

Brady II Wind Energy Center Wildlife Conservation Strategy

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ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
APLIC	Avian Power Line Interaction Committee
BBS	Breeding Bird Survey
BCC	Birds of Conservation Concern
BCR 17	Badlands and Prairies Bird Conservation Region
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
Brady II Wind	Brady II Wind Energy, LLC
CBC	Christmas Bird Count
CFR	Code of Federal Regulations
ECP Guidance	<i>Eagle Conservation Plan Guidance, Module 1-Land-based Wind Energy: Version 2</i>
ESA	Endangered Species Act
Flight Path Based Buffer	The revised 1 mile by 1.4 mile eagle nest buffer suggested by USFWS
FSA	Farm Service Agency
GIS	Geographic Information System
Initial Buffer	The 0.5-mile radius eagle nest buffer recommended by NDGF
MBTA	Migratory Bird Treaty Act
MW	megawatts
NDGF	North Dakota Game and Fish Department
NDME	Medora Christmas Bird Count
NDPRD	North Dakota Parks and Recreation Department
NLCD	National Land Cover Database
NLEB	northern long-eared bat
NRCS	Natural Resources Conservation Service
NWR	National Wildlife Refuge
O&M	Operations and Maintenance
Project	Brady II Wind Energy Center
PSC	Public Service Commission
RSA	rotor-swept area
Tetra Tech	Tetra Tech, Inc.
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WCS	Wildlife Conservation Strategy
WEG	USFWS Land-based Wind Energy Guidelines
WNS	White-Nose Syndrome
WPA	Waterfowl Production Area
WRRS	Wildlife Response and Reporting System

Table of Contents

Acronyms and Abbreviations.....	i
1.0 Introduction	5
1.1 Statement of Purpose	5
1.2 Corporate Policy	5
1.3 Agency Coordination History.....	6
2.0 Regulatory Framework	6
2.1 Migratory Bird Treaty Act	6
2.2 Bald and Golden Eagle Protection Act	7
2.3 Endangered Species Act.....	8
2.4 Non-regulatory Framework	8
2.5 State Protection	8
3.0 Project Description	9
3.1 Project Components	9
3.2 Site Description.....	9
3.2.1 Tier 1 Evaluation Area	9
3.2.2 Tier 2 Project Area.....	10
3.2.3 Baseline Habitat Management	11
4.0 Project History of Bird and Bat Presence and Risk Assessments	12
4.1 Tier 1: Preliminary Site Evaluation	12
4.1.1 Decision to Abandon or Move Foreword	12
4.2 Tier 2: Site Characterization.....	15
4.3 Abandon Site or Advance to Field Surveys to Support a Bird and Bat Conservation Strategy?.....	15
5.0 TIER 3: FIELD STUDIES.....	18
5.1 Habitat Assessment	18
5.1.1 Methods.....	18
5.2 Bird Status Assessment.....	20
5.2.1 Survey Methods.....	20
5.2.2 Bird Presence and Use Patterns.....	25
5.3 Bat Status Assessment.....	35
5.3.1 Bat Habitat.....	35
5.3.2 Bat Survey Methods.....	35
5.3.3 Bat Presence and Use Patterns.....	36
5.4 Dakota Skipper Assessment	37
6.0 Potential Project Impacts.....	37
6.1 Project Risk Assessment	37
6.1.1 Avian Impacts	38
6.1.2 Bat Impacts.....	50
6.1.3 Impacts to Dakota Skipper.....	52
6.1.4 Cumulative Impacts	52
6.2 Risk Assessment Decisions	53
6.2.1 Decision Criteria to either Abandon or Advance.....	53
6.2.2 Decision of Need for Other Bird and Bat Conservation Plans.....	54
7.0 Conservation Measures to Avoid and Minimize Adverse Impacts	55
7.1 Siting and Design Measures to Avoid/Minimize Impacts	55
7.2 Construction Measures to Avoid/Minimize Impacts	55
7.3 Operational Measures to Avoid/Minimize Impacts.....	57
7.4 Measures to Offset and/or Compensate for Habitat-Related Impacts.....	58
8.0 Tier 4: Post-construction Studies to Estimate Impacts	59

8.1 Carcass Surveys.....59
 8.1.1 Project Permits Addressing Birds and Bats.....60
 8.2 Other Surveys.....60
 8.2.1 Wildlife Response and Reporting System60
 9.0 Tier 5: Other Post-construction Studies and Adaptive Management60
 10.0 Reporting Formats and Schedule61
 10.1 Pre-construction Survey Data61
 10.2 Post-construction Mortality Reporting.....61
 10.3 Personnel Training.....61
 11.0 Decommissioning61
 12.0 Literature Cited.....64
 13.0 Tables76
 14.0 Figures110

List of Tables

Table 1. Chronology of Resource Agency Contact for the Project.....78
 Table 2. Land Cover Types at the Project (NLCD)85
 Table 3. Species and Average Counts for the Medora Christmas Bird Count from 2005
 to 201487
 Table 4. Species Encountered and Their Abundance on the Dickinson Breeding Bird
 Survey Route90
 Table 5. USFWS BCC for BCR 1794
 Table 6. Summary of Survey Efforts To-Date at the Project96
 Table 7. Dakota Skipper Habitat within the Project Area98
 Table 8. Eagle Mean Inter-nest Distances at the Project.....100
 Table 9. Federally or State-Protected and BCC Species Observed during Avian Surveys
 at the Project.102
 Table 10. Estimated Mean Bird Fatalities for all Birds per Turbine and per Megawatt at
 Wind Facilities in the Midwest with similar habitat to the Project105
 Table 11. Estimated Mean Bat Fatalities per Turbine and per Megawatt at Wind Facilities
 in the Midwest.....107

List of Figures

Figure 1. Project Location
 Figure 2. Project Layout
 Figure 3. Tier 1 and Tier 2 Evaluation Areas
 Figure 4. Land Cover
 Figure 5. Prey Distribution
 Figure 6a. Dakota Skipper Habitat
 Figure 6b. Dakota Skipper Habitat (Project Layout)

- Figure 7. Avian Point-Count and Bat Detector Location Map
- Figure 8a. Raptor Nest Location Map (Summer/Fall 2015, Winter/Spring 2016)
- Figure 8b. Raptor Nest Locations and Project Infrastructure
- Figure 9. Sharp-Tailed Grouse Lek Locations
- Figure 10a. Golden Eagle Nest Monitoring
- Figure 10b. Nest 2015_39 Golden Eagle Flight Paths
- Figure 11. 2015/2016 Incidental Eagle Observations

List of Appendices

- Appendix A: Agency Coordination
- Appendix B: Post-Construction Fatality Monitoring Protocol
- Appendix C: Wildlife Response and Reporting System

1.0 INTRODUCTION

Brady II Wind Energy, LLC (Brady II Wind), a wholly-owned, indirect subsidiary of NextEra Energy Resources, LLC, is developing the Brady II Wind Energy Center (Project) in Hettinger and Stark Counties, North Dakota (Figure 1). Brady II Wind is committed to environmental due diligence, and contracted Tetra Tech, Inc. (Tetra Tech) to assess potential wildlife impacts resulting from Project construction and operation. Brady II Wind has voluntarily developed and implemented this Wildlife Conservation Strategy (WCS) in its continued efforts to demonstrate due diligence in avoiding and minimizing impacts to wildlife in association with the development, construction, and operation of the Project. This WCS describes Brady II Wind's strategy to address wildlife conservation in all phases of Project development.

1.1 Statement of Purpose

There are potential wildlife impacts resulting from construction and operation of a wind energy facility. This WCS outlines various processes that Brady II Wind has employed or will employ to:

- 1) Comply with all state and federal wildlife conservation and protection laws and regulations at the Project;
- 2) Ensure that impacts to wildlife resources, particularly birds and bats, are identified, quantified, and analyzed; and
- 3) Implement various avoidance and minimization measures to address unanticipated impacts that result from the operation of the Project.

Interactions of birds and bats with generating facilities (including wind turbines, and other associated structures and equipment) may be associated with injury or mortality. Additionally, construction activities may affect habitat value for some species of wildlife. Bird interactions can result in power outages, which in turn could lead to grass and forest fires, raising safety concerns. Generating facilities also have the potential to impact bats. Impacts to birds and bats may raise concerns by employees, resource agencies, and the general public. Therefore, impacts on birds, bats, and other wildlife that occur as a result of the Project are important to Brady II Wind as both a regulatory and natural resource conservation priority.

1.2 Corporate Policy

Brady II Wind is committed to siting, constructing, operating, and decommissioning the Project in an environmentally responsible and sustainable manner. This includes minimizing impacts to natural resources, such bird and bat species and the habitats they use. As part of this commitment, Brady II Wind has developed this WCS for the Project. The objective of this WCS is to ensure that:

- All Project-related actions comply with federal and state regulations pertaining to birds and bats;

- All Project-related actions comply with conditions of existing permits with respect to wildlife;
- Avoidance and minimization measures designed for Project-specific wildlife species concerns are implemented;
- Effective documentation of bird and bat injuries and fatalities will occur to provide the basis of ongoing adaptive management and development of avian protection procedures; and
- Brady II Wind staff and all relevant subcontractors will receive the appropriate training pursuant to avian and bat monitoring and reporting.

1.3 Agency Coordination History

Brady II Wind has coordinated with the North Dakota Game and Fish Department (NDGF), the North Dakota Parks and Recreation Department (NDPRD), and the North Dakota field office of the U.S. Fish and Wildlife Service (USFWS) as part of the development of the Project (Table 1).

2.0 REGULATORY FRAMEWORK

Native birds are protected under a variety of federal and state laws and regulations. With regard to the Project, these laws and regulations include the Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), and the Bald and Golden Eagle Protection Act (BGEPA).

2.1 Migratory Bird Treaty Act

The MBTA implements the United States' obligations under four treaties for the protection of migratory birds. The MBTA is administered by the USFWS, which maintains a list of all species protected by the MBTA (50 Code of Federal Regulations [CFR] 10.13). This list includes over 1,000 species of migratory birds, including eagles and other raptors, waterfowl, shorebirds, seabirds, wading birds, and passerines.

The MBTA makes it unlawful “by any means or in any manner, to pursue, hunt, take, capture, kill ... possess, offer for sale, sell ... purchase ... ship, export, import ...transport or cause to be transported... any migratory bird, any part, nest, or eggs of any such bird ...” except as otherwise permitted under the regulations. (16 United States Code [USC] 703). The USFWS has interpreted the MBTA to be a strict liability statute, meaning that proof of intent, knowledge, or negligence is not an element of an MBTA violation. Actions resulting in the “take” of a protected species, in the absence of a USFWS permit or regulatory authorization, are a violation.

The word “take” is defined by regulation as “to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect”. (50 CFR 10.12). The MBTA does not have a provision directly prohibiting incidental takes and the definition of “take” does not include the broader terms of “harass” or “harm” that have been found to prohibit incidental takes under the Endangered Species Act. Indeed, in the historic context of the MBTA, and an interpretation supported by the U.S. Court of Appeals for the 8th Circuit, the term “take”

refers to conduct directed at birds, such as hunting or poaching, and not on prohibiting lawful, commercial activity which may indirectly cause bird deaths. (See *U.S. v. Brigham Oil and Gas, L.P.*, 840 F.Supp. 2d 1202 (D. N.D. 2012)).

USFWS has established a permitting scheme for a variety of intentional activities, such as hunting and scientific research and has also worked with industries to find ways to minimize impacts to migratory birds. Since the scope of USFWS' legal authority to regulate incidental takes remains unclear, as the 8th Circuit's interpretation is not accepted by all courts, USFWS has not been deterred from attempting to regulate incidental takes under the MBTA. USFWS has historically pursued individual prosecutions for incidental takes and more recently, has proposed an incidental permitting program.

2.2 Bald and Golden Eagle Protection Act

Under authority of the BGEPA (16 USC 668–668d), bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are afforded additional legal protection. The BGEPA prohibits the take, sale, purchase, barter, offer of sale, purchase, or barter, transport, export or import, at any time or in any manner of any bald or golden eagle, alive or dead, or any part, nest, or egg thereof (16 USC 668). The BGEPA also defines take to include “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb” (16 USC 668c), and includes criminal and civil penalties for violating the statute (16 USC 668). The term “disturb” is defined as agitating or bothering an eagle to a degree that causes, or is likely to cause, injury to an eagle, or either a decrease in productivity or nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior (50 CFR 22.3).

USFWS promulgated regulations in 2009 that provided for a permitting framework for incidental take associated with otherwise lawful activities, including wind energy, under the existing BGEPA (50 CFR 22.26). Applications for incidental take permits under BGEPA are being considered by USFWS for bald eagles throughout the contiguous United States. Incidental take permits for golden eagles are available only to projects located west of the 100th meridian (USFWS 2013a). However, since 2009, only one incidental take permit for golden eagles has been granted to a wind energy project, and no permits for incidental take of bald eagles at a wind energy facility have been issued. USFWS issued an Advanced Notice of Rulemaking in April 2012, and is currently undergoing a process to revise the permit regulations in response to public comment relative to eagle population management objectives, compensatory mitigation, and programmatic permit issuance. It is unknown at this time what changes will be made or how they may affect the permitting process. The Draft Eagle Conservation Plan Guidance, that outlines the recommended steps for permit applicants, was released by USFWS in February 2011 (USFWS 2011a), with revised technical appendices released in August 2012 (USFWS 2012b). USFWS released *Eagle Conservation Plan Guidance, Module 1 – Land-based Wind Energy: Version 2* (ECP Guidance; USFWS 2013a) in April 2013.

2.3 Endangered Species Act

The ESA directs USFWS to identify and protect endangered and threatened species and their critical habitat, and to provide a means to conserve their ecosystems. Among its other provisions, the ESA requires USFWS to assess civil and criminal penalties for violations of the ESA or its regulations. Section 9 of the ESA makes it unlawful to knowingly violate the “take” provisions of the ESA. “Take” is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct” (16 USC 1532). Significant modification or degradation of listed species’ habitats where the modification actually kills or injures wildlife by significantly impairing essential behavioral patterns is considered “harm” under ESA regulations.

2.4 Non-regulatory Framework

In addition to regulatory drivers, the WCS also briefly discuss bird species included on the USFWS list of Birds of Conservation Concern (BCC). Although these species are not formally protected under any regulatory laws, BCC species are closely monitored by USFWS due to population declines and/or rare occurrences in a specific region. As a result, BCC species that might be encountered at the Project are included in this WCS. Development of the BCC category for birds was the result of a 1988 amendment to the Fish and Wildlife Conservation Act that mandates the USFWS identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the ESA. The overall goal is to prevent or remove the need for additional ESA bird listings by implementing proactive management and conservation actions. The BCC categorization is intended to stimulate coordinated and collaborative proactive conservation actions among federal, state, tribal, and private partners (USFWS 2008a). The proposed Project Area is located in the Badlands and Prairies Bird Conservation Region (BCR 17) and only BCC species for this region are discussed in the WCS.

2.5 State Protection

The protection and regulation of species not listed under the federal ESA is typically at the discretion of state wildlife agencies. North Dakota does not have a state endangered or threatened species list, and only those species listed by the ESA are considered threatened or endangered in North Dakota. NDGF has identified 115 species of conservation priority or those in greatest need of conservation in the state (Dyke 2014) to aid in managing these species and prioritizing their conservation; however, these species are not afforded regulatory protection.

Species are categorized into three levels according to conservation need:

- Level I – species in greatest need of conservation;
- Level II – species in need of conservation, but have had support from other wildlife programs; and

- Level III – species in moderate need of conservation, but are believed to be on the edge of their range in North Dakota.

3.0 PROJECT DESCRIPTION

3.1 Project Components

The Project has a proposed nameplate capacity of approximately 150 megawatts (MW), anticipated to consist of 65 GE 2.1-MW Xle wind turbine generators and 7 GE 1.79-MW Xle wind turbine generators (Figure 2). The Project is located adjacent to the southern boundary of the Brady Wind Energy Center and will use the same planned approximate 19-mile, 230-kilovolt overhead transmission interconnect line. The Project will utilize the temporary laydown and turbine storage areas identified for the Brady Wind Energy Center during construction, and the Operations & Maintenance (O&M) building for the Brady Wind Energy Center will be shared with the Project. Substation equipment to support the Project will be located within the same 8-acre parcel where the Brady Wind Energy Center substation is located. Therefore, these facilities will not be discussed further in this WCS since they are included in the Brady Wind Energy Center documentation. Additional Project facilities include access roads, electrical collection systems and cabling, meteorological towers (nine temporary and one permanent).

The Project Area is located approximately 18 miles south of the town of Dickinson, North Dakota and includes approximately 20,316 acres of privately owned land (17,762 acres in Hettinger County and 2,554 acres in Stark County; Figure 1). Turbines and other project facilities will be placed on participating land throughout the Project Area. (Figure 2). Project structures will occupy only 109.5 acres during operation, or less than 1 percent of the total Project Area. The Project Area ranges from 0.5 to 12 miles long between its west and east boundaries, and approximately 1.5 to 6.5 miles wide between its north and south boundaries (Figure 2).

3.2 Site Description

3.2.1 Tier 1 Evaluation Area

In May 2015, Brady II Wind conducted a desktop analysis of a larger evaluation area consistent with Tier 1-Preliminary Site Evaluation recommendations of the USFWS Wind Energy Guidelines (WEG, USFWS 2012a) to assess the potential for adverse effects on species of concern and their habitat. The results were evaluated to determine the location of the Project (Figure 3). As part of the initial site screening, Tetra Tech evaluated existing, publicly available Geographic Information System (GIS) data for the proposed Project Area, including land ownership, National Land Cover Database (NLCD), U.S. Geological Survey (USGS) Ecoregions, the National Wetlands Inventory, the National Hydrography Database, Federal Emergency Management Agency floodplains, and known eagle nest data provided by NDGF, as well as eagle nests located by Tetra Tech during spring 2015 aerial raptor nest surveys. These spring 2015 aerial raptor nest surveys were conducted in support of a different proposed wind energy facility (now canceled), approximately

15 miles to the northeast of the proposed Project Area. Within the evaluation area, the location of the Project Area was selected over other evaluated areas in part because it is farther from known bald and golden eagle nests and allows for use of infrastructure (transmission line, laydown yard, O&M building, and substation) already proposed for the Brady Wind Energy Center. Other factors that influenced the selection of the proposed Project Area were input from local officials, wind resource, and interested landowners.

The Project Area is located in the Missouri Plateau sub region of the Northwestern Great Plains Ecoregion (Bryce et al. 1996). The area is unglaciated, and topography includes rolling plains with isolated sandstone buttes. Elevation ranges from 1,750 to 3,300 feet. The area receives 15 to 17 inches of precipitation annually and average daily temperatures range from 21 degrees Fahrenheit in January to 83 degrees Fahrenheit in July. Dryland farming and cattle grazing are the primary land uses in the area.

The Tier 1 preliminary site evaluation and coordination with USFWS identified species of concern with the potential to occur within the Project Area. During the December 16, 2015 coordination meeting between Brady II Wind and the USFWS, the USFWS identified the Dakota skipper (*Hesperia dacotae*) and the gray wolf (*Canis lupus*) as potentially present in the vicinity of the Project, even though they did not appear on the county lists (K. Shelley, USFWS, pers. comm. 2015). One candidate species at the time of the meeting, Sprague's pipit (*Anthus spragueii*), was removed from consideration to be listed by USFWS in April 2016 and thus is not included in this document.

The following species are evaluated in detail to determine the likelihood of occurrence within the Project Area in Section 4.1:

- Whooping crane (Federally Endangered),
- Black-footed ferret (Federally Endangered),
- Gray wolf (Federally Endangered),
- Northern long-eared bat (NLEB; Threatened),
- Bald eagle (Federally Protected),
- Golden eagle (Federally Protected),
- Sharp-tailed grouse (Level II state-listed Species of Conservation Priority), and
- Dakota skipper (Federally Threatened).

3.2.2 Tier 2 Project Area

Consistent with Tier 2-Project Area Evaluation recommendations of the WEG, field evaluations were conducted at the Project Area. During the ground-based raptor nest surveys of the Project Area in June and August 2015, a biologist observed habitats and site conditions, which were then used to evaluate the initial results of the desktop study and to inform the assessment of the potential occurrence of sensitive wildlife resources. In addition, a desktop native prairie assessment was completed in July 2015, concluding that approximately 9,195 acres (35 percent)

were potential native prairie and 17,121 acres (65 percent) were other land cover types (e.g., agricultural fields, hay fields). Subsequently, a Project redesign to avoid non-wildlife constraints, wetlands, and high quality native prairie modified the Project Area. Another desktop native prairie assessment based on this new project layout was conducted in April 2016. The April assessment determined that approximately 9,378 acres (34 percent) of a 27,264-acre Project Area was potential native prairie and 17,866 acres (66 percent) was other land cover types. The site visits confirmed that the existing land use in the Project Area is primarily cropland (wheat and alfalfa) and cattle ranches, and fragmented remnant native prairie that mostly occurs in areas of steep topography. A final Project redesign to avoid additional wildlife constraints was completed in July 2016. The redesign left 6,347 acres (36 percent) of a 17,435-acre Project Area as potential native prairie habitat and 11,088 acres (64 percent) as other land cover types (Tetra Tech 2015a). There are residences and a few abandoned farmsteads scattered throughout the Project Area. There are no major rivers or lakes within the Project Area; however, the Project Area contains numerous small streams and wetlands that vary from shallow vegetated depressions to man-made cattle ponds and intermittent creeks. The closest major river is the Cannonball River, located approximately 1 mile to the southwest of the Project (Figure 1). There are few wetlands evident that are not associated with a stream system. Trees and forested areas are sparsely scattered throughout the Project Area and are restricted mainly to riparian areas and to windbreaks around fields and residences. The topography within the Project Area primarily consists of rolling plains, and lacks prominent landscape features (e.g., hills, valleys); the elevation within the Project Area ranges from 2,527 to 2,920 feet above mean sea level.

3.2.3 Baseline Habitat Management

The habitat within the Project Area is primarily agriculture and pasture vegetation typical of North Dakota. According to the NLCD, the majority of the Project Area is cultivated crops (49.4 percent) and grassland/herbaceous (34.3 percent) (Table 2, Figure 4), all of which is managed by private landowners. Crops grown in the ecoregion include spring wheat, barley, oats, and sunflowers. The NLCD shows an additional 1,930 acres of pasture/hay, and based on aerial surveys conducted in March and April 2016 (See section 5.2.1.8), six parcels of the Project Area were being grazed by cattle (Figure 5). There are no federally managed habitats within the Project Area.

4.0 PROJECT HISTORY OF BIRD AND BAT PRESENCE AND RISK ASSESSMENTS

4.1 Tier 1: Preliminary Site Evaluation

4.1.1 Decision to Abandon or Move Foreword

4.1.1.1 *Are Species or Habitats of Concern Present?*

Native prairie and the following special-status wildlife species were identified as potentially present within the Project Area and were therefore evaluated in detail to determine the likelihood of occurrence within the proposed Project Area and potential risks to these species and their habitats.

Habitat

Native Prairie

Based on the desktop native prairie assessment, approximately 6,347 acres (36 percent) of the 17,435-acre Project Area were identified as potential native prairie and approximately 11,088 acres (64 percent) was determined to be other land cover types (e.g., agricultural fields, hay fields). USFWS identified native prairie as a habitat of concern because it may support the Dakota skipper or grassland bird species of habitat fragmentation concern. See Section 5.1 for details.

Birds

Whooping Crane

The Project Area is located on the outer western edge the whooping crane migration corridor, and a desktop assessment concluded that there is a low likelihood of occurrence of this species within the Project Area. See Section 5.2 for a detailed analysis.

Sharp-tailed Grouse

Sharp-tailed grouse occur in areas dominated by relatively dense herbaceous cover and shrubs, and the habitat within the Project Area may therefore be suitable for the species. The likelihood of occurrence is high. See Section 5.2 for a detailed analysis.

Bald Eagle

Bald eagles are likely to occur in the vicinity of the Project Area. There is one known bald eagle nest within 10 miles of the Project Area (Figure 3). Due to the distance of this nest to the Project Area, the likelihood of occurrence is moderate. See Section 5.2 for a detailed analysis.

Golden Eagle

Golden eagles may occur year-round in North Dakota. According to NDGF, there are multiple golden eagle nests within 10 miles of the Project Area; the likelihood of golden eagle occurrence is therefore high. See Section 5.1 for a detailed analysis.

Mammals

Northern Long-Eared Bat

The NLEB is the only listed bat species with the potential to occur within the Project Area and therefore was evaluated in detail to determine the likelihood of occurrence within the Project Area and the potential risks to this species and its habitat. This species' range includes Stark County, and it has been detected in Hettinger County (USFWS 2013c, 2014a, BCI 2014, Western and USFWS 2015). However Stark and Hettinger counties are outside the White-nose Syndrome (WNS) buffer where incidental take due to hibernacula disturbance or tree removal is prohibited under the final 4d rule. The species has a low likelihood of occurrence in the Project Area. See Section 5.3 for a detailed analysis.

Black-Footed Ferret

The black-footed ferret, a medium-sized member of the weasel family, was listed as endangered in 1967 (USFWS 2014c). The black-footed ferret is an obligate predator of prairie dogs and occurs exclusively in prairie dog colonies which it depends upon for food and shelter (USFWS 2014c). Previously believed extinct, 18 individuals were discovered in 1986 and were then used to develop a breeding and reintroduction program (USFWS 2010). It is estimated that over 1,000 black-footed ferrets occur in the wild with another 300 within breeding facilities (USFWS 2014c). Although it is thought to be extirpated from the state (NDGF 2012), there was an unconfirmed report of a black-footed ferret sighting near the town of Dickinson, north of the Project in 2012. The USFWS is not aware of any black-footed ferrets in the vicinity of the Project (K. Shelley, USFWS, pers. comm.). No reintroductions of black-footed ferrets have been made in North Dakota (USFWS 2014c). Reintroductions were once considered in the area southwest of the town of New England, but this area is no longer under consideration for reintroductions (K. Shelley, USFWS, pers. comm.).

Black-footed ferrets only occur in large, contiguous prairie dog colonies. The grassland habitat within the Project Area is highly fragmented, which precludes the formation of large, continuous colonies. There are no prairie dog colonies within the Project Area (Figure 5). A focused aerial survey to detect prairie dog colonies (and other prey sources for raptors) were conducted on March 10 and March 24, 2016 and found no prairie dog colonies within the propose Project Area. Based on the range, known reintroduction locations of black-footed ferrets, and habitat within the Project Area, it is unlikely the black-footed ferret would occur within the Project Area; therefore, this species was eliminated from further consideration in this WCS.

Gray Wolf

USFWS identified gray wolf as potentially present in the vicinity of the Project Area (K. Shelley, USFWS, pers. comm. 2015). The gray wolf was listed as endangered in 1974 (USFWS 2014d, 2014e). Gray wolves previously inhabited a large portion of the United States in a variety of habitats including tundra, forests, grasslands, and deserts. Although the gray wolf has been reported in Stark County (Western and USFWS 2015), the Project Area and much of North Dakota lacks forested areas known to support wolf pack establishment and persistence (USFWS 2012c, NatureServe 2014). The presence of wolves in most of North Dakota will likely remain sporadic

and consist of occasional dispersing animals from Minnesota and Manitoba; furthermore there are no known breeding populations in North Dakota (NDGF 2015). Therefore, this species has been eliminated from further consideration in this WCS because while there is a low to moderate likelihood of the species passing through the Project Area, it is unlikely to maintain a local resident population.

Insects

Dakota Skipper

USFWS identified Dakota skipper as potentially present in the vicinity of the Project (K. Shelley, USFWS, pers. comm. 2015). Although there are no known occurrences within the Project Area, the native prairie survey indicates that suitable habitat for the species is present within the Project Area. The species has not been documented in the vicinity of the Project, and the likelihood of occurrence is therefore low. See Section 5.4 for a detailed analysis.

4.1.1.2 Does the Landscape Contain Areas Precluded by Law or Areas that are Designated as Sensitive?

USFWS, the U.S. Forest Service, and NDGF maintain conservation areas to help preserve habitats critical to migratory birds and other sensitive species (e.g., recreation areas, National Wildlife Refuges [NWRs], National Grasslands, state parks, and state wildlife areas). Based on both literature review and agency websites, there are no state or federal easements in the Project Area, such as National Grasslands or state wildlife areas (Figure 3). The USFWS confirmed that there were no USFWS fee title lands or easements in the Project Area (Table 1). There is one USFWS waterfowl production area (WPA), the Hettinger County WPA, within 10 miles of the Project. The closest NWRs to the Project Area are White Lake NWR (approximately 15 miles southwest), Stewart Lake NWR (28 miles to the southwest), Pretty Rock NWR (approximately 40 miles to the southeast), and Lake Ilo NWR (approximately 46 miles north; Figure 1). Additionally, the Tier 1 evaluation area contained known bald eagle and golden eagle nests. Brady II Wind moved the Project Area in part to avoid these known nests, as well as suitable golden eagle nesting habitat. Other factors that influenced the selection of the proposed Project Area were input from local officials, wind resource, interested landowners, and proximity to transmission.

4.1.1.3 Are There Critical Areas of Wildlife Congregation?

There are no critical areas of wildlife congregation within the Project Area and the closest critical areas of wildlife concentration are the WPA and the NWRs discussed in Section 4.1.1.2.

4.1.1.4 Is There Potential to Fragment Large, Intact Habitats for Species that are Sensitive to Habitat Fragmentation?

The USFWS North Dakota Field Office lists 11 species of habitat fragmentation concern: Baird's sparrow, bobolink, chestnut-collared longspur, grasshopper sparrow, greater prairie-chicken, greater sage grouse, northern harrier, sedge wren, sharp-tailed grouse, Sprague's pipit, and upland sandpiper (USFWS 2013b). With the exception of the greater prairie-chicken and sedge wren, it is possible that these species could occur within the Project Area because of the presence of potentially suitable habitat. Much of the Project Area is already fragmented and in use as

pasture or crop production. A network of county roads exists throughout the Project Area; although these roads are not barriers to wildlife movement, their presence disrupts the continuity of the landscape, contributing to habitat fragmentation. There are patches of native prairie that could be sensitive to habitat fragmentation; however, due to the existing fragmented nature of the Project Area, impacts are unlikely. In addition, Brady II Wind has avoided siting turbines and other associated facilities in areas of high quality native prairie to the extent possible (see Section 5.1 and 6.1.3 regarding Dakota skipper).

4.2 Tier 2: Site Characterization

4.3 Abandon Site or Advance to Field Surveys to Support a Bird and Bat Conservation Strategy?

4.3.1.1 *Are Plant Communities or Vegetation Habitats of Conservation Concern Present?*

Native prairie was the only plant community of conservation concern detected within the Project Area during the Tier 1 Site Evaluation or Tier 2 Site Characterization. Using the results of the native prairie assessment (see Section 5.1); Brady II Wind determined that high quality native prairie could be avoided by the Project to the extent possible.

4.3.1.2 *What Species of Birds and Bats are Likely to Use the Proposed Site?*

Birds

North Dakota has 353 documented bird species (Faanes and Stewart 1982), and is situated within the Central Flyway, one of several broad bird migratory routes in North America (USFWS 2011b). During fall migration, most birds that move along the Central Flyway travel from breeding grounds as far away as Alaska and northern Canada through the central states, eventually reaching wintering grounds near the Gulf of Mexico, and as far away as South America (USFWS 2011b). Resident and migratory birds use the Project Area for foraging, hunting, shelter, breeding and nesting, and possibly as a stopover site during migration.

Species present within the Project Area are likely to be common grassland/agriculture species of North Dakota. Waterfowl and waterbird species are likely to use the wetlands as breeding and migratory stopover areas. However, our analysis determined there are fewer suitable wetlands in the Project Area compared with the surrounding area (Section 5.2). Raptor species breeding in the Project Area are likely to be in low numbers, and mostly restricted to species adapted to open grassland and agriculture habitats such as great-horned owls (*Bubo virginianus*) and red-tailed hawks (*Buteo jamaicensis*). Grassland species have the potential to occur within the native prairie that occurs within the Project Area. To determine the species that are likely to use the Project Area, Tetra Tech reviewed the results from the closest National Audubon Society Christmas Bird Count (CBC) count circle and USGS Breeding Bird Survey (BBS) route, summarized below.

Christmas Bird Count

The closest CBC is the Medora Count (NDME) approximately 27 miles northwest of the Project Area (National Audubon Society 2010). There are 55 species and two unknown species that have been observed during the NDME over the last 10 years (2005–2014; Table 3).

Breeding Bird Survey

The nearest USGS BBS is the Dickinson Survey Route (#64021), approximately 15 miles to the northwest of the Project Area and situated along similar agriculture, grassland, and riparian habitats. The Dickinson Survey Route has documented 100 species of birds that potentially breeding in the area (Table 4). Most of these species prefer grassland habitat, agricultural areas, or wetland habitat. The Project Area is 60.5 percent agriculture (49.4 percent cropland and 11.1 percent pasture/hay), 34.3 percent grassland/herbaceous habitat, and 1 percent wetland habitat, indicating that similar species could breed in the Project Area. The exception to this involves species that prefer wetlands, which may occur in fewer numbers due to the paucity of wetlands within the Project Area. Eleven BCC species were observed along the survey route (Table 4).

Birds of Conservation Concern

The Project Area is in BCR 17 (USFWS 2008a). There are 28 BCC species listed within BCR 17 that may also occur within the Project Area (Table 5). None of the species are currently listed as federally endangered or threatened. Two species are non-breeding migrants (horned grebe and peregrine falcon) that may pass through the region, and possibly the Project Area, during spring and fall migration. Three BCC species were observed during or incidentally to avian surveys (upland sandpiper, golden eagle, and ferruginous hawk; see Section 5.2.2.2).

BCC species were detected during the nearby CBC and BBS surveys. Four BCC species (loggerhead shrike, bald eagle, golden eagle, and short-eared owl) have been observed in the last 10 years during the NDME. There have been no federally listed threatened or endangered species observed during the NDME. Ten BCC species have been detected along the nearby BBS route, six of which (grasshopper sparrow, chestnut-collared longspur, loggerhead shrike, Sprague's pipit, ferruginous hawk, and short-eared owl) are found in grasslands and/or agricultural habitat, and therefore also could be found within the Project Area. The remaining four BCC species (American bittern, marbled godwit, red-headed woodpecker, and black-billed cuckoo) prefer wetlands or woodlands. Both of these habitats each comprise less than 1 percent of the Project Area, and therefore it is not expected that these species would occur within the Project Area.

Avian Species of Habitat Fragmentation Concern

Species of habitat fragmentation concern are listed in Section 4.1.1.4. Species detected within 25 miles of the Project Area include Baird's sparrow, bobolink, chestnut-collared longspur, grasshopper sparrow, northern harrier, sedge wren, sharp-tailed grouse, Sprague's pipit, and upland sandpiper (Tables 3 and 4). It is possible that these species could occur within the Project Area due the presence of potentially suitable habitat. Two BCC species; the greater prairie-

chicken and greater sage grouse, have ranges that do not overlap with the Project Area and are unlikely to occur.

Bats

Of the 11 bat species known to occur in North Dakota (Gullickson n.d., BCI 2014), available information about species-specific suitable habitat, known distribution ranges, and documented occurrences indicate that five species are expected to have a moderate or high potential to occur within the vicinity of the Project Area. Three of the bat species with a moderate or high likelihood of occurring in the Project Area (silver-haired bat [*Lasionycteris noctivagans*], hoary bat [*Lasiurus cinereus*], and eastern red bat [*Lasiurus borealis*]) migrate to southern latitudes during winters. The remaining species, big brown bat (*Eptesicus fuscus*) and little brown bat (*Myotis lucifugus*), hibernate locally or regionally. None of these species are federally listed under the ESA.

Non-developed and non-agricultural types of habitats (open water, forested, wetlands, and shrub/scrub) provide the best foraging opportunities for bats, and account for less than 2 percent of the Project Area. Although there is evidence (Rogers et al. 2006, BCI 2014, Gilliam and Barnhart 2011) to indicate that some species, such as the big brown bat, prefer foraging over agricultural lands (cultivated crops and pasture/hay), agricultural lands within the Project Area are typically the least suitable locations for foraging, and account for 60.5 percent of the Project Area.

The Project Area contains small forested riparian corridors that bats could follow or use as day roosting sites, although these are not significant features from a regional perspective. There are no known winter bat hibernacula within the Project Area. There are no caves or other natural rock or crevice formations in the Project Area that would be suitable hibernacula (Murphy 2007, NDGS and NDDH 2001). All known caves are greater than 11 miles from the Project Area. The closest caves are Bear Cave, 11.5 miles to the southwest, and Snow Cave, approximately 28 miles to the southwest (Figure 3). Bear Cave extends only 12 feet into the rock, and Snow Cave has been destroyed by falling rock and erosion (Murphy 2007). There are no abandoned mines within the Project Area; the closest mines that could provide potential roosting habitat for bats are approximately 2 miles south of the Project Area (North Dakota PSC 2013). The suitability of these mines for roosting bats is unknown. The limited roosting habitat and hibernacula within the Project Area is a major limiting factor for use of the Project Area by migrating bats. Therefore, bat migration through the Project Area is likely low in magnitude.

Roosting colonies of big brown bat and little brown bat have a high probability of occurring within the Project Area because of their known association with edge habitats and human-made structures. Eastern red bat, hoary bat, and silver-haired bat have a moderate likelihood of occurring in the Project Area, primarily during migration. The eastern red bat, hoary bat, and silver-haired bat are all associated with forested habitats and would most likely occur in small woodlots while moving through the Project Area during migration. Each of these species is found in North Dakota from May through September (Cryan 2003, Cryan and Veilleux 2007).

The remaining six species found in North Dakota (fringed bat [*Myotis thysanodes*], long-eared bat [*Myotis evotis*], long-legged bat [*Myotis volans*], western small-footed bat [*Myotis ciliolabrum*], Townsend's big-eared bat [*Corynorhinus townsendii*], and NLEB [*Myotis septentrionalis*]) are

expected to have a low likelihood of occurrence in the Project Area based upon species range, known habitat associations, and occurrence of similar habitats within the Project Area.

4.3.1.3 *Is There Potential for Significant Adverse Impacts to Those Species?*

The Tier 1 and Tier 2 evaluation results show low potential for significant adverse impacts regarding birds, bats, or other wildlife species or their habitats within the Project Area. Based on the habitat present, abundance of cultivated crops, and the distance from major waterbodies and other wildlife attractants, no significant, unavoidable adverse impacts to species or habitats of concern were identified.

4.3.1.4 *Is There a High Probability of Significant Adverse Impacts That Cannot be Avoided or Minimized?*

The site-specific characterization was consistent with the Tier 1 Site Evaluation in that there was a low probability of significant adverse impacts on wildlife or their habitats. Therefore, Brady II Wind decided to move forward with focused field studies of the Project Area to further evaluate the presence of bird and bat species. The data from those studies are used to inform this WCS.

5.0 TIER 3: FIELD STUDIES

Based on the results of the Tier 1 and Tier 2 analysis, Brady II Wind conducted Tier 3 field studies in accordance with the USFWS Land-based WEG to better understand risks to wildlife from development of the Project. Surveys conducted at the Project are summarized in Table 6 and described in detail in this section.

5.1 Habitat Assessment

5.1.1 Methods

Native prairie was evaluated for suitability for species dependent on native grasslands, with a focus on the Dakota skipper and Sprague's pipit (Tetra Tech 2016a). At the time the evaluation was completed, the Sprague's pipit was a candidate for listing under the ESA; however, the listing has since been determined to be not warranted and we will only report on habitat suitability as it relates to the Dakota skipper. In July 2015, Tetra Tech conducted an initial desktop native prairie assessment for the proposed Project. Additional desktop native prairie assessments were conducted in December 2015, January 2016, and March 2016 when the Project Area boundary was revised. The desktop assessments classified areas of potential native prairie within the Project Area using the following GIS and spatial imagery data:

- 2011 NLCD land cover data (Homer et al. 2015);
- U.S. Department of Agriculture cropland data (USDA 2013);
- National Agriculture Imagery Program aerial photographs (USGS 2014); and
- Google Earth Pro.

The NLCD and cropland data were clipped to the Project Area and were viewed in Google Earth Pro. The Project Area was also overlaid on National Agriculture Imagery Program aerial imagery. Using the above data sources, areas that appeared to contain native prairie vegetation were delineated on hardcopy maps and then digitized using ArcGIS software.

Field verification of the areas classified during the desktop assessment as potential native prairie within the July 2015 Project Area boundary was conducted on August 19, 2015 by a Tetra Tech biologist. The biologist visually assessed areas delineated as potential native prairie during the desktop habitat assessment from public rights-of-way to confirm the presence of native prairie and classify potential Dakota skipper habitat. Visual assessment of a few portions of the Project Area was not possible due to lack of access from public rights-of-way. The areas that were not visible from the roads, and thus were not visually assessed, were classified as “Undetermined.”

Desktop habitat assessments were conducted for the entirety of the current Project Area boundary. However, because the current Project Area boundary was revised subsequent to the July 2015 surveys, field verification was not conducted for the portions of the current Project Area boundary that were not within the Project Area boundary during the July 2015 surveys. Habitat quality (e.g., excellent, good) for areas determined as potential native prairie habitat during desktop habitat assessments that were not able to be field verified was determined to the extent possible. Areas where the habitat quality could not be determined based on desktop assessment only were classified as “Undetermined”.

Additionally, major vegetation cover types were characterized in a desktop analysis, described in detail in Section 3.2.3. Major avian habitat types were confirmed during initial site visits to setup the avian surveys described below.

5.1.1.1 Results

Approximately 6,347 acres (36 percent) of the 17,435-acre Project Area were identified as potential native prairie and 11,088 acres (64 percent) was determined to be other land cover types (e.g., agricultural fields, hay fields) based on the field verifications surveys and desktop assessment. Because species composition of grassland habitats could not be identified based on desktop review, potential native prairie identified in the desktop analysis that were not field verified potentially included other apparently similar land cover types such as tame grassland (i.e., grasslands comprised primarily of non-native species) and hayfields.

Dakota skipper

A total of 177 acres (1 percent of the proposed Project Area) were classified as Excellent/Likely Dakota skipper habitat, and 4,868 acres (28 percent of proposed Project Area) were classified as Good/Possible Dakota skipper habitat (Table 7, Figure 6a and 6b). Additionally, 1,164 acres (7 percent of the proposed Project Area), were not visible during field verification surveys of the Project Area or could not be classified based on desktop assessment only.

Potential Dakota skipper habitat within the Project Area is primarily located on hills, and most closely resembles the Type B habitat described by the USFWS, which is habitat occurring primarily on rolling grassland over gravelly glacial moraine deposits that is dominated by native

prairie species such as little bluestem grass, purple coneflower, upright prairie coneflower, and common gaillardia (USFWS 2015a).

5.2 Bird Status Assessment

The following surveys were conducted to assess bird presence and use of the Project Area.

5.2.1 Survey Methods

5.2.1.1 Avian Point-Count Surveys

During spring 2016, an experienced avian biologist conducted morning point-count surveys at 14 locations (Fixed 800-meter radius) within the Project Area to evaluate avian use, flight behavior, and species composition (Figure 7, Tetra Tech 2016b). The biologist conducted surveys every week for 13 weeks for a total of 182 surveys from March 19–June 10, 2016, encompassing the spring migratory period. Prior to the establishment of a proposed Project Area layout, two point-count locations (Points 14 and 15) were established in August 2015 during eagle use surveys for the proposed Brady Wind Energy Center, which is located adjacent to the northern boundary of the Project Area. Once a preliminary Project Area boundary and turbine locations were provided, 12 additional point-count (points 1-12) locations were established in November 2015 for eagle use surveys (Section 5.2.1.2), for a total of 14 point-count locations within the Project Area. These points were also utilized for the spring 2016 avian survey. The proposed turbine locations were modified on April 22, 2016. As a result, Point 11 was no longer located in the proposed Project Area (Figure 7). Therefore, on April 28, 2016, Point 11 was dropped and Point 16 was added to increase coverage of the Project Area (Tetra Tech 2016b and c). However, based on the habitat at Point 11 and its proximity to the current Project Area, Tetra Tech considered avian data collected at this point relevant to the dataset and was included in the analysis.

Tetra Tech distributed the survey locations throughout the Project Area and chose locations that maximized the 360-degree sight distance for the observer and covered a diversity of habitats and topography. Surveys at each point lasted for 20 minutes, during which time biologists continuously recorded any visual or auditory observations. The biologist recorded data including: species, number of individuals, time of observation, height above ground, and behavior. The biologist estimated flight heights and distances using existing reference points such as meteorological towers, transmission lines, oil and gas wells, roads, and buildings. For flocks of birds (i.e., greater than one individual) the height and distance was estimated at the center of the flock. Flight direction was recorded for individuals making directional flights, but was not recorded for individuals making localized movements. The order in which avian observation points were surveyed was varied, so that roughly equal numbers of surveys at each point were conducted during the morning and afternoon.

5.2.1.2 Eagle Use Surveys

Brady II eagle use surveys initially began with two point-count locations (Points 14 and 15) in August 2015 as part of the eagle use surveys for the proposed Brady Wind Energy Center, which

is adjacent to the northern boundary (Tetra Tech 2016c). After data collection started, the Brady Wind Energy Center boundaries were revised and excluded points 14 and 15. Subsequently, the original Brady II Project Area boundary was first identified, and points 14 and 15 were located within this original Project Area boundary (Tetra Tech 2016c). Because data collection from points 14 and 15 had already started, Tetra Tech included them in the identification of point-count locations for the Project. An additional 12 point-count locations were identified in November 2015 (see Section 5.2.1.1), resulting in a total of 14 eagle use survey locations, each with an 800-meter-radius, within the Project Area (Tetra Tech 2016c).

Initially the 14 point-count locations provided spatial coverage of approximately 29 percent of the 1-kilometer buffer around the original proposed turbine locations (dated October 28, 2015), consistent with recommendations in the ECP Guidance (USFWS 2013a). Those proposed turbine locations were modified on April 22, 2016. As a result, Point 11 no longer overlapped any part of the 1-kilometer turbine buffer and the remaining 13 point-count locations provided spatial coverage of 23 percent of the 1-kilometer buffer around the current proposed turbine locations. As a result, Point 11 was dropped and Point 16 was added to the revised Project Area on April 22, 2016 which brought the spatial coverage to 25.27 percent of the 1-kilometer buffer.

Eagle use surveys were conducted every 2 weeks over a 2-3 day period from August 20, 2015 to August 18, 2016 for a total of 27 rounds of surveys. From August 20 to October 25, 2015, survey visits included 20 minutes of general fall avian surveys followed by 60 minutes of eagle use surveys for a total of 1 hour and 20 minutes of survey time at Survey Points 14 and 15. All birds, including eagles, were recorded during the general avian point-count surveys, whereas only eagles were recorded during the eagle use surveys. Eagles were tracked on separate data sheets from other species during all surveys to facilitate analysis. The fall avian surveys ended on November 4, 2015, and from November 11, 2015 to April 1, 2016 eagle use surveys were conducted for 60 minutes at each of the 13 point-count locations. From April 1 to June 10, 2016, survey visits included 20 minutes of general spring avian surveys followed by 60 minutes of eagle use surveys (a total of 1 hour and 20 minutes of survey time at each point-count location). During each eagle use survey, the biologist continuously scanned the surrounding landscape for eagle activity using an unlimited viewshed. For each eagle observed, the biologist recorded the species, age class (Adult, Immature, or Unknown), time first and last observed, minimum and maximum flight heights, and flight behavior. Eagle flights were recorded in two height categories (less than or equal to 200 meters and greater than 200 meters above ground), based on the ECP Guidance. The time an observed eagle spent flying within the 800-meter-radius circular plot around the point-count location at each of these height categories was recorded and rounded up, in 1-minute intervals, so that these data could then be translated into eagle exposure minutes for projected fatality modeling. In accordance with the ECP Guidance, exposure minutes were defined as the number of minutes that an eagle was observed below 200 meters within the 800-meter-radius circular plot. Flight paths were drawn for each eagle within the viewshed on a topographic map of the Project Area, and later digitized using GIS software. Surveys were conducted during daylight hours, and the order in which points were surveyed was altered between subsequent rounds so that each point was surveyed at different times of the day over the course of the season. Surveys were never conducted on any days of fog or low cloud-cover that reduced visibility to less than

400 meters of horizontal distance or less than 200 meters of vertical distance. Surveys were conducted on the next available day or one day prior depending on the forecast for the Project Area in accordance with the ECP Guidelines.

