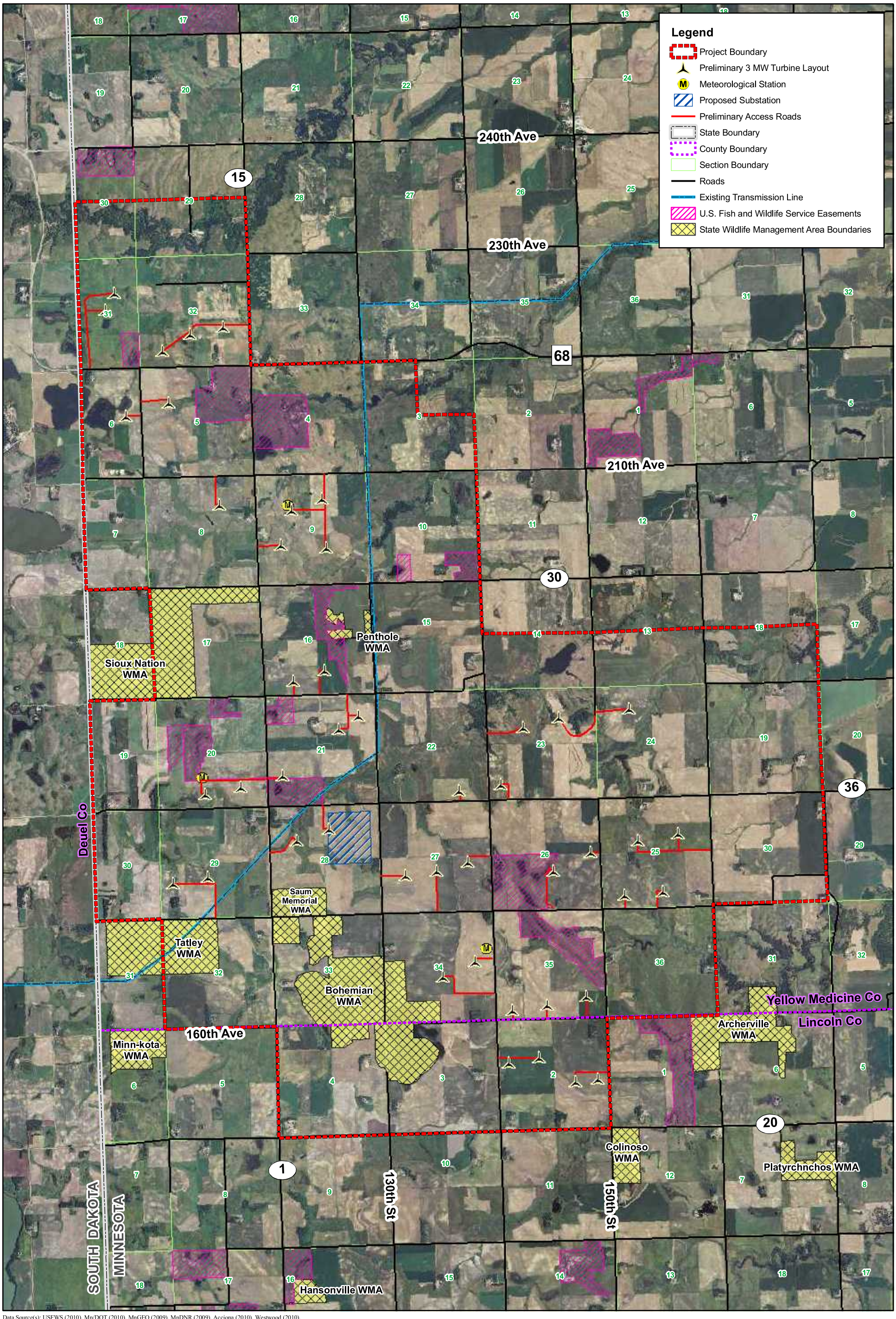


Data Source(s): USFWS (2010), Mn/DOT (2010), MnGEO (2009), MnDNR (2009), Acciona (2010), Westwood (2010).

# Bitter Root Wind Project

Yellow Medicine and Lincoln Counties, MN

Air Photo Map
3 MW Layout
EXHIBIT D

Westwood

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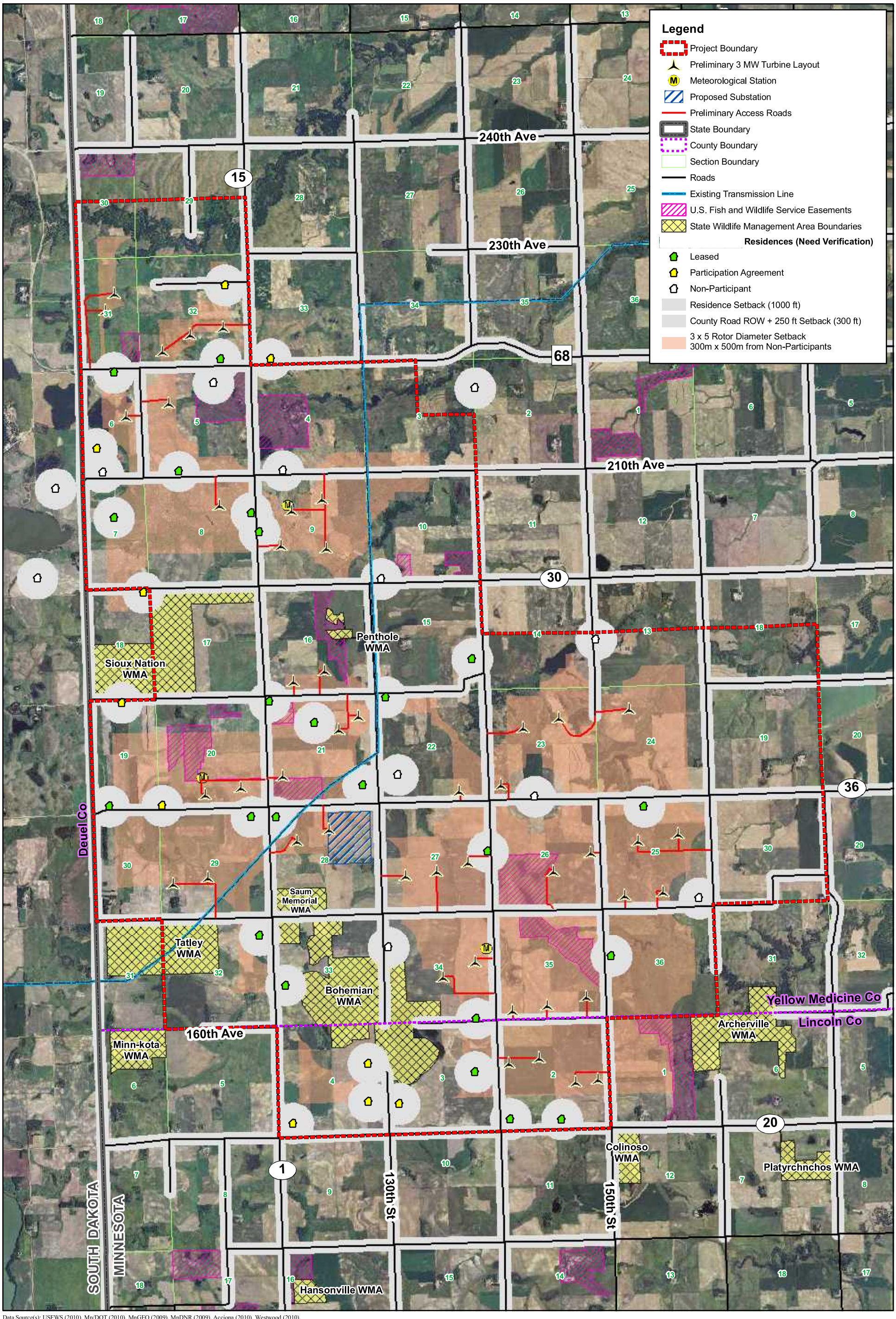


Data Source(s): USFWS (2010), Mn/DOT (2010), MnGEO (2009), MnDNR (2009), Acciona (2010), Westwood (2010).

# Bitter Root Wind Project

Yellow Medicine and Lincoln Counties, MN

Constraint Map
3 MW Layout
EXHIBIT A

Westwood

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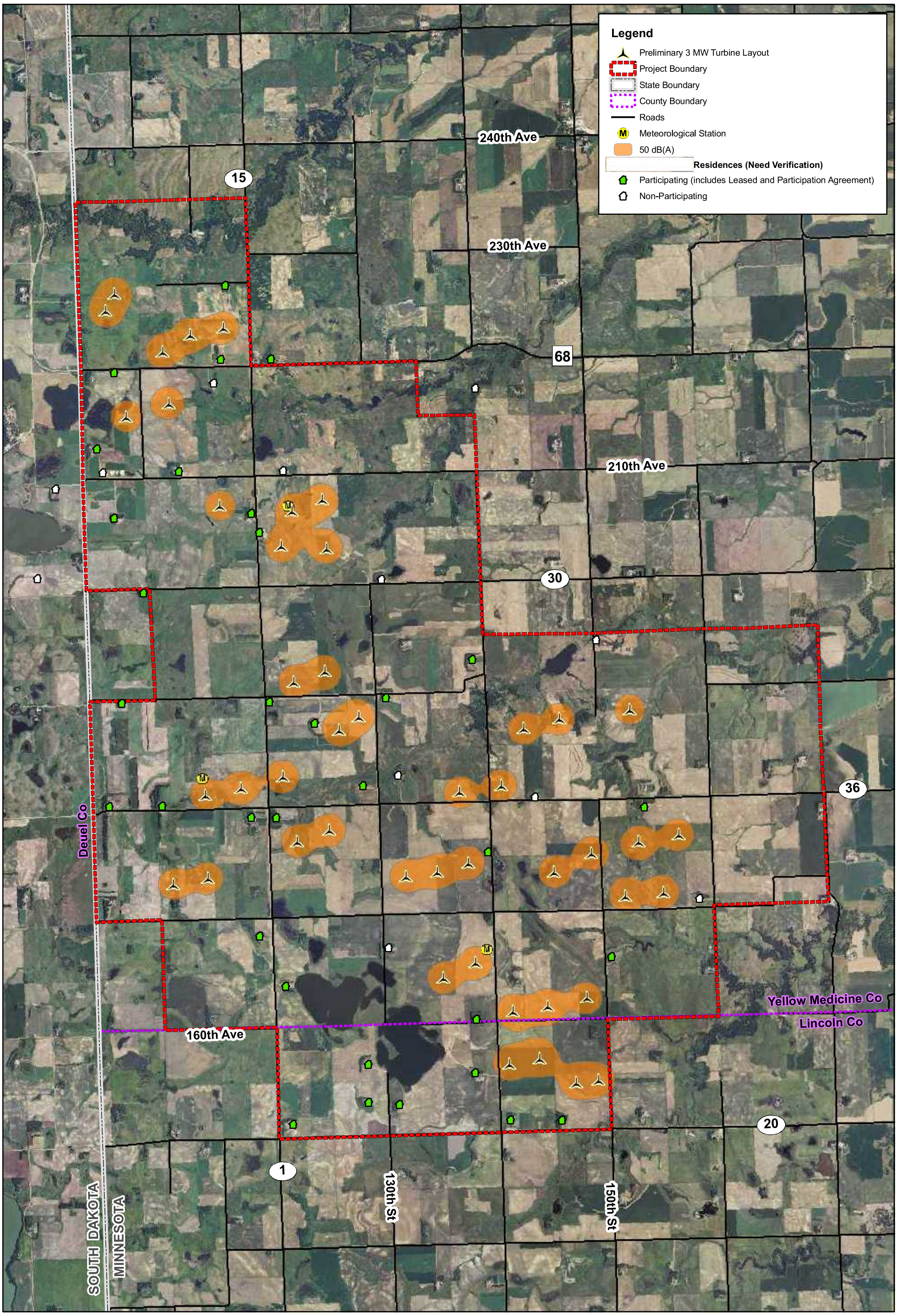


Data Source(s): Mn/DOT (2010), MnGEO (2009), MnDNR (2009), Acciona (2010), Westwood (2010).

# Bitter Root Wind Project

Yellow Medicine and Lincoln Counties, MN

Noise Map

3 MW Layout

EXHIBIT B

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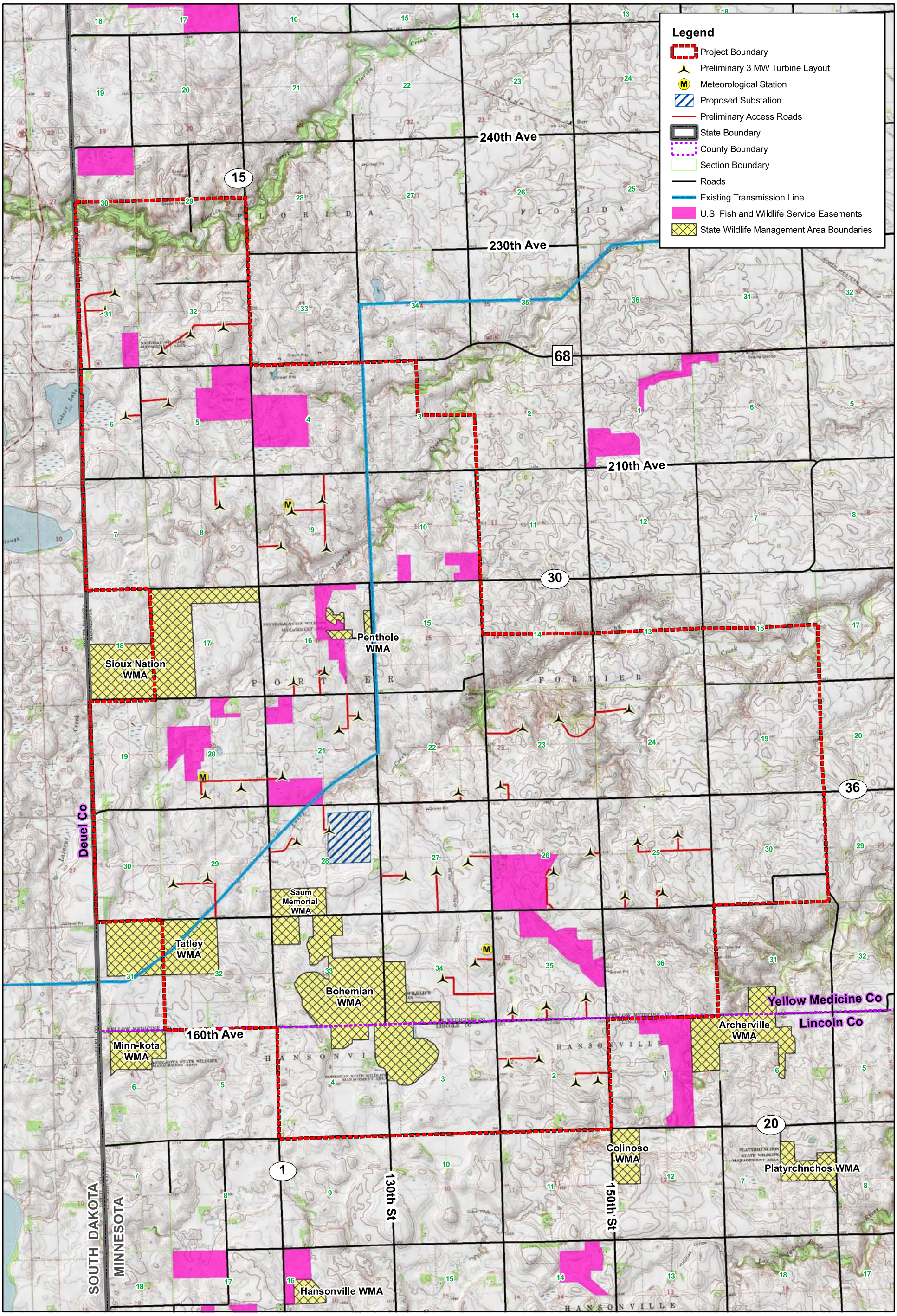


Data Source(s): USFWS (2010), Mn/DOT (2010), MnGEO (2009), MnDNR (2009), Acciona (2010), Westwood (2010).

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# Bitter Root Wind Project

Yellow Medicine and Lincoln Counties, MN

Topographic Map
3 MW Layout
EXHIBIT E

**STATE OF MINNESOTA**
**PUBLIC UTILITIES COMMISSION**

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|---|---|
| David Boyd | Chair |
| J. Dennis O'Brien | Commissioner |
| Tom Pugh | Commissioner |
| Phyllis Reha | Commissioner |
| Betsy Wergin | Commissioner |

In the Matter of the Application of Buffalo Ridge Power Partners, LLC, for a Site Permit for the Bitter Root Wind Farm Project, an up to 138-Megawatt Large Wind Energy Conversion System in Yellow Medicine and Lincoln Counties

**ISSUE DATE: December 2, 2010**

**DOCKET NO. IP-6684/WS-08-1448**

**FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER ISSUING A SITE PERMIT TO BUFFALO RIDGE POWER PARTNERS, LLC, FOR THE BITTER ROOT WIND FARM PROJECT**

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The above-entitled matter came before the Minnesota Public Utilities Commission (Commission) pursuant to an application submitted by Buffalo Ridge Power Partners, LLC, (BRPP or Applicant) for a site permit to construct, operate, maintain and manage a 138 Megawatt (MW) nameplate capacity Large Wind Energy Conversion System (LWECS) and associated facilities in Yellow Medicine and Lincoln counties.

