

## **APPENDIX A**

### **Agency Coordination**





## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Ecological Services  
420 South Garfield Avenue, Suite 400  
Pierre, South Dakota 57501-5408

November 26, 2007

Mr. Erik W. Jansen, Biologist  
Tetra Tech EC, Inc.  
1750 SW Harbor Way, Suite 400  
Portland, Oregon 97201

Re: Wind Energy Project Consultation,  
Eastern and North Central South  
Dakota

Dear Mr. Jansen:

This letter is in response to your request dated October 19, 2007, for listed threatened or endangered species and environmental comments regarding the above referenced project. Your letter indicates a general interest in wind energy development in all or portions of five counties in eastern and north-central South Dakota: the West half (W ½) of Grant County, the Northeast quarter (NE 1/4) of Codington County, the West half (W ½) and South half (S ½) of Deuel County, the Northeast quarter (NE 1/4) of Brookings County, and all of McPherson County.

In accordance with section 7(c) of the Endangered Species Act, as amended, 16 U.S.C. 1531 et seq., we have determined that the following federally listed species may occur in the project area (this list is considered valid for 90 days):

<u>Species</u>	<u>Status</u>	<u>Expected Occurrence</u>
American burying beetle ( <u>Nicrophorus americanus</u> )	Endangered	Historic Records, No Recent Specimens, Brookings County.
Western prairie fringed orchid ( <u>Platanthera praeclara</u> )	Threatened	Possible Habitat, No Recent Specimens, Brookings County.
Topeka shiner ( <u>Notropis topeka</u> )	Endangered	Known Resident in Codington, Deuel, and Brookings Counties.
Whooping crane ( <u>Grus americana</u> )	Endangered	Migration Records in Codington and McPherson Counties.
Dakota skipper ( <u>Hesperia dacotae</u> )	Candidate	Resident in Brookings, Codington, Deuel, Grant, and McPherson Counties.

While historic records of the American burying beetle exist for Brookings County, recent documentation of the species in South Dakota has occurred only in Todd, Gregory, and Bennett Counties. The American burying beetle was formerly known to occupy a broad geographic range, and habitat was not thought to be limiting. However, recent studies have shown some preference by this species for sandy or sandy-loam grasslands with interspersed stands of low-meadow cottonwoods. If this type of habitat exists at the proposed project areas, surveys for the American burying beetle should be considered and any results reported to this office.

The Western prairie fringed orchid has not recently been documented in South Dakota. However, the life cycle of the plant often makes it difficult to detect. Additionally, populations currently exist in the neighboring states of Nebraska, Iowa, Minnesota, and North Dakota, and potential habitat may still be found in South Dakota. Although the plant is typically associated with intact native prairie, the Western prairie fringed orchid has also been found on disturbed sites. Potential habitats generally include mesic upland prairies, wet prairies, sedge meadows, subirrigated prairies, and swales in sand dune complexes. If these habitats exist within the proposed project areas, surveys for the Western prairie fringed orchid should be considered prior to construction.

Topeka shiners are known to occupy numerous small streams within eastern South Dakota within the Big Sioux, Vermillion, and James River watersheds. Activities affecting instream habitat of waterways within any of these three watersheds (e.g., road crossings, loss of riparian buffer) have the potential to adversely impact this minnow.

The single self-sustaining migratory population of whooping cranes remaining in the wild migrates through South Dakota as it travels between northern breeding grounds and southern wintering areas. The species occupies numerous habitats such as cropland and pastures; wet meadows; shallow marshes; shallow portions of rivers, lakes, reservoirs, and stock ponds; and both freshwater and alkaline basins for feeding and loafing. Overnight roosting sites frequently require shallow water in which they stand and rest. Line strike mortality is one of the greatest threats to this species; collisions with distribution and transmission lines are the highest known source of mortality to fledged whooping cranes. Interactions of the species with wind turbines is currently not known but, as large birds with low maneuverability, they are deemed likely to be susceptible to collision mortality with turbines as well. It is also possible that these birds may avoid wind farm areas entirely, thereby suffering a loss of potential stopover habitat in South Dakota. Additionally, should construction occur during spring or fall migration, the potential for disturbances to whooping cranes exists. Any whooping crane sightings should be reported to this office. While the species has been noted further east in South Dakota, McPherson County is included as part of the species' primary migration corridor.

