



7699 Anagram Drive  
Eden Prairie, MN 55344

PHONE 952-937-5150  
FAX 952-937-5822  
TOLL FREE 888-937-5150

www.westwoodps.com

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**TRANSMITTAL**

**PUBLIC SERVICE COMMISSION**

Date: September 25, 2009

Re: **Border Winds Wind Energy Project Application for Certificate of Site Compatibility; Case No. PU-08-797**  
File 20071163.00

To: Mr. Jerry Lein  
North Dakota Public Service Commission  
600 East Boulevard, Dept. 408  
Bismarck, ND 58505

From: Rob Bouta 

Items:	No.	Description
	1	Supplement to Application for Certificate of Site Compatibility
	2	Map for use in Public Notice (also included in email)

Purpose: As you requested

Remarks: I am enclosing 11 copies of the above materials as you requested.

We will send you the reports from the Avian Survey and Risk Assessment, Cultural Resources Survey, Wetland Delineation, and Rare Natural Resources Survey in the near future.

If you have questions, please call me at (952) 906-7436 or email me at [rob.bouta@westwoodps.com](mailto:rob.bouta@westwoodps.com).

Delivery: Overnight

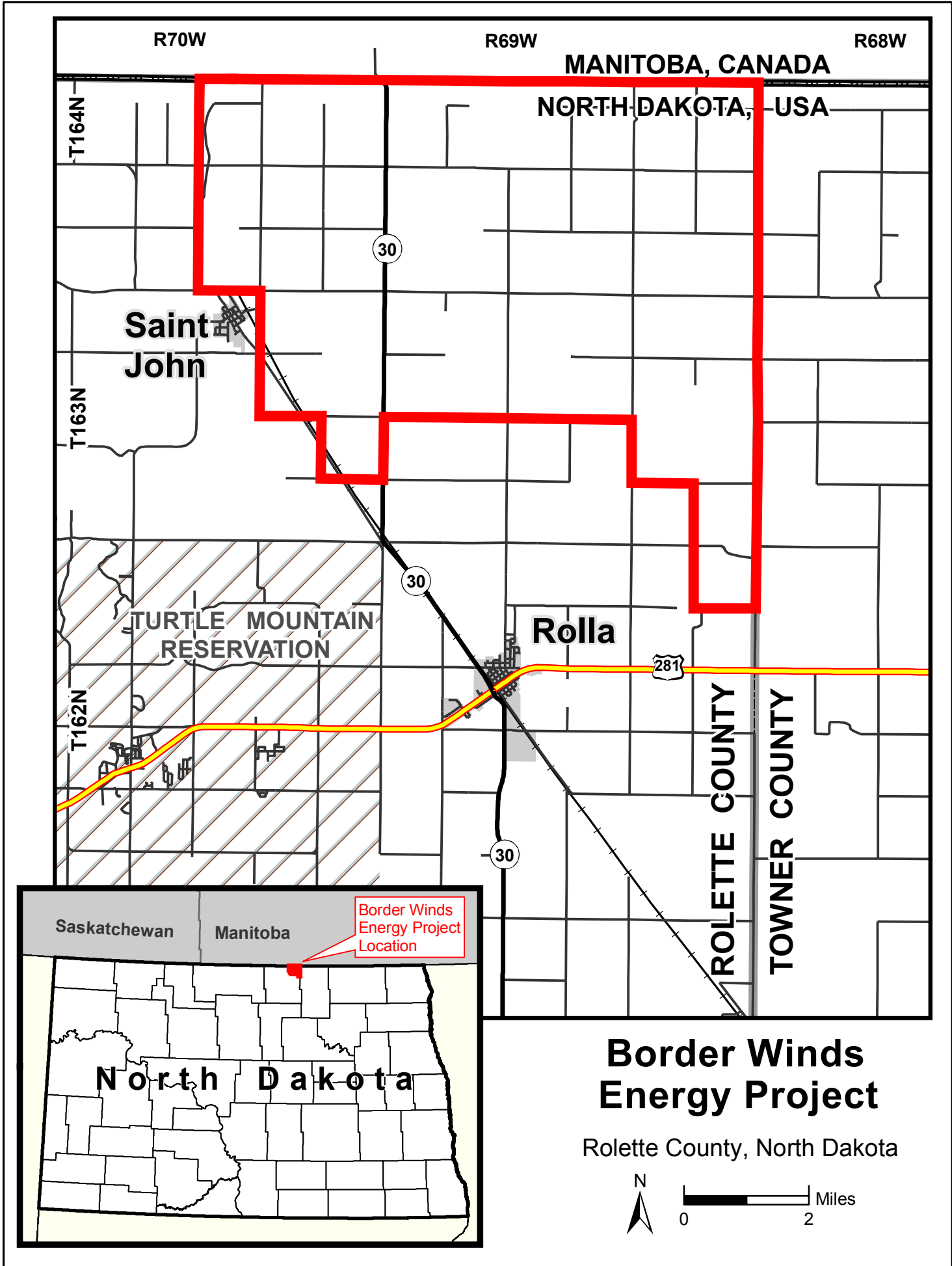
cc: File, Sequoia Energy

16 **PU-08-797** Filed: 9/25/2009 Pages: 36  
**Supplement to Application + Map**

Sequoia Energy US Inc.

Rob Bouta, Westwood Consultants







SUPPLEMENT TO THE APPLICATION FOR  
CERTIFICATE OF SITE COMPATIBILITY

## **Border Winds Wind Energy Project**

Rolette County, North Dakota  
September 25, 2009



**Prepared For:**

Sequoia Energy U.S. Inc.  
259 Portage Avenue, Suite 210  
Winnipeg, MB R3B 2A9 Canada



**Prepared By:**



**Westwood**

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**Supplement to the  
Application to the North Dakota Public  
Service Commission  
Certificate of Site Compatibility  
Border Winds Wind Energy Project  
Rolette County, North Dakota**

Case No.: PU-08-797

Prepared for:

Sequoia Energy U.S. Inc.  
259 Portage Avenue  
Suite 210  
Winnipeg, MB R3B 2A9  
Canada  
(204) 927-0290

Prepared by:

Westwood Professional Services  
7699 Anagram Drive  
Eden Prairie, MN 55344  
(952) 937-5150

Project Number: 200071163.00

September 25, 2009

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## CONTENTS

List of Tables .....	i
List of Exhibits.....	ii
1.0 INTRODUCTION .....	1
1.1 Project Summary.....	1
1.1.1 Proposed Site.....	1
1.2 Project Schedule.....	2
1.3 Project Ownership.....	2
2.0 NEED FOR FACILITY.....	3
2.1 Ten Year Plan .....	3
3.0 SITE SELECTION CRITERIA.....	3
3.1 Exclusion Areas .....	3
3.2 Avoidance Areas.....	5
3.3 Selection Criteria .....	6
4.0 ENVIRONMENTAL ANALYSIS .....	6
4.1 Land Use .....	6
4.1.1 Description of Resources.....	6
4.1.2 Impacts .....	7
4.2 Wildlife .....	7
4.2.1 Description of Resources.....	7
4.2.2 Impacts .....	7

## TABLES

Table 1-2: Project Location (revised) .....	1
Table 3-1: Exclusion Areas (revised) .....	3
Table 3-2: Avoidance Areas (revised).....	5
Table 7-2: Major Habitats and Their Relative Abundance (revised).....	7

## **EXHIBITS**

- Exhibit 1: Project Vicinity
- Exhibit 2: Project Location
- Exhibit 3: Project Location and Preliminary Site Layout (aerial)
- Exhibit 4: Project Location and Preliminary Site Layout (topographical)
- Exhibit 5: Exclusion Areas
- Exhibit 6: Avoidance Areas
- Exhibit 7: Wind Turbine Design Features
- Exhibit 8: Path of Energy
- Exhibit 9: Typical Wind Energy Project Layout
- Exhibit 10: Wind Resource Assessment
- Exhibit 11: Average Daily Traffic
- Exhibit 12: Sound Attenuation
- Exhibit 13: Photo of Typical Area
- Exhibit 14: Photo Simulation
- Exhibit 15: USFWS Land Use
- Exhibit 16: Prime Farmland Soil Distribution
- Exhibit 17: State Soils Association
- Exhibit 18: National Wetlands Inventory and Surface Waters

## 1.0 INTRODUCTION

Sequoia Energy U.S. Inc. (Sequoia) is submitting this supplement to the application for a Certificate of Site Compatibility (Certificate) to construct the Border Winds Wind Energy Project (Project). Since the filing of the original application in October 2008, the Project layout has been revised to make it more compact and all turbines and related facilities will now be located in Rolette County, North Dakota. The Project no longer includes facilities proposed in Towner County (Exhibit 1). Although the Project layout has been reconfigured to a more compact design, the vast majority of the information included in the October 2008 application is still accurate. This supplement focuses only on items that have been revised. Because the Project design and project area have been revised to make them more compact, this supplement includes a complete set of 18 updated Exhibits.

### 1.1 Project Summary

#### 1.1.1 Proposed Site

The Project Area is located in northeastern Rolette County, North Dakota immediately south of the U.S.-Canadian Border (Exhibits 1 and 2). The City of Rolla occurs approximately three miles south of the Project Area and the eastern boundary of the Project Area abuts Towner County (Exhibits 1 and 2). Table 1-2 lists the Township, Range, and Sections included within the Project Site. Since filing of the application in October 2008, the Project Area has been reduced from 122 square miles (78,080 acres) to 52.5 square miles (33,581 acres).

<b>Township</b>	<b>Range</b>	<b>Sections</b>
164N	69W	25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36
164N	70W	25, 26, 27, 34, 35, 36
163N	69W	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 36
163N	70W	1, 2, 3, 10, 11, 12, 13, 14, 23, 24, 25
162N	69W	1

The Project location and preliminary layout are presented on Exhibits 3 and 4. As shown on these exhibits, turbines will be placed throughout the Project Area; however, the preliminary Project site layout will occupy approximately two percent of the total Project Area.