All of the proposed wind turbines and associated facilities will be located in Yellow Medicine and Lincoln counties. Associated facilities will include pad mounted step-up transformers for each wind turbine, access roads, an electrical collection and feeder system, project substation, and one permanent meteorological tower. The energy from the proposed 138- MW project will be delivered from the project substation to the electrical grid at a point on Otter Tail Power Company's existing 115 kV transmission line.

## STATEMENT OF ISSUE

Should BRPP be granted a site permit under Minnesota Statutes section 216F.04 to construct a 138 MW Large Wind Energy Conversion System in Yellow Medicine and Lincoln counties?

Based upon the record created in this proceeding, the Public Utilities Commission makes the following:

## FINDINGS OF FACT

**Background and Procedure**

1. On October 13 2009, BRPP, filed a site permit application with the Public Utilities Commission for the 138 MW Bitter Root Wind Farm Project.[1]

2. Office of Energy Security (OES) Energy Facility Permitting (EFP) staff reviewed and determined that the October 13, 2009, application complied with the application requirements of Minnesota Rules, part 7854.0500. In its comments and recommendations to the Commission, dated November 11, 2009, OES EFP staff recommended that the Commission accept the application.[2]

3. On November 13, 2009, a Commission Order accepted the application for the Bitter Root Wind Farm Project.[3]

4. Published notice of site permit application acceptance, and opportunity to comment on the permit application appeared in the *Canby News*, on November 18, 2009.[4] The published notice provided: a) description of the proposed project; b) deadline for public comments on the application; c) description of the Commission site permit review process; and d) identification of the public advisor. The notice published meets the requirements of Minnesota Rules, Part 7854. 0600, subpart 2.

5. On November 12, 2009, BRPP distributed copies of the "Site Permit Application for the Bitter Root Wind Farm Project and Notice of Application Acceptance, to government agencies and landowners.[5]

6. Public comments on the site permit application were accepted until December 1, 2009. Two comment letters were received[6] and they are summarized in the OES Comments and Recommendations presented to the Commission at its February 25, 2010, meeting in conjunction with the request for issuance of a "Draft Site Permit" for the Bitter Root Wind Farm Project.[7]

7. In EFP staff comments submitted on December 9, 2009, EFP staff requested that the Commission vary Minnesota Rules, part 7854.0800 in order for the Applicant to develop additional layout information regarding both the 1.5 and 3.0 MW turbines. On December 21, 2009, the Commission issued an Order granting a variance to Minnesota Rules, part 7854.0800 to extend the period for the Commission to make a preliminary determination on whether a permit may be issued or should be denied.[8]

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[1] Exhibit 1
[2] Exhibit 2
[3] Exhibit 3
[4] Exhibit 4
[5] Exhibits 5 & 6
[6] Exhibit 7
[7] Exhibit 8
[8] Exhibit 9

8. On March 9, 2010, a Commission Order issued a "Draft Site Permit" for the Bitter Root Wind Farm Project.[9] The Commission issued an erratum on March 30, 2010, correcting the order to reflect what the Commission approved at their meeting.[10]

9. On March 16, 2010, OES EFP staff issued a notice of application acceptance and public information meeting. The published notice provided: a) location and date of the public information meeting; b) description of the proposed project; c) deadline for public comments on the application and draft site permit; d) description of the Commission site permit review process; and e) identification of the public advisor. The notice meets the requirements of Minnesota Rules, Part 7854.0900 subp 1. This notice was posted on the EFP website and sent to interested persons and governmental agencies on March 22, 2010, as required by Minnesota Rules, Part 7854.0900, subp. 2.[11]

10. Published notice of site permit application acceptance, and opportunity to comment on the permit application and draft site permit appeared in the *Canby News* and the *Hendricks Pioneer* on March 17, 2010, and in the *EQB Monitor* on March 22, 2010, as required by Minnesota Rules, Part 7854.0900, subp. 2.[12] The published notice contained all of the information required by Minnesota Rules part 7854.0900 subp. 1.

11. Administrative Law Judge Steve S. Mihalchick conducted a public hearing in Canby on March 30, 2010. The purpose of the meeting was to provide an overview of the Commission permitting process and to receive comments on the draft site permit and Certificate of Need. Approximately thirteen 13 people attended the hearing. EFP staff, Commission staff and representatives from BRPP were present. OES EFP staff provided an overview of the LWECS site permitting process, the draft site permit and responded to questions. OES EFP staff and BRPP representatives responded to project specific questions and general questions about wind energy. Project specific questions and comments were related to noise, aesthetics, role of local units of government in the review of the Project, availability of transmission capacity, need for the Project, turbine size, decommissioning, and impacts on plant and wildlife species.[13]

12. The deadline for submitting comments on the site permit application or draft site permit was April 21, 2010. There were 12 written comments received on the draft site permit.[14] Several written comments expressed support for the Project. Other comments expressed concern with noise, aesthetic impacts, use of 3.0 MW turbines, involvement of local governments, training for emergency response personnel, the Yellow Medicine Coteau Macrosite, native prairie, avian impacts, and local wind ordinances. Issues related to both oral and written comments received during the comment period are addressed in Findings 15, 17, 19, 40-44, 46-48, 53-56, 63 – 64, 82-89, 98 – 100, and in Permit

[9] Exhibit 11
[10] Exhibit 12
[11] Exhibits 13and 14
[12] Exhibits 15 and 16
[13] Exhibit 17
[14] Exhibit 18

Conditions 4.2 – 4.3, 4.5 – 4.9, 5.2, 6.1, 6.6 – 6.7, 7.11, 7.15 – 7.16, 9.1 – 9.3, 10.5.2, and 13.1 – 13.3.

13. During the comment period, one request was made for a contested case hearing. EFP staff summarized the request and recommended against the hearing in comments filed on May 19, 2010.[15] The Commission issued an order denying the request for a contested case hearing on June 11, 2010.[16]

14. Administrative Law Judge Bruce Johnson released a Summary of Public Comments and Recommendation on May 3, 2010.[17]

**Certificate of Need**

15. The Project is a large energy facility as defined by Minnesota Statutes section 216B.2421. BRPP applied for a certificate of need for the Project on April 27, 2009. The Commission granted the certificate of need in its order dated June 10, 2010.

**Permittee**

16. BRPP, has submitted a site permit application for the proposed 138 megawatt (MW) project in Yellow Medicine and Lincoln counties. BRPP is a joint venture of Acciona Wind Energy USA, LLC, and Global Wind Harvest, LLC. BRPP anticipates that the project will be owned and operated by Acciona Wind Energy upon construction. Neither BRPP, nor its corporate parents (Acciona Wind Energy USA, LLC, and Global Wind Harvest, LLC), own or operate any other LWECS in Minnesota.[18]

**Interconnection Agreement**

17. BRPP does not yet have an interconnection agreement for the Project.

**Project Description**

18. The Bitter Root Wind Farm Project is comprised of up to 92 1.5 MW or up to 46 3.0 MW wind turbine generators mounted on freestanding tubular towers and associated facilities. BRPP has not reached a final decision on turbine models, but anticipates using the ACCIONA Windpower AW-1500 1.5 MW turbine and/or the ACCIONA Windpower AW-3000 3.0 MW turbine in such number and combination as to reach a nameplate capacity of 138 MW.[19] The Project's preliminary turbine locations and associated facilities are shown on maps filed on November 10, 2010.[20]

[15] Exhibit 20
[16] Exhibit 21
[17] Exhibit 19
[18] Exhibit 1, at pp. 2-3
[19] Exhibit 1, at pp. 13 – 15
[20] Exhibit 23

19. Hub height for the ACCIONA Windpower AW-1500 1.5 MW turbines would be 80 or 100 meters (262 or 328 feet) with a rotor diameter of 77 or 82 meters (253 or 269 feet), resulting in an overall height of the tower, nacelle and blade of approximately 390 - 463 feet when one blade is in the vertical position. The hub height for the ACCIONA Windpower AW-3000 3.0 MW turbine would be 100 meters ( 328 feet) with a rotor diameter of 100 or 109 meters (328 or 358feet), resulting in an overall height of approximately 492 – 509 feet when one blade is in a vertical position.[21]

20. Towers for 1.5 MW turbines would be constructed of tubular steel and consist of three to four sections manufactured from certified steel plates. The steel tower would be connected by two stud races embedded in concrete. Towers for the 3.0 MW turbines constructed of five 20 meter precast concrete sections assembled on-site. The concrete sections would be connected by anchor bars embedded in the foundation and high quality grout.[22] Each tower will be secured by a concrete foundation that will vary in size depending on the soil conditions, turbine tower load specification and cost considerations. The base portion of the foundation for a 1.5 MW turbine is generally an octagon of approximately 40 to 60 feet in diameter and eight feet in thickness. The base portion of the foundation for a 3.0 MW turbine is generally an octagon approximately 80 feet in diameter and 25 feet in thickness.[23]

21. The project will also include an underground automated supervisory control and data acquisition system (SCADA) for real-time monitoring and control of turbine operations. Up to three (3) permanent free standing 80 meter meteorological towers will be used as part of the communication system. Other components of the project include a concrete and steel foundation for each tower, pad-mounted step-up transformers, all weather class 5 roads of gravel or similar material, an operation and maintenance (O&M) building, and an underground energy collection system and a project substation.

22. All turbine models under consideration are three bladed, upwind, active yaw, and active aerodynamic control regulated wind turbines with power/torque control capabilities. Each turbine is equipped with a wind direction sensor. The wind direction sensor communicates with the computer system, which evaluates the measured wind parameters, and within a specified time interval, activates the yaw drives to align the nacelle to the wind direction.

23. Each turbine is interconnected through an underground electrical collection system at 34.5 kV. All of the proposed feeder lines would connect to the proposed project substation within the site permit boundaries. BRPP anticipates that the Project Substation will be located in Section 28 of Fortier Township in Yellow Medicine County near the center of the Project Area;[24] final location of the substation will depend upon negotiations between BRPP and landowners. The Project Substation steps up the voltage from the 34.5 kV collection systems to the transmission system level. The Project will

[21] Environmental Report, at pp. 5-6, Exhibit 23
[22] Exhibit 1, at p. 17
[23] Exhibit 1, at p. 17
[24] Exhibit 23

interconnect with the electrical grid at a point along Otter Tail Power Company's existing 115 kV Canby to Toronto Transmission Line; the interconnection will be in accordance with Midwest System Operator Standards and consistent with the Large Generator Interconnection Agreement.

24. Turbines will be uniform in color; either white or grey.[25] The blades will be equipped with lightning protection. The entire turbine is also grounded and shielded to protect against lightning.

25. A control panel that houses communication and electronic circuitry is placed in each tower. In addition, a step-up, pad-mounted transformer is necessary for each turbine to collect the power from the turbine and transfer it to a 34.5 kV collection system via underground cables.

26. All turbines and the permanent meteorological tower(s) will be interconnected with fiber optic communication cable that will be installed underground. The communication cables will run back to a central host computer which will be located either at the project substation or at a facility where SCADA system will be located. Signals from the current and potential transformers at each of the delivery points will also be fed to the central SCADA host computer. The SCADA system will be able to give status indications of the individual wind turbines and the substation and allow for remote control of the wind turbines locally or from a remote computer. This computerized supervisory control and data acquisition network will provide detailed operating and performance information for each wind turbine. The Permittee will maintain a computer program and database for tracking each wind turbine's maintenance history and energy production.

27. Housed inside the fiberglass nacelle that sits on the top of the tower are the generator, brake system, yaw drive system and other miscellaneous components.

28. BRPP anticipates that construction of the Project will begin in 2012, with commercial operation expected by the end of 2012.[26]

**<u>Site Location, Characteristics, and Topography</u>**

29. The Bitter Root Wind Farm Project will be located west and southwest of the city of Canby and has identified a Project area of approximately 22,500 acres located in Sections 3-10, 13-17, 19-30, and 32-36 of Fortier Township (T114, R46) in Yellow Medicine County, Sections 29-32 of Florida Township (T115, R46) in Yellow Medicine County and Sections 2,3, and 4 of Hansonville Township in Lincoln County.[27] The Project Area is zoned agricultural. Elevation varies from 400 to 531 feet above mean sea level. The landscape is characterized by agricultural (44 percent of landcover) and grassland (approximately 36 percent of landcover).[28] Corn and soybeans are the predominant crops

[25] Exhibit 1, at p. 29
[26] Exhibit 23
[27] Exhibit 1, at pp. 1-2
[28] Ibid., at p. 42

in the Project area; raising hogs and pigs is also a major source of income, and there are several feedlots located within the Project Area[29] use is agricultural, a mixture of corn, soybeans, hay and vegetables. There are several parcels of public lands (Wildlife Management Areas (WMAs) and Waterfowl Production Areas (WPAs)), Conservation Reserve Program and Reinvest in Minnesota easements located within the Project Area.[30]

30. Construction of the turbines sites and access roads will involve temporarily disturbing approximately 300 acres for contractor staging and assembly areas, turbine foundations, access roads, electric collection lines, substation, and an operation and maintenance facility[31]. The Applicant anticipates construction of approximately 20 – 25 miles of access roads.[32] During the construction phase, roads will be approximately 40 feet wide to allow for the large construction equipment; after construction roads will be reduced to approximately 16 feet wide and covered with gravel to allow permanent year-round access to turbine sites.[33] Depending upon final design, the Applicant anticipates that the Project would occupy approximately 120 acres.[34]

31. Wind turbine and road access will be sited to take into account the contours of the land and prime farmland locations to minimize impact.[35] The Project will be subject to the requirements of the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Construction Stormwater Permit.[36] An erosion and sediment control plan and Storm Water Pollution Prevention Plan (SWPPP) will also be prepared for the Project and the disturbed areas will be seeded after construction to stabilize the area.[37]

**<u>Wind Resource Considerations</u>**

32. Based on data obtained from three temporary meteorological stations within the Project Area, the Applicant calculated long-term monthly average wind speeds of between 7.2 and 9.1 meters/second, with a mean wind speed of 8.4 meters/second (18.8 miles per hour) within the Project Area.[38] Wind speeds are generally greater in the night and early morning hours and decline at midday. The prevailing wind directions in the Project Area are south, southeast and south, with significant wind energy from the west-northwest and north sectors. The strongest wind speeds occur during the months of April and May, while July and August typically have the lowest average wind speeds (7.4 and 7.0

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[29] Yellow Medicine County Comprehensive Plan, April, 2006, http://yellowmedicine.govoffice.com/vertical/Sites/%7B39847866-8769-462C-ADF5-52507F76AD33%7D/uploads/%7B1FC9D1FF-7F2C-442A-B5B5-86343BFC4EA9%7D.PDF
[30] Reference Exhibit 1 (Exhibits 8 and 12), is there something else?
[31] Exhibit 1, at p. 43
[32] Ibid., at p. 19
[33] Ibid.
[34] Ibid., at p. 43.
[35] Ibid., at pp. 48 (prime farmland) and 47 (topography)
[36] Ibid., at p. 48
[37] Ibid.
[38] Ibid., at p. 8

meters/second respectively).[39]

33. For this project, turbines will be sited so as to have good exposure to winds from all directions with emphasis on exposure to the prevailing southerly and northwesterly wind directions. The turbine spacing, according to BRPP's application, maximizes use of the available wind and minimizes wake and array losses within the topographical context of the site. The turbines are typically oriented east to west, which is roughly perpendicular to the prevailing southerly and northwest winds. Turbine placement, aside from other resource features where setbacks or wind access buffers are required, will be designed to provide sufficient spacing between the turbines to minimize internal wake losses. Given the prevalence for southerly and northerly winds, the spacing is widest in the north-south direction. As addressed in Section 4.10 of the site permit, greater or lesser spacing between the turbines or turbine strings may be used in areas where the terrain dictates the spacing. Sufficient spacing between the turbines is utilized to minimize wake losses when the winds are blowing parallel to the turbines.

34. Assuming net capacity factor of 38 - 41 percent, projected average annual output from the Project will be approximately 459,400 - 495,600 MWh per year or approximately 5,000 to 6,000 MWh (megawatt hours) per turbine per year. The base energy calculation presented assumes a normal or average wind year.

**Wind Rights and Easement/Lease Agreements**

35. In order to build a wind facility, a developer must secure site leases and easement agreements to ensure access to the site for construction and operation of a proposed project. These lease or easement agreements also prohibit landowners from any activities that might interfere with the execution of the proposed project. Land and wind rights will need to encompass the proposed wind farm and all associated facilities, including but not limited to wind and buffer easements, wind turbines, access roads, meteorological towers, and the electrical collection system.