The Dakota skipper may also occur on some of the proposed project areas. The Dakota skipper is a candidate species and accordingly is not, at present, provided Federal protection under the Endangered Species Act. Their candidate status defines these butterflies as a species in decline that the U.S. Fish and Wildlife Service (Service) believes needs to be listed as threatened or endangered, but listing is currently precluded by other priorities. Dakota skippers are obligate residents of high quality prairie ranging from wet-mesic tallgrass prairie to dry-mesic mixed grass prairie. In northeastern South Dakota, Dakota skippers inhabit dry-mesic hill prairies with abundant purple coneflower but also use mesic to wet-mesic tallgrass prairie habitats characterized by wood lily and smooth camas. If this type of habitat exists in the proposed project areas, surveys for the species should be considered and results reported to this office.



Please note that the bald eagle (*Haliaeetus leucocephalus*) also occurs throughout South Dakota throughout the year, and new nests are appearing annually. While Endangered Species Act protections for the bald eagle have been removed, effective August 8, 2007, the species will continue to be protected under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA). These laws protect bald eagles from a variety of harmful actions and impacts. Our agency has developed guidance for the public regarding means to avoid take of the bald eagle under these laws. The National Bald Eagle Management Guidelines are available online at <http://www.fws.gov/migratorybirds/baldeagle.htm>. We recommend that you review these guidelines as they serve to advise you of circumstances where the laws may apply to your activities so that you may avoid potential violations of this law on future projects.

In addition to concerns related specifically to threatened and endangered species, primary concerns of the Service regarding wind farms are collision mortality, the loss of habitat, and habitat avoidance behaviors by wildlife. While there is still much to be learned regarding wind turbine-wildlife interactions, we do know that wind turbines can have adverse impacts on some species. Recent studies of grassland nesting birds have shown a tendency for avoidance of areas immediately surrounding turbines; thus, when considering the issues of habitat fragmentation and grassland bird avoidance, the area impacted may be larger than the final footprint of the project.

The Service has developed voluntary interim guidelines to assist energy companies in accomplishing the goal of reducing the risk posed by turbines to wildlife. You may access these guidelines on the internet at: <http://www.fws.gov/habitatconservation/wind.htm>. The guidelines stress the importance of proper evaluation of potential wind turbine development sites, proper location and design of turbines and related facilities, and pre- and post-construction research and monitoring.

Areas of interest identified in your letter contain grassland with relatively high density of a variety of wetland types interspersed, McPherson County in particular. Areas in northeastern South Dakota contain ridge lines and rolling topography with quality forest/shrub/grass habitats. Thus, some areas identified in your letter may exhibit relatively high value for wildlife, particularly avian species. Currently the best means of avoiding impacts to wildlife by wind farms is to avoid such high wildlife use areas. Placement of turbines within existing cropland or in/near developed areas is recommended for this reason.

If placement of wind farms and associated facilities must occur within intact native habitats, offsetting and/or mitigative measures should be considered to compensate for loss and fragmentation of wildlife habitat. Additionally, a mixture of native grasses and forbs typical of those found in this region should be planted to reclaim temporarily disturbed areas. Monitoring and contingency measures should be worked into reclamation plans to ensure that the native prairie is reestablished and that invasive weeds do not overtake disturbed sites.

Please note that the South Dakota Department of Game, Fish and Parks (SDDGFP) has coordinated with the South Dakota Public Utilities Commission (SDPUC) regarding distribution of the SDDGFP's "Siting Guidelines for Wind Power Projects in South Dakota" to wind developers intending to construct projects within the state of South Dakota. You may wish to contact the SDPUC and/or the Wildlife Diversity Division of the SDDGFP in Pierre, South Dakota, for more information. Contact information may be found on their respective web sites: <http://www.state.sd.us/puc/index.htm> and <http://www.sdgifp.info/Wildlife/Diversity/index.htm>. The guidelines themselves may be found on the internet at: <http://www.sdgifp.info/wildlife/diversity/windpower.htm>.

Additionally, bats are known to suffer mortality due to collisions with wind turbines. The SDDGFP has completed a State Management Plan for bats and may be able to provide additional information and/or recommendations regarding this project. If you have not already done so, please contact Ms. Silka Kempema at the SDDGFP-Wildlife Division, Joe Foss Building, 523 East Capitol Avenue, Pierre, South Dakota 57501, Telephone No. (605) 773-2742, for more information.

