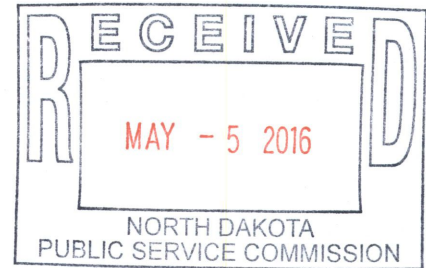


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May 5, 2016

Mr. Darrell Nitschke  
Executive Director  
North Dakota Public Service Commission  
600 E. Boulevard, Dept. 408  
Bismarck, ND 58505-0480



Dear Mr. Nitschke:

In re: Brady Wind II, LLC  
Application for Certificate of Site Compatibility  
PSC Case No. PU-16-042  
Our File No. 35-218-027

Enclosed please find for filing 11 copies of the following documents in the above case:

- (1) Class III Historic Resources Survey - Architectural Management Summary;
- (2) Class III Cultural Resource Inventory – Archaeology Management Summary; and
- (3) Spring 2016 Avian Memo.

Please call should you have any questions.

Very truly yours,

Brian R. Bjella

bw  
enc.  
Zack Pelham  
Jerry Lein  
Julie Prescott

**Brady II Wind Energy Center:  
Class III Historic Architectural Resources Survey –  
Management Summary  
Hettinger, Slope, and Stark Counties,  
North Dakota**

*Prepared for*



**May 2016**

*Prepared by*



**1000 The American Road  
Morris Plains, NJ 07950**

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## MANAGEMENT SUMMARY

Brady Wind II, LLC (Brady Wind II), a wholly-owned, indirect subsidiary of NextEra Energy Resources, LLC (NEER), is proposing to construct the Brady II Wind Energy Center (the Project). All Project facilities except some collection lines are proposed to be located exclusively in Hettinger County, North Dakota. Some of the collection lines will also be located in southern Stark County (Figure 1). The proposed Project will have a nameplate capacity of approximately 150 megawatts (MW), consisting of up to 72 wind turbines using both General Electric (GE) 2.1 MW and GE 1.79 MW Xle wind turbine generators. Additional facilities include access roads, electrical collection systems and cabling, and meteorological towers (four temporary and one permanent).

The Project will require a Certificate of Site Compatibility from the North Dakota Public Service Commission (Case No.: PU-16-042); therefore, the Project is subject to review by the State Historical Society of North Dakota (SHSND) under North Dakota Century Code (NDCC) **49-22 – North Dakota Energy Conversion and Transmission Facility Siting Act**. The purpose of this investigation is to provide the necessary information for the SHSND review by documenting above ground historic buildings and structures within the Survey Area defined for this Project.

Based on consultation with SHSND, the Survey Area was defined as all areas within 2 miles of the nearest turbine, based on the turbine layout dated March 17, 2016.<sup>1</sup> All accessible public rights-of-way within this area were traveled during the survey described in this report. Where Tetra Tech received permission, private property was entered so that buildings could be more closely examined and documented.

Tetra Tech's literature review identified 13 Cultural Resource projects that had previously been undertaken within the Survey Area. In addition, 13 previously documented properties were also located in the Survey Area (along with one property which ultimately fell outside the Survey Area after it was redefined based on the March 17, 2016 turbine layout).

During the field survey, Tetra Tech investigated 51 properties. These properties included a mix of modern farmsteads, historic but still active farmsteads, abandoned farmsteads, isolated houses, isolated farm buildings, and a single bridge. During the field work, 24 of these properties were eliminated from consideration because they were less than fifty years old or lacked historical or architectural integrity or significance.

The remaining 27 properties were documented with North Dakota Cultural Resources Survey Architectural Site Forms. New Site forms were created for the 14 newly-identified properties. Updated site forms were created for four sites that had been initially documented in the past. Nine

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<sup>1</sup> Tetra Tech used a conservative approach in the definition of the Survey Area, investigating a larger layout than is currently being proposed. Since the March 17 layout a new layout has been proposed which drops two turbines from the array. Two alternative locations, which were used in the creation of the Survey Area, have also been activated since March 17.

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sites had been documented by Tetra Tech within the past year. The SHSND stated that updated forms were not required for these sites as the properties had been recently documented.