## **1.2 Project Schedule**

The commercial operation date is dependent upon permitting, equipment deliveries, and other development activities. Sequoia is targeting construction for June 2010, provided all pre-construction permits and approvals have been obtained. As such, the preliminary schedule for the Project is as follows:

1. Certificate of Site Compatibility: Sequoia anticipates the Certificate will be approved in late November or December 2009.
2. Land Acquisition: Sequoia has secured sufficient easements from landowners to develop an approximately 150 MW project.
3. Permits: Sequoia is responsible for undertaking all required environmental studies, and will obtain all permits and licenses that are required following issuance of the Certificate. Completing permits is on the “critical path” for the Project and will allow Sequoia to move forward with other commitments on the Project including ordering long-lead time equipment.
4. Equipment Procurement, Manufacture and Delivery: Sequoia will order the wind turbine components as soon as practicable.
5. Construction: Construction is targeted to begin in June 2010 and is subject to road restrictions and weather. The engineering, procurement, and construction (EPC) contractor will be responsible for completing all Project construction, including roads, wind turbine assembly, electrical, and communications work. The construction will take a maximum of 18 months to complete.
6. Test and Operations: Sequoia anticipates testing and operations to begin in late 2010 or early 2011.
7. Commercial Operation: Sequoia anticipates commercial operation of the Border Winds Wind Energy conversion facility to begin in late 2010 or early 2011.

## **1.3 Project Ownership**

It is anticipated that Sequoia will construct and own all equipment and associated facilities related to the Project. Sequoia will likely select a third-party contractor to perform the majority of the engineering and construction of the wind farm. Sequoia, however, will procure the turbine/tower package.

As of September 2009, the interconnection study for Midwest Independent System Operator’s (MISO) interconnection queue position G904 is in the Final Facility Study Stage. An interconnection agreement is anticipated in the near future.

## 2.0 NEED FOR FACILITY

### 2.1 Ten Year Plan

1. This document and the October 2008 application describe the general size, location, and type of the Border Winds Project, which is the only project in North Dakota for which Sequoia currently has plans prepared.
2. The preferred site of the Border Winds Project is described in this document.
3. Sequoia has and is responding to Requests for Proposals from other utilities and plans to establish a Power Purchase Agreement in coordination with other utilities in the region.
4. Sequoia has coordinated with environmental and permitting agencies and completed studies of avian migration, wetlands, cultural resources, and rare natural resources to facilitate environmentally sensitive planning. Environmental permits for Border Winds will be obtained prior to project construction.
5. Sequoia plans to the sell the power from Border Winds to another utility that monitors and determines the demand for services.

## 3.0 SITE SELECTION CRITERIA

### 3.1 Exclusion Areas

Per Section 69-06-08-01-1, the geographical areas listed in Table 3-1 shall be excluded in the consideration of a site for an energy conversion facility, and shall include a buffer zone of a reasonable width to protect the integrity of the area. Exclusion areas are mapped for the Project Area on Exhibit 5.

<b>Table 3-1: Exclusion Areas (revised)</b>			
<b>Exclusion Area</b>	<b>Present within Project Site?</b>	<b>Proposed Buffer</b>	<b>Section Addressed</b>
Designated or registered national areas: parks; memorial parks; historic sites and landmarks; natural landmarks; historic districts; monuments; wilderness areas; wildlife areas; wild, scenic, or recreational rivers; wildlife refuges; and grasslands	Present	Sequoia is consulting with the USFWS. Sequoia has established a buffer of 0.25 miles from Waterfowl Production Areas and Waterfowl Rest Areas.	7.8, 7.14, 7.1, Exhibit 5

<b>Table 3-1: Exclusion Areas (revised)</b>			
<b>Exclusion Area</b>	<b>Present within Project Site?</b>	<b>Proposed Buffer</b>	<b>Section Addressed</b>
Designated or registered state areas: parks; forests; forest management lands; historic sites; monuments; historical markers; archaeological sites; grasslands; wild, scenic, or recreational rivers; game refuges; game management areas; management areas; and nature preserves.	Present	Two historic properties exist, the St. John Border Station on the Canadian Border and the Coghland Castle in the southern part of the Project Area. Both are located outside the Project construction zone. Other designated or registered areas are outside the Project Area.	7.8, 7.9, 7.15
County parks and recreational areas; municipal parks; parks owned or administered by other governmental subdivisions; hardwood draws; and enrolled woodlands.	None		7.9
Prime farmland and unique farmland, as defined by the land inventory and monitoring division of the soil conservation service, United States department of agriculture, in 7 C.F.R. part 657; provided, however, that if the Commission finds that the prime farmland and unique farmland that will be removed from use for the life of the facility is of such small acreage as to be of negligible impact on agricultural productions, such exclusion shall not apply.	Present	No buffer is proposed. Prime farmland has been avoided to the extent practicable. Impacts to prime farmland will affect less than 0.4 percent of the yearly production for the top five commodities in Rolette County.	7.10, 7.11, Exhibit 16
Irrigated land	None	No Conflicts with irrigated land are anticipated.	7.10
Areas critical to the life stages of threatened or endangered animal or plant species.	None	No areas critical to threatened and endangered species have been identified in the Project site.	7.17

<b>Table 3-1: Exclusion Areas (revised)</b>			
<b>Exclusion Area</b>	<b>Present within Project Site?</b>	<b>Proposed Buffer</b>	<b>Section Addressed</b>
Areas where animal or plant species that are unique or rare to North Dakota would be irreversibly damaged.	Present	Rare and unique natural features are located at or outside the west side of the Project Area, have been assessed in the field, and are outside the Project construction zone. Sequoia is working with USFWS and ND Game and Fish to avoid potential impacts.	7.12, 7.13, 7.14, 7.16, 7.15, 7.17

### 3.2 Avoidance Areas

Per Section 69-06-08-01-2, the geographical areas listed in Table 3-2 shall not be approved as a site for an energy conversion facility unless the applicant shows that under the circumstances there is no reasonable alternative. In determining whether an avoidance area should be designated for a facility the Commission may consider among other things, the proposed management of adverse impacts; the orderly siting of facilities; system reliability and integrity; the efficient use of resources; and alternative sites. Economic considerations alone shall not justify approval of these areas. A buffer zone of a reasonable width to protect the integrity of the area shall be included. Natural screening may be considered in determining the width of the buffer zone. Avoidance areas are also mapped for the Project Area on Exhibit 6.

<b>Table 3-2: Avoidance Areas (revised)</b>			
<b>Avoidance Areas</b>	<b>Present within Project Site?</b>	<b>Proposed Buffer</b>	<b>Section Addressed</b>
Historical resources which are not designated as exclusion areas	Present	In consultation with the North Dakota SHPO, a professional archaeologist has surveyed the project area, will update the survey once exact turbine locations have been established, and it is anticipated that cultural resources of historic integrity will be avoided and buffered where warranted.	7.8, Appendix C
Areas within the city limits of a city or the boundaries of a military installation	None	The municipal boundaries of the Cities of Rolla and St. John are outside the Project Area. No military installations exist in the Project vicinity.	7.3

<b>Avoidance Areas</b>	<b>Present within Project Site?</b>	<b>Proposed Buffer</b>	<b>Section Addressed</b>
Areas within known floodplains as defined by the geographical boundaries of the 100-year flood	None		7.13
Areas that are geologically unstable	None		7.12
Woodlands and wetlands	Present	Wetland and woodland resources will be avoided to the extent practicable. Impacts will be limited almost exclusively to areas where linear project features cross linear wetland or woodland features.	7.14, 7.15, Exhibits 6, 15 and 18
Areas of recreational significance which are not designated as exclusion areas	None		7.9
Areas where animal or plant species that are unique or rare to this state would be irreversibly damaged.	Present	One rare plant community (calcareous fen) is known to occur within the Project Area. The location of this plant community has been assessed in the field and will be avoided by project facilities to the extent feasible along with other wetlands. Sequoia will work with USFWS and NDPRD to avoid potential impacts.	7.14, 7.15, 7.16, 7.17

### 3.3 Selection Criteria

The only project design revision affecting selection criteria is that the turbine setback from family homes has increased from 1,000 feet to approximately 1,600 feet.

## 4.0 ENVIRONMENTAL ANALYSIS

### 4.1 Land Use

#### 4.1.1 Description of Resources

As a result of the revision of the Project boundaries, the smaller project site includes proportionately slightly more cropland and forest, and slightly less grassland.

<b>Table 7-2: Major Habitats and Their Relative Abundance (revised)</b>				
<b>Habitat</b>	<b>Previous Project Area</b>		<b>Revised Project Area</b>	
	<b>Acres</b>	<b>% of Site</b>	<b>Acres</b>	<b>% of Site</b>
Cropland	64,391	81.0	27,536	82.0
Grassland	8200	10.3	2,653	7.9
Wetland	5049	6.4	2,116	6.3
Forest	807	1.0	604	1.8
Urban/Developed	536	0.7	336	1.0
Water	509	0.6	336	1.0
Total	79,492	100	33,581	100

#### **4.1.2 Impacts**

Consistent with the October 2008 application, the development of the wind project will not result in a significant change in land use.

## **4.2 Wildlife**

### **4.2.1 Description of Resources**

An avian survey was completed during the spring 2009 migration season and 26 raptor nests were identified and located. The revised project layout includes a 0.25-mile setback between turbines and known raptor nest locations.

### **4.2.2 Impacts**

Wildlife impacts and mitigation are similar to that described in the October 2008 application.