5.2.1.3 Fall 2015 Raptor Nest Surveys

The objective of the fall surveys was to document the location of any raptor nest structures within the Project Area boundary plus a 2-mile radius around the Project Area (Raptor Nest Survey Area) to facilitate planning for the avoidance of nest disturbance during construction. An aerial raptor nest survey was conducted on November 17-18, 2015, during the non-breeding season and after trees had dropped their leaves, which increased visibility of raptor nests (Tetra Tech 2016d). The aerial survey objective was to locate all raptor nests within the Raptor Nest Survey Area; however, after detecting several large stick nests (consistent with golden eagle nests) on buttes slightly beyond the 2-mile buffer, the search effort was expanded. The expanded search effort focused exclusively on buttes to the south and east that were within 10 miles of the Project Area in order to determine whether there were suitable nesting ledges, as observed on local buttes with known golden eagle nests. The aerial survey was conducted from a Bell-206 Jet Ranger helicopter (Double M Helicopters, Mandan, North Dakota) that was flown approximately 200 feet above ground level at an approximate speed of 60 miles per hour. The crew consisted of a Tetra Tech biologist, a local field biologist, and a pilot. Biologists primarily focused on potentially suitable nesting habitat on buttes, and any large trees sufficient to support nesting by large raptors.

5.2.1.4 Winter 2016 Raptor Nest Surveys

January 2016. In order to detect any early-season occupancy of eagle territories, Tetra Tech conducted an aerial raptor nest survey on January 25-27, 2016, as recommended by USFWS (K. Shelley pers. com.). The aerial survey consisted of searches for all raptor nests within the Raptor Nest Survey Area and searches for eagle nests only in a 2- to 10-mile radius around the Project Area (Eagle Nest Survey Area). Biologists also checked the status of previously documented raptor nests, including all known nests within Raptor Nest Survey Area and known bald and golden eagle nests and large stick nests within the Eagle Nest Survey Area. Data collected within the Raptor Nest Survey Area included location and status of all stick nests (occupied or unoccupied) and any observations of eagles. Data collected within the Eagle Nest Survey Area included location and status of any eagle nests, potential eagle nests, and any observations of eagles. All suitable nesting habitat within 10 miles of the Project Area was searched for eagle nests during this survey.

February 2016. A second winter raptor nest survey was conducted on February 24, 2016, with the primary objective of checking the status of known and potential (large unconfirmed stick nests) eagle nests within 10 miles of the Project Area. All eagle nests and large stick nests documented during the January 2016 raptor nest survey were visited via helicopter so that their occupancy status could be checked.

5.2.1.5 Spring 2016 Raptor Nest Surveys

March 2016. Tetra Tech conducted an aerial raptor nest survey on March 29-31, 2016, as recommended by USFWS. The aerial survey was conducted using the same helicopter and

personnel as the fall 2015 raptor nest survey. The aerial survey consisted of searches for all raptors stick nests within the Raptor Nest Survey Area and for eagle nests only within the Eagle Nest Survey Area (Tetra Tech 2016b). Within the Raptor Survey Area, transects spaced 1-mile apart were flown to provide systematic coverage. Within the Eagle Nest Survey Area, biologists primarily focused on potentially suitable nesting habitat on the ledges of buttes and along riparian corridors and other areas with large trees sufficient to support nesting by eagles. Biologists also checked the status of previously documented raptor nests, including all known nests within 2 miles of the Project and known bald and golden eagle nests and large stick nests within 10 miles of the Project Area. Data collected within the Raptor Nest Survey Area included location and status of all stick nests (occupied or unoccupied) and any observations of eagles. Data collected within the Eagle Nest Survey Area included location and status of any eagle nests, potential eagle nests, and any observations of eagles (Tetra Tech 2016b). All suitable nesting habitat within 10 miles of the Project Area was searched for eagle nests during this survey. A follow-up ground nest survey was conducted in May 15-16, 2016. The survey was conducted from public roadways by a biologist equipped with a spotting scope. The biologist searched for any raptor nests not located during the aerial survey within the Raptor Nest Survey Area and checked on the status of raptor nests located during the aerial survey.

5.2.1.6 Eagle Nest Monitoring

Tetra Tech monitored several known and potential eagle nests to assess territory occupancy, nest activity, and to collect flight path directions and heights of eagles and to identify areas of use in the vicinity within 2-4 miles of the Project Area during the nesting season. The monitored nests included 1) an occupied bald eagle nest (Nest 2015_20), 2) an occupied golden eagle nest (Nest 2015_39), and 3) a cluster of five potential golden eagle nests (Nests 2015_11, 2015_12, 2015_13, 2015_14, and 2015_15; Figure 8a). The occupied bald eagle nest is 9.3 miles northeast of the Project Area and was located during the spring 2015 aerial raptor nest survey conducted in support of another proposed wind energy facility (now canceled). The occupied bald eagle nest was monitored for 4 hours once every 2 weeks from mid-January to mid-May 2016. The occupied golden eagle nest is located approximately 0.2 miles south of the Project and was confirmed to be occupied by golden eagles during the March 29-31, 2016 aerial raptor nest survey (details on this monitoring are below). The cluster of five potential golden eagle nests are a group of five large stick nests located on sandstone buttes, 2.1 to 3.2 miles northwest of the Project Area. These nests were found during the fall 2015 aerial nest inventory. These nests were monitored for 2-4 hours once every two weeks from mid-February to mid-May 2016.

Golden Eagle Nest 2015_39 Monitoring

During the March 29-31, 2016 aerial raptor nest surveys, Nest 2015_39 was first confirmed to be occupied by a pair of golden eagles (Tetra Tech 2016c and 2016). When first documented during an aerial raptor nest survey conducted in November 2015, this nest was recorded as an unoccupied small raptor nest. At that time, and when rechecked during the January 2016 surveys, biologists did not consider this to be a potential golden eagle nest because the nest was relatively undersized with small sticks and located near the top of the tree. Golden eagles typically build

very large nests, averaging 5-6 feet wide, and 2 feet high (Grubb and Eakle 1987). The size and location of the nest was more typical of a smaller hawk, such as a Swainson's hawk, than a golden eagle nest. NextEra and Tetra Tech reported the occupancy of the nest by golden eagles to USFWS and NDGF on April 5, 2016 (Table 1, Appendix A). During an April 12 conference call (See Table 1) between NextEra, Tetra Tech, and the USFWS, it was agreed that further monitoring of this nest was warranted.

Initial nest monitoring took place on April 11 and 12, 2016 to gather baseline information and to determine the most effective way to collect information. Beginning on April 28, 2016, the nest was monitored daily until May 16, 2016. The nest was typically monitored for 8 hours per nest watch, but hours spent monitoring the nest ranged from 1-8.5 hours/day. The primary objectives of the nest monitoring was to collect flight path directions and height and identify feeding areas of the adults throughout the nesting season until the chicks had fledged and left the area or until it was determined that the nest had failed. The nest, which was on private property where Brady II Wind does not have access, was monitored by one or two biologists. When two biologists were on site monitoring the nest, one would constantly monitor the nest while the second biologist would attempt to follow the eagles to determine foraging areas, perching locations, and routes taken to and from the nest. The biologists used cell phones and hand-held radios to exchange information about eagle locations, activity, and flight direction as they attempted to identify the location of prey sources. Each biologist was equipped with binoculars, a spotting scope, GPS unit, maps, and a weather meter. For each eagle observation, biologists collected the following information: time first and last observed behavior type, minimum and maximum flight heights, total minutes, and any noteworthy observations. Each flight path was drawn on topographic maps and labeled using an assigned observation number on the datasheet, so that the flight paths and associated data could be linked, digitized, and analyzed with GIS software. Weather data was collected every hour.

5.2.1.7 Grouse Lek Surveys

The objective of the grouse lek surveys was to document all sharp-tailed grouse leks within the Project Area and 1-mile buffer (Tetra Tech 2016f). Tetra Tech protocols for the grouse lek surveys were designed to be responsive to the level of effort recommended in Tier 3 of the WEG (USFWS 2012a). Tetra Tech requested the location of any known sharp-tailed grouse leks from the North NDGF on January 11, 2016. NDGF responded on February 3, 2016 stating that there were no documented leks in the Project Area or vicinity, but noted that the area had not been surveyed by NDGF (Tetra Tech 2016f). Prior to the field surveys, Tetra Tech prepared a desktop habitat assessment using the National Land Cover Database and aerial imagery. Open areas with grassland habitat were classified as suitable lek habitat. The initial survey route was developed with listening stations mapped 1 mile apart along accessible public roads adjacent to suitable habitat; however, per the request of NDGF, the spacing of the listening stations was reduced to 0.5 miles apart shortly before the surveys (A. Robinson per. com; Table 1; Tetra Tech 2016f). The habitat suitability and access to the additional listening stations was verified by the field biologist during the first day of the lek surveys.

Two rounds of ground surveys were conducted along public access roads in suitable habitat within 1 mile of the Project Area between April 6 and 12 and between April 25 and 29, 2016. Surveys were conducted from one-half hour before sunrise to 2 hours after sunrise to coincide with peak lekking activity (Tetra Tech 2016f). Of the 122 listening stations identified during the desktop analysis, 78 were accessible by public roads, occurred in suitable habitat, and were surveyed. During the surveys, observers stopped at listening stations located 0.5-mile apart for a minimum of 3 minutes during which time the observer systematically scanned and listened for displaying sharp-tailed grouse. Observed leks were mapped and numbers of males and females were counted if possible. The lek surveys were not conducted when winds exceeded 20 miles per hour or if there was any type of precipitation event (Tetra Tech 2016f).

5.2.1.8 Eagle Prey Base Surveys

Tetra Tech conducted aerial surveys to identify any concentrations of prey that may serve as important eagle-use areas, as recommended by the ECP Guidance. Aerial surveys were performed from a fixed-wing aircraft twice each month in March and April 2016. North-south transects were flown at 1-mile intervals across the Project Area plus a 2-mile buffer, requiring approximately 220 flight miles (3 hours of flight time) per survey. This approach is the same as that used by NDGF for state-wide ungulate population surveys, thereby facilitating acceptance of the results by the agencies. The survey crew consisted of a local biologist and the same pilot and aircraft used by the NDGF for its surveys. During the aerial survey, the biologist recorded numbers and locations of deer, pronghorns, lagomorphs, game birds, prairie dog colonies, carrion, and other possible food resources for eagles with a GPS-enabled tablet. All eagles observed during the surveys were also recorded.

Tetra Tech requested locations of prairie dog towns from NDGF within a 10-mile radius of the Project Area in January 2016. NDGF reported nine known prairie dog towns within 10 miles of the Project Area. None of these prairie dog towns are located within the eagle prey-base survey area (Project Area plus a 2-mile buffer; Figure 5).

Additionally, Tetra Tech used a helicopter to examine known prairie dog town locations provided by USFWS within 10 miles of the Project Area for occupancy and activity. Two visits were made during winter, coinciding with the January and February 2016 raptor nest surveys. During each visit, biologists observed the prairie dog towns from a helicopter hovering over the site and recorded signs of occupancy, including recently cleared burrows and pathways in the surrounding grass. Black-tailed prairie dogs do not hibernate, so such signs of occupancy can be visible from the air throughout the winter.

5.2.2 Bird Presence and Use Patterns

5.2.2.1 Species Presence by Season/Bird Use Patterns

Non-Raptors

During spring 2016 point counts, a total of 3,864 birds from 36 species were observed within the Project Area. Overall mean bird use within the Project Area was 21.23 birds/20 minutes, and

ranged from 0 to 63 birds/20 minutes. Non-raptor mean use was 20.54 birds/20 minutes. Songbirds had the highest mean use of all species groups observed (15.29 birds/20 minutes). The songbird species with the highest mean use were the red-winged blackbird (3.73 birds/20 minutes), followed by American robin (3.01 birds/20 minutes), horned lark (1.67 birds/20 minutes), western meadowlark (1.64 birds/20 minutes), brown-headed cowbird (1.41 birds/20 minutes), and common grackle (1.02 birds/20 minutes). Overall, these six species accounted for 58.8 percent of all bird observations during the spring survey. The American crow had the highest encounter rate (0.29 birds flying at rotor-swept area (RSA) height/20 minutes; Tetra Tech 2016b).

No federally or state threatened, endangered, or candidate species were observed during avian point-count surveys, raptor nest surveys, lek surveys or as an incidental observation. The following species observed during the surveys have been designated as species of conservation priority: bobolink, western meadowlark, lark bunting, upland sandpiper, and sharp-tailed grouse (Dyke et al. 2015). Additionally, upland sandpipers are USFWS BCC (USFWS 2008a).

During spring surveys, biologists documented incidental observations of two non-raptor species: the sandhill crane (29 individuals) and sharp-tailed grouse (10 individuals). The sandhill crane was the only incidental species not detected during spring point-count surveys.

Raptors

In spring 2016, eight raptor species were observed and raptor mean use was 0.69 birds/20 minutes. The raptor species with the highest mean use was northern harrier (0.22 birds/20 minutes; observed in 22.0 percent of all surveys) and Swainson's hawk (0.14 birds/20 minutes; observed in 13.7 percent of all surveys). Other raptor species detected included turkey vulture, American kestrel, red-tailed hawk, golden eagle, great horned owl, and ferruginous hawk, each with mean use values less than or equal to 0.11 birds/20 minutes and observed in less than 9.4 percent of all surveys.

No federally or state threatened, endangered, or candidate raptor species were observed during avian point-count surveys, raptor nest surveys, lek surveys or as an incidental observation. The following species observed during the surveys have been designated as species of conservation priority: golden eagle, Swainson's hawk, ferruginous hawk, American kestrel, and northern harrier (Dyke et al. 2015). Additionally, the golden eagle, and ferruginous hawk are USFWS Birds of Conservation Concern (BCC; USFWS 2008b).

Non-Eagle Raptor Nests

November 2015. Raptor nests detected within the Raptor Nest Survey Area during the November 17-18, 2016 aerial raptor nest surveys included seven unoccupied small stick nests. The unoccupied small stick nests were all located in trees and suspected to have been used by smaller raptor species (e.g., red-tailed hawk and great-horned owl).

January 2016. There were seven unoccupied small stick nests within the Raptor Nest Survey Area with five of these nests located within the Project Area. None of these nests were newly documented nests since the November 2015 surveys.

February 2016. No additional small raptor nests were found during the February aerial raptor nest surveys. Existing small raptor nests were not checked as this survey was intended to focus on checking eagle and other large stick nests.

March 2016. Biologists located four unoccupied small stick nests within the Raptor Nest Survey Area (three are within the Project Area boundary) during the March 2016 aerial raptor nest survey. Outside the Project Area, but within the Raptor Nest Survey Area, biologists located five occupied great horned owl nests, one occupied golden eagle nest (see Golden Eagle Nest 2015_39 below), one occupied red-tailed hawk nest, and one occupied ferruginous hawk nest. None of these occupied nests are within the Project Area. The golden eagle nest (2015_39) is located 0.2 miles south of the Project Area boundary and 0.9 miles (1.44 kilometers) from the nearest turbine (see Golden Eagle Nest 2015_39 below).

May 2016. Biologists relocated or rechecked raptor nests within the Raptor Nest and Eagle Nest Survey Areas during the follow-up ground survey conducted in May 2016. The Project Area included two occupied great horned owl nests, one occupied Swainson's hawk nest, two unoccupied small stick nests, and one previously unoccupied that was noted as unknown status by the biologist due to no access to properly view any nest activity from the ground (Figure 8a). One of the great horned owl nests was previously noted as unoccupied during the March survey. The Raptor Nest Survey Area had five occupied great horned owl nests, one unoccupied great horned owl nest, one unknown great horned owl nest (no access from the ground to view activity), four occupied Swainson's hawk nests, one occupied ferruginous hawk nest, one unoccupied golden eagle nest (see Golden Eagle Nest 2015_39 below), four occupied red tailed hawk nests, and one unoccupied unknown species small stick nest (Figure 8a). The Eagle Nest Survey Area had three occupied golden eagle nests, one occupied bald eagle, one occupied ferruginous hawk nest, two occupied large stick nests but unknown species, and nine unoccupied large stick nests (Figure 8a). The biologist was unable to check on two nests within the Raptor Survey Area (great horned owl nest 2015_44 and small stick nest 2015_16) because the nests were not visible from public roads.

Eagle Nests

November 2015. NDGF provided locations of six known golden eagle nests within 10 miles of the proposed Project Area (Figure 3). None were located within the Project Area. No bald or golden eagle nests were found within the Raptor Nest Survey Area during the November 2015 raptor nest surveys. Beyond the Raptor Nest Survey Area, two large unoccupied nests were located in trees (2015_10 and 2015_38) and six large unoccupied nests were located on sandstone buttes. The nests on the sandstone buttes include of a cluster of five large stick nests (2015_11, 2015_12, 2015_13, 2015_14, and 2015_15) located 3.8 to 5.0 miles to the northwest of the Project Area, and a single nest (2015_18) located 7.4 miles to the northwest of the Project Area (Figure 8a). The nest spacing indicates that there may be one to two possible raptor territories. These large nests are most likely to be used by large raptor species such as golden eagles or ferruginous hawks. A golden eagle was subsequently viewed perching in proximity to

the cluster of five large unoccupied nests. No additional nests or suitable nesting ledges were found on the buttes visited during the expanded search effort.

January 2016. No bald or golden eagle nests were found within the Raptor Nest Survey Area during the January nest survey. Beyond the Raptor Nest Survey Area, the existing golden eagle nest structure (2015_25) reported by NDGF was unoccupied in January 2016. Nest 2015_22, which was reported as destroyed in the dataset provided by NDGF, was confirmed to be no longer present. The cluster of five large stick nests located on buttes between 3.8 to 5.0 miles from the Project Area (2015_11, 2015_12, 2015_13, 2015_14, 2015_15) and a single large stick nest (2015_18) located 7.4 miles to the northwest of the Project Area were all still unoccupied. The bald eagle nest (2015_20) was occupied in January 2016 (Figure 8a).

Five new large stick nests were found in the Eagle Nest Survey Area (2016_02, 2016_08, 2016_10, 2016_09, and 2016_11; Figure 8a); all five nests were noted to be unoccupied and located in deciduous trees. Nest 2016_10 is located approximately 800 feet from Nest 2015_20, and is likely an alternate bald eagle nest (Figure 8a). The other four large stick nests (2016_02, 2016_08, 2016_09, and 2016_11) were located in deciduous trees in the Eagle Nest Survey Area.

February 2016. The known bald eagle nest (2015_20) located in the Eagle Nest Survey Area which was occupied in January was still occupied during the February surveys. An adult bald eagle was observed perched near the nest. All of the known and potential golden eagle nests located on sandstone buttes (2015_11, 2015_12, 2015_13, 2015_14, 2015_15, and 2015_18) to the northwest of the Project Area were still unoccupied. Three large stick nests located in trees to the south of the Project Area (2016_08, 2016_09 and 2016_11) were occupied based on the addition of fresh greenery; however, no eagles were observed in attendance at these nests. Two new large stick nests (Nests 2016_12 and 2016_13) were found in the same group of cottonwood trees as Nest 2016_08, and are probably alternate nests (Figure 8a).

March 2016. A recheck of previously found eagle and other large stick nests found four occupied golden eagle nests (2015_39, 2016_08, 2016_09, 2016_11) and one occupied bald eagle nest (2015_20) within the Eagle Nest Survey Area during the March 2016 aerial surveys (Figure 8a). Two of the six large stick nests located on sandstone buttes between 3.8 to 5 miles from the Project Area (Nest 2015_13 and Nest 2015_15) were determined to be occupied based on fresh lining material added to the nests between the February and March 2016 surveys. However, no raptors were present and the species could not be determined. Biologists rechecked the two historic golden eagle nest structures located on sandstone buttes northwest of the Project Area and confirmed there was no nest structure in the vicinity of Nest 2015_22 which was reported as destroyed by NDGF. The other historical nest reported by NDGF (Nest 2015_25) was occupied by a ferruginous hawk (Figure 8a). There were several large unoccupied stick nests located in trees within the Eagle Nest Survey Area. Based on their proximity, Nests 2016_12 and 2016_13 appear to be alternate nests within the golden eagle territory of Nest 2016_08. Nest 2016_10 appears to be an alternate nest within the bald eagle territory of the occupied bald eagle Nest 2016_20 (Figure 8a). Nests 2015_38 (2.5 miles to the northwest of the Project Area), and 2016_02 (9.5 miles to the southeast of the Project Area) were located in large trees near

drainages, and these nest structures appeared large enough to potentially support eagles (Figure 8a).

May 2016. A follow-up ground survey on May 2016 identified one occupied golden eagle nest within the Raptor Survey Area (2015_39; Figure 8a and 8b) and three other occupied golden eagle nests (2016_08, 2016_09, 2016_11) and one occupied bald eagle nest (2015_20) still active in the Eagle Nest Survey Area (Figure 8a). The nearest eagle nest is now a golden eagle nest (Nest 2015_39), located 0.9 miles from the nearest turbine (Figure 8b). This nest is relatively undersized and located near the top of the tree. Biologists classified this nest as small, and did not consider the nest to be a potential eagle nest when first located during the November 2015 surveys. The nest size and location within the top branches of the tree is more typical of a hawk nest than a typical golden eagle nest. Additional follow-up ground surveys and nest observations were conducted in April to May (see Golden Eagle Nest 2015_39 Monitoring below) and concluded that nest 2015_39 had at least one chick hatch but the nest partly fell apart and was abandoned around May 15 without successfully fledging any chicks. No additional occupied eagle nests or unoccupied large stick nests were located within the within the Raptor Nest Survey Area during the follow-up survey.

Tetra Tech analyzed the mean inter-nest distance separately for bald eagle nests and golden eagle nests within the Eagle Nest Survey Area (Project Area and the surrounding area out to 10-miles from the Project Area boundary). Two criteria were used to include nests within the analysis for each eagle species: 1) known nests identified with a given eagle species (both active and inactive or unoccupied nests), and 2) known nests of a given eagle species and all large stick nests that were consistent with the species. For both species active, inactive, and unoccupied nests were included in the analysis. The bald eagle mean inter-nest distance was 8 miles for known bald eagle nests, but was reduced to 3 miles when large stick nests were included (Table 8). The golden eagle mean inter-nest distance for known golden eagle nests was 9.9 miles, but increased to 12.4 miles when large stick nests were included (Table 8).

Golden Eagle Nest 2015 39 Monitoring

Nest 2015_39 was monitored for a total of 137.5 hours over 19 days, from April 11 to May 16, 2016. When nest monitoring began on April 11, the eagles appeared to be incubating, based on the posture of the birds. Brooding behavior (covering of young) was first noted on May 1. The male was observed perching in vicinity of the nest; however most of his time was spent beyond the viewshed of the observing biologists. Most of the male's flight paths beyond proximity of the nest were to south and west. From April 11 to May 9, the female was observed spending most of her time on the nest incubating/brooding, only leaving the nest for short periods. On May 10, the nest started to fall apart and several objects were observed falling out of the nest. The items that fell from the nest were 2 unidentified dark objects, one food item (a red-winged blackbird) and one unidentified, fuzzy white object, which may have been an eaglet. On May 11, both adults were observed continuously bringing in sticks, attempting to repair the nest. However, after this event both adults began spending less time at the nest, and were observed flying farther from the nest and at greater heights. On May 16, after three full days of monitoring with no observed brooding behavior it was determined that the nest had failed. Overall, the majority of flight paths

observed were local flights below 200 meters and within approximately three quarters to one mile of the nest (Figure 10b). Beyond one mile of the nest, most of the flight paths were above 200 meters, to the west and south of the nest (Figure 10a). Over the course of 19 survey days, four prey items were observed being brought to the nest; two of which (red-winged blackbird and small unidentified mammal) were captured within 500 meters of the nest.

Eagle Prey Base Surveys

In January 2016, one prairie dog town, 6 miles west of the Project Area was confirmed to be occupied; the remaining eight known prairie dog towns did not appear occupied in January 2016. Prairie dog activity, based on the presence of individuals, was confirmed at one of the nine known prairie dog towns within 10 miles of the Project in February 2016. However, all of the prairie dog towns appeared to be occupied based on the presence of freshly excavated burrows and trails of worn-down vegetation between burrow entrances. No occupied prairie dog towns were observed within the Project Area (Figure 5).

Herds of pronghorns and deer (both mule deer and whitetail deer) were observed throughout the survey area during the eagle prey-base surveys. More deer (90 individuals) than pronghorn (39) were observed during the four rounds of surveys. The total number of prey species was highest during the March 10 (47 combined individuals) and March 24 (55 individuals), and decreased with each subsequent survey. Eight sharp-tailed grouse were observed on the March 24 survey. The biologist did not observe any prairie dog towns beyond those already identified in the NDGF data, nor did he observe lagomorphs or carrion from wildlife or livestock during the prey-based surveys.

Eagle Use Surveys

During the eagle use surveys, three golden eagle sightings (not incidental observations) were observed within the 800-meter-radius circular plots during the eagle use surveys (on April 2, April 14, and April 29, 2016; Table 1). All three of these sightings were of the incubating adult at golden eagle nest 2015_39, which was located within the southern edge of the 800-meter-radius circular plot for Survey Point 9. The eagle was observed incubating for the entirety of each observation period. According to the ECP Guidance, "Eagles are mapped when perched or when otherwise not flying, but the summary of eagle-minutes for a count excludes these observations and includes only eagles in flight." Since the golden eagle was never observed in flight during the eagle use surveys, no eagle exposure minutes were recorded for the three observations. Overall, no bald eagle or golden eagle exposure minutes were accrued during 325 hours of monitoring during the general avian point counts and eagle use surveys. Overall mean use, calculated as the total number of exposure minutes divided by the total number of observation hours, was 0.00 eagles per hour. No bald eagles were observed within the 800-meter-radius circular plots during the eagle use surveys.

A total of 9 bald eagles and 15 golden eagles were incidentally observed within 10 miles of the Project Area during the January raptor nest survey (Figure 11). Eagles of both species were distributed throughout the 10-mile survey area, but outside of the Project Area. Three eagles (one bald and two golden eagles) were observed incidentally during the February 2016 surveys. All of

the eagles were located outside of the Project Area and observed flying individually and at least 0.36 miles from the nearest known large stick nest.

Sharp-tailed Grouse

Of the 122 listening stations identified during the desktop analysis, 78 were accessible by public roads, occurred in suitable habitat, and were surveyed. These listening stations were each surveyed twice between April 6 and April 29, 2016. Four sharp-tailed grouse leks were documented in the Project Area and a 1-mile buffer during the surveys (Lek Survey Area; Figure 9). Two leks were detected during the first round of surveys (2016_01 and 2016_02), and all four leks were detected during the second round. Lek 2016_07 is within the Project Area while the other three leks are within the 1-mile buffer outside of the Project Area (Figure 9). The number of grouse observed at each lek ranged from 7 to 26 individuals. A total of 88 birds (46 males, 26 females, and 16 unknown) were recorded at the leks during the first round, and 85 birds (72 males, 5 females, and 8 unknown) were recorded at the leks during the second round, although this is a minimum count, as not all birds were visible from the road.

Species of Concern

No federally listed threatened or endangered species were observed during avian point-count surveys, raptor nest surveys, or as incidental observations. Observations of eagles, BCC species, state species of conservation priority, and species of fragmentation concern by season are summarized in Table 9. Species of concern with the potential to occur within the Project Area are discussed below.

Whooping Crane (Federal Endangered)

The only self-sustaining population of whooping cranes breeds in Wood Buffalo National Park in Canada and winters along the Gulf of Mexico at Aransas NWR in Texas (Austin and Richert 2001). Spring migration occurs primarily in April and May and fall migration occurs primarily in October and November (Austin and Richert 2001). Stopover habitat during migration includes a variety of croplands with roosting occurring in shallow, freshwater inland wetlands (Austin and Richert 2001). Four areas associated with major stopover areas are designated as critical habitat: Quivira NWR and Cheyenne Bottoms State Wildlife Management Area in Kansas; a section of the Platte River in Nebraska; and the Salt Plains NWR in Oklahoma (USFWS 2009). Wind energy development has been identified as a threat to the species due to the potential for displacement due to the presence of the turbines, and potential for collisions with operational wind turbines and new power lines (USFWS 2009). Collisions with power lines contribute substantially to whooping crane mortality during migration are considered the primary risk to cranes during migration (USFWS 2009). Collisions with wind and turbines is of lower risk because turbines are more visible than power lines; no whooping cranes and only two sandhill cranes (a related species) have been reported as wind turbine-related fatalities in publicly available literature (Stehn 2011).

Tetra Tech conducted a whooping crane likelihood assessment in which wetlands within the proposed Project Area and surrounding 35-mile buffer around the Project Area boundary were evaluated for suitable wetland habitat for whooping cranes (Tetra Tech 2015g). Palustrine

wetlands (freshwater wetlands characterized by emergent vegetation, e.g., playas) are most often used as roosting sites, but individuals have been found roosting at lacustrine wetlands (wetlands around a lake), and riverine wetlands (wetlands along a river; Austin and Richert 2001). The NLCD indicates less than one percent of the Project Area is wetland habitat.

In addition to wetlands, another indicator of potential occurrence by whooping cranes during migration is the presence of cultivated croplands. Austin and Richert (2001) found that cultivated croplands, such as wheat, were most often utilized by migrating whooping cranes if in close proximity to wetlands. Seventy-eight percent of the Project Area consists of suitable wetland-agriculture matrix habitat (Tetra Tech 2015g).

Based on the whooping crane likelihood assessment (Tetra Tech 2015g) the likelihood of whooping cranes occurring within the Project Area is low. The majority of whooping crane sightings (90 percent) occurred closer to the center of the migration corridor and farther away from the Project Area. Furthermore, the wetland habitat within the Project Area is slightly lower than the surrounding 35-mile buffer area, which may make the Project Area less attractive to migratory whooping cranes when compared to the surrounding area. In addition, the Project Area does not occur near whooping crane critical habitat (USFWS 2014a); the closest critical habitat is in the designated section of the Platte River in Nebraska, which is located over 708 kilometers (440 miles) to the south-southeast.

Sharp-tailed Grouse (ND Species of Conservation Priority)

Although sharp-tailed grouse are afforded no special federal regulatory protection, the species is a Level II state-listed species of Conservation Priority (Section 2.4). Current research suggests that certain grouse species may avoid anthropogenic structures (USFWS 2012a, Hagen et al. 2011); however, long-term data sets are still needed to assess wind energy impacts (Johnson et al. 2012). Regardless, state and federal wildlife agencies have regularly expressed concern about the locations of wind turbines with respect to grouse leks. Leks are breeding grounds where grouse congregate and males engage in communal breeding displays during the spring (March–April; Connelly et al. 1998).

Sharp-tailed grouse prefer areas dominated by relatively dense herbaceous cover and shrubs. Common grasses include bluestems (*Andropogon* spp.), bluegrasses (*Poa* spp.), wheatgrasses (*Agropyron* spp.), and needlegrasses (*Stipa* spp.); common shrubs include rose (*Rosa* spp.), cherry (*Prunus* spp.), serviceberry (*Amalanchier* spp.), snowberry (*Symphoricarpos* spp.), sagebrush (*Artemisia* spp.), and hawthorn (*Crataegus* spp.; Connelly et al. 1998). Leks form the hub of breeding habitat and usually occur on elevated areas. Leks sometimes are associated with disturbed sites and often on sites with less vegetation than surrounding areas. Lek locations are generally stable from year to year, although location may change, especially if area is covered with snow or water (Connelly et al. 1998). Nesting habitat includes stands of grasses, shrubs, and forbs. The species may nest in alfalfa (*Medicago sativa*) and wheat (*Triticum aestivum*) stubble, but usually nests in relatively heavy cover, often under a shrub in vegetation at least 30 centimeters high with dense foliage (Connelly et al. 1998). Sharp-tailed grouse may remain in summer habitat until snowfall forces individuals to winter range. Winter habitat requirements are

narrower than in other seasons, when the species often relies on riparian areas, deciduous shrub draws, and open coniferous woods (Connelly et al. 1998). During mild winters, the species may use grain fields and Conservation Reserve Program (CRP) fields (Connelly et al. 1998). To obtain a better understanding of lek locations, lek data were requested from NDGF and focused lek surveys were completed in spring 2016 (see Table 6). On February 26, 2016, NDGF indicated that they have not performed lek surveys in the vicinity of the Project Area, and therefore do not have any records of grouse leks there (A Robinson, NDGF, pers. comm.). Our spring 2016 surveys located four leks in the Project Area or within 1-mile of the Project Area.

Bald Eagle (Federally Protected Under BGEPA)

Bald eagles occur throughout the contiguous United States, Alaska, and Canada (Buehler 2000). Individuals may occur as breeders, winter residents, migrants or year-round residents (Buehler 2000). Bald eagles can nest in large trees or cliffs. The nesting period in North Dakota begins with nest building or maintenance in January and ends when the young fledge, typically in July (Tetra Tech, pers. obs., Johnson 2010). Nests are relatively close to water, typically less than 2 miles. Although bald eagle nests have historically been found primarily along the Missouri River and Red River (Johnson 2010), the number of bald eagle nests has increased in North Dakota over the last 20 years as the species continues to recover from population declines, primarily due to environmental contaminants. Nesting bald eagles now occur in more than half of the counties in the state (Dyke et al. 2015) growing steadily to 140-150 active bald eagle nests to date (Johnson 2015). Most of the nests occur near streams and mid- to large-sized lakes, but bald eagles are also initiating nests in areas not considered traditional nesting habitat such as cottonwood trees surrounded by cropland or grassland (Dyke et al. 2015). The home range of bald eagles is variable. Populations in Oregon and Washington have home ranges of 2.7 to 18.1 square miles, with an average of 8.5 square miles (Watson et al. 1991), and in Montana the average home range size was 3.5 square miles (Stangl 1994). Along the Mississippi River in Minnesota, nests were located an average of 0.94 mile from the nearest neighboring nest (Mundahl et al. 2013).

During the non-breeding season (September through January; USFWS 2013a), bald eagles concentrate near large bodies of water where the water remains unfrozen, and roost up to 20 miles from foraging sites, depending on abundance of prey (Buehler 2000). Bald eagles are opportunistic foragers that prey primarily on fish but also feed on other aquatic and terrestrial vertebrates, as well as on carrion (Buehler 2000).

Although the landscape within the Project Area does not support any large waterbodies or an abundance of smaller waterbodies that would attract bald eagles for nesting or foraging, the presence of one occupied bald eagle nest in the vicinity of the Project Area (9.3 miles northeast) suggests that the species may hunt or pass through the Project Area during the breeding season. Based on the distance of the bald eagle nest from the Project Area, there is a low likelihood of bald eagle occurrence.

Golden Eagle (Federally Protected Under BGEPA)

Golden eagles are common in western North America west of the 100th meridian with small populations also present in the eastern portions of Canada and the United States (Kochert et al.

2002). Western golden eagle populations may be migratory or year-round residents; individuals from northern populations typically migrate south to over-winter in the southern region of the United States where eagle populations tend to be residential (Kochert et al. 2002). Both year-round and migratory golden eagles occur in North Dakota (NDGF 2015). Golden eagles in the western United States are most commonly associated with open and semi-open habitats such as shrublands, grasslands, woodland-brushlands, and coniferous forests as well as in farmland and riparian habitats (Kochert et al. 2002). Golden eagles are known to nest on cliffs, utility poles, or in large trees and breeding areas vary by region, but are generally associated with mountainous canyon land, rimrock terrain of open desert, grassland areas, riparian habitats, and occasionally in forested areas (Kochert et al. 2002). Golden eagles in North Dakota nest mainly west of the Missouri River (Johnson 2015) and egg-laying occurs from late March to early May (Stewart 1975, DeLong 2004). The species feeds upon a wide variety of prey species but tends to hunt small to medium-sized mammals such as hares, rabbits, ground squirrels, marmots, and prairie dogs depending upon local availability (Bloom and Hawks 1982; Kochert et al. 2002).

The presence of three occupied golden eagle nests within 10-miles of the Project Area suggests that the species may hunt or pass through the Project Area during the breeding season. Although golden eagles have a low likelihood of breeding within the Project Area due to a lack of suitable nesting habitat, the species may hunt or pass through the Project Area during any time of the year. Possible food resources for golden eagles within the Project Area include both carrion and live prey. Potential sources of carrion include wildlife from road kill, powerline collision, natural death and predation, and hunting. Domestic animals, particularly livestock could also be available as road kill or dead cattle left or placed in private fields. Live prey may include small and medium sized mammals, particularly prairie dogs, lagomorphs and larger mammals such as deer and antelope. Game birds such as pheasant and sharp-tailed grouse could also be prey for golden eagles. However, there are no known features that would concentrate golden eagles within the Project Area compared to the surrounding area (e.g., the number and density of prairie dog towns outside the Project Area is greater than within the Project Area). Based on extensive studies of eagle use, prey-base, nest surveys and monitoring, we believe the overall use by, and thus risk to, golden eagles are low in the Project Area.

5.2.2.2 Species of Habitat Fragmentation Concern

Four species of habitat fragmentation concern (USFWS 2013b) were observed during surveys within the Project Area: bobolink, northern harrier, upland sandpiper, and sharp-tailed grouse. A total of 35 bobolinks, 40 northern harriers, 9 upland sandpipers and 71 sharp-tailed grouse were observed within the Project Area during avian surveys.

Although the Project Area is outside of the mapped range for greater sage grouse in North Dakota, it is possible that the greater sage grouse could occur (K. Shelley, USFWS, pers. comm. 2015). However, the greater sage grouse is a sagebrush obligate species, and there is no known sagebrush within or near the vicinity of the Project Area, making the likelihood of occurrence low. The Project Area is outside of NDGF's study area for greater sage grouse, so NDGF does not track leks within the Project Area (A. Robinson, NDGF, pers. comm. 2016). No greater sage grouse leks were observed during the Project lek surveys.

5.3 Bat Status Assessment

5.3.1 Bat Habitat

Tetra Tech prepared a desktop assessment of bat likelihood of occurrence in the fall of 2015 with a revised report completed in April 2016 (Tetra Tech 2016h). Acoustic bat monitoring in the Project Area was started July 22, 2015 and concluded December 3, 2015 (Tetra Tech 2016i). The objective of acoustic monitoring was to supplement and refine the desktop assessment, as well as to assess bat use and occurrence of the Project Area by local and migratory bat species. Tetra Tech designed the acoustic monitoring surveys at the Project Area in accordance with the recommendations outlined in Tier 3 of the voluntary USFWS Land Based Wind Energy Guidelines (USFWS 2012a) and the NLEB Interim Conference and Planning Guidance for Phase 2 presence/absence surveys (USFWS 2015c).

5.3.2 Bat Survey Methods

Tetra Tech deployed four ground-based bat detectors within the Project Area on July 22, 2015 and ended on December 3, 2015. This timing was selected to sample the summer volancy period (when pups can fly, approximately three weeks after birth) and the complete fall migration periods for the majority of North American bat species, including NLEB. Sampling sites were chosen within areas with that had the highest potential for high bat activity and that were accessible under existing lease agreements (Figure 7). The microphone height of each of the ground-based bat detectors was approximately 2.5 meters above ground level. To ensure that the greatest period of bat activity was surveyed, bat detectors were programmed to begin recording at 30-minutes before sunset and stop recording approximately 30-minutes after sunrise each day. Tetra Tech used Wildlife Acoustics® Song Meter SM3 Monitoring Systems (bat detectors) for the duration of the acoustic monitoring survey. Each bat detector station consisted of the acoustic detector, powered by a 25-50 watt solar panel and a 12-volt DC battery, encased in a waterproof housing. The SM3-U1 microphone was attached to the recording unit by a high-quality, low-loss 3-meter microphone cable. Each bat detector was manually checked by trained technicians approximately twice per month during the survey period.

Definitive identification of bat species by echolocations was a two-step process, whereby data are first analyzed using automated bat call identification software approved by the USFWS and then manually reviewed to confirm species identification.

All recorded data files were filtered by software to identify data files containing potential bat calls¹. Data were scrubbed and analyzed using Kaleidoscope Pro (Wildlife Acoustics, Inc.) version 3.1.5 and the classifier “Bats of North America 3.1.0” for species of bats in North Dakota (Tetra Tech 2016i). A sensitivity level of “-1 more sensitive/liberal” was used per Wildlife Acoustics and USFWS recommendations (USFWS 2015d). Signals of interest ranged from 8-120 kilohertz

¹ Each recorded event including a bat vocalization consists of individual “call pulses” that comprise a “bat call sequence” or “bat pass.”

lasting 2-500 milliseconds with a minimum of two call pulses. Full spectrum .wav files were converted to zero-crossing (ZC) using a division ratio of eight.

All calls classified as potential NLEB by the software were manually reviewed by Tetra Tech in full spectrum format using SonoBat 3.2.0 (SonoBat, Inc.) to confirm the automated classifications (Tetra Tech 2016i). During manual review, Tetra Tech considered a recording as suitable for species level identification if the individual call pulses within the call sequence exhibited the full spectrum of frequency modulation produced by a bat species. Calls that lacked detail to be identified at the species level (e.g., too far from the microphone or noise interference) were identified as “Myotis species” if the call pulses contained characteristics unique to Myotis (i.e., well defined tones), or as “High frequency species” if the frequency center was greater 40 kilohertz and call characteristics between eastern red bat and Myotis were ambiguous. As part of a third party review process, Biodiversity Research Institute independently reviewed all calls classified as potential NLEB by the software.

5.3.3 Bat Presence and Use Patterns

5.3.3.1 Species Presence by Season/Bat Use Patterns

The acoustic study documented five bat species within the Project Area, and did not include any detections of NLEB, a federally threatened species (Tetra Tech 2016i). Activity levels at Brady II were dominated by little brown bat (*Myotis lucifugus*). Also detected were other common species: Big brown bat (*Eptesicus fuscus*), hoary bat (*Lasiurus cinereus*), eastern red bat (*Lasiurus borealis*), and silver-haired bat (*Lasionycteris noctivagans*; Tetra Tech 2016i).

The relative activity levels of bats detected at each of the four stations within the Project Area were highly variable (1.5–159 bat passes/detector-night; Tetra Tech 2016i). Little brown bat represented the majority (85 percent) of the overall bat activity, across all stations (Tetra Tech 2016i). The overall, average activity rate documented in this study (47.4 bat passes/detector-night) is much higher than activity rates documented in Hein et al. (2013) for studies conducted in similar habitats; however, a simple comparison of the relative bat activity levels among different studies is not advisable due to the difference in study objectives and recording equipment.

5.3.3.2 Species of Concern

Few data are available on NLEB in North Dakota; however, the species is believed to occur statewide in suitable habitats (Harvey et al. 2011; Gullickson n.d.). Surveys conducted in the summers of 2009, 2010, and 2011, confirmed the presence of NLEB in the Turtle Mountains (approximately 200 miles northeast of the Project), Missouri River Valley (approximately 50 miles northeast of the Project), and in the Badlands regions (approximately 200 miles south of the Project; Gilliam and Barnhart 2011). The species has recently been detected in Billings and Hettinger counties (Gilliam and Barnhart 2011, Western and USFWS 2015), and could occur in the Project Area during seasonal movements to and from hibernacula; however, no hibernacula are known to occur in the state. There is little suitable roosting or foraging habitat in the Project Area or within the Project Buffer for the NLEB. The small size and small number of wooded parcels in the Project Area and the Project Buffer likely limits the density and diversity of bats in the Project

Area. Because of this lack of forested habitat within the Project Area and the location of the Project Area at the edge of the species' range, NLEB have a low likelihood of occurring in the Project Area.

5.3.3.3 Species of Habitat Fragmentation Concern

There are no bat species on USFWS's list of species of habitat fragmentation concern (USFWS 2015a).

5.4 Dakota Skipper Assessment

The Dakota skipper is a small butterfly found in the tallgrass and mixed-grass prairies of the Northern Great Plains. On October 24, 2014, the USFWS listed the Dakota skipper as a threatened species (USFWS 2014a). Although its historic range once consisted of vast, unbroken native prairie in the north-central United States and south-central Canada, its current range is now limited to scattered remnants of high quality native prairie in Minnesota, North Dakota, South Dakota, and southern Manitoba and Saskatchewan (USFWS 2015a). The Dakota skipper population has declined due to sensitivity to disturbances, such as grazing and fire, and the loss of native prairie habitat. The USFWS designated 50 units of protected lands, ranging in size from 31 acres to 2,887 acres, in North Dakota, Minnesota, and South Dakota as critical habitat (USFWS 2014b). The closest critical habitat to the Project Area is approximately 70 miles to the north in McKenzie County.

The Dakota skipper is not known to occur in Hettinger and Stark counties (Western and USFWS 2015); however, Hettinger and Stark counties are on the western extent of the species' range (USFWS 2015a), and as a result, there is a low likelihood for the species to occur within the Project Area. Brady II Wind has evaluated potential habitat for the Dakota skipper within the Project Area and has identified 177 acres (1 percent of the Project Area) as Excellent/Likely Dakota skipper habitat and 4,868 acres (28 percent of Project Area) was classified as Good/Possible Dakota skipper habitat. A total of 1,164 acres (7 percent of the Project Area) were classified as undetermined (i.e., could not be determined from desktop analysis or verified in the field due to access limitations).

6.0 POTENTIAL PROJECT IMPACTS

This section outlines potential risks to wildlife related to the construction and operation of the Project.

6.1 Project Risk Assessment

In the following sections, the field data collected in 2015_2016 were analyzed to assess potential Project impacts. Impacts to the species under discussion can be short-term (one or two reproductive seasons), or long-term (affecting several generations). They can be direct (an immediate effect to an individual, population or its habitat), or indirect (an effect that may occur

over time or result from other actions). Direct impacts may include collisions with Project infrastructure such as turbine blades or transmission lines; electrocution; disturbance from construction or operations activities; displacement due to loss of suitable habitat; and habitat loss and fragmentation that creates a barrier to dispersal, regular movements, or migration. Indirect impacts may include loss or change of population vigor; attraction to modified habitats, and increased exposure to predation as a result of altered habitat use. Additionally, the Project may contribute to cumulative impacts that may affect certain species, in conjunction with impacts from other future development.

6.1.1 Avian Impacts

Birds have been identified as a group at risk because of collisions with wind turbines and power lines (Erickson et al. 2005, Drewitt and Langston 2006, Arnett et al. 2007). Specifically, migrant passerines (e.g., songbirds) are found more often in post-construction mortality monitoring compared to other groups of birds (Arnett et al. 2007). In fact, at newer generation wind energy facilities outside of California, approximately 80 percent of documented mortalities have been songbirds, of which 50 percent are often nocturnal migrants (Erickson et al. 2001, Johnson et al. 2002, Drewitt and Langston 2006, Strickland and Morrison 2008).

Songbirds and gamebirds were the most commonly observed species groups during spring 2016 avian point count surveys and are likely to use the Project Area. The most commonly observed species were red-winged blackbird, American robin, ring-necked pheasant, horned lark, western meadowlark, brown-headed cowbird, and common grackle.

6.1.1.1 Direct Impacts on Bird

General Avian Species

The avian community detected within the Project Area during surveys was characterized by species typical of agricultural lands and cattle pastures 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. Publicly available avian fatality rates at wind facilities in the mid-west of North America with similar habitat to that of the Project average 2.00 birds/MW/year (2.43 birds/turbine/year; Table 10). Recent meta-analyses relevant to the Project have estimated an average all-bird (mostly small birds) fatality rate of 1.81 birds/MW/year in the Great Plains (Loss et al. 2013) and 2.29 small birds/MW/year in the Prairie biome (Erickson et al. 2014). The meta-analysis provided by other studies and the publicly available fatality rates indicate that any Project-related bird fatalities, should the occur, may be reasonably expected to be within the range defined by these studies and the publicly available fatality rates in Table 10.

Collision

Locally breeding songbirds may experience lower mortality rates than migrants because many of these species tend not to fly at turbine heights during the breeding season. However, some breeding songbird species have behaviors that increase the risk of collisions with turbines. For example, horned larks have been commonly found as fatalities at wind farms, and mortality may

be partially attributed to the breeding flight displays within the rotor swept area (Pickwell 1931, Johnson and Erickson 2011).

Three songbirds were identified as having potential risk of collision due to high frequency of detection and/or relatively high mean use rates during spring avian point-count surveys: red-winged blackbird, American robin, and western meadowlark. None of the species observed during the spring avian surveys had a high encounter rate (The highest being American crow at 0.29 birds flying at RSA height/20 minutes). A high encounter rate is considered 1.0 birds flying at RSA height/20 minutes or higher. Red-winged blackbirds are local year-round residents and a transient migratory species while American robins and western meadowlark are summer resident and a transient migratory species in North Dakota and may be at the greatest fatality risk during the spring and fall seasons due to their migratory flocking characteristics.