The fourteen properties documented on site forms were next evaluated for eligibility to the National Register of Historic Places (NRHP). Based on the National Park Service's four Criteria for Evaluation and the seven aspects of integrity, Tetra Tech recommends seven of the documented properties as potentially eligible to the NRHP based on their historical significance and/or their architectural integrity. Four of these properties had been previously recommended as potentially eligible to the NRHP. All of these properties are farmsteads or individual farm buildings related to the Eastern European immigrants who helped to settle the area in the late nineteenth and early twentieth centuries.

Tetra Tech assessed the effect of the Project on the seven sites recommended as potentially eligible to the NRHP. As the Project has been designed to avoid all direct effects on the properties, only indirect visual effects were considered. Based on guidance from SHSND, Tetra Tech focused on the views of both the Project and the property from each site's main access point (Quinnell 2015). Two ethnic farmstead-related properties, 32SK157 and 32SK1179, are situated relative to the Project in such a way that a view of both the property and the Project will not be likely from the main access point. Tetra Tech recommends that per NDCC 49-22, the Project will not affect these Properties. The other five properties (all ethnic farmstead-related) – Sites 32SK1174, 32HT204, 32HT211, 32HT220, and 32HT221 – are situated relative to the Project in such a way that a view of both the property and the Project will likely be possible from the main access point to the property. Tetra Tech recommends the Project may result in an indirect visual Adverse Effect to these properties.



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TO: NextEra Energy Resources, LLC

FROM: Tetra Tech, Inc

DATE: 5/05/2016

SUBJECT: Brady II Wind Energy Center –Spring (March 19-April 6) 2016 Avian Memo

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## **Introduction**

Tetra Tech, Inc. was contracted by Brady Wind II, LLC, a wholly-owned, indirect subsidiary of NextEra Energy Resources, LLC (NextEra), to undertake spring point-count surveys for the proposed Brady II Wind Energy Center (Project) located in Hettinger and Stark counties, North Dakota. The studies were conducted to identify potential avian impacts associated with constructing and operating a wind energy facility. Birds have been identified as a group potentially at risk because of collisions with wind turbines and power lines, and displacement due to the presence of the associated structures. The spring point-count surveys are ongoing and scheduled to continue through early June 2016.

## **Data Collection**

The protocol for data collection at the Project was designed to be responsive to the level of effort recommended in the National Wind Coordinating Committee's Comprehensive Guide to Studying Wind Energy/Wildlife Interactions (Strickland et al. 2011) and the voluntary U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines (U.S. Fish and Wildlife Service [USFWS] 2012).

Weekly surveys were performed at the Project from March 19 through April 6, 2016, a date range that includes the initiation of spring migration season. Point-count surveys (Fixed 800-meter [m] radius) were conducted at 14 points distributed throughout the Study Area (Figure 1). . The proposed turbine locations have recently been modified (dated April 22, 2016) and as a result, Survey Point 11 is no longer located in the current proposed Study Area (Figure 1). However, based on the habitat at the point and its proximity to the most up-to-date Study Area, Tetra Tech considers avian data collected at this point relevant to the dataset and has included in it this analysis.

An experienced field biologist (biologist) conducted 20-minute (min) point-count surveys collecting data on all birds detected within the point-count radius to evaluate avian use, behavior, and species richness. The point-count locations at Brady II were surveyed four times to capture the initiation of spring migration. Tetra Tech distributed the survey locations along publicly accessible roads and chose locations that maximized the 360-degree sight distance for the observer.

The survey protocol used in these studies is designed to collect data on all bird species and to provide results that are comparable with other studies at wind farms, rather than to target specific taxa. The benefit of using this protocol is that it estimates avian use throughout the day and captures activity by a variety of bird species. During the spring migration, songbirds are most active in the morning

and can be difficult to detect during the afternoon. In contrast, raptors become active as the sunlight heats the air and creates thermals, which individual raptors use for soaring. Thus, raptors are more readily detected several hours after sunrise. Therefore, this protocol is appropriate for characterizing the entire bird community. It should be noted, however, that this survey protocol can only detect nocturnal migrants should they be local breeders or if they utilize the Project as stopover habitat. Tetra Tech chose 20-min survey periods because they provide adequate time to detect both raptors and non-raptors. However, time periods of 20 minutes may lead to double-counting of songbirds (i.e., counting the same individual more than once) because individuals may appear and disappear from view. Double-counting of birds is not problematic for this type of survey because the objective is to document use in terms of number of birds noted per 20-min survey, not number of distinct individual birds.