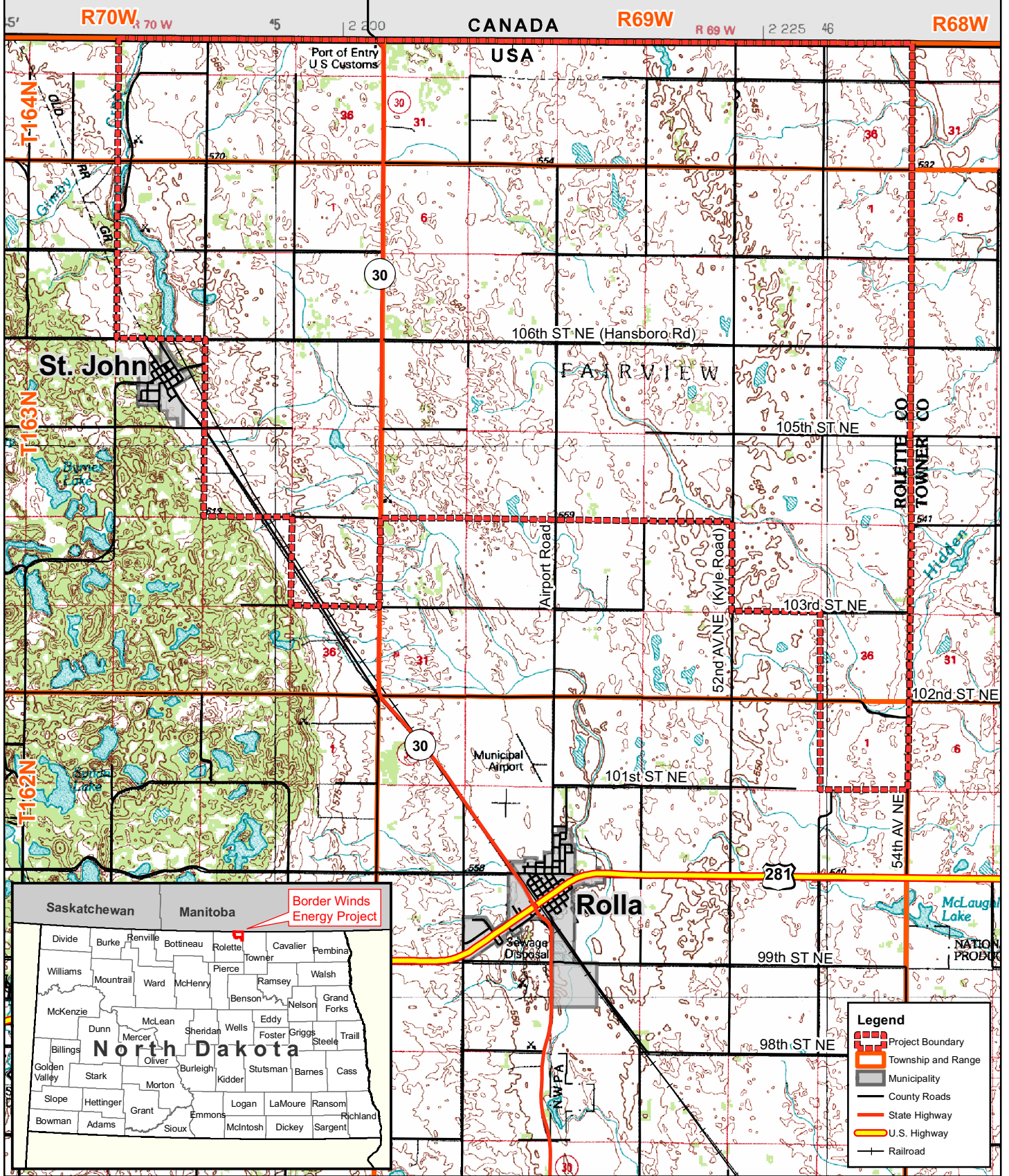
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# **Exhibits**

**Border Winds Wind Energy Project**  
Roulette County, North Dakota

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Data Source(s): USGS 100K DRG (1996), State and Province Boundaries, ESRI Data (2005-2008), Muni Boundaries, NDDOT (2008); North Dakota Geologic Survey US PLS System (1994), Roads, NDDOT (2008); County Boundaries, North Dakota State Water Commission (2002); Westwood (2009).

# Border Winds Energy Project

Rolette County, North Dakota

## Project Location

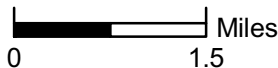
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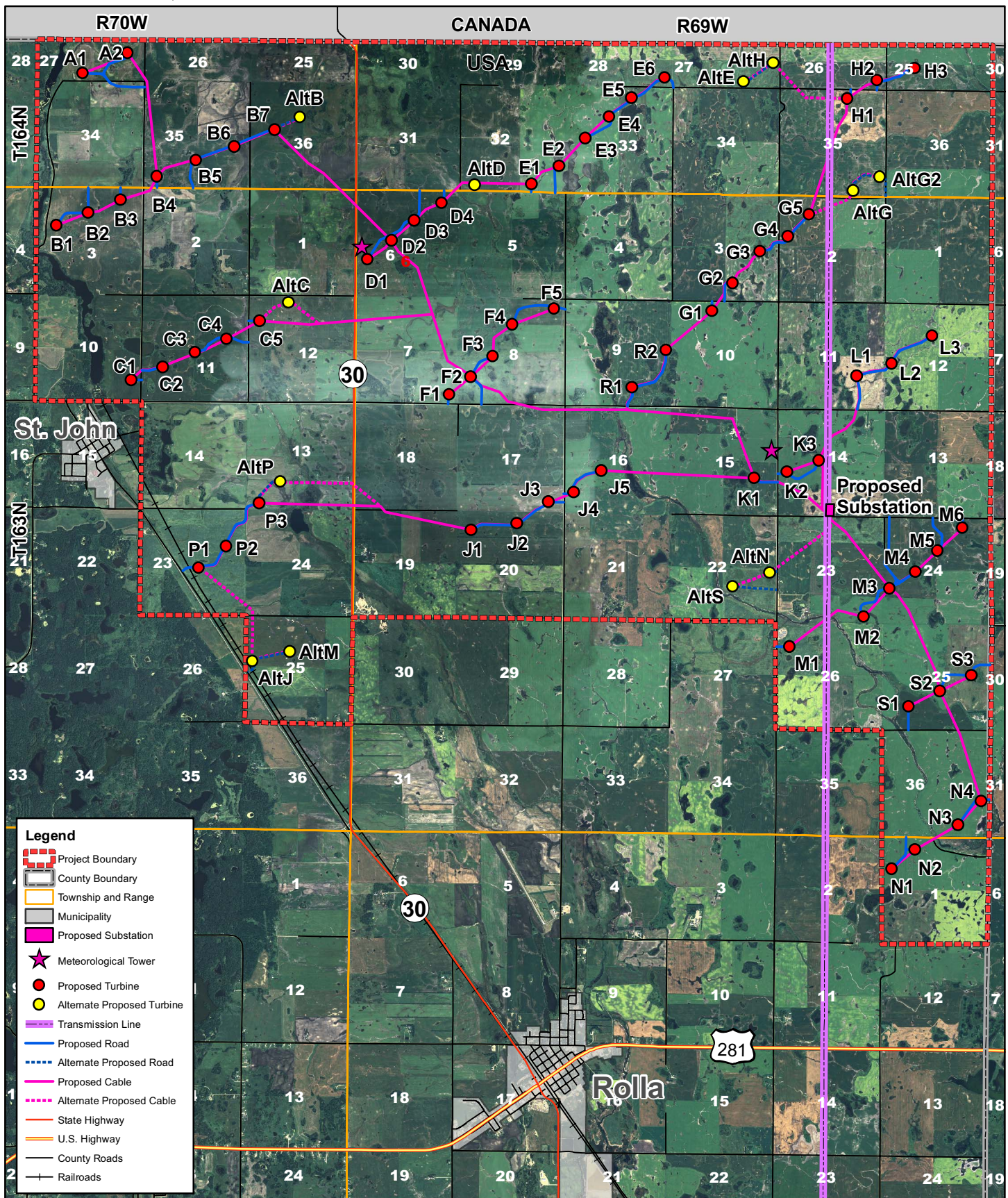
Westwood Professional Services, Inc.  
7699 Anagram Drive  
Eden Prairie, MN 55344

PHONE 952-937-5150  
FAX 952-937-5822  
TOLL FREE 1-888-937-5150



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Data Source(s): NAIP Aerial Photography (2005); ND Geological Survey PLS (1994); State and Province Boundaries, ESRI Data (2005-2008); Muni Boundaries, NDDOT (2008); North Dakota Geologic Survey US PLS System (1994); Roads, NDDOT (2008); County Boundaries, North Dakota State Water Commission (2002); Westwood (2009).

\*NOTE: Turbine locations and access roads are preliminary and subject to change.

Westwood Professional Services, Inc.  
7699 Anagram Drive  
Eden Prairie, MN 55344

PHONE 952-937-5150  
FAX 952-937-5822  
TOLL FREE 1-888-937-5150

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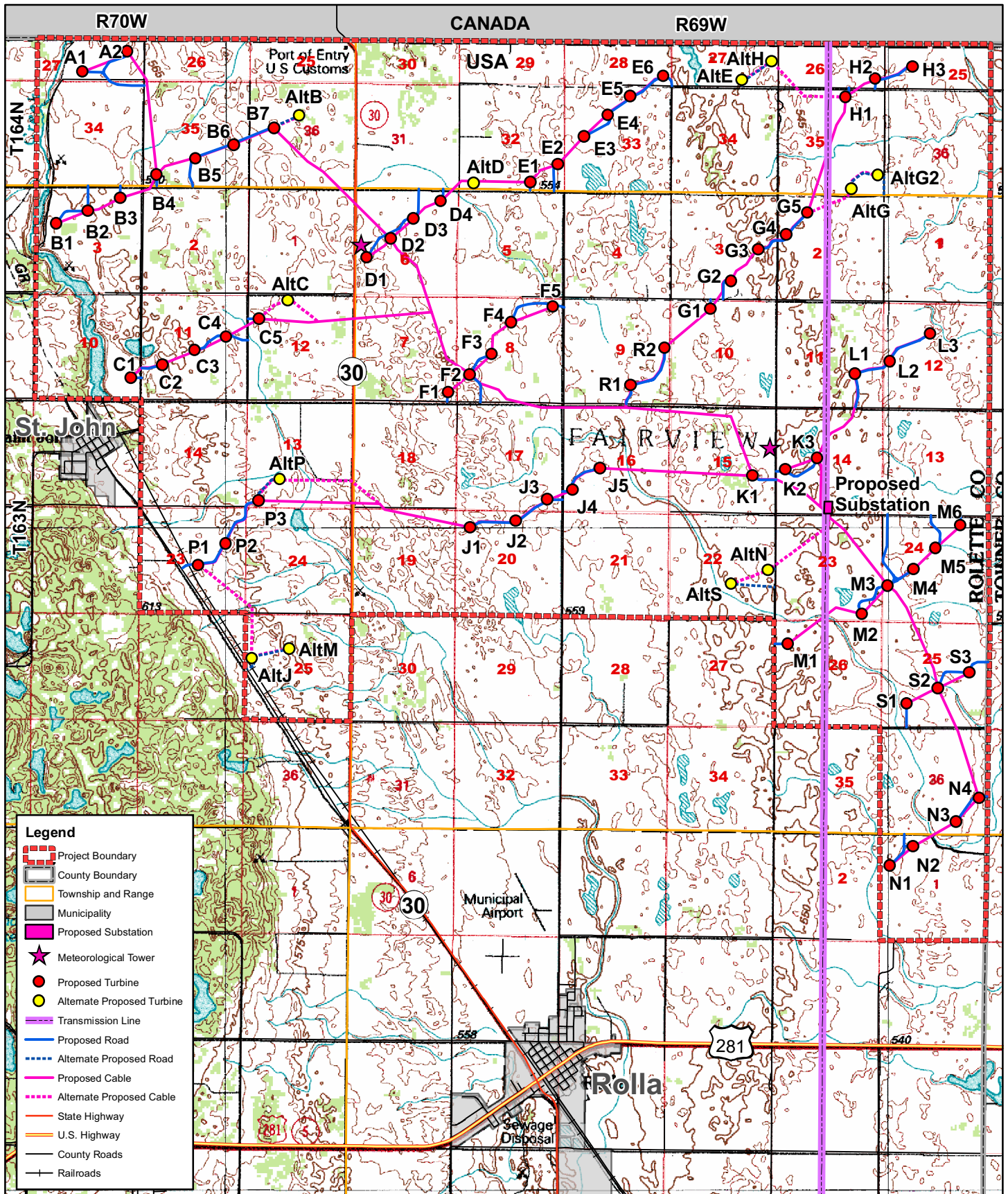


# Border Winds Energy Project

Rolette County, North Dakota

Project Location and Preliminary Site Layout  
(Aerial)

EXHIBIT 3



**Legend**

- Project Boundary
- County Boundary
- Township and Range
- Municipality
- Proposed Substation
- Meteorological Tower
- Proposed Turbine
- Alternate Proposed Turbine
- Transmission Line
- Proposed Road
- Alternate Proposed Road
- Proposed Cable
- Alternate Proposed Cable
- State Highway
- U.S. Highway
- County Roads
- Railroads

Data Source(s): USGS 100K DRG Topography (1996), ND Geological Survey PLS (1994) State and Province Boundaries, ESRI Data (2005-2008), Muni Boundaries, NDDOT (2008); North Dakota Geologic Survey US PLS System (1994), Roads, NDDOT (2008); County Boundaries, North Dakota State Water Commission (2002); Westwood (2009).