36. BRPP controls approximately 11,100 acres within the project site boundary under Option to Lease Agreements with 51 landowners. BRPP has options, leases or easement on the land and wind rights necessary within the site to build the Project. Section 10.1 of the site permit requires BRPP to demonstrate that it has obtained the wind rights necessary to construct and operate the Project at least 10 working days before the pre-construction meeting.

**Site Considerations**

37. Minnesota Statutes chapter 216F and Minnesota Rules chapter 7854 apply to the siting of LWECS. The rules require an applicant to provide a substantial amount of information to allow the Commission to determine the potential environmental and human impacts of the proposed project and whether the project is compatible with environmental

[39] Ibid.

preservation, sustainable development, and the efficient use of resources.[40] Pursuant to Minnesota Statutes section 216F.02, certain sections in Minnesota Statutes chapter 216E (Minnesota Power Plant Siting Act) apply to siting LWECS, including section 216E.03, subdivision 7 (considerations in designating site and routes). The analysis of the environmental impacts required by Minnesota Rule 7854.0500, subpart 7 satisfies the environmental review requirements; no environmental assessment worksheet or environmental impact statement is required for a proposed LWECS project. Therefore, environmental review is based on the application and the record. The following analysis addresses the relevant criteria that are to be applied to a LWECS project.

**Human Settlement**

38. The site is in an area of relatively low population density, characteristic of rural areas throughout southern Minnesota. BRPP's turbine locations will be at least 1,000 feet from all residences.[41] BRPP will also maintain a set back of five rotor diameters (1260 – 1780 feet) on the prevailing wind axis from non-participating landowner's property lines and three rotor diameters (760 – 1,070 feet) on the non-prevailing wind axis.[42] BRPP's proposed project design will comply with the Minnesota Pollution Control Agency (PCA) noise standards. As a result, the Project's impact on human settlement, public health and safety will be minimal. The site permit, at sections 4.2 and 4.4 has conditions for setbacks from residences and roads. The proposed wind turbine layout will meet or exceed those requirements. The proposed project is not expected to affect any water wells (used, unused or unsealed) or any rural water system that services the area.

39. There will be no displacement of existing residences or structures in siting the wind turbines and associated facilities.

**Zoning and Land Use**

40. At the time that the Draft Site Permit was approved for distribution, both Lincoln and Yellow Medicine counties had passed resolutions assuming permitting authority for Wind Energy Conversion Systems (WECS) projects under 25 MW, pursuant to MS 216F.08. As allowed in MS 216F.081, the counties have adopted some setbacks more stringent that the General Permit Standards adopted by the Commission in January 2008. This statute directs the Commission to consider and apply the more stringent standards to LWECS issued by the Commission, unless the Commission finds good cause not to do so.

41. The Draft Site Permit identified these more stringent setbacks in a Special Condition to allow for public to comment on whether these more stringent standards were appropriate for the site permit. In summary, Lincoln County had adopted more stringent standards related to setbacks from: (1) roads, recreational trails, power lines, and other rights of way; (2) structures other than homes or dwellings; and (3) other project boundaries. The Lincoln County ordinance also precludes turbines from being placed within a Shoreland

[40] Minn. Stat. § 216F.03 and Minn. R. 7854.0500
[41] Exhibit 1, at p. 27
[42] Environmental Report, see Table 1

District. Yellow Medicine County had adopted more stringent standards requiring setbacks from roads and certain wetlands.

42. In their comment letter of April 21, 2010, BRPP recommended that the Commission revise and clarify language in the special condition. To support their recommendation, BRPP provided information on the Lincoln County and Yellow Medicine County ordinances, and letter from the Lincoln County Administrator clarifying the County's interpretation of their ordinance.

43. Based on the information provided by the Lincoln County Administrator, through BRPP's April 21, 2010, letter, the site permit clarifies the setback requirements from roads, trails and power lines, and other rights-of-way recorded with the County, structures other than homes or dwellings, and Shoreland Districts. Because there are no other wind projects in the area of the Project, reference to setbacks from other project boundaries is removed.

44. On March 23, 2010, the Yellow Medicine County Board passed a resolution rescinding its decision to permit WECS under 25 MW but made no changes to the WECS Zoning Ordinance. On August 10, 2010, the County Board adopted a new renewable energy ordinance which removed the wetland setbacks identified in the Draft Site Permit.[43] The site permit, at Section 13.1.2 incorporates the road setbacks from the renewable energy ordinance; reference to setbacks from wetlands has been removed.

**Property Values**

45. A study conducted by the Lawrence Berkley National Laboratory found an absence of negative impacts to property values from wind farms within a project view shed.[44] On July 1, 2010, the Stearns County Assessor's Office prepared "A Study of Wind Energy Conversion System in Minnesota," which did not find any changes in property valuation to properties hosting a wind tower based on information provided by assessors from Dodge, Jackson, Lincoln, Martin, Mower, and Murray counties. However, the study acknowledged that there is insufficient data to allow for a reasonable analysis of the development of wind facilities on property values. The Stearns County study also cited a studies completed by the Renewable Energy Policy Project, which analyzed 25,000 sales inside and outside of view sheds of a wind facility and concluded that property values appear not be affected, and a study conducted by the Royal Institute of Chartered Surveyors, which examined the impact of wind facility on property values in the United Kingdom and found that almost 30 percent of the respondents reported a decrease in property values.

[43] http://yellowmedicine.govoffice.com/vertical/Sites/%7B39847866-8769-462C-ADF5-52507F76AD33%7D/uploads/%7BC0BC1476-2066-4264-ADF4-DC1948C52184%7D.PDF

[44] "The Impact of Wind Power Projects on Residential Property Values in the United States" (Dec. 2009),

**Noise**

46. Wind turbines, when in motion, do generate sound or noise. Transformers installed at the Project Substation also produce noise. The level of sound (noise) varies with the speed of the turbine, the distance of the listener or receptor from the turbine, and the surface characteristics of the site. Operation and maintenance of wind turbines and associated facilities will increase noise levels. However, increases in noise levels are expected to be minimal due to the noise levels produced by the wind itself. Background noise levels in the Project Area are typical of those in a rural setting, where existing nighttime noise levels are commonly in the low to mid-30 dBA[45]. The dBA scale represents A-weighted decibels based on the range of human hearing. Higher levels exist near roads and other areas of human activity.

47. Noise impacts to nearby residents will be factored into the turbine micro-siting process. The Applicant must demonstrate the Project can meet the noise standard pursuant to Minnesota Rules chapter 7030 (site permit, sections 4.2 and 4.3). Noise levels predicted by computer models were compared to the Minnesota Pollution Control Agency Daytime and Nighttime L10 and L50 Limits as stated in Minn. Rule 7030.0040. These standards describe the limiting levels of sound established on the basis of present knowledge for the preservation of public health and welfare. These standards are consistent with speech, sleep, annoyance, and hearing conversation requirements for receivers within areas grouped according to land activities by the Noise Area Classification (NAC) system established in Minn. Rule. 7030.0050. The NAC-1 was chosen for receivers in the Project Area since this classification includes farm houses as household units. Daytime and nighttime limits for this classification are (1) L50 limit of 60 dBA and L10 limit of 65 dBA in daytime, and (2) L50 limit of 50 dBA and L10 limit of 55 dBA at nighttime. The nighttime L50 limit of 50 dBA is the most stringent limit.

48. Based on noise levels stated by manufacturers and third party noise assessments for the turbine models under consideration for the Project, ACCIONA Windpower 1.5 MW and 3.0 MW wind turbines, BRPP has incorporated setbacks of at least 1,000 feet from residences in developing the proposed project layout. Noise modeling submitted by BRPP shows that the preliminary layouts for both the 1.5 MW and 3.0 MW turbines meet PCA's 50 dBA noise standard.[46] The location of the Project Substation must also meet PCA's 50 dBA noise standard. See site permit at sections 4.2 and 4.3.

49. Section 6.6 of the site permit requires BRPP to conduct a post-construction noise study. The noise study will determine the noise levels at different frequencies and at various distances from the turbines at various wind directions and speeds. The purpose of the post-construction noise study is to confirm the PCA noise standards have been met.

[45] Exhibit 1, at p. 24
[46] Exhibit 23, Noise Map 1.5 MW Layout and 3.0 MW Layout

**Shadow Flicker**

50. Shadow flicker is described as "a moving shadow on the ground resulting in alternating changes in light intensity." Shadow flicker computer models simulate the path of the sun over the year and assess at regular time intervals the possible shadow flicker across a project area. The outputs of the model are useful in the design phase of a wind farm. Other than within approximately two rotor diameters from the base of a turbine, shadow flicker usually occurs in the morning and evening hours when the sun is low in the horizon and the shadows are elongated. Shadow flicker does not occur when the turbine rotor is oriented parallel to the receptor, or when the turbine is not operating. In addition, no shadow flicker will be present when the sun seen from a receptor is obscured by clouds, fog, or other obstacles already casting a shadow such as buildings and trees.

51. Shadow intensity, or how "light" or "dark" a shadow appears at a specific receptor, will vary with the distance from the turbine. Closer to a turbine, the blades will block out a larger portion of the sun's rays and shadows will be wider and darker. Receptors located farther away from a turbine will experience much thinner and less distinct shadows since the blades will not block out as much sunlight. Shadow flicker will be greatly reduced or eliminated within a residence when buildings, trees, blinds, or curtains are located between the turbine and receptor. Shadow flicker consultants generally agree that flicker is not noticeable beyond about 10 rotor diameters from a wind turbine.[47] Evidence of health effects from shadow flicker is scant, suggesting that it is more of a nuisance issue. Minnesota has no published standards for shadow flicker and no examples of turbines causing photosensitivity related problems. Several jurisdictions in other countries have established guidelines for acceptable levels of shadow flicker based on certain assumptions. The site permit does not contain shadow flicker limits.

52. Section 6.2 of the site permit requires BRPP to provide data on the duration of shadow flicker on each residence and noting whether the residence is on property that is participating in the Project. BRPP will use computer modeling to simulate the path of the sun over the year and assess the possible shadow flicker across the Project Area at regular time intervals. The model will use actual data from the Project, such as coordinates of receptors, digital elevation data to account for topography and the physical characteristics of the selected wind turbine. BRPP will use the results of the modeling in developing a final layout to minimize impacts to residents.

**Visual Values**

53. The placement of up to 92 turbines for the Bitter Root Wind Farm Project, will affect the appearance of the area. The wind turbines will be mounted on tubular towers that are 262 to 328 feet tall. The rotor blades will have a diameter of 253 to 358 feet, with a total

[47] Environmental Health Division, Minnesota Department of Health, *Public Health Impacts of Wind Turbines*, May 22, 2009, at 14, *available at* http://energyfacilities.puc.state.mn.us/documents/Public%20Health%20Impacts%20of%20Wind%20Turbines,%205.22.09%20Revised.pdf.

height of up to 509 feet when one blade is fully extended.[48] The turbine towers and rotor blades will be prominent features on the landscape. There will be intermittent, expansive views of the turbines to passing motorists on State Highway 68 and local roads. Motorists and drivers may travel within 250 feet of some turbines. Additionally, elements of the Project will be visible to users of public lands within and adjacent to the Project.

54. The visual impact of the wind turbines will be reduced by the use of a neutral paint color. The only lights will be those required by the Federal Aviation Administration (site permit at section 7.18). All site permits issued by the Commission require the use of tubular towers; therefore, the turbine towers will be uniform in appearance. Blades used in the proposed project will be white or grey. The wind turbines in this project, while prominent on the landscape, also blend in with the surrounding area. The project site will retain its rural character. The turbines and associated facilities necessary to harvest the wind for energy are not inconsistent with existing agricultural practices.

55. Wind facilities can be perceived as a visual intrusion on the natural aesthetic value on the landscape, or having their own aesthetic quality. Existing wind plants have altered the landscape elsewhere in Minnesota from agricultural to wind plant/agricultural. This project will modify the visual character of the area. Because wind generation development is likely to continue in southern Minnesota, this visual presence will continue to increase as wind development occurs.

56. Visually, the Bitter Root Wind Farm Project will be similar to other LWECS projects located on Buffalo Ridge and southeastern Minnesota.

**Health and Safety**

57. The Canby Municipal Airport is the nearest airport, located approximately 5.4 miles northeast of the Project boundary and one mile north of the City of Canby. The Sioux Valley Hospital, located in Canby has a heliport for transporting patients. Mulder Field, Inc. Airport is located approximately 12 mile s southeast of the Project Area near Ivanhoe, Minnesota. A publicly-owned airport is also located approximately 18 miles northwest of the Project, near Clear Lake, South Dakota.[49] The Applicant has not yet been issued a "no hazard" determination from the Federal Aviation Administration (FAA). Section 4.12 of the site permit requires the Permittee to avoid placing wind turbines or associated facilities in a location that could create an obstruction to navigable airspace to certain airports. The Permittee must comply with the requirements of the Minnesota Department of Transportation, Department of Aviation and FAA (site permit, sections 10.5.1 and 4.12).

58. The addition of up to 92 wind turbines and three permanent meteorological towers could introduce the possibility of collisions with crop-dusting aircraft. The turbines would be

[48] Environmental Report, at Table 1; Exhibit 23
[49] Exhibit 1, at 38

visible from a distance and lighted according to FAA requirements (see section 7.18 of the site permit). The permanent meteorological towers will be free standing and have lighting consistent with the turbines. The Minnesota Aeronautical Chart produced by the Minnesota Department of Transportation is available and shows wind turbine locations throughout the state.

59. Possible health effects associated with wind turbines and transmission of electricity generally include those from electric and magnetic fields (EMF). The term EMF refers to electric and magnetic fields that are present around electrical devices. Electric fields arise from the voltage or electrical charges and magnetic fields arise from the flow of electricity or current that travels along transmission lines, power collection (feeder) lines, substation transformers, house wiring and electrical appliances. The intensity of the electric field is related to the voltage of the line and the intensity of the magnetic field is related to the current flow through the conductors (transmission line wire). Once energized, the proposed Project will generate electromagnetic fields.[50]

60. The Applicant believes that the Project will not have any impact on public health and safety due to EMFs.[51] While there is no conclusive evidence that EMFs from power lines and wind turbines pose a significant health impact, the turbines will be installed no closer than 1000 feet from residences, where EMFs are expected to be at background levels. Based on the most current research on EMFs, and the distance between any turbines or collector lines and homes, the proposed Project is not anticipated to have significant impact to public health and safety due to EMFs.

61. Stray voltage is an extraneous voltage that appears on grounded surfaces in buildings, barns and other structures. Stray voltage can be a problem for hospitals, manufacturing plants, and farms. In hospitals and manufacturing plants, stray voltage may interfere with sensitive electronic equipment. On the farm, if this voltage reaches sufficient levels, animals coming into contact with grounded surfaces may receive a mild shock that can cause a behavioral response. In addition, stray voltage may result from a damaged, corroded, or poorly connected wiring or damaged insulation (contact voltage).

62. Significant research on the effects of stray voltage on dairy cows has been conducted over the past 40 years. A comprehensive review of this research is presented in a report to the Ontario Energy Board (Literature Review and Synthesis of Research Findings on the Impact of Stray Voltage on Farm Operations, 2008, Prepared by Douglas J. Reinemann, Ph.D.). Stray voltage and its impact on dairy farms is normally an issue associated with electrical distribution lines and is a condition that can exist between the neutral wire of a service entrance and grounded objects in buildings. The source of stray voltage is a voltage that is developed on the grounded neutral wiring network of a farm and/or the electric power distribution system. The direct effect of animal contact with electrical voltage and the resulting current flowing through their bodies can range from mild behavioral reactions to intense behavioral responses indicative of pain. The indirect effects of these behaviors can vary considerably depending on the specifics of the contact

[50] Exhibit 1 at 38.
[51] Ibid. at 40.

location, level of current, pathway, frequency, and other factors related to the daily activities of the animals. The quality of the farm wiring system has the largest single influence on voltage exposure levels. Stray voltage sources can be reduced in three fundamental ways: 1) reduce the current flow on the neutral system, 2) reduce the resistance of the neutral system, or 3) improve the grounding of the neutral system. The electrical collection system proposed for the Project is designed to be "a separately derived system" as defined in the National Electric Code. The system will have no direct electrical connection (including grounded circuit conductors) to conductors originating in another system.

63. As with any large construction project, some risk of worker or public injury exists during construction. BRPP and its construction representatives and workers will prepare and implement work plans and specifications in accordance with applicable worker safety requirements during construction of the Project. BRPP will also provide security during construction and operation of the project, including fencing, warning signs, and locks on equipment and facilities. The Permittee will also provide landowners and interested persons with safety information about the project and its facilities. See site permit at section 7.15. BRPP has agreed to work with the local first responders (Fire, EMS, Law Enforcement) to provide training and information about how to best respond to incidents at the Project; the nature and extent of this training will be determined in coordination with the O&M staff and the first responders in development of the Emergency Response Plan required under section 7.16 of the site permit.