Detectability varies among species and potentially not all individuals within the 800-m radius were counted. This variation in detectability could result in an overestimate of mean use for conspicuous species and an underestimate of mean use for reclusive species. Birds not easily identifiable, such as those seen under low light conditions or small birds seen at a distance were identified to the lowest taxonomic level possible. Hence, unidentified birds are included in the results.

## Results and Evaluation

A total of 860 birds from 19 species were observed during the spring avian point-counts (Table 1). Overall mean bird use within the Study Area was 15.36 birds/20 minute (min) and ranged from 0 to 63 birds per 20-min point-count survey. Non-raptor taxonomic groups with the highest mean use included songbirds and gamebirds (10.29 and 3.95 birds/20 min, respectively). The species with the highest mean use were the ring-necked pheasant (3.66 birds/20 min), horned lark (3.32 birds/20 min), red-winged blackbird (2.93 birds/20 min), and western meadowlark (1.05 birds/20 min). Other species had a mean use of less than 1.00 birds/20 min. Overall, ring-necked pheasant, a gamebird species, accounted for 23.8 percent of all birds observed and was observed in 44.6 percent of all surveys. The horned lark, the songbird species with the highest mean use, accounted for 21.6 percent of all birds observed and was observed in 39.3 percent of all surveys. Red-winged blackbird accounted for 19.1 percent of all birds observed and was observed in 16.1 percent of all surveys. Although each other species accounted for less than 7.0 percent of all birds observed, the western meadowlark was the most frequently observed species overall, with observations occurring in 55.4 percent of all surveys (Table 1).

Based on publically-available mortality data from regional windfarms, there is potential for turbine-related fatalities for ring-necked pheasant, horned lark, red-winged blackbird and western meadowlark in the Study Area. Ring-necked pheasants, however, are an introduced species and managed game bird, and are not protected under the Migratory Bird Treaty Act (MBTA). Additionally, potential fatalities of horned lark, red-winged blackbird and western meadowlark are not expected to have population-level impacts as a result of red-winged blackbirds and western meadowlarks having large populations in North Dakota (8.2 and 5.6 million respectively; PIFSC 2013) that are increasing (Sauer et al. 2014). Horned lark is experiencing some population decline in the badland and prairie region in which the Project area falls (Sauer et al. 2014), however the horned lark

population in North Dakota is also large (4.3 million; FIFSC 2013) and turbine-related mortality would likely be compensatory within the regional population.

High raptor use (greater than 2.0 birds/20 min) has been associated with high raptor mortality at wind facilities. Conversely, raptor mortality appears to be low when raptor use is low (less than 1.0 birds/20 min), which was the case within the Study Area (0.23 birds/20 min; Table 1) during the spring point-count surveys. Four raptor species, the northern harrier, American kestrel, red-tailed hawk and golden eagle were observed during the spring point-count surveys. Records of turbine-related fatalities exist for northern harrier, American kestrel and red-tailed hawk, however, based on the low rates of use in this study, fatalities of these species at the Project are expected to be uncommon. Furthermore, any fatalities at the Project are not expected to have population-level impacts for each of these species because North Dakota northern harrier, American kestrel and red-tailed hawk populations are robust and relatively stable (PIFSC 2013, Sauer et al. 2012).