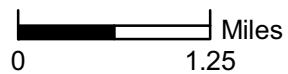
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7699 Anagram Drive  
Eden Prairie, MN 55344

PHONE 952-937-5150  
FAX 952-937-5822  
TOLL FREE 1-888-937-5150



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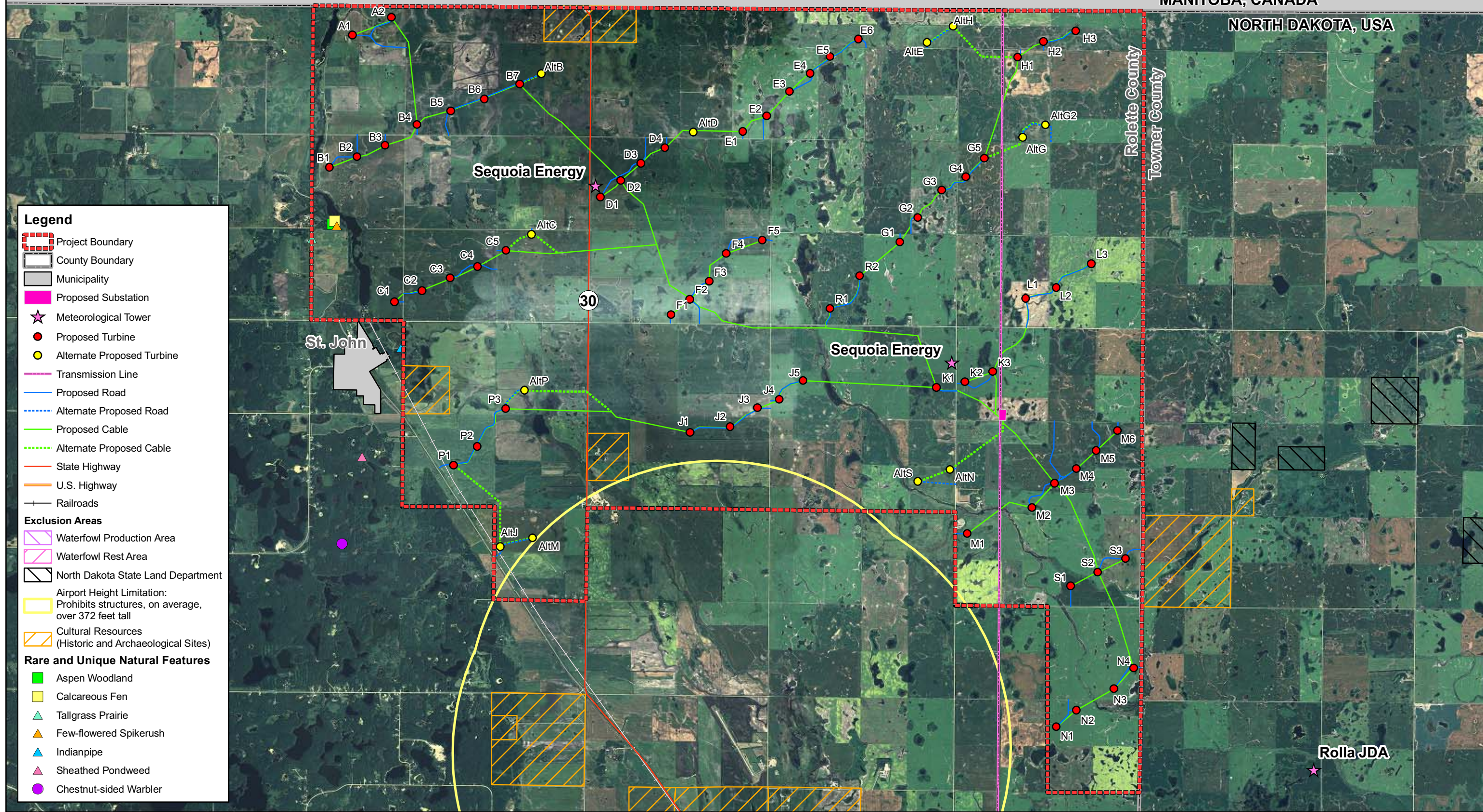


# Border Winds Energy Project

Rolette County, North Dakota

## Project Location and Preliminary Site Layout (Topographical)

EXHIBIT 4



**Legend**

- Project Boundary
- County Boundary
- Municipality
- Proposed Substation
- ★ Meteorological Tower
- Proposed Turbine
- Alternate Proposed Turbine
- Transmission Line
- Proposed Road
- Alternate Proposed Road
- Proposed Cable
- Alternate Proposed Cable
- State Highway
- U.S. Highway
- Railroads

**Exclusion Areas**

- Waterfowl Production Area
- Waterfowl Rest Area
- North Dakota State Land Department
- Airport Height Limitation: Prohibits structures, on average, over 372 feet tall
- Cultural Resources (Historic and Archaeological Sites)

**Rare and Unique Natural Features**

- Aspen Woodland
- Calcareous Fen
- ▲ Tallgrass Prairie
- ▲ Few-flowered Spikerush
- ▲ Indianpipe
- ▲ Sheathed Pondweed
- Chestnut-sided Warbler

Data Source(s): US Fish and Wildlife Service (2008), ESRI Data (2005-2008), Muni Boundaries, NDDOT (2008), North Dakota Geologic Survey US PLS System (1994), Roads, NDDOT (2008); County Boundaries, North Dakota State Water Commission (2002); North Dakota Parks and Recreation Department (2008); Westwood (2009).

# Border Winds Energy Project

Rolette County, North Dakota

Exclusion Areas

EXHIBIT 5



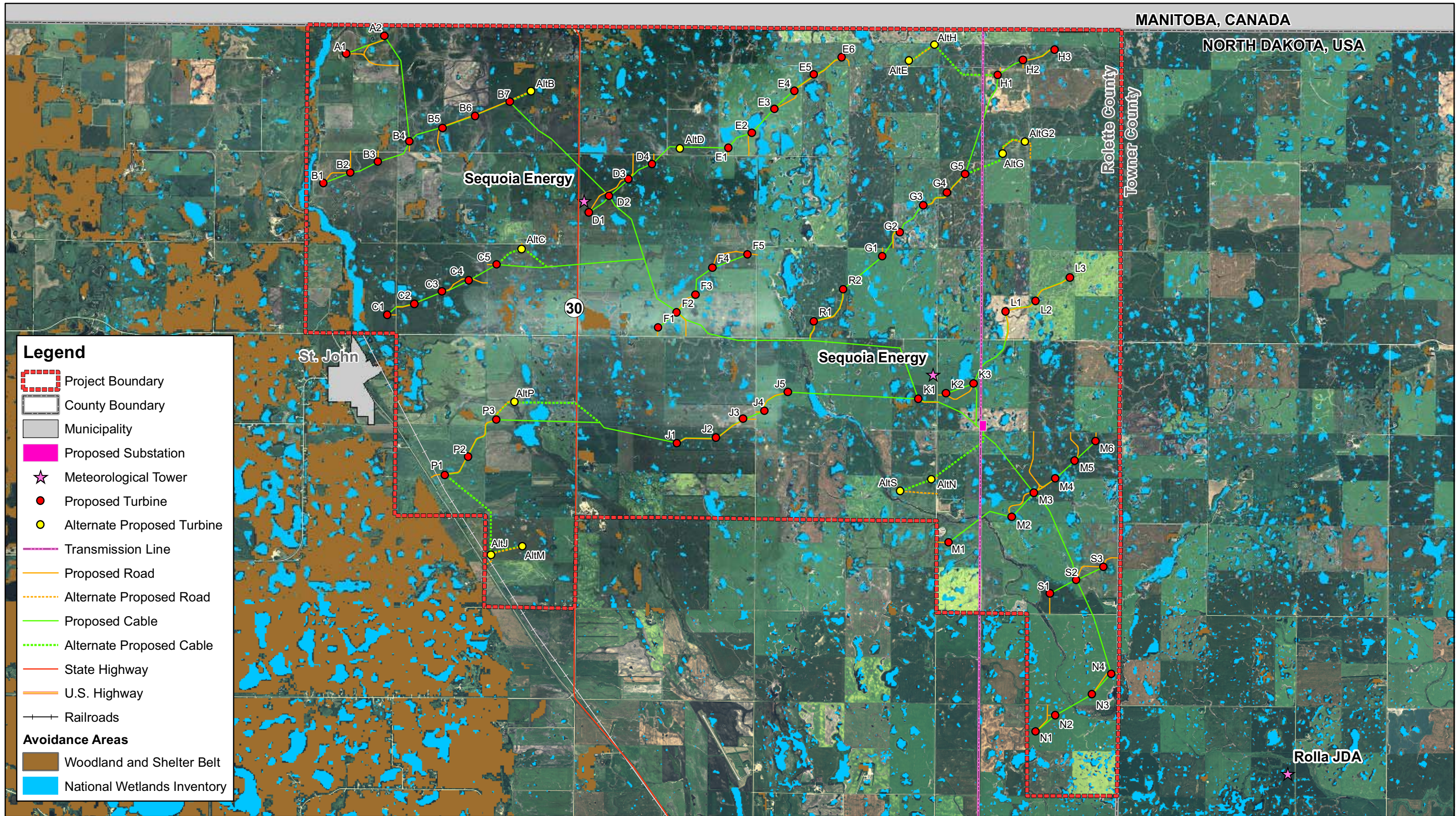
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7699 Anagram Drive  
Eden Prairie, MN 55344

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FAX 952-937-5822  
TOLL FREE 1-888-937-5150

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**Legend**

- Project Boundary
- County Boundary
- Municipality
- Proposed Substation
- Meteorological Tower
- Proposed Turbine
- Alternate Proposed Turbine
- Transmission Line
- Proposed Road
- Alternate Proposed Road
- Proposed Cable
- Alternate Proposed Cable
- State Highway
- U.S. Highway
- Railroads

**Avoidance Areas**

- Woodland and Shelter Belt
- National Wetlands Inventory

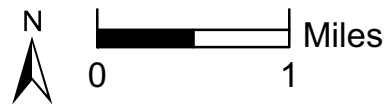
Data Source(s): US Fish and Wildlife Service (2007), ESRI Data (2005-2008), Muni Boundaries, NDDOT (2008), North Dakota Geologic Survey US PLS System (1994), Roads, NDDOT (2008); County Boundaries, North Dakota State Water Commission (2002); Westwood (2009).