64. Each turbine will be clearly labeled to identify each unit and a map of the site with the labeling system will be provided to local authorities as part of the emergency response plan. See site permit at sections 7.16 and 7.17.

65. In winter months ice may accumulate on the wind turbine blades when the turbines are stopped or operating very slowly. Furthermore, the anemometer may ice up at the same time, causing the turbine to shut down during any icing event. As weather conditions change, any ice will normally drop off the blades in relatively small pieces before the turbines resume operation. This is due to flexing of the blades and the blades' smooth surface. Although turbine icing is an infrequent event, it remains important that the turbines are not sited in areas where regular human activity is expected below the turbines during the winter months.

**Public Services and Infrastructure**

66. The Project is expected to have minimal effects on existing public infrastructure. Except for a short period of time during construction and occasionally during operation and maintenance activities, the Project will not generate an increase in traffic volumes or daily human activity. The construction contractor will repair any road damage that may occur during the construction of the Project. See site permit at section 7.8.

67. State Highway 68 crosses the far northwestern portion of the Project Area. Yellow Medicine County Roads 30 and 36 provide east-west passage through the Project Area.

The Project Area is also crossed by a number of township roads. The project will require the use of public roads to deliver construction supplies and materials to the work site, resulting in wear and tear on roads. Other than short-term impacts, no significant permanent changes in road traffic patterns or volume are expected. The busiest traffic would occur when the majority of the foundation and tower assembly is taking place. Township and county officials will receive advance notice of the construction schedule at the pre-construction meeting, including the timing of the delivery of towers and turbines and arrival of the crane to erect project equipment (site permit section 5.6 and 7.8.1). BRPP will work with all parties involved to address concerns related to roadway use, and adhere to state, county, and township requirements for transportation infrastructure.

68. Construction of the Project requires the addition of approximately 20-25 miles of access roads that will be located on private property.[52] The access roads will be built adjacent to turbine towers, allowing access both during and after construction. The access roads will be sited in consultation with landowners and completed in accordance with specified design requirements, and will be located to facilitate both construction (e.g. cranes) and continued operation and maintenance., Siting roads in areas with unstable soil will be avoided wherever possible. Roads may include appropriate drainage and culverts while still allowing for the crossing of agricultural equipment. The typical access road will be approximately 40 feet wide during the construction phase of the Project to accommodate large cranes required for installation. Following construction, the roads would be reduced to approximately16 feet in width and covered in Class 5 gravel (or similar material).[53] Access roads shall be constructed in accordance with all necessary township, county or state road requirements and permits (site permit section 7.8.2). During operation and maintenance of the wind plant, operation and maintenance crews, while inspecting and servicing the wind turbines, will use access roads. Periodic grading and maintenance activities will be used to maintain road integrity. The Permittee may do this work or contract it out.

69. If access roads are installed across streams or drainage ways, the Permittee in consultation with the Minnesota Department of Natural Resources will design, shape and locate the road so as not to alter the original water flow or drainage patterns. Any work required below the ordinary high water line, such as road crossings or culvert installation, will require a permit from the Minnesota Department of Natural Resources. See site permit at 4.6 and 7.8.2.

70. The Permittees will bury all SCADA communications cables within or adjacent to land necessary for turbine access roads. See site permit at section 4.14.

71. The proposed project will have approximately 13 miles of cables for the collector lines on private property within the wind farm. Collector lines carrying electrical power from turbines to electrical interconnection points will be buried underground and placed within or adjacent to turbine access roads unless otherwise negotiated with affected landowners.

[52] Ibid., at 19
[53] Ibid.

Feeder lines carrying power from internal project interconnection points to the Project substation may be overhead or underground as negotiated with individual landowners (site permit section 4.15). Most of the underground electric circuits will parallel existing turbine maintenance roads or public road rights-of-way. The Applicant anticipates that feeder lines will also be buried; if conditions exist that would prevent the feeder lines from being buried, feeder lines will be installed overhead on single pole structures with heights of 25 to 40 feet. The Project is expected to have a minimal effect on the existing infrastructure.

72. The proposed wind farm will not affect water supplies, railroads, electric transmission, telecommunication facilities, and radio reception. To the extent Project facilities cross or otherwise affect existing telephone lines or equipment BRPP will make arrangements with applicable service providers to avoid interference with such facilities. The Permittee must satisfy all Institute of Electrical and Electronics Engineers, Inc. (IEEE) standards applicable to the Project. See site permit at section 4.15. Microwave beam path analysis work will avoid conflicts with the Fresnel zones. BRPP will also place towers so as to avoid interfering with land mobile facilities. The presence or operation of the wind plant could potentially impact the quality of television reception in the area. Previous work on television reception issues indicates that in some cases new antennas or relocation of existing antennas can restore television signal strength reception. The Permittee will address the concerns of residents in the area of the project site before and after project construction to document and mitigate any television, radio, telecommunications, microwave, or navigation reception impacts that might occur. See site permit at section 6.4.

73. Prior to construction, Gopher State One Call will be contacted to locate underground facilities so they can be avoided. Further, section 7.15 of the site permit requires the Permittee to submit the location of underground cables, collector, and feeder lines to Gopher State Once Call.

**Recreational Resources**

74. Recreational opportunities in Yellow Medicine and Lincoln counties include hiking, biking, boating, fishing, golfing, camping, swimming, horseback riding, snowmobiling, hunting, and nature viewing. The Project Area contains five wildlife management areas (WMAs), three additional WMAs are located immediately adjacent to the Project Area.[54] No formally designated county or state parks are located within the Project Area, although the State Line Wayside Park is located in the northwestern portion of the Project Area. There are no Scientific and Natural Areas (SNAs) within the Project Area; the nearest SNW is the Yellow Bank Hills SNA, located approximately 21 miles north of the Project Area. The USFWS manages Wildlife Protection Areas. There are no documented snowmobile or all terrain vehicle trails within the Project Area.

[54] Exhibit 23

**Community Benefits**

75. The Bitter Root Wind Farm Project will pay an annual Wind Energy Production Tax to Yellow Medicine and Lincoln counties and Fortier, Florida and Hansonville townships. Landowners with turbine(s) and/or wind easements on their property will also receive payments from the Permittee.

76. To the extent that local workers and local contractors are capable, qualified, and available, BRPP will seek to hire them to construct the proposed project. The hiring of local people will expand employment opportunities in this area of the state and keep money in the local economy. Once constructed, the Project will be staffed with site technicians.

**Effects on Land-Based Economies**

77. The Applicants anticipate that approximately 120 acres of agricultural land will be permanently displaced. Construction activities (e.g. grading, soil compaction, access roads, turnaround areas, temporary construction staging areas) are anticipated to temporarily impact approximately 300 acres of agricultural land. Overall, impact to agricultural lands as a result of the Project is anticipated to be short term, and is not expected to alter crop production. Once in operation, it may occasionally be necessary for BRPP to complete repairs, or clear vegetation around a turbine or facility, which could result in additional temporary impact to agricultural operations. These interruptions are expected to be infrequent and short term. Section 7 of the site permit addresses mitigation measures for agricultural lands.

78. The proposed project does not adversely affect any sand or gravel operations.

**Archaeological and Historical Resources**

79. The Applicant conducted a review of records at the Minnesota State Historic Preservation Office (SHPO) for the Project area. The review of records identified six historic architectural properties and eight archaeological sites located within one mile of the Project area.[55] In a September 5, 2008 letter to the Applicant[56] the Minnesota State Historic Preservation Office (SHPO) recommended that an archaeological survey be completed for the Project. Section 6.3 of the site permit requires the Permittee to conduct an archaeological reconnaissance survey (Phase I or Phase IA). An archaeological reconnaissance survey is used to determine if archaeological sites exist within the area potentially affected by the Project through literature review and, if warranted, field review including visual inspection and sampling. Depending upon the results of the reconnaissance survey, more detailed work may be necessary.

80. If any archaeological sites are found during the Phase I survey, their integrity and significance should be addressed in terms of the site's potential eligibility for placement

[55] Exhibit 1, at 35
[56] Ibid., at Appendix E

on the National Register of Historic Places (NRHP). If such sites are found to be eligible for the NRHP, appropriate mitigative measures will need to be developed in consultation with the SHPO, the State Archaeologist, and consulting American Indian communities. Section 6.3 of the site permit also requires the Permittee to stop work and notify the Commission, SHPO, and the State Archaeologist if any unrecorded cultural resources are found during construction.

**Air and Water Emissions**

81. No harmful air or water emissions are expected from the construction and operation of the LWECS.

**Wildlife and Vegetation**

82. Landcover within the Project boundary is comprised mainly of cultivated land (approximately 44 percent) and grasslands (approximately 36 percent). Five WMAs are located within the Project area, and four additional WMAS are located within two miles of the Project boundary. Native Prairie is likely to be present within the Project Area.[57] Wildlife species found within the Project area include both resident and migratory species of Minnesota game and no-game wildlife that are associated with croplands, grasslands, wetlands, and riparian woodlands.[58]

83. Based on studies of existing wind power projects in the United States and Europe, impacts to avian and bat populations are typically the areas of greatest concern. The project will have direct and indirect impacts on birds, bats, and other wildlife resources and their habitats. Direct impacts may include strike fatality from turbine blades, power lines, and related infrastructure. Indirect impacts may include displacement of birds and bats and other wildlife from their habitats, site avoidance, and behavioral modification (National Wind Coordinating Committee, Spring 2010).

84. The United States Fish and Wildlife Service (USFWS) has developed Draft Guidelines for Wind Turbine Siting (2010) in collaboration with the Wind Turbine Guidelines Advisory Committee. The Guidelines are intended to provide wind developers and regulatory agencies with the information needed to identify, assess, and monitor the potentially adverse impacts of wind energy projects on wildlife and their habitats, particularly migratory birds and bats. The guidelines focus on a tiered approach to gathering information on a site and potential risks to wildlife and wildlife habitat. Depending on the results obtained from each tier, pre-and/or post-construction survey work is indicated along with associated mitigative measures.

85. Recent studies indicate a broad range in avian and bat fatalities across the United States as a result of wind development, with the highest fatalities occurring in the eastern United States. In the Midwest, post-construction studies completed in Iowa, Minnesota, and Wisconsin confirm a wide range of fatality rates. The highest bird and bat fatalities were

[57] Ibid., at 55
[58] Ibid., at 57

found at the 145 MW Blue Sky Green Field wind facility in Wisconsin, with bird fatalities at 12 birds/turbine/year and bat fatalities at 40 bats/turbine /year (Gruver et al. 2009). Fatalities range from 1 to 4 birds/turbine/year and from 1 to 8 bats/turbine/year across most of the upper Midwest. Avian and bat studies conducted at the Buffalo Ridge, Minnesota (Johnson et al 2000), found an average of 1-4 bird fatalities/turbine/year and 1-3 bat fatalities/turbine/yr. Projects in areas with similar habitat and cover types would likely have similar fatality rates, depending on migration patterns, known resting and foraging areas, and potential for bat hibernacula. However, as wind facilities and turbines increase and move into areas or landscapes where migration or use patterns are less understood, it becomes increasingly difficult to make landscape level comparisons between facilities and predict the impacts on avian and bat populations.

86. BRPP contracted with biologists to perform wildlife studies in the Project area to evaluate the spatial and temporal use of the Project area by wildlife. The wildlife studies were carried out between March and October, 2008.[59] The study included fixed-point bird use surveys, transect surveys for grassland bird species, raptor nest surveys, Prairie Grouse Lek surveys, bat surveys, and incidental wildlife observations. Overall raptor use of the Project Area was low, and impact to raptors from the Project would be expected to be low as a result. Survey results found higher bird use of the Project Area during spring and fall migration periods, primarily driven by high waterfowl use during these time periods. Based on the findings from other studies of avian impacts from wind project, waterfowl do not appear especially vulnerable to turbine collisions. The surveys also identified migrant and resident passerines (songbirds) in the Project Area. Based on existing literature, passerines would be expected to comprise the majority of bird fatalities resulting from the Project. The surveys did identify high bat activity within the Project Area, compared to activity at other wind projects in the United States; because of the level of bat activity, bat mortality resulting from the Project would be equal to or greater than the 10.2 bat fatalities/turbine/year reported at the Top of Iowa Wind Farm in Iowa, but lower than the 38 fatalities/turbine/year reported at Mountaineer, West Virginia.

87. The DNR letter of April 21, 2010 identified a number of concerns with the Project. Areas of concern were related to the presence of native prairie and the Yellow Medicine Coteau Macrosite, a large area of significant prairies and a matrix of connecting grasslands, which overlaps a portion of the Project area. The DNR's concerns are related to the potential for turbines sited within these areas to act as a habitat barrier or cause avoidance behavior for wildlife using this landscape feature. The DNR's comments also noted the abundance of bird and bat habitat and expressed concern for flight barrier or collision risk as birds fly between habitats. The DNR comments recommended that the Project avoid siting turbines within the Yellow Medicine Coteau Macrosite or native prairie and that BRPP be required to perform additional pre-construction avian and bat surveys.

88. On November 4, 2010, BRPP filed a letter summarizing their efforts to minimize impacts to sensitive habitats and species to the extent practicable and responding to the issues

[59] Ibid., at 57 and Appendix F

identified in the DNR letter of April 21, 2010.[60] In the letter, BRPP discussed the development of avian survey protocols in response to identify use of the Project Area by sensitive grassland nesting species. BRPP responded that, given the findings resulting from the number and variety of avian surveys already performed, they do not believe that additional preconstruction avian surveys are warranted. BRPP did acknowledge that, given the high level of bat activity identified in the surveys, additional preconstruction bat surveys are warranted. BRPP stated its willingness to work with the USFWS and DNR to design and implement additional preconstruction bat surveys. BRPP acknowledged the conservation strategy of limiting development with the Yellow Medicine Coteau Macrosite, but pointed out that the area is comprised of a heterogeneous mixture of grasslands that vary in conservation value, as well as regularly disturbed areas of tilled agriculture. BRPP has committed to avoiding areas of native prairie when siting turbines. With respect to the Yellow Medicine Coteau Macrosite, BRPP proposed to minimize siting within the macrosite and, for sites located within the macrosite, use information gathered from preconstruction biological and cultural surveys to site in a manner that minimizes impacts to the function of the macrosite.

89. The site permit requires a number of mitigation measures to minimize impacts to sensitive habitats and species: Section 6.1 requires a pre-construction inventory of existing biological resources, native prairie, state listed and threatened species and wetlands in the project area; Section 4.5 requires that turbines and associated facilities will not be constructed in wildlife management areas, recreation and state scientific and natural areas or parks or within a 5 by 3 rotor diameter setback from these areas; Section 4.7 requires development of a Prairie Protection and Management Plan: Section 13.2 requires the Prairie Protection and Management Plan to identify efforts to avoid and minimize impacts to the Yellow Medicine Coteau Macrosite; Section 6.7 requires the development of an Avian and Bat Protection Plan; Section 7.11 requires development of a Soil Erosion and Sediment Control Plan and an Invasive Species Prevention Plan; preconstruction bat monitoring (Section 13.3); and post construction avian and bat monitoring (Section 13.4).

90. No public waters, wetlands or forested land are expected to be adversely affected by the project. No groves of trees or shelterbelts will need to be removed to construct and operate the system.

**Soils**

91. Construction of the wind turbines and access roads in farmland increases the potential for erosion during construction. Section 7.11 of the site permit requires a Soil Erosion and Sediment Control Plan. The project will also require a NPDES/SPS permit from the PCA.

[60] Exhibit 22

**Surface Water and Wetlands**

92. Access roads or utility lines will not be located in surface water or wetlands, unless authorized by the appropriate permitting agency. See site permit at 4.6 and 10.5.1.

93. The DNR letter of April 21, 2010, noted that calcareous Fens are located within the Project area, and appear to be avoided by the turbines. The DNR requested that BRPP submit information about any unreported calcareous fens to DNR, so that the information may be incorporated into the Natural Heritage Information System. The site permit, at 6.1, requires that BRPP perform a biological survey of the potentially impacted areas and report those results to the Commission and to DNR prior to construction.

**Future Development and Expansion**

94. Current information suggests windy areas in this part of the state are large enough to accommodate more wind facilities. In the future, wind turbines used in Yellow Medicine, Lincoln, and surrounding counties will consist of several types and sizes supplied by different vendors and installed at different times.

95. While large-scale projects have occurred elsewhere (Texas, Iowa and California), little systematic study of the cumulative impact has occurred. Research on the total impact of many different projects in one area has not occurred. OES EFP staff will continue to monitor for impacts and issues related to wind energy development.

96. The Commission is responsible for siting of LWECS "in an orderly manner compatible with environmental preservation, sustainable development, and the efficient use of resources."[61] Section 4.1 of the site permit provides for buffers between adjacent wind generation projects to protect production potential.