One golden eagle was observed at Point 9 (Figure 1, Table 1) on a nest located in a wind break within the 800-m point-count circle at an estimated height of 6 m. This nest has been identified as golden eagle nest 2015\_39 which was determined to be occupied during the March 2016 aerial raptor nest surveys (Tetra Tech 2016a). No federally listed threatened or endangered species were detected during the spring 2016 point-count surveys. Sharp-tailed grouse and northern harriers are identified as Species of Conservation Priority in North Dakota's State Wildlife Action Plan (Wildlife Action Plan). Species covered by the Wildlife Action Plan are categorized into three levels according to their conservation need. Sharp-tailed grouse and northern harriers are considered Level II Species, which are those species having a moderate level of conservation priority or a high level of conservation priority but a substantial level of non-state wildlife grant funding is available to them. Sharp-tailed grouse have experienced population declines linked to landscape level land use changes, primarily due to habitat loss through the conversion of grasslands to cropland. State and federal wildlife agencies have regularly expressed concern about the locations of wind turbines with respect to prairie grouse leks (communal male displaying grounds). Two rounds of lek surveys were conducted in spring 2016 to identify all sharp-tailed grouse leks within the Study Area and 1-mile buffer (Tetra Tech 2016b). The northern harrier is fairly common in North Dakota. The northern harrier was designated as Species of Conservation Priority because up to ten percent of the harriers' population breeds in North Dakota. Grassland and wetland destruction and/or degradation are the primary factors limiting nesting habitat and food resources.

## Conclusions

The avian community detected within the Study Area during spring avian surveys was characterized by species typical of agricultural lands and remnant grasslands in North Dakota. Within disturbed habitats such as these, the greatest potential impact of wind facilities to avian species is risk of collisions with turbines rather than disturbance or displacement. Songbirds were identified as having potential risk of collision due to species within this group having relatively high mean use. The mean-use rate at the Project is primarily driven by observations of flocks and individuals of a common, resident species including the ring-necked pheasant, an introduced species not afforded protection under the MBTA.

An incubating golden eagle was observed during avian point-count surveys within the Study Area. The presence of a nesting eagle has implications for Project-related risk to golden eagles, both in terms of potential for collision and disturbance impacts. As such, NextEra is committed to ongoing and continued coordination with the USFWS and relevant state agencies.

Publically available regional fatality rates range from 0.38 and 11.83 birds/turbine/year (0.42 – 7.17 birds/MW/year). Annual avian fatality rates at the Project, should fatalities occur, are expected to fall within this range.

## Literature Cited

Partners in Flight Science Committee (PIFSC) 2013. Population Estimates Database, version 2013. Available at <http://rmbo.org/pifpopestimates>. Accessed on April 2016.

Sauer, J.R., J.E. Hines, J.E. Fallon, K.L. Pardieck, D.J. Ziolkowski, Jr., and W.A. Link. 2014. The North American Breeding Bird Survey, Results and Analysis 1966 - 2012. Version -02.19.2014. USGS Patuxent Wildlife Research Center, Laurel, MD.

Strickland, M.D., E.B. Arnett, W.P. Erickson, D.H. Johnson, G.D. Johnson, M.L. Morrison, J.A. Shaffer, and W. Warren-Hicks. 2011. Comprehensive Guide to Studying Wind Energy/Wildlife Interactions. Prepared for the National Wind Coordinating Collaborative, Washington, D.C. [http://www.nationalwind.org/assets/publications/Comprehensive Guide to Studying Wind Energy Wildlife Interactions 2011 Updated.pdf](http://www.nationalwind.org/assets/publications/Comprehensive_Guide_to_Studying_Wind_Energy_Wildlife_Interactions_2011_Updated.pdf). Accessed July 2015..

Tetra Tech. 2016a. Brady II Wind Energy Center Raptor Nest Survey Report.

Tetra Tech. 2016b. Brady II Wind Energy Center Grouse Lek Survey Report.

USFWS. 2012. U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines. Available from: [http://www.fws.gov/windenergy/docs/WEG\\_final.pdf](http://www.fws.gov/windenergy/docs/WEG_final.pdf).

USFWS. 2013. Eagle conservation plan guidance. Module 1 – land-based wind energy, version 2. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Washington D.C., USA.