The Northern Prairie Wildlife Research Center of Jamestown, North Dakota, has initiated studies of avian responses to wind turbines in both North Dakota and South Dakota. This research may be relevant to your project. We recommend that you contact Ms. Jill Shaffer of the Northern Prairie Wildlife Research Center at (701) 253-5547 for more information.

Please note that the Service owns easement rights on numerous private properties in the state in addition to fee title ownership of Waterfowl Production Areas (WPA). Concentrations of WPA's and easements are further indication of high wildlife values of certain areas in South Dakota. The Service currently has a policy regarding placement of turbines on easements. We refer you to our Wetland Management Districts for actions that may impact easements or WPA's (see table below) and anticipate being kept informed of any actions that may impact these properties.

Office	Jurisdiction	Address	Phone
Madison Wetland Management District	Deuel, Brookings	P.O. Box 48, Madison, SD 57042	(605) 256-2974
Waubay Wetland Management District	Grant, Codington	44401 134A Street Waubay, SD 57273	(605) 947-4521
Sand Lake Wetland Management District	McPherson	39650 Sand Lake Drive Columbia, SD 57433	(605) 885-6320

Although your letter did not mention meteorological towers, it is our understanding that meteorological towers are often constructed in association with wind turbines and that these structures are often similar in design to typical communications towers: tall, lighted, lattice structured, and guyed. These types of towers can be problematic for birds that may fly into the light of the towers and may become reluctant to leave the lighted area, particularly during inclement weather. Mortality results as the birds circle the structure and collide with the guy wires or the lattice of the tower itself. We presume that if meteorological tower(s) have not already been established as part of the proposed projects, they may be in the future. We recommend review of the guidance set forth in U.S. Fish and Wildlife Service Interim Guidelines for Recommendations on Communications Tower Siting, Construction, Operation and Decommissioning available on the internet at <http://migratorybirds.fws.gov/issues/towers/comtow.html>, and application of any retrofit measures possible to minimize the threat of avian mortality.

As with towers, the above ground utilities proposed in association with turbine projects (overhead transmission or distribution lines and substations) pose the risk of collision mortality and/or electrocution of birds. In addition to whooping cranes (previously mentioned), thousands of other birds are killed annually as they attempt to utilize overhead power lines or areas near power lines as nesting, hunting, resting, feeding, and sunning sites. Transmission lines are typically less problematic than distribution lines in terms of electrocutions due to their relatively

larger size and spacing between conductive components but still pose a collision mortality risk. Proposed substations may also pose a risk of electrocutions.

We recommend the installation of underground, rather than overhead, power lines whenever possible and appropriate to minimize avian mortality and environmental disturbances. For all new above ground facilities, overhead lines or modernization of old overhead lines, we recommend incorporating measures to prevent avian electrocutions and collisions. The publication entitled "Suggested Practices for Avian Protection on Power Lines - The State of the Art in 2006" has many good suggestions including pole extensions, modified positioning of live phase conductors and ground wires, placement of perch guards and elevated perches, elimination of cross arms, use of wood (not metal) braces, and installation of various insulating covers. You may obtain this publication by contacting the Edison Electric Institute on the internet via their website at [www.eei.org](http://www.eei.org) or by calling 1-800-334-5453.

Additional information regarding simple, effective ways to prevent raptor electrocutions on power lines is available in video form. "Raptors at Risk" may be obtained by contacting EDM International, Inc. at 4001 Automation Way, Fort Collins, Colorado 80525-3479, Telephone No. (970) 204-4001, or by visiting their web site at <http://www.edmlink.com/raptorvideo.htm>.

We also recommend marking overhead lines in order to make them more visible to birds. Orange or yellow aviation balls are frequently used for this purpose, but other types of marking devices are also available. For more information on bird strikes, please see "Mitigating Bird Collisions With Power Lines: The State of the Art in 1994" which may be obtained by contacting the Edison Electric Institute at the same web site and telephone number listed above.

The Service has coordinated with the Avian Power Line Interaction Committee (APLIC) to develop guidelines to assist utility companies in formulating Avian Protection Plans. These plans are utility-specific and designed to reduce avian and operational risks that result from avian interactions with electric utility facilities. We submit that these guidelines may also be adapted to wind farms, and we encourage wind energy facilities to investigate the formulation of Avian Protection Plans for their projects. These guidelines may be accessed at the APLIC's web site, <http://www.aplic.org/>.