Westwood Professional Services, Inc.  
7699 Anagram Drive  
Eden Prairie, MN 55344

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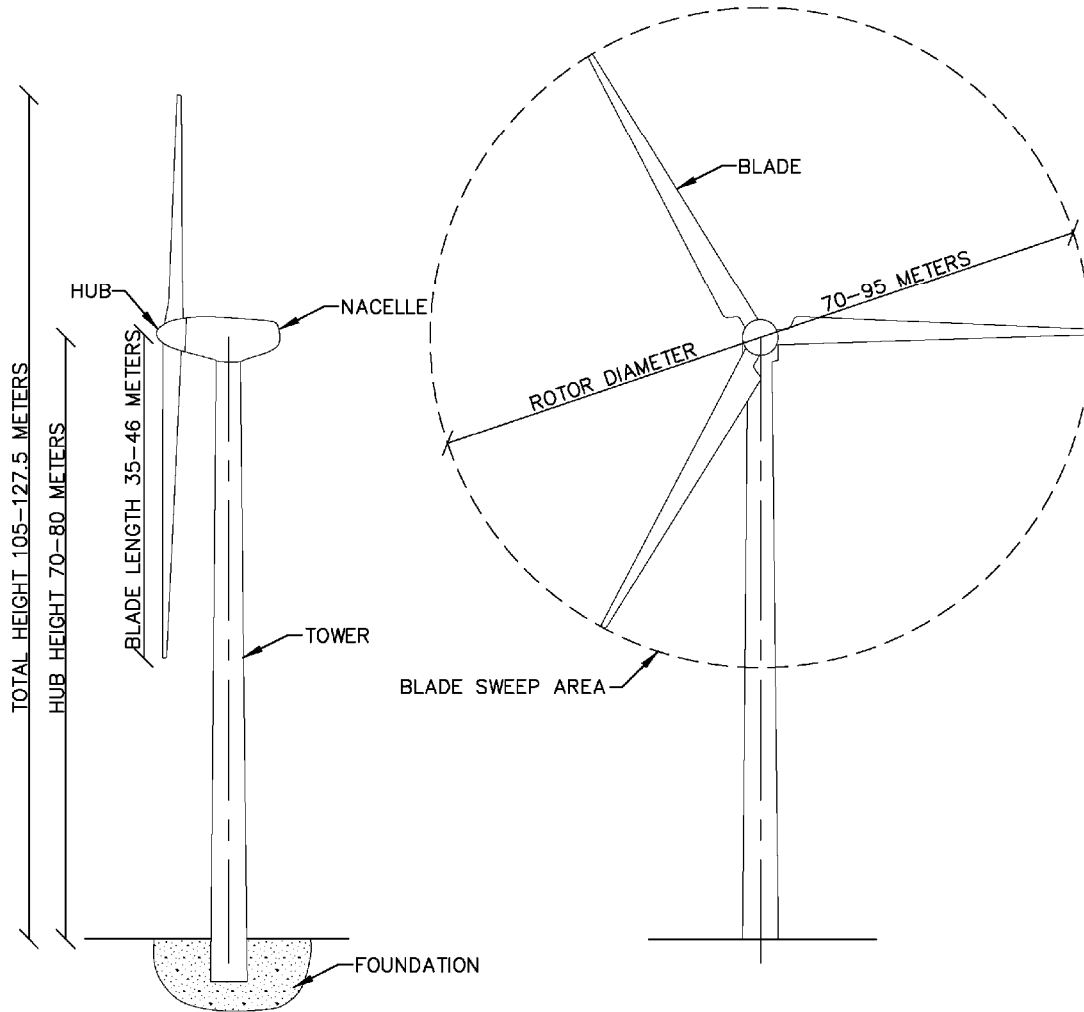
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# Border Winds Energy Project

Rolette County, North Dakota

Avoidance Areas



Data Source(s): Westwood (2008).

# Border Winds Energy Project

Rolette and Towner Counties, North Dakota

## Wind Turbine Design Features

EXHIBIT 7

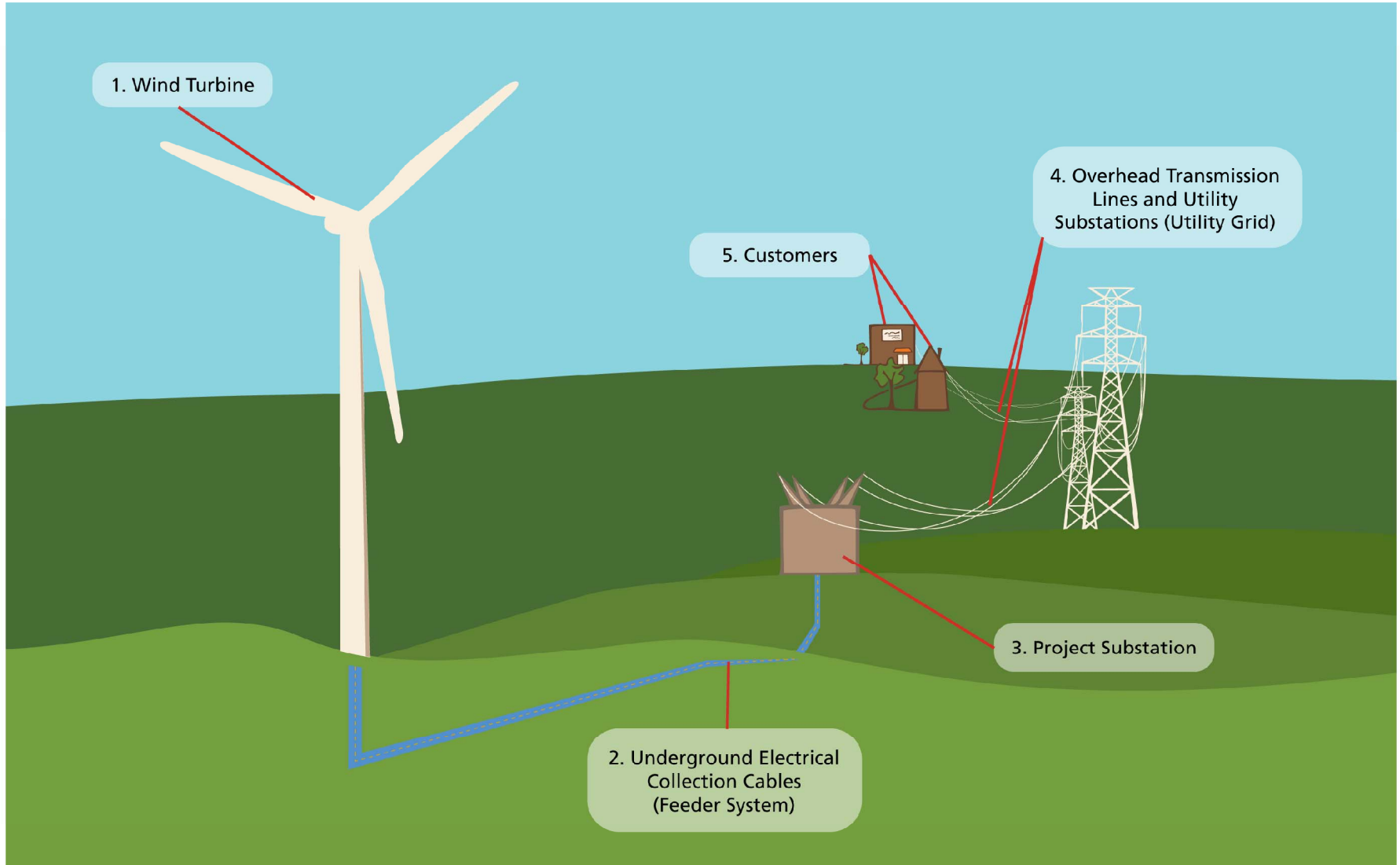


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Westwood Professional Services, Inc.  
7699 Anagram Drive  
Eden Prairie, MN 55344

PHONE 952-937-5150  
FAX 952-937-5822  
TOLL FREE 1-888-937-5150

www.westwoodps.com



Data Source(s): Westwood (2008).