The red-winged blackbird (Kerlinger et al. 2006, Thelander et al. 2003), American robin (Jain et al. 2007, Johnson and Erickson 2011, Downes and Gritski 2012), and western meadowlark (Johnson and Erickson 2011, Thelander et al. 2003) have been documented as fatalities at other wind energy projects according to publically available data. The red-winged blackbird, American robin, and western meadowlark were among the 25 most commonly detected collision fatalities at wind energy facilities (Erickson et al. 2014). Although risk of turbine-related fatalities at the Project exists for each of these species, should they occur, they are unlikely to have population-level impacts because North Dakota populations for each species are large and relatively stable (8.2 million—red-winged blackbird, 1.9 million—American robin, 5.6 million—western meadowlark; PIFSC 2013, Sauer et al. 2014).

Although non-raptor mortality due to collision is expected to be low, collision fatalities are a cause of concern to Brady II Wind. To monitor and minimize collision fatalities to the extent practicable, Brady II Wind will implement 1 year of systematic post-construction fatality monitoring (Section 8.0) and the Wildlife Response and Reporting System (WRRS) for the life of the Project (Section 10.0).

Electrocution

Utility lines, particularly distribution lines, can potentially result in electrocution of large raptors because their wing span is large enough that the bird can simultaneously contact two conductors or a conductor and grounded hardware (APLIC 2006). Utility lines generally pose less of a threat to non-raptors because of their smaller wing spans. However, any structures that allow for circuit completion (i.e., flesh-to-flesh contact between energized parts or an energized and grounded part) pose an electrocution risk. Avian electrocutions typically occur on distribution lines with voltages less than 60 kilovolts. The risk of electrocution at the Project is likely to be low due to measures Brady II Wind will undertake to prevent electrocution. See Section 7.0 for details of avoidance and minimization measures.

Disturbance/Displacement

In addition to mortality associated with wind farms, concerns have been raised that some bird species may avoid areas near turbines after the wind farm is in operation (Drewitt and Langston 2006). For example, at the Buffalo Ridge wind energy facility in Minnesota, densities of male

songbirds were significantly lower in CRP grasslands containing turbines than in CRP grasslands without turbines though the causal mechanism was not studied (Leddy et al. 1999). Reduced abundance of grassland songbirds was found within 50 m of turbine pads for a wind farm in Washington and Oregon, and the investigators attributed displacement to the direct loss of habitat or reduced habitat quality and not the presence of the turbines (Erickson et al. 2004). Research at two sites in North and South Dakota (Shaffer and Johnson 2009) suggests that certain grassland songbird species (two of four studied) may avoid turbines by as much as 200 meters, but these results have not been finalized or verified at additional sites. None of these studies have addressed whether these avoidance effects are temporary (i.e., the birds may habituate to the presence of turbines over time) or permanent. Pearce-Higgins et al. (2012) found little evidence for a post-construction decline for ten species of birds at wind projects in upland habitats in the United Kingdom.

Project construction activities and the presence of turbines and other Project features may disturb or displace birds, particularly species of habitat fragmentation concern. Many of the species detected during bird surveys likely breed in the Project Area, suggesting potential for impact to breeding birds. However, the impacts to birds from disturbance or displacement from the Project are likely to be low based on the relatively low bird use in the Project. The limited amount of native grassland habitats combined with heavy agricultural use within the Project Area suggests that the additional disturbance and habitat loss caused by construction and operation of the Project will not cause birds to avoid the Project Area, nor should it alter the current use of habitat by bird species within the Project Area. The risk of disturbance/displacement will be further reduced through avoidance and minimization measures taken during the design, construction, and operational phases of the Project (Section 7.0), which includes establishing non-disturbance nest buffers during the breeding season on active nests.

Species of Habitat Fragmentation Concern

Four species of habitat fragmentation concern (USFWS 2013b) were observed during surveys within the Project Area: bobolink, northern harrier, upland sandpiper, and sharp-tailed grouse (Tetra Tech 2016b). All four species use grasslands and native prairie (USFWS 2013b) which accounts for 27 percent of the Project Area. Brady II Wind has designed the Project layout to provide the minimal amount of impact to grasslands and the remaining native prairie in the Project Area by placing turbines in already disturbed habitats or along the edges of existing native prairie habitat to minimize fragmentation to the extent possible. As a result 213.9 acres (1.2 percent of the Project Area) of native prairie habitat would temporarily impacted and 21.8 acres (less than 1 percent of the Project Area) would be permanently impacted as a result of Project development. As a result, habitat fragmentation for bobolink, northern harrier, and upland sandpiper are expected to be minimal.

The sharp-tailed grouse are considered a gamebird by the NDGF and is afforded no special protection by the state. However, this species has experienced population declines linked to landscape-level land use changes, primarily due to habitat loss through the conversion of grasslands to cropland. Habitat loss, fragmentation, and degradation were the primary factors

behind historic declines of federally-listed and candidate grouse species, and are considered the primary threats to existing prairie grouse populations, including sharp-tailed grouse (Hoffman and Thomas 2007). State and federal wildlife agencies have regularly expressed concern about the locations of wind turbines with respect to prairie grouse leks and sharp-tailed grouse may be susceptible to habitat fragmentation and displacement caused by development of wind facilities. Four active sharp-tailed grouse leks were observed within the Project Area and 1-mile buffer. Based on the location of the leks and availability of grassland habitat, there is the potential for Project-related impacts to displace sharp-tailed grouse.

Collision

Northern harriers have seldom been recorded as fatalities at other wind farms with publicly available data; this may be because the majority of foraging flights for the northern harrier occur below typical RSA heights (Whitfield and Madders 2006). Breeding males typically deliver prey to breeding females in an aerial pass (MacWhirter 1994, as cited in Smith et al. 2011), which may place birds in the rotor-swept zone near their nests. Additionally, bobolink and upland sandpipers observations within the Project Area during the spring avian surveys were low (19 and 9 individuals, respectively). The risk of turbine-related fatalities of northern harriers, bobolink, and upland sandpiper at the Project is expected to be low given the low encounter rate of 0.00 birds flying at the RSA height/20 minutes within the Project Area for each species.

Sharp-tailed grouse fatalities are uncommon at operating wind farms according to publicly available data. This may be because this species generally flies at heights less than 100 meters (Connelly et al 1998) and typically fly beneath the RSA. During avian surveys, sharp-tailed grouse had a mean use of 0.34 birds/20 minutes and were observed in 5.5 percent of all surveys. However, the encounter rate was 0.00, as none were observed flying at the height of the RSA. The risk of turbine-related collision fatalities are expected to be low based on this species' typical flight behavior and low encounter rate at the Project Area. In addition, Project-related fatalities of sharp-tailed grouse, should they occur, are unlikely to have population-level impacts because North Dakota populations are large and relatively stable (170,000 birds; PIFSC 2013, Sauer et al. 2014). Sharp-tailed grouse are also a popular game bird throughout its range; however, there is little evidence that harvest adversely affects populations (Connelly et al. 1998).

Disturbance and Displacement

In the Midwestern United States, nesting by northern harriers occurs in wetlands, on reclaimed mines and in CRP fields planted in non-native grasses (Dechant et al. 2002). A before-after/control impact study of avian use at the Buffalo Ridge Wind Resource Area in Minnesota found evidence that northern harriers avoided turbines on small (≤ 100 m from turbines) and large (105-5,364 m) scales the year following construction. Such avoidance was not detected in a study conducted two years post-construction (Johnson et al. 2000), suggesting that any displacement effect of a wind farm on the species may be temporary.

Sharp-tailed grouse could be affected by Project development if Project infrastructure disturbs or displaces grouse from leks or areas of preferred habitat (grasslands). Although there are no known leks within the Project Area, if they occur, disturbance caused by turbines and other Project

infrastructure may displace grouse from leks. Current research suggests that certain grouse species may avoid anthropogenic structures (Hagen et al. 2011, USFWS 2013a) but the effect of tall structures on birds is still not well understood (Walters et al. 2014). Males may tolerate various types of disturbance more than females (Connelly et al. 1998). The Project Area; however, is largely used for agricultural purposes and is disturbed, and the native grassland habitat will be avoided to the extent feasible by the Project. This reduces the likelihood of disturbance and displacement impacts on the sharp-tailed grouse. The risk of disturbance/displacement will be further reduced through avoidance and minimization measures taken during the design, construction, and operational phases of the Project (Section 7.0).

Birds of Conservation Concern

Three BCC species were observed in or near the Project Area during spring 2016 avian surveys: upland sandpiper, golden eagle, and ferruginous hawk. Upland sandpiper risks were discussed in the Species of Habitat Fragmentation section above, golden eagle, and ferruginous hawk are discussed in the following sections.

The risk of direct impacts will be reduced through avoidance and minimization measures implemented during the design, construction, and operational phases of the Project (Section 7.0).

Raptors

Despite the observation that most bird fatalities at wind farms are songbirds, raptor mortality historically has received the most attention. Raptor mortality at newer wind projects has been low relative to older-generation wind farms, although there is substantial regional variation in raptor mortality rates (Erickson et al. 2002, Erickson et al. 2004, Johnson et al. 2002, Kerns and Kerlinger 2004, Jain et al. 2007).

Collision

A recent meta-analysis suggests that pre-construction studies provide poor indicators of post-construction mortality (Ferrer et al. 2012). A general pattern is that high raptor use (greater 2.0 birds/20 minutes) has often been associated with high raptor mortality at wind farms (Strickland et al. 2011). Conversely, raptor mortality often appears to be low when raptor use is low (< 1.0 birds/20 minutes; Strickland et al. 2011). In the case of this Project, overall raptor use was 1.07 birds/20 minutes in the fall, which very close to low mean use threshold of 1.0 birds/20 minutes suggested by Strickland et al. (2011).

Northern harrier was the raptor species with the highest mean use (0.22 birds/20 minutes) and was also the most frequently detected raptor species at the Project. The species is commonly associated with agricultural and grassland habitats which provide opportunities for foraging, an activity associated with susceptibility to turbine-collisions (Thelander et al. 2003). However, in a study of raptor response to wind farms, northern harriers were identified as having a low risk flight behavior for collisions (Garvin et al. 2011). Risks of collision for northern harriers are believed to be low because the majority of foraging flights occur below typical RSA heights (Whitfield and Madders 2006). This is consistent with the results of the spring avian point count surveys, where

northern harriers had an encounter rate of zero (no individuals flying within the anticipated RSA). Thus, risks of turbine-related fatalities at the Project are expected to be low given the low level of use and encounter rate. As a result, project-related fatalities of northern harrier, should they occur, are likely to be minimal, and unlikely to have population-level impacts because northern harriers have a widespread distribution with large populations (Sauer et al. 2014).

Other raptor species detected included (in order of highest to lowest mean use) Swainson's hawk, turkey vulture, American kestrel, red-tailed hawk, golden eagle, great horned owl, and ferruginous hawk. One ferruginous hawk was observed during avian use surveys, resulting in low mean use of the Project Area and an encounter rate of 0.00 birds flying at the RSA height/20 min, suggesting a low risk of collision with Project turbines. The ferruginous hawk is not commonly found as a fatality at wind energy facilities according to publicly available data. Therefore, impacts on ferruginous hawks are expected to be low. The remaining species are expected to have a low collision risk due to low mean use, frequency, and encounter rate. Golden eagles are discussed in the next section separate from other raptors.

Electrocution

Fatalities of large raptors have occurred as a result of electrocution and collisions with utility lines and structures, particularly distribution lines (APLIC 2006). Due to their large size, raptors are able to bridge conductive elements to complete a circuit (APLIC 2006). Therefore, any structures that allow for circuit completion (i.e., flesh-to-flesh contact between energized parts or an energized and grounded part) pose an electrocution risk. To protect birds from possible electrocution, the Avian Power Line Interaction Committee (APLIC) recommends that lines have a horizontal separation of 60 inches and a vertical separation of 40 inches between phase conductors or between a phase conductor and grounded hardware (APLIC 2006). Therefore, the risk of electrocution for raptors, including the ferruginous hawk the Project is likely to be low because all collection lines will be buried and all overhead lines and the generation interconnection tie line will be constructed following a manner consistent with APLIC guidelines for the design of overhead lines (see Section 7.0).

Disturbance and Displacement

Raptors may be vulnerable to disturbance from many types of human activity. Human disturbance may result in direct and indirect impacts to raptor habitat, occupancy, and nesting success (USFWS 2008b). Direct impacts may include the loss of foraging or nesting habitat within the Project Area, direct mortality (e.g., due to collisions with wind turbines, electrocution by power lines), noise disturbance (e.g., construction noise), and loss of nest sites or winter roost sites (USFWS 2008b).

Disturbance or displacement nesting raptors is possible if birds are nesting or have preferred foraging areas within line-of-sight of the Project facilities. A number of studies conducted at western wind energy facilities suggest that wind energy facilities do not have long term impacts on raptor nest densities (Howell and Noone 1992; Erickson et al. 2004; Johnson et al. 2003; Young et al. 2006; Gritski et al. 2008). For example, post-construction studies at an Oregon project found that raptor nests more than 0.5 miles from turbines were not impacted by project

disturbance (Gritski et al. 2008). Studies have also found no clear relationship between nest occupancy and distance from turbines (Johnson et al. 2003, Young et al. 2006). Suitable raptor nesting habitat within the Project Area is limited; there are few trees sufficient to support raptor nests, there is no cliff nesting habitat, and there are no large waterbodies that would attract nesting bald eagles. The nearest potential ferruginous hawk nests are 0.5 miles outside the Project Area. Given the number of known raptor nests within the Project Area and 2-mile buffer, some nesting raptors may be disturbed or displaced by construction activities. However, disturbance and displacement of raptors will be minimized through the implementation of avoidance and minimization measures described in Section 7.0.

Eagles

Collision

No bald eagles or their nests were found within the Project Area or 2-mile buffer surrounding the Project Area during the nest survey; however, there is one active bald eagle nest 9.3 miles of the Project Area (Tetra Tech 2016d; See Section 5.2.1.2 Eagle Use Surveys). The active bald eagle nest is 9.8 miles from the nearest turbine. Although bald eagles have a low likelihood of breeding within the Project Area due to a lack of suitable nesting habitat, bald eagles nesting in the vicinity of the Project could occur in the Project Area when foraging or migrating. Six bald eagle mortalities associated with wind energy facilities within the United States were reported from 1997 through June 2012 (Pagel et al. 2013). To date, one bald eagle mortality has been reported at a wind energy facility in North Dakota (Public Prairie Broadcasting 2015). Bald eagles are believed to be at less risk of turbine collision than golden eagles because they tend to focus their hunting efforts for fish and waterfowl in lakes and rivers (Buehler 2000). However, cattle carcasses and prairie dog colonies could also serve as attractants to nearby bald eagles. Although bald eagle collisions with turbines are possible, the likelihood of collisions is reduced due to the lack of nests and suitable nesting habitat within the Project Area and will be minimized through the implementation of avoidance and minimization measures described in Section 7.0.

No golden eagles or their nests were found within the Project Area during nest surveys; however, one golden eagle nest (2015_39) was detected during the May 2016 raptor nest survey 0.9 miles from the nearest turbine. In addition, there are two occupied golden eagle nests and several observations of individuals within 10 miles of the Project Area. In addition, cattle carcasses and prairie dog colonies within the Project Area could serve as attractants to golden eagles. Golden eagles have a high likelihood of occurring within the Project Area due to nesting and observations of individuals in the vicinity of the Project Area. Detailed observations of the adult's flight paths at nest 2015_39 conducted during April and May show the adults flight patterns to be limited and above RSA height when over the Project Area. Most observations had the adult male going south, southwest, or southeast away from the Project Area. The limited hunting that was observed at nest 2015_39 occurred within less than 1-mile from the nest location outside of the Project Area. Nest 2015_39 failed after the nest partly fell apart and was abandoned around May 15 without successfully fledging any chicks. There have been 79 golden eagle mortalities associated with wind energy facilities within the United States were reported from 1997 through June 2012,

excluding the Altamont Pass Wind Resource Area in California (Pagel et al. 2013.); however, to date no golden eagle mortalities have been reported at wind energy facilities in North Dakota. Golden eagles are believed to be more at risk of turbine collision than bald eagles because they hunt for land-based prey along topographic contours where turbines are often located (Kochert et al. 2002). Project infrastructure adjustments were made after golden eagle nest 2015_39 was found (see Section 7.1). After coordinating with the USFWS, a 1 mile (north to south) by 1.4 mile (east to west) buffer (Flight Path Based Buffer) was created around the nest location based on the eagle's flight paths (Figure 10b). Based on extensive studies of eagle use, prey-base, nest surveys and monitoring, we believe the overall use by, and thus risk to, both bald and golden eagles is low in the Project Area. Any remaining potential collision impacts on golden eagles will be minimized through the implementation of avoidance and minimization measures described in Section 7.0.

Electrocution

Impacts to eagles are the same as described for raptors above.

Disturbance and Displacement

Due to the lack of foraging habitat (large bodies of water) and nests within two miles of any turbines, it is unlikely that foraging or nesting bald eagles will be displaced or disturbed by the Project. There is some evidence that bald eagles avoid operating wind turbines (Sharp et al. 2012), but this avoidance appears to be over short distances rather than displacement from the entire wind farm.

It is unlikely that nesting golden eagles will be disturbed or displaced due to the lack of nesting habitat for golden eagle nests within the Project Area. However, golden eagles may be disturbed or displaced from the Project Area if infrastructure interferes with hunting or availability of prey. Most known prairie dog colonies in the vicinity are outside of the Project Area. Additional turbine locations and Project infrastructure adjustments were made after golden eagle nest 2015_39 was found resulting in a Flight Path Based Buffer around this nest based on flight path data (see Section 7.1).

Whooping Cranes

Collision

Whooping cranes may be directly affected by the Project through collision with wind turbines or associated power lines. No whooping crane observations were documented in the Project Area; however, the Project is located within the 95 percent isopleth of the whooping crane migration corridor.

To date, no whooping crane mortality has been attributed to collision with wind turbines at any facility. Whooping cranes typically fly at altitudes higher than the tallest proposed turbine height (431 feet at the tip of an upright turbine blade); however, individuals fly at lower altitudes in response to climate conditions (e.g., low cloud cover), while searching for a stopover location and while landing, taking off, and moving between roosting and foraging locations. It is during these

low flight times that the cranes are at the highest risk for collision with turbines and power lines. Although collision with turbines or transmission lines is a risk, cranes have been documented altering flight direction in response to turbines at a wind facility in South Dakota (Nagy et al. 2012), and multiple studies have documented sandhill cranes gradually climbing as they approach marked power lines (Morkill and Anderson 1991, Murphy et al. 2009).

Electrocution

Electrocution is unlikely for whooping cranes because they are ground-nesting birds, adapted to foraging on the ground, and are not known to perch or nest on or near the conductive elements of power lines.

Disturbance and Displacement

Land use within the Project Area consists mainly of active grazing or agricultural production with a limited extent of wetlands within the Project Area. The wetland-agricultural habitat matrix preferred by whooping cranes as stopover habitat exists within the Project Area; however, it also exists in the surrounding landscape (Tetra Tech 2015b). Given that the Project Area is on the outer edge of the known migration corridor and is not more attractive than the surrounding area, it is unlikely that whooping cranes will be displaced from the Project Area or that Project operations will disturb them.

6.1.1.2 Indirect Impacts on Birds

General Avian Species

Habitat Loss and Fragmentation

Birds may be indirectly affected by habitat loss and fragmentation due to Project development. Habitat fragmentation can exacerbate the problem of habitat loss for birds by decreasing patch area and increasing edge habitat. Habitat fragmentation can reduce bird productivity through increased nest predation and parasitism and reduced pairing success of males (Robinson et al. 1995). However, the increase in the amount of habitat loss and fragmentation as a result of Project construction will be minimized by the use of existing roads to the extent practicable and lands already altered by agriculture and cattle grazing, as well as restoring any native prairie impacts following Natural Resources Conservation Service (NRCS) or Farm Service Agency (FSA) seed mix requirements as required by the North Dakota Public Service Commission (PSC) Final Order. Additionally, Brady II Wind will follow all requirements of the Project's construction stormwater authorization including the Storm Water Pollution Prevention Plan to control erosion and potential pollutants.

Decreases to Population

The primary songbird species observed during Project surveys were red-winged blackbird, American robin, western meadowlark; thus, risk of turbine-related fatalities exists for each of these species at the Project. However, Project-related fatalities of these species, should they occur, are unlikely to have population-level impacts because North Dakota populations for each species are large (8.2, 1.9, and 5.6 million each respectively; PIFSC 2013). In addition, locally breeding

songbirds may experience lower mortality rates than migrants because many of these species tend not to fly at turbine heights during the breeding season. However, some breeding songbird species have behaviors that increase the risk of collisions with turbines. For example, horned larks have been commonly found as fatalities at wind farms, and mortality may be partially attributed to the breeding flight displays within the RSA (Pickwell 1931, Johnson and Erickson 2011). Most song birds are short-lived, have high reproductive output, and their population growth rates are more sensitive to reproductive failure than to adult survival (Stahl and Oli 2006, Arnold and Zink 2011). Additionally, recent meta-analysis of wind-energy impacts concluded that collisions with wind turbines have negligible cumulative impacts on small bird populations such as passerine (songbird) populations, with mortality rates due to these collisions ranging from 0.008 to 0.0043 percent of the continental population per year (Erickson et al. 2014). Therefore, collision mortality for most small bird species is expected to have negligible effects on population dynamics.

Avoidance and minimization measures will be implemented during all phases of the Project to reduce the possibility of population-level impacts on all bird species (see Section 7.0).

Birds of Habitat Fragmentation Concern

Habitat Loss and Fragmentation

Two avian species of habitat fragmentation concern were observed during spring avian surveys within the Project Area: northern harrier (46 observations) and sharp-tailed grouse (45 observations). According to the NLCD, the Project Area is 60.5 percent cultivated cropland and pasture/hay and 34 percent grasslands (Table 2, Jin et al. 2013), much of which is already disturbed, fragmented, and managed for agriculture, cattle grazing, and impacted by introduced grass species. While each of these species may be breeding within the Project Area, they are expected to be in low numbers due to the existing habitat fragmentation. Project development is not expected to add any additional loss of habitat due to fragmentation. In addition, Brady II Wind will avoid further fragmentation of high quality native grassland, which will help reduce impacts on these species.

Decreases to Population

The two species of habitat fragmentation concern observed within the Project Area are expected to occur in low numbers and therefore any fatalities are also expected to be few. Brady II Wind will avoid impacting suitable habitat for the species (native prairie) to the extent practicable.

Birds of Conservation Concern

Indirect impacts to, BCC species observed within and in the vicinity of the Project Area, is similar to impacts identified under general avian species.

Habitat Loss and Fragmentation

Of the BCC species observed in Project vicinity on nearby BBS, but not within the Project Area (short-eared owl, grasshopper sparrow, and loggerhead shrike) that have been documented as fatalities at operating wind farms, grasshopper sparrow is the species most sensitive to habitat

fragmentation. Grasshopper sparrow is also a USFWS species of fragmentation concern, and if it occurs within the Project Area, it could be impacted by fragmentation of grassland habitat. Brady II Wind will avoid areas of high quality grassland to the extent practicable in order to minimize habitat loss for grassland dependent species. Grassland fragmentation will be avoided and minimized through implementation of mitigation measures during the design, construction, and operation phases of the Project (Section 7.0)

Decreases to Population

Short-eared owl and loggerhead shrike are the BCC species observed in Project vicinity, but not within the Project Area. These species, which (short-eared owl, grasshopper sparrow, and loggerhead shrike) that occur in grasslands, have been documented as fatalities at operating wind farms, grasshopper sparrow is the species most sensitive and could be sensitive to habitat fragmentation. Grasshopper sparrow is a BCC species and also a USFWS species of habitat fragmentation concern that was observed during Project surveys, and if it occurs within the Project Area, it could be impacted by fragmentation of grassland habitat. However, the grasshopper sparrow population in the United States is large and stable (30 million, PIFSC 2013). Brady II Wind will avoid areas of high quality grassland to the extent practicable in order to minimize habitat loss for grassland dependent species. Grassland fragmentation will be avoided and minimized through implementation of mitigation measures during the design, construction, and operation phases of the Project (Section 7.0).

Raptors

Habitat Loss and Fragmentation

Raptors that use the Project Area may be indirectly impacted by the Project. Indirect impacts may include habitat degradation and fragmentation and reduction or changes in available prey species (USFWS 2008b). Overall, habitat degradation and fragmentation due to Project construction will be minimal due to the existing disturbed nature of the Project Area and the small permanent footprint of the Project. Impacts to native grassland will be avoided and minimized according to the mitigation measures in Section 7.0. The Project Area is primarily cropland and pastureland, which offers habitat for small mammals that are prey sources for raptors. Due to the small Project footprint, which will allow prey sources for raptors to persist post-construction, impacts on availability of prey species are expected to be minimal.

Decrease to Population

Northern harrier and Swainson's hawk were the most common raptor species detected during the avian surveys within the Project Area and are commonly associated with agricultural and grassland habitats (Thelander et al. 2003). Swainson's hawks have been found as fatalities at existing wind farms. Their populations are relatively small but stable in North Dakota (30,000, PIFSC 2013, Sauer et al. 2014). Risk of collision by northern harriers is believed to be low because the majority of foraging flights occur below typical RSA heights (Whitfield and Madders 2006).

Avoidance and minimization measures will be implemented during all phases of the Project to reduce the possibility of population-level impacts on all bird species (see Section 7.0).

Eagles

Habitat Loss and Fragmentation

Indirect impacts on bald and golden eagles relating to habitat loss and fragmentation are similar to those discussed for other raptors (see Section 6.1.1.2.4).

Decrease to Population

Bald and golden eagle populations appear to be generally increasing or stable in North Dakota (Sauer et al. 2014) and the larger Badlands and Prairies BCR 17 (Millsap et al. 2013). However, their population sizes are relatively small when compared to other raptors and they are fairly uncommon; the USFWS estimated there were 67 nesting pairs of bald eagles in North Dakota in 2009 (USFWS 2016a). The golden eagle breeding population in North Dakota is estimated at about 400 birds (PIFSC 2013). Due to their low population numbers, eagles may be susceptible to population-level impacts; therefore, Brady II Wind will avoid impacting these species and their habitat to the extent practicable, as outlined in Section 7.0.

Whooping Cranes

Habitat Loss and Fragmentation

Potential indirect effects to the whooping crane posed by the Project include avoidance of structures (e.g., turbines, meteorological towers, and transmission lines), habitat loss and fragmentation, and disturbance caused by anthropogenic activities. Because cranes may avoid turbines by altering flight paths, the USFWS (2009) holds the opinion that such avoidance will lead to avoidance of stopover in areas with operational wind turbines. Behavioral avoidance of wind farms by whooping cranes, while reducing the probability of direct impacts through collision, may amount to loss of stopover habitat. The loss of stopover habitat use through avoidance; however, may be relatively small given the large amount of suitable habitat present within the migration corridor (Western and USFWS 2015). This is likely the case for the Project as nearby suitable habitat continues to be present outside of Project boundaries. If stopover in the area occurs, the potential for disturbance to whooping cranes exists primarily during the construction phase of the Project.

It has been assumed that whooping cranes prefer areas isolated from human disturbances when available. Studies on whooping crane migration habitat and use, and the diminution of this habitat with increasing development, point to an inverse relationship between disturbance level and habitat value (Austin and Richert 2001 USFWS 2009). Placing wind turbine structures in already developed areas would likely have less impact than placement in areas where there are no existing disturbances. The Project turbines are sited close to existing section line roads and the majority of turbines are sited within active pasture or agricultural fields. Although none of these factors excludes the possibility of crane use of the Project Area, in combination it is likely that they make the attractiveness of the location less appealing than habitats surrounding the Project Area.

Decrease to Population

The population of whooping cranes is estimated at 308 birds (with a 95 percent probability of actual flock size being between 267–350 birds) as of the 2014/2015 winter whooping crane survey conducted by USFWS (USFWS 2015b). Due to the small population, any Project-related fatalities would have population-level impacts. Brady II Wind will avoid impacting these species and their habitat to the extent practicable, as outlined in Section 7.0.

6.1.2 Bat Impacts

6.1.2.1 Direct Impacts on Bats

General Bat Species

Collision

Bats have been identified as a wildlife group at risk due to collisions or other interactions with wind turbines (Erickson et al. 2001, Drewitt and Langston 2006, Arnett et al. 2007, Arnett et al. 2008). Bat collision mortality at wind farms is a widespread phenomenon, commonly exceeding avian collision mortality (Kunz et al. 2007). Of 46 species of bats in North America, 11 species have been identified among fatalities at wind farms. Migratory foliage or tree-roosting bat species (hoary bat, eastern red, and silver haired bat) appear to be most susceptible to collision with wind turbines. These species have experienced the highest fatality rates at wind energy facilities in North America, particularly during the spring (March-May) and fall (August-October) season when activity levels increase as these species migrate (Cryan 2003, Kunz et al. 2007, Arnett et al. 2008). Studies of wind energy facilities in the Midwest with agriculture/grassland habitat have documented Brazilian free-tailed, hoary, eastern red, silver-haired, little brown, big brown, and tricolored as fatalities during mortality surveys (Table 11). Few among these studies occur within the range of Brazilian free-tailed bat, but for the three that did, Brazilian free-tailed bats averaged 63.5 percent of fatalities (Miller 2008, Tierney 2009, Piorkowski and O'Connell 2010).

The relationship between activity and mortality has yet to be clearly identified, but we assume that regional fatality patterns are indicative of potential risk at the Project Area. Recent research has shown that mean wind speed and mean ambient temperature have the greatest effects on bat activity patterns, and that bat activity is generally lower at low mean nightly temperatures and wind speeds above 5 meters/second (Weller and Baldwin 2012). Bat fatality rates at wind energy facilities in the Midwest region average 17.25 ± 12.05 (90-percent confidence interval) bats/turbine/year or 13.4 ± 9.00 bats/MW/year (Table 11). Of the 11 bat species that may occur in the Project Area (Section 3.2.2), five have been found during mortality searches at operating wind farms in agricultural/grassland habitat (Table 11). Of these species, the migratory tree bats are considered to be at the greatest risk from wind energy projects (Tierney 2009).

In addition to migration, habitat within the Project Area may attract bats and potentially put them at risk of collision with turbines; therefore, the overall risk of collision impacts to bats at the Project is considered moderate. However, the limited roosting habitat within the Project Area is a major limiting factor for use of the Project Area by migrating bats. Therefore, bat migration through the

Project Area is likely low in magnitude. To better understand Project impacts on bats, Brady II Wind will conduct one year of post-construction fatality monitoring.

Disturbance/Displacement

Disturbance and displacement have not been identified as risks associated with bats and operational wind farms in reviews of bat-wind turbine impacts (Kunz et al. 2007), and bats are known to habituate to anthropogenic structures (Keeley and Tuttle 1999). Given the history of agricultural activity in the Project Area, we expect that the local bat community would remain in the area at similar population levels after construction of the Project. Although construction and operation activity may change the noise environment in the Project Area during daylight hours; Project-related noise levels are not anticipated to have deleterious effects on resident or migrant bats due to bats' nocturnal nature.

Northern Long-eared Bat

The NLEB is the only listed bat species with the potential to occur within the Project Area. Under the final Section 4(d) rule, incidental take of NLEB is prohibited within the USFWS WNS zone, which includes all counties affected by WNS and an additional 150-mile (241-kilometers) buffer around these counties (USFWS 2016b). Take by operating wind turbines is specifically excluded from this prohibition. Take incidental to otherwise lawful activities is not prohibited outside of the WNS zone designated by USFWS. The Project Area is outside of the WNS where incidental take due to hibernacula disturbance or tree removal is prohibited under the final 4d rule. Although no NLEB were detected during acoustic monitoring, the Project Area is within the species' range. If present, direct impacts could include collision with turbine blades, habitat disturbance by removal of roost trees, or disturbance to hibernacula. The Project Area contains less than one percent of forested habitat (based on NLCD data) that would be desirable for roosting and breeding by NLEB. No hibernacula are known in the state (USFWS 2013c). Moreover, no NLEB fatalities from wind energy facilities have been documented in North Dakota (Western and USFWS 2015). Based on the limited quantity of suitable habitat and the lack of documented detections within the Project Area, direct impacts on the NLEB or their habitat are low.

6.1.2.2 Indirect Impacts on Bats

General Bat Species

Habitat Loss and Fragmentation

The impacts of habitat fragmentation from wind development on bats are not well-known (Kuvlesky et al. 2007). Both roosting and foraging habitat within the Project Area are limited in availability due to large amounts of open-land agriculture and few large permanent sources of surface water. In addition, the Project has a relatively small footprint of temporary and permanent disturbance. For these reasons, the risk of habitat loss and fragmentation is low.

Northern long-eared Bat

Indirect impacts on NLEB could include habitat loss and fragmentation. However, due to the lack of known occurrences or hibernacula of NLEB within the Project Area, the existing fragmented nature of the Project Area, and lack of large tracts of forested habitat, indirect impacts are not expected.

6.1.3 Impacts to Dakota Skipper

6.1.3.1 Direct Impacts

The Dakota skipper is not known to occur in Hettinger and Stark County, and the Project Area is on the western extent of the species' range. However, approximately 29 percent of the Project Area was classified as Excellent/Likely or Good/Possible potential Dakota skipper habitat and approximately seven percent was undetermined. Therefore, presumably the Dakota skipper could be present with the Project Area within areas of suitable habitat. If present, direct impacts on the Dakota skipper could include collision with Project vehicles or disturbance and/or displacement from preferred habitat. Brady II Wind has avoided locating Project facilities on lands classified as Excellent/Likely, and has avoided locating Project facilities on lands classified as Good/Possible where practicable. Therefore, the impacts of the Project on the Dakota skipper are likely to be low.

6.1.3.2 Indirect Impacts

The Dakota skipper is not known to occur in Hettinger and Stark County, and the Project Area is on the western extent of the species' range. However, approximately 29 percent of the Project Area was classified as Excellent/Likely or Good/Possible potential Dakota skipper. If suitable habitat for the Dakota skipper is fragmented by Project construction, it could impact the species if it is present within the Project Area. Brady II Wind has avoided locating Project facilities on lands classified as Excellent/Likely, and has avoided locating Project facilities on lands classified as Good/Possible where practicable, thereby minimizing any potential impacts on the Dakota skipper.

6.1.4 Cumulative Impacts

Activities that currently exist within the Project Area and vicinity are primarily limited to agriculture. Wind energy development removes less total land from agricultural use than other forms of development. Except for the physical locations of the turbines, access roads, and other facilities, all the land surrounding the Project facilities will be available for grazing and farming. The exploitation of oil is an existing industrial component of the landscape in Hettinger and Stark County, with approximately 26 percent of the county covered by oil fields (NDDMR 2015a). Oil production is expected to increase in Hettinger and Stark County (NDDMR 2015b). In addition to the Project, there are six existing wind farms in the vicinity of the Project, including Thunder Spirit Wind Farm south of the Project Area near Hettinger in Adams County, and the four-phased Bison Wind Energy Center northeast of the Project Area near New Salem in Oliver and Morton counties.

The Project is located adjacent to the southern boundary of the Brady I Wind Energy Center. It is likely that wind energy development would continue in southwestern North Dakota.

With regard to the potential cumulative impacts to wildlife resources, there is potential for the Project to affect local wildlife both directly (mortality) and indirectly (habitat loss and fragmentation). Both direct and indirect potential impacts would be avoided and minimized to the extent practicable, and therefore, are not expected to cause cumulative impacts. Although the wind turbines would contribute to the utility/industrial component of the existing landscape, the area would remain primarily agricultural in nature. As these agricultural lands are of minimal value to wildlife compared to native vegetation, the Project is not expected to result in a cumulative loss of quality wildlife habitat. Based on the existing land use, location of existing and planned facilities, and known impacts from similar wind facilities in the area, it is expected that the Project would have minimal cumulative impacts to wildlife.

6.2 Risk Assessment Decisions

6.2.1 Decision Criteria to either Abandon or Advance

6.2.1.1 Tier 1/Tier 2 Questions

Results of the Initial Site Evaluation indicate the majority of the Project Area is disturbed, fragmented, and managed lands for cattle grazing or agriculture (Section 3.2.3). Grasslands have been tilled, mowed, and/or used for intensive cattle grazing making them low quality prairie habitats for most breeding birds. The anticipated avian community using the Project Area is composed of common species typically associated with agricultural and pasture lands of North Dakota. There are no plant communities or vegetation habitats of conservation concern designated within the Project Area. Further, there are no critical areas of wildlife congregation within the Project Area. There are nine species of concern potentially occurring within the Project Area; these species' potential use of the Project Area and Project risks were evaluated in Sections 4.0 and 6.0. For many of these species, risk is likely low and can be managed through best management practices and avoidance and minimization measures (Section 7.0).

Based on the results of the Tier 1 Preliminary Site Evaluation (Section 4.1) and Tier 2 Site Characterization (Section 4.2), Brady II Wind concluded the Project is viable for development within the Project Area.

6.2.1.2 *What Are the Distributions, Abundance, Behaviors and Site Use of Birds and Bats, and What Project Elements Expose These Species to Risk?*

Field studies (Section 5.0) were designed and implemented to document avian and bat use of the Project Area. The results of these studies will be used to predict the overall Project impacts to the avian and bat community, particularly during the migratory seasons when impacts would be the highest risk. The results of the studies conducted to date and the potential Project risks to the species documented or identified as potentially occurring are discussed in Section 5.0 and 6.0, respectively.

Based on the results of the Tier 1 Preliminary Site Evaluation, Tier 2 Site Characterization, and Tier 3 Field Studies, Brady II Wind concluded the Project is viable for development within the Project Area.

6.2.1.3 *What are the Potential Risks to Individuals and Local Populations of Birds and Bats and Their Habitats?*

Based on the wildlife species that occur and are likely to occur, potential Project risks include direct and indirect impacts. Direct impacts include mortality due to collision with Project structures and electrocution, disturbance, and displacement. Indirect impacts could be adverse effects due to habitat fragmentation or habitat loss. A detailed risk assessment is presented above, in Section 6.1. No significant impacts to local populations of wildlife are anticipated from development of the Project.

Based on the results of the risk assessment, Brady II Wind concludes that there will be no significant, unavoidable impacts on birds, bats, or other wildlife species and the Project is viable for development within the Project Area.

6.2.1.4 *How Can Impacts to Birds and Bats Be Avoided and Minimized?*

Brady II Wind understands that the construction and operation of a wind energy facility may pose risks to birds, bats, and other wildlife. Brady II Wind is committed to minimizing potential impacts on these resources and will implement conservation measures throughout the construction and operations phases of the Project. Conservation measures that will be implemented by the Project are detailed in Section 7.0.

6.2.1.5 *What Studies Should Be Initiated and Continued Post-Construction to Evaluate Predictions of Impacts to Birds and Bats*

Post-construction studies are essential to understanding whether pre-construction predictions of impacts and risks to birds, bats, and other wildlife are accurate. Therefore, Brady II Wind will conduct formal post-construction fatality monitoring and implement an employee-based routine monitoring program. Details of these studies are presented in Section 8.0.

6.2.2 Decision of Need for Other Bird and Bat Conservation Plans

Brady II Wind does not anticipate the need for additional bird or bat conservation plans based on the data collected to date. Brady II Wind will coordinate with USFWS regarding ongoing surveys and assessments and further evaluate the need for additional plans as needed.

7.0 CONSERVATION MEASURES TO AVOID AND MINIMIZE ADVERSE IMPACTS

7.1 Siting and Design Measures to Avoid/Minimize Impacts

This section identifies impact avoidance and minimization measures that will be incorporated into the final design for the Project. These measures were derived from the voluntary WEG and industry Best Management Practices (BMPs) and the PSC Final Order conditions. All avoidance and minimization measures implemented during the planning and design phase demonstrate practical means to reduce impacts to bird and bat species and their habitats.

- Upon discovery, Brady II Wind immediately moved all proposed project infrastructure outside of the Initial Buffer around occupied golden eagle nest 2015_39. Brady II Wind also immediately informed the USFWS and NDGF and began direct coordination with the USFWS to discuss additional focused monitoring to better inform buffer design. Based on subsequent flight path data from the focused monitoring, Brady II Wind implemented the Flight Path Based Buffer to further minimize any potential risks around this nest resulting in the nearest turbine being located 0.9 miles to the north of nest 2015_39 (see Table 1 and Appendix A).
- Birds and bats could collide with electrical collection lines. Brady II Wind will bury these lines.
- All turbines will sit on a tubular tower, and not a lattice structure, to minimize perching opportunities for raptors such as eagles and other birds.
- Met towers will not be located in sensitive habitats or in areas where ecological resources known to be sensitive to human activities are present.
- Actual construction footprints and surface disturbance areas will be minimized during construction to minimize wildlife habitat disturbance. In addition, all native prairie will be avoided to the extent possible to minimize impacts on native prairie and the bird and wildlife species that rely on it.
- Access roads and turbines will be located away from wetlands and waterbodies to the greatest extent practicable to minimize impacts on aquatic species, semiaquatic species, birds, bats, and their habitat.
- Impacts to potentially jurisdictional wetland areas will be below NWP thresholds. Avoiding wetland impacts will generally reduce potential impacts to migratory birds and bats and sensitive habitat.

7.2 Construction Measures to Avoid/Minimize Impacts

- To reduce habitat disturbance and minimize the potential for wildlife mortality, equipment and vehicle travel will be limited to roads or specific construction pathways during

construction. Construction traffic, parking, and laydown areas will be located within previously disturbed lands to the extent feasible. The construction footprint will be minimized in areas of native vegetation.

- Actual construction footprints and surface disturbance areas will be minimized during construction to minimize wildlife habitat disturbance. In addition, all native prairie will be avoided to the extent possible to minimize impacts on native prairie and the bird and wildlife species that rely on it.
- Removal of vegetation will be avoided within the peak bird nesting season to the extent feasible to avoid removing or disturbing nests. If not possible, pre-construction nesting bird surveys will be done of the area and any nests of ground-nesting birds (e.g., killdeer) will be flagged and a 50-foot non-disturbance buffer placed around the nest while it is occupied.
- During construction, disturbance to occupied raptor nests within the Project Area or along the haul route will be avoided by establishing 300ft radius non-disturbance buffer (see Temporal Buffer on Figure 8b) on the center of each active nest during the nesting season. Nest activity will be confirmed by a trained biologist prior to construction activities commencing. If a nest buffer is not practicable (along a public highway for example) then a trained nest monitor will observe the nest to determine that increased activity due to construction is not causing disturbance.
- The Flight Path Based Buffer was also established around the previously occupied golden eagle nest located south of the Project Area (nest 2015_39) based on flight path data to minimize potential disturbance during construction. This buffer is also described in the siting (Section 7.1) and operational measures (Section 7.3). A site-specific worker environmental training program will be developed and implemented throughout the construction of the Project to inform workers of the biological resources present on-site to minimize wildlife impacts. All employees and contractors working in the field will be required to attend the environmental training session prior to working on-site. This training includes information regarding the sensitive biological resources, restrictions, protection measures, individual responsibilities associated with the Project, and the consequences of non-compliance. Written material will be provided to employees at orientation and participants sign an attendance sheet documenting their participation.
- All trash and food-related waste will be placed in self-closing containers and removed daily from the site. This prevents trash from being exposed or blown around the Project Area and reduces attraction of wildlife to the Project Area.
- Vehicular speed will be limited to 25 miles per hour on Project roads to minimize vehicle collisions with wildlife.
- To avoid habitat destruction, BMPs for fire prevention during construction will be implemented to minimize wildfire potential.

- Any use of pesticides, herbicides, fertilizers, and other chemicals will be in accordance with federal and state laws to minimize drift and other impacts on native habitat.
- Brady II Wind will minimize impacts to existing trees and shrubs. If impacts to trees or shrubs cannot be avoided, the individual trees or shrubs will be replaced per North Dakota Public Service Commission regulations.
- Disturbed soil, if not replanted with crops, will be reclaimed with native seed following NRCS and FSA recommendations per the North Dakota PSC requirements, if approved by the landowner.
- To avoid injury or mortality of wildlife due to potential poisoning, an appropriately-sized emergency spill containment kit will be available to contain and remove spilled fuels, hydraulic fluids, and other potential pollutants when working within or near streams, lakes, or ponds during construction.
- A Storm Water Pollution Prevention Plan will be developed for the construction site to prevent contamination of natural water resources, minimize erosion, storm water runoff, and transport of sediment and other contaminants.

7.3 Operational Measures to Avoid/Minimize Impacts

- The Flight Path Based Buffer was established around the previously occupied golden eagle nest (nest 2015_39) for the life of the project to reduce any potential operational impacts in the unlikely event this pair attempts to re-nest in this location. The nearest turbine is approximately 0.9 miles to the north of nest 2015_39. Avian and bat fatalities will be evaluated during standardized post-construction fatality monitoring for one year following construction.
- Upon a positive discovery of a Whooping Crane on the ground inside the site boundaries, or overhead of the turbines, the Fleet Performance & Diagnostics Center will be notified to initiate the site curtailment procedure. Site personnel will use technology specific procedure to properly shut down all operational turbines. The outage shall remain in effect, until it can be confirmed through visual verification that there are no whooping cranes on either the ground or overhead of any turbines within a one mile radius for at least a length of 15 minutes. If necessary, a 2-man crew should follow the bird to the outer boundaries of the site in order to for verify that the crane is no longer within the property.
- A site-specific worker environmental training plan will be developed and implemented throughout the Project operating life to inform workers of the biological resources present on-site to minimize wildlife impacts. All employees and contractors working in the field will be required to attend the environmental training session prior to working on site. This training will include information regarding the sensitive biological resources (with an emphasis on eagles and whooping cranes), restrictions, protection measures, individual responsibilities associated with the Project, and the consequences of non-compliance.

Written material will be provided to employees at orientation and participants will sign an attendance sheet to document their participation.

- “Good housekeeping” procedures will be developed to keep the site clean of debris, garbage, carrion, fugitive trash or waste, and graffiti; to prohibit scrap heaps and dumps; and to minimize storage yards. This will prevent trash from being exposed or blown around the Project Area, and will avoid attracting predators and potential food sources for eagles and other predators (i.e. rodents and other small mammals) to the Project.
- Brady II Wind will implement an Adaptive Management Program (Section 10.3) for avoidance, minimization, and mitigation of impacts to birds, bats, and other sensitive wildlife.
- Vehicle speeds will be limited to 25 miles per hour on Project roads to minimize vehicle collisions with wildlife.
- Brady II Wind will contact local game managers to remove road-killed animals on state and county roadways within the Project Area. Road-killed animals or other carcasses (excluding eagles and other migratory birds) detected by personnel on actual Project service roadways will be removed promptly by Brady II Wind personnel under guidance and/or assistance from local game managers to avoid attracting eagles or other raptors to the Project Area.
- To avoid habitat destruction, BMPs for fire prevention during operation will be implemented to minimize wildfire potential.
- Brady II Wind Energy Center workers and subcontractors will not be allowed to have firearms or pets at the Project and will be instructed to not disturb or harass wildlife.
- Lighting of the turbines will be pursuant to Federal Aviation Administration aviation hazard lighting standards. Brady II Wind has committed in its lighting plan to use radar activated hazard lights acceptable to the Federal Aviation Administration. Brady II Wind may also install motion activated timed lighting on tower entrances and other facilities that require lighting at night to avoid the potential to attract insects that may draw birds and bats toward the facility.
- Brady II Wind has voluntarily agreed to develop and implement this WCS in its continued efforts to demonstrate due diligence in avoiding and minimizing impacts to avian and bat species in association with development and operation of the Project.

7.4 Measures to Offset and/or Compensate for Habitat-Related Impacts

Up to 80 acres of the total Project Area will be permanently affected due to conversion to turbine sites, access roads, junction boxes, and the permanent meteorological towers, and up to 724 acres of land will be temporarily disturbed during construction for turbine installation, road construction, collection line trenching, temporary meteorological tower installation, and temporary

crane paths. These impacts represent a minor portion of the land area available for agricultural production. As a result, the Project would not result in significant permanent impacts to agricultural areas used by birds, bats, and other wildlife.

Land where the turbines will be sited is primarily undeveloped pasture/hay, cropland, and grassland. Areas of highest quality native prairie were avoided to the extent possible. Access road construction would result in the greatest effects to native vegetation, resulting in permanent loss of these habitats where they occur along selected routes. Installation of the buried collection lines would result in some temporary effects to native and non-native grasslands. Any temporary impacts to native prairie will be offset by reseeding using a native prairie mix in accordance with NRCS/FSA approved seed mix in accordance with landowner preferences. Other temporarily disturbed areas will be reseeded or restored to crop, depending on original conditions and landowner preference.