**Maintenance**

97. Maintenance of the turbines will be on a scheduled, rotating basis. Maintenance on the interconnection point will be scheduled for low wind periods. The Bitter Root Wind Farm Project will be staffed with wind technicians as necessary. An Operations and Maintenance facility is planned for the Project. Once a site is selected, the O&M facility will be permitted by the appropriate local unit of government.

**Decommissioning and Restoration**

98. BRPP expects that the life of the Project will be no less than 20 – 30 years and reserves the right to re-apply for a LWECS site permit and continue operation of the Project. LWECS site permit renewal may be under a new long-term power purchase agreement (PPA), merchant operation of the Project, or replacement and re-powering of the Project.

[61] Minn. Stat. § 215F.03.

99. Decommissioning activities will include (1) removal of all wind turbine components and towers; (2) removal of all pad mounted transformers; (3) removal of all above-ground distribution facilities; (4) removal of foundations; and (5) removal of surface road material and restoration of the roads and turbine sites to previous conditions to the extent feasible.

100. As provided in section 9.1 of the site permit, the Permittee must submit a Decommissioning Plan to the Commission prior to the pre-operation compliance meeting. The Decommissioning Plan will document the manner in which BRPP will ensure that it carries out its obligations to provide for the resources necessary to fulfill its requirements to properly decommission the Project at the appropriate time. The site permit addresses site restoration at Section 9.2; turbines abandoned prior to termination of operation of the Project area addressed at Section 9.3 of the site permit.

**Site Permit Conditions**

101. All of the above findings pertain to the Applicant's requested permit for a 138 megawatt wind project.

102. Most of the conditions contained in this site permit were established as part of the site permit proceedings of other wind turbine projects permitted by the Environmental Quality Board and the Public Utilities Commission. Comments received by the Commission have been considered in development of the site permit. Minor changes and additions that provide for clarifications of the draft site permit conditions have been made.

103. The site permit contains conditions that apply to site preparation, construction, cleanup, restoration, operation, maintenance, abandonment, decommissioning and all other aspects of the Project.

Based on the foregoing findings, the Minnesota Public Utilities Commission makes the following:

## CONCLUSIONS OF LAW

1. Any of the foregoing findings which more properly should be designated as conclusions are hereby adopted as such.

2. The Minnesota Public Utilities Commission has jurisdiction over the site permit applied for by Buffalo Ridge Power Partners, LLC, for the 138 megawatt Bitter Root Wind Farm Project pursuant to Minnesota Statute 216F.04.

3. Buffalo Ridge Power Partners, LLC, has substantially complied with the procedural requirements of Minnesota Statutes chapter 216F and Minnesota Rules chapter 7854.

4. The Minnesota Public Utilities Commission has complied with all procedural requirements required of Minnesota Statutes chapter 216F and Minnesota Rules chapter 7854.

5. The Minnesota Public Utilities Commission has considered all the pertinent factors relative to its determination of whether a site permit should be approved.

6. The Bitter Root Wind Farm Project is compatible with the policy of the state to site LWECS in an orderly manner compatible with environmental preservation, sustainable development, and the efficient use of resources under Minnesota Statutes section 216F.03.

7. The Minnesota Public Utilities Commission has the authority under Minnesota Statutes section 216F.04 to place conditions in a permit and may deny, modify, suspend, or revoke a permit. The conditions contained in the site permit issued to Buffalo Ridge Power Partners, LLC, for the Bitter Root Wind Farm Project are reasonable and appropriate.

Based on the foregoing Findings of Fact and Conclusions of Law, the Minnesota Public Utilities Commission issues the following:

**ORDER**

A LWECS Site Permit is hereby issued to Buffalo Ridge Power Partners, LLC, to construct and operate the 138 megawatt Bitter Root Wind Farm Project in Yellow Medicine and Lincoln counties in accordance with the conditions contained in the site permit and in compliance with the requirements of Minnesota Statute 216F.04 and Minnesota Rules Chapter 7854 for PUC Docket No. IP6684/WS-08-1448.

The site permit is attached hereto, with a map showing the approved site.

BY THE ORDER OF THE COMMISSION

Burl W. Haar
Executive Secretary

This document can be made available in alternative formats (i.e., large print or audio tape) by calling 651.201.2202 (Voice). Persons with hearing or speech disabilities may call us through Minnesota Relay at 1.800.627.3529 or by dialing 711.

Energy Facility Permitting
85 7th Place East, Ste 500
Saint Paul, MN 55155-2198
Minnesota Department of Commerce

In the Matter of the Application of Buffalo Ridge Power Partners, LLC, for a Site Permit for the Bitter Root Wind Farm Project, an up to 138-Megawatt Large Wind Energy Conversion System in Yellow Medicine and Lincoln Counties

**EXHIBIT LIST**
**November 16, 2010**
PUC Docket NO.: IP-6684/WS-08-1448

| EXHIBIT NO. | DATE | DESCRIPTION | e-DOCKET LOCATION |
|---|---|---|---|
| 1. | 10/13/2009 | Buffalo Ridge Power Partners, LLC, application for a LWECS site Permit for the Bitter Root Wind Farm Project | 200910-42787-05<br>200910-42787-06<br>200910-42787-04<br>200910-42787-02<br>200910-42787-01<br>200910-42787-03 |
| 2. | 11/4/2009 | DOC EFP Comments & Recommendations to the PUC on acceptance of Buffalo Ridge Power Partners, LLC's, LWECS Site Permit Application. | 200911-43619-01 |
| 3. | 11/13/2009 | PUC Order accepting Buffalo Ridge Power Partners, LLC's LWECS Site Permit Application | 200911-44015-01 |
| 4. | 12/9/2009 | Affidavits of Publication: Notice of PUC's acceptance of the LWECS application appearing in *Canby News* (11/18/2009). | 200912-44878-01 |
| 5. | 11/12/2009 | Affidavit of Service: Notice of the PUC's acceptance of the LWECS application to all affected landowners | 200911-43970-01 |
| 6. | 11/12/2009 | Affidavit of Service: Governmental Officials | 200911-43970-02 |
| 7. | 12/9/2009 | Public & Agency comments on Buffalo Ridge Power Partners, LLC, LWECS Site Permit Application | 200912-44871-01 |
| 8. | 12/9/2009 | DOC EFP Comments & Recommendations to the PUC on acceptance of Buffalo Ridge Power Partners, LLC's, LWECS Site Permit Application. | 200912-44879-01 |
| 9. | 12/21/2009 | PUC Order granting variance to Minnesota Rules, part 7854.0800 to extend the | 200912-45280-01 |

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|---|---|---|---|
| | | period for the Commission to make a preliminary determination on whether a permit may be issued. | |
| 10. | 2/17/2010 | OES EFP Comments & Recommendations on Issuance of Draft Site Permit | 20102-47147-01 |
| 11. | 3/9/2010 | PUC Order Issuing Draft Site Permit for public review and comment | 20103-47832-01 |
| 12. | 3/30/2010 | PUC Erratum correcting language in Draft Site Permit | 20103-48526-01 |
| 13. | 3/16/2010 | Notice of Public Hearing and Availability of Draft Site Permit and Environmental Report and Affidavit of Service to Project Contact List | 20103-48060-02 |
| 14. | 3/22/2010 | Notice of Public Hearing and Availability of Draft Site Permit and Environmental Report and Affidavit of Service to Local Government Officials | 20103-48205-01 |
| 15. | 4/5/2010 | Affidavits of Publication: Notice of Public Hearing published in *Canby News* (3/17/2010) and *Hendricks Pioneer* (3/17/2010) | 20104-48826-01 |
| 16. | 3/22/2010 | *EQB Monitor* Notice of Availability of the Draft Site Permit and Environmental Report | 20103-48558-01 |
| 17. | 9/7/2010 | Transcript, Public Hearing held in Canby, Minnesota 3/30/2010 | 20109-54157-02 |
| 18. | 4/28/2010 | Public Comments | 20104-49751-02<br>20104-49751-04<br>20104-49751-06<br>20104-49751-08<br>20104-49751-10<br>20104-49751-12<br>20104-49751-14<br>20104-49751-16<br>20104-49751-18<br>20104-49751-20<br>20104-49752-02<br>20104-49752-04 |
| 19. | 5/3/2010 | Summary of Public Comments and Recommendation | 20105-49998-01 |
| 20. | 5/19/10 | OES EFP Comments & Recommendations on Contested Case Hearing | 20105-50586-01 |
| 21. | 6/11/10 | PUC Order Denying Request for Contested Case Hearing | 20106-51483-01 |
| 22. | 11/4/10 | Buffalo Ridge Power Partners – Additional Biological Resource Information | 201011-56220-01 |
| 23. | 11/10/10 | Buffalo Ridge Power Partners Letter | 201011-56398-01 |

# STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

# SITE PERMIT FOR CONSTRUCTION OF A

# LARGE WIND ENERGY CONVERSION SYSTEM
# IN
# YELLOW MEDICINE AND LINCOLN COUNTIES, MINNESOTA

# ISSUED TO

# BUFFALO RIDGE POWER PARTNERS, LLC

# DOCKET NO. IP-6684/WS-08-1448

In accordance with Minnesota Statutes Section 216F.04, this Site Permit is hereby issued to:

Buffalo Ridge Power Partners, LLC

Buffalo Ridge Power Partners, LLC, is authorized to construct and operate the Bitter Root Wind Farm Project, an up to a 138 Megawatt Large Wind Energy Conversion System, on the site identified in this Site Permit and in compliance with the conditions contained in this Permit.

This Permit shall expire thirty (30) years from the date of this approval.

Approved and adopted this 2nd day of December, 2010
BY ORDER OF THE COMMISSION

BURL W. HAAR
Executive Secretary

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# SITE PERMIT

This **SITE PERMIT** for a Large Wind Energy Conversion System (LWECS) authorizes Buffalo Ridge Power Partners, LLC, (Permittee) to construct the Bitter Root Wind Farm Project (Project), a 138 Megawatt (MW) nameplate capacity LWECS and associated facilities in Yellow Medicine and Lincoln counties, on a site of approximately 22,500 acres in accordance with the conditions contained in this Permit.

## SECTION 1
## PROJECT DESCRIPTION

The up to 138 MW nameplate capacity LWECS authorized to be constructed in this Permit (Bitter Root Wind Farm Project) will be developed and constructed by the Permittee. The Project will consist of up to 92 1.5 Megawatt (MW) wind turbine generators, or up to 46 3 MW wind turbine generators mounted on 269- or 328 foot (82 or 100 meter) towers having a combined nominal nameplate capacity of approximately 138 MW. The rotor diameter is 253 to 358 feet (77 - 109 meters). Associated facilities will include wind turbine access roads, communications cables, electrical collector and feeder lines, pad mounted turbine transformers, and meteorological towers. Turbines are interconnected by communication and underground electrical power collection facilities within the wind farm that will deliver wind-generated power to the collection substation. Power will ultimately be delivered from the Project substation to the existing 115 kV Canby to Toronto transmission line owned by Otter Tail Power.

## SECTION 2
## DESIGNATED SITE

### 2.1 PROJECT BOUNDARY

The Project boundary and anticipated project layout are shown on the maps attached hereto as Attachments 1a and 1b.

Within the site permit boundary, the Bitter Root Wind Farm Project and associated facilities shall be located on lands for which the Permittee has obtained wind rights in Hansonville Township (sections 2, 3, and 4) in Lincoln County, and in Fortier (Sections 3-10, 13-17, 1-30, 32-36) and Florida (sections 29-32) townships in Yellow Medicine County.

### 2.2 TURBINE LAYOUT

Two preliminary wind turbine and associated facility layouts are shown on maps at Attachments 1A and 1B. Each preliminary layout represents the approximate location of wind turbines and associated facilities within the Project boundary and identifies a layout that minimizes the overall potential human and environmental impacts of the Project, which were evaluated in the permitting process. The final layout depicting the location of each wind turbine and associated facility shall be located within the Project boundary. The Project boundary serves to provide the Permittee with the flexibility to do minor adjustments to the preliminary layout to accommodate landowner requests, unforeseen conditions encountered during the detailed engineering and

design process, and federal and state agency requirements. Any modification of the location of a wind turbine and associated facility depicted in the preliminary layout shall be done in such a manner as to have comparable overall human and environmental impacts and shall be specifically identified in the site plan pursuant to Section 5.1. The Permittee shall submit the final site payout in the site plan pursuant to Section 5.1.

## SECTION 3
## APPLICATION COMPLIANCE

The Permittee shall comply with those practices set forth in its Site Permit Application, dated October 13, 2009, and the record of this proceeding unless this Permit establishes a different requirement in which case this Permit shall prevail.

## SECTION 4
## SETBACKS AND SITE LAYOUT RESTRICTIONS

### 4.1 WIND ACCESS BUFFER

Wind turbine towers shall not be placed less than five (5) rotor diameters (RD) on the prevailing wind directions and three (3) RD on the non-prevailing wind directions from the perimeter of the lands where the Permittee does not hold the wind rights, without the approval of the Commission. This section does not apply to public roads and trails.

### 4.2 RESIDENCES

Wind turbine towers shall not be located closer than 1,000 feet from any residence unless a waiver has been signed by the property owner(s), or the distance required to comply with the noise standards pursuant to Minnesota Rule 7030.0040 established by the Minnesota Pollution Control Agency (PCA), whichever is greater. In no case shall wind turbine towers be located closer than 500 feet from any residence.

### 4.3 NOISE

The wind turbine towers shall be placed such that the Permittee shall comply with noise standards established as of the date of this permit by the PCA at all times at all appropriate locations. The noise standards are found in Minnesota Rules chapter 7030. Turbine operation shall be modified or turbines shall be removed from service if necessary to comply with these noise standards. The Permittee or its contractor may install and operate turbines as close as the minimum setback required in this permit, but in all cases shall comply with PCA noise standards. The Permittee shall be required to comply with this condition with respect to all homes or other receptors in place as of the time of construction, but not with respect to such receptors built after construction of the towers.

## 4.4 ROADS

Wind turbine and meteorological towers shall not be located closer than 250 feet from the edge of the nearest public road right-of-way.

## 4.5 PUBLIC LANDS

Wind turbines and associated facilities including foundations, access roads, underground cable, and transformers, shall not be located in public lands, including Waterfowl Production Areas, Wildlife Management Areas, Scientific and Natural Areas, or county parks. Wind turbine towers shall also comply with the setbacks of Section 4.1.

## 4.6 WETLANDS

Wind turbines and associated facilities including foundations, access roads, underground cable and transformers, shall not be placed in public waters wetlands, as defined in Minnesota Statutes section 103G.005, subp. 15a except that electric collector or feeder lines may cross or be placed in public waters or public waters wetlands subject to Minnesota Department of Natural Resources (DNR), United States Fish and Wildlife Service (FWS), and/or United States Army Corps of Engineers (USACE) permits and approvals.

## 4.7 NATIVE PRAIRIE

Wind turbines and associated facilities, including foundations, access roads, collector and feeder lines, underground cable and transformers, shall not be placed in native prairie, as defined in Minnesota Statutes section 84.02, subdivision 5, unless addressed in a Prairie Protection and Management Plan. The Permittee shall, in consultation with the Commission and DNR, prepare a Prairie Protection and Management Plan and submit the plan to the Commission and DNR at least ten (10) working days prior to the pre-construction meeting. The plan shall address steps taken to avoid impacts to native prairie and mitigation for unavoidable impacts to native prairie by restoration or management of other native prairie areas that are in degraded condition, by conveyance of conservation easements, or other means agreed to by the Permittee and Commission. Wind turbines and associated facilities, including foundations, access roads, underground cable, and transformers, shall not be located in areas enrolled in the Native Prairie Bank Program.

## 4.8 SAND AND GRAVEL OPERATIONS

Wind turbines and all associated facilities, including foundations, access roads, underground cable, and transformers, shall not be located within active sand and gravel operations, unless otherwise negotiated with the landowner with notice given to the owner of the sand and gravel operation.

## 4.9 WIND TURBINE TOWERS

Structures for wind turbines shall be self-supporting tubular towers. The towers may be up to 100 meters (328 feet) above grade measured at the hub.

## 4.10 TURBINE SPACING

The turbine towers shall be constructed within the site boundary as shown in Attachments 1A and 1B. The turbine towers shall be spaced no closer than three (3) RD in the non-prevailing wind directions and five (5) RD on the prevailing wind directions. If required during final micro-siting of the turbine towers to account for topographic conditions, up to 20 percent of the towers may be sited closer than the above spacing but the Permittee shall minimize the need to site the turbine towers closer.

## 4.11 METEOROLOGICAL TOWERS

Permanent towers for meteorological equipment shall be free standing. Permanent meteorological towers shall not be placed less than 250 feet from the edge of the nearest public road right-of-way and from the boundary of the Permittee's site control, or in compliance with the county ordinance regulating meteorological towers in the county the tower is built, whichever is more restrictive. Meteorological towers shall be placed on property the Permittee holds the wind or development rights.