The Service's guidance on bald eagles, communications towers, and wind turbines, as well as the APP guidelines and "Suggested Practices . . ." publications will provide some protection for migratory birds; however, implementation of these measures will not remove any liability should violations of the law occur. Please be apprised of the potential application of the Migratory Bird Treaty Act of 1918 (MBTA), as amended, 16 U.S.C. 703 et seq., and the Bald Eagle Protection Act of 1940 (BEPA), as amended, 16 U.S.C. 668 et seq., to the project(s). The MBTA does not require intent to be proven and does not allow for "take," except as permitted by regulations. Section 703 of the MBTA provides: "Unless and except as permitted by regulations . . . it shall be unlawful at any time, by any means, or in any manner, to . . . take, capture, kill, attempt to take, capture, or kill, possess . . . any migratory bird, any part, nest, or eggs of any such bird . . ." The BEPA prohibits knowingly taking, or taking with wanton disregard for the consequences of an activity, any bald or golden eagles or their body parts, nests, or eggs, which includes collection, molestation, disturbance, or killing activities.

Our foremost recommendation to preclude impacts to migratory birds, federally listed species, and other wildlife by wind energy development is to avoid placing wind farms in high wildlife use areas.

If the a Federal agency is involved in the proposed projects, that agency or their designated representative must determine whether adverse affects may be incurred on listed species in South Dakota and, if so, should request formal consultation from this office. If a "may affect - not likely to adversely affect" determination is made for this project, it should be submitted to this office for concurrence. If a "no effect" determination is made, further consultation may not be necessary. However, a copy of the determination should be sent to this office. Private companies with no Federal nexus should be advised of the potential to impact listed species and note that avenues exist to obtain take permits for their actions via further consultation with this office.

If changes are made in the project plans or operating criteria, or if additional information becomes available, the Service should be informed so that the above determinations can be reconsidered.

The Service appreciates the opportunity to provide comments. If you have any questions regarding these comments, please contact Natalie Gates of this office at (605) 224-8693, Extension 234.

Sincerely,



Pete Gober  
Field Supervisor  
South Dakota Field Office

cc: USGS; Jamestown, ND  
(Attention: Jill Shaffer)  
Secretary, SDDGFP; Pierre, SD  
(Attention: Silka Kempema)  
USFWS; Madison, SD  
(Attention: Tom Tornow)  
USFWS; Waubay, SD  
(Attention: Larry Martin)  
USFWS; Columbia, SD  
(Attention: Gene Williams)

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## U.S. FISH AND WILDLIFE SERVICE

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Date:

11/27/07TO Erik JansenAGENCY Tetra TechCITY PortlandSTATE ORFACSIMILE NO. 503 227 1287 COMMERCIAL NO. \_\_\_\_\_FROM Natalie GatesSUBJECT bird Proposal USFWS Response

MESSAGE \_\_\_\_\_

Fax As requested, ErikNatalie

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## DEPARTMENT OF GAME, FISH AND PARKS

Foss Building  
523 East Capitol  
Pierre, South Dakota 57501-3182

December 3, 2007

Erik W. Jansen, Biologist  
Tetra Tech EC, Inc.  
1750 SW Harbor Way, Suite 400  
Portland, OR 97201

RE: Environmental review of Eastern and North-central Wind Resource Area as potential wind power project areas

Dear Mr. Jansen:

The following comments are in response to your letter dated 19 October 2007 requesting environmental considerations and concerns of the Eastern (W1/2 Grant Co., NE 1/4 Codington Co., W1/2, S1/2 Duel Co., and NE1/4 Brookings Co.) and North-central (McPherson County) Wind Resource Areas.

The proposed siting and operation of these wind power projects have potential to directly and indirectly impact area wildlife by killing bats and birds through wind turbine and power line strikes and altering important and declining habitats and breeding and movement behavior of wildlife. While we applaud efforts to provide alternative energy sources, we offer the following considerations for your planning efforts, encouraging responsible siting and mitigation where appropriate to avoid or lessen direct and indirect impacts. As requested, I have provided separate comments for each wind resource area in addition to final comments that apply to any other potential wind power project in South Dakota.