8.0 TIER 4: POST-CONSTRUCTION STUDIES TO ESTIMATE IMPACTS

8.1 Carcass Surveys

Brady II Wind will conduct standardized post-construction fatality monitoring for one year following construction (Appendix B). The objective of the fatality monitoring is to identify the bird and bat species found as fatalities at the Project and to statistically estimate fatality rates. The monitoring framework consists of standardized carcass searches conducted at a sample of the Project turbines. The number of fatalities found during searches represents a minimum number of fatalities at a project because not all fatalities that occur are found by observers. Therefore, carcass persistence trials and searcher efficiency trials will be conducted concurrently with standardized fatality monitoring to account for the bias attributable to carcass removal by scavengers and searcher efficiency. Fatality rates (e.g., birds/turbine/year and birds/operational MW/year) will then be estimated using statistical methods that adjust the number of carcasses found for detection biases. Per-turbine and per-megawatt estimates provide different ways of scaling fatality information to be comparable to other projects. Annual fatality rates will be calculated for all bird species combined, small (less than or equal to 10 inches) and large (greater than 10 inches) birds, raptors, and sensitive species (collectively). For further information on this protocol, see Appendix B: Post Construction Fatality Monitoring.

Any incident involving a whooping crane or other federally listed species will be promptly reported to the USFWS North Dakota Ecological Services Field Office (701-250-4481) and NDGF (701-328-6300) by the Wildlife Program Manager (see Appendix C). Any carcass of a federally protected species will be covered with a weighted container until it is recovered by a responding field agent. A kit containing the materials necessary for the protocol will be provided in the operations and maintenance building.

8.1.1 Project Permits Addressing Birds and Bats

To collect, transport, and temporarily possess migratory birds found as fatalities on properties that generate electricity, a USFWS Special Purpose Utility permit must be obtained. Additionally, a state scientific collection permit from NDGF is required to kill, take, or possess wildlife and their parts when conducting research or for other scientific purposes, including education and information.

Brady II Wind will not collect any fatalities detected at the Project during post-construction monitoring. As a result, Brady II Wind will not obtain permits for scientific collecting purposes. Should injured or downed wildlife be detected within the Project Area, reporting will occur as described in the WRRS. With the exception of special-status species (species protected under the ESA, BGEPA, or state listing), fatalities detected will be thoroughly documented and left in place.

8.2 Other Surveys

Brady II Wind does not have any additional surveys planned for post-construction monitoring. However, an adaptive management plan will be used in coordination with USFWS and NDGF to maintain the effectiveness of this WCS to minimize any future impacts not already foreseen.

8.2.1 Wildlife Response and Reporting System

In addition to the carcass surveys, a standard protocol called the WRRS is used at all NextEra Energy wind energy facilities. The purpose of the WRRS is to standardize the actions taken in response to any wildlife fatalities and/or injuries found within the Project's boundaries. Personnel will be trained to follow the search procedure and fill out the reporting form. Wildlife surveys/inspections will be completed each time a turbine is visited. For further information on this protocol, see Appendix C: Wildlife Response and Reporting System.

9.0 TIER 5: OTHER POST-CONSTRUCTION STUDIES AND ADAPTIVE MANAGEMENT

The United States Department of Interior defines adaptive management as a decision-making process that promotes flexible decision making and adjustment of management decisions as information is collected (Williams et al. 2007). Brady II Wind has adopted an adaptive management approach to assessing and responding to the impacts of its wind energy facility on birds and bats. Brady II Wind is committed to adaptively managing impacts to birds and bats for the life of the Project. Based on experience from the operating wind farms in the region, significant unanticipated impacts to species of concern are not expected. In the event that the Brady II Wind detects a significant unanticipated impact, such as mortality or injury to a federally listed species or higher than expected migratory bird or bat mortality for the region, Brady II Wind will contact the USFWS North Dakota Field Office to discuss additional potential avoidance, minimization, or

mitigation measures to be considered. Brady II Wind is committed to developing an approach that facilitates understanding any unanticipated significant issues and collaboratively working with the USFWS to develop additional avoidance, minimization, or mitigation measures that may be appropriate.

10.0 REPORTING FORMATS AND SCHEDULE

10.1 Pre-construction Survey Data

Pre-construction survey data has been, and will continue to be compiled and analyzed in a report for each survey and/or survey season. Reports are in standard scientific format or in memorandum format, as appropriate based on the amount of data collected. Reports have been and will be submitted to USFWS and NDGF.

10.2 Post-construction Mortality Reporting

A post-construction fatality monitoring report will be prepared for the one year of surveys conducted to summarize avian and bat fatalities associated with operations of the Project. This report will include a detailed summary of the methods; results from carcass searches, carcass persistence trials, and searcher efficiency trials; an estimate of fatalities on a per-turbine and per-megawatt basis; and discussions of the results in the context of adaptive management. The report will be provided to USFWS and NDGF by the end of the first quarter following completion of one year of post-construction monitoring.

10.3 Personnel Training

Brady II Wind will develop a site-specific worker environmental training program that will be administered to all employees and contractors working in the field. The training will be implemented throughout construction and operation of the Project to inform workers of the biological resources present on-site to minimize wildlife impacts. All employees and contractors working in the field will be required to attend the environmental training session prior to working on-site. This training includes information regarding identification of the sensitive biological resources, restrictions, protection measures, individual responsibilities associated with the Project, and the consequences of non-compliance. Written material will be provided to employees at orientation and participants will sign an attendance sheet documenting their participation. The training will be performed by qualified consultants or in-house environmental staff qualified to conduct the training.

11.0 DECOMMISSIONING

The Project is anticipated to have a lifetime of up to 30 years after which it may no longer be cost-effective to continue operations. The Project will then be decommissioned, and the existing

equipment removed. At that time, a Decommissioning Plan will be prepared in accordance with NDCC 49-02-27, NDAC 69-09-09, and will remove all structures to a depth of three feet below pre-construction grade and release any easements of record in accordance with local County Land Use Code. Additionally, Brady II Wind has a contractual obligation to the landowners to remove the wind facilities, including foundations to a depth of three feet below ground, when the wind easement expires and to restore the area to the same physical condition that existed immediately before the construction of the turbines. Brady II also reserves the right to explore alternatives regarding Project decommissioning at the end of the Project Certificate term. For example, retrofitting the turbines and power system with upgrades based on new technology may allow the wind farm to produce efficiently and successfully for many more years.

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13.0 TABLES

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Table 1. Chronology of Resource Agency Contact for the Project

Date of request/ response	Request or Response ¹	Contacts
May 15, 2015	<i>Request</i> email to NDGF: Inquiry regarding known locations of eagles nests within 10 miles of the proposed Project Area boundary. Response received June 10, 2015.	Sandy Johnson NDGF, Conservation Biologist Bismarck, ND
June 10, 2015	<i>Response</i> email from NDGF (re: May 15, 2015) regarding any known eagle nest location within 10-miles of the Project Area.	
August 14, 2015	<i>Request</i> letter to USFWS: Inquiry regarding sensitive resources. No response received.	Kevin Shelley Acting ND Supervisor, USFWS Bismarck, ND
August 14, 2015	<i>Request</i> letter to NDGF: Inquiry regarding sensitive resources. Response received September 25, 2015.	Terry Steinwand NDGF Bismarck, ND
August 14, 2015	<i>Request</i> letter to NDPRD: Inquiry regarding sensitive resources. Response received August 31, 2015.	Mark Zimmerman NDPRD Bismarck, ND
August 31, 2015	<i>Response</i> letter from NDPRD (re: August 14, 2015 letter) stating the approximate location of known significant ecological communities and sensitive plant and wildlife occurrences within the vicinity of the Project.	Kathy Duttonhefner Coordinator, Natural Resources Division Bismarck, ND
September 25, 2015	<i>Response</i> letter from NDGF (re: August 14, 2015 letter) recommending that Brady Wind follow the USFWS Wind Energy Guidelines, that unavoidable wetlands be replaced in kind, that overhead lines are marked, that aerial surveys for raptor nests be conducted prior to construction, that active eagles nests are avoided by ½ mi buffer during construction, and that routine mortality monitoring is conducted for the life of the Project.	Greg Link NDGF Conservation and Communication Division Bismarck, ND
November 12, 2015	<i>Request</i> letter to USFWS: Inquiry regarding sensitive resources No response received.	Kevin Shelley (USFWS)
November 12, 2015	<i>Request</i> letter to NDGF: Inquiry regarding sensitive resources Response received December 28, 2015.	Terry Steinwand (NDGF)
November 18, 2015	<i>Request</i> letter to NDPRD: Inquiry regarding sensitive resources No response received.	Mark Zimmerman (NDPRD)
November 23, 2015	<i>Request</i> letter asking to setup meeting with USFWS.	Kevin Shelley (USFWS)
November 30, 2015	<i>2nd Request</i> letter, second attempt, asking to setup meeting with USFWS.	
December 14, 2015	<i>Request</i> email included material to facilitate agency meeting on December 16.	Kevin Shelley (USFWS) and John Schumacher (NDGF)
December 16, 2015	<i>Meeting</i> (notes) in Bismarck with USFWS and NDGF to discuss sensitive wildlife resources.	Kevin Shelley (USFWS) and John Schumacher (NDGF)

Date of request/ response	Request or Response ¹	Contacts
December 28, 2015	<i>Response</i> letter from NDGF (re: November 12, 2015) regarding sensitive resources: Asks that native prairie be avoided to the extent possible and suggests use of USFWS Land-Based Wind Energy Guidelines (USFWS 2012a). Recommends avoidance of wetland impacts and maintaining existing drainage patterns, and replacing wetlands that are affected. Requests burying of collection lines, marking overhead lines near streams or wetlands to minimize avian impacts; recommends conducting aerial surveys for raptor nests prior to construction and implementing a ½ mile buffer around active eagle nest sites; recommends monitoring for avian and bat mortality, and requests GPS coordinates of turbines once proposed Project is constructed.	Greg Link (NDGF)
January 11, 2016	<i>Request</i> email to USFWS: Inquiry regarding presence of USFWS easements or fee-title lands in or near Project Area. Response email received January 20, 2016.	Susan Kvas, Supervisory Fish and Wildlife Biologist USFWS, Bismarck, ND
January 19, 2016	<i>2nd Request</i> email to confirm receipt of January 11 th email.	
January 20, 2016	<i>Response</i> email from USFWS (Re: January 11, 2016 email) confirming that there are no USFWS land interests within the Brady Project Area or within 10 miles.	
January 11, 2016	<i>Request</i> email follow-up to voice mail request to NDGF for locations of prairie dog colonies and burrowing owls in Project Area. Response email received January 20, 2016.	Sandy Johnson (NDGF)
January 13, 2016	<i>Response email</i> (re: January 11, 2016) providing data-sharing agreement for prairie dog and burrowing owl data.	
January 19, 2016	<i>Response email</i> (re: January 13, 2016) providing signed data sharing agreement to NDGF.	
January 20, 2016	<i>Response</i> email from NDGF (Re: January 11, 2016 email) providing GIS files of prairie dog colonies and burrowing owl locations to Brady Wind.	
January 11, 2016	<i>Request</i> email to NDGF for sage grouse locations and other known grouse or lek locations in Project Area. Response email received February 3, 2016.	Aaron Robinson Upland Game Management Supervisor, NDGF Dickinson, ND

Date of request/ response	Request or Response ¹	Contacts
February 3, 2016	<i>Response</i> email from NDGF (re: January 11, 2016) request for information regarding sage grouse locations: The Project Area does not overlap with NDGF grouse census blocks. NDGF recommends that the agency help design a survey protocol for grouse habitat.	
March 2, 2016	<i>Request</i> email to NDGF for review of grouse survey protocol and survey route. <i>Response</i> email received March 9, 2016.	
March 9, 2016	<i>Request</i> email follow-up request to NDGF for comments on lek survey protocol that was sent to NDGF February 8, 2016. <i>Response</i> email received March 9, 2016.	
March 9, 2016	<i>Response</i> from NDGF (re: March 2, 2016) comments and edits to protocol were provided, and included listening stations every ½ mile.	
January 11, 2016	<i>Response</i> email to USFWS (unknown date): Inquiry regarding known Dakota skipper occurrences. Shape files sent to USFWS. No occurrence of designated Dakota skipper critical habitat within the Project Area	Kevin Shelley (USFWS)
January 26, 2016	<i>Request</i> email: GIS files and maps of native prairie and forest habitats provided to USFWS and NDGF to review for Dakota skipper, whooping crane, and Sprague's pipit occurrences. <i>Response</i> email received January 26, 2016 and discussion February 26, 2016.	Kevin Shelley (USFWS) and John Schumacher (NDGF)
January 26, 2016	<i>Response</i> email received stating that received attachments.	
January 27, 2016	<i>Request</i> letter to USFWS: Inquiry regarding sensitive resources – revised Project Area. No response received.	Kevin Shelley (USFWS)
January 29, 2016	<i>Request</i> letter to NDPRD: Inquiry regarding sensitive resources – Revised Project Area. No response received.	Mark Zimmerman (NDPRD)
January 29, 2016	<i>Request</i> letter to NDGF: Inquiry regarding sensitive resources – Revised Project Area. <i>Response</i> received February 26, 2015.	Terry Steinwand (NDGF) Director Bismarck, ND
January 29, 2016	<i>Request</i> email: WCS outline sent to USFWS for input. <i>Response</i> email received February 3, 2016.	Kevin Shelley (USFWS)
February 3, 2016	<i>Response</i> email from USFWS (re: January 29, 2016) providing comments to contemplate regarding WCS outline.	

Date of request/ response	Request or Response ¹	Contacts
February 4, 2016	<i>Response</i> email (re: February 3, 2016) to USFWS asking if data crosschecked because of upcoming hearing.	
February 4, 2016	<i>Discussion</i> with NDGF regarding spring 2016 lek surveys.	Aaron Robinson (NDGF)
February 8, 2016	<i>Discussion</i> with USFWS regarding Wildlife Conservation Strategy (WCS) outline and content.	Kevin Shelley (USFWS)
February 8, 2016	<i>Request</i> email: Proposed lek protocol and survey route sent to NDGF for review	Aaron Robinson (NDGF)
February 18, 2016	<i>Request</i> email: Hardcopies of desktop whooping crane and bat assessments, as well as fall eagle use survey, raptor nest surveys, fall avian surveys, native prairie assessment, and bat acoustic monitoring reports sent to USFWS and NDGF.	Kevin Shelley (USFWS) and John Schumacher (NDGF)
February 26, 2016	<i>Discussion</i> of grouse species and overall prairie habitat conservation interests of USFWS and NDGF.	Kevin Shelley (USFWS) and Aaron Robinson(NDGF)
February 26, 2016	<i>Response</i> email (re: January 29, 2016) from NDGF: Confirming that the agency comments originally provided regarding this Project on 25 September and 28 December 2015, respectively were reviewed and the original comments are still applicable.	John Schumacher (NDGF)
April 5, 2016	<i>Request</i> from NextEra to USFWS presenting results of March 2016 nest survey including discovery on new golden eagle nests and requesting to discuss this new nest. Response email received April 5, 2016.	Kevin Shelley (USFWS)
April 5, 2016	<i>Response</i> from USFWS (re: April 5, 2016 email) stating the earliers can talk is the 8 th of April.	
April 5, 2016	<i>Response</i> from NextEra (re: April 5, 2016 email) requesting a meeting.	
April 5, 2016	<i>Response</i> from USFWS (re: April 5, 2016 email) stating no longer available the 8 th but can discuss the 12 th of April.	
April 6, 2016	<i>Response</i> from NextEra (re: April 5, 2016 email) asking if April 12 th at 3 pm Central will work to discuss.	
April 11, 2016	<i>Response</i> to USFWS following up to April 5-6 correspondence regarding a meeting to discuss ongoing golden eagle monitoring.	
April 5, 2016	<i>Request</i> to NDGF for updated eagle nest shapefiles and requesting the location for a reported occupied golden eagle nest. Response email received April 13, 2016.	Sandy Johnson (NDGF)
April 6, 2016	<i>Response</i> (re: April 5, 2016 inquiry) confirming that NDGF had checked on	

Date of request/ response	Request or Response ¹	Contacts
	reported golden eagle nest and believes it is a golden eagle nest.	
April 13, 2016	<i>Response</i> to NDGF (re: April 6, 2016) providing regarding shapefiles from March 29-31 aerial nest surveys sent to NDGF.	
April 12, 2016	<i>Discussion</i> (meeting notes) with USFWS regarding the discovery of golden eagle nest 2015_39 just south of the southern boundary.	Kevin Shelley (USFWS)
April 14, 2016	<i>Request</i> to ND Parks and Rec regarding 2 nd revised Project Area boundary. Response email received May 13, 2016.	Mark Zimmerman (NDPRD_
April 14, 2016	<i>Request</i> to NDGF regarding 2 nd revised Project Area boundary. Response email received May 13, 2016.	Terry Steinwand (NDGF)
April 14, 2016	<i>Request</i> to USFWS regarding 2 nd revised Project Area boundary. No Response received.	Kevin Shelley (USFWS)
April 21, 2015	<i>Email</i> correspondence from Tetra Tech to USFWS with April 12 meeting notes attached. No Response received.	Kevin Shelley (USFWS)
May 3, 2016	<i>Request</i> to NDGF for sharp-tailed grouse lek buffer recommendations. Response email received May 19, 2016.	Aaron Robinson (NDGF)
May 19, 2016	<i>Response</i> from NDGF (re: May 33, 2016) stating that sharp-tailed grouse recommendations were being worked on.	
May 5, 2016	<i>Request</i> to USFWS asking if they received mail correspondence and resending in an email.	Kevin Shelley (USFWS)
May 13, 2016	<i>Response</i> email (re: April 14, 2016) from NDGF: Confirming that the department has reviewed the Project as revised and has nothing additional to offer.	John Schumacher (NDGF)
May 17, 2016	<i>Request</i> . Notified NDGF of failure of Golden Eagle nest 2015_39 and discussions with USFWS.. No response email received.	Sandy Johnson (NDGF)
May 17, 2016	<i>Request</i> . Notified USFWS and NDGF of failure of Golden Eagle nest 2015_39 and proposed a 1-mile buffer around the nest based on data gathered during field studies agreed upon with USFWS. Email attachment included. Response email received June 3, 2016.	Kevin Shelley (USFWS) and John Schumacher (NDGF)
May 27, 2016	<i>Request</i> . left voicemail and sent an email asking if regional team had any feedback on the proposed 1-mile golden eagle nest buffer. Response email received June 3, 2016.	
June 3, 2016	<i>Response</i> : USFWS (re: May 17 and 27) stating they were working with regional USFWS staff to develop a written response within the next week on the proposed 1-mile golden eagle nest buffer.	

Date of request/ response	Request or Response ¹	Contacts
June 9, 2016	<i>Request.</i> asking to discuss the proposed 1-mile golden eagle nest buffer.	
June 14, 2016	<i>Request.</i> asking to discuss the proposed 1-mile golden eagle nest buffer.	
June 14, 2016	<i>Response:</i> USFWS responded (re: June 9 and 14, 2016 email) stating that they are working towards a response on the proposed 1-mile golden eagle nest buffer and expect that to be finalized in the next 2 to 3 weeks.	
July 8, 2016	<i>Request.</i> asked if had received any new information on the 1-mile golden eagle nest buffer as NextEra was getting the Final Order from PSC and headed to construction. Also sent voicemail. Response email received July 12, 2016.	
July 12, 2016	<i>Response:</i> USFWS stated (re: July 8, 2016 email) that they had nothing to share at this time on the proposed 1-mile golden eagle nest buffer and would like to work together on other proposed NextEra projects in the future.	
July 29, 2016	<i>Discussion:</i> NDGF notified Tetra Tech that sharp-tailed grouse lek buffer recommendations would not be made until further research was done.	Aaron Robinson (NDGF)

1: Some requests overlap with the Brady I Project.

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Table 2. Land Cover Types at the Project (NLCD)

Land Use/ Land Cover Description	Acres in Project Area	Percent of Project Area
Cultivated Crops	8,608	49.4%
Grassland/Herbaceous	5,974	34.3%
Hay/Pasture	1,930	11.1%
Developed, Open Space	622	3.6%
Woody Wetlands	157	0.9%
Shrub/Scrub	86	0.5%
Deciduous Forest	33	0.2%
Developed, Low Intensity	11	0.1%
Open Water	9	0.1%
Evergreen Forest	4	less than 0.1%
Emergent Herbaceous Wetlands	1	less than 0.1%
Total	17,435	-

Source: Homer et al. 2015

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Table 3. Species and Average Counts for the Medora Christmas Bird Count from 2005 to 2014

Species Group	Average Count/Year
Songbirds	
American Robin	248.0
Cedar Waxwing	61.3
American Goldfinch	39.2
Common Redpoll	33.6
Bohemian Waxwing	28.6
Black-capped Chickadee	26.4
Black-billed Magpie	25.3
House Sparrow	24.7
European Starling	8.4
Dark-eyed Junco (Slate-colored)	7.5
Townsend's Solitaire	7.5
Horned Lark	7.0
American Tree Sparrow	6.5
White-breasted Nuthatch	6.0
Lapland Longspur	4.3
Northern Shrike	3.3
Pine Siskin	2.5
American Crow	2.3
Purple Finch	1.9
House Finch	1.7
Snow Bunting	1.1
Dark-eyed Junco (Oregon)	0.5
Red-winged Blackbird	0.4
Harris's Sparrow	0.2
Common Grackle	0.1
Hoary Redpoll	0.1
Loggerhead Shrike ²	0.1
Red-breasted Nuthatch	0.1
Waterfowl	
Common Merganser	0.4
Gamebirds	
Wild Turkey	37.4
Sharp-tailed Grouse	22.7
Gray Partridge	1.6
Doves/Pigeons	
Rock Pigeon	4.4
Mourning Dove	0.3
Raptors	
Golden Eagle ²	8.7
Red-tailed Hawk	5.0
Bald Eagle ²	3.6

Species Group	Average Count/Year
Rough-legged Hawk	3.3
Great Horned Owl	2.3
Northern Saw-whet Owl	1.5
Prairie Falcon	0.8
Eastern Screech Owl	0.6
Northern Goshawk	0.6
American Kestrel	0.4
Cooper's Hawk	0.4
Northern Harrier	0.4
Merlin	0.3
Red-tailed Hawk (Harlan's)	0.2
Sharp-shinned Hawk	0.2
<i>Hawk sp.</i>	0.1
<i>Falcon sp.</i>	0.1
Long-eared Owl	0.1
Short-eared Owl ²	0.1
Woodpeckers	
Hairy Woodpecker	3.8
Downy Woodpecker	3.8
Northern Flicker (Red-shafted)	0.6
Northern Flicker (Yellow-shafted)	0.4
Northern Flicker (intergrade)	0.1
Red-bellied Woodpecker	0.1

Source: National Audubon Society 2010

1 Average number of individuals counted / year

2 USFWS Bird of Conservation Concern, Region 17 (USFWS 2008a)

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Table 4. Species Encountered and Their Abundance on the Dickinson Breeding Bird Survey Route

Species Group	Birds/Route ¹	Preferred Habitat
Songbirds		
Western Meadowlark	118.44	shrub/woodlands
Horned Lark	114.15	wetlands/open areas
Lark Bunting	111.88	shrub/open areas
Red-winged Blackbird	79.26	grasslands/agriculture
Brown-headed Cowbird	57.12	grasslands
Common Grackle	17.50	grasslands/agriculture
Grasshopper Sparrow ²	17.24	grasslands/agriculture
American Robin	15.56	agriculture/wetlands
Chestnut-collared Longspur ²	14.82	grasslands/agriculture
Eastern Kingbird	14.71	wetlands
House Sparrow	13.21	grasslands/agriculture
Bank Swallow	10.06	grasslands/agriculture
Bobolink	9.00	grasslands/agriculture
Savannah Sparrow	8.62	grasslands/agriculture
Western Kingbird	8.21	shrub/woodlands
Barn Swallow	7.91	grasslands/agriculture
Common Yellowthroat	4.12	shrub/agriculture
Vesper Sparrow	3.71	shrub/woodlands
American Crow	3.26	cliffs/open areas
Yellow Warbler	3.26	grasslands
American Goldfinch	2.94	grasslands/agriculture
House Wren	2.59	grasslands/agriculture
Clay-colored Sparrow	2.56	grasslands/agriculture
Brown Thrasher	2.53	grasslands
Brewer's Blackbird	2.35	shrub/wetlands
European Starling	2.06	shrub/grasslands
Cliff Swallow	1.82	grasslands/agriculture
Loggerhead Shrike ²	1.47	grasslands/agriculture
Black-billed Magpie	1.21	grasslands/agriculture
Yellow-headed Blackbird	0.97	shrub/woodlands
Baird's Sparrow	0.76	grasslands/agriculture
Lark Sparrow	0.74	grasslands/agriculture
Alder & Willow Flycatcher	0.56	grasslands
Orchard Oriole	0.56	grasslands/agriculture
Song Sparrow	0.56	shrub/woodlands
Willow Flycatcher	0.56	shrub/woodlands
Field Sparrow	0.50	grasslands/agriculture
Northern Rough-winged Swallow	0.50	shrub/woodlands
Warbling Vireo	0.47	shrub/woodlands
Cedar Waxwing	0.32	grasslands/agriculture
Gray Catbird	0.32	shrub/woodlands
Great Blue Heron (all forms)	0.24	wetlands

Species Group	Birds/Route ¹	Preferred Habitat
Say's Phoebe	0.24	grassland
Baltimore Oriole	0.21	grasslands/agriculture
Black-capped Chickadee	0.21	grasslands/agriculture
Chipping Sparrow	0.21	grasslands/agriculture
Dickcissel	0.21	wetlands
Tree Swallow	0.21	shrub/woodlands
Sprague's Pipit ²	0.15	grasslands
Spotted Towhee	0.09	grasslands
Western Wood-Pewee	0.09	open woodland
Least Flycatcher	0.06	shrub/woodlands
Blue Jay	0.03	grasslands/agriculture
Bullock's Oriole	0.03	open woodland
Great Crested Flycatcher	0.03	open woodland
Lazuli Bunting	0.03	forests
Mountain Bluebird	0.03	open woodland
Sedge Wren	0.03	shrub/woodlands
Veery	0.03	forests
Gulls/Terns		
Ring-billed Gull	0.35	wetlands
Waterfowl		
Mallard (all forms)	8.76	wetlands
Blue-winged Teal	0.74	wetlands
Northern Pintail	0.32	wetlands
Canada Goose	0.26	wetlands
American Wigeon	0.09	wetlands
Gadwall	0.09	wetlands
Northern Shoveler	0.06	wetlands
Green-winged Teal	0.03	wetlands
Redhead	0.03	wetlands
Waterbirds		
Double-crested Cormorant	0.09	wetlands
American Bittern ²	0.03	wetlands
Cranes/Rails		
American Coot	0.09	wetlands
Sora	0.06	wetlands
Shorebirds		
Killdeer	13.88	wetlands
Upland Sandpiper	2.21	wetlands
Wilson's Snipe	1.00	wetlands
Marbled Godwit ²	0.44	wetlands
Wilson's Phalarope	0.21	wetlands
Spotted Sandpiper	0.06	wetlands
Willet	0.03	wetlands
Gamebirds		
Ring-necked Pheasant	50.53	grasslands/agriculture

Species Group	Birds/Route ¹	Preferred Habitat
Gray Partridge	1.97	grasslands/agriculture
Wild Turkey	1.38	grasslands/agriculture
Sharp-tailed Grouse	0.94	grasslands/agriculture
Doves/Pigeons		
Mourning Dove	41.00	shrub/open areas
Rock Pigeon	2.44	urban areas
Raptors		
Northern Harrier	2.62	grasslands
Swainson's Hawk	1.15	grasslands/agriculture
American Kestrel	0.56	shrub/grasslands/open areas
Short-eared Owl ²	0.26	grasslands/agriculture
Great Horned Owl	0.26	grasslands/agriculture
Burrowing Owl	0.15	grasslands
Ferruginous Hawk ²	0.06	grasslands
Red-tailed Hawk (all forms)	0.09	grasslands/agriculture
Prairie Falcon	0.03	shrub/grasslands/open areas
Others		
Belted Kingfisher	0.35	wetlands
Common Nighthawk	0.12	grasslands
Black-billed Cuckoo ²	0.06	shrub/woodlands
Woodpeckers		
Red-headed Woodpecker ²	0.18	open woodland
Hairy Woodpecker	0.03	forests

Source: Sauer et al. 2014

- 1 These numbers reflect the abundance of the species near the survey route. They are averages of the total counts along the route for the period 1989-1998. Because each survey route is 24.5 mi long, and consists of 50, 3 minute counts along the length of the route, the abundance estimate represents the number of birds that a biologist would encounter in about 2.5 hours of roadside birding in the area near the BBS route.
- 2 USFWS Bird of Conservation Concern, Region 17 (USFWS 2008a).

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Table 5. USFWS BCC for BCR 17

Species	Residency Status Near Project Area/Notes	Detected in Vicinity of Project Area
Horned Grebe	Non-breeder – migrant	No
American Bittern	Breeder – summer resident	BBS
Bald Eagle	Breeder and migrant. ESA delisted; BGEPA	CBC
Golden Eagle	Breeder, year-round resident; BGEPA	Yes, CBC
Ferruginous Hawk	Breeder- summer resident	Yes, BBS
Peregrine Falcon	Non-breeder – migrant. ESA delisted	No
Prairie Falcon	Non-breeder – winter resident	No
Yellow Rail	Summer resident (rare)	No
Mountain Plover	Project outside of its range	No
Upland Sandpiper	Breeder – summer resident	Yes
Long-billed Curlew	Breeder – summer resident (rare)	No
Marbled Godwit	Breeder – summer resident	BBS
Black-billed Cuckoo	Breeder – summer resident	BBS
Burrowing Owl	Breeder – summer resident	No
Short-eared Owl	Breeder – year-round resident	CBC, BBS
Lewis's Woodpecker	Rare	No
Red-headed Woodpecker	Breeder – summer resident	BBS
Loggerhead Shrike	Breeder – summer resident	CBC, BBS
Pinon Jay	Rare	No
Sage Thrasher	Rare	No
Sprague's Pipit	Breeder – summer resident	BBS
Brewer's Sparrow	Project outside of its range	No
Sage Sparrow	Project outside of its range	No
Baird's Sparrow	Breeder – summer resident	No
Grasshopper Sparrow	Breeder – summer resident	BBS
McCown's Longspur	Rare	No
Chestnut-collared Longspur	Breeder – summer resident	BBS
Dickcissel	Breeder – summer resident	No

Sources: USFWS 2008a; Sibley 2003 (residency status only)

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Table 6. Summary of Survey Efforts To-Date at the Project

Study (Report)	Focus	Survey Type	Dates Conducted
Native Prairie Assessment (Tetra Tech 2016a)	Native prairie and Dakota skipper habitat	Desktop Assessment with field verification	Desktop Assessment July 2015 Field verification August 19, 2015 Revised report September 2016
2016 Spring Avian Survey (Tetra Tech 2016b)	All birds	20-minute point counts within the Project Area and ground based raptor nest search out to 1-mile from the Project Area boundary and within the Project Area	March 19 – June 10, 2016
2015_2016 Eagle Use Surveys (Tetra Tech 2016c)	Eagles	60-minute point counts	November 11, 2015 – August 20, 2016
Eagle and Raptor Nest Survey (Tetra Tech 2016d)	Raptors	Aerial out to 10-miles and ground based out to 2-miles surveys from the Project Area boundary and within the Project Area.	November 17-18, 2015 January 25-27, 2016 February 24, 2016 March 29 – 31, 2016
Eagle Nest Watch (Tetra Tech 2016e)	Golden Eagle Nest 2015_39	Nest monitoring for 8 hours/day	April 11 – May 16, 2016
2016 Spring Grouse Lek Surveys (Tetra tech 2016f)	Grouse	Ground based survey every 0.5 miles within grassland habitat out to 1-mile from the Project Area boundary and within the Project Area	April 6 – 12, 2016 April 25 – 29, 2016
Whooping Crane Likelihood of Occurrence Report (Tetra Tech 2016g)	Whooping Cranes	Desktop Assessment of the Project Area	Desktop Assessment January 2016 Revised Assessment March 2016
2015/2016 Bat Habitat Assessment (Tetra Tech 2016h)	Bat habitat	Desktop assessment	Revised report April 2016
Bat Acoustical Monitoring Report (Tetra Tech 2016i)	Bats	Passive Acoustical Surveys within the Project Area	July 22, 2015 – December 3, 2015

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Table 7. Dakota Skipper Habitat within the Project Area

Classification	Total	Percent of Proposed Project Area	Impacts		
			Permanent	Temporary	Total
Excellent/Likely Habitat	177 acres	1	0	0.07	0.07
Good/Possible Habitat	4,868 acres	28	21.4	212.2	233.6
Undetermined	1,164 acres	7	0.4	1.6	2.0

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Table 8. Eagle Mean Inter-nest Distances at the Project

Nests Included in Analysis	Bald Eagle	Golden Eagle
Known eagle nests within 10 miles of Project Area	8.0 miles	9.9 miles
Known eagle nests and other large stick nests within 10 miles of Project Area	3.0 miles	12.4 miles

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Table 9. Federally or State-Protected and BCC Species Observed during Avian Surveys at the Project.

Species	BCC Region 17 Listing	State SCP Listing	USFWS Habitat Fragmentation Concern ¹	Number of Individuals Observed ²
Songbirds				
Western meadowlark	No	Level II	No	298
bobolink	No	Level II	Yes	35
lark bunting	No	Level II	No	51
Raptors				
Northern harrier	No	Level II	Yes	40
Swainson’s hawk	No	Level I	No	26
Bald eagle	Yes	Level II	No	10
Ferruginous hawk	Yes	Level I	No	5
Golden eagle	Yes	Level II	No	22
American kestrel	No	Level II	No	17
Shorebird				
Upland sandpiper	Yes	Level II	Yes	9
Grouse				
Sharp-tailed grouse	No	Level II	Yes	71

n/a – not applicable. Species was not surveyed.

1 North Dakota Field Office (USFWS 2013b).

2 Numbers of birds detected include those observed during surveys and those observed incidentally for each species.

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Table 10. Estimated Mean Bird Fatalities for all Birds per Turbine and per Megawatt at Wind Facilities in the Midwest with similar habitat to the Project

Wind Facility	State	Habitat	Estimated mean bird fatality/turbine/year	Estimated mean bird fatality/MW/year	Source
Blue Sky Green Field	WI	Agricultural Cropland	11.83	7.17	Gruver et al. 2009
Buffalo Ridge Phase I (1996-1999)	MN	Agricultural Cropland	0.98	2.86	Johnson et al. 2000
Forward Energy	WI	Agricultural Cropland	3.27	2.18	Grodsky and Drake 2011
Kewaunee County	WI	Agricultural Cropland	1.29	1.95	Howe et al. 2002
Ainsworth	NE	Mixed grass prairie	2.68	1.63	Derby et al. 2007
Summerview	AB Canada	Mixed grass prairie	1.9	-	Brown and Hamilton 2006
Red Canyon	TX	Short-grass prairie	0.77	0.50	Miller 2008
Top of Iowa	IA	Agricultural Cropland	0.44 (2003) 0.96 (2004)	0.49 (2003) 1.07 (2004)	Jain 2005 Jain et al. 2011
Buffalo Gap II	TX	Mixed-grass prairie	0.22	0.15	Tierney 2009
Regional Mean (90-percent confidence interval)			2.43 (±1.80)	2.00 (±1.17)	

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Table 11. Estimated Mean Bat Fatalities per Turbine and per Megawatt at Wind Facilities in the Midwest

Wind Facility and State	State	Habitat	Estimated Mean Fatalities/Turbine/Year	Estimated Mean Fatalities/MW/Year	Documented Bat Species Fatalities ¹	Source
Red Canyon	TX	Short-grass prairie	71.8	46.1	Brazilian free-tailed bat, hoary bat, eastern red bat	Miller 2008
Blue Sky Green Field	WI	Agricultural cropland	40.54	24.57	Little brown, silver-haired, big brown, hoary, eastern red, and unidentified	Gruver et al. 2009
Forward Energy	WI	Agricultural cropland	23.44	15.63	Hoary, silver-haired, eastern red, unknown, little brown, big brown	Grodsky and Drake 2011
Kewaunee County	WI	Agricultural cropland	4.26	6.45	Eastern red and hoary.	Howe et al. 2002
Top of Iowa	IA	Agricultural cropland	4.45 (2003) 7.14 (2004)	4.94 (2003) 7.94 (2004)	Hoary, little brown, eastern red, big brown, silver-haired	Jain 2005, Jain et al. 2011
Ainsworth	NE	Mixed-grass prairie	1.91	1.16	Hoary, unidentified species, big brown and eastern red	Derby et al. 2007
Buffalo Gap II	TX	Mixed-grass prairie	0.21	0.41	Hoary bat, Brazilian free-tailed bat, unidentified species	Tierney 2009
Summerview	AB Canada	Mixed-grass prairie	18.48	-	Hoary, silver-haired, little brown, big brown, eastern red	Brown and Hamilton 2006
Buffalo Ridge Phase I (1996-1999)	MN	Agricultural cropland	0.26	-	Hoary, eastern red, silver-haired, tricolored	Johnson et al. 2000
Regional Mean (90-percent Confidence Interval)			17.25 (12.05)	13.4 (9.00)	-	

1. In order of decreasing frequency.

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14.0 FIGURES

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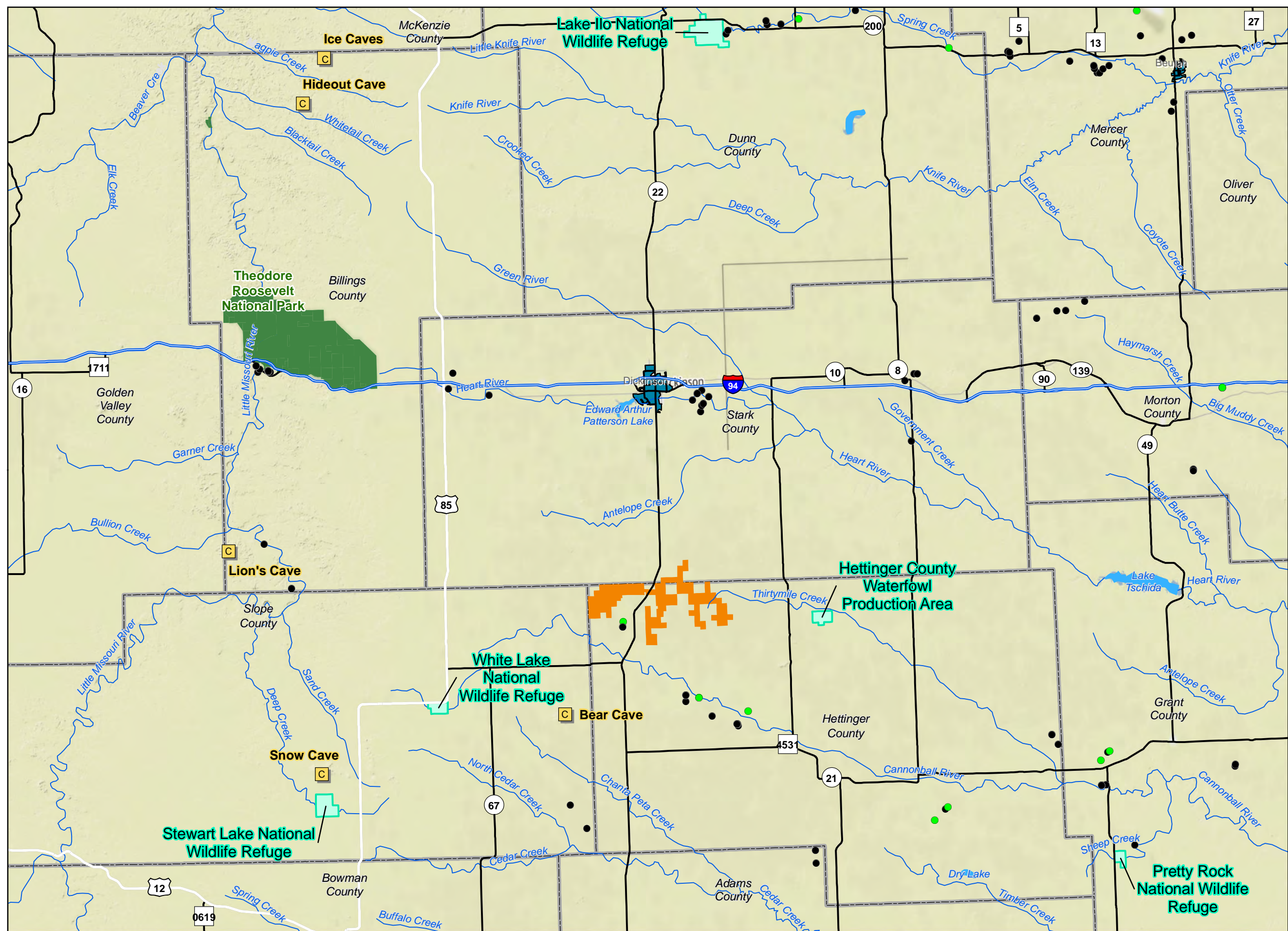
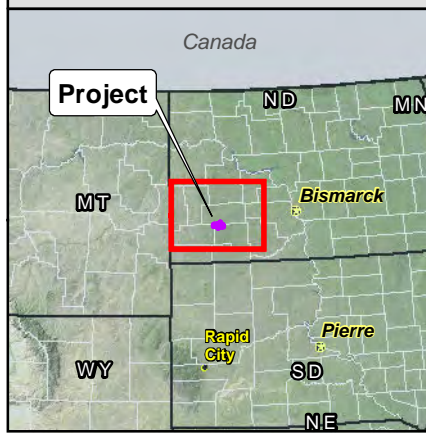
Figure 1

Project Location

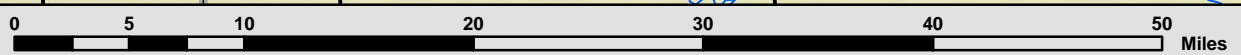


Brady II Wind Energy Center
Stark and Hettinger counties, ND

- Proposed Project Area (07-29-2016)
- National Wildlife Refuge
- National Park Service (NPS)
- State Boundary
- County Boundary
- Urban area
- Interstate Highway
- Secondary Highway
- Secondary Road
- River/Stream
- Lake/Pond
- Approximate Cave Location
- Abandoned Mines**
 - Underground
 - Underground/Surface



1:530,000 WGS84 UTM Zone 13N



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Figure 2

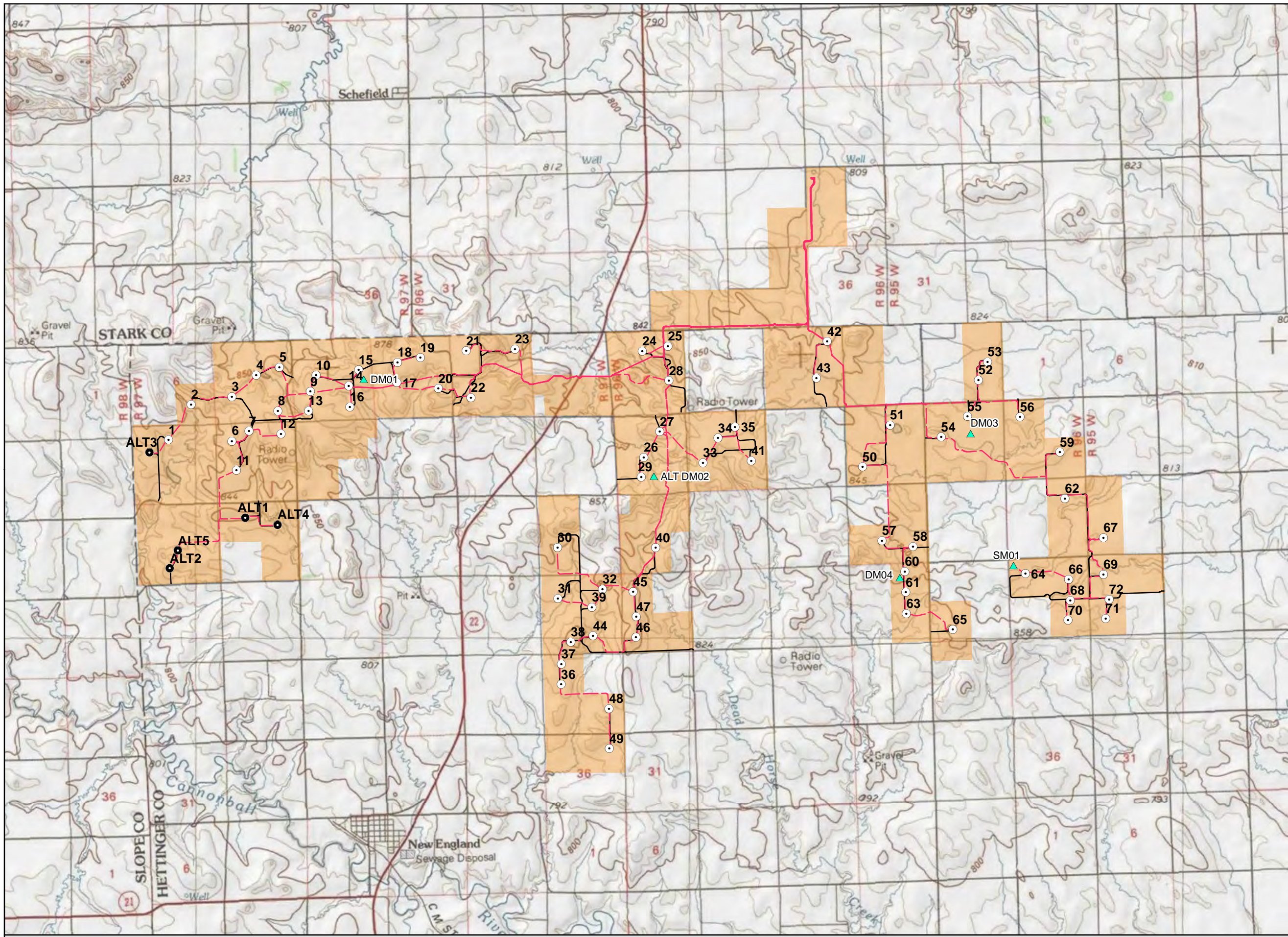
Project Layout



Brady II Wind Energy Center

Stark and Hettinger counties, ND

- Proposed Project Area (07-29-2016)
- Proposed Met Tower (07-29-2016)
- Proposed Turbine (05-02-2016)
- Proposed Alternate Turbine (05-02-2016)
- Proposed Collection Line (05-02-2016)
- Proposed Service Roads (05-02-2016)