Meteorological towers shall be marked as required by the Federal Aviation Administration (FAA). There shall be no lights on the meteorological towers other than what is required by the FAA. This restriction shall not apply to infrared heating devices used to protect the wind monitoring equipment.

## 4.12 AVIATION

The Permittee shall not place wind turbines or associated facilities in a location that could create an obstruction to navigable airspace of public and private airports (as defined in Minnesota Rule 8800.0100, subparts 24a and 24b) in Minnesota, adjacent states, or provinces. The Permittee shall apply the minimum obstruction clearance for private airports pursuant to Minnesota Rule 8800.1900, subpart 5. Setbacks or other limitations shall be followed in accordance with the Minnesota Department of Transportation (DOT) Department of Aviation, and FAA. The Permittee shall notifiy owners of all known airports within six (6) miles of the Project prior to construction.

## 4.13 FOOTPRINT MINIMIZATION

The Permittee shall design and construct the LWECS so as to minimize the amount of land that is impacted by the LWECS. Associated facilities in the vicinity of turbines such as electrical/electronic boxes, transformers and monitoring systems shall, to the greatest extent

feasible, be mounted on the foundations used for turbine towers or inside the towers unless otherwise negotiated with the affected landowner(s).

## 4.14 COMMUNICATION CABLES

The Permittee shall place all supervisory control and data acquisition (SCADA) communication cables underground and within or adjacent to the land necessary for turbine access roads unless otherwise negotiated with the affected landowner(s).

## 4.15 ELECTRICAL COLLECTOR AND FEEDER LINES

Collector lines that carry electrical power from each individual transformer associated with a wind turbine to an internal project interconnection point shall be buried underground. Collector lines shall be placed within or adjacent to the land necessary for turbine access roads unless otherwise negotiated with the affected landowner(s).

Feeder lines that carry power from an internal project interconnection point to the Project substation or interconnection point on the electrical grid may be overhead or underground. Feeder line locations shall be negotiated with the affected landowner(s).

Any overhead feeder lines that parallel public roads shall be placed within the public rights-of-way or on private land immediately adjacent to public roads. If overhead feeder lines are located within public rights-of-way the Permittee shall obtain approval from the governmental unit responsible for the affected right-of-way.

Collector and feeder line locations shall be located in such a manner as to to minimize interference with agricultural operations including, but not limited to, existing drainage patterns, drain tile, future tiling plans, and ditches. Safety shield shall be placed on all guy wires associated with overhead feeder lines. The Permittee shall submit the engineering drawings of all collector and feeder lines in the site plan pursuant to Section 5.1.

The Permittee must fulfill, comply with, and satisfy all Institute of Electrical and Electronics Engineers, Inc. (IEEE) standards applicable to this Project, including, but not limited to, IEEE 776 [Recommended Practice for Inductive Coordination of Electric Supply and Communication Lines], IEEE 519 [Harmonic Specifications], and IEEE 367 [Recommended Practice for Determining the Electric Power Station Ground Potential Rise and Induced Voltage from a Power Fault], and IEEE 820 [Standard Telephone Loop Performance Characteristics], provided the telephone service provider(s) have complied with any obligations imposed on it pursuant to these standards. Upon request by the Commission, the Permittee shall report to the Commission on compliance with these standards.

# SECTION 5
# ADMINISTRATIVE COMPLIANCE PROCEDURES

The following administrative compliance procedures shall be executed in accordance with the Permit Compliance Filings at Attachments 3 and 4.

## 5.1 SITE PLAN

At least ten (10) working days prior to the pre-construction meeting, the Permittee shall submit to the Commission:

(a) a site plan for all turbines, roads, electrical equipment, collector and feeder lines, and other associated facilities to be constructed;

(b) engineering drawings for site preparation and construction of the facilities; and

(c) a plan for restoration of the site due to construction.

The Permittee may submit a site plan and engineering drawings for only a portion of the Project if the Permittee intends to commence construction on certain parts of the Project before completing the site plan and engineering drawings for other parts of the Project. The Permittee shall document, through GIS mapping, compliance with the setbacks and site layout restrictions required by the permit, including compliance with the noise standards pursuant to Minnesota Rules chapter 7030. In the event that previously unidentified environmental conditions are discovered during construction which by law or pursuant to conditions outlined in this permit would preclude the use of that site as a turbine site, the Permittee shall have the right to move or relocate a turbine. The Permittee shall notify the Commission of any turbines that are to be relocated before the turbine is constructed on the new site and demonstrate compliance with the setbacks and site layout restrictions required by the permit.

## 5.2 NOTICE TO LOCAL RESIDENTS

Within ten (10) working days of approval of this Permit, the Permittee shall send a copy of the permit to the office of the auditor of each county in which the site is located and to the clerk of each city and township within the site boundaries. If applicable, the Permittee shall, within ten (10) working days of permit approval, send a copy of this permit to each regional development commission, local fire district, soil and water conservation district, watershed district, and watershed management district office with jurisdiction in the counties where the site is located. Within thirty (30) days of issuance of this permit, the Permittee shall send a copy of the permit to each landowner within the Project boundary. In no case shall the affected landowner receive the site permit and complaint procedure less than five (5) days prior to the start of construction on their property.

## 5.3 NOTICE OF PERMIT CONDITIONS

Prior to the start of construction, the Permittee shall inform all employees, contractors, and other persons involved in the construction and ongoing operation of the Project of the terms and conditions of this permit.

## 5.4 FIELD REPRESENTATIVE

At least ten (10) working days prior to the start of construction and continuously throughout construction, including site restoration, the Permittee shall designate a field representative responsible for overseeing compliance with the conditions of this permit during the construction phase of this Project. This person (or a designee) shall be accessible by telephone during normal working hours. This person's address, phone number and emergency phone number shall be provided to the Commission, which may make the number available to local residents and officials and other interested persons. The Permittee may change the field representative by notification to the Commission.

## 5.5 SITE MANAGER

The Permittee shall designate a site manager responsible for overseeing compliance with the conditions of this permit during the commercial operation and decommissioning phases of this Project. The Permittee shall provide the Commission with the name, address, and phone number, and emergency phone number of the site manager prior to placing any turbine into commercial operation. This information shall be maintained current by informing the Commission of any changes as they become effective.

## 5.6 PRE-CONSTRUCTION MEETING

Prior to the start of any construction, the Permittee shall conduct a pre-construction meeting with the Field Representative and the State Permit Manager designated by the Commission to coordinate field monitoring and construction activities.

## 5.7 PRE-OPERATION COMPLIANCE MEETING

At least ten (10) working days prior to commercial operation, the Permittee shall conduct a pre-operation compliance meeting with the Site Manager and State Permit Manager designated by the Commission to coordinate field monitoring of operation activities.

## 5.8 COMPLAINTS

At least ten (10) working days prior to the pre-construction meeting, the Permittee shall submit to the Commission the company's procedures to be used to receive and respond to complaints. The Permittee shall report to the Commission all complaints received concerning any part of the LWECS in accordance with the procedures provided in Attachments 2 and 3 of this Permit.

# SECTION 6
# SURVEYS AND REPORTING

## 6.1 BIOLOGICAL INVENTORY/SURVEY

The Permittee, in consultation with DNR and Commission, shall design and conduct pre-construction desktop and field inventories of potentially impacted, if any, native prairies, wetlands, and any other biologically sensitive areas within the site and assess the presence of state threatened, endangered, or species of special concern, or federally listed or threatened species. The results shall be submitted to the Commission and DNR at least thirty (30) days prior to the pre-construction meeting to confirm compliance of conditions of this permit.

The Permittee shall provide to the Commission any biological surveys or studies conducted on this Project, including those not required under this permit.

## 6.2 SHADOW FLICKER

At least ten (10) working days prior to the pre-construction meeting the Permittee shall provide data on shadow flicker for each residence of non-participating landowners and participating landowners. Information shall include the results of modeling used, assumptions made, and the anticipated duration of turbine shadow flicker on each residence. The Permittee shall provide documentation on its efforts to minimize shadow flicker impacts.

## 6.3 ARCHAEOLOGICAL RESOURCES

The Permittee shall work with the State Historic Preservation Office (SHPO) and the State Archaeologist. The Permittee shall carry out a Phase I or IA Archaeology survey for all proposed turbine locations, access roads, junction boxes and other areas of Project construction impact to determine whether additional archaeological work is necessary for any part of the proposed Project. The Permittee will contract with a qualified archaeologist to complete such surveys, and shall submit the results to the Commission, the SHPO and the State Archaeologist at least ten (10) working days prior to the pre-construction meeting.

The SHPO and the State Archaeologist will make recommendations for the treatment of any significant archaeological sites which are identified. Any issues in the implementation of these recommendations will be resolved by the Commission in consultation with SHPO and the State Archaeologist. The Permittee shall not excavate at such locations until so authorized by the Commission in consultation with the SHPO and the State Archaeologist.

If human remains are encountered during construction, the Permittee shall immediately halt construction at that location and promptly notify local law enforcement authorities and the State Archaeologist. Construction at the human remains location shall not proceed until authorized by local law enforcement authorities or the State Archaeologist.

If any federal funding, permit or license is involved or required, the Permittee shall notify the SHPO as soon as possible in the planning process to coordinate section 106 (36 C.F.R 800) review.

Prior to construction, construction workers shall be trained about the need to avoid cultural properties, how to identify cultural properties, and procedures to follow if undocumented cultural properties, including gravesites, are found during construction. If any archaeological sites are found during construction, the Permittee shall immediately stop work at the site and shall mark and preserve the site and notify the Commission, SHPO, and State Archaeologist about the discovery. The Commission and SHPO shall have three working days from the time the agency is notified to conduct an inspection of the site if either agency shall choose to do so. On the fourth day after notification, the Permittee may begin work on the site unless the SHPO has directed that work shall cease. In such event, work shall not continue until the SHPO determines that construction can proceed.

## 6.4 INTERFERENCE

At least ten (10) working days prior to the pre-construction meeting, the Permittee shall submit to the Commission the results of an assessment of television and radio signal reception, microwave signal patterns, and telecommunications in the Project area. The assessment shall be designed to provide data that can be used in the future to determine whether the turbines and associated facilities are the cause of disruption or interference of television or radio reception, microwave patterns, or telecommunications in the event residents should complain about such disruption or interference after the turbines are placed in operation. The Permittee shall be responsible for alleviating any disruption or interference of these services caused by the turbines or any associated facilities.

The Permittee shall not operate the Project so as to cause microwave, television, radio, telecommunications, or navigation interference in violation of Federal Communications Commission regulations or other law. In the event the Project or its operations cause such interference, the Permittee shall take timely measures necessary to correct the problem.

## 6.5 WAKE LOSS STUDIES

At least ten (10) working days prior to the pre-construction meeting, the Permittee shall provide to the Commission the pre-construction micro-siting analysis leading to the final tower locations and an estimate of total Project wake losses. The Permittee shall provide to the Commission any operational wake loss studies conducted on this Project.

## 6.6 NOISE

The Permittee shall submit a proposal for the conduct of noise study to the Commission at least ten (10) working days prior to the pre-operation compliance meeting. Upon the approval of the Commission, the Permittee shall carry out the study. The study shall be designed to determine the operating LWECS noise levels at different frequencies and at various distances from the turbines at various wind directions and speeds. The Permittee shall submit the study within eighteen (18) months after commercial operation.

## 6.7 AVIAN AND BAT PROTECTION PLAN

The Permittee, in consultation with the Commission and DNR, shall prepare an Avian and Bat Protection Plan and submit it to the Commission at least ten (10) working days prior to the pre-construction meeting. The plan shall address steps to be taken to identify and mitigate impacts to avian and bat species during the construction phase and operation phase of the Project. The plan shall also address formal and informal monitoring, training, wildlife handling, documentation (e.g. photographs) and reporting protocols for each phase of the Project.

The Premittee shall submit quarterly avian and bat reports to the Commission. Quarterly reports are due by the 15th of each January, April, July, and October commencing the day following commercial operation and terminating upon the expiration of this permit. Each report shall identify any dead or injured avian or bat species, location of find by turbine number and date of find for the reporting period in accordance with the reporting protocols.

The Permittee shall notify the Commission, United States Fish and Wildlife Service (USFWS) and DNR within twenty-four (24) hours of the discovery of any of the following within the vicinity of the rotor swept area:

(a) five or more dead or injured non-protected avian or bat species within a reporting period;

(b) one or more dead or injured migratory avian or bat species;

(c) one or more dead or injured state threatened, endangered, or species of special concern; or

(d) one or more dead or injured federally listed species.

## 6.8 PROJECT ENERGY PRODUCTION

The Permittee shall submit a report no later than February 1st following each complete year of Project operation. The report shall include:

(a) The rated nameplate capacity of the permitted Project;

(b) The total monthly energy generated by the Project in MW hours;

(c) The monthly capacity factor of the Project;

(d) Yearly energy production and capacity factor for the Project;

(e) The operational status of the Project and any major outages, major repairs, or turbine performance improvements occurring in the previous year; and

(f) Any other information reasonably requested by the Commission.

This information will be considered public and must be submitted electronically.

## 6.9 WIND RESOURCE USE

The Permittee shall upon the request of the Commission report to the Commission on the monthly energy production of the Project and the average monthly wind speed collected at one permanent meteorological tower selected by the Commission during the preceding year or partial year of operation.

The provisions of Section 11.7 shall apply to the Commission's review of data provided pursuant to this section.

## 6.10 EXTRAORDINARY EVENTS

Within twenty-four (24) hours of an occurrence, the Permittee shall notify the Commission of any extraordinary event. Extraordinary events include but shall not be limited to: fires, tower collapse, thrown blade, collector or feeder line failure, and injured LWECS worker or private person, The Permittee shall, within thirty (30) days of the occurrence, submit a report to the Commission describing the cause of the occurrence and the steps taken to avoid future occurrences.

# SECTION 7
# CONSTRUCTION AND OPERATION PRACTICES

## 7.1 SITE CLEARANCE

The Permittee shall disturb or clear the site only to the extent necessary to assure suitable access for construction, safe operation, and maintenance of the Project.

## 7.2 TOPSOIL PROTECTION

The Permittee shall implement measures to protect and segregate topsoil from subsoil in cultivated lands unless otherwise negotiated with the affected landowner(s).

## 7.3 SOIL COMPACTION

The Permittee shall implement measures to minimize soil compaction of all lands during all phases of the Project's life and shall confine compaction to as small an area as practicable.

## 7.4 LIVESTOCK PROTECTION

The Permittee shall take precautions to protect livestock during all phases of the Project's life.

## 7.5 FENCES

The Permittee shall promptly replace or repair all fences and gates removed or damaged during all phases of the Project's life unless otherwise negotiated with the affected landowner(s). When the Permittee installs a gate where electric fences are present, the Permittee shall provide for continuity in the electric fence circuit.

## 7.6 DRAINAGE TILES

The Permittee shall take into account the location of drainage tiles during Project layout and construction. The Permittee shall promptly repair or replace all drainage tiles broken or damaged during all phases of the Project's life unless otherwise negotiated with the affected landowner(s).

## 7.7 EQUIPMENT STORAGE

The Permittee shall not locate temporary equipment staging areas on lands under its control unless negotiated with affected landowner(s). Temporary staging areas shall not be located in wetlands or native prairie as defined in Sections 4.6 and 4.7.

## 7.8 ROADS

### 7.8.1 PUBLIC ROADS

At least ten (10) working days prior to the pre-construction meeting, the Permittee shall identify all state, county or township roads that will be used for the Project and shall notify the Commission and the state, county, or township governing body having jurisdiction over the roads to determine if the governmental body needs to inspect the roads prior to use of these roads. Where practical, existing roadways shall be used for all activities associated with the Project. Where practical, all-weather roads shall be used to deliver cement, turbines, towers, assembled nacelles and all other heavy components to and from the turbine sites.

The Permittee shall, prior to the use of such roads, make satisfactory arrangements with the appropriate state, county or township governmental body having jurisdiction over roads to be used for construction of the Project for maintenance and repair of roads that will be subject to extra wear and tear due to transportation of equipment and Project components. The Permittee shall notify the Commission of such arrangements upon request of the Commission.

### 7.8.2 TURBINE ACCESS ROADS

The Permittee shall construct the least number of turbine access roads it can. Access roads shall be low profile roads so that farming equipment can cross them and shall be covered with Class five gravel or similar material. Access roads shall not be constructed across streams and drainage ways without required permits and approvals from the DNR, USFWS, and/or USACE. When access roads are constructed across streams and drainage ways, the access roads shall be

designed in a manner so runoff from the upper portions of the watershed can readily flow to the lower portion of the watershed. Access roads shall also be located and constructed in accordance with all necessary township, county or state road requirements and permits.

#### 7.8.3 PRIVATE ROADS

The Permittee shall promptly repair private roads or lanes damaged when moving equipment or when obtaining access to the site, unless otherwise negotiated with the affected landowner(s).