## Figures and Tables

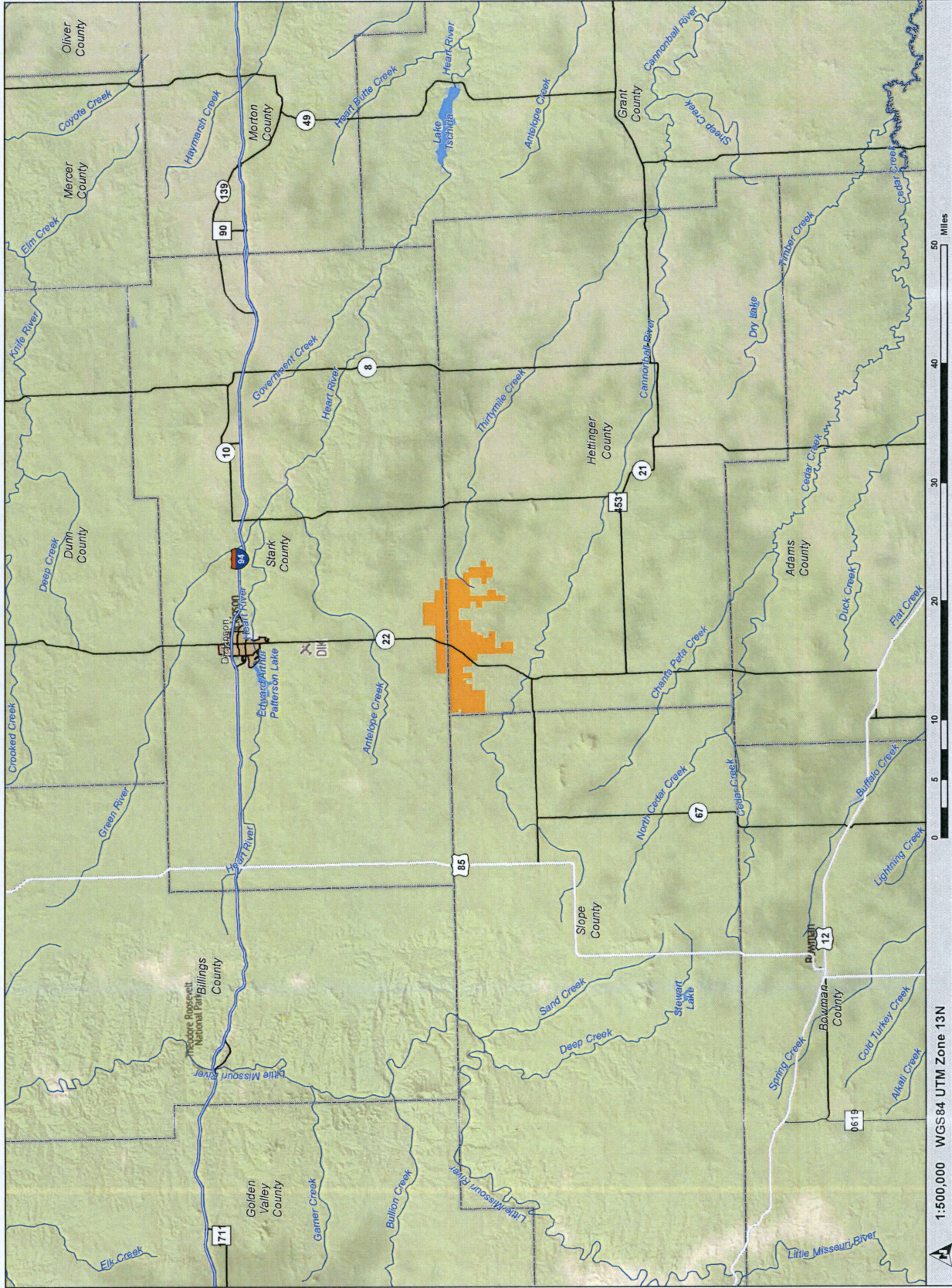
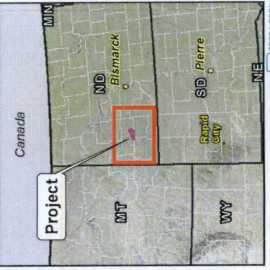
Figure 1

Vicinity Map



Brady II Wind Energy Center  
Stark and Hettinger counties, ND

- State Boundary
- County Boundary
- Urban area
- Interstate Highway
- Secondary Highway
- Secondary Road
- Study Area (2-23-16)
- River/Stream
- Lake/Pond