### Eastern Wind Resource Area (EWRA)

**Grasslands** - The EWRA is located within the tall-grass prairie zone. Native grasslands within this zone are decreasing at an alarming rate. Less than one percent of native tall-grass prairie habitat in South Dakota remains (Samson et al. 1998). Other grassland types such as rangeland (grazed grasslands with native plant spp.), pasture (grazed grasslands with non-native plant spp.) and Conservation Reserve Program lands (tilled land planted to vegetative cover) serve as grassland wildlife habitat (Haufler 2005). Fragmentation resulting from woody encroachment, road construction, and conversion of surrounding habitat has resulted in the remaining grassland habitats existing as smaller disjunct patches. Patches often provide less suitable habitat for many native species of grassland wildlife. Some of the last remaining contiguous grasslands tracts occur along the Coteau escarpment that angles through the EWRA.

**Grassland birds** - Placement of turbines in this area may fragment grassland wildlife habitat reducing its suitability to serve as habitat and modify behavior of grassland bird species, a group of species which has shown the most consistent and long term declines of any other group of bird species in North America (Peterjohn and Sauer 1999). This area is known to have abundant sharp-tailed grouse populations. Greater prairie chickens also are present. The greater prairie chicken is a species known to be area-sensitive, requiring comparatively large tracts of open, contiguous grassland. The lesser prairie chicken, a similar species found more commonly in the southern Great Plains, avoids nesting within 400 m of transmission lines or improved roads (Pitman et al 2004). This highly suggests that placement of turbines and associated infrastructure (roads and transmission lines) may also negatively affect greater prairie chickens.

Birds are susceptible to direct strikes with wind turbines. Based on a study conducted in the Buffalo Ridge area of Minnesota, species with known wind turbine strike mortality and are known to occur in the EWRA include grasshopper sparrow and western meadowlark (Higgins et al 2007).

Properly timed, species-appropriate surveys for prairie grouse (greater prairie chickens and sharp-tailed grouse) and other grassland bird species should be conducted pre-construction. Prairie grouse surveys should be conducted in spring when breeding individuals are on communal display grounds (leks). Surveys for other breeding grassland birds are best conducted in June, although mid-May through early July is acceptable.

**Butterflies** - Four rare butterfly species are located within the EWRA. These species are classified as Species of Greatest Conservation Need, as listed in our State Wildlife Action Plan ([http://www.sdgifp.info/Wildlife/Diversity/Comp\\_Plan.htm](http://www.sdgifp.info/Wildlife/Diversity/Comp_Plan.htm)) and are rare species monitored by our Natural Heritage Program (NHP). They include: 1) Dakota skipper, 2) Powesheik skipperling, 3) regal fritillary, and 4) Ottoe skipper.

The range of the Dakota skipper in South Dakota is limited to eleven counties in the north eastern portion of the state. The Dakota skipper requires native mid- to tall-grass prairie and is found on rolling rangeland with abundant wetlands. Larval host plants are grasses, especially little bluestem. Flight of emerging adults occurs from June to mid-July. This species is a candidate for listing under the Federal Endangered Species Act (ESA). As such, I recommend contacting the U.S. Fish and Wildlife Ecological Services Field office in Pierre, South Dakota (605-224-8693) for further information regarding the protection of this species required under ESA. Current threats to this species include, but are not limited to, improper land management uses, agricultural cultivation, road construction, and invasive plant species. South Dakota populations are important to the existence of this species and approximately half of known populations are located on private lands.

The Powesheik skipperling distribution in South Dakota also is limited to eleven counties in the north eastern portion of the state. The Powesheik skipperling prefers native tall-grass prairie and wetlands. Larval host plants are sedges. Flight of emerging adults occurs primarily in July. Threats include excessive prescribed burning, loss of habitat due to conversion to other uses, invasive plants, population isolation, and extreme population crashes.



The regal fritillary is rapidly declining across its range in the United States. In South Dakota, its range is restricted to native prairie sites. Some of the last strongholds of this species are located in prairie states, such as South Dakota, with areas of large expanses of suitable habitat (such as the EWRA) that support larval host plants (violets). Flight periods are from June to September. Threats include loss and fragmentation of habitat to agriculture (excluding grazing or haying), conversion to cropland, woody encroachment, chemicals (e.g., pesticides and herbicides), and improper fire management.

The Ottoe skipper also requires relatively undisturbed native prairie with nectar sources (coneflowers, grayfeathers, asters, etc). It is uncommon to rare throughout the state. Peak flight for the Ottoe skipper is in mid-July. The reduction and degradation of prairie habitat is the main threat to this species.