### 7.9 CLEANUP

The Permittee shall remove all waste and scrap that is the product of construction, operation, restoration and maintenance from the site and properly dispose of it upon completion of each task. Personal litter, bottles, and paper deposited by site personnel shall be removed on a daily basis.

### 7.10 TREE REMOVAL

The Permittee shall minimize the removal of trees and the Permittee shall not remove groves of trees or shelter belts without notification to the Commission and the approval of the affected landowner(s).

### 7.11 SOIL EROSION AND SEDIMENT CONTROL

The Permittee shall develop a Soil Erosion and Sediment Control Plan and submit the Plan to the Commission at least ten (10) working days prior to the pre-construction meeting. This Plan may be the same as the Storm Water Pollution Prevention Plan (SWPPP) submitted to the PCA as part of the National Pollutant Discharge Elimination System (NPDES) permit application.

The Soil Erosion and Sediment Control Plan shall address what types of erosion control measures will be implemented during each Project phase, and shall at a minimum identify: plans for grading, construction and drainage of roads and turbine pads; necessary soil information; detailed design features to maintain downstream water quality; a comprehensive revegetation plan to maintain and ensure adequate erosion control and slope stability and to restore the site after temporary Project activities; and measures to minimize the area of surface disturbance. Other practices shall include containing excavated material, protecting exposed soil, and stabilizing restored material and removal of silt fences or barriers when the area is stabilized. The plan shall identify methods for disposal or storage of excavated material. Erosion and sedimentation control measures shall be installed prior to construction and maintained throughout the Project's life.

The Permittee shall develop an invasive species prevention plan to prevent the introduction of invasive species on lands disturbed by project construction activities. This requirement may be included as an element of the Soil Erosion and Sediment Control Plan.

## 7.8 RESTORATION

The Permittee shall, as soon as practical following construction of each turbine, considering the weather and preferences of the affected landowner(s), restore the area affected by any Project activities to the condition that existed immediately before construction began, to the extent possible. The time period may be no longer than twelve (12) months after completion of construction of the turbine, unless otherwise negotiated with the affected landowner(s). Restoration shall be compatible with the safe operation, maintenance, and inspection of the Project.

## 7.13 HAZARDOUS WASTE

The Permittee shall be responsible for compliance with all laws applicable to the generation, storage, transportation, clean-up and disposal of hazardous wastes generated during any phase of the Project's life.

## 7.14 APPLICATION OF HERBICIDES

The Permittee shall restrict herbicide use to those herbicides and methods of application approved by the Minnesota Department of Agriculture and the U.S. Environmental Protection Agency. Selective foliage or basal application shall be used when practicable. The Permittee shall contact the landowner or his designee to obtain approval for the use of herbicide prior to any application on their property. The landowner may request that there be no application of herbicides on any part of the site within the landowner's property. All herbicides shall be applied in a safe and cautious manner so as to not damage property, including crops, orchards, tree farms, or gardens. The Permittee shall also, at least ten (10) working days prior to the application, notify beekeepers with an active apiary within one mile of the proposed application site of the day the company intends to apply herbicide so that precautionary measures may be taken by the beekeeper.

## 7.15 PUBLIC SAFETY

The Permittee shall provide educational materials to landowners within the site boundaries and, upon request, to interested persons about the Project and any restrictions or dangers associated with the Project. The Permittee shall also provide any necessary safety measures, such as warning signs and gates for traffic control or to restrict public access. The Permittee shall submit the location of all underground facilities, as defined in Minnesota Statute 216D.01, subdivision 11, to Gopher State One Call.

## 7.16 EMERGENCY RESPONSE

The Permittee shall prepare an emergency response plan (fire protection and medical emergency plan) in consultation with the emergency responders having jurisdiction over the area prior to Project construction. The Permittee shall submit a copy of the plan to the Commission at least ten (10) working days prior to the pre-construction meeting and a revised plan, if any, at least ten (10) working days prior to the pre-operation compliance meeting . The Permittee shall also register the LWECS with the local governments' emergency 911 services.

## 7.17 TOWER IDENTIFICATION

All turbine towers shall be marked with a visible identification number.

## 7.18 FEDERAL AVIATION ADMINISTRATION LIGHTING

Towers shall be marked as required by the FAA. There shall be no lights on the towers other than what is required by the FAA. This restriction shall not apply to infrared heating devices used to protect the wind monitoring equipment.

# SECTION 8
# FINAL CONSTRUCTION

## 8.1 AS-BUILT PLANS AND SPECIFICATIONS

Within sixty (60) days after completion of construction, the Permittee shall submit to the Commission a copy of the as-built plans and specifications. The Permittee must also submit this data in a GIS compatible format so that the Commission can place it into the Minnesota Geospatial Information Office's geographic data clearinghouse located in the Department of Administration.

## 8.2 FINAL BOUNDARIES

After completion of construction, the Commission shall determine the need to adjust the final boundaries of the site required for this Project. If done, this Permit may be modified, after notice and opportunity for public hearing, to represent the actual site required by the Permittee to operate the Project authorized by this Permit.

## 8.3 EXPANSION OF SITE BOUNDARIES

No expansion of the site boundaries described in this Permit shall be authorized without the approval of the Commission. The Permittee may submit to the Commission a request for a change in the boundaries of the site for the Project. The Commission will respond to the requested change in accordance with applicable statutes and rules.

# SECTION 9
# DECOMMISSIONING/RESTORATION/ABANDONMENT

## 9.1 DECOMMISSIONING PLAN

At least ten (10) working days prior to the pre-operation compliance meeting, the Permittee shall submit to the Commission a Decommissioning Plan documenting the manner in which the Permittee anticipates decommissioning the Project in accordance with the requirements of Minnesota Rules part 7854.0500, subp.13. The Permittee shall ensure that it carries out its obligations to provide for the resources necessary to fulfill its requirements to properly decommission the Project at the appropriate time. The Commission may at any time request the Permittee to file a report with the Commission describing how the Permittee is fulfilling this obligation.

## 9.2 SITE RESTORATION

Upon expiration of this Permit, or upon earlier termination of operation of the Project, or any turbine within the Project, the Permittee shall have the obligation to dismantle and remove from the site all towers, turbine generators, transformers, overhead and underground cables and lines, foundations, buildings, and ancillary equipment to a depth of four feet. To the extent feasible, the Permittee shall restore and reclaim the site to its pre-project topography and topsoil quality. All access roads shall be removed unless written approval is given by the affected landowner(s) requesting that one or more roads, or portions thereof, be retained. Any agreement for removal to a lesser depth or no removal shall be recorded with the county and shall show the locations of all such foundations. All such agreements between the Permittee and the affected landowner(s) shall be submitted to the Commission prior to completion of restoration activities. The site shall be restored in accordance with the requirements of this condition within 18 months after expiration.

## 9.3 ABANDONED TURBINES

The Permittee shall advise the Commission of any turbines that are abandoned prior to termination of operation of the Project. A Project, or any turbine within the Project, shall be considered abandoned after one (1) year without energy production and the land restored pursuant to Section 9.2 unless a plan is developed and submitted to the Commission outlining the steps and schedule for returning the Project, or any turbine with the Project, to service.

# SECTION 10
# AUTHORITY TO CONSTRUCT LWECS

## 10.1 WIND RIGHTS

At least ten (10) working days prior to the pre-construction meeting, the Permittee shall demonstrate that it has obtained the wind rights and any other rights necessary to construct and operate the Project within the boundaries of the LWECS authorized by this Permit.

Nothing in this Permit shall be construed to preclude any other person from seeking a permit to construct a WECS in any area within the boundaries of the Project covered by this Permit if the Permittee does not hold exclusive wind rights for such areas.

## 10.2 POWER PURCHASE AGREEMENT

In the event that the Permittee does not have a power purchase agreement or some other enforceable mechanism for sale of the electricity to be generated by the Project at the time this permit is issued, the Permittee shall provide notice to the Commission when it obtains a commitment for purchase of the power. This permit does not authorize construction of the Project until the Permittee has obtained a power purchase agreement or some other enforceable mechanism for sale of the electricity to be generated by the Project. In the event the Permittee does not obtain a power purchase agreement or some other enforceable mechanism for sale of the electricity to be generated by the Project within two years of the issuance of this Permit, the Permittee must advise the Commission of the reason for not having such commitment. In such event, the Commission may determine whether this Permit should be amended or revoked. No amendment or revocation of this Permit may be undertaken except in accordance with applicable statutes and rules, including Minnesota Rule 7854.1300.

## 10.3 FAILURE TO COMMENCE CONSTRUCTION

If the Permittee has not completed the pre-construction surveys required under this permit and commenced construction of the Project within two years of the issuance of this Permit, the Permittee must advise the Commission of the reason construction has not commenced. In such event, the Commission shall make a determination as to whether this Permit should be amended or revoked. No revocation of this Permit may be undertaken except in accordance with applicable statutes and rules, including Minnesota Rule 7854.1300.

## 10.4 PREEMPTION OF OTHER LAWS

Pursuant to Minnesota Statute 216F.07, this site permit shall be the only site approval required for the location of this Project, and this permit shall supersede and preempt all zoning, building, and land use rules, regulations, and ordinances adopted by regional, county, local, and special

purpose governments. Nothing in this permit shall release the Permittee from any obligation imposed by law that is not superseded or preempted by law.

## 10.5 OTHER PERMITS

The Permittee shall be responsible for acquiring any other federal, state, or local permits or authorizations that may be required to construct and operate a LWECS within the authorized site. The Permittee shall submit a copy of such permits and authorizations to the Commission upon request.

### 10.5.1 COMPLIANCE WITH FEDERAL AND STATE AGENCY PERMITS

The Permittee shall comply with all terms and conditions of permits or licenses issued by Federal, State, or Tribal authorities including, but not limited to, the requirements of the PCA (Section 401 Water Quality Certification, National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) stormwater permit for construction activity, and other site specific discharge approvals); DNR (License to Cross Public Lands and Water, Public Water Works Permit, and state protected species consultation); SHPO (Section 106 Historic Consultation Act); FAA determinations, and DOT (Utility Access Permit, Highway Access Permit, Oversize and Overweight Permit, and Aeronautics Airspace Obstruction Permit).

### 10.5.2 COMPLIANCE WITH COUNTY, CITY, OR MUNICIPAL PERMITS

The Permittee shall comply with all terms and conditions of permits or licenses issued by the Counties, Cities, and Municipalities affected by the Project that do not conflict with or are not preempted by federal or state permits and regulations.

# SECTION 11
# COMMISSION POST-ISSUANCE AUTHORITIES

## 11.1 PERIODIC REVIEW

The Commission shall initiate a review of this Permit and the applicable conditions at least once every five (5) years. The purpose of the periodic review is to allow the Commission, the Permittee, and other interested persons an opportunity to consider modifications in the conditions of the Permit. No modification may be made except in accordance with applicable statutes and rules.

## 11.2 MODIFICATION OF CONDITIONS

After notice and opportunity for hearing, this Permit may be modified or amended for cause, including but not limited to the following:

(a) Violation of any condition in this permit;

(b) Endangerment of human health or the environment by operation of the Project: or

(c) Existence of other grounds established by rule.

## 11.3 REVOCATION OR SUSPENSION OF THE PERMIT

The Commission may take action to suspend or revoke this Permit upon the grounds that:

(a) A false statement was knowingly made in the application or in accompanying statements or studies required of the Permittee, and a true statement would have warranted a change in the Commission's findings;

(b) There has been a failure to comply with material conditions of this Permit, or there has been a failure to maintain health and safety standards; or

(c) There has been a material violation of a provision of an applicable statute, rule or an order of the Commission.

In the event the Commission shall determine that it is appropriate to consider revocation or suspension of this Permit, the Commission shall proceed in accordance with the requirements of Minnesota Rule 7854.1300 to determine the appropriate action. Upon a finding of any of the above, the Commission may require the Permittee to undertake corrective measures in lieu of having the Permit suspended or revoked.

## 11.4 MORE STRINGENT RULES

The Commission's issuance of this Site Permit does not prevent the future adoption by the Commission of rules or orders more stringent than those now in existence and does not prevent the enforcement of these more stringent rules and orders against the Permittee.

## 11.5 TRANSFER OF PERMIT

The Permittee may not transfer this Permit without the approval of the Commission. If the Permittee desires to transfer this Permit, the holder shall advise the Commission in writing of such desire. The Permittee shall provide the Commission with such information about the transfer as the Commission requires to reach a decision. The Commission may impose additional conditions on any new Permittee as part of the approval of the transfer.

## 11.6 RIGHT OF ENTRY

Upon reasonable notice, presentation of credentials, and at all times in compliance with the Permittee's site safety standards, the Permittee shall allow representatives of the Commission to perform the following:

(a) To enter upon the facilities easement of the site property for the purpose of obtaining information, examining records, and conducting surveys or investigations;

(b) To bring such equipment upon the facilities easement of the property as is necessary to conduct such surveys and investigations;

(c) To sample and monitor upon the facilities easement of the property; and

(d) To examine and copy any documents pertaining to compliance with the conditions of this Permit.

### 11.7 PROPRIETARY INFORMATION

Certain information required to be submitted to the Commission under this Permit, including energy production and wake loss data, may constitute trade secret information or other type of proprietary information under the Data Practices Act or other law and is not to be made available by the Commission. The Permittee must satisfy requirements of applicable law to obtain the protection afforded by the law.

## SECTION 12
## EXPIRATION DATE

This Permit shall expire thirty (30) years after the date this permit was approved and adopted.

## SECTION 13
## SPECIAL CONDITIONS

Special conditions shall take precedence over any of the other conditions of this Permit if there should be a conflict between the two.

### 13.1 APPLICATION OF COUNTY STANDARDS

The Permittee shall site all wind turbines and associated facilities consistent with the wind energy ordinances adopted by Lincoln and Yellow Medicine counties.

#### 13.1.2 LINCOLN COUNTY

Lincoln County has adopted more stringent standards than those identified in Section 4 of this permit for the following features:

(a) Road Setback: Turbines shall have a setback of 300 feet from the edge of rights-of-way from roads, recreational trails, power lines and other recorded rights-of-way;

(b) Structure Setback: Turbines shall be setback a distance of 1.25 times their total height (base to tip of fully extended blade) from structures other than homes or dwellings, except upon agreement with landowner;

(c) Shoreland Setback: Turbines shall not be placed within a Shoreland District (land within 300 feet of a creek/stream/river or 1,000 feet of a lake);

13.1.2 YELLOW MEDICINE COUNTY

Yellow Medicine County has adopted more stringent standards than those identified in Section 4 of this permit for the following features:

(a) Road Setback: Turbines shall be setback equal to the total height (distance from ground surface to vertically extended rotor tip) from the edge of the road right-of-way. This setback may be reduced for minimum maintenance roads or a road with an Average Daily Traffic Count of less than 10.

## 13.2 YELLOW MEDICINE COTEAU MACROSITE

As part of the prairie protection and management plan required under section 4.7 of this permit, the Permittee shall identify efforts to avoid siting within the Yellow Medicine Coteau Macrosite. If the Yellow Medicine Coteau Macrosite cannot be avoided, Permittee shall identify mitigation measures to minimize impacts to the macrosite.