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Figure 3

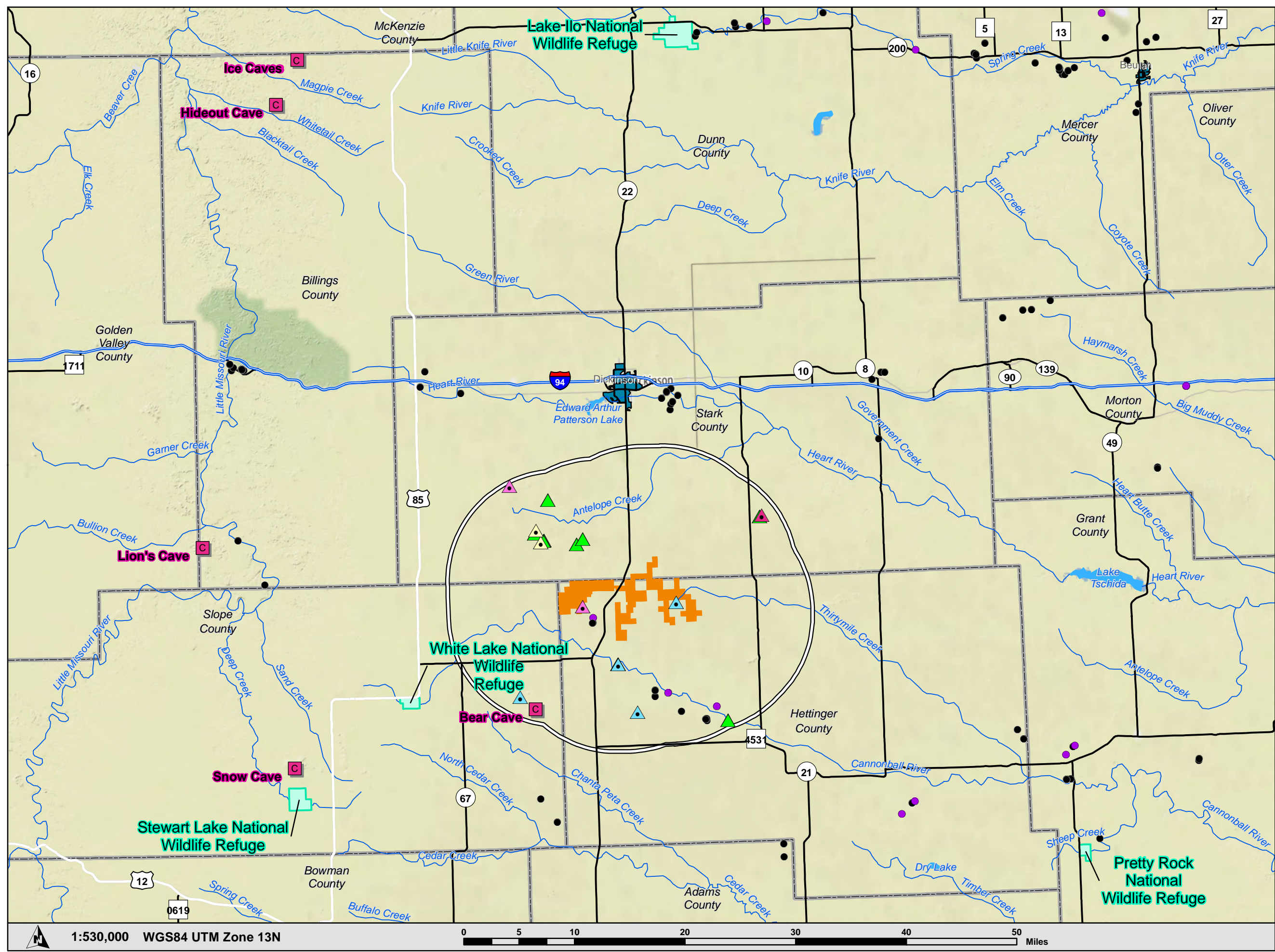
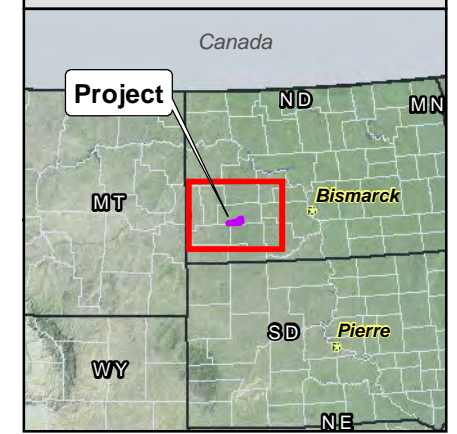
Tier 1 and Tier 2 Evaluation Areas



Brady II Wind Energy Center

Stark and Hettinger counties, ND

- USFS WEG Tier 1 Evaluation Area
- USFWS WEG Tier 2 Evaluation Area (Current Project Boundary)
- Occupied bald eagle nest
- Occupied golden eagle nest
- Occupied ferruginous hawk nest
- Occupied large stick nest, species undetermined*
- Unoccupied large stick nest
- National Wildlife Refuge
- Approximate Cave Location
- Abandoned Mines**
- Underground
- Underground/ Surface
- State Boundary
- County Boundary
- Urban area
- Interstate Highway
- Secondary Highway
- Secondary Road
- River/Stream
- Lake/Pond



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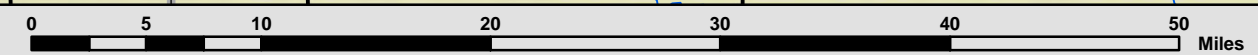



Figure 4

Land Cover


















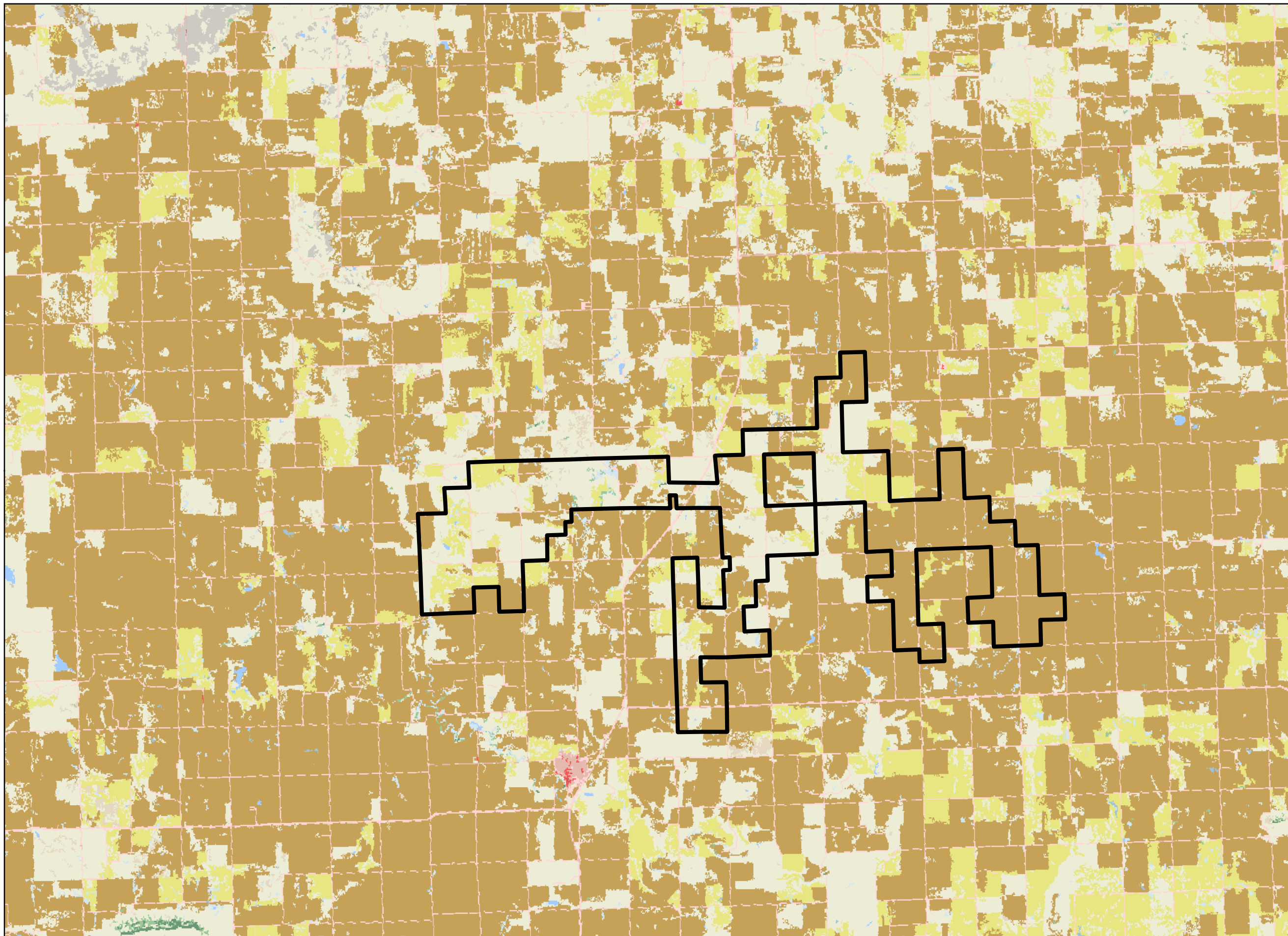
Brady II Wind Energy Center

Stark and Hettinger counties, ND

 Proposed Project Area
(07-29-2016)

Land Cover Type

-  Open Water
-  Developed, Open Space
-  Developed, Low Intensity
-  Developed, Medium Intensity
-  Developed, High Intensity
-  Barren Land
-  Deciduous Forest
-  Evergreen Forest
-  Mixed Forest
-  Shrub/Scrub
-  Grassland/ Herbaceous
-  Hay/Pasture
-  Cultivated Crops
-  Woody Wetlands
-  Emergent Herbaceous Wetlands



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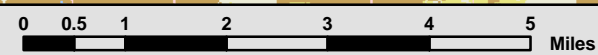


Figure 5

Prey Distribution

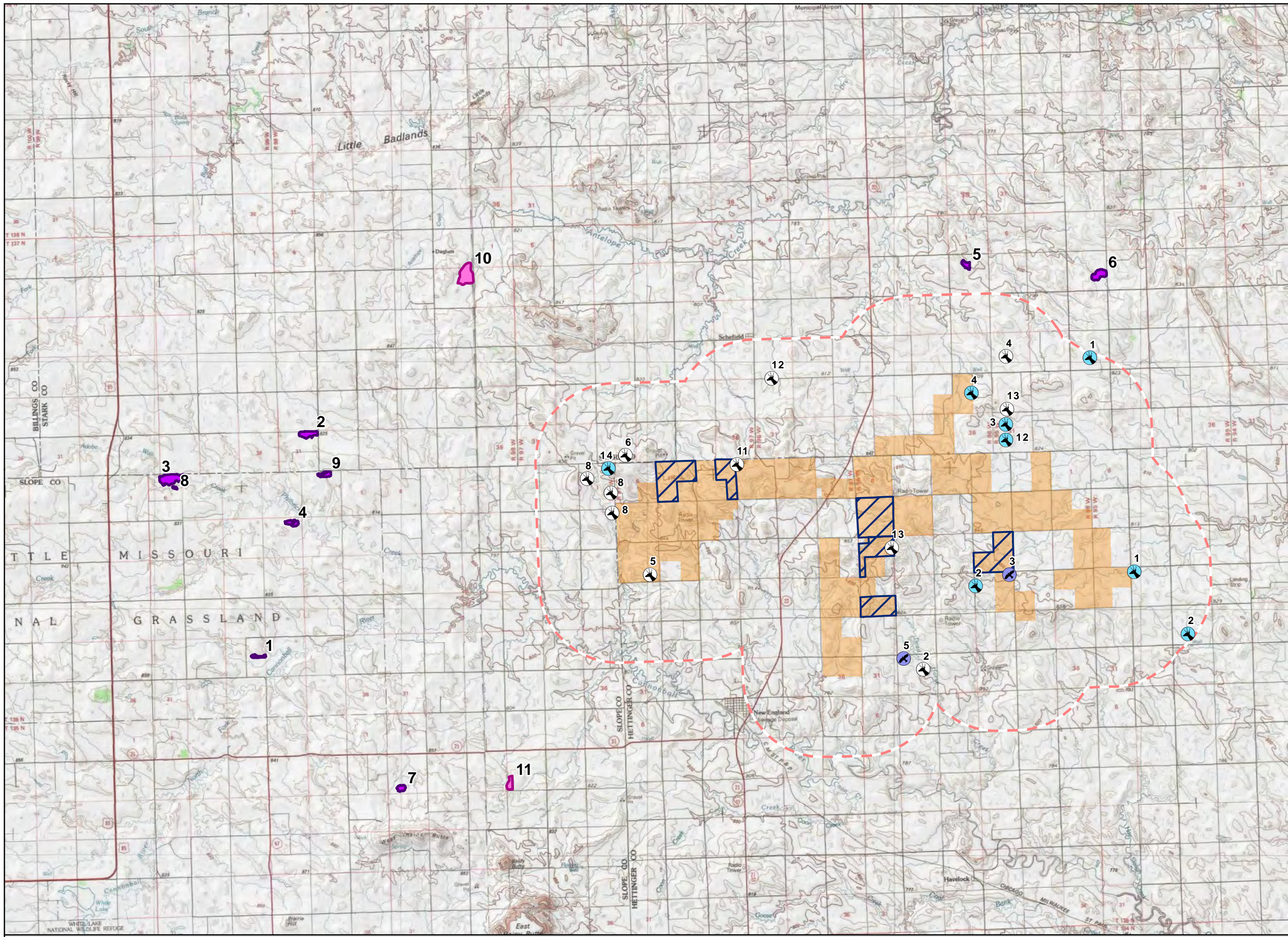


Brady II Wind Energy Center

Stark and Hettinger counties, ND

Prey-based Species
(Number Observed)

- Pronghorn
- Deer
- Sharp-tailed Grouse
- Proposed Project Area (07-29-2016)
- Aerial Prey-base Survey Area (2-mile Buffer Around Project Boundary)
- Parcels with Cattle Present (04-01-16)
- NDGFD Active Prairie Dog Towns as of March 2016
- Active Prairie Dog Towns as of March 2016



1:150,000 WGS84 UTM Zone 13N

0 0.5 1 2 3 4 5 Miles

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Figure 6a

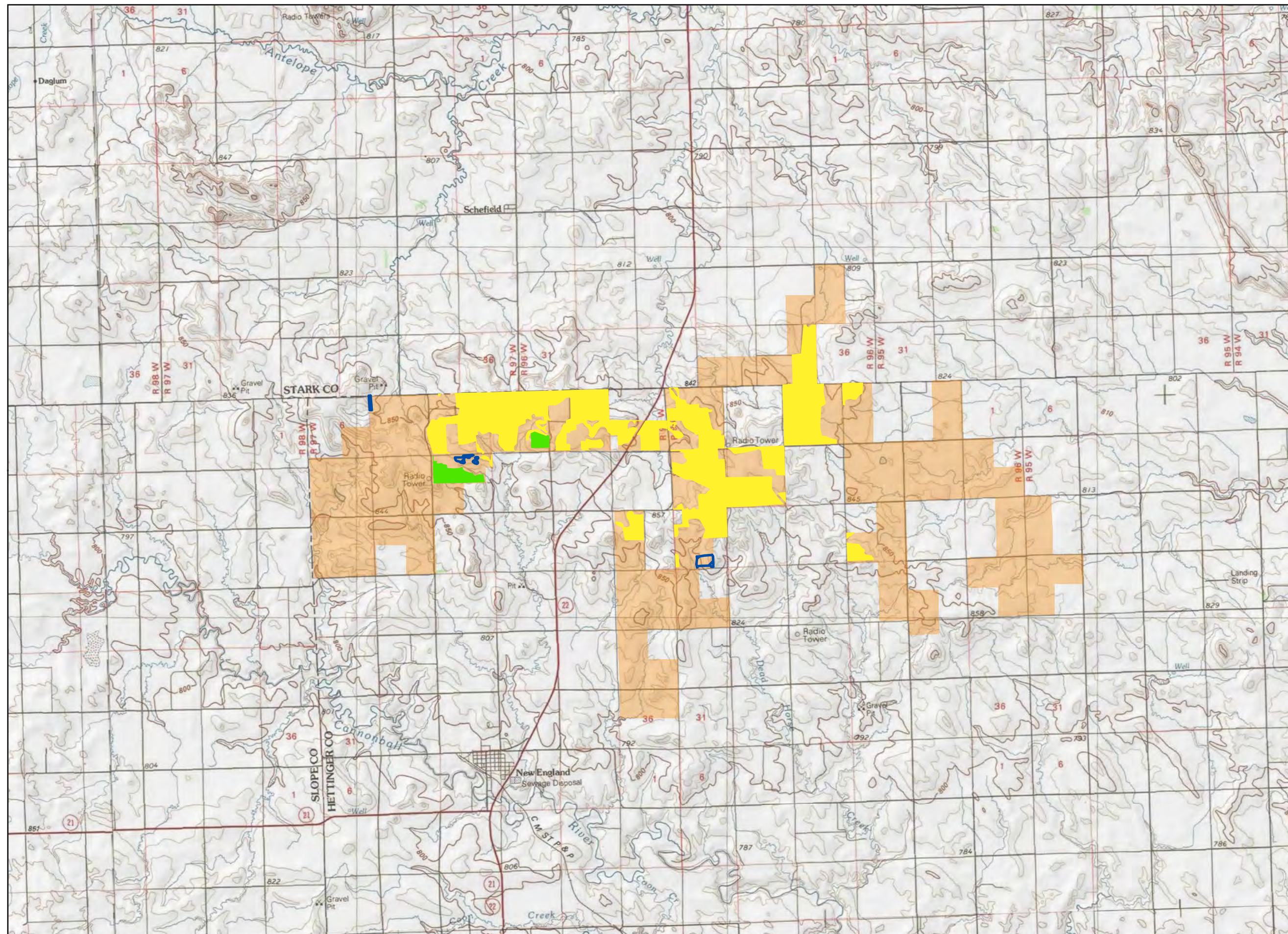
Dakota Skipper Habitat



Brady II Wind Energy Center

Stark and Hettinger counties, ND

- Proposed Project Area (07-29-2016)
- Field Verified Dakota Skipper Habitat
 - Excellent/Likely
 - Good/Possible
 - Not Visible



1:100,000 WGS84 UTM Zone 13N

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Figure 6b

Dakota Skipper Habitat



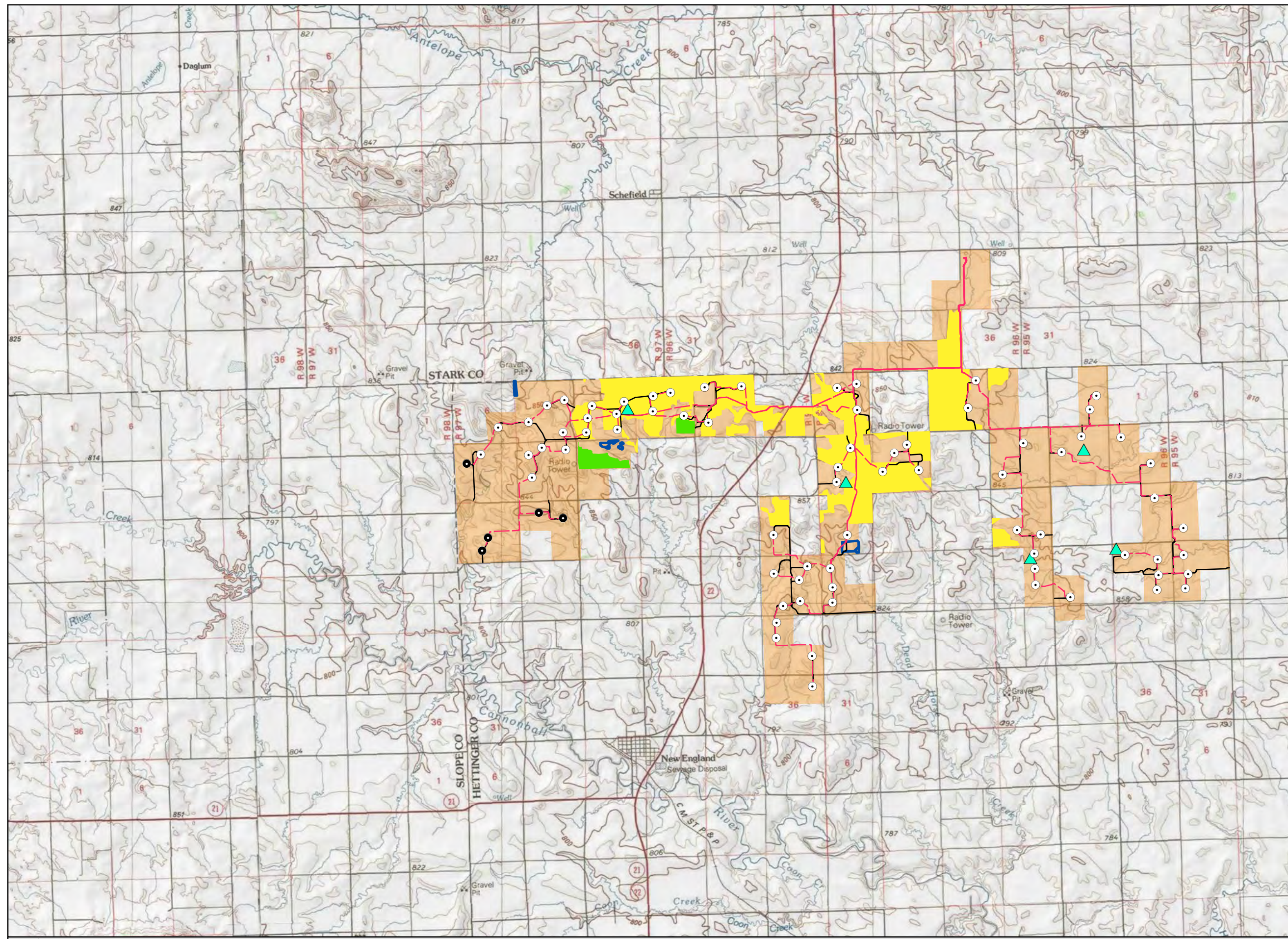
Brady II Wind Energy Center

Stark and Hettinger counties, ND

- Proposed Project Area (07-29-2015)
- Proposed Met Towers (07-29-2016)
- Proposed Turbine (05-02-2016)
- Proposed Alternate Turbine (05-02-2016)
- Proposed Collection Line (05-02-2016)
- Proposed Service Roads (05-02-2016)

Field Verified Dakota Skipper Habitat

- Excellent/Likely
- Good/Possible
- Not Visible



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0 0.5 1 2 3 4 5 Miles

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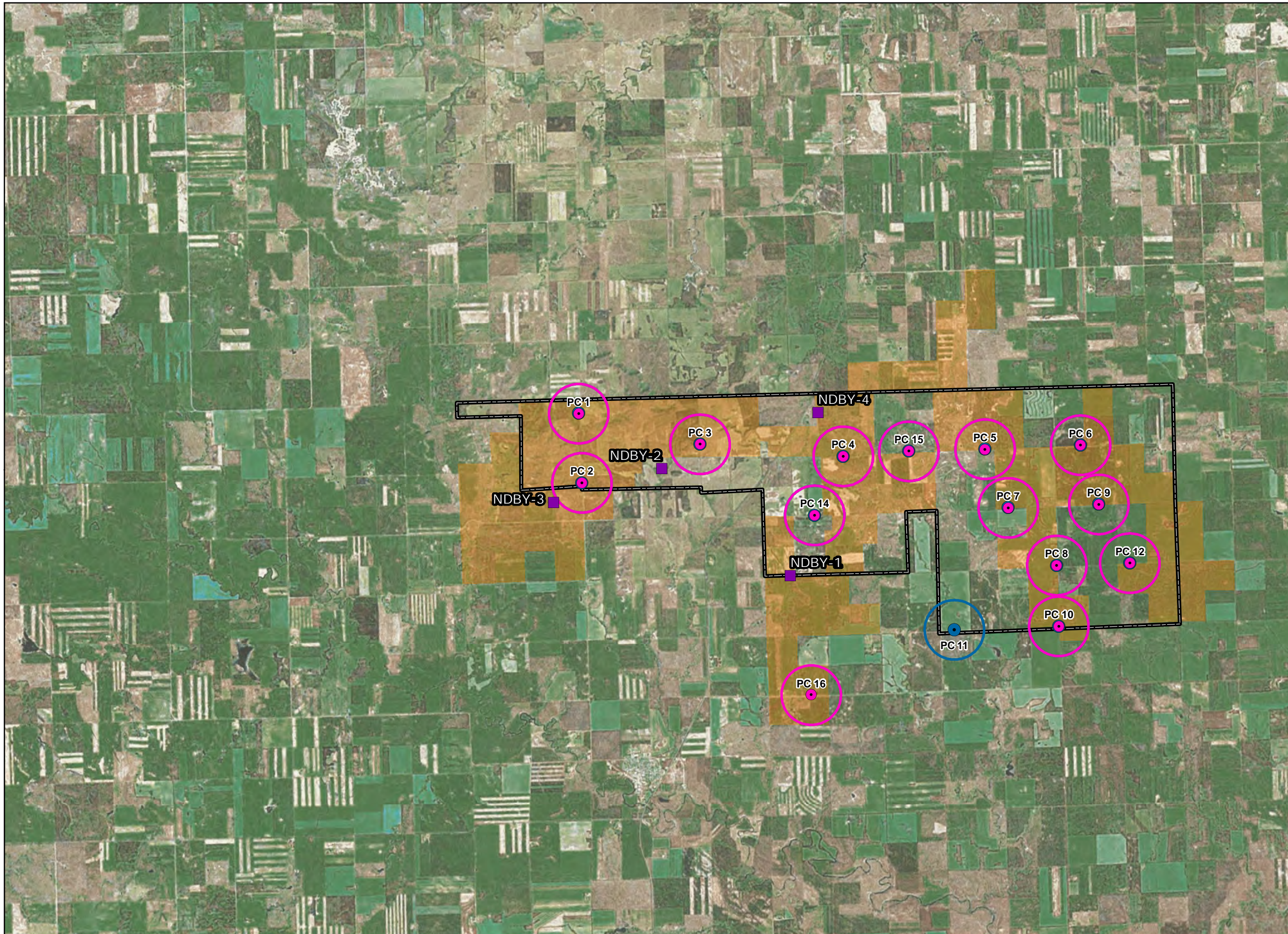
Figure 7








**Avian Point-Count and
Bat Detector Location Map**



Brady II Wind Energy Center

Stark and Hettinger counties, ND



-  Bat Detector Location
-  Current Avian Survey Point
-  Current Avian Survey Point 800-meter Radius
-  Historic Avian Survey Point
-  Historic Avian Survey Point 800-m Radius
-  Original Proposed Project Boundary (10-29-2015)
-  Proposed Project Area (07-29-2016)

PC# Point count number



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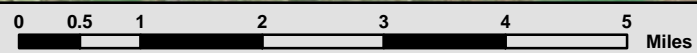


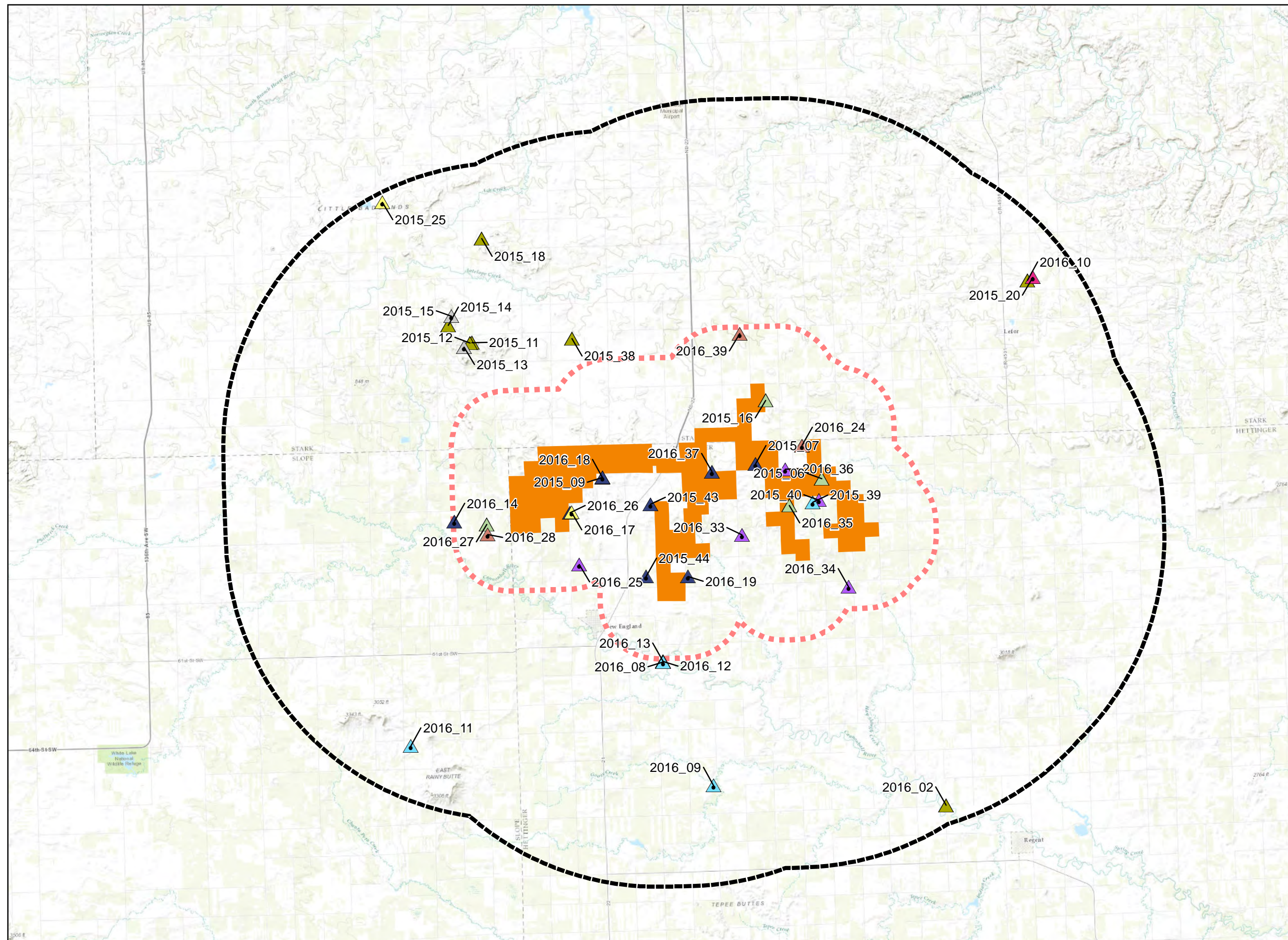
Figure 8a

Raptor Nest Location Map
(Summer/Fall 2015, Winter/Spring 2016)



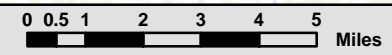
Brady II Wind Energy Center

Stark and Hettinger counties, ND



- Occupied golden eagle nest
- Occupied bald eagle nest
- Occupied ferruginous hawk nest
- Occupied large stick nest, species undetermined
- Occupied Swainson's hawk nest
- Occupied great horned owl nest
- Occupied red tailed hawk nest
- Unoccupied small stick nest
- Unoccupied large stick nest
- Proposed Project Area (07-29-2016)
- Survey Area 2-mile Buffer
- Survey Area 10-mile Buffer

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Figure 8b

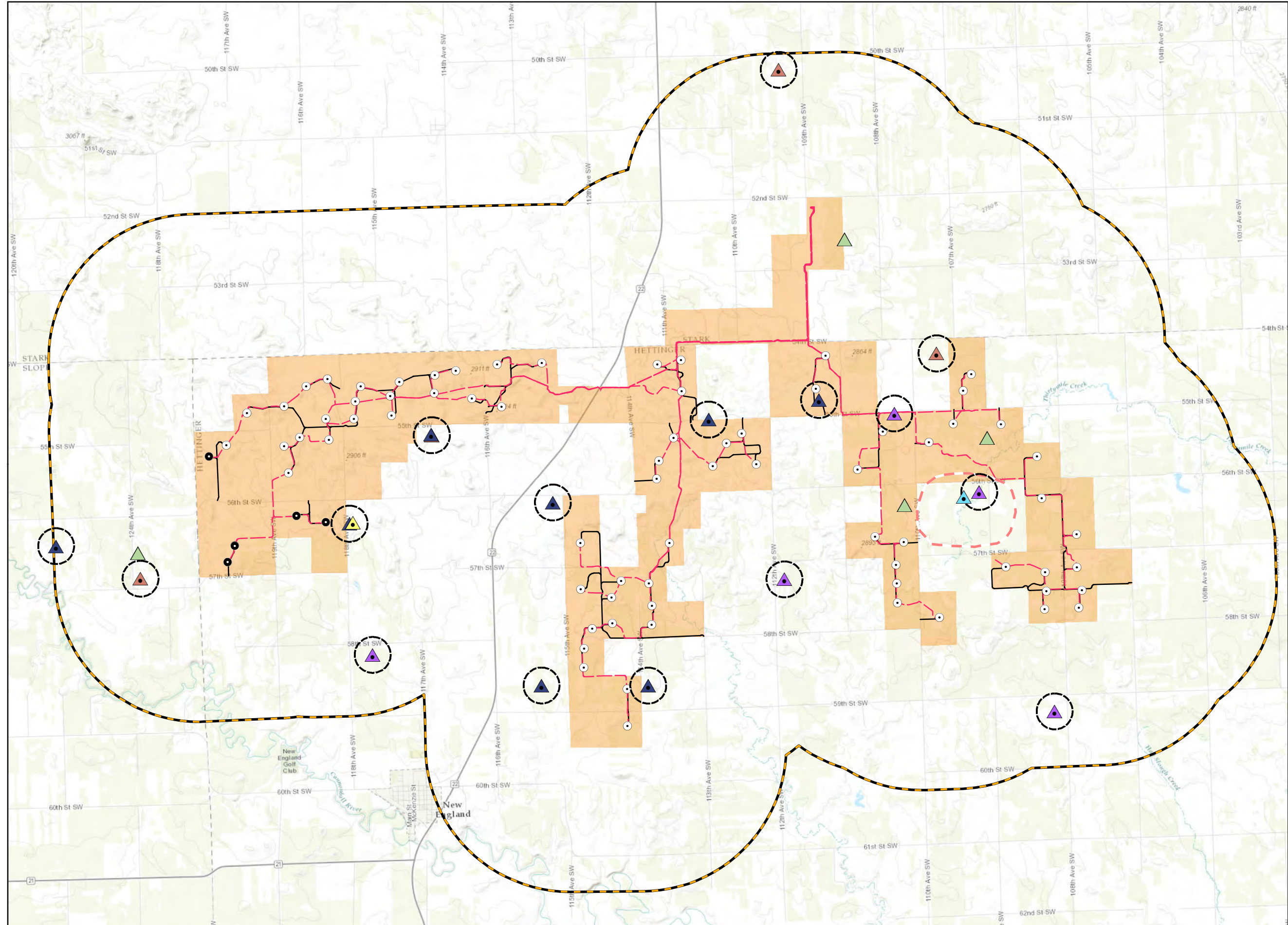
Raptor Nest Locations and Project Infrastructure



Brady Wind Energy Center

Stark and Hettinger counties, ND

- Occupied golden eagle nest
- Occupied ferruginous hawk nest
- Occupied Swainson's hawk nest
- Occupied great horned owl nest
- Occupied red tailed hawk nest
- Unoccupied small stick nest
- Raptor Nest Construction Buffers
- Eagle Nest Construction Buffer
- Survey Area 2-mile Buffer
- Proposed Turbine (05-02-2016)
- Proposed Alternate Turbine (05-02-2016)
- Proposed Collection Line (05-02-2016)
- Proposed Service Roads (05-02-2016)
- Proposed Project Area (07-29-2016)



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

Figure 9

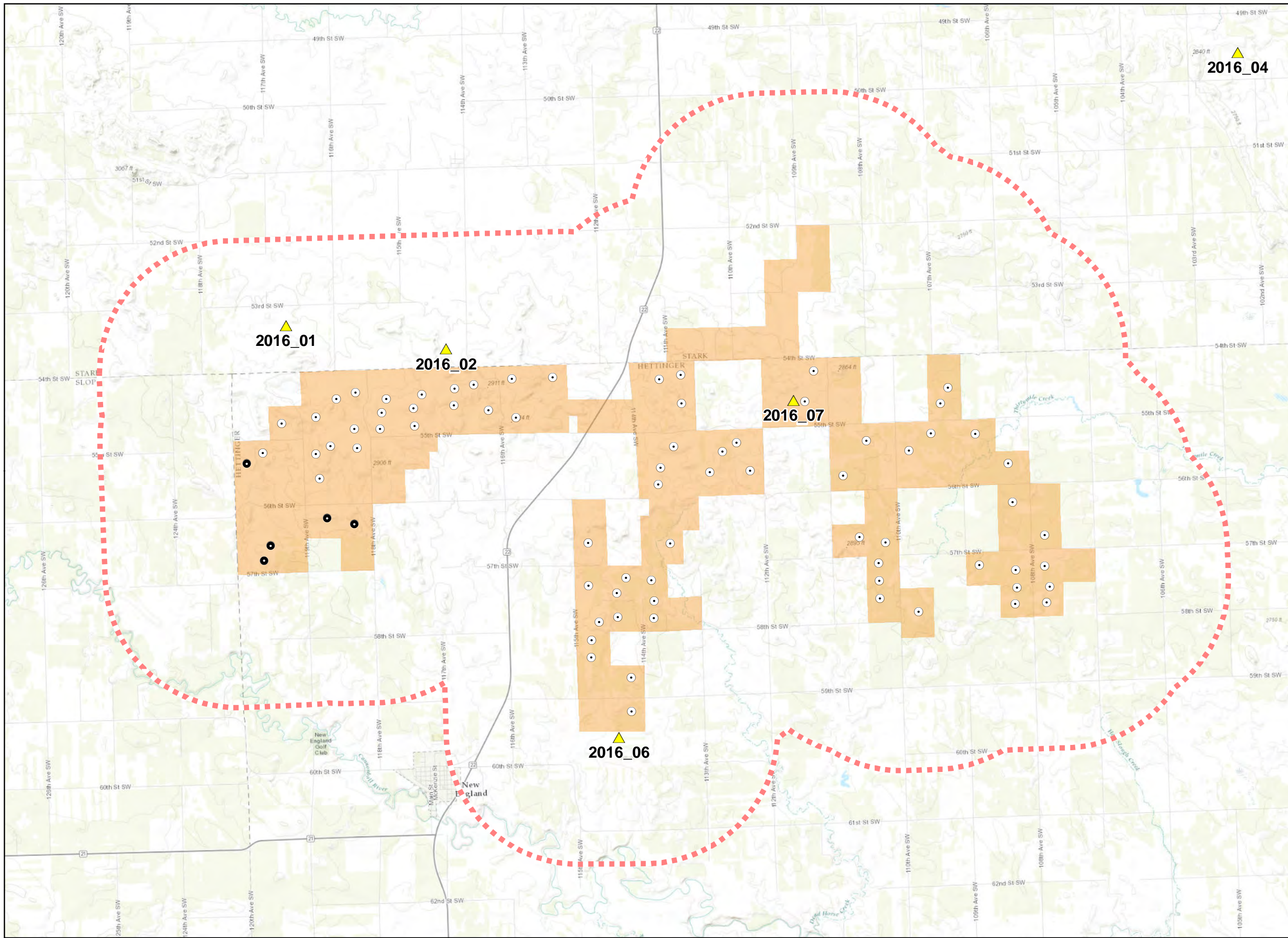
Sharp-Tailed Grouse Lek Locations



Brady Wind Energy Center

Stark and Hettinger counties, ND

-  Proposed Project Area (07-29-2016)
-  Survey Area 2-mile Buffer
-  Grouse Lek Location
-  Proposed Turbine (05-02-2016)
-  Proposed Alternate Turbine (05-02-2016)



1:90,000 WGS84 UTM Zone 13N

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Figure 10a

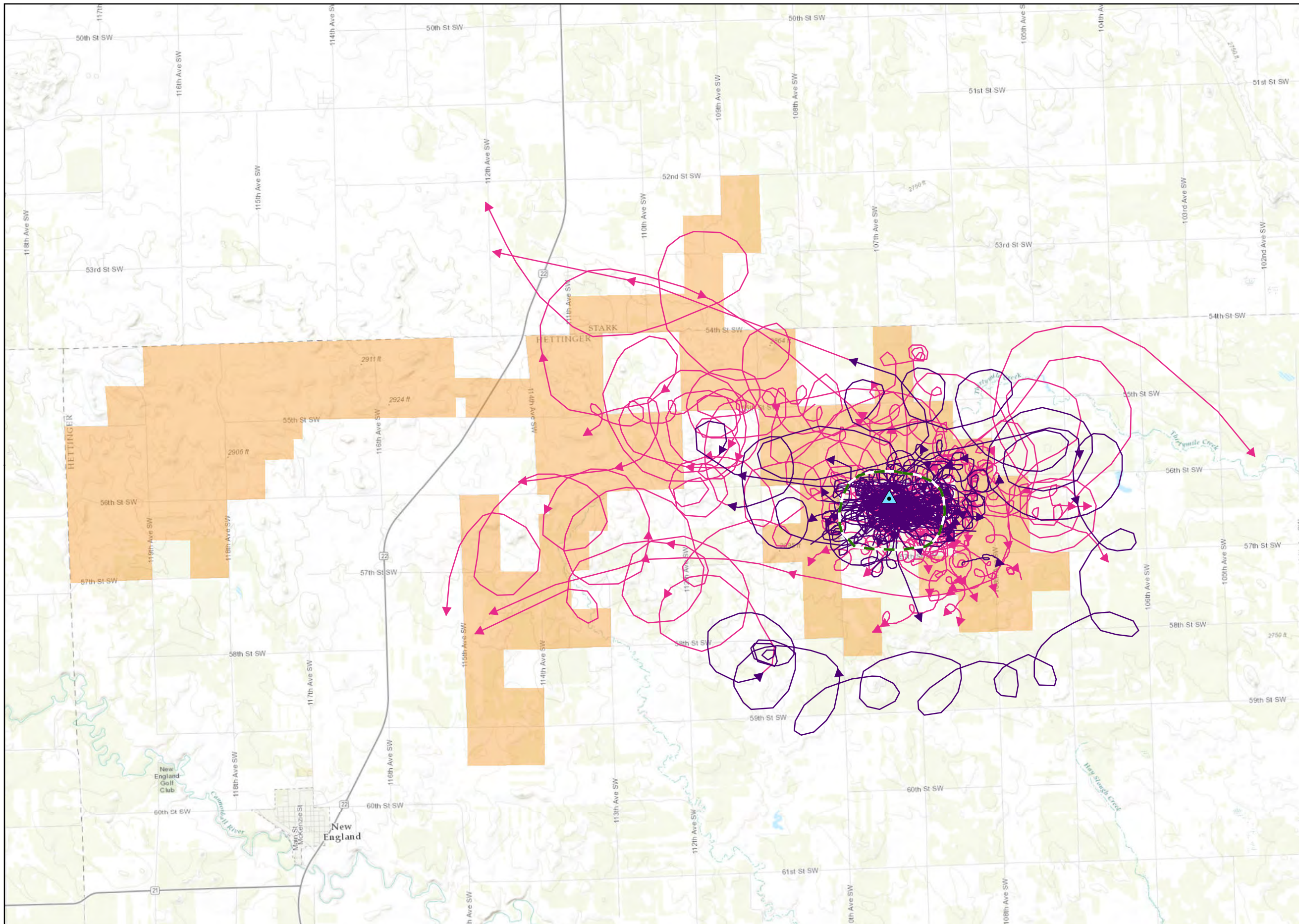
Golden Eagle Nest Monitoring



Brady II Wind Energy Center

Hettinger and Stark counties, ND
Last modified: 09-15-2016

- Golden eagle nest 2015-39
- Flight Path Data Buffer
- Golden Eagle Flight Path (Height)**
 - Above 200m
 - Below 200m
- Proposed Project Area (07-29-2016)



1:77,906 WGS 1984 UTM Zone 13N

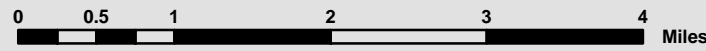


Figure 10b

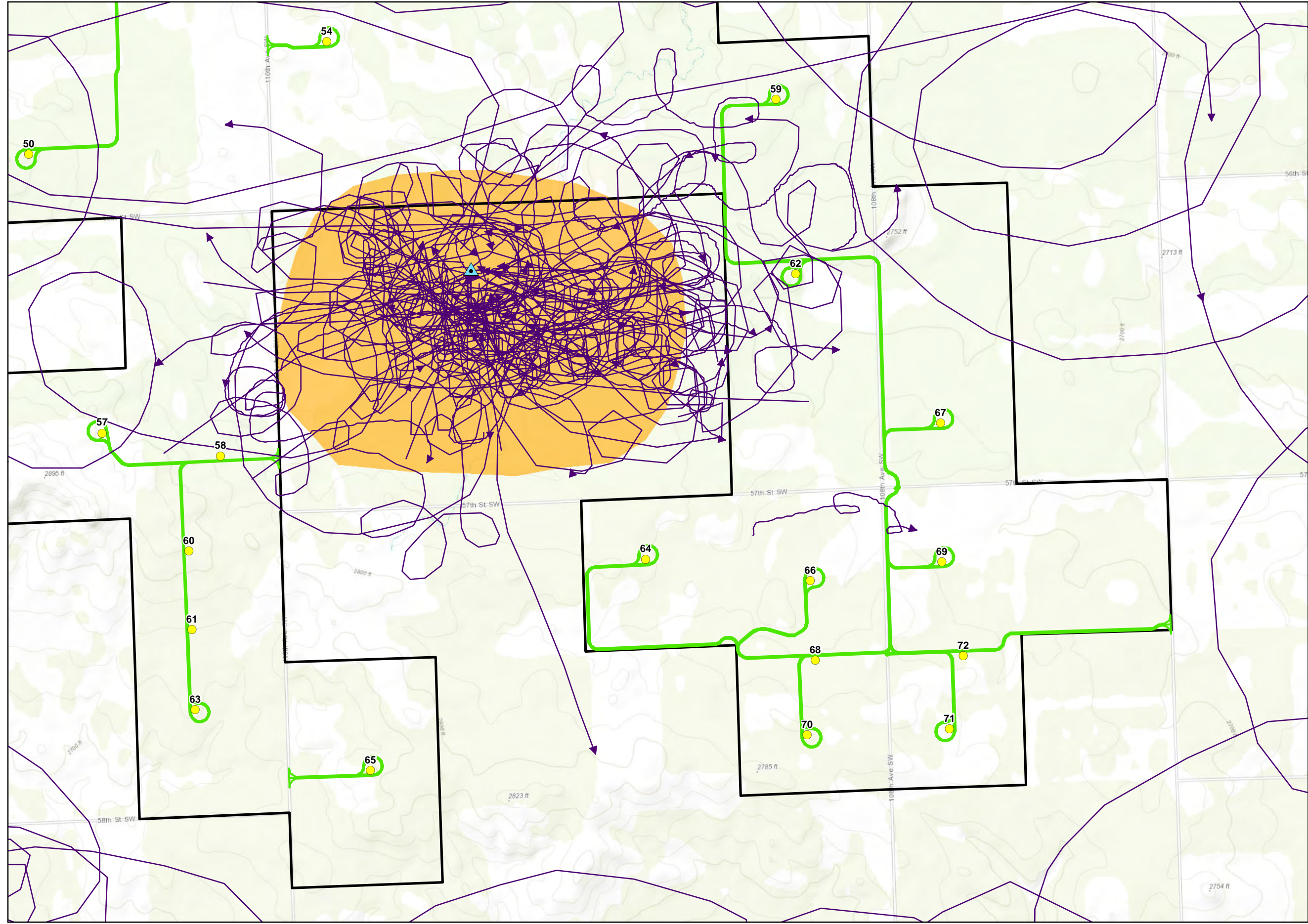
Nest 2015_39 Golden Eagle Flight Paths



Brady II Wind Energy Center

Hettinger and Stark counties, ND
Last modified: 09-15-2016

- Golden eagle nest 2015-39
- Flight Path Data Buffer
- Golden Eagle Flight Path (Height)**
- Golden Eagle Flight Paths < 200m
- Proposed Project Area (07-29-2016)
- Proposed Turbines (6/27/16)
- Proposed Service Roads (7/27/16)



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Figure 11

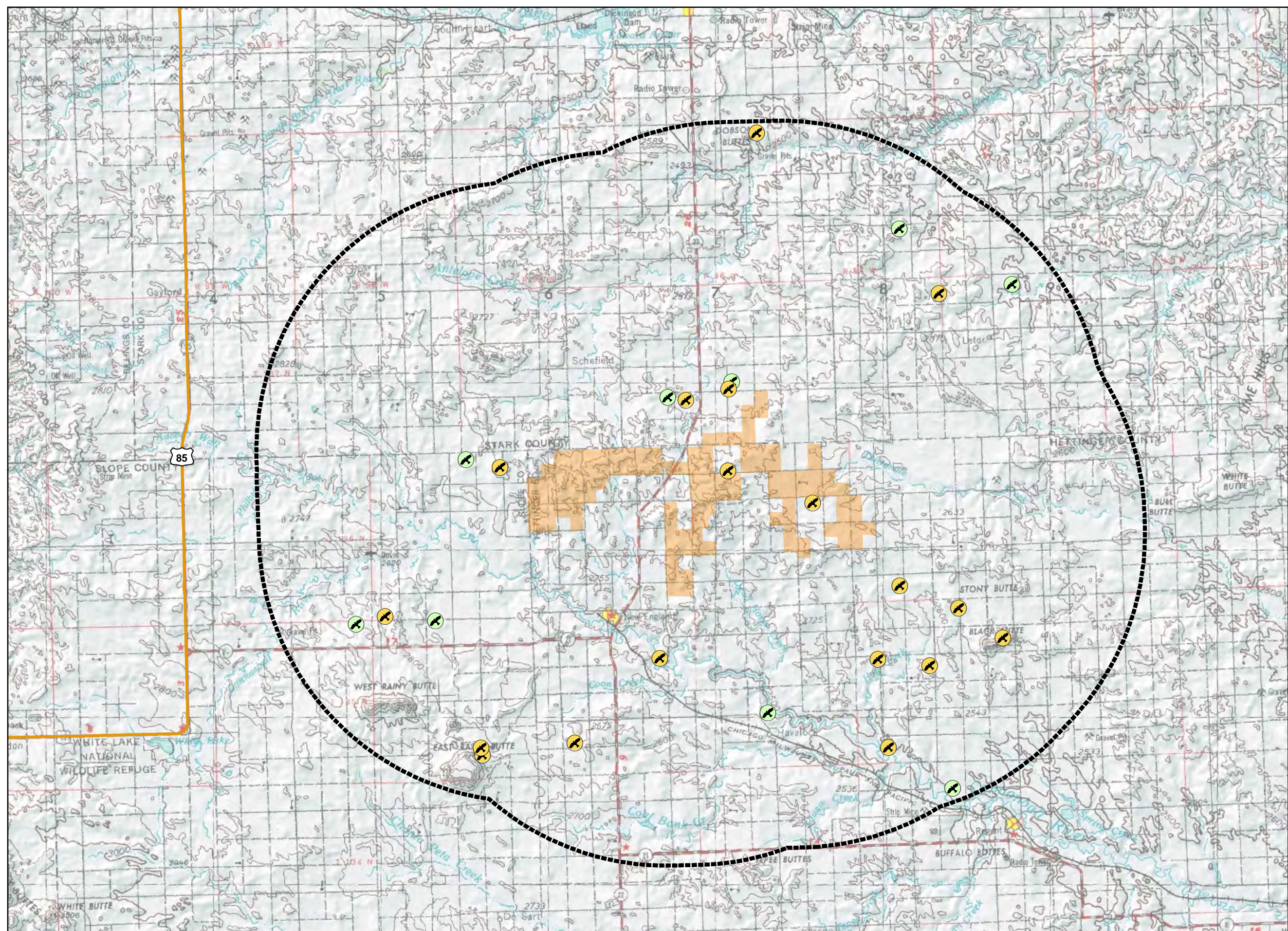
2015/2016 Incidental Eagle Observations



Brady II Wind Energy Center
Stark and Hettinger counties, ND

Incidental Eagle Observations During Eagle Use and Raptor Nest Surveys

-  Bald Eagle
-  Golden Eagle
-  Proposed Project Area (07-29-2016)
-  Survey Area 10-mile Buffer



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APPENDIX A: AGENCY COORDINATION

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August 14, 2015

Mr. Kevin Shelley
Acting ND Field Supervisor
USFWS North Dakota Field Office
3425 Miriam Avenue
Bismarck, ND 58501-7926

Subject: Information Request for the Proposed Brady Wind Energy Center in Hettinger and Stark Counties, ND

Dear Mr. Shelley:

Tetra Tech has been contracted by NextEra Energy Resources, LLC to prepare an application for a Certificate of Site Compatibility for the proposed Brady Wind Energy Center (the Project), in accordance with North Dakota Century Code (NDCC) Section 49-22-07. As part of that application, we are conducting an investigation of property in Hettinger and Stark counties south of the city of Dickinson. This proposed Project would consist of approximately 150 megawatts (MW). The Project area shown in the attached figure is the primary focus of our investigation.