The conservation of the four rare butterfly species documented in the EWRA requires protection of remaining undisturbed tracts of native prairie with associated nectar sources and larval host plants. There are potential disturbances to these rare butterfly species associated with the construction and maintenance of a wind power project. Road construction and turbine pad maintenance increases the chances of non-native, invasive plant species invasion. Chemical control of these species is a known threat. Pre-construction surveys for these species should be conducted during the appropriate times (flight periods). Construction in areas that are or potential butterfly habitat should be avoided.

**Wetlands** - The proposed project area is located within the Prairie Pothole region. This glaciated region, characterized by high densities of wetland basins of various depths and sizes, extends from Iowa into Minnesota, the Dakotas, Montana and parts of Canada. It is the major waterfowl production area in North America. Wetland losses in the Prairie Pothole Region are staggering and range from 99% in Iowa to 35% in South Dakota. Wetland basin densities (# of basins/10 mi<sup>2</sup>) in the EWRA range from 90 to over 420 basins/10 miles<sup>2</sup>. More specifically, this area is known to have some of the highest seasonal and semipermanent wetland basin densities in the state (Johnson and Higgins 1997). These remaining, high density wetlands provide critical wildlife habitat.

**Wetland birds** - Waterbird species such as loons, black terns, great egrets, and green backed herons are known to occur in the EWRA. Abundant waterfowl such as mallard, blue-winged teal, redhead, ruddy duck, American coot, and bufflehead also can be found in the area. Birds are susceptible to direct strikes with wind turbines. Based on a study conducted in the Buffalo Ridge area of Minnesota, species with known wind turbine strike mortality and are known to occur in the EWRA include ruddy duck, American coot, and Franklin's gull (Higgins et al 2007). Proper siting of turbines outside of daily and seasonal migration routes of waterbirds and waterfowl and the protection of remaining wetlands within the proposed project area is crucial to reduce the impact to wetland dependent species.

**Bats** - Bats forage and migrate along rivers, streams, and lakes. Construction of a wind power plant may affect daily and seasonal bat movements between breeding and foraging areas. Thirteen species of bats are found in South Dakota, some of which are summer residents, year-round residents, or migratory (Table 1).

Table 1. South Dakota Bats

Common Name	Scientific Name	State Residency
Big Brown Bat	<i>Eptesicus fuscus</i>	Year-round resident
Fringed Myotis	<i>Myotis thysanodes</i>	Year-round resident
Little Brown Myotis	<i>Myotis lucifugus</i>	Year-round resident
Long-eared Myotis	<i>Myotis evotis</i>	Year-round resident
Long-legged Myotis	<i>Myotis volans</i>	Year-round resident
Northern Myotis	<i>Myotis septentrionalis</i>	Year-round resident
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	Year-round resident
Western Small-footed Myotis	<i>Myotis ciliolabrum</i>	Year-round resident
Hoary Bat	<i>Lasiurus cinereus</i>	Summer resident
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	Summer resident
Evening Bat	<i>Nycticeius humeralis</i>	Migratory
Eastern pipistrell	<i>Pipistrellus subflavus</i>	unclassified

There has been limited research conducted on bats in South Dakota. However, Swier (2006) reported four species of bats occurring near the EWRA: 1) big brown bat, 2) Eastern red bat, 3) hoary bat, and 4) little brown myotis.

Six bat species are considered rare and monitored by the NHP: 1) long-eared myotis, 2) fringed myotis, 3) Northern myotis, 4) silver-haired bat, 5) Townsend's big-eared bat, and 6) evening bat. Although the NHP data base has no records of these species in the proposed project area, this does not preclude the presence of any of these species in the area. Because of limited, EWRA-specific data, we would suggest pre-construction surveys of the area for potential bat habitat and species. Surveys for species should be conducted for at least one full year before construction.

Recently, South Dakota Department of Game, Fish and Parks (SDGFP) in cooperation with the South Dakota Bat Working Group (SDGWG), developed a South Dakota Bat Management Plan specific to bats and their habitats in South Dakota (<http://www.sdgfp.info/Wildlife/Diversity/batmanagmentplan71304.pdf>). Please review this document for pertinent information. Again, because bats reside and migrate through South Dakota, it is important to evaluate the propose project area for roosting, feeding, migration and/or stopover habitat and to survey these areas for bats.

**Landscape considerations** - Placement of a wind power project should take into account larger landscape-level (e.g. surrounding land uses) and cumulative impacts (e.g. existing and potential wind power projects) as well as project associated infrastructure (i.e. transmission lines and roads).