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7699 Anagram Drive  
Eden Prairie, MN 55344

PHONE 952-937-5150  
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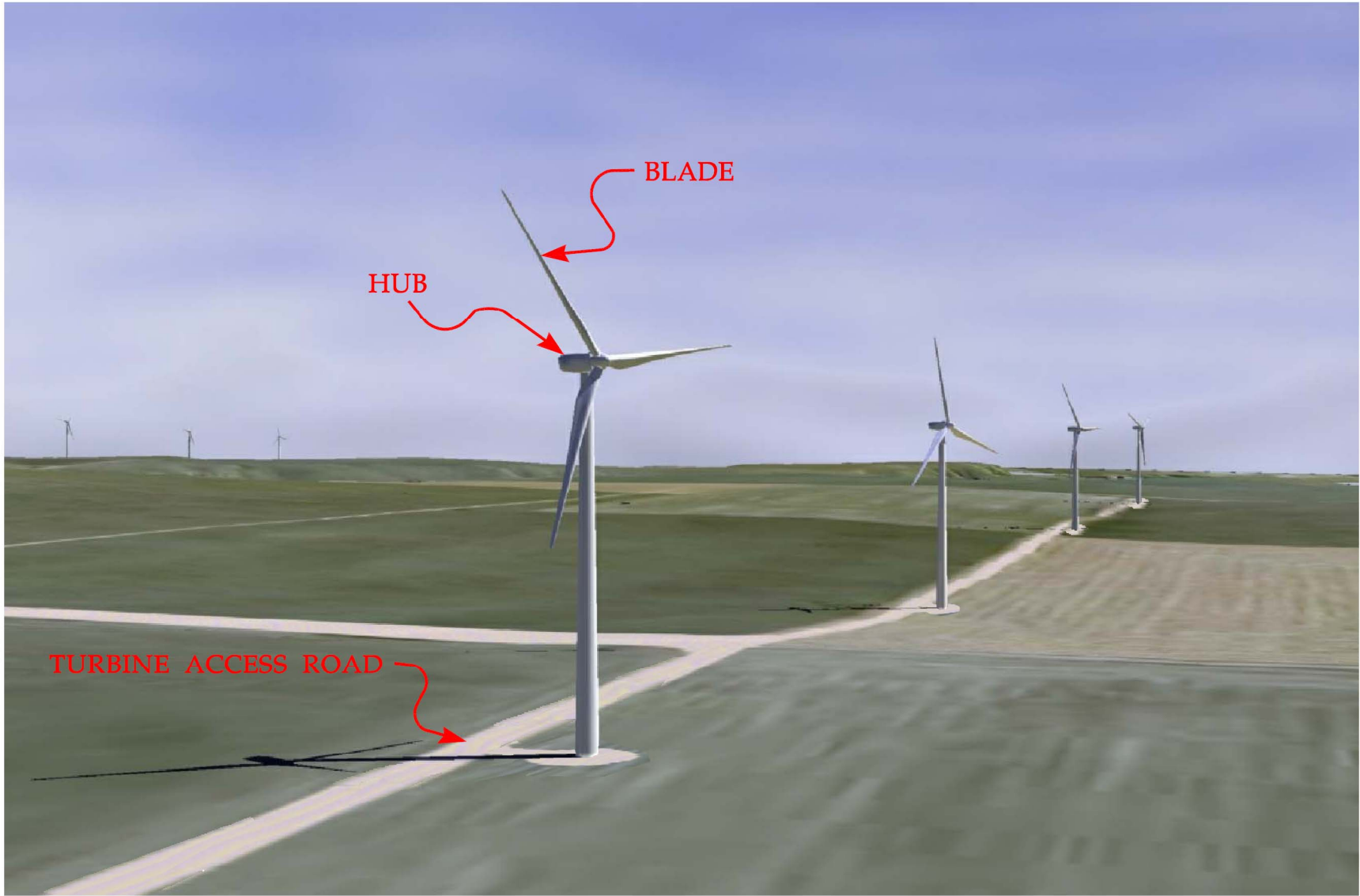
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# Border Winds Energy Project

Rolette County, North Dakota

Path of Energy Diagram

EXHIBIT 8



Data Source(s): Westwood (2008).



Westwood Professional Services, Inc.  
7699 Anagram Drive  
Eden Prairie, MN 55344

PHONE 952-937-5150  
FAX 952-937-5822  
TOLL FREE 1-888-937-5150

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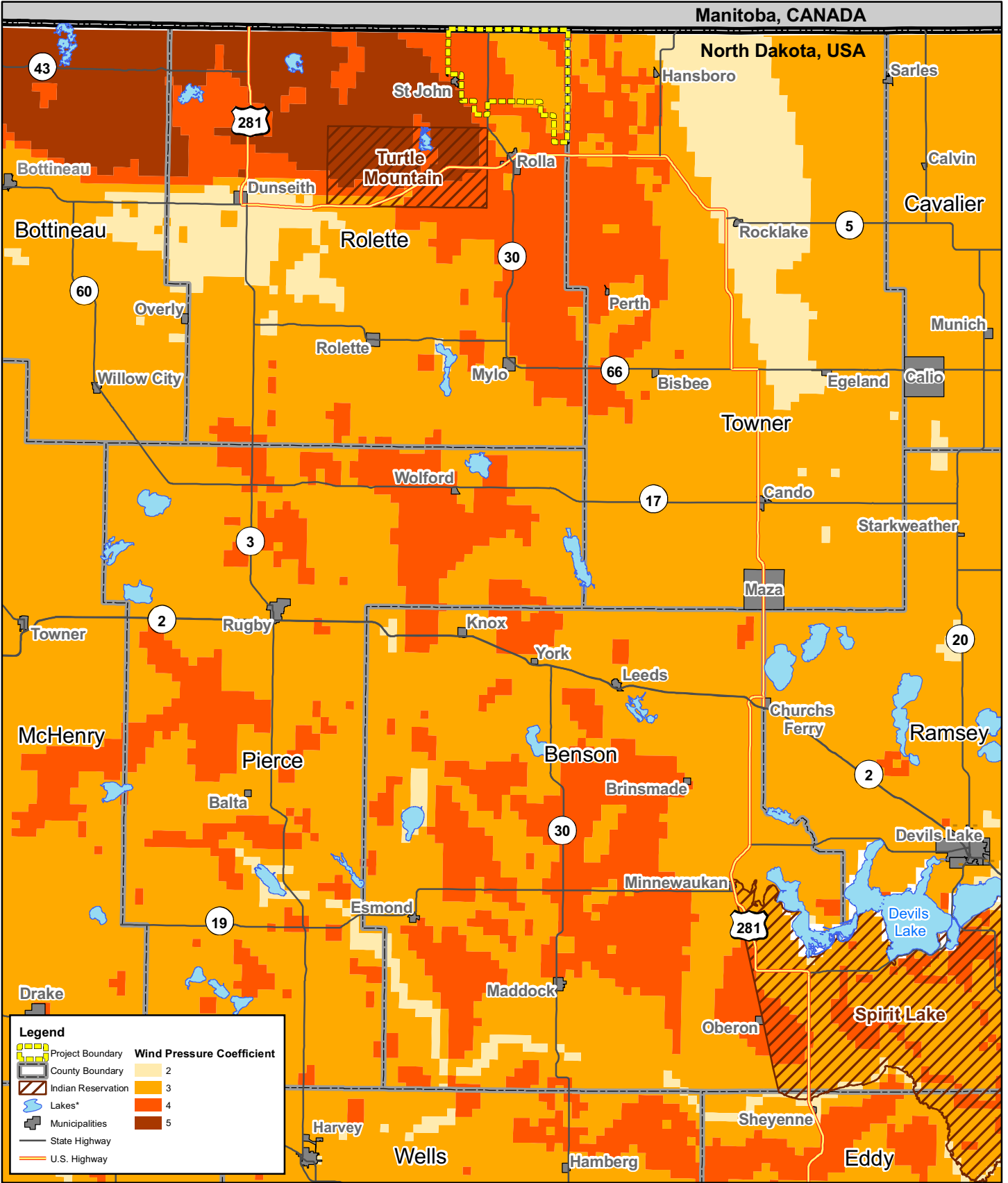
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# Border Winds Energy Project

Rolette County, North Dakota

Typical Wind Energy Project Layout

EXHIBIT 9



**Legend**

Project Boundary	<b>Wind Pressure Coefficient</b>
County Boundary	2
Indian Reservation	3
Lakes*	4
Municipalities	5
State Highway	
U.S. Highway	

Data Source: USGS 100K DRG (1996), State and Province Boundaries, ESRI Data (2005-2008), Muni Boundaries, NDDOT (2008); North Dakota Geologic Survey US PLS System (1994), Roads and Railroad, NDDOT (2008); County Boundaries, North Dakota State Water Commission (2002); Westwood (2009); National Renewable Energy Laboratory (2000).