The Project would interconnect to the electrical grid via a 230-kV transmission line approximately 17 miles in length from the Project substation to the Belfield to Rhame 230-kV line approximately 20 miles southwest of the city of Dickinson. We will also prepare a separate application for a Certificate of Corridor Compatibility and Route Permit for the proposed transmission line.

The wind energy center would include portions of the following tracts:

County	Township	Range	Sections
Hettinger	136 N	96 W	3-9, 15-18
Hettinger	136 N	97 W	1-6, 8-13
Stark	137 N	95 W	1, 2, 9-16, 19-24, 27-34
Stark	137 N	96 W	23-36
Stark	137 N	97 W	25-29, 32-36

Mr. Shelley
USFWS North Dakota Field Office
August 14, 2015

The associated transmission line corridor includes the following tracts:

County	Township	Range	Sections
Hettinger	136 N	96 W	2-6
Hettinger	136 N	97 W	1-6
Slope	136 N	98 W	1-6
Slope	136 N	99 W	1-3
Stark	137 N	95 W	18-20, 29-32
Stark	137 N	96 W	11-36
Stark	137 N	97 W	13-36
Stark	137 N	98 W	13-36

Per Section 69-06-01-05 of the North Dakota Public Service Commission (PSC)'s administrative rules, we are consulting your agency for assistance in identifying concerns or issues within the boundaries of the tracts listed below that would influence a decision regarding the use of the land, as well as applicable permits that may be required from your office.

This information will be used to help guide Project development in a manner that identifies and avoids impacts to sensitive resources where practicable. We have sent similar query letters to other agencies including, but not limited to, the U.S. Army Corps of Engineers, State Historical Society of North Dakota, and North Dakota Game and Fish Department (NDGF).

NextEra Energy is developing the Project following the voluntary Final Land-Based Wind Energy Guidelines. Desktop habitat analyses for bats and whooping crane are underway as part of Tier 1 and Tier 2 assessments for the Project. Tier 3 assessments that are currently planned or underway for the Project include fall and spring avian migration surveys, biweekly eagle use surveys, raptor nest and grouse lek surveys, and bat acoustic monitoring.

We requested documented eagle nest locations in the vicinity of the Project Area from the NDGF in May 2015 and conducted a ground-based summer nest inventory in June 2015. There are no documented eagle nests within 3 miles of the Project Area. There is one occupied bald eagle nest approximately 3 miles east of the Project Area; one active and three inactive golden eagle nests are located approximately 7 miles from the Project Area.

We would appreciate a response by September 30, 2015. Please contact me at (512) 213-8501 if you have any questions. Thank you for your assistance.

Respectfully submitted,



Anne-Marie Griger, AICP



August 14, 2015

Mr. Terry Steinwand
Director
North Dakota Game and Fish Department
100 N. Bismarck Expressway
Bismarck, ND 58501-5095

Subject: Information Request for the Proposed Brady Wind Energy Center in Hettinger and Stark Counties, ND

Dear Mr. Steinwand:

Tetra Tech has been contracted by NextEra Energy Resources, LLC to prepare an application for a Certificate of Site Compatibility for the proposed Brady Wind Energy Center (the Project), in accordance with North Dakota Century Code (NDCC) Section 49-22-07. As part of that application, we are conducting an investigation of property in Hettinger and Stark counties south of the city of Dickinson. This proposed Project would consist of approximately 150 megawatts (MW). The Project area shown in the attached figure is the primary focus of our investigation.

The Project would interconnect to the electrical grid via a 230-kV transmission line approximately 17 miles in length from the Project substation to the Belfield to Rhame 230-kV line approximately 20 miles southwest of the city of Dickinson. We will also prepare a separate application for a Certificate of Corridor Compatibility and Route Permit for the proposed transmission line.

The wind energy center would include portions of the following tracts:

County	Township	Range	Sections
Hettinger	136 N	96 W	3-9, 15-18
Hettinger	136 N	97 W	1-6, 8-13
Stark	137 N	95 W	1, 2, 9-16, 19-24, 27-34
Stark	137 N	96 W	23-36
Stark	137 N	97 W	25-29, 32-36

Mr. Steinwand
North Dakota Game and Fish Department
August 14, 2015

The associated transmission line corridor includes the following tracts:

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Hettinger	136 N	97 W	1-6
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Slope	136 N	99 W	1-3
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NextEra Energy is developing the Project following the voluntary Final Land-Based Wind Energy Guidelines. Desktop habitat analyses for bats and whooping crane are underway as part of Tier 1 and Tier 2 assessments for the Project. Tier 3 assessments that are currently planned or underway for the Project include fall and spring avian migration surveys, biweekly eagle use surveys, raptor nest and grouse lek surveys, and bat acoustic monitoring.

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We would appreciate a response by September 30, 2015. Please contact me at (512) 213-8501 if you have any questions. Thank you for your assistance.

Respectfully submitted,



Anne-Marie Griger, AICP



August 14, 2015

Mr. Mark Zimmerman
Director
North Dakota Parks and Recreation Department
1600 E. Century Ave, Suite 3
Bismarck, ND 58503

**Subject: Information Request for the Proposed Brady Wind Energy Center in
Hettinger and Stark Counties, ND**

Dear Mr. Zimmerman:

Tetra Tech has been contracted by NextEra Energy Resources, LLC to prepare an application for a Certificate of Site Compatibility for the proposed Brady Wind Energy Center (the Project), in accordance with North Dakota Century Code (NDCC) Section 49-22-07. As part of that application, we are conducting an investigation of property in Hettinger and Stark counties south of the city of Dickinson. This proposed Project would consist of approximately 150 megawatts (MW). The Project area shown in the attached figure is the primary focus of our investigation.

The Project would interconnect to the electrical grid via a 230-kV transmission line approximately 17 miles in length from the Project substation to the Belfield to Rhame 230-kV line approximately 20 miles southwest of the city of Dickinson. We will also prepare a separate application for a Certificate of Corridor Compatibility and Route Permit for the proposed transmission line.

The wind energy center would include portions of the following tracts:

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Hettinger	136 N	97 W	1-6, 8-13
Stark	137 N	95 W	1, 2, 9-16, 19-24, 27-34
Stark	137 N	96 W	23-36
Stark	137 N	97 W	25-29, 32-36

Mr. Zimmerman
North Dakota Parks and Recreation Department
August 14, 2015

The associated transmission line corridor includes the following tracts:

County	Township	Range	Sections
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Hettinger	136 N	97 W	1-6
Slope	136 N	98 W	1-6
Slope	136 N	99 W	1-3
Stark	137 N	95 W	18-20, 29-32
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We would appreciate a response by September 30, 2015. Please contact me at (512) 213-8501 if you have any questions. Thank you for your assistance.

Respectfully submitted,










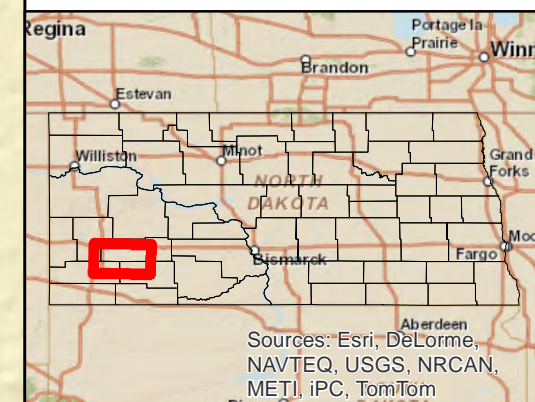
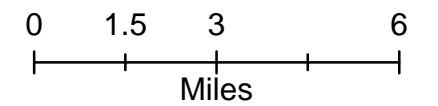
Anne-Marie Griger, AICP

Brady Wind Energy Center North Dakota

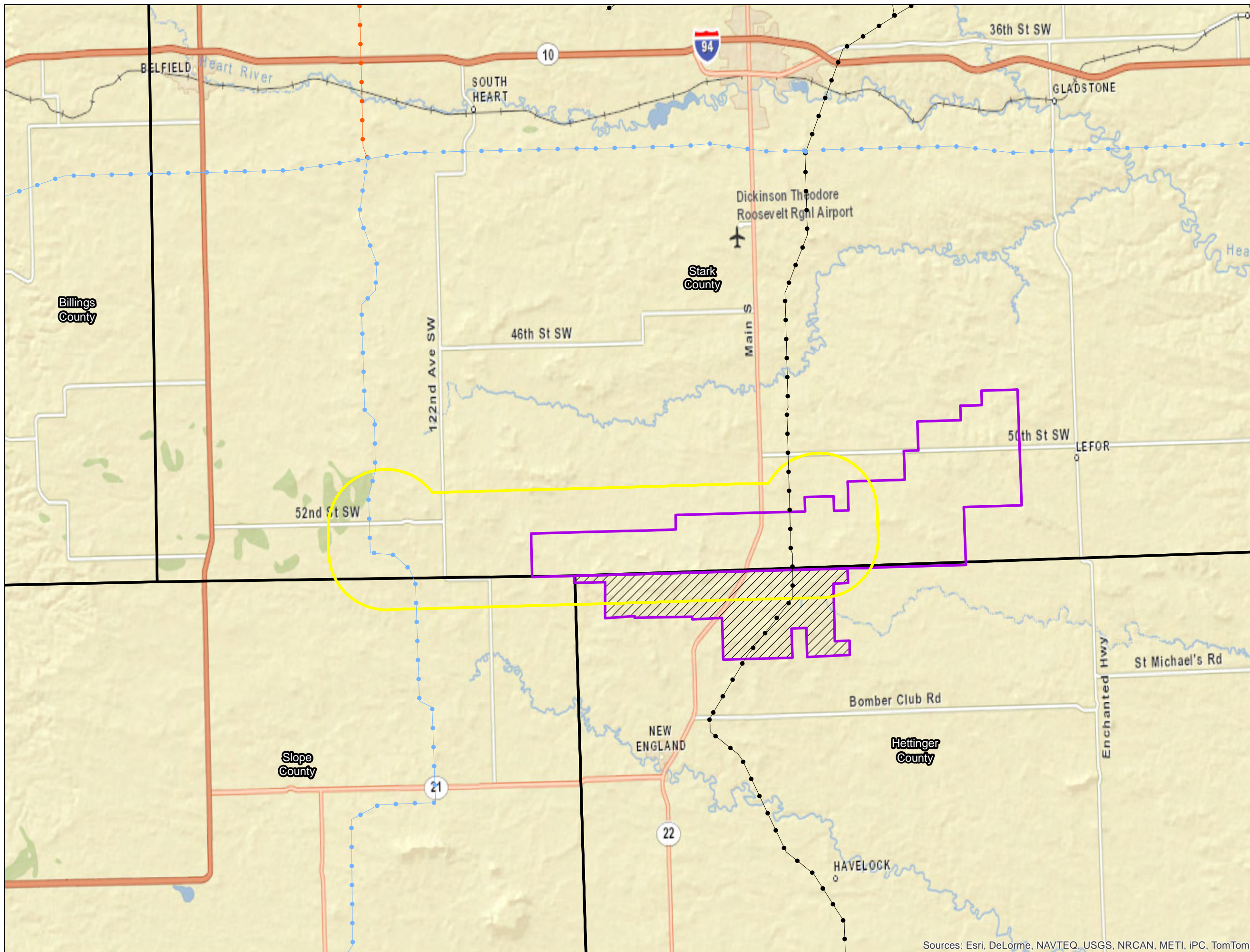
Project Location

Legend

-  Transmission Line Corridor
 -  Project Boundary
 -  Additional Area Under Consideration
 -  County Boundary
- Existing Electrical Transmission**
-  115kV Transmission Line
 -  230kV Transmission Line
 -  345kV Transmission Line



Sources: Esri, DeLorme, NAVTEQ, USGS, NRCAN, METI, iPC, TomTom



Sources: Esri, DeLorme, NAVTEQ, USGS, NRCAN, METI, iPC, TomTom

Path: T:\GIS\Nextera\Brady\MXD\Project_Location.mxd



Jack Dalrymple, Governor
Mark A. Zimmerman, Director

1600 East Century Avenue, Suite 3
Bismarck, ND 58503-0649
Phone 701-328-5357
Fax 701-328-5363
E-mail parkrec@nd.gov
www.parkrec.nd.gov

August 31, 2015

Ms. Anne-Marie Griger
Tetra Tech, Inc
Bldg 2 Suite #2310
8911 N. Capital of Texas Hwy.
Austin, TX 78759

Re: Proposed Brady Wind Energy Center in Hettinger and Stark Counties

Dear Ms. Griger,

The North Dakota Parks and Recreation Department (the Department) has reviewed the above referenced proposed Brady Wind Energy Center in Hettinger and Stark Counties.

Our agency scope of authority and expertise covers recreation and biological resources (in particular rare plants and ecological communities). The project as defined does not affect state park lands that we manage or affect state Land and Water Conservation Fund (LWCF) project sites that we manage.

The North Dakota Natural Heritage biological conservation database has been reviewed to determine if any plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. Based on this review, we several plant, and animal species of concern and significant ecological communities documented within sections and in adjacent sections to project area. Please see the attached spreadsheet and map for more information on these occurrences.

Because this information is not based on a comprehensive inventory, there may be species of concern or otherwise significant ecological communities in the area that are not represented in the database. The lack of data for any project area cannot be construed to mean that no significant features are present. The absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources. Regarding any reclamation efforts, we recommend that any impacted areas be revegetated with species native to the project area.

It is our policy to charge requests for data services including data retrieval, data analysis, manual and computer searches, packaging and collection of data. An invoice for services provided has been enclosed.

We appreciate your commitment to rare plant, animal and ecological community conservation, management and inter-agency cooperation to date. For additional information please contact Kathy Duttonhefner (701-328-5370 or kgduttonhefner@nd.gov) of our staff. Thank you for the opportunity to comment on this proposed project.

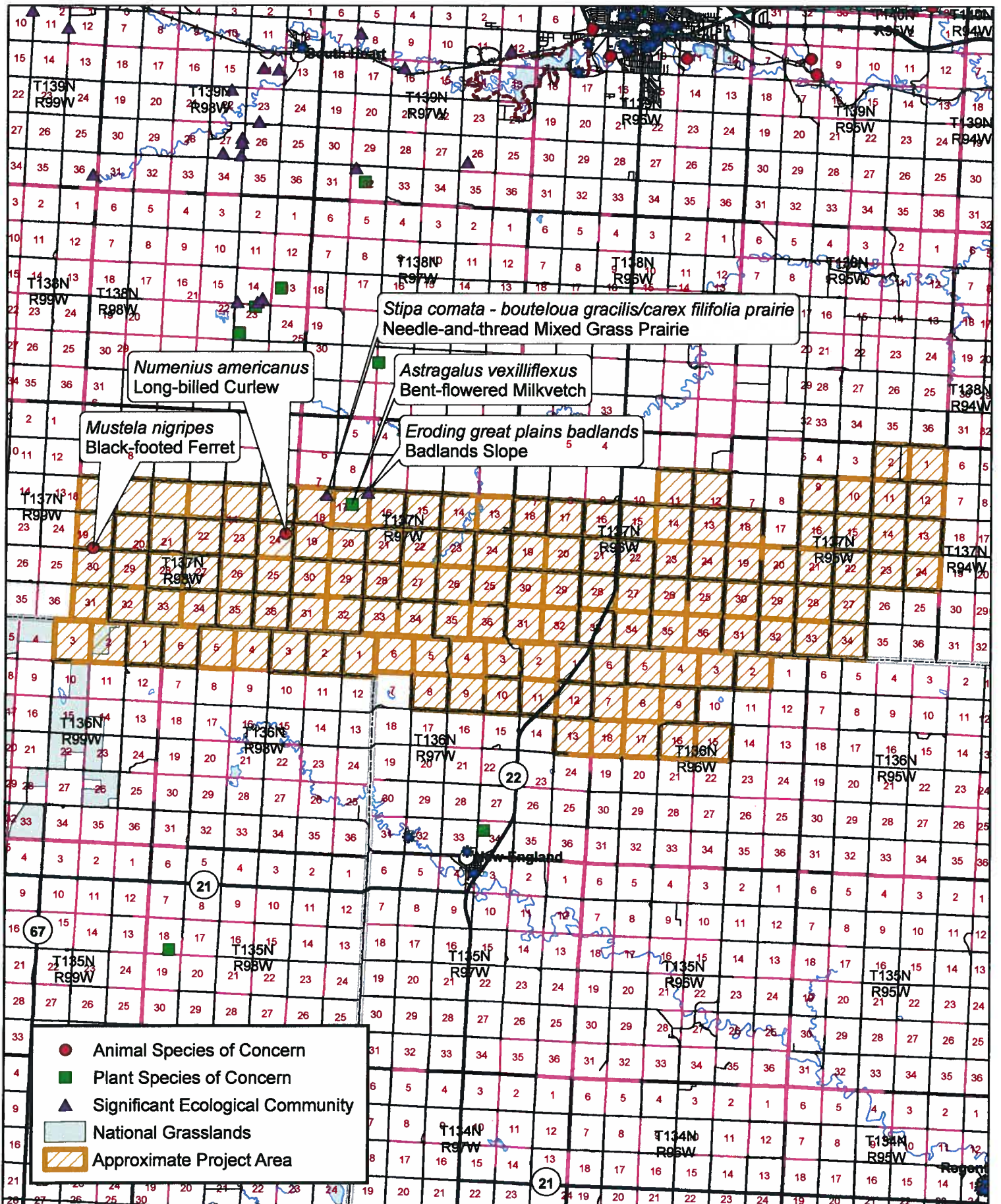
Sincerely,


Kathy Duttonhefner, Coordinator
Natural Resources Division

R.USNDNHI*2015_079KD18.31.2015DL8.31.2015

.....
Play in our backyard!

North Dakota Parks and Recreation Department North Dakota Natural Heritage Inventory



- Animal Species of Concern
- Plant Species of Concern
- ▲ Significant Ecological Community
- National Grasslands
- Approximate Project Area

North Dakota Natural Heritage Inventory
Rare Animal and Plant Species and Significant Ecological Communities

State Scientific Name	State Common Name	State Rank	Global Rank	Federal Status	Township Range Section	County	Last Observation	Estimated Representation Accuracy	Precision
<i>Astragalus vexilliflexus</i>	Bent-flowered Milkvetch	S3	G4		137N097W - 17	Stark	1985-09-18		S
<i>Erodium cicutarium</i>	Red-stemmed Dogfennel	S4	GNR		137N097W - 08; 137N097W - 16; 137N097W - 17	Stark	1985-09-18		S
<i>Mustela nigripes</i>	Black-footed Ferret	S1	G1	LE, XN	137N099W - 36; 137N098W - 29; 137N098W - 17; 137N098W - 31; 137N098W - 32; 137N098W - 30; 137N099W - 13; 137N099W - 25; 137N098W - 18; 137N099W - 24; 137N098W - 19; 137N098W - 20	Stark	1976	Low	M
<i>Numenius americanus</i>	Long-billed Curlew	S2	G5		137N099W - 24	Stark	1976-05		S
<i>Stipa comata</i> - <i>bouteloua gracilis</i> / <i>carex filifolia</i> prairie	Needle-and-thread Mixed Grass Prairie	S2	GNR		137N097W - 18	Stark	1985-09-18		S

North Dakota Natural Heritage Inventory Biological and Conservation Data Disclaimer

The quantity and quality of data collected by the North Dakota Natural Heritage Inventory are dependent on the research and observations of many individuals and organizations. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in North Dakota have never been thoroughly surveyed, and new species are still being discovered. For these reasons, the Natural Heritage Inventory cannot provide a definite statement on the presence, absence, or condition of biological elements in any part of North Dakota. Natural Heritage data summarize the existing information known at the time of the request. Our data are continually upgraded and information is continually being added to the database. This data should never be regarded as final statements on the elements or areas that are being considered, nor should they be substituted for on-site surveys.

Estimated Representation Accuracy

Value that indicates the approximate percentage of the Element Occurrence Representation (EO Rep) that was observed to be occupied by the species or community (versus buffer area added for locational uncertainty). Use of estimated representation accuracy provides a common index for the consistent comparison of EO reps, thus helping to ensure that aggregated data are correctly analyzed and interpreted.

Very high (>95%)

High (>80%, <= 95%)

Medium (>20%, <= 80%)

Low (>0%, <= 20%)

Unknown

(null) - Not assessed

Precision

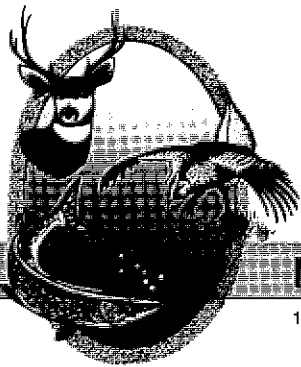
A single-letter code for the precision used to map the Element Occurrence (EO) on a U.S. Geological Survey (USGS) 7.5' (or 15') topographic quadrangle map, based on the previous Heritage methodology in which EOs were located on paper maps using dots.

S - Seconds: accuracy of locality mappable within a three-second radius; 100 meters from the centerpoint

M - Minute: accuracy of locality mappable within a one-minute radius; 2 km from the centerpoint

G - General: accuracy of locality mappable to map or place name precision only; 8 km from centerpoint

U - Unmappable



"VARIETY IN HUNTING AND FISHING"

NORTH DAKOTA GAME AND FISH DEPARTMENT

100 NORTH BISMARCK EXPRESSWAY BISMARCK, NORTH DAKOTA 58501-5095 PHONE 701-328-6300 FAX 701-328-6352

September 25, 2015

Anne-Marie Griger, AICP
Tetra Tech, Inc.
8911 N. Capital of Texas Hwy
Bldg. 2, Suite #2310
Austin, TX 78759

Dear Ms. Griger:

RE: Proposed Brady Wind Energy Center
Hettinger & Stark Counties, North Dakota

The North Dakota Game and Fish Department has reviewed this project for wildlife concerns.

A primary concern with wind power development is the disturbance of native prairie associated with construction of turbines, access roads, and other associated facilities. We ask that work within native prairie be avoided to the extent possible. This could include micro-siting turbines onto adjacent previously disturbed land, locating access roads on existing section line trails rather than across undisturbed native prairie, etc. We also suggest the US Fish and Wildlife Service Land-Based Wind Energy Guidelines be implemented as appropriate during the development of this project.

The National Wetland Inventory indicates various wetlands located within the proposed project area. We recommend that any unavoidable wetland impacts be replaced in kind, above-ground appurtenances not be placed in wetland areas, and no alterations be made to existing drainage patterns.

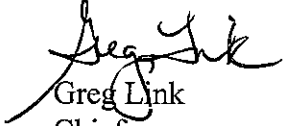
We ask that collection lines be buried whenever possible, and any necessary overhead lines be marked when placed over perennial streams or sited in close proximity to wetland complexes to minimize possible avian impacts. The publication "Reducing Avian Collisions with Power Lines: the State of the Art in 2012" provides a range of management options which can be used to reduce avian losses.

Aerial surveys should be conducted for raptor nests before construction begins. A ½-mile construction buffer should be implemented around active eagle nest sites (known occupied

within the past 5 years). Ms. Sandra Johnson, Conservation Biologist, can be contacted at 701-328-6327 for additional information on eagle nest sites in the state.

We also recommend that routine monitoring for avian and bat mortality be included as part of the facility maintenance plan for the life of the project. We would appreciate being kept informed as this project progresses, and if possible, we would like the GPS coordinates for each turbine after the site has been established.

Sincerely,



Greg Link
Chief

Conservation & Communication Division

js



November 12, 2015

Mr. Kevin Shelley
Acting ND Field Supervisor
USFWS North Dakota Field Office
3425 Miriam Avenue
Bismarck, North Dakota 58501-7926

Subject: Information Request for the Proposed Brady II Wind Energy Center in Hettinger County, ND

Dear Mr. Shelley:

Tetra Tech has been contracted by Brady Wind II, LLC, an indirect, wholly-owned subsidiary of NextEra Energy Resources, LLC, to prepare an application for a Certificate of Site Compatibility for the proposed Brady II Wind Energy Center (the Project), in accordance with North Dakota Century Code (NDCC) Section 49-22-07. As part of that application, we are conducting an investigation of property in Hettinger County north of the city of New England. This proposed Project would consist of approximately 150 megawatts (MW). The Project area shown in the attached figure is the primary focus of our investigation.

Per Section 69-06-01-05 of the North Dakota Public Service Commission (PSC)'s administrative rules, we are consulting your agency for assistance in identifying concerns or issues within the boundaries of the tracts listed below that would influence a decision regarding the use of the land, as well as applicable permits that may be required from your office.

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136 N	95 W	6,7, 18, 19, 30

This information will be used to help guide Project development in a manner that identifies and avoids impacts to sensitive resources where practicable. We have sent similar query letters to other agencies including, but not limited to, the U.S. Army Corps of Engineers and North Dakota Game and Fish Department.

NextEra Energy is developing the Project following the voluntary Final Land-Based Wind Energy Guidelines. Desktop habitat analyses for bats and whooping crane are underway as part of Tier 1 and Tier 2 assessments for the Project. Tier 3 assessments that are currently planned or underway for the Project include native prairie identification, fall and spring avian migration surveys, biweekly eagle use surveys, raptor nest and grouse lek surveys, and bat acoustic monitoring.

We would appreciate a response by December 31, 2015. Please contact me at (512) 213-8501 if you have any questions. Thank you for your assistance.

Respectfully submitted,

A handwritten signature in blue ink that reads "Anne-Marie Griger". The signature is written in a cursive, flowing style.

Anne-Marie Griger, AICP
Tetra Tech, Inc
8911 N. Capital of Texas Hwy, Bldg 2 Suite # 2310
Austin, TX 78759



November 12, 2015

Mr. Terry Steinwand
Director
North Dakota Game and Fish Department
100 N. Bismarck Expressway
Bismarck, ND 58501-5095

Subject: Information Request for the Proposed Brady II Wind Energy Center in Hettinger County, ND

Dear Mr. Steinwand:

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Anne-Marie Griger, AICP
Tetra Tech, Inc
8911 N. Capital of Texas Hwy, Bldg 2 Suite # 2310
Austin, TX 78759



November 18, 2015

Mr. Mark Zimmerman
Director
North Dakota Parks and Recreation Department
1600 E. Century Ave, Suite 3
Bismarck, North Dakota 58503

Subject: Information Request for the Proposed Brady II Wind Energy Center in Hettinger County, ND

Dear Mr. Zimmerman:

Tetra Tech has been contracted by Brady Wind II, LLC, an indirect, wholly-owned subsidiary of NextEra Energy Resources, LLC, to prepare an application for a Certificate of Site Compatibility for the proposed Brady II Wind Energy Center (the Project), in accordance with North Dakota Century Code (NDCC) Section 49-22-07. As part of that application, we are conducting an investigation of property in Hettinger County north of the city of New England. This proposed Project would consist of approximately 150 megawatts (MW). The Project area shown in the attached figure is the primary focus of our investigation.

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Respectfully submitted,

A handwritten signature in blue ink that reads 'AnneMarie Griger'.

Anne-Marie Griger, AICP
Tetra Tech, Inc
8911 N. Capital of Texas Hwy, Bldg 2 Suite # 2310
Austin, TX 78759

Brady II Wind Energy Center

Hettinger County, ND

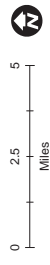
Project Location

Legend

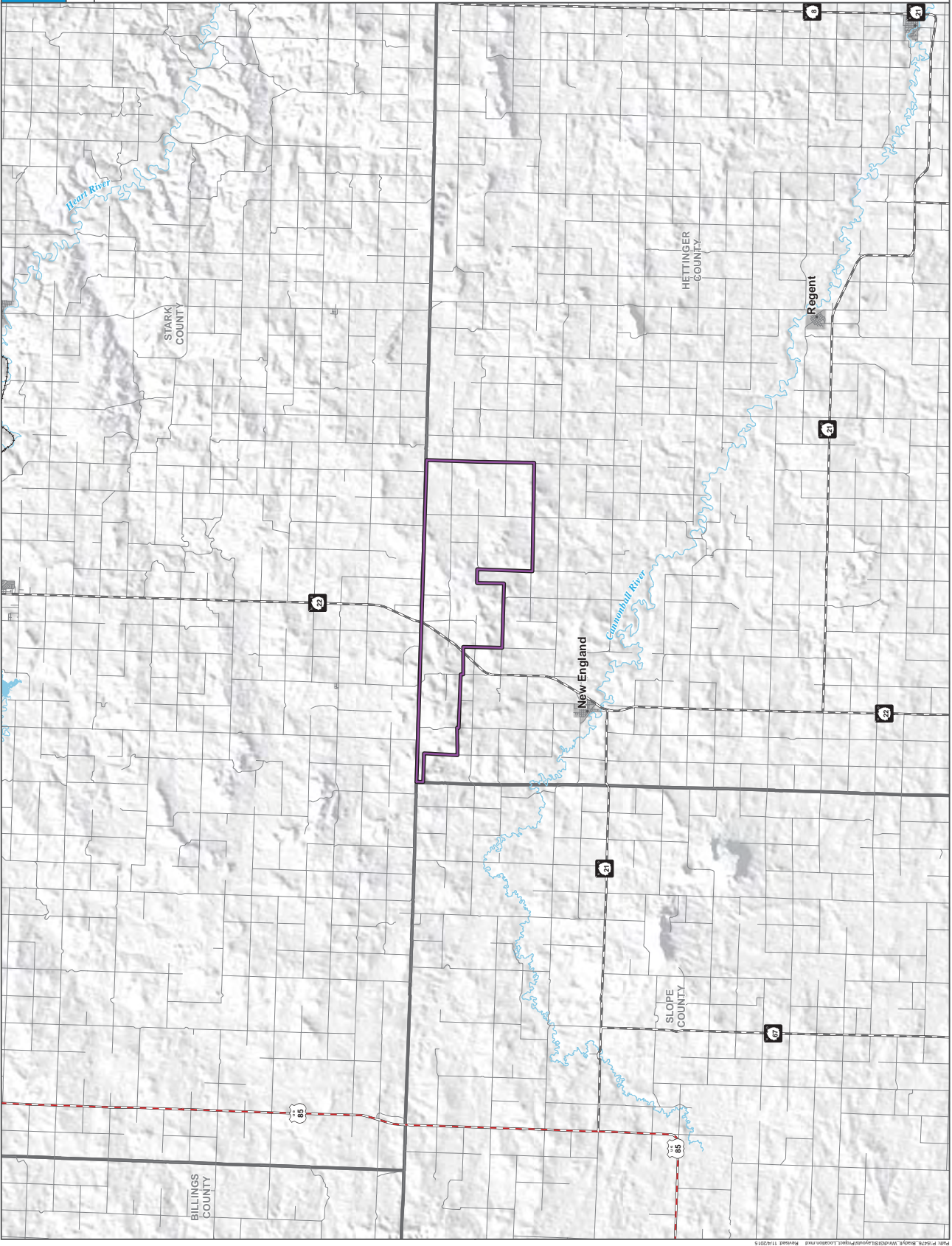
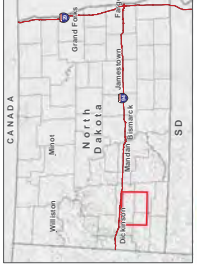
- Project Area
- County Boundary
- Major River
- Municipal Boundary

Transportation

- U.S. Highway
- State Highway
- Rail



Scale is 1:100,000 when printed at 22 x 34



Brooks, Shaun

From: Wells, Kimberly <Kimberly.Wells@nexteraenergy.com>
Sent: Monday, August 29, 2016 2:52 PM
To: Martell, Mark
Cc: Low, Tara; Brooks, Shaun
Subject: FW: meeting with NextEra week of 12/14?

From: Wells, Kimberly
Sent: Monday, November 30, 2015 11:26 AM
To: Kevin Shelley
Cc: Farmer, Chris; Nagy, Laura
Subject: RE: meeting with NextEra week of 12/14?

Hi Kevin,

I hope you had a nice holiday break. I'm checking in to see if you had time to review and consider our proposed meeting time below. Our team will be in town for an event on Tuesday evening (12/15), so we would love to make this work if you and your team are available.

I will call you to follow up if we haven't connected by Wednesday morning.

Kim

Kimberly Wells, Ph.D.
Environmental Services Project Manager

NEXTERA Energy Resources, LLC

601 Travis Street, Suite 1900

Houston, TX 77002

713.951.5372 (office)

832.538.7935 (mobile)

Kimberly.Wells@NEE.com



From: Wells, Kimberly
Sent: Monday, November 23, 2015 11:53 AM
To: 'Kevin Shelley'
Cc: Farmer, Chris; Nagy, Laura
Subject: meeting with NextEra week of 12/14?

Hi Kevin,

Our Development Team is preparing to submit three different wind farms for PSC permitting over the next couple of months for 2016 CODs and was wondering if you or your staff would be available to meet with us the week of 12/14 in your office. Two of the wind farms are closest to Dickinson with Brady I in Stark County and Brady II immediately south of Brady I in Hettinger County and the third will be another addition to our existing two operating phases to create an Oliver III in Oliver and Morton Counties.

Wednesday of that week (12/16) would be ideal for our staff traveling back and forth between Dickinson and Bismarck if that worked for you, but Tuesday and Thursday are options as well around travel days.

We would also like to invite NDGFD if your office would be able to host us in the conference room we have used for Wilton meetings or another suitable room.

We are happy to provide additional materials including maps and summaries of our completed due diligence prior to the meeting.

Let me know if this would work or if we need to explore other options.

Thanks!

Kim

Kimberly Wells, Ph.D.
Environmental Services Project Manager

NEXtera Energy Resources, LLC

601 Travis Street, Suite 1900

Houston, TX 77002

713.951.5372 (office)

832.538.7935 (mobile)

Kimberly.Wells@NEE.com



Brooks, Shaun

From: Wells, Kimberly <Kimberly.Wells@nexteraenergy.com>
Sent: Monday, December 14, 2015 10:08 AM
To: Kevin Shelley; Schumacher, John D.
Cc: Hochmuth, Melissa; Laura Nagy (laura.nagy@iberdrolaren.com); Farmer, Chris; Trumbauer, Mark; Wells, Kimberly
Subject: NEER ND Wind meeting materials
Attachments: NEER ND Wind Wildlife summary diligence 12112015.docx; NEER Brady II map 12112015.pdf; NEER Brady I map 12112015.pdf; NEER Oliver III map 12112015.pdf

Kevin and John,

I have attached some materials to facilitate our meeting with you on Wednesday at Kevin's office regarding the three wind projects in ND that we are proposing to build in 2016 (Brady I, Brady II, and Oliver III). They include:

- Summary of the three projects and all completed, in progress, or planned wildlife due diligence following the USFWS Wind Energy Guidelines (WEGs) (one page Word doc)
- Map showing natural resource issues and constraints for each projects including all known eagle nests within 10 miles (one PDF map per project)

We will also be bringing printed copies for you both and a couple of larger maps for our discussion.

See you Wednesday morning!

Kim

Kimberly Wells, Ph.D.
Environmental Services Project Manager

NEXTERA Energy Resources, LLC

601 Travis Street, Suite 1900

Houston, TX 77002

713.951.5372 (office)

832.538.7935 (mobile)

Kimberly.Wells@NEE.com



NextEra North Dakota Projects – Brady I, Brady II, Oliver III
Meeting Summary
16 December, 2015

In attendance:

- Kevin Shelley, US Fish and Wildlife Service (USFWS)
- John Schumacher, ND Game and Fish (NDGF)
- Kim Wells, NextEra
- Melissa Hochmuth, NextEra
- Chris Farmer, Tetra Tech
- Laura Nagy, DNV GL

Handouts provided during meeting and via email:

- NEER ND Wind wildlife summary diligence 12112015.docx
- NEER Brady I map 12112015.pdf
- NEER Brady II map 12112015.pdf
- NEER Oliver III map 12112015.pdf

Attachments to the meeting summary:

- NEER Brady Wind I and II native prairie map
- NEER Oliver III native prairie map

Introductions:

The group gave introductions and then Kim and Melissa provided an overview of the Projects by walking through the NEER ND Wind Wildlife summary diligence document, which summarizes the due diligence completed, planned, and in progress for the Brady I, Brady II, and Oliver III Projects.

Brady I and II:

- Melissa provided a description of Brady and Brady II. These projects are adjacent (Brady I in Stark County and Brady II primarily in Hettinger County) approximately 15 miles south of the city of Dickinson.
- Each project is 150 MW.
 - Brady I ~ 87 turbines.
 - Brady II ~ 72 turbines.
 - Projects will share a 19 mile, above-ground transmission (gen-tie) line.
 - Brady I
 - PPA with Basin Electric
 - Stark County Conditional Use Permit received on December 22, 2015
 - Submitted the PUC application for the wind farm and transmission line in December 2015.

- Brady II also has a PPA with Basin electric.
- Both Brady I and Brady II are expected to be operational by the end of 2016.

Oliver III:

- The existing Oliver complex has two operating sites, Oliver I and Oliver II.
- Oliver III is the third phase of this project, proposed to construct an additional 100 MW approximately 10 miles southeast of the existing complex.
- Oliver III is currently negotiating a PPA and was previously permitted through the Public Service Commission in 2011, so there is a larger amount of due diligence for this site.

Brady I and II Discussion

Eagles:

- The group reviewed the location of the eagle nests within 10 miles of the project boundaries. Kevin identified that this is an area with wintering golden eagles.
- Kevin asked John if the state collects wintering eagle data. John responded that they do not.
- Chris identified that winter eagle data collection is ongoing.

Dakota Skipper:

- Kevin identified that the presence/absence county-level information in the listing decision may not capture the current understanding of skipper presence.
- Kevin said that USFWS has assembled a skipper database that contains data through 2013. This database is not currently publically available, but Kevin offered to assess the nearest skipper locations if NextEra would provide him with shapefile of the project.
- Kim agreed to provide these files and asked if he was aware of any skippers within the project counties. He said he did not believe they had skippers documented in these counties.
- Kevin suggested that NextEra take a landscape look at potential skipper habitat, including potential connectivity. He recommended that the analysis use a minimum patch size of ¼ acres, which is equivalent to 1/10 hectare. He suggested evaluation of potential skipper habitat as starting with a desktop analysis, then evaluate the vegetation present in the potential locations followed by skipper surveys, as appropriate.

PLOTS (Private Lands Open to Sportsmen):

- John explained that PLOTS is an access easement and that if a landowner enters into an agreement he or she needs to contact the department and identify the acreages being removed from the agreement. He said that most PLOTS were usually in place for one year; however, if they were paid access, there would be a pro-rated amount that would need to be paid back. The state keeps an accurate list of PLOTS areas on their website.

Site Visit

- Kim offered that NextEra would be happy to provide a tour of their existing facilities located ~20-25 min north of Bismarck.

Prairie Dogs and Black-footed Ferrets:

- Kevin asked if prairie dog towns were mapped and Kim responded that there haven't been systematic surveys to date.
- John said that the state maintains a GIS layer of prairie dog towns and that Sandra would be the point-of-contact for those data. The state historically kept an atlas of prairie dog towns, but this has not been as well maintained in the last 10 years.
- Kevin said that he was aware of some significant prairie-dog towns in the New England area, up to several thousand acres, that might come into play for foraging golden eagles. At one point, this area was considered for black-footed ferret reintroduction, but there were not enough land owners to get the acreage.
- Kevin said that there was an unconfirmed report of black-footed ferrets in 2012 close to Dickinson; however, they were not confirmed during follow up surveys by the USFWS.
- NDGF provided shapefiles of documented prairie dog colonies and burrowing owls in and near the projects. There is a 43-acre prairie dog colony in the northeast portion of the Brady project area that was observed as unoccupied in 2011 and an 18-ac colony north of the Brady project area that was also observed as unoccupied in 2011. All documented occupied prairie dog colonies and burrowing owls were located over 5 miles to the west of both Brady and Brady II (none were located in the vicinity of Oliver III).

Easements:

- Kevin asked if the maps addressed all of the existing easements held by the USFWS for grassland easements, particularly in the vicinity of Hettinger County Waterfowl Production Area (WPA).
- NextEra and Tetra Tech received confirmation from Sue Kvas at USFWS that there are no USFWS interests (easements or WPA) within the boundary of the three projects or within 10 miles, with the exception of the Hettinger County WPA within 10 miles of Brady II.

Sage grouse:

- Kevin identified that the projects are on the edge of the sage grouse range and would most likely be an issue for Brady I. He believed that the 10-mile buffer was likely within the historic, but not the current range.
- Kevin suggested that NextEra query Aaron Robinson of NDGF regarding current sage grouse locations.

Northern long-eared bats:

- Kevin asked if the group had Dr. Erin Gillam's report on northern long-eared bats because her studies confirmed northern long-eared bats in western North Dakota. Kim asked if Kevin could share her report. Kevin emailed the report to the group during the meeting.

Brady I and II as separate projects vs. a singular project:

- Kevin said that he didn't see differences in environmental issues between the two Brady projects and that he would find the review easier if it was all done as part of one analysis.

- Kim explained that the projects were separated because of the separate permitting and financing processes but that she would discuss the idea with her legal team to evaluate that option.

Oliver III Discussion:

Whooping crane:

- The group discussed that this project is closer to the center of the whooping crane corridor than the Brady projects.
- Kevin offered to review the project with respect to the whooping crane locations once he has the project shapefiles.

Northern long-eared bat:

- Kevin mentioned that because of the Mississippi River, the Oliver III project may have a higher probability of having northern long-eared bats than the other projects.

Sprague's pipet:

- Kevin said that USFWS has the listing decision for the Sprague's pipet and anticipates publishing a batch finding in the 1st quarter on 2016. He stated that USFWS will emphasize pre-listing considerations to avoid lethal or demographic consequences to unlisted species to avoid the need for additional listings.

BBCS Considerations

Items identified by Kevin as those that should be considered in the BBCS are as follows:

- Prairie obligate species
- Birds of conservation concern
- Northern long-eared bats
- Species found in post-construction mortality monitoring surveys
- Voluntary mitigation

Voluntary Considerations

- Kevin mentioned that if there appear to be potential impacts to species like prairie obligates; NextEra could consider a voluntary donation as compensatory mitigation.
- Options include USFWS conservation easements or potentially conservation banks, although these are in the early development. Kevin offered to put NextEra in touch with the person in charge of the easement program.
- Kim stated that she would be interested in talking with her to understand the cost and process so that NextEra could consider this for these or future projects.

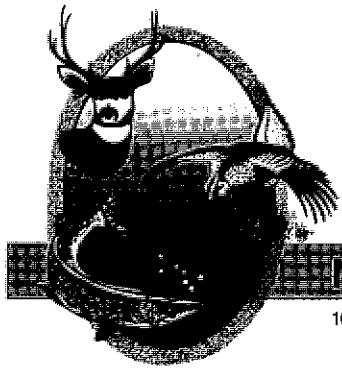
Action Items (Current Status)

NextEra:

- Provide shapefiles of each project boundary and 10-mile buffer to USFWS and NDGFD (complete; sent on 01/11/16).
- Contact Sandra to get the prairie dog database and then evaluate prairie dog use in the vicinity of the project (complete; contacted on 01/11/16 and shapefiles received 01/20/16).
- Check to see if there are other easements near Hettinger WPA through NextEra's easement point person (complete; there are none, according to Sue Kvas at USFWS)
- Query Aaron Robinson regarding sage grouse locations (query sent on 01/11/16)
- Generate and share depiction of the grassland maps and forested areas for each project for landscape evaluation (transmitted with meeting summary)
- Have an internal discussion about the potential of separate or tiered BBCSs (discussions in progress as of 01/11/16)

USFWS:

- Share Erin Gillam's report on northern long-eared bats – (completed)
- Review the project shape files for locations of whooping cranes and Sprague's pipits (pending)
- Provide contact for USFWS' easement program manager to NextEra (pending)



"VARIETY IN HUNTING AND FISHING"

NORTH DAKOTA GAME AND FISH DEPARTMENT

100 NORTH BISMARCK EXPRESSWAY BISMARCK, NORTH DAKOTA 58501-5095 PHONE 701-328-6300 FAX 701-328-6352

December 28, 2015

Anne-Marie Griger, AICP
Tetra Tech, Inc.
8911 N. Capital of Texas Hwy
Bldg. 2, Suite #2310
Austin, TX 78759

Dear Ms. Griger:

RE: Proposed Brady II Wind Energy Center
Hettinger County, North Dakota

The North Dakota Game and Fish Department has reviewed this project for wildlife concerns.

A primary concern with wind power development is the disturbance of native prairie associated with construction of turbines, access roads, and other associated facilities. We ask that work within native prairie be avoided to the extent possible. This could include micro-siting turbines onto adjacent previously disturbed land, locating access roads on existing section line trails rather than across undisturbed native prairie, etc. Avoidance of native prairie areas reduces impacts to a variety of grassland species including Sprague's pipit and Dakota skipper. We also suggest the US Fish and Wildlife Service Land-Based Wind Energy Guidelines be implemented as appropriate during the development of this project.

The National Wetland Inventory indicates various wetlands located within the proposed project area. We recommend that any unavoidable wetland impacts be replaced in kind, above-ground appurtenances not be placed in wetland areas, and no alterations be made to existing drainage patterns.

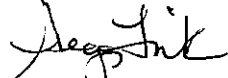
We ask that collection lines be buried whenever possible, and any necessary overhead lines be marked when placed over perennial streams or sited in close proximity to wetland complexes to minimize possible avian impacts. The publication "Reducing Avian Collisions with Power Lines: the State of the Art in 2012" provides a range of management options which can be used to reduce avian losses.

Aerial surveys should be conducted for raptor nests before construction begins. A ½-mile construction buffer should be implemented around active eagle nest sites (known occupied

within the past 5 years). Ms. Sandra Johnson, Conservation Biologist, can be contacted at 701-328-6327 for additional information on eagle nest sites in the state.

We also recommend that routine monitoring for avian and bat mortality be included as part of the facility maintenance plan for the life of the project. We would appreciate being kept informed as this project progresses, and if possible, we would like the GPS coordinates for each turbine after the site has been established.