1:500,000 WGS84 UTM Zone 13N

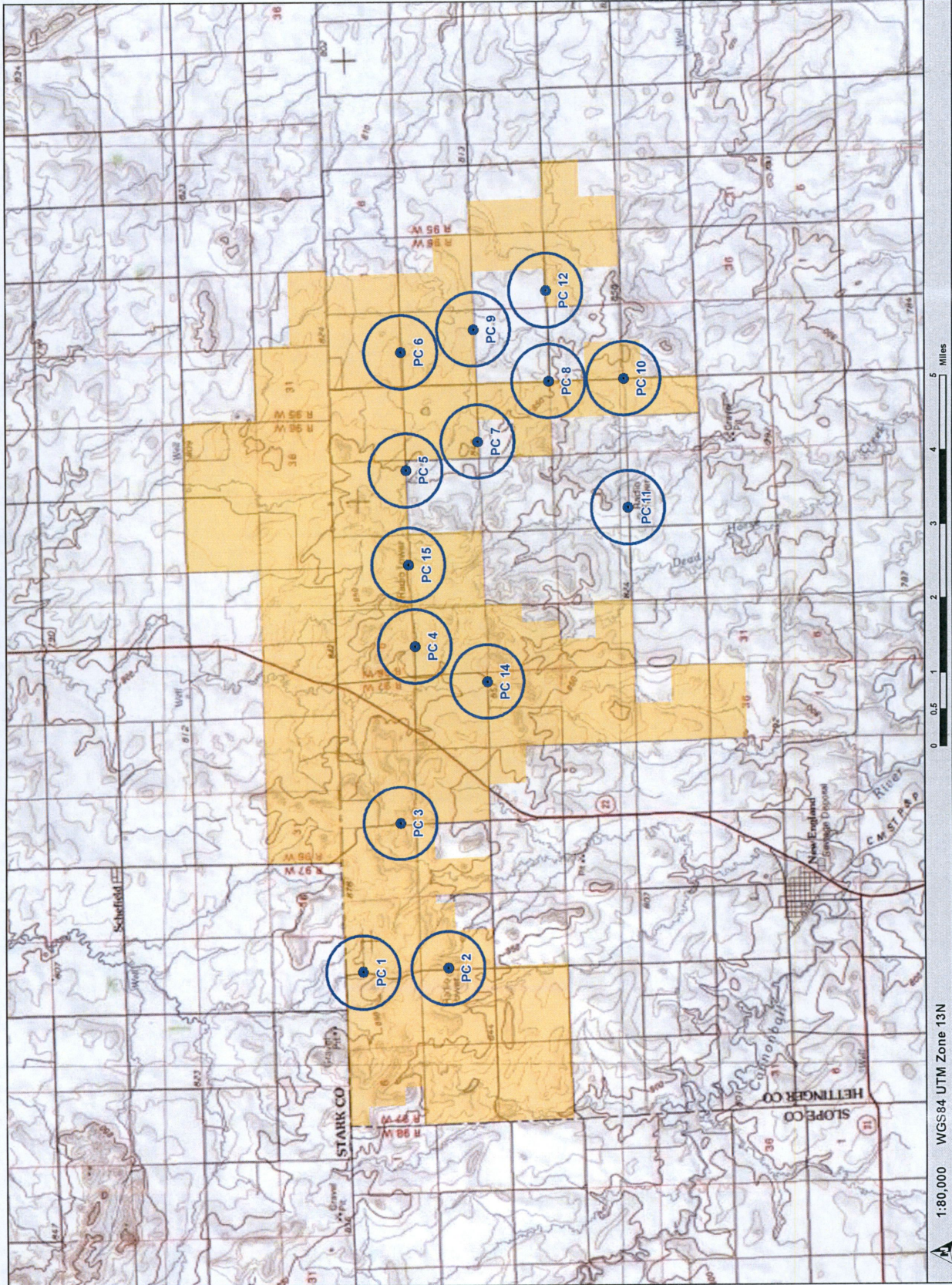
Figure 2

Point-count Location Map  
(Spring 2016)



Brady II Wind Energy Center  
Hettinger and Stark Counties, ND

- Avian Survey Point
- Avian Survey Point  
800-meter Radius
- Study Area (2-23-16)



1:80,000 WGS84 UTM Zone 13N

0 0.5 1 2 3 4 5 Miles

Table 1. Avian species, by species grouping, observed during the March 19 through April 6, 2016 point-count surveys at the Brady II Wind Farm.