# Border Winds Energy Project

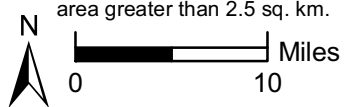
Rolette County, North Dakota

## Wind Resource Assessment

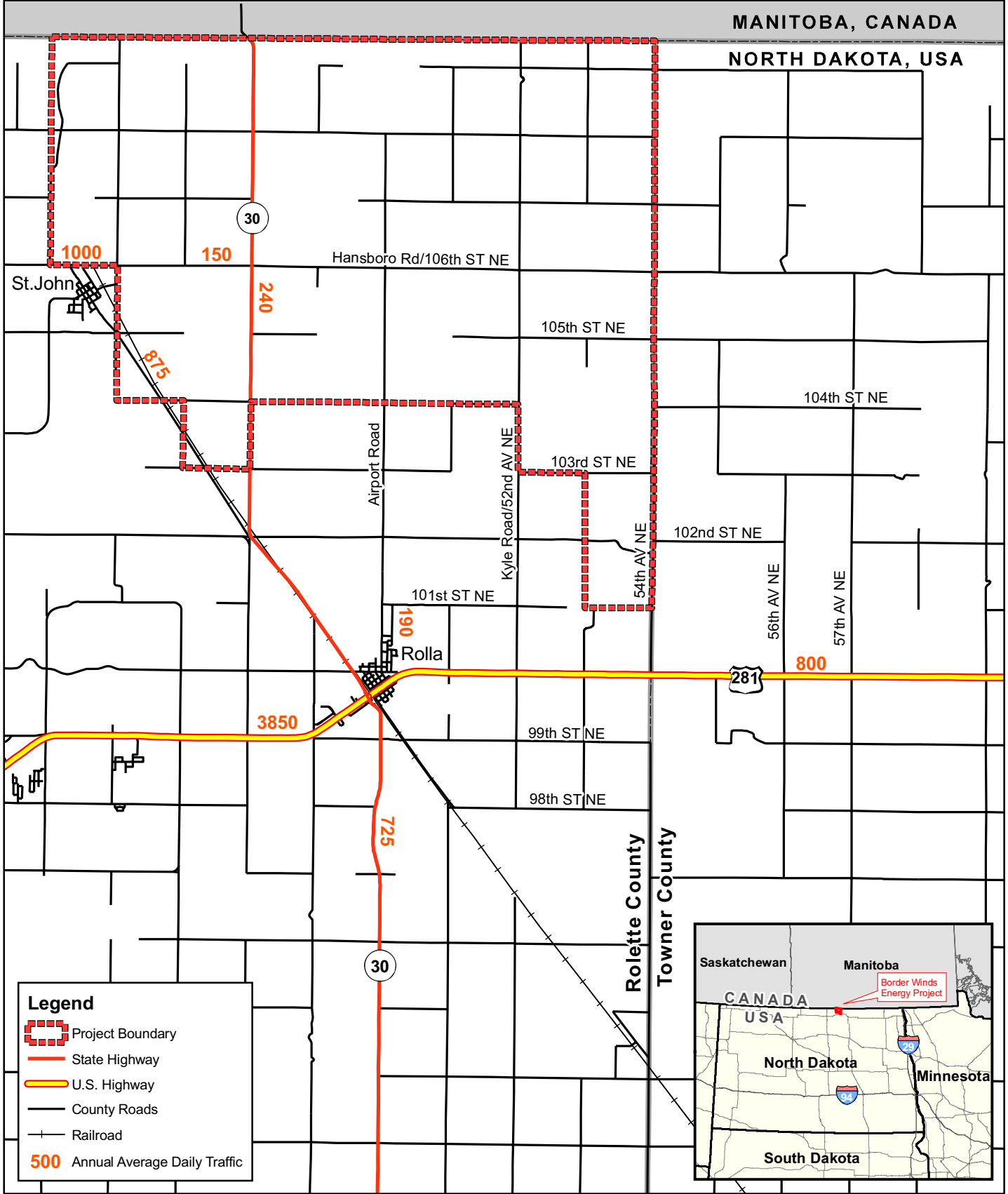
EXHIBIT 10



Westwood Professional Services, Inc.  
 7699 Anagram Drive  
 Eden Prairie, MN 55344  
 PHONE 952-937-5150  
 FAX 952-937-5822  
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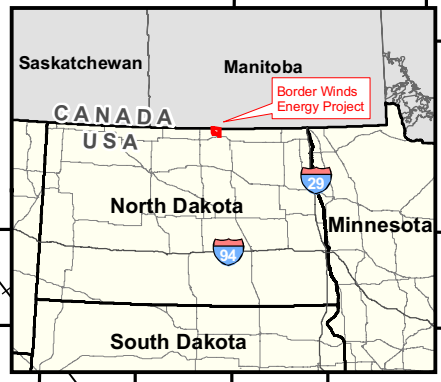


Map Document: P:\20071163\gis\psc2\20071163\wind01A\_fig10.mxd 9/24/2009 9:35:56 PM



**Legend**

- Project Boundary
- State Highway
- U.S. Highway
- County Roads
- Railroad
- 500 Annual Average Daily Traffic



Data Source: State and Province Boundaries, ESRI Data (2005-2008), Muni Boundaries, NDDOT (2008); North Dakota Geologic Survey US PLS System (1994), Roads, NDDOT (2008); County Boundaries, North Dakota State Water Commission (2002); Westwood (2009); Traffic Counts for North Dakota, NDDOT (2006-2008).

# Border Winds Energy Project

Rolette County, North Dakota

Average Daily Traffic

EXHIBIT 11



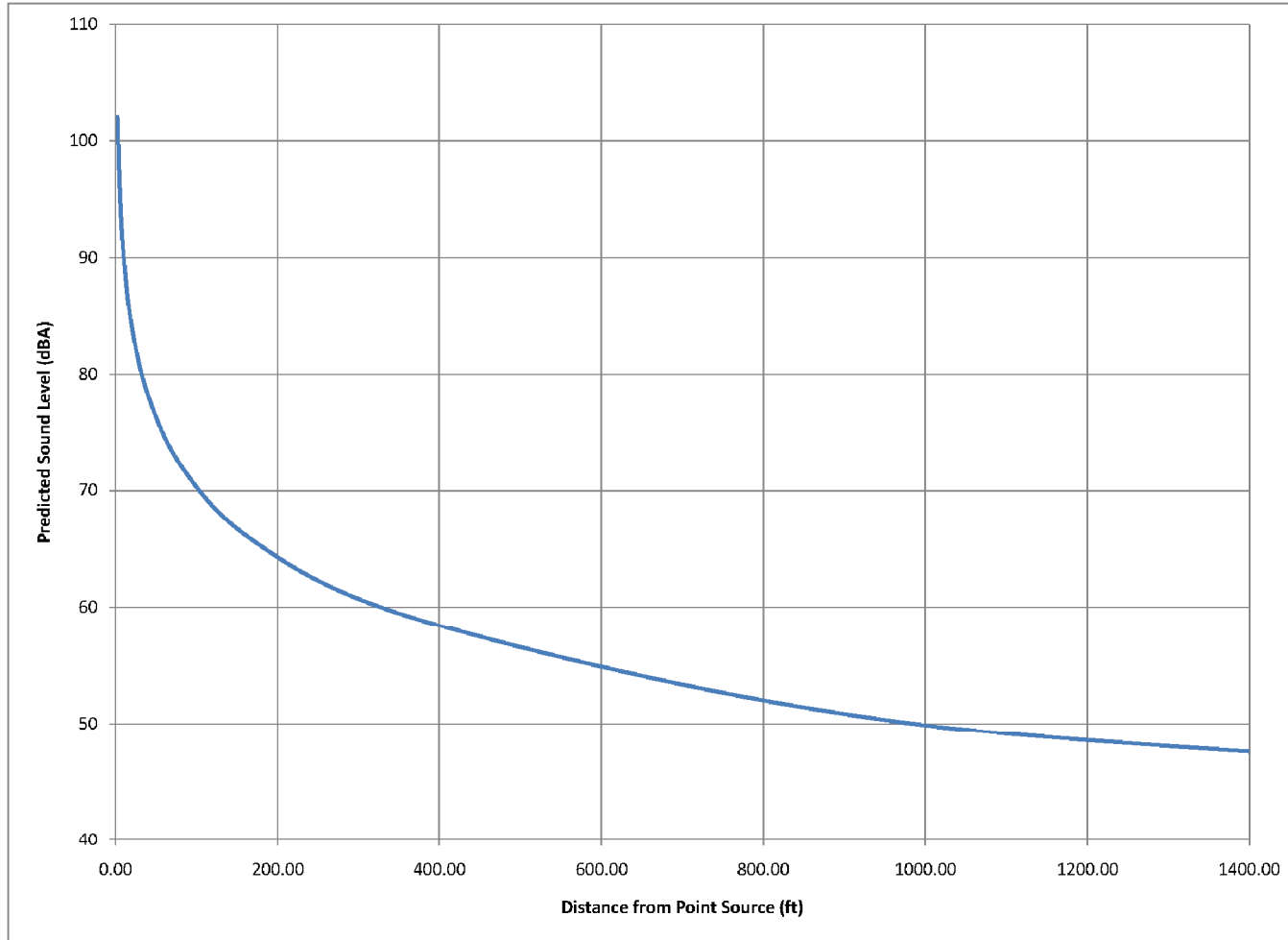
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Map Document: (P:\2007\163\gis\ps2\2007163misc01A\_fig11.mxd) 8/24/2008 - 11:12:40 PM



Data Source(s): Westwood (2008).



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# Border Winds Energy Project

Rolette County, North Dakota

## Sound Attenuation

EXHIBIT 12



Data Source(s): Westwood (2008).



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## Border Winds Energy Project

Rolette County, North Dakota

Photo of Typical Area

EXHIBIT 13



Data Source(s): Westwood (2008).



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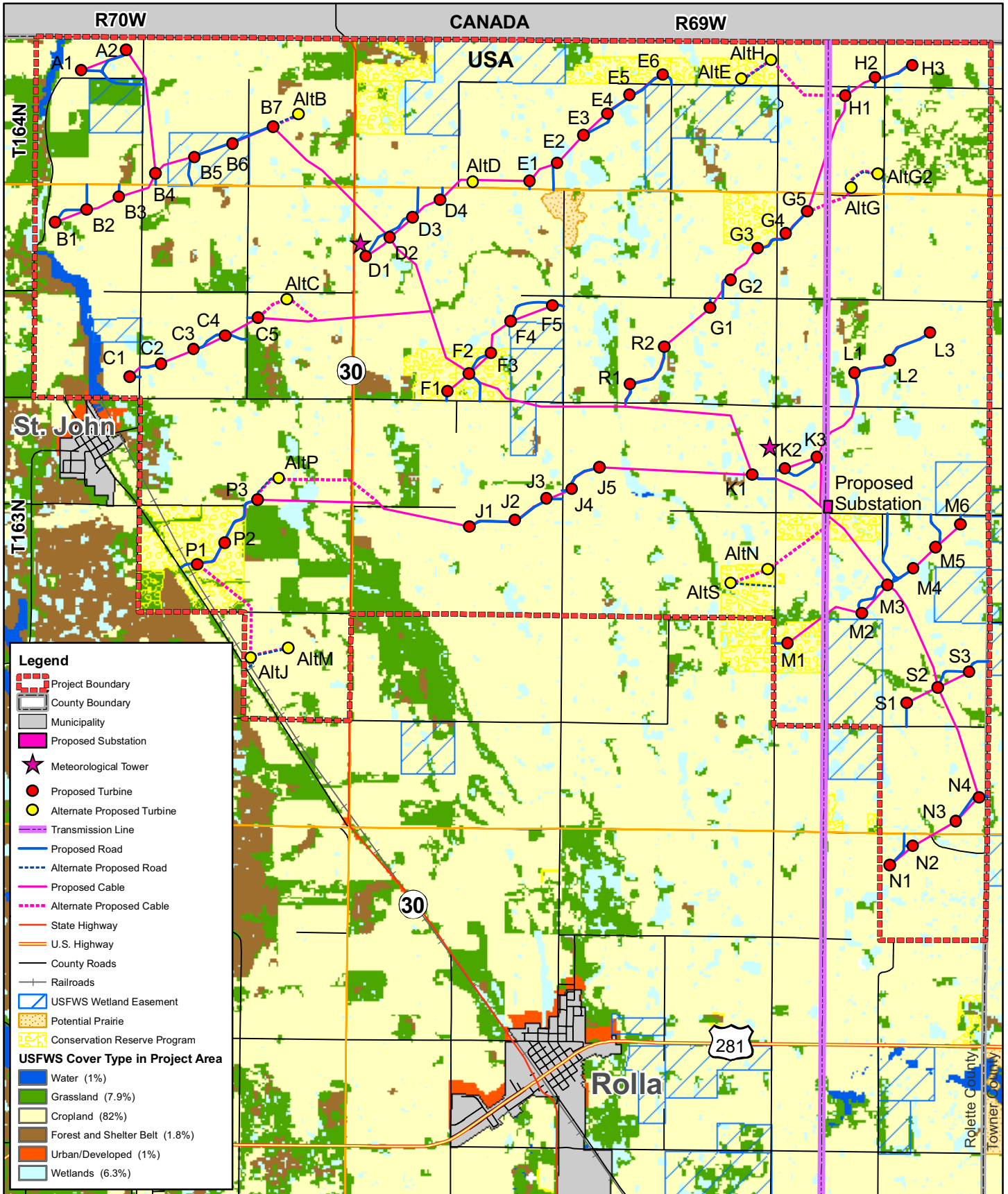
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# Border Winds Energy Project

Rolette County, North Dakota

Photo Simulation

EXHIBIT 14



**Legend**

- Project Boundary
- County Boundary
- Municipality
- Proposed Substation
- Meteorological Tower
- Proposed Turbine
- Alternate Proposed Turbine
- Transmission Line
- Proposed Road
- Alternate Proposed Road
- Proposed Cable
- Alternate Proposed Cable
- State Highway
- U.S. Highway
- County Roads
- Railroads
- USFWS Wetland Easement
- Potential Prairie
- Conservation Reserve Program

**USFWS Cover Type in Project Area**

- Water (1%)
- Grassland (7.9%)
- Cropland (82%)
- Forest and Shelter Belt (1.8%)
- Urban/Developed (1%)
- Wetlands (6.3%)

Data Source(s): U.S. Department of Agriculture, Farm Service Agency (2008); State and Province Boundaries, ESRI Data (2005-2008); Muni Boundaries, NDDOT (2008); North Dakota Geologic Survey US PLS System (1994); Roads, NDDOT (2008); County Boundaries, North Dakota State Water Commission (2002); US Fish and Wildlife Service (2007); Westwood (2009).