Sincerely,



Greg Link

Chief

Conservation & Communication Division

js

From: [Griger, Anne Marie](#)
To: [Wells, Kimberly \(Kimberly.Wells@nexteraenergy.com\)](mailto:Kimberly.Wells@nexteraenergy.com)
Cc: [McCall, Sarah](#); [Farmer, Chris](#)
Subject: FW: Project shapefiles for Brady, Brady II, and Oliver III
Date: Wednesday, January 20, 2016 7:12:24 AM

Kim, see below. This is confirmation from USFWS that there are no easements or USFWS-owned lands in or adjacent to the Brady, Brady II, or Oliver III project areas. This was an action item from your December meeting with USFWS.

From: Sue Kvas [mailto:sue_kvas@fws.gov]
Sent: Wednesday, January 20, 2016 8:10 AM
To: Griger, Anne Marie <Anne-Marie.Griger@tetrattech.com>
Subject: RE: Project shapefiles for Brady, Brady II, and Oliver III

Hey Anne-Marie,

I reviewed your project area and there are no USFWS interests in the areas you provided.

Thanks,

Sue

Susan Kvas
Supervisory Fish and Wildlife Biologist
US Fish & Wildlife Service
Habitat and Population Evaluation Team – HAPET
3425 Miriam Ave.
Bismarck, ND 58503
Office : 701-355-8541

From: Griger, Anne Marie [mailto:Anne-Marie.Griger@tetrattech.com]
Sent: Tuesday, January 19, 2016 11:14 AM
To: sue_kvas@fws.gov
Subject: RE: Project shapefiles for Brady, Brady II, and Oliver III

Hello Sue,

Can you please let me know if you received this email from last week, or if you need me to re-send? I sent unzipped shapefiles.

Thank you,

Anne-Marie

From: Griger, Anne Marie

Sent: Monday, January 11, 2016 4:43 PM

To: 'sue_kvas@fws.gov' <sue_kvas@fws.gov>

Cc: Farmer, Chris <Chris.Farmer@tetratech.com>; Wells, Kimberly
(Kimberly.Wells@nexteraenergy.com) <Kimberly.Wells@nexteraenergy.com>;
'laura.nagy@dnvgl.com' <laura.nagy@dnvgl.com>; McCall, Sarah <Sarah.McCall@tetratech.com>

Subject: Project shapefiles for Brady, Brady II, and Oliver III

Hello Sue,

Can you please confirm there are no easements or fee-title lands within or near the Brady, Brady II, and Oliver III project areas? Shapefiles of each are attached. I believe that there are no easements west of the Missouri River in North Dakota, but wanted to confirm.

Thank you,

Anne-Marie

Anne-Marie Griger, AICP | Senior Environmental Planner

Direct: 512. 213.8501

anne-marie.griger@tetratech.com

Tetra Tech, Inc.

8911 N. Capital of Texas Hwy, Bldg 2 Suite # 2310

Austin, TX 78759

Griger, Anne Marie

From: Johnson, Sandra K. <sajohnson@nd.gov>
Sent: Wednesday, January 20, 2016 9:06 AM
To: Griger, Anne Marie
Subject: RE: Prairie dog database
Attachments: burrowing_owl.shx; burrowing_owl.dbf; burrowing_owl.prj; burrowing_owl.sbn;
burrowing_owl.sbx; burrowing_owl.shp; prairie_dog.shx; prairie_dog.dbf; prairie_dog.prj;
prairie_dog.sbn; prairie_dog.sbx; prairie_dog.shp

Hi Anne-Marie,
Attached is the data. Let me know if you have any questions.
Sandy

From: Griger, Anne Marie [mailto:Anne-Marie.Griger@tetrattech.com]
Sent: Tuesday, January 19, 2016 3:02 PM
To: Johnson, Sandra K. <sajohnson@nd.gov>
Subject: RE: Prairie dog database

Hello Sandy,

Please see the attached signed agreement. Thank you!

From: Johnson, Sandra K. [mailto:sajohnson@nd.gov]
Sent: Wednesday, January 13, 2016 3:03 PM
To: Griger, Anne Marie <Anne-Marie.Griger@tetrattech.com>
Subject: RE: Prairie dog database

Anne-Marie,
Attached is a data sharing agreement for the prairie dog and burrowing owl data. There are no known locations within the Oliver III buffer. Please note that we have revised the agreement to include a 4th condition. Your organization has been courteous and provided eagle data in return to us in the past. However, others have not and therefore we added it to the agreement.
Thanks,
Sandy

Sandy Johnson
Conservation Biologist
North Dakota Game and Fish Department
100 N. Bismarck Expwy.
Bismarck, ND 58501-5095
Phone: 701-328-6382
sajohnson@nd.gov
<http://gf.nd.gov/>

From: Griger, Anne Marie [mailto:Anne-Marie.Griger@tetrattech.com]
Sent: Monday, January 11, 2016 10:05 AM
To: Johnson, Sandra K. <sajohnson@nd.gov>
Cc: Wells, Kimberly (Kimberly.Wells@nexteraenergy.com) <Kimberly.Wells@nexteraenergy.com>; Farmer, Chris <Chris.Farmer@tetrattech.com>; 'laura.nagy@dnvgl.com' <laura.nagy@dnvgl.com>; McCall, Sarah

<Sarah.McCall@tetrattech.com>

Subject: Prairie dog database

Hello Sandy,

As follow up from a meeting that John Schumacher attended with our client NextEra, I wanted to get further information regarding prairie dog colonies and grouse in Hettinger and Stark counties. Can you please provide the prairie dog database? I have attached shapefiles that show three project boundaries (Brady, Brady II, and Oliver III), plus a 10-mile buffer around each.

We have already signed a confidentiality agreement with you for eagle nests for all three projects, so let me know if we need to sign another. Also, I left you a voicemail last week, so please give me a call when you have a chance.

Thank you,

Anne-Marie

Anne-Marie Griger, AICP | Senior Environmental Planner

Direct: 512. 213.8501

anne-marie.griger@tetrattech.com

Tetra Tech, Inc.

8911 N. Capital of Texas Hwy, Bldg 2 Suite # 2310

Austin, TX 78759

Griger, Anne Marie

From: Robinson, Aaron C. <acrobinson@nd.gov>
Sent: Wednesday, March 09, 2016 2:53 PM
To: Griger, Anne Marie
Cc: Wells, Kimberly (Kimberly.Wells@nexteraenergy.com)
Subject: RE: Grouse info for Brady, Brady II and Oliver III projects
Attachments: Brady Grouse Lek Survey Protocol to NDGF.docx

See attached, let me know if you have any questions.

Aaron

Aaron Robinson

Upland Game Management Supervisor
North Dakota Game and Fish
225 30th Ave. SW
Dickinson, ND 58601
Cell: 701-290-1370
acrobinson@nd.gov
www.gf.nd.gov

From: Griger, Anne Marie [mailto:Anne-Marie.Griger@tetrattech.com]
Sent: Wednesday, March 9, 2016 1:19 PM
To: Robinson, Aaron C. <acrobinson@nd.gov>
Cc: Wells, Kimberly (Kimberly.Wells@nexteraenergy.com) <Kimberly.Wells@nexteraenergy.com>
Subject: RE: Grouse info for Brady, Brady II and Oliver III projects

Hello Aaron,

Can you please let me know when you anticipate having comments on our proposed lek survey protocol that I provided to you on February 8? We are planning to use the same protocol for Brady, Brady II, and Oliver III.

Thank you,

Anne-Marie

From: Griger, Anne Marie
Sent: Wednesday, March 02, 2016 12:54 PM
To: 'Robinson, Aaron C.' <acrobinson@nd.gov>
Subject: RE: Grouse info for Brady, Brady II and Oliver III projects

Hi Aaron,

I just wanted to check in again regarding any feedback on our protocol for lek surveys. We are planning to start our lek surveys at Brady and Brady II on March 25.

Thank you,

Anne-Marie

From: Robinson, Aaron C. [<mailto:acrobinson@nd.gov>]
Sent: Wednesday, February 03, 2016 10:14 PM
To: Griger, Anne Marie <Anne-Marie.Griger@tetrattech.com>
Subject: RE: Grouse info for Brady, Brady II and Oliver III projects

Anne – I looked through our database and the areas where you have the wind farms proposed do not overlap with our grouse census blocks. That does not mean that there are no grouse leks in the area, we just don't have the man power to survey the entire state. My recommendation would be to allow me to help design a survey protocol for both these areas. The oliver block it in prime grouse habitat and the Brady block is also in good sharp-tail habitat. Please give me a call so we can discuss this further.

Regards,
Aaron

Aaron Robinson

Upland Game Management Supervisor
North Dakota Game and Fish
225 30th Ave. SW
Dickinson, ND 58601
Cell: 701-290-1370
acrobinson@nd.gov
www.gf.nd.gov

From: Griger, Anne Marie [<mailto:Anne-Marie.Griger@tetrattech.com>]
Sent: Monday, January 11, 2016 3:37 PM
To: Robinson, Aaron C. <acrobinson@nd.gov>
Cc: Farmer, Chris <Chris.Farmer@tetrattech.com>; 'laura.nagy@dnvgl.com' <laura.nagy@dnvgl.com>; Wells, Kimberly (Kimberly.Wells@nexteraenergy.com) <Kimberly.Wells@nexteraenergy.com>; McCall, Sarah <Sarah.McCall@tetrattech.com>
Subject: Grouse info for Brady, Brady II and Oliver III projects

Hello Aaron,

As follow up from a meeting that John Schumacher attended with our client NextEra, I would like to request information you have regarding sage grouse locations in Hettinger and Stark counties. I have attached shapefiles that show two project boundaries (Brady and Brady II), plus a 10-mile buffer around each. If you also have locations of other known grouse or grouse leks in the vicinity of these areas or near the Oliver III project in Morton and Oliver counties (shapefiles also attached), we would appreciate that information as well.

Thank you,

Anne-Marie
Anne-Marie Griger, AICP | Senior Environmental Planner
Direct: 512. 213.8501
anne-marie.griger@tetrattech.com

Tetra Tech, Inc.
8911 N. Capital of Texas Hwy, Bldg 2 Suite # 2310
Austin, TX 78759

Brooks, Shaun

From: Wells, Kimberly <Kimberly.Wells@nexteraenergy.com>
Sent: Monday, August 29, 2016 2:44 PM
To: Martell, Mark
Cc: Low, Tara; Brooks, Shaun
Subject: FW: NextEra ND Wind Projects Meeting: Summary and Status Update

From: Kevin Shelley [mailto:kevin_shelley@fws.gov]
Sent: Tuesday, January 26, 2016 9:13 AM
To: Wells, Kimberly
Cc: Schumacher, John D.; Farmer, Chris; Griger, Anne-Marie (Anne-Marie.Griger@tetrattech.com); McCall, Sarah; Nagy, Laura; Hochmuth, Melissa; Trumbauer, Mark
Subject: Re: NextEra ND Wind Projects Meeting: Summary and Status Update

This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email.

Kimberly: msg. rec'd along with 7 attachments. KS

Sent from my iPhone

Kevin Shelley
ND State Supervisor
Ecological Services

On Jan 26, 2016, at 9:03 AM, Wells, Kimberly <Kimberly.Wells@nexteraenergy.com> wrote:

Kevin and John,

Happy New Year! Hope you both had a nice holiday break.

As a follow up to our meeting in December in Kevin's office, I am providing the following attachments per your suggestion:

- Draft meeting minutes for your review (Word document)
- Updated habitat maps for each of the three projects (Brady I/II combined and Oliver III) showing native prairie and forest cover (PDF files)
- Brief summary of methodology used for the desktop native prairie assessment followed by a field verification to support what is shown in maps (Word document)
- Updated shape files sets for each project for cross checking against your internal databases for skippers, whooping cranes, and Sprague's pipit occurrences (zipped shape files)

Note our minutes summarize the status of your suggestions including inquiries with your respective offices that have been completed or in progress. Our hearing with the PSC for Brady I has been scheduled for 3/2, so we would greatly appreciate receiving the results of your internal data base queries using these shape files as soon as possible. Chris Farmer with Tetra Tech will follow up with

within the week to check in on that and discuss some of our questions regarding BCS format and organization to address your suggestions.

Could you please confirm receipt of this email?

Thanks!

Kim

Kimberly Wells, Ph.D.
Environmental Services Project Manager

NEXtera Energy Resources, LLC

601 Travis Street, Suite 1900

Houston, TX 77002

713.951.5372 (office)

832.538.7935 (mobile)

Kimberly.Wells@NEE.com

<image001.jpg>

<BradyII_Prairie_NLCD.zip>

<Oliver III_habitats.pdf>

<OliverIII_Prairie_NLCD.zip>

<Brady and Brady II_habitats.pdf>

<Brady_Prairie_NLCD_prairie dogs_burrowing owls.zip>

<NEER ND projects USFWS agency meeting minutes 012616.docx>

<NEER ND Native Prairie and Forest Cover Methods 01262016.docx>



January 27, 2016

Mr. Kevin Shelley
Acting ND Field Supervisor
USFWS North Dakota Field Office
3425 Miriam Avenue
Bismarck, North Dakota 58501-7926

Subject: Information Request for the Proposed Brady II Wind Energy Center in Hettinger and Stark Counties, ND – Revised Project Area

Dear Mr. Shelley:

This letter is to update the Project area discussed in a letter to you dated November 18, 2015. Tetra Tech has been contracted by Brady Wind II, LLC, an indirect, wholly-owned subsidiary of NextEra Energy Resources, LLC, to prepare an application for a Certificate of Site Compatibility for the proposed Brady II Wind Energy Center (the Project), in accordance with North Dakota Century Code (NDCC) Section 49-22-07. As part of that application, we are conducting an investigation of property in Hettinger and Stark counties north of the city of New England. This proposed Project would consist of approximately 150 megawatts (MW). The Project area shown in the attached figure is the primary focus of our investigation.

Per Section 69-06-01-05 of the North Dakota Public Service Commission (PSC)’s administrative rules, we are consulting your agency for assistance in identifying concerns or issues within the boundaries of the tracts listed below that would influence a decision regarding the use of the land, as well as applicable permits that may be required from your office.

County	Township	Range	Sections
Hettinger	136 N	96 W	1-15, 18, 19, 22-24, 26, 27
	136 N	97 W	1-6, 8-14, 24
Stark	137 N	95 W	31
	137 N	96 W	25, 26, 31-36
	137 N	97 W	36

This information will be used to help guide Project development in a manner that identifies and avoids impacts to sensitive resources where practicable. We have sent similar query letters to other agencies including, but not limited to, the U.S. Army Corps of Engineers and North Dakota Game and Fish Department.

NextEra Energy is developing the Project following the voluntary Final Land-Based Wind Energy Guidelines. Desktop habitat analyses for bats and whooping crane are underway as part of Tier 1 and Tier 2 assessments for the Project. Tier 3 assessments that are currently planned or underway for the Project include native prairie identification, spring avian migration surveys, biweekly eagle use surveys, raptor nest and grouse lek surveys, and bat acoustic monitoring.

We would appreciate a response by February 29, 2016. Please contact me at (512) 213-8501 if you have any questions. Thank you for your assistance.

Respectfully submitted,

A handwritten signature in blue ink that reads "AnneMarieGriger". The signature is written in a cursive style.

Anne-Marie Griger, AICP
Tetra Tech, Inc
8911 N. Capital of Texas Hwy, Bldg 2 Suite # 2310
Austin, TX 78759



January 29, 2016

Mr. Mark Zimmerman, Director
North Dakota Parks and Recreation Department
1600 E. Century Ave, Suite 3
Bismarck, North Dakota 58503

Subject: Information Request for the Proposed Brady II Wind Energy Center in Hettinger and Stark Counties, ND – Revised Project Area

Dear Mr. Zimmerman:

This letter is to update the Project area discussed in a letter to you dated November 18, 2015. Tetra Tech has been contracted by Brady Wind II, LLC, an indirect, wholly-owned subsidiary of NextEra Energy Resources, LLC, to prepare an application for a Certificate of Site Compatibility for the proposed Brady II Wind Energy Center (the Project), in accordance with North Dakota Century Code (NDCC) Section 49-22-07. As part of that application, we are conducting an investigation of property in Hettinger and Stark counties north of the city of New England. This proposed Project would consist of approximately 150 megawatts (MW). The Project area shown in the attached figure is the primary focus of our investigation.

Per Section 69-06-01-05 of the North Dakota Public Service Commission (PSC)'s administrative rules, we are consulting your agency for assistance in identifying concerns or issues within the boundaries of the tracts listed below that would influence a decision regarding the use of the land, as well as applicable permits that may be required from your office.

County	Township	Range	Sections
Hettinger	136 N	96 W	1-15, 18, 19, 22-24, 26, 27
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	137 N	96 W	25, 26, 31-36
	137 N	97 W	36

This information will be used to help guide Project development in a manner that identifies and avoids impacts to sensitive resources where practicable. We have sent similar query letters to other agencies including, but not limited to, the U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, and North Dakota Game and Fish Department.

We would appreciate a response by February 29, 2016. Please contact me at (512) 213-8501 if you have any questions. Thank you for your assistance.

Respectfully submitted,

Anne-Marie Griger, AICP
Tetra Tech, Inc
8911 N. Capital of Texas Hwy, Bldg 2 Suite # 2310
Austin, TX 78759



January 29, 2016

Mr. Terry Steinwand
Director
North Dakota Game and Fish Department
100 N. Bismarck Expressway
Bismarck, ND 58501-5095

Subject: Information Request for the Proposed Brady II Wind Energy Center in Hettinger and Stark Counties, ND – Revised Project Area

Dear Mr. Shelley:

This letter is to update the Project area discussed in a letter to you dated November 18, 2015. Tetra Tech has been contracted by Brady Wind II, LLC, an indirect, wholly-owned subsidiary of NextEra Energy Resources, LLC, to prepare an application for a Certificate of Site Compatibility for the proposed Brady II Wind Energy Center (the Project), in accordance with North Dakota Century Code (NDCC) Section 49-22-07. As part of that application, we are conducting an investigation of property in Hettinger and Stark counties north of the city of New England. This proposed Project would consist of approximately 150 megawatts (MW). The Project area shown in the attached figure is the primary focus of our investigation.

Per Section 69-06-01-05 of the North Dakota Public Service Commission (PSC)’s administrative rules, we are consulting your agency for assistance in identifying concerns or issues within the boundaries of the tracts listed below that would influence a decision regarding the use of the land, as well as applicable permits that may be required from your office.

County	Township	Range	Sections
Hettinger	136 N	96 W	1-15, 18, 19, 22-24, 26, 27
	136 N	97 W	1-6, 8-14, 24
Stark	137 N	95 W	31
	137 N	96 W	25, 26, 31-36
	137 N	97 W	36

This information will be used to help guide Project development in a manner that identifies and avoids impacts to sensitive resources where practicable. We have sent similar query letters to other agencies including, but not limited to, the U.S. Fish and Wildlife Service and the U.S. Army Corps of Engineers.

NextEra Energy is developing the Project following the voluntary Final Land-Based Wind Energy Guidelines. Desktop habitat analyses for bats and whooping crane are underway as part of Tier 1 and Tier 2 assessments for the Project. Tier 3 assessments that are currently planned or underway for the Project include native prairie identification, fall and spring avian migration surveys, biweekly eagle use surveys, raptor nest and grouse lek surveys, and bat acoustic monitoring.

We would appreciate a response by February 29, 2016. Please contact me at (512) 213-8501 if you have any questions. Thank you for your assistance.

Respectfully submitted,














A handwritten signature in blue ink that reads "AnneMarieGriger". The signature is written in a cursive, flowing style.

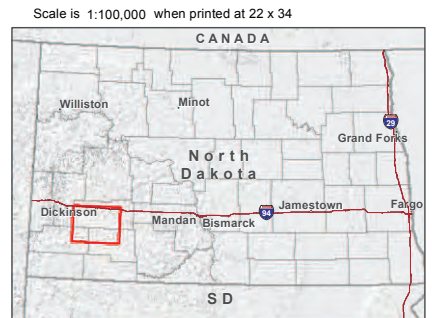
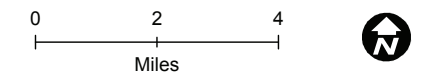
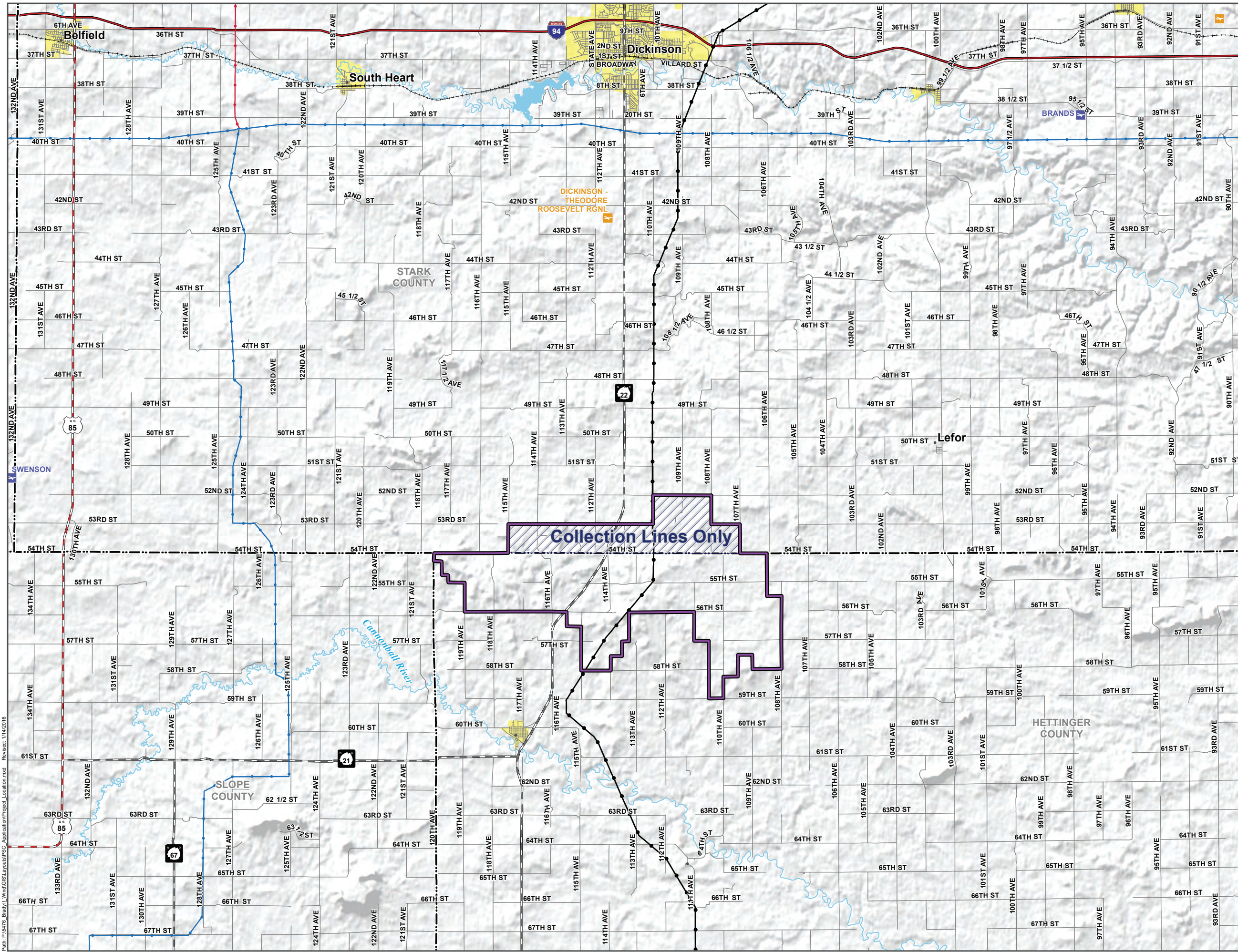
Anne-Marie Griger, AICP
Tetra Tech, Inc
8911 N. Capital of Texas Hwy, Bldg 2 Suite # 2310
Austin, TX 78759

Brady II Wind Energy Center

Hettinger County, ND
(Ancillary Facilities in Stark County)

Legend

-  Proposed Project Area (01/06/16)
-  County Boundary
-  Major River
-  Municipal Boundary
- Existing Electrical Transmission (Ventyx 2015)**
-  115kV Transmission Line
-  230kV Transmission Line
-  345kV Transmission Line
- Transportation (BTS 2013)**
-  Public Airport
-  Private Airport
-  Interstate Highway
-  U.S. Highway
-  State Highway
-  Rail



Path: P:\5476_Bradyl\WindGIS\Layouts\FSC_Application\Project_Location.mxd Reviser: 11/14/2016

Figure 1: Project Location

Brooks, Shaun

From: Wells, Kimberly <Kimberly.Wells@nexteraenergy.com>
Sent: Monday, August 29, 2016 2:44 PM
To: Martell, Mark
Cc: Low, Tara; Brooks, Shaun
Subject: FW: Brady Wind Project

From: Wells, Kimberly
Sent: Thursday, February 04, 2016 6:09 AM
To: Kevin Shelley; Farmer, Chris
Cc: Griger, Anne Marie; Wells, Kimberly
Subject: RE: Brady Wind Project

Hi Kevin,

Thanks for your comments. Did you also have a chance to cross check the shape files data sets we sent for our three ND wind projects against your internal data bases for skippers and whooping cranes? Our Brady I hearing with the PSC is coming up on 3/2, so if your data shows something other than what we already have and shared, it would be ideal to know about that prior to the hearing to avoid any potential surprises.

Kim

Kimberly Wells, Ph.D.
Environmental Services Project Manager
NEXTERA Energy Resources, LLC
601 Travis Street, Suite 1900
Houston, TX 77002
713.951.5372 (office)
832.538.7935 (mobile)
Kimberly.Wells@NEE.com



From: Kevin Shelley [mailto:kevin_shelley@fws.gov]
Sent: Wednesday, February 03, 2016 3:50 PM
To: Farmer, Chris
Cc: Wells, Kimberly; Griger, Anne Marie
Subject: RE: Brady Wind Project

This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email.

Chris;?? I performed a cursory review and have a few comments for you and the other to contemplate ??in reply to your vmessage earlier today.?? I???ll be in the Office both Th and Fr this week if you would like to discuss.?? More ideas may come to mind as I get more time to think critically, but a few ideas came to mind from my insights from other similar efforts.??

??

Thank you for the opportunity.?? K

??

Kevin Shelley, ND State Supervisor

U.S. Fish and Wildlife Service??

Ecological Services

3425 Miriam Ave.??

Bismarck, ND 58501

Office: 701.250.4402??Mobile: 701.989.4233

??

From: Farmer, Chris [mailto:Chris.Farmer@tetrattech.com]

Sent: Friday, January 29, 2016 4:21 PM

To: Kevin Shelley

Cc: Kim Wells; Griger, Anne Marie

Subject: Brady Wind Project

??

Hi Kevin,

???????????????????????????????????? We have developed the attached outline of the Wildlife Conservation Strategy for the Brady Wind Energy Project based on the Region 6 outline and our meeting with you in December.?? I am hoping you can find some time to review it over the next few days, then I would like to call you near the middle of next week to gather feedback before working it into our WCS effort.?? Please let me know when might be a good time to follow-up with you.

??

-Chris

??

Chris Farmer, Ph.D. | National Discipline Lead - Biology

??

Associate Editor, *Journal of Raptor Research*

Direct: 215.702.4121 | Main: 215.702.4000 | Cell: 617.834.8761

Chris.Farmer@tetrattech.com

??

Tetra Tech | Sciences

One Oxford Valley, Suite 200 | Langhorne, PA 19047 | www.tetrattech.com

??

PLEASE NOTE:?? This message, including any attachments, may include confidential and/or inside information. Any distribution or use of this communication by anyone other than the intended recipient is strictly prohibited and may be unlawful. If you are not the intended recipient, please notify the sender by replying to this message and then delete it from your system.

 **Think Green - Not every email needs to be printed.**

??



RECORD OF CONVERSATION

TO: Aaron Robinson, Upland Game Management Supervisor, North Dakota Game and Fish

PHONE #: 701-290-1370

FROM: Chris Farmer

DATE: 02/04/2016

TIME: 2:30 PM

SUBJECT: Grouse Info for Brady, Brady II, and Oliver III Projects

CONVERSATION: – I called Mr. Robinson to get his feedback on Tetra Tech’s planned lek survey protocol for surveys starting in March 2016 for the Brady, Brady II, and Oliver III projects. Mr. Robinson agreed that he would provide feedback after I send him our planned protocol and survey route map.



RECORD OF CONVERSATION

TO: Kevin Shelley, USFWS

PHONE #: 701-355-8512

FROM: Chris Farmer

DATE: 02/08/2016

TIME: 1302

SUBJECT: Brady Wind Energy Project

CONVERSATION: – I called Mr. Shelley to discuss his comments on the Brady Wildlife Conservation Strategy Outline and to check on the status of USFWS action items from the meeting of December 16, 2015.

Mr. Shelley acknowledged that he has received Brady Project shapefiles from Anne-Marie Griger and intends to compare them to the USFWS databases of locations for whooping cranes and Dakota skipper. He has not yet made those comparisons, however, he will do so as soon as possible for the whooping crane. Regarding the Dakota skipper, he informed me that he had requested the most recent location database from the USFWS Region 3 office, but that it was not yet available to him. Update reports from ESA Section 10 permittees were due to Region 3 on January 31, 2016, and they were still updating the database. Mr. Shelley was doubtful that any update would be received prior to the Brady Project PSC meeting on March 2, 2016.

The discussion then turned to his input regarding the Wildlife Conservation Strategy outline Brady Wind shared with him on January 29, 2016. With respect to area-sensitive species, he told me that the North Dakota Field Office used to have a list of species it considered area sensitive on its website, but he was not sure whether it was still there since the website was migrated to a new host a few months ago. He suggested that we check for the list on the website, and if we cannot find it, contact him to request the list, which he feels should form the starting point for consideration of area sensitive species. He suggested that NDGF may also have some area-sensitive species information available in the recent update of its Wildlife Action Plan.

Regarding his comments on the definition of impact, he requested that we arrange a meeting or conference call involving USFWS and NDGF to discuss how this could be defined for the Project. His focus is on identifying and avoiding/minimizing impacts that have demographic consequences for species sensitive to anthropogenic influences. We discussed the difficulty of monitoring for demographic impacts within the scope of wind farm monitoring, and he suggested that engaging in a larger conversation would be the most productive path going forward. Mr. Shelley suggested that he would like additional future conversation involving Brady and the agencies as the Project Wildlife Conservation Strategy is developed.

I thanked Mr. Shelley for engaging with Brady Wind on this Project and told him that I would discuss next steps with Brady Wind. The call ended at 13:31 Eastern time.

CJF

Griger, Anne Marie

From: Schumacher, John D. <jdschumacher@nd.gov>
Sent: Friday, February 26, 2016 12:19 PM
To: Griger, Anne Marie
Subject: Brady & Brady II Wind Energy Centers - Revised Project Areas

Ms. Griger,

The North Dakota Game and Fish Department originally provided comments regarding these projects on 25 September & 28 December 2015 respectively. We have reviewed the projects as revised and have nothing additional to offer. Our original comments are still applicable.

**JOHN SCHUMACHER
RESOURCE BIOLOGIST
ND GAME AND FISH DEPT
701.328.6321**

Brooks, Shaun

From: Wells, Kimberly <Kimberly.Wells@nexteraenergy.com>
Sent: Monday, August 29, 2016 2:50 PM
To: Martell, Mark
Cc: Low, Tara; Brooks, Shaun
Subject: FW: NextEra: Brady I/II updated raptor nest survey results

From: Wells, Kimberly
Sent: Wednesday, April 06, 2016 3:16 PM
To: Kevin Shelley
Cc: christopher.farmer@dnvgl.com; Martell, Mark; Hochmuth, Melissa
Subject: RE: NextEra: Brady I/II updated raptor nest survey results

Hi Kevin,

How about next Tuesday (4/12) at 3 Central? If that works, I'll send an invite with conference info.

Kim

From: Kevin Shelley [mailto:kevin_shelley@fws.gov]
Sent: Tuesday, April 05, 2016 7:57 PM
To: Wells, Kimberly
Cc: christopher.farmer@dnvgl.com; Martell, Mark; Hochmuth, Melissa
Subject: Re: NextEra: Brady I/II updated raptor nest survey results

Kim: I have a change in plans now and will no longer be available on Friday. Im looking into next week now. The 12th is open in the afternoon

Sent from my iPhone

Kevin Shelley
ND State Supervisor
Ecological Services

On Apr 5, 2016, at 1:15 PM, Wells, Kimberly <Kimberly.Wells@nexteraenergy.com> wrote:

Hi Kevin,

Would any time Friday afternoon between 1 and 4 Central your time work for a short call? If morning is better, I can step out of Brady II Hettinger II County hearing to call you. We will provide a bulleted summary of eagle studies and preliminary findings before then as well to support our discussion.

Kim

Kimberly Wells, Ph.D.

Brooks, Shaun

From: Wells, Kimberly <Kimberly.Wells@nexteraenergy.com>
Sent: Monday, August 29, 2016 2:50 PM
To: Martell, Mark
Cc: Low, Tara; Brooks, Shaun
Subject: FW: NextEra: Brady I/II updated raptor nest survey results

From: Wells, Kimberly
Sent: Monday, April 11, 2016 10:54 AM
To: Kevin Shelley
Cc: christopher.farmer@dnvgl.com; Martell, Mark; Hochmuth, Melissa; Wells, Kimberly (Kimberly.Wells@nexteraenergy.com)
Subject: RE: NextEra: Brady I/II updated raptor nest survey results

Hi Kevin,

I am following up on my email and invite from last week to see if tomorrow at 3 pm Central still works to connect via phone. I believe you confirmed receipt of our Brady I reports on 2/22 and we will be prepared to discuss the ongoing eagle studies we have been completing tomorrow if that still works. We have initiated focused nest monitoring at the golden eagle nest closest to the project since discovering it was active and occupied (previously thought to be an unoccupied small stick nest most likely for other non-eagle raptor species) on our most recent aerial surveys. As I mentioned, we are specifically interested in feedback on buffers or setbacks given the map we provided of proposed turbine locations.

If I don't hear from you by the end of today, I'll try you via phone to see if tomorrow still works.

Thanks!

Kim

From: Kevin Shelley [mailto:kevin_shelley@fws.gov]
Sent: Tuesday, April 05, 2016 7:57 PM
To: Wells, Kimberly
Cc: christopher.farmer@dnvgl.com; Martell, Mark; Hochmuth, Melissa
Subject: Re: NextEra: Brady I/II updated raptor nest survey results

Kim: I have a change in plans now and will no longer be available on Friday. Im looking into next week now. The 12th is open in the afternoon

Sent from my iPhone

Kevin Shelley
ND State Supervisor
Ecological Services

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Kim

Kimberly Wells, Ph.D.
Environmental Services Project Manager

NEXtera Energy Resources, LLC

601 Travis Street, Suite 1900

Houston, TX 77002

713.951.5372 (office)

832.538.7935 (mobile)

Kimberly.Wells@NEE.com

<image001.jpg>

From: Kevin Shelley [mailto:kevin_shelley@fws.gov]
Sent: Tuesday, April 05, 2016 12:55 PM
To: Wells, Kimberly
Cc: christopher.farmer@dnvgl.com; Martell, Mark; Hochmuth, Melissa
Subject: Re: NextEra: Brady I/II updated raptor nest survey results

This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email.

The earliest we can speak is Friday, April 8. My day is packed but I will try to work in a short call. I think the larger question may be for next era, and what the likelihood of take might be and how you want to proceed. In regards to the new golden eagle nest, have eagle you studies been performed yet? If not it seems reasonable that would be the focus of this season to assessThe risk for cake.

Sent from my iPhone

Kevin Shelley
ND State Supervisor
Ecological Services

On Apr 5, 2016, at 12:44 PM, Wells, Kimberly <Kimberly.Wells@nexteraenergy.com> wrote:

Hi Kevin,

We completed our latest round of aerial raptor nest surveys at Brady I and II last week that are shown in the attached maps. One map shows the 10-mile radius and the other focuses in on the project boundaries with both showing current turbine locations. Specifically, we would like to discuss the occupied golden eagle nest found near the southeastern perimeter of Brady II and any turbine siting recommendations you may have.

When might you have some time to talk on the phone about this? Alternatively, Melissa (our developer) and I are both in town later this week and could potentially come meet you in your office on Thursday if that is an option. A conversation sooner than later in whatever venue is easiest would be our preference.

Kim

Kimberly Wells, Ph.D.
Environmental Services Project Manager
NEXtera Energy Resources, LLC
601 Travis Street, Suite 1900
Houston, TX 77002
713.951.5372 (office)
832.538.7935 (mobile)
Kimberly.Wells@NEE.com

<image001.jpg>

<NEER Brady I II raptor nests 10 miles 04052016.pdf>

<NEER Brady I II raptor nests 04052016.pdf>

Griger, Anne Marie

From: Griger, Anne Marie
Sent: Wednesday, April 13, 2016 9:19 AM
To: Johnson, Sandra K.
Cc: Low, Tara; Brooks, Shaun; Wells, Kimberly (Kimberly.Wells@nexteraenergy.com); Rowe, Carly; Martell, Mark
Subject: RE: Request for updated eagle nest info for Brady, Brady II and Oliver III
Attachments: Brady_Raptor_Nests_041216.prj; Brady_Raptor_Nests_041216.sbn; Brady_Raptor_Nests_041216.sbx; Brady_Raptor_Nests_041216.shp; Brady_Raptor_Nests_041216.shp.xml; Brady_Raptor_Nests_041216.shx; Brady_Raptor_Nests_041216.cpg; Brady_Raptor_Nests_041216.dbf; Brady_II_Raptor_Nests_041216.shp.xml; Brady_II_Raptor_Nests_041216.shx; Brady_II_Raptor_Nests_041216.cpg; Brady_II_Raptor_Nests_041216.dbf; Brady_II_Raptor_Nests_041216.prj; Brady_II_Raptor_Nests_041216.sbn; Brady_II_Raptor_Nests_041216.sbx; Brady_II_Raptor_Nests_041216.shp

Hello Sandy,

Attached are the shapefiles of our spring raptor nest surveys conducted for Brady and Brady II on March 29-31, 2016. Please note that we have separate files for each project (all nests within 10 miles), but many of the nests are included in both sets. We will send you the results for Oliver III soon as well.

Please confirm receipt, and let Tara and Mark (cc'd) know if you have any questions; this Friday is my last day at Tetra Tech.

Did you get the chance to visit the nests? When do you anticipate being able to provide us the updated data?

Thank you for all your help!

Anne-Marie

From: Johnson, Sandra K. [mailto:sajohnson@nd.gov]
Sent: Wednesday, April 06, 2016 1:44 PM
To: Griger, Anne Marie <Anne-Marie.Griger@tetrattech.com>
Cc: Low, Tara <tara.low@tetrattech.com>; Brooks, Shaun <Shaun.Brooks@tetrattech.com>; Wells, Kimberly (Kimberly.Wells@nexteraenergy.com) <Kimberly.Wells@nexteraenergy.com>
Subject: RE: Request for updated eagle nest info for Brady, Brady II and Oliver III

Hi Anne-Marie,

Yes, Dan Hoenke is a game warden in Dickinson and had visited the site last week. He believes it is a golden eagle nest. There are a couple of new bald eagle nests near the Oliver III project. If the weather improves up here on Friday (it's snowing and windy today) I plan on verifying these new bald eagle sites and hopefully make it over to the new golden eagle site as well. So, next week I can send you the updated shapefiles. Are you planning on conducting aerial surveys for raptor nests this spring?

Sandy

Sandy Johnson
Conservation Biologist
North Dakota Game and Fish Department
100 N. Bismarck Expwy.
Bismarck, ND 58501-5095
Phone: 701-328-6382
sajohnson@nd.gov
<http://gf.nd.gov/>

From: Griger, Anne Marie [<mailto:Anne-Marie.Griger@tetrattech.com>]
Sent: Tuesday, April 5, 2016 4:36 PM
To: Johnson, Sandra K. <sajohnson@nd.gov>
Cc: Low, Tara <tara.low@tetrattech.com>; Brooks, Shaun <Shaun.Brooks@tetrattech.com>; Wells, Kimberly (Kimberly.Wells@nexteraenergy.com) <Kimberly.Wells@nexteraenergy.com>
Subject: Request for updated eagle nest info for Brady, Brady II and Oliver III

Hello Sandy,

I hope this finds you doing well. I would like to request updated eagle nest shapefiles for the Brady, Brady II, and Oliver III projects plus a 10-mile buffer for each. I have attached the latest project boundaries. I heard that Dan Hanke (not sure of spelling) from NDGF confirmed an occupied golden eagle nest location for a landowner near the Brady II project a few days ago, so we wanted to make sure we have that location.

We already have a confidentiality agreement in place for all of these projects, but please let me know if we need to sign another one.

Thank you,

Anne-Marie

Anne-Marie Griger, AICP | Senior Environmental Planner

Direct: 512. 213.8501

anne-marie.griger@tetrattech.com

Tetra Tech, Inc.

8911 N. Capital of Texas Hwy, Bldg 2 Suite # 2310

Austin, TX 78759

CONFERENCE CALL NOTES
BRADY II WIND PROJECT
APRIL 12, 2016

In attendance:

- Kimberly Wells, NextEra
- Melissa Hochmuth, NextEra
- Kevin Shelley, U.S. Fish and Wildlife Service (USFWS)
- Mark Martell, Tetra Tech
- Chris Farmer, DNV GL

Background

The purpose of the call was to provide information to the USFWS regarding the recently discovered golden eagle nest (2015_39) just south of the southern boundary of the proposed Brady II project and receive feedback regarding next steps.

A golden eagle was found incubating in a small stick nest (2015-39) located in a tree just south of the proposed Brady II boundary during spring aerial raptor nest survey (March 29-30) conducted by Tetra Tech. The nest was first discovered in fall 2015 and based on overall size and shape along with stick size was classified as a small raptor (red-tailed hawk or ferruginous hawk) nest.

Monitoring

- Tetra Tech has conducted ground-based monitoring of the nest
- Golden eagle sitting (incubating posture) on the nest
- Observed nest exchanges between male and female eagles.
- Biologists are mapping flight paths associated with the nest, and flights observed thus far have been to the South-southeast.

Local Prey Resource Availability

DNV GL/NextEra provided a description of prey resource inventory efforts and findings to date:

- Prairie dog towns – locations mapped and activity noted, but areal extent not known
- Mapping of land parcels belonging to cattle operations conducted
- Winter aerial surveys of ungulates conducted – looking for concentration areas

Avoidance Measures

- NextEra described willingness to commit to the ½ -mile nest buffer recommended by NDGF, and asked for Mr. Shelley's thoughts regarding this.
- NextEra asked if it would be beneficial to move or remove the nest in this situation

Feedback from Kevin Shelley:

- Should look to prey resources to help understand flight patterns and predict additional movements
- NDGF wildlife staff did a modeling effort for deer fawning areas focusing on woody draws, which could prove helpful in predicting deer natal areas here; they may also have data regarding the location of traditional natal areas for deer and pronghorn. The contact would be Jeb Williams, Chief of the Wildlife Division – 701-328-6686.
- Nest buffer size is variable and depends on space use; however he suggests using a 2-mile buffer as a starting point. The appropriate buffer may be larger or smaller, depending on movements of birds and location of prey resources.
- He has no inherent reservations about a smaller buffer, but thinks it needs to be based on information from the site
- Noted that juvenile mortality is the primary problem for golden eagles in ND, and most of the mortality comes from interaction with anthropogenic factors.
- There are permits that allow for nest removal, but the practice is generally frowned upon and discouraged
- There is uncertainty regarding the continued viability of a relocated nest
- Suggests increasing effort at nest observations to have a biologist follow adults when they leave the nest to identify prey resource locations – if artificial nest platforms are added, they may be most likely to succeed if located between current nest and prey areas
- He will ask for input from Migratory Birds regarding nest move or alternate nest platforms.

Action Items

- NextEra/Tetra Tech will follow-up with Mr. Williams of NDGF regarding ungulate study.
- NextEra/Tetra Tech will develop a protocol for extended monitoring the nest which will include attempts to determine foraging areas and extend through nestling fledging.
- USFWS will contact Migratory Birds office to get their input regarding nest removal or relocation and alternate nest platforms



April 14, 2016

Mr. Mark Zimmerman, Director
North Dakota Parks and Recreation Department
1600 E. Century Ave, Suite 3
Bismarck, North Dakota 58503

Subject: Boundary Revision #2 - Information Request for the Proposed Brady II Wind Energy Center in Hettinger and Stark Counties, North Dakota

Dear Mr. Zimmerman:

The purpose of this letter is to provide Revision #2 of the Project boundary for the proposed Brady II Wind Energy Center (the Project). The Project area was first discussed in a letter to you dated November 18, 2015. A second letter was sent to you dated January 29, 2016, which identified revisions to the original boundary. The attached Figure 1 and Table 1 below identifies changes made to the Project boundary since January 29, 2016. No additional changes to the Project boundary are anticipated at this time.

It should be noted that the Project maps and Project boundary definitions have been updated as a result of clarifications requested by the North Dakota Public Service Commission (PSC). Specifically, the proposed Project boundary identified on Figure 1 has been further refined to identify a "Study Area" and a "Proposed Project Area." The Study Area applies to all areas investigated as part of the proposed Project and includes participating and non-participating landowners. The Proposed Project Area is defined as the locations within the Study Area for which Brady Wind II has negotiated easements with landowners and where proposed Project facilities are proposed to be located. Figure 2 shows the Study Area versus the Proposed Study Area and Table 2 identifies the differences between these two recently defined boundaries.

Tetra Tech has been contracted by Brady Wind II, LLC, an indirect, wholly owned subsidiary of NextEra Energy Resources, LLC, to prepare an application for a Certificate of Site Compatibility for the proposed Brady II Wind Energy Center (the Project), in accordance with North Dakota Century Code (NDCC) Section 49-22-07. As part of that application, we are conducting an investigation of property in Hettinger and Stark counties north of the city of New England. This proposed Project would consist of approximately 150 megawatts (MW). The revised boundaries shown in the attached maps are the primary focus of our investigation.

Per Section 69-06-01-05 of the North Dakota PSC's administrative rules, we are consulting your agency for assistance in identifying concerns or issues within the boundaries of the tracts listed below that would influence a decision regarding the use of the land, as well as identify applicable permits that may be required from your office.

Table 1 identifies the revised Project boundaries. Changes in the Project location that have been made since January 29, 2016 are noted in the column to the right to facilitate your review of the new project boundary.

Table 1

County	Township		Sections Within Project Boundary (March 2016)	Changes since 1/29/16
Hettinger	136 N	95 W	18, 19	Sections 18, 19 added
	136 N	96 W	1-8, 10-13, 15, 18, 19, 22-24, 26, 27	Sections 9, 14 removed
	136 N	97 W	1-14, 17, 18, 24, 25, 36	Sections 7, 17, 18, 25, 36 added
Stark	137 N	95 W	31, 32	Section 32 added
	137 N	96 W	25, 26, 31-36	No change
	137 N	97 W	None	Section 36 removed

Table 2 identifies the locational differences between the Study Area and the Proposed Project Area. It should be noted that the Study Area matches the Project Boundary identified in Table 1.

Table 2

County	Township	Range	Sections Within Proposed Project Area (April 2016)	Additional Sections in the Study Area (March 2016)
Hettinger	136 N	95 W	18, 19	18, 19
	136 N	96 W	1-13, 15, 17, 18, 24, 25, 36	1-8, 10-13, 15, 18, 19, 22-24, 26, 27
	136 N	97 W	1-4, 6-8, 10-13, 15, 18, 19, 22-24	1-14, 17, 18, 24, 25, 36
Stark	137 N	95 W	31	31, 32
	137 N	96 W	25, 26, 34-36	25, 26, 31-36

Any information received will be used to help guide Project development in a manner that identifies and avoids impacts to sensitive resources where practicable. We have sent similar query letters to other agencies including, but not limited to, the U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, and North Dakota Game and Fish Department.

We would appreciate a response by May 15, 2016. Please contact me at 303-980-3502 if you have any questions. Thank you for your assistance.

Respectfully submitted,



Tara H. Low
Tetra Tech, Inc.
350 Indiana Street Suite 500
Golden, CO 80401



April 14, 2016

Mr. Terry Steinwand
Director
North Dakota Game and Fish Department
100 N. Bismarck Expressway
Bismarck, ND 58501-5095

Subject: Boundary Area Revision #2 - Information Request for the Proposed Brady II Wind Energy Center in Hettinger and Stark Counties, North Dakota

Dear Mr. Steinwand:

The purpose of this letter is to provide Revision #2 of the Project boundary for the proposed Brady II Wind Energy Center (the Project). The Project area was first discussed in a letter to you dated November 18, 2015. A second letter was sent to you dated January 29, 2016, which identified revisions to the original boundary. The attached Figure 1 and Table 1 below identifies changes made to the Project area boundary since January 29, 2016. No additional changes to the Project boundary are anticipated at this time.