Species Grouping	Overall Rank <sup>1</sup>	Number of Birds	Number of Observations	Mean Use # birds per 20 min. (90% confidence interval)	Frequency % of surveys detected	Percent Composition	
						Group	Overall
<b>Songbirds</b>							
horned lark	2	186	24	3.32 (2.45-4.19)	39.3	32.3%	21.6%
red-winged blackbird	3	164	10	2.93 (1.47-4.39)	16.1	28.5%	19.1%
western meadowlark	4	59	42	1.05 (1.05-1.05)	55.4	10.2%	6.9%
American crow	5	53	8	0.95 (0.70-1.20)	14.3	9.2%	6.2%
American robin	6	46	4	0.82 (0.82-0.82)	7.1	8.0%	5.3%
European starling	8	29	4	0.52 (0.26-0.78)	7.1	5.0%	3.4%
snow bunting	9	18	1	0.32 (0.00-0.85)	1.8	3.1%	2.1%
common grackle	11	12	1	0.21 (0.21-0.21)	1.8	2.1%	1.4%
American tree sparrow	13	9	2	0.16 (0.16-0.16)	1.8	1.6%	1.0%
<b>Group Total</b>		<b>576</b>	<b>96</b>	<b>10.29 (8.54-12.04)</b>	<b>17.9</b>		<b>67.0%</b>
<b>Gamebirds</b>							
ring-necked pheasant	1	205	26	3.66 (1.89-5.43)	44.6	92.8%	23.8%
sharp-tailed grouse	10	16	2	0.29 (0.00-0.67)	3.6	7.2%	1.9%
<b>Group Total</b>		<b>221</b>	<b>28</b>	<b>3.95 (2.15-5.75)</b>	<b>12.5</b>		<b>25.7%</b>
<b>Waterfowl</b>							
Canada goose	7	35	6	0.63 (0.63-0.63)	10.7	100.0%	4.1%
<b>Group Total</b>		<b>35</b>	<b>6</b>	<b>0.63 (0.63-0.63)</b>	<b>0.0</b>		<b>4.1%</b>
<b>Raptors</b>							
northern harrier	14	5	5	0.09 (0.09-0.09)	8.9	38.5%	0.6%
American kestrel	14	5	5	0.09 (0.06-0.12)	8.9	38.5%	0.6%
red-tailed hawk	17	2	2	0.04 (0.01-0.07)	3.6	15.4%	0.2%
golden eagle	18	1	1	0.02 (0.02-0.02)	1.8	7.7%	0.1%
<b>Group Total</b>		<b>13</b>	<b>13</b>	<b>0.23 (0.19-0.27)</b>	<b>3.6</b>		<b>1.5%</b>
<b>Pigeons/Doves</b>							
rock pigeon	12	10	2	0.18 (0.18-0.18)	1.8	100.0%	1.2%
<b>Group Total</b>		<b>10</b>	<b>2</b>	<b>0.18 (0.18-0.18)</b>	<b>0.0</b>		<b>1.2%</b>
<b>Gulls/Terns</b>							
ring-billed gull	16	4	1	0.07 (0.07-0.07)	1.8	100.0%	0.5%
<b>Group Total</b>		<b>4</b>	<b>1</b>	<b>0.07 (0.07-0.07)</b>	<b>0.0</b>		<b>0.5%</b>

**Table 1.** Avian species, by species grouping, observed during Spring 2016 point-count surveys at the BRADY II Wind Farm.

Species Grouping	Overall Rank <sup>1</sup>	Number of Birds	Number of Observations	Mean Use # birds per 20 min. (90% confidence interval)	Frequency % of surveys detected	Percent Composition	
						Group	Overall
<b>Waterbirds</b>							
killdeer	18	1	1	0.02 (0.02-0.02)	1.8	100.0%	0.1%
<b>Group Total</b>		<b>1</b>	<b>1</b>	<b>0.02 (0.02-0.02)</b>	<b>0.0</b>		<b>0.1%</b>
<b>Grand Total</b>		<b>860</b>	<b>147</b>	<b>15.36 (12.47-18.24)</b>			

<sup>1</sup> A ranking of 1 indicates highest mean use