## 13.3 AVIAN AND BAT PROTECTION PLAN SPECIAL PROVISIONS

Due to the high levels of bat and bird activity identified in pre-construction wildlife studies, and the presence of a number of Wildlife Management Areas, Waterfowl Production Areas, and sensitive habitat, the Permittee shall, as part of the Avian and Bat Protection Plan required under Section 6.7 of this permit, design and construct the following avian and bat surveys:

13.3.1 PRE-CONSTRUCTION BAT MONITORING

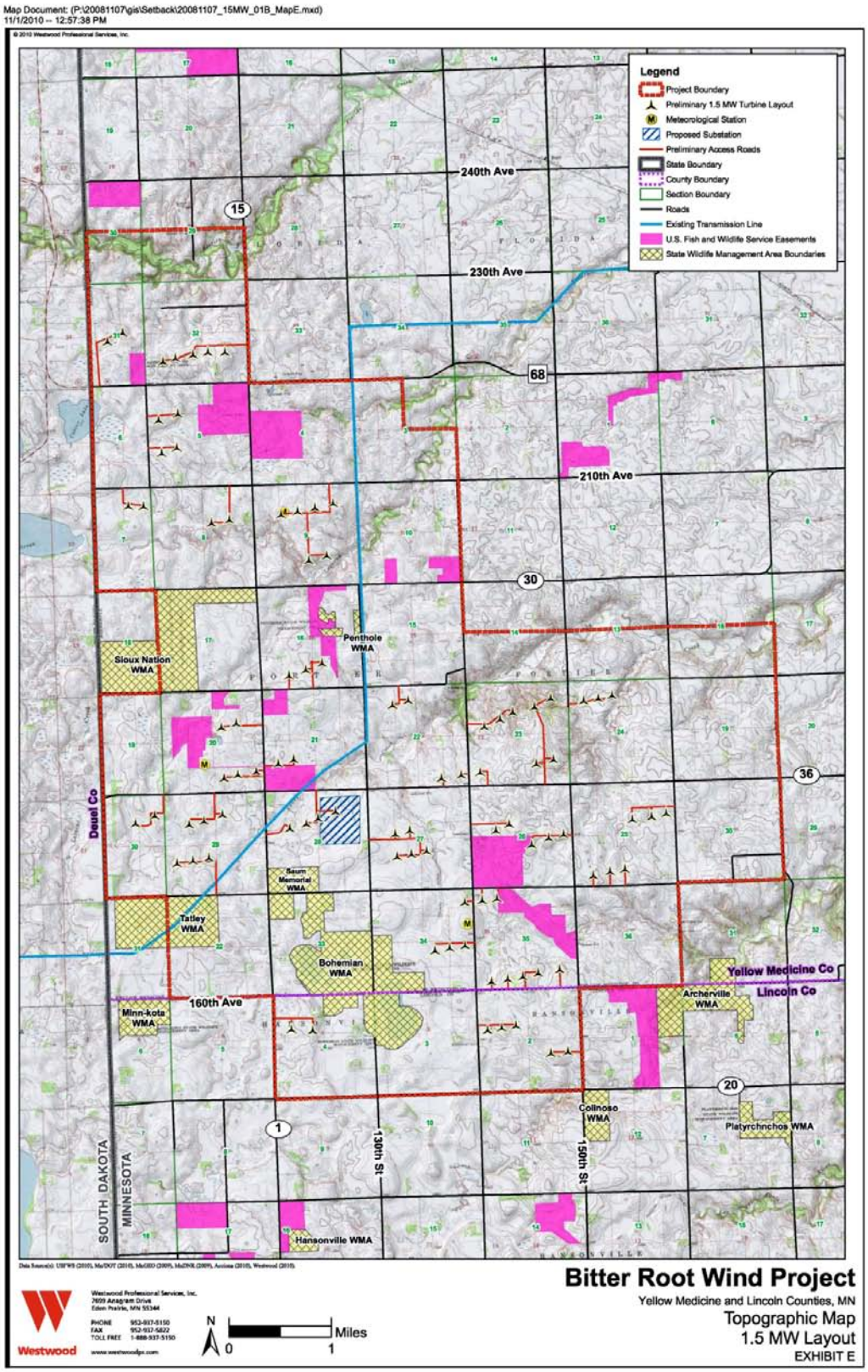
Prior to finalization of the Avian and Bat Protection Plan required under Section 6.7 of this permit, the Permittee shall, in cooperation with the Commission and DNR, develop protocols to conduct pre-construction bat monitoring. The Permittee shall conduct bat monitoring in accordance with the protocols and submit results of this monitoring to the Commission and DNR. The information obtained from this monitoring shall inform the development of the Avian and Bat Protection Plan.

13.3.2 POST-CONSTRUCTION AVIAN AND BAT MONITORING

The Permittee shall, in cooperation with the Commission and DNR, develop protocols to conduct a minimum of one year of avian and bat fatality monitoring after the Project becomes operational. Survey protocols shall be included in the Avian and Bat Protection Plan filed by the Permittee under Section 6.7 of this permit. Reports shall be submitted quarterly as required in permit condition 6.7.

ATTACHMENT 1A: SITE PERMIT MAP

**(1.5 MW TURBINE CONFIGURATION)**



# ATTACHMENT 1B: SITE PERMIT MAP
# (3.0 MW TURBINE CONFIGURATION)

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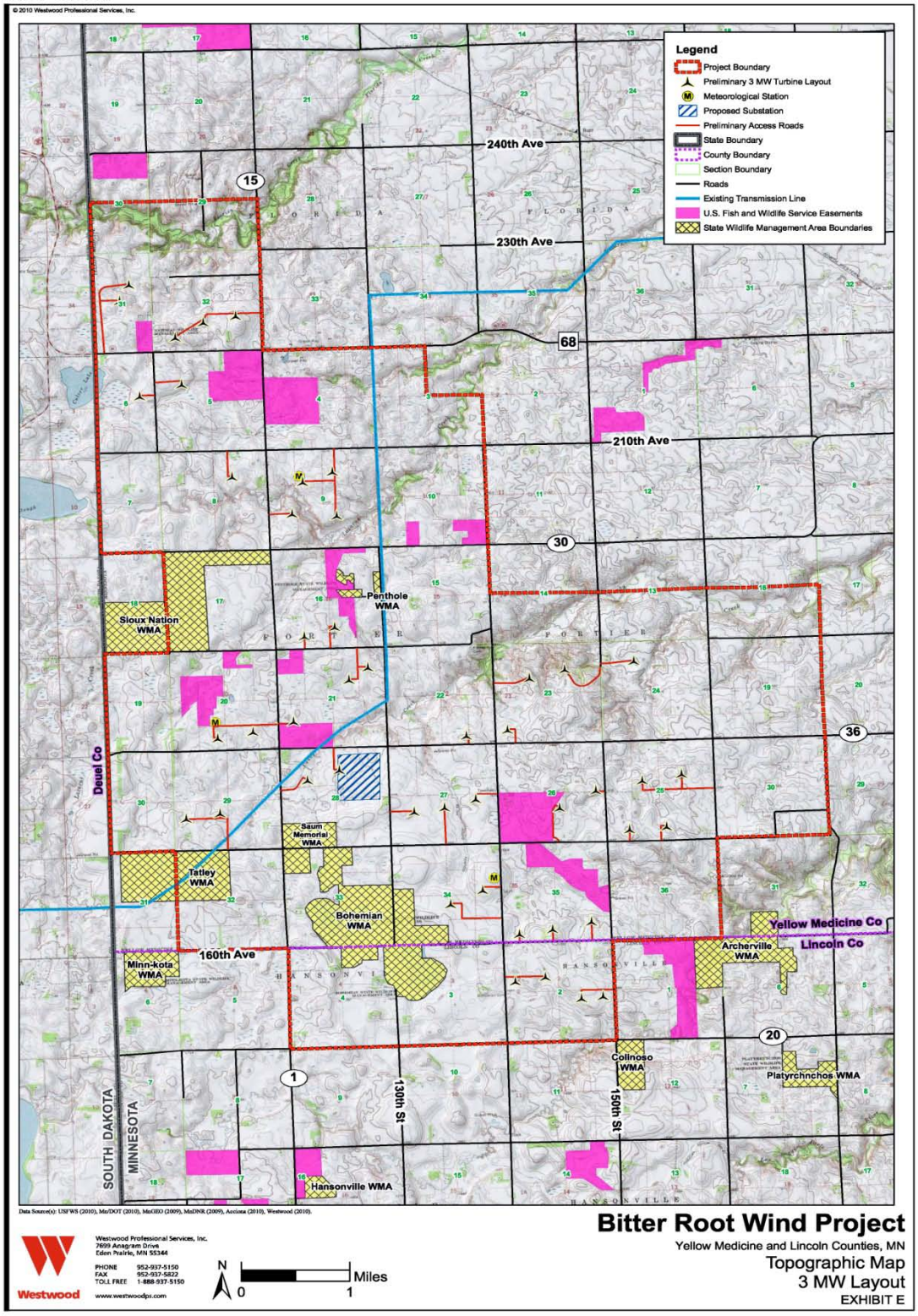

# MINNESOTA PUBLIC UTILITIES COMMISSION
# COMPLAINT HANDLING PROCEDURES
# FOR
# LARGE WIND ENERGY CONVERSION SYSTEMS

## A. Purpose:

To establish a uniform and timely method of reporting complaints received by the Permittee concerning Permit conditions for site preparation, construction, cleanup and restoration, operation and resolution of such complaints.

## B. Scope:

This document describes Complaint reporting procedures and frequency.

## C. Applicability:

The procedures shall be used for all complaints received by the Permittee.

## D. Definitions:

Complaint: A verbal or written statement presented to the permittee by a person expressing dissatisfaction or concern regarding site preparation, cleanup or restoration or other LWECS and associated facilities site permit conditions. Complaints do not include requests, inquiries, questions or general comments.

Substantial Complaint: A written Complaint alleging a violation of a specific Site Permit condition that, if substantiated, could result in Permit modification or suspension pursuant to the applicable regulations.

Unresolved Complaint: A Complaint which, despite the good faith efforts of the permittee and a person(s), remains to both or one of the parties unresolved or unsatisfactorily resolved.

Person: An individual, partnership, joint venture, private or public corporation, association, firm, public service company, cooperative, political subdivision, municipal corporation, government agency, public utility district, or any other entity, public or private, however organized.

**E. Complaint Documentation and Processing:**

1. The Permittee shall document all Complaints by maintaining a record of all applicable information concerning the Complaint, including the following:

    a. Name of complainant, address, phone number, and e-mail address.
    b. Precise property description or parcel number.
    c. Name of Permittee representative receiving Complaint and date of receipt.
    d. Nature of Complaint and the applicable Site Permit conditions(s).
    e. Activities undertaken to resolve the Complaint.
    f. Final disposition of the Complaint.

2. The Permittee shall designate an individual to summarize Complaints for substantial to the Commission. This person's name, phone number and e-mail address shall accompany all complaint submittals.

3. A Person presenting the Complaint should to the extent possible, include the following information in their communications:

    a. Name, address, phone number, and e-mail address.
    b. Date
    c. Tract or parcel
    d. Whether the complaint relates to (1) a Site Permit matter, (2) a LWECS and associated facility issue, or (3) a compliance issue.

**F. Reporting Requirements:**

The Permittee shall report all complaints to the Commission according to the following schedule:

**Immediate Reports:** All substantial complaints shall be reported to the Commission the same day received, or on the following working day for complaints received after working hours. Such reports are to be directed to Wind Permit Compliance, 1-800-657-3794, or by e-mail to: DOC.energypermitcompliance@state.mn.us, or. Voice messages are acceptable.

**Monthly Reports**: By the 15th of each month, a summary of all complaints, including substantial complaints received or resolved during the preceding month, shall be Filed to Dr. Burl W. Haar, Executive Secretary, Public Utilities Commission, using the Minnesota Department of Commerce eDocket system (see eFiling instructions attached to this permit).

If no Complaints were received during the preceding month, the permittee shall submit (eFile) a summary indicating that no complaints were received.

**G. Complaints Received by the Commission or OES:**

Complaints received directly by the Commission from aggrieved persons regarding site preparation, construction, cleanup, restoration, operation and maintenance shall be promptly sent to the Permittee.

**H. Commission Process for Unresolved Complaints:**

**Initial Screening**: Commission staff shall perform an initial evaluation of unresolved Complaints submitted to the Commission. Complaints raising substantial LWECS Site Permit issues shall be processed and resolved by the Commission. Staff shall notify Permittee and appropriate person(s) if it determines that the Complaint is a Substantial Complaint. With respect to such Complaints, each party shall submit a written summary of its position to the Commission no later than ten days after receipt of the Staff notification. Staff shall present Briefing Papers to the Commission, which shall resolve the Complaint within twenty days of submission of the Briefing Papers.

**I. Permittee Contacts for Complaints:**

**Mailing Address:** Complaints filed by mail shall be sent to one of the addresses below:

Buffalo Ridge Power Partners, LLC
Acciona Energy North America
33 West Wacker Drive, Suite 1500
Chicago, IL 60606

**Tel:** 312-673-3020

**eMail:**

**ATTACHMENT 3**

# MINNESOTA PUBLIC UTILITIES COMMISSION
# COMPLIANCE FILING PROCEDURE
# FOR PERMITTED ENERGY FACILITIES

## 1. Purpose

To establish a uniform and timely method of submitting information required by the Commission energy facility permits.

## 2. Scope and Applicability

This procedure encompasses all compliance filings required by permit.

## 3. Definitions

Compliance Filing – A sending (filing) of information to the Commission, where the information is required by a Commission site or route permit.

## 4. Responsibilities

A) The permittee shall eFile all compliance filings with Dr. Burl Haar, Executive Secretary, Public Utilities Commission, through the Department of Commerce (DOC) eDocket system. The system is located on the DOC website: https://www.edockets.state.mn.us/EFiling/home.jsp

General instructions are provided on the website. Permittees must register on the website to eFile documents.

B) All filings must have a cover sheet that includes:
1) Date
2) Name of submitter / permittee
3) Type of Permit (Site or Route)
4) Project Location
5) Project Docket Number
6) Permit Section Under Which the Filing is Made
7) Short Description of the Filing

C) Filings that are graphic intensive (e.g., maps, plan and profile) must, in addition to being eFiled, be submitted as paper copies and on CD. Copies and CDs should be sent to: 1) Dr. Burl W. Haar, Executive Secretary, Minnesota Public Utilities Commission, 121 7th Place East, Suite 350, St. Paul, MN, 55101-2147, and 2) Department of Commerce, Energy Facility Permitting, 85 7th Place East, Suite 500, St. Paul, MN, 55101-2198. Additionally, the Commission may request a paper copy of any eFiled document.

## PERMIT COMPLIANCE FILINGS[1]

**PERMITTEE:** Bitter Root Wind Farm Project, LLC
**PERMIT TYPE:** LWECS Site Permit
**PROJECT LOCATION:** Yellow Medicine and Lincoln counties
**COMMISSION DOCKET NUMBER:** IP-6684/WS-08-1448

## PRE-CONSTRUCTION MEETING

| Filing Number | Permit Section | Description | Due Date | Notes |
|---|---|---|---|---|
| **1** | 4.7<br>13.2 | Native Prairie Protection Plan | Ten working days prior to pre-construction meeting, if required | Developed in consultation with Commission and DNR; also addresses Yellow Medicine Coteau Macrosite |
| **2** | 5.1 | Site Plan | Ten working days prior to pre-construction meeting | |
| **3** | 5.4 | Field Representative | Ten working days prior to pre-construction meeting | |
| **4** | 5.8 | Complaint Reporting Procedures | Ten working days prior to pre-construction meeting and complaint submittals on the 15th of each month or within 24 hours | |
| **5** | 6.1 | Biological & Natural Resource Inventories | Thirty days prior to pre-construction meeting | Results may trigger need for a Native Prairie Protection Plan |
| **6** | 6.2 | Shadow Flicker Analysis | Ten working days prior to pre-construction meeting | |
| **7** | 6.3 | Archaeological Resources | Ten working days prior to pre-construction meeting and as recommended by SHPO | |

[1] This compilation of permit compliance filings is provided for the convenience of the permittee and the Commission. However, it is not a substitute for the permit; the language of the permit controls.

**PERMIT COMPLIANCE FILINGS**

## PRE-CONSTRUCTION MEETING

| Filing Number | Condition | Description | Due Date | Notes |
|---|---|---|---|---|
| **8** | 6.4 | Interference | Ten working days prior to pre-construction meeting | |
| **9** | 6.5 | Wake Loss | Ten working days prior to pre-construction meeting and may be included with site plan or operation studies if performed | |
| **10** | 6.7; 13.3 | Avian and Bat Protection Plan | Ten working days prior to pre-construction meeting | Developed in consultation with Commission and DNR |
| **11** | 7.8 | Roads | Ten working days prior to pre-construction meeting | |
| **12** | 7.11 | Soil Erosion and Sediment Control Plan | Ten working days prior to pre-construction meeting | |
| **13** | 7.16 | Emergency Response | Ten working days prior to pre-construction meeting. Must register in 911 Program | |
| **14** | 10.1 | Wind Rights | Ten working days prior to pre-construction meeting | |

## PRE-OPERATION COMPLIANCE MEETING

| Filing Number | Permit Section | Description | Due Date | Notes |
|---|---|---|---|---|
| **15** | 5.7 | Pre-operation compliance meeting | Ten working days prior to commercial operation | |
| **16** | 6.6 | Noise Study Protocol | Ten working days prior to pre-operation meeting | |
| **17** | 9.1 & 9.3 | Decommissioning Plan | Ten working days prior to commercial operation | |

## OTHER REQUIREMENTS

| Filing Number | Permit Section | Description | Due Date | Notes |
|---|---|---|---|---|
| **18** | 5.2 | Notice to Landowners and Governmental Units | Within 10 working days of permit approval | |
| **19** | 5.5 | Site Manager | Ten working days prior to prior to commercial operation | |
| **20** | 6.6 | Noise Study Results | Within 18 months of Commercial Operation, if required | |
| **21** | 6.7; 13.3 | Avian and Bat Reporting Requirements | Quarterly Requirements | |
| **22** | 6.8 | Project Energy Production | Due 2/1 each year or quarterly | |
| **23** | 6.9 | Wind Resource Use | Upon request of the Commission | |
| **24** | 6.10 | Extraordinary Events | Within 24 hours and report on occurrence of event within 30 days | |
| **25** | 8.1 | As Builts | Within 60 days of completion of construction | |
| **26** | 10.3 | Failure to Start Construction | Within 2 years of permit issuance | |