It should be noted that the Project maps and Project boundary definitions have been updated as a result of clarifications requested by the North Dakota Public Service Commission (PSC). Specifically, the proposed Project boundary identified on Figure 1 has been further refined to identify a "Study Area" and a "Proposed Project Area." The Study Area applies to all areas investigated as part of the proposed Project and includes participating and non-participating landowners. The Proposed Project Area is defined as the locations within the Study Area for which Brady Wind II has negotiated easements with landowners and where proposed Project facilities are proposed to be located. Figure 2 shows the Study Area versus the Proposed Study Area and Table 2 identifies the differences between these two recently defined boundaries.

Tetra Tech has been contracted by Brady Wind II, LLC, an indirect, wholly owned subsidiary of NextEra Energy Resources, LLC, to prepare an application for a Certificate of Site Compatibility for the proposed Brady II Wind Energy Center Project, in accordance with North Dakota Century Code (NDCC) Section 49-22-07. As part of that application, we are conducting an investigation of property in Hettinger and Stark counties north of the city of New England. This proposed Project would consist of approximately 150 megawatts (MW). The revised boundaries shown in the attached maps are the primary focus of our investigation.

Per Section 69-06-01-05 of the North Dakota PSC's administrative rules, we are consulting your agency for assistance in identifying concerns or issues within the boundaries of the tracts listed below that would influence a decision regarding the use of the land, as well as identify applicable permits that may be required from your office.

Table 1 identifies the revised Project boundaries. Changes in the Project location that have been made since January 29, 2016 are noted in the column to the right to facilitate your review of the new project boundary.

Table 1

County	Township	Range	Sections Within Project Boundary (March 2016)	Changes since 1/29/16
Hettinger	136 N	95 W	18, 19	Sections 18, 19 added
	136 N	96 W	1-8, 10-13, 15, 18, 19, 22-24, 26, 27	Sections 9, 14 removed
	136 N	97 W	1-14, 17, 18, 24, 25, 36	Sections 7, 17, 18, 25, 36 added
Stark	137 N	95 W	31, 32	Section 32 added
	137 N	96 W	25, 26, 31-36	No change
	137 N	97 W	None	Section 36 removed

Table 2 identifies the locational differences between the Study Area and the Proposed Project Area. It should be noted that the Study Area matches the Project Boundary identified in Table 1.

Table 2

County	Township	Range	Sections Within Proposed Project Area (April 2016)	Additional Sections in the Study Area (March 2016)
Hettinger	136 N	95 W	18, 19	18, 19
	136 N	96 W	1-13, 15, 17, 18, 24, 25, 36	1-8, 10-13, 15, 18, 19, 22-24, 26, 27
	136 N	97 W	1-4, 6-8, 10-13, 15, 18, 19, 22-24	1-14, 17, 18, 24, 25, 36
Stark	137 N	95 W	31	31, 32
	137 N	96 W	25, 26, 34-36	25, 26, 31-36

Any information received will be used to help guide Project development in a manner that identifies and avoids impacts to sensitive resources where practicable. We have sent similar query letters to other agencies including, but not limited to, the U.S. Fish and Wildlife Service and the U.S. Army Corps of Engineers.

NextEra Energy is developing the Project following the voluntary Final Land-Based Wind Energy Guidelines. Desktop habitat analyses for bats and whooping cranes are underway as part of Tier 1 and Tier 2 assessments for the Project. Tier 3 assessments that are currently planned or underway for the Project include native prairie identification, fall and spring avian migration surveys, biweekly eagle use surveys, and raptor nest and grouse lek surveys.

We would appreciate a response by May 15, 2016. Please contact me at 303-980-3502 if you have any questions. Thank you for your assistance.

Respectfully submitted,



Tara H. Low
Tetra Tech, Inc.
350 Indiana Street Suite 500
Golden, CO 80401



April 14, 2016

Mr. Kevin Shelley
Acting ND Field Supervisor
USFWS North Dakota Field Office
3425 Miriam Avenue
Bismarck, North Dakota 58501-7926

Subject: Boundary Area Revision #2 - Information Request for the Proposed Brady II Wind Energy Center in Hettinger and Stark Counties, North Dakota

Dear Mr. Shelley:

The purpose of this letter is to provide Revision #2 of the project boundary for the proposed Brady II Wind Energy Center (the Project). The Project area was first discussed in a letter to you dated November 18, 2015. A second letter was sent to you dated January 29, 2016, which identified revisions to the original boundary. The attached Figure 1 and Table 1 below identifies changes made to the Project area boundary since January 29, 2016. No additional changes to the Project boundary are anticipated at this time.

It should be noted that the Project maps and Project boundary definitions are have been updated as a result of clarifications requested by the North Dakota Public Service Commission (PSC). Specifically, the proposed Project boundary identified on Figure 1 has been further refined to identify a "Study Area" and a "Proposed Project Area." The Study Area applies to all areas investigated as part of the proposed Project and includes participating and non-participating landowners. The Proposed Project Area is defined as the locations within the Study Area for which Brady Wind II has negotiated easements with landowners and where proposed Project facilities are proposed to be located. Figure 2 shows the Study Area versus the Proposed Study Area and Table 2 identifies the differences between these two recently defined boundaries.

Tetra Tech has been contracted by Brady Wind II, LLC, an indirect, wholly owned subsidiary of NextEra Energy Resources, LLC, to prepare an application for a Certificate of Site Compatibility for the proposed Brady II Wind Energy Center (the Project), in accordance with North Dakota Century Code (NDCC) Section 49-22-07. As part of that application, we are conducting an investigation of property in Hettinger and Stark counties north of the city of New England. This proposed Project would consist of approximately 150 megawatts (MW). The revised Project boundaries shown in the attached maps are the primary focus of our investigation.

Per Section 69-06-01-05 of the North Dakota PSC's administrative rules, we are consulting your agency for assistance in identifying concerns or issues within the boundaries of the tracts listed below that would influence a decision regarding the use of the land, as well as identify applicable permits that may be required from your office.

Table 1 identifies the revised Project boundaries. Changes in the Project location that have been made since January 29, 2016 are noted in the column to the right to facilitate your review of the new Project boundary.



Table 1

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Any information received will be used to help guide Project development in a manner that identifies and avoids impacts to sensitive resources where practicable. We have sent similar query letters to other agencies including, but not limited to, the U.S. Army Corps of Engineers and North Dakota Game and Fish Department.

NextEra Energy is developing the Project following the voluntary Final Land-Based Wind Energy Guidelines. Desktop habitat analyses for bats and whooping cranes are underway as part of Tier 1 and Tier 2 assessments for the Project. Tier 3 assessments that are currently planned or underway for the Project include native prairie identification, spring avian migration surveys, biweekly eagle use surveys, and raptor nest and grouse lek surveys.

We would appreciate a response by May 15, 2016. Please contact me at 303-980-3502 if you have any questions. Thank you for your assistance.

Respectfully submitted,

Tara H. Low
 Tetra Tech, Inc.
 350 Indiana Street Suite 500
 Golden, CO 80401

Brooks, Shaun

From: Low, Tara
Sent: Wednesday, September 07, 2016 10:57 AM
To: Brooks, Shaun
Cc: Martell, Mark
Subject: FW: Conference Call Notes - Brady II
Attachments: NextEra_TT_USFWS_Conference Call Notes-04122016.pdf

From: Martell, Mark
Sent: Thursday, April 21, 2016 2:59 PM
To: kevin_shelley@fws.gov
Cc: Wells, Kimberly <Kimberly.Wells@nexteraenergy.com>; Chris Farmer (christopher.farmer@dnvgl.com) <christopher.farmer@dnvgl.com>; Hochmuth, Melissa <Melissa.Hochmuth@nexteraenergy.com>; Low, Tara <tara.low@tetrattech.com>
Subject: Conference Call Notes - Brady II

Attached are the notes from our conference call on April 12, discussing the newly discovered golden eagle nest south of the Brady II wind project.

Mark Martell | Senior Ecologist
Direct: 612-643-2245 | Cell: 612-961-3926
mark.martell@tetrattech.com

Tetra Tech, Inc. | Sciences

350 Indiana St., Suite 500, Golden, CO 80401
and
2001 Killebrew Dr. Suite 141, Bloomington, MN 55425
www.tetrattech.com

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Archived: Thursday, August 18, 2016 8:01:32 AM
From: [Robinson, Aaron C.](#)
Sent: Thursday, May 19, 2016 4:26:52 PM
To: [Martell, Mark](#)
Subject: RE: Sharp-tailed grouse lek buffers
Importance: Normal

Mark – I haven't forgot about you I am working with the Fish and Wildlife Service (Kevin Shelley) to determine our recommendations. I know everyone is on a time crunch and I will have something to you by early next week.

Cheers,
Aaron

Aaron Robinson

Upland Game Management Supervisor
North Dakota Game and Fish
225 30th Ave. SW
Dickinson, ND 58601
Cell: 701-290-1370 
acrobinson@nd.gov
www.gf.nd.gov

From: Martell, Mark [mailto:Mark.Martell@tetrattech.com]
Sent: Tuesday, May 3, 2016 11:18 AM
To: Robinson, Aaron C. <acrobinson@nd.gov>
Subject: Sharp-tailed grouse lek buffers

Aaron,

Sorry to bother you while you were busy earlier.

I would like to know the NDGF suggested buffers around sharp-tailed grouse leks for commercial wind developments. Both distance and timing and any other suggestions.


Thank you

Mark Martell | Senior Ecologist
Direct: 612-643-2245  | Cell: 612-961-3926 
mark.martell@tetrattech.com

Tetra Tech, Inc. | Sciences

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Brooks, Shaun

From: Low, Tara <tara.low@tetrattech.com>
Sent: Thursday, May 05, 2016 2:50 PM
To: kevin_Shelley@fws.gov
Cc: Wells, Kimberly; Martell, Mark
Subject: Brady II Wind Energy Center - Project Boundary Revision Letter
Attachments: 160413_Brady II Agency Letter USFWS.pdf

This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email.

Hi Kevin,

I am working with Kim Wells on the proposed Brady II Wind Energy Center in North Dakota. On April 14th, we mailed you a letter describing changes that had been made to the project boundary. The letter was returned to us "Unable to Forward" - we sent to 3425 Miriam Avenue in Bismarck, ND 58501-7926.

I left a message with one of your office representatives today to confirm your mailing address, and will re-send the hard copy. In the meantime, we wanted to provide you with a copy via email, and it is attached.

Please don't hesitate to let me know if you have any questions.

Best,
Tara

Tara Low | Environmental Planner

Cell: 303.898.4615

tara.low@tetrattech.com

Tetra Tech, Inc.

350 Indiana Street, Suite 500 Golden, Colorado 80401 | www.tetrattech.com

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Low, Tara

From: Schumacher, John D. <jdschumacher@nd.gov>
Sent: Friday, May 13, 2016 12:16 PM
To: Low, Tara
Subject: Brady II Wind Energy Center - Boundary Area Revision #2

Ms. Low,

The North Dakota Game and Fish Department has reviewed this project as revised and have nothing additional to offer. Our original comments are still applicable.

**JOHN SCHUMACHER
RESOURCE BIOLOGIST
ND GAME AND FISH DEPT
701.328.6321**

Low, Tara

From: Martell, Mark
Sent: Tuesday, May 17, 2016 9:40 PM
To: Sandy Johnson (sajohnson@nd.gov)
Cc: Wells, Kimberly; Low, Tara; Rowe, Carly; Young, Rich
Subject: golden eagle nest

Sandy,

During our March 2016 aerial raptor nest survey that Tetra Tech flew for the NextEra Brady II wind project an active golden eagle nest was located in Hettinger County, T136N R96W Sec 14 (46° 35' 52.77N, 102° 42' 15.37N). The nest was in a tree and had first been seen in fall 2015 and classified as a small raptor nest (nest # 2015_09). Because the nest was located 0.2 miles south of the Project boundary NextEra consulted with Kevin Shelley of USFWS and authorized Tetra Tech to begin monitoring of the nest and the flight paths of the eagles around the nest. Tetra Tech biologists saw at least one chick in the nest and believe it hatched around the beginning of May. The nest was observed daily. On 5-14-16 the adult's behavior changed dramatically and they no longer were seen in attendance at the nest. On Monday 5-16-16, after 3 days of almost no adult presence at the nest we determined it had failed.

Because of the nests proximity to the proposed Brady II wind project we wanted to notify NDGF of the failure of this nest.

Mark Martell | Senior Ecologist

Direct: 612-643-2245 | Cell: 612-961-3926

mark.martell@tetratech.com

Tetra Tech, Inc. | Sciences

350 Indiana St., Suite 500, Golden, CO 80401

and

2001 Killebrew Dr. Suite 141, Bloomington, MN 55425

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Brooks, Shaun

From: Brooks, Shaun
Sent: Tuesday, September 06, 2016 7:08 PM
To: Brooks, Shaun
Subject: FW: Brady II: Golden Eagle nest update

From: Wells, Kimberly [mailto:Kimberly.Wells@nexteraenergy.com]
Sent: Monday, August 29, 2016 2:31 PM
To: Martell, Mark <Mark.Martell@tetrattech.com>
Cc: Low, Tara <tara.low@tetrattech.com>; Brooks, Shaun <Shaun.Brooks@tetrattech.com>
Subject: FW: Brady II: Golden Eagle nest update

From: Kevin Shelley [mailto:kevin_shelley@fws.gov]
Sent: Tuesday, July 12, 2016 4:27 PM
To: Wells, Kimberly
Cc: Schumacher, John D.; Hochmuth, Melissa; Martell, Mark; Farmer, Christopher
Subject: RE: Brady II: Golden Eagle nest update

CAUTION - EXTERNAL EMAIL

Hi Kimberly; I rec'd your vmessages and have nothing yet to share with you on the subject. It sounds like from your message that you have more start-ups planned for ND, so this leads me to think that there may be a better way to handle this work load than a one-by-one approach, and it will help all of us to better manage expectations. My Office is not yet built for speed so this sets up a natural tension between project development schedules and the timing of USFWS responses for those projects like Brady II that are on a fast track. Having knowledge of the location and timing of NextEra's future projects (next 2-3 yrs) would be valuable for the USFWS to gauge level of effort, resource risk, and conservation return from that effort, as well as satisfy the intent of Tier 1 objectives. Rather than continue to trade calls on a one-off basis, I propose having a discussion that addresses the Company's near-term development goals...preferably prior to securing leases if willing to share. Thoughts?

KS

Kevin Shelley, ND State Supervisor
U.S. Fish and Wildlife Service
Ecological Services
3425 Miriam Ave.
Bismarck, ND 58501
Office: 701.250.4402 Mobile: 701.989.4233

From: Wells, Kimberly [mailto:Kimberly.Wells@nexteraenergy.com]
Sent: Friday, July 08, 2016 12:55 PM
To: Kevin Shelley
Cc: Schumacher, John D.; Hochmuth, Melissa; Martell, Mark; Farmer, Christopher; Wells, Kimberly
Subject: RE: Brady II: Golden Eagle nest update

Hi Kevin,

I am following up on the voice mail I just left on your office phone. Do you have any new info about this? We received our Final Order from PSC this week and are headed to construction.

I will try you again next week.

Kim

From: Kevin Shelley [mailto:kevin_shelley@fws.gov]
Sent: Tuesday, June 14, 2016 4:12 PM
To: Wells, Kimberly
Cc: Schumacher, John D.; Hochmuth, Melissa; Martell, Mark; Farmer, Christopher
Subject: Re: Brady II: Golden Eagle nest update

CAUTION - EXTERNAL EMAIL

Kim: the FWS is working towards a response and expect that to be finalized in the next 2 to 3 weeks. K

Sent from my iPhone

Kevin Shelley
ND State Supervisor
Ecological Services

On Jun 14, 2016, at 9:00 AM, Wells, Kimberly <Kimberly.Wells@nexteraenergy.com> wrote:

Hi Kevin,

I am checking in to see if you have heard any updates for us from the regional office or eagle team. I called your office today and understand you are out for the week, so I also left you a vsmg on your cell.

Any updates would be most appreciated. We had our Brady II PSC hearing on 6/7 and are heading down the final path to construction assuming we get our Final Order sometime next month, so we are eager to understand your feedback if agency.

Thanks!

Kim

Kimberly Wells, Ph.D.
Environmental Services Project Manager
NEXTERA Energy Resources, LLC
601 Travis Street, Suite 1900
Houston, TX 77002
713.951.5372 (office)
832.538.7935 (mobile)
Kimberly.Wells@NEE.com

<image001.jpg>

From: Wells, Kimberly
Sent: Thursday, June 09, 2016 11:35 AM
To: Kevin Shelley
Cc: Schumacher, John D.; Hochmuth, Melissa; Martell, Mark; Farmer, Christopher; Wells, Kimberly
Subject: RE: Brady II: Golden Eagle nest update

Hi Kevin,

Do you know when we might receive the feedback referenced below regarding the larger eagle nest buffer we shared with on 5/17? I just left you another vsmg to follow up.

If you have a moment to discuss, I would appreciate any opportunity to discuss the general sentiment even if the written correspondence referenced below is not formally ready or signed yet for outside circulation.

Kim

Kimberly Wells, Ph.D.
Environmental Services Project Manager
NEXtera Energy Resources, LLC
601 Travis Street, Suite 1900
Houston, TX 77002
713.951.5372 (office)
832.538.7935 (mobile)
Kimberly.Wells@NEE.com

<image001.jpg>

From: Kevin Shelley [mailto:kevin_shelley@fws.gov]
Sent: Friday, June 03, 2016 10:05 AM
To: Wells, Kimberly
Cc: Schumacher, John D.; Hochmuth, Melissa; Martell, Mark; Farmer, Christopher
Subject: RE: Brady II: Golden Eagle nest update

CAUTION - EXTERNAL EMAIL

Kim;?? I am working with regional FWS staff to develop a written response that I hope to have ready early next week.?? KS

??

Kevin Shelley, ND State Supervisor

U.S. Fish and Wildlife Service??

Ecological Services

3425 Miriam Ave.??

Bismarck, ND 58501

Office: 701.250.4402???Mobile: 701.989.4233

??

From: Wells, Kimberly [mailto:Kimberly.Wells@nexteraenergy.com]

Sent: Friday, May 27, 2016 2:02 PM

To: Kevin Shelley

Cc: Schumacher, John D.; Hochmuth, Melissa; Martell, Mark; Farmer, Christopher; Wells, Kimberly

Subject: RE: Brady II: Golden Eagle nest update

??

Hi Kevin,

??

I just left a voice mail message for you on your cell phone to follow up. Do you know if the regional eagle team has any feedback? Our hearing is coming up for Brady II on 6/7, so if there is feedback it would be most helpful to receive before then.

??

Have a good holiday weekend.

??

Kim

??

??

Kimberly Wells, Ph.D.

Environmental Services Project Manager

NEXTERA Energy Resources, LLC

601 Travis Street, Suite 1900

Houston, TX 77002

713.951.5372 (office)

832.538.7935?? (mobile)

Kimberly.Wells@NEE.com

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<image001.jpg>

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From: Wells, Kimberly

Sent: Tuesday, May 17, 2016 8:49 PM

To: Kevin Shelley

Cc: Schumacher, John D.; Hochmuth, Melissa; Martell, Mark; Farmer, Christopher; Wells, Kimberly

(Kimberly.Wells@nexteraenergy.com)

Subject: Brady II: Golden Eagle nest update

??

Hi Kevin,

??

Since we last talked, Tetra Tech has been assisting us with gathering flight path data of the golden eagle pair that had an active nest just south of our Brady II project boundary following your suggestion.?? As you may recall, we had originally proposed a 0.5-mile buffer around the occupied nest that had eggs at the time where we removed turbines following the recommendations NDGFD previously provided in response to our agency correspondence letter as part of our PSC permitting process. Last weekend, the nest monitors determined the nest had likely failed based on the change in behavior of the parents and close proximity of other hawks that I understand normally would not be tolerated ??by an actively nesting eagle pair.?? My understanding is that Tetra Tech believes this pair was a younger and inexperienced pair, which may explain the fairly atypical nest placement in a tree in what appeared to be smaller hawk??s nest.

??

Tetra Tech believes it is unlikely that this pair will attempt re-nesting this year, but in the event this pair does attempt that or nesting in this spot in future years, we propose the larger buffer in orange in the attached graphic that corresponds to the flight paths < 200 m (in purple) ??that Tetra Tech observed the pair making while the nest was still active.??

??

We are seeking your input on this next step as part of our continuing coordination. Our PSC hearing for the project is scheduled for June 7th, so any recommendations you have would be very helpful to consider as soon as possible prior to the hearing if feasible.

??

Tetra Tech is also going to let Sandy Johnson at NDGFD know since we have been reporting ??our data and sharing it through her. We have also copied John here since we previously met with both of you on general wildlife due diligence issues starting last December.

??

Mark and I are in Bismarck with you for another meeting tomorrow afternoon on a separate federal project, so we could also touch base then if your schedule allows.

??

Kim

??

??

Kimberly Wells, Ph.D.

Environmental Services Project Manager

NEXtera Energy Resources, LLC

601 Travis Street, Suite 1900

Houston, TX 77002

713.951.5372 (office)

832.538.7935?? (mobile)

Kimberly.Wells@NEE.com

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<image001.jpg>

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Archived: Thursday, August 18, 2016 8:02:18 AM
From: [Martell, Mark](#)
Sent: Friday, July 29, 2016 11:04:51 AM
To: [Wells, Kimberly](#)
Cc: [Low, Tara](#); [Young, Rich](#)
Subject: North Dakota sharp-tailed grouse buffers
Importance: Normal

Kim,

I just spoke to Aaron Robinson and want to document the conversation here. He told me that NDGF is not setting out sharp-tailed grouse buffer recommendations but instead have decided that more research is needed. He informed me that he is trying to put together a group which would include Audubon, NDGF, USFWS, North Dakota State University, and yourself and that you will be having a call next week.

He also told me that he is looking for wind developers who would be interested in working with them on the project.

If I Tetra Tech can be of any help to you in this area please let me know.

Mark Martell | Senior Ecologist
Direct: 612-643-2245  | Cell: 612-961-3926 
mark.martell@tetrattech.com

Tetra Tech, Inc. | Sciences

350 Indiana St., Suite 500, Golden, CO 80401
and
2001 Killebrew Dr. Suite 141, Bloomington, MN 55425
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APPENDIX B: POST-CONSTRUCTION FATALITY MONITORING PROTOCOL

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Proposed Standardized Post-construction Fatality Monitoring

The following sections describe the protocol for standardized fatality monitoring. This monitoring framework consists of standardized carcass searches conducted at a sample of the Project turbines. The number of fatalities found during searches represents a minimum number of fatalities at a project because not all fatalities that occur are found by observers. Therefore, carcass persistence trials and searcher efficiency trials will be conducted concurrently with standardized fatality monitoring to account for the bias attributable to carcass removal by scavengers and searcher efficiency. Fatality rates (e.g., birds/turbine/year and birds/operational MW/year) will then be estimated using statistical methods that adjust the number of carcasses found for detection biases. Per-turbine and per-megawatt estimates provide different ways of scaling fatality information to be comparable to other projects. Annual fatality rates will be calculated for all bird species combined, small (less than or equal to 10 inches) and large (greater than 10 inches) birds, raptors, and sensitive species (collectively). In some cases, the sample size for a species group of interest, such as eagles or other sensitive species, may be too small to allow for the calculation of accurate fatality estimates (see Section 8.1.4). In these cases, numerical counts of total fatalities detected during standardized and operational (see Section 8.2) searches for each of these species or species groups will be substituted in place of rate estimates.

The field and analytical methods described below are consistent with post-construction fatality monitoring being conducted, or proposed, for other wind projects elsewhere in the United States (Johnson et al. 2003; Young et al. 2003; Jain et al. 2007; Huso 2011, Strickland et al. 2011).

Methods and timing outlined here may be modified over the course of the study as Project-specific information is gained to maximize the effectiveness and efficiency of the monitoring program (e.g., search interval, number of turbines searched, plot size).

Standardized Carcass Searches

The objective of the fatality monitoring is to identify the bird and bat species found as fatalities at the Project and to statistically estimate fatality rates. This section outlines the methods for the standardized carcass searches, which constitutes the initial step in generating the fatality estimate (i.e. finding the carcasses under the turbines). These values then will be adjusted to account for detection bias (see below). The methods for standardized carcass searches include the sampling duration and intensity, search plot size and configuration, and fatality documentation.

Sampling Duration and Intensity

Standardized post-construction fatality monitoring will consist of standardized searches of approximately 30 percent of the turbines and will be conducted for the first year of operation. To avoid bias in the fatality estimate, turbines will be selected in a stratified random manner based on habitat type and topography. To do this, habitat and topography will be determined for each turbine location and the sample turbines randomly selected from the habitat and topography categories in proportion to how often they occur in these categories. The same turbines will be searched the entire year of the baseline monitoring period to avoid confounding effects from individual turbines.

The survey year will be divided into seasons to allow for the inclusion of season-specific searcher efficiency probabilities and carcass persistence times. Searches at each of the designated turbines will initially be conducted every 2 weeks. However, search frequency may be adjusted based on the results of seasonal carcass persistence trials in order to ensure that on average, the search interval minimizes the bias associated with carcass removal by scavengers (see below).

Seasonal sampling intervals will be as follows:

- Spring: March 16–June 15
- Summer: June 16–September 14
- Fall/Winter: September 15–December 15

Search Plot Size and Configuration

It is anticipated that the turbine pads and roads will remain clear of vegetation. The search area will consist of a square search plot centered on the turbine. The minimum distance from the turbine to the perimeter of the square will be eighty (80) percent of the turbine height. The search plot size is based on recommendations from the USFWS (2012a). Search areas will include maintained turbine pads and access roads, as well as adjacent unmaintained areas. The actual area searched will ultimately be dependent on the configuration of the maintained areas, as well as the portion of the unmaintained area that can be realistically searched as determined during the initial surveys.

Linear transects will be established within the search plots approximately 6 meters (20 feet) apart (USFWS 2012a). The searchers will walk along each transect searching both sides out to 3 meters (10 feet) for fatalities. Personnel trained and tested in proper search techniques will conduct the carcass searches.

Fatality Documentation

During the set-up for carcass surveys, a sweep survey will be conducted to remove any fatalities that occurred before the study is initiated. These carcasses will be documented in the same manner as those found during the standardized carcasses searches; however, they will not be included in the statistical analysis because the statistical analysis requires a known search interval (i.e. an estimate of when fatalities occurred).

Searchers will assume that carcasses found are a result of turbine collisions unless the cause of death can be clearly attributed to a non-turbine cause. Although an unknown number of fatalities may result from natural predation, disease, or anthropogenic events (e.g., shooting), the condition of the carcasses when found rarely facilitates determining the cause of death.

Carcasses found during standardized carcass searches will be assigned a unique number, and species, sex, age, date, time found, location (Global Positioning System [GPS] coordinate, and distance/direction from the turbine), condition (e.g., intact, scavenged, feather spot), observer, turbine number, and any comments that may indicate cause of death will be collected. All carcasses will be photographed in situ. Once documented, carcasses will be marked in a

standardized fashion (e.g., clipping of primary flight feathers) to indicate they have already been recorded. Carcasses will be left in place unless otherwise specified by Project-specific collection permits, if applicable.

Searchers may discover carcasses incidental to standardized carcass searches (e.g., outside of a search plot or of a scheduled survey date). For each incidentally discovered carcass, the searcher will identify, photograph, and record data for the carcass as would be done for carcasses found during standardized scheduled searches, but will code these carcasses as incidental discoveries. Incidental discoveries will not enter into the statistical calculation of fatality rate for reasons noted above for carcasses found during initial set-up.

All native birds in North America are protected under the MBTA and cannot be salvaged without a permit from the USFWS. In addition to a federal permit, a North Dakota Scientific Collection permit is needed from NDGF to handle native wildlife. This plan assumes that bird carcasses will be left in place and will not be salvaged unless otherwise directed by the appropriate agencies after discovery. If the carcass of a federally listed species is found, searchers will follow procedures identified within Brady II Wind's Wildlife Response and Reporting System.

Bias Correction Trials

Carcass persistence time estimates the amount of time a carcass remains on-site prior to its disappearance from the search area due to scavenging or other means (e.g., due to forces such as wind and rain or decomposition beyond recognition). The objective of the carcass persistence trials is to document the length of time carcasses remain in the search area. Carcass persistence trials will be conducted in multiple seasons to evaluate seasonal differences in carcass persistence (i.e. due to changes in scavenger population density or type) and possible differences in the size of the animal being scavenged.

Carcasses used in the trials will be selected to represent a range of species sizes, including bats. For large birds, carcasses may include domestic waterfowl, pheasant, or similar species legally obtained from game farms. For small birds and bats, carcasses may include European starlings, house sparrows, or other non-native species not legally protected. For bats, we may also use mice.

Assuming adequate carcass availability, one carcass persistence trial will be conducted during each of the spring, summer, and fall/winter seasons with at least 15 carcasses of each bird size class (large bird, small bird, and bat) placed per season.

Each carcass used for the carcass persistence trial will be placed randomly within the area used for the trials. Random locations will be generated and loaded into a GPS as waypoints to allow the accurate placement of the carcasses by field personnel. Carcasses will be dropped from waist height and allowed to land in a random posture. Each trial carcass will be discreetly marked (e.g., small tag or wire wrapped around one leg) prior to dropping so that it can be identified as a study carcass if it is found by other searchers or wind facility personnel. Personnel will monitor the trial carcasses on days 1, 2, 3, 4, 7, 10, 14, 21, and 30. When checking the carcass, searchers will record the condition as intact (normal stages of decomposition), scavenged (feathers pulled out,

chewed on, or parts missing), feather spot (only feathers left), or gone (cannot be found). Changes in carcass condition will be cataloged with pictures and detailed notes; photographs will be taken at placement and any time major changes have occurred. At the end of the 30-day period, any evidence of carcasses that remain will be removed and properly disposed of.

Estimates of the probability that a carcass persisted between search intervals and therefore was available to be found by searchers, will be used to adjust carcass counts for bias using methods presented in Huso 2011 or similar analysis method. To date, Huso (2011) presents the most bias-free equation for determining the average probability of persistence, which takes into account the length of the search interval and the carcass persistence time:

$$\hat{r} = \frac{\hat{t}(I - e^{-I/\hat{t}})}{I}$$

Where t is the estimated mean persistence time and I is the length of the interval. A bootstrapped estimate and 90 percent confidence interval will be calculated based on 5,000 iterations for carcass persistence time. Bootstrapping is a statistical re-sampling procedure where the data are re-sampled with replacement to obtain an estimate and confidence interval.

Searcher Efficiency Trials

The ability of searchers to detect carcasses is influenced by a number of factors including the skill of an individual searcher in finding the carcasses, the vegetation composition within the search area, and the characteristics of individual carcasses (e.g., body size, color). The objective of searcher efficiency trials is to estimate the percentage of bird and bat fatalities that searchers are able to find. Estimates of searcher efficiency are then used to adjust carcass counts for detection bias. Searcher efficiency trials will be conducted in all seasons to account for seasonal differences in searcher efficiency. Carcass species used in the trials and marking and placement techniques will be the same as those in the carcass persistence trials.

Searcher efficiency trials will begin when standardized carcass searches start. Personnel conducting the searches will not know when trials are conducted or the location of the efficiency-trial carcasses. Trials will be conducted multiple times throughout each season and will incorporate testing of each member of the field crew. Assuming adequate carcass availability, at least 15 carcasses of each bird size class (large bird, small bird, and bat) will be placed per season for searcher efficiency trials. A minimum of 10 carcasses per size and season are needed to estimate searcher efficiency. Searcher efficiency trials will be conducted at the monitored turbines. The number of carcasses placed prior to the search (i.e. the number available for detection during each trial) will be verified immediately after the trial by the person responsible for distributing the trial carcasses. Any carcasses not found by searchers will be collected after the trial.

The probability of a carcass being observed is expressed as p , the proportion of trial carcasses that are detected by searchers in the searcher efficiency trials. The probability will be estimated by carcass size class (large bird, small bird, bat) and season. A bootstrapped estimate and 90 percent confidence interval will be calculated based on 5,000 iterations for searcher efficiency.

Fatality Rate Estimation

To calculate the Project-wide fatality rate (fatalities/turbine/year and fatalities/MW/year) and the total Project fatalities, the Huso estimator (Huso 2011) or other appropriate statistical methods will be used. The fatality rate can be calculated for subgroups, including large birds, small birds, raptors (including eagles), bats, or sensitive species (including BCC and state species of conservation priority) if at least 5 fatalities within the subgroup are found.

The estimation of fatality rates will incorporate fatalities documented during standardized carcass searches adjusted for bias. Specifically, fatality estimates will take into account:

- Search interval;
- Observed number of carcasses found during standardized searches during the monitoring year for which operation of the facility cannot be ruled out as the cause of death;
- Carcass persistence, expressed as the probability that a carcass is expected to remain in the study area (persist) and be available for detection by the searchers during carcass persistence trials; and
- Searcher efficiency, expressed as the probability of trial carcasses found by searchers during searcher efficiency trials.

The Huso estimator (2011) uses the following equation to estimate fatalities:

$$\hat{f}_{ijk} = \frac{c_{ijk}}{\hat{p}_{jk} * \hat{r}_{jk} * \hat{v}_{jk}}$$

Where \hat{f}_{ijk} is the estimated fatality at the i th turbine during the j th search in the k th category and c_{ijk} is the observed number of carcasses at the i th turbine during the j th search in the k th category. The variable \hat{r}_{jk} is a function of the average carcass persistence time, which was described earlier, and the length of the search interval preceding a carcass being discovered. The variable \hat{r}_{jk} is calculated using the lower value of l , the actual search interval when a carcass is found or (l, \tilde{l}) the effective search interval, and is estimated through searcher efficiency trials previously described. \hat{v}_{jk} is the proportion of the effective search interval sampled where $\hat{v} = \min(1, \tilde{l}/l)$. \hat{p}_{jk} is the estimated probability that a carcass in the k th category that is available to be found will be found during the j th search. The variables \hat{p}_{jk} , \hat{r}_{jk} , and \hat{v}_{jk} are assumed not to differ among turbines but can differ with carcass type, size class, and season. To obtain an estimate of the number of fatalities per turbine the following equation is used:

$$\hat{f} = \frac{\sum_{i=1}^u \sum_{j=1}^{n_i} \sum_{k=1}^2 \hat{f}_{ijk}}{t}$$

Where n_i is the number of searches at turbine i ($i = 1 \dots u$) and t is the effective number of turbines searched. A bootstrapped estimate and 90 percent confidence interval will be calculated based on 5,000 iterations for the fatality estimate. The 90 percent confidence interval represents the upper and lower bounds of the range of fatality rates that has a 90 percent probability of containing the true fatality rate. The 90 percent confidence interval is useful in a management context as a means of assessing the range of fatality rates that are probable given the number of carcasses

that were detected. It should be noted that the upper 90 percent confidence limit corresponds to 95 percent probability that the true fatality rate is lower than the upper 90 percent confidence limit.

Reporting

A post-construction fatality monitoring report will be prepared for the one year of surveys conducted to summarize avian and bat fatalities associated with operations of the Project. This report will include a detailed summary of the methods; results from carcass searches, carcass persistence trials, and searcher efficiency trials; an estimate of fatalities on a per-turbine and per-megawatt basis; and discussions of the results in the context of adaptive management. The report will be provided to USFWS and NDGF by the end of the first quarter following completion of the surveys.

APPENDIX C: WILDLIFE RESPONSE AND REPORTING SYSTEM

NextEra Energy Resources Wildlife Response and Reporting System Manual for the Brady II Wind Energy Center

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Purpose

The purpose of this Wildlife Response and Reporting System (WRRS) manual is to standardize the actions taken in response to any wildlife fatalities and/or injuries found within the wind plant boundaries. Training will be performed by qualified consultants or in-house environmental staff qualified to conduct the training.

Any wildlife incident found within wind plant boundaries, regardless of cause of death, should be reported immediately to the on-duty Plant Lead/Site Supervisor who shall complete an incident report and take photographs. The Wind Fleet Wildlife Program Manager shall be notified and further actions will be determined at that time based on the species and the circumstances surrounding the incident.

Any federally threatened or endangered species (Appendix C of the WCS) should immediately be reported to the U.S. Fish and Wildlife Service (USFWS) – North Dakota Ecological Services Field Office at (701) 250-4481 and the USFWS Office of Law Enforcement, Mountain-Prairie Region at (303) 236-7540. If a whooping crane is observed, all turbines shall be curtailed according to NextEra’s Whooping Crane Curtailment Procedure, for which a specific training will be administered to all employees. Refer to the Brady II Wind Wildlife Conservation Strategy (WCS) for further details regarding the whooping crane.

NextEra Contacts

Facility Site Manager
Chase Dauenhauer (701) 794-3716
NextEra Energy Wind Operation Contacts
Jim Lindsay, Wildlife Program Manager Office: (561) 691-7032 Cell: (561) 329-1296
Brian Wysong, Juno Environmental Services, Wildlife Office: (561) 691-2935 Cell: (561) 319-5202

Regulatory Agency Contacts

US Fish and Wildlife Service – North Dakota Ecological Services Field Office
Kevin Shelley, State Supervisor 3425 Miriam Ave. Bismarck, ND 58501 Office: (701) 250-4402 Mobile: (701) 989-4233
North Dakota Game and Fish Department
John Schumacher, Conservation Biologist 3425 Miriam Ave. Bismarck, ND 58501 (701) 328-6321
USFWS Office of Law Enforcement
Resident Agent in Charge
County Sheriff Department
Hettinger and Stark County Sheriff, (701) 456-7610

Inspections

The NextEra Energy Resources Wildlife Response and Reporting System relies solely on wind technicians and other site personnel to find and report birds, bats and other animals. Wildlife Inspections shall be completed as part of the Inspection of Watch (IOW) procedure.

Wildlife inspections must be conducted in accordance with our lease/easement agreements with individual landowners. Confirm these conditions prior to conducting any wildlife inspections. Consult with the PGD Environmental for guidance if a 150-foot radius around turbines is not available for inspection, or if damage to crops or other landowner property could occur during the inspection. Do not trespass or damage property.

CRITICAL SUCCESS FACTORS:

- Ability to safely and legally walk the terrain around the wind turbine
- Awareness of animals or signs of animals on site property
- Ability to recognize when an animal is in distress
- Ability to immediately contact on-site environmental specialist/ PGD Environmental/ Juno Environmental Services (JES) to report the find
- Ability to ensure full compliance with any permit requirements, if any
- Knowledge of procedures for inspections and reporting

INSPECTION PROCEDURE:

1. Upon arrival at the turbine complete all safety requirements. Please be aware of special on site hunting seasons while performing the inspections. This includes Risk Assessment Mitigation Forms (RAMF). Put on all applicable personal protective equipment (PPE). Remember that if at any time you feel your safety is compromised, **DO NOT** complete the inspection. Beware of uneven walking surfaces, snake hazards, or other potential risks.
2. A complete Wildlife Inspection consists of three "Inspection Circles" that shall be walked. Each Inspection Circle consists of slowly walking around the turbine, scanning the ground as you walk, looking to the right and left, and checking on any suspicious objects in the distance. End "Inspection Circle" where you began.
3. To complete the first circle: Begin at the base of the turbine, walk away from the turbine 30 feet and complete one full Inspection Circle (see step 2) keeping 30 feet from the turbine. A good estimate of distance is 1 long step = 1 yard (3 feet).
4. To complete the second circle walk out another 60 feet, and complete another Inspection Circle; keeping 90 feet away from the turbine.
5. To complete the third and final circle, walk out another 60 feet and complete another Inspection Circle keeping 150 feet from the turbine.
6. When the last circle is completed, answer the appropriate questions on the IOW checklist.

7. Immediately notify the WSM if an animal is found, and then continue with the Reporting Procedures.
8. The IOW checklist shall be synced by the end of the day and accessible via the IOW dashboard.
9. All wildlife fatalities or injuries found during wildlife inspections shall be reported following the site procedures. Ensure a full report is submitted to the appropriate Wildlife Program Manager using the SharePoint application (PGD Applications; common applications; Wildlife Response and Reporting System). See section 2.2.

On-site Wildlife Fatality Response

Any person(s) on site discovers a wildlife fatality. **What constitutes a reportable fatality?**

In addition to any complete or partial carcasses, any portion of a bird, bat, or other animal, including individual feathers and/or bones, are all considered reportable wildlife finds. Report all finds even if the carcass and/or parts are not thought to be associated with a wind plant operations. All wildlife species shall be reported.

If a fatality is found, do the following:

Immediately contact the Plant Lead/Site Supervisor. Be prepared to provide the following information:

Examples:

- a) Report type: **Fatality**
- b) Find description: **Pile of feathers and leg**
- c) Species, if known: **Red-tailed Hawk**
- d) Location of find: **30ft west of tower 22**

Notify the appropriate Wildlife Program Manager and submit reporting forms and pictures. If a dead or injured whooping crane is found, immediately contact the USFWS-North Dakota Field Office and the USFWS Office of Law Enforcement.

Incident Reports

Every individual animal discovery requires a separate Wildlife Incident Report. Answer every question and include any additional information that may be helpful. Too much information is better than not enough. All questions shall be answered, even if the answer is “unknown.”

The incident report should include at least one photograph of the discovery. Photographs should show a close up of the head and/or feet, as well as the carcass in relation to the closet structure, if possible. A common item placed next to, but not touching the carcass, helps indicate the size of the animal. Below is a screenshot of the Wildlife Incident Reporting Form. Fields with a red

asterisk * are required.

Wildlife Incident Reporting Form			
REPORT INFORMATION			
Attach Photo	Click here to attach a file		
Site	Please choose from dropdown ▼		
Date of Discovery	3/9/2016 📅		
Discovered By Employee	<input type="text"/> 🔍 👤 Find employee name in address book, if applicable.		
Discovered by Contractor	<input type="text"/> Type name of contractor, if applicable.		
Report Type	DEATH ▼		
LOCATION INFORMATION			
Discovery Activity	Equipment Operational?	Other Nearby Structures	Weather 1
IOW ▼	YES ▼	N/A ▼	<input type="text"/> Enter wind speed in m/s
Structure Detail:	Distance from Structure	GPS Latitude	Weather 2
<input type="text"/> * Turbine number, substation name, etc.	<input type="text"/> * Enter in FEET, convert from meters if necessary.	<input type="text"/>	<input type="text"/> Specify if degrees C or degrees F.
Nearest Structure	Direction from Structure:	Ground Cover	Weather 3
WTG ▼	NORTH ▼	GRAVEL ▼	SUNNY ▼
CONDITION DESCRIPTION			
Species Name	Carcass Condition 1 (Overall)	Carcass Condition 3 (Scavenging)	Band Present
Bird, Unidentified ▼	COMPLETE CARCA ▼	COMPLETE CARCASS ▼	NO ▼
Sex of Animal	Carcass Condition 2 (Injuries)	Carcass Condition 4 (Infestation)	Status of Discovery
UNKNOWN ▼	<input checked="" type="checkbox"/> NO OBVIOUS INJURIES <input type="checkbox"/> BROKEN BONE(S) <input type="checkbox"/> DECAPITATED <input type="checkbox"/> ELECTRICAL BURNS <input type="checkbox"/> LACERATION	NONE OBSERVED ▼	LEFT IN FIELD ▼
Age of Animal	Time Since Death or Injury		Electrical Event
UNKNOWN ▼	LESS THAN A DAY ▼		NO ▼
Check all that apply			Is photo attached? NO ▼

FINDS WITH BANDS

If you find a wildlife fatality with a band(s) (sometimes found in or around legs, ears or wings of animals), please notify your Wildlife Program Manager, and include this information in your WRRS reporting form. There are several different wildlife and agencies that may need to be contacted.

NESTS

If you find a nest in, on or around a turbine, please contact your Wildlife Program Manager for guidance. Do not remove or touch a nest without permission. Please note that a bird nest could be a collection of eggs with no nesting material below them (barn owl nests, for example).

On-site Wildlife Injury Response

The majority of injured birds will have a broken wing. A broken wing will usually hang down oddly or blow in the wind. An injured bird will most likely be on the ground and unwilling or unable to fly. Raptors (any bird of prey or bird with a hooked beak and sharp talons) will sometimes perch on the ground and raptors will sometimes walk on the ground, but not often. If a bird is seen walking or perched on the ground, approach it slowly to see if it will fly away, if it runs away, refusing to fly, it is most likely injured.

Injured animals are dangerous. PGD prohibits personnel from getting too close or touching any wildlife without prior regulatory or PGD approval. This practice is enforced to avoid potential injury to self and to wildlife. Prior to completing any inspection related tasks or the collection of information needed for a report, conduct a risk assessment to define potential risks (e.g., uneven walking surfaces, snakes, etc.). Once safety is assessed, maintain visual contact with the injured animal while reporting the incident to the Wind Site Manager or Wildlife Program Manager so that the correct process can be determined.

Injured Wildlife Reporting Procedure

If you find injured wildlife, immediately notify the on-site respondent. The Wildlife Program Manager will notify the USFWS North Dakota Field Office and the Office of Law Enforcement. A Wildlife Incident Reporting form shall be filled out. **DO NOT DISTURB THE FIND** unless you have a special permit to do so. Do not touch or move it.

If notified of an animal injury, respond immediately and follow these steps:

1. Observe animal and try to assess injuries.
2. Photographs should be taken if possible. Photographs of injured animals are not a priority; everyone's safety and the animal's condition are more important. If photos are taken try to include the following:
 - a. The position of the bird/animal in relation to any and all structures nearby.
 - b. All injuries or possible injuries.
3. If the injured animal is a bird, immediately contact the USFWS – North Dakota Field Office and the USFWS Office of Law Enforcement. Any federally or state-listed species should

immediately be reported to the USFWS – North Dakota Field Office and the USFWS Office of Law Enforcement. Refer to the Brady II WCS for further details regarding the whooping crane.

4. If directed to do so and the Project obtained the proper permit, transport animal to nearby rehabilitation center or vet clinic. Any information from the rehabilitation/wildlife care personnel should be noted.
5. If animal was missing any appendages (e.g., a wing was amputated), try to locate missing appendage. If any pieces are found, bag and label with the following information: species, date injured animal was reported, and the nearest structure.
6. Every individual animal requires a Wildlife Incident Reporting form.
7. Answer every question and include any additional information that may be helpful. Too much information is better than not enough.
8. All questions shall be answered, even if the answer is “unknown”.
9. Once the Wildlife Incident Reporting form is completed it shall be emailed along with photographs to the Wildlife Program Manager. The Wildlife Incident Reporting form and photographs shall be submitted immediately.
10. Reporting federally and state-listed injured wildlife will follow the procedures outlined below.

EXTERNAL & INTERNAL NOTIFICATIONS

All wildlife discoveries at NextEra Energy wind sites must be reported internally via the WRRS Incident Report. Once the report is saved, PGD Environmental (PGDE) receives an e-mail notification of the new entry. A review of the entry and information is completed, and changes made at the time. This may include corrected species identification information.

In some cases, notification to Federal or State agencies may be required, if a discovery of an injured or dead eagle, or protected species is made.

Check with your Wind Site Manager to determine the process for landowner or rancher notifications if livestock carcasses are discovered. Livestock notifications should be made to ensure removal of carcasses of cattle or sheep. If an injured sheep or cow is found, a courtesy notification should be made as well.

GENERAL PROCEDURE

Due to the sensitivity of eagle and federally endangered species fatalities or injuries, it is very important these fatalities or incidents are recorded and reported immediately to the appropriate persons. Discussions and notifications with appropriate persons are critical to determine species, facts and potential risks (legal, operational, media).

1. The Wind Site Manager shall receive all pertinent information regarding incident, e.g., discovery of event, banding information, location, contact person, condition of find, photographs, etc.

2. Once the information is collected, The Wind Site Manager should immediately report to PGD Environmental and enter into the information into the WRRS database. In addition, the WSM should notify the Regional / General Operations Managers, and VP of Wind operations.
3. The Wind Site Manager should contact PGD Environmental for guidance on making notifications, including a determination of what agencies to notify. After this discussion, notifications should be made by the Wind Site Manager by phone or e-mail, whichever is deemed appropriate. The Wind Site Manager should document the date & time of the call, as well the name of the person receiving the report.
4. PGDE shall forward incident details via e-mail to the Division's Regional Business Manager, legal counsel, Juno Environmental Services, and corporate communications personnel. If necessary, PGDE will conference with the appropriate parties to discuss potential implications.

END