# Border Winds Energy Project

Rolette County, North Dakota

USFWS Land Cover, Wetland Easements, and Prairies

EXHIBIT 15

\*NOTE: Turbine locations and access roads are preliminary and subject to change.

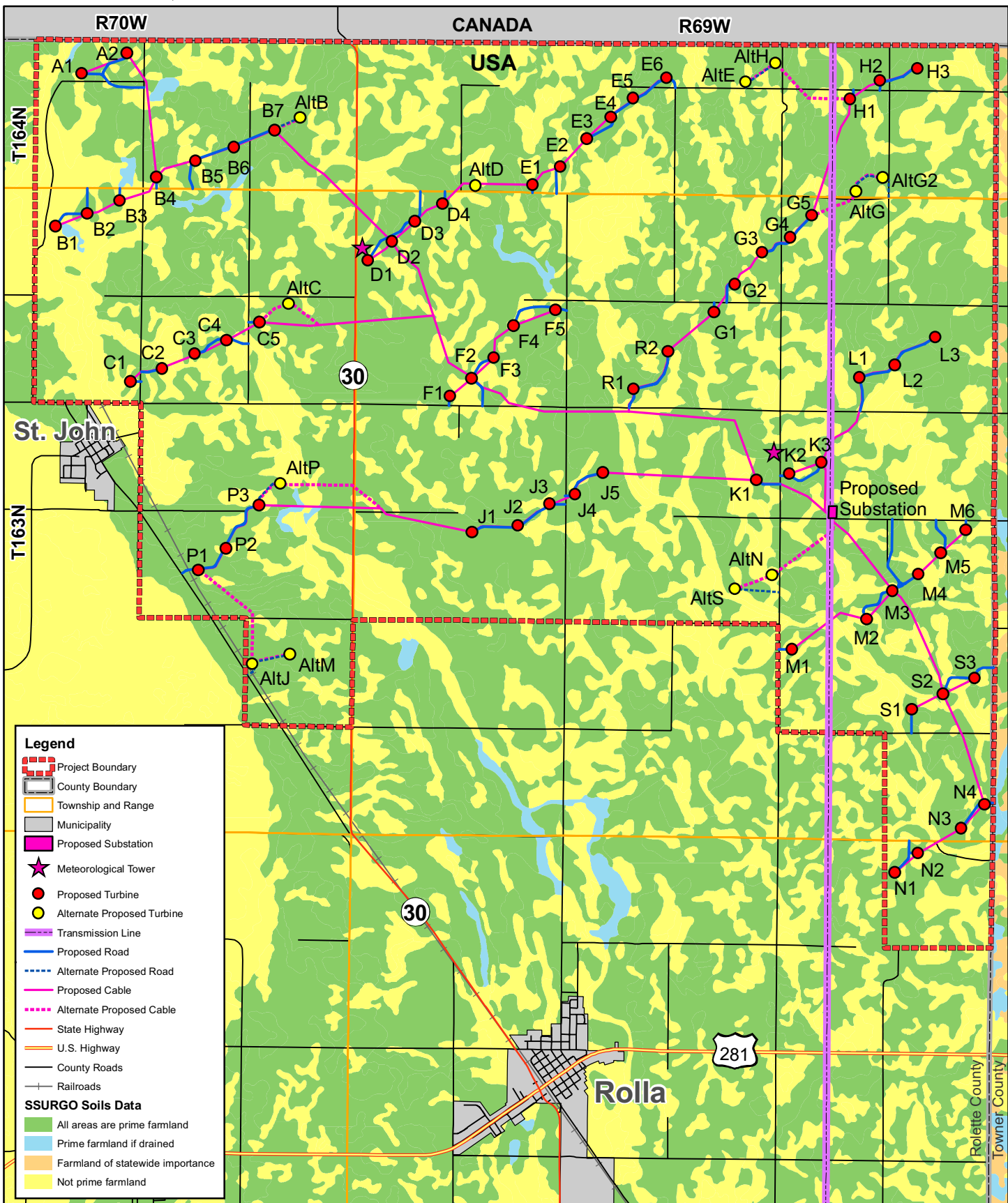


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FAX 952-937-5822  
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Data Source(s): U.S. Department of Agriculture, Natural Resource Conservation Science (1997), State and Province Boundaries, ESRI Data (2005-2008), Muni Boundaries, NDDOT (2008); North Dakota Geologic Survey US PLS System (1994), Roads, NDDOT (2008); County Boundaries, North Dakota State Water Commission (2002); Westwood (2009).

# Border Winds Energy Project

Rolette County, North Dakota

## Prime Farmland Soil Distribution

EXHIBIT 16



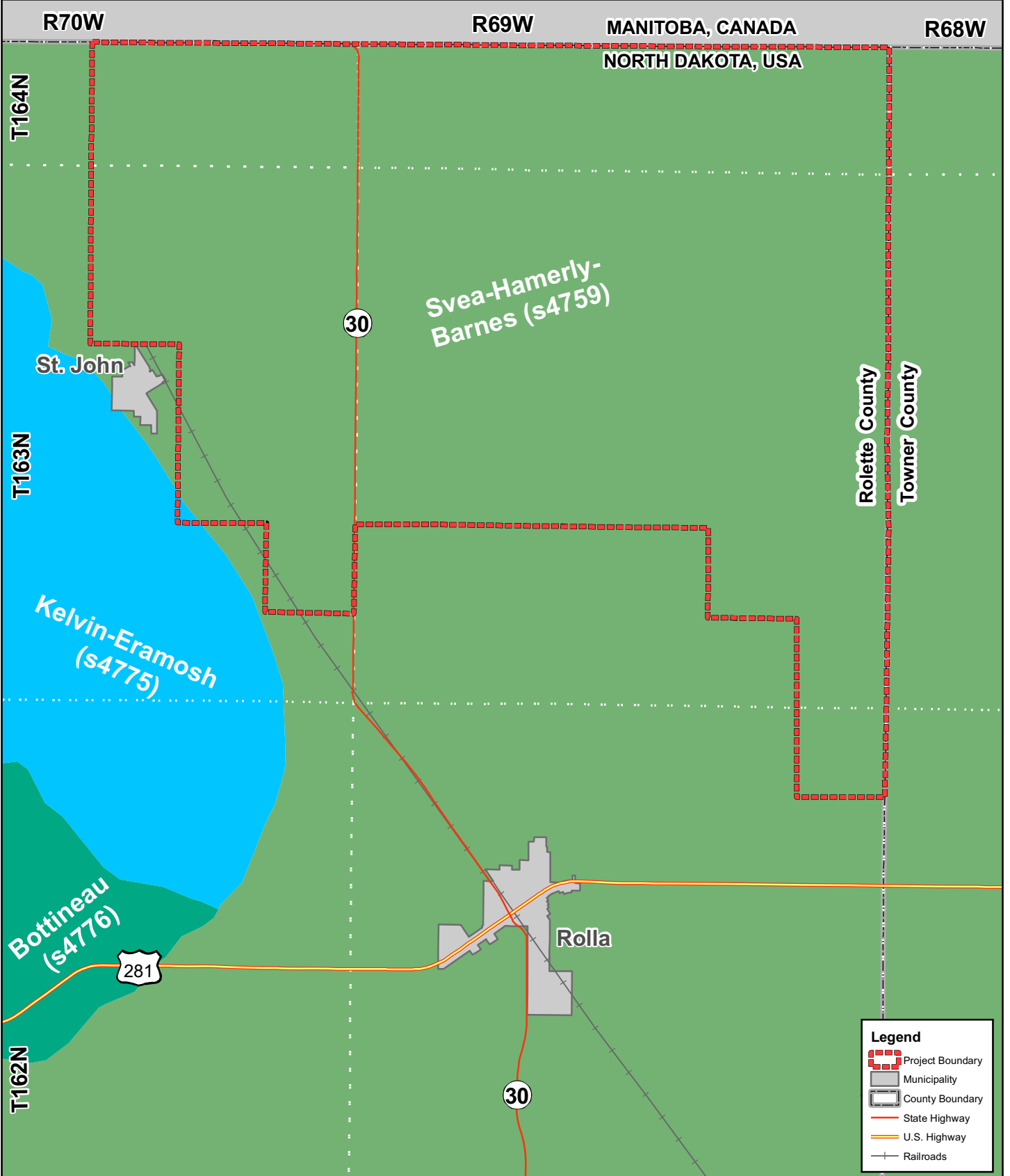
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\*NOTE: Turbine locations and access roads are preliminary and subject to change.





Data Source(s): STATSGO, NRCS (2002), State and Province Boundaries, ESRI Data (2005-2008), Muni Boundaries, NDDOT (2008); North Dakota Geologic Survey US PLS System (1994), Roads and Railroad, NDDOT (2008); County Boundaries, North Dakota State Water Commission (2002); Westwood (2009).

# Border Winds Energy Project

Rouleau County, North Dakota

State Soils Association

EXHIBIT 17

**Legend**

- Project Boundary
- Municipality
- County Boundary
- State Highway
- U.S. Highway
- Railroads

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FAX 952-937-5822  
TOLL FREE 1-888-937-5150

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Data Source(s): US Fish and Wildlife Service (2007), ESRI Data (2005-2008), Muni Boundaries, NDDOT (2008), North Dakota Geologic Survey US PLS System (1994), Roads, NDDOT (2008); County Boundaries, North Dakota State Water Commission (2002); Westwood (2009).

\*NOTE: Turbine locations and access roads are preliminary and subject to change.

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# Border Winds Energy Project

Rolette County, North Dakota

National Wetlands Inventory and Surface Waters

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