**Public lands** - Several Game Production Areas within the EWRA are managed by SDGFP. Placement of public lands is often done so in areas with existing and potential wildlife habitat. Management of these lands, for wildlife, is conducted in the public interest. In addition, several USFWS Waterfowl Protection Areas are also located within the EWRA. Public lands managed

for wildlife may be affected by the placement of a wind power project in the vicinity.

**Migrating wildlife** - The resulting mosaic of grassland and wetland basins and corridors makes it an important migration route for birds (e.g., neotropical migrants, shorebirds, and waterfowl). The Central Flyway, an important pathway for migratory ducks, geese, swans, and cranes runs through the midsection of the country, including South Dakota. Species using this flyway during migration, and particularly during inclement weather when birds alter their flight altitude, may suffer increased mortality due to direct strikes with wind turbines and associated power lines. Appropriately timed, pre-construction surveys for migratory bird species should be conducted. Spring migration can begin as early as late-March, early-April, tapering off in mid-May, depending on the species. Fall migration can begin as early as mid-July and extend through October/November depending on weather conditions and species.

**Powerlines** - Construction of powerlines is often associated with a proposed wind power project. Power line strikes are a known cause of mortality to birds (Erickson et al. 2005). Waterfowl (ducks, geese, swans, and cranes), raptors, and passerines are species most susceptible to powerline collisions. The Avian Protection Power line Interaction Committee (APLIC) has developed two documents that may be of use to reduce powerline strikes and mortality: 1) 'Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006' and 2) 'Mitigating Bird Collisions with Power lines'. Both of these documents are available from the Edison Institute (<http://www.aplic.org/>, under 'products and services'). The new and existing power lines associated with the proposed project should be buried, marked, or retrofitted to reduce strikes and electrocutions of bird species.

**Non-native species** - During the construction and maintenance phase of a wind power project existing roads often experience increased traffic and new roads are constructed. This increases the amount of area disturbed and allows for the introduction and establishment of non-native species. Resulting control of those species through pesticides and herbicides may also impact habitats of rare wildlife species. Non-native species are one of the major threats to rare and declining wildlife species. Improved access can also increase human activity in the area.

The matrix of grassland and wetland habitats in the proposed project area plays a crucial role in the life history of several wildlife species whether migratory or resident. Because of the potential impacts placement of the proposed wind power project would have on unique and declining habitats in the region and their associated species, we recommend the placement of turbines in areas currently disturbed (e.g. cultivated areas) and the use of existing infrastructure (roads and transmission lines) as much as possible.

## North-central Wind Resource Area (McPherson County)

**Grassland habitat** - McPherson County is located within the mixed-grass prairie zone. In the United States, native mixed-grass prairie is disappearing at an alarming rate. In South Dakota, the area of mixed-grass prairie has decreased 70% (Samson et al. 1998). The native prairie that still remains is most often grazed (i.e. rangeland). These and other grassland types such as pasture (grazed grasslands of non-native plant spp.) and Conservation Reserve Program lands (tilled land idled and planted to vegetative cover) also serve as grassland wildlife habitat (Haufler 2005). Fragmentation resulting from woody encroachment, road construction, and conversion of surrounding habitat has resulted in the remaining grassland habitats existing as smaller disjunct patches. Patches often provide less suitable habitat for many native species of grassland wildlife. McPherson County has large tracts of contiguous grassland habitat (including rangeland) located along the ridge extending through Wacker, Weber, Hoffman, and Central McPherson townships.

**Grassland birds** - Placement of turbines in this area may fragment grassland wildlife habitat reducing its suitability to serve as habitat and modify behavior of grassland bird species, a group of species which has shown the most consistent and long term declines of any other group of species in North America (Peterjohn and Sauer 1999). Two grassland bird species, Baird's sparrow and Sprague's pipit, are known to occur in McPherson County. Range-wide, both of these species have exhibited significant long term negative population trends. In South Dakota, these species hold special conservation status and are classified as Species of Greatest Conservation Need, as listed in our State Wildlife Action Plan ([http://www.sdgap.info/Wildlife/Diversity/Comp\\_Plan.htm](http://www.sdgap.info/Wildlife/Diversity/Comp_Plan.htm)) and are rare species monitored by our NHP. In addition, these species are considered Grassland Species of Concern in South Dakota (Bakker 2005). Regionally they are Species of Special Concern as defined by Partner's in Flight and are considered a Species of Conservation Concern by the USFWS. The amount of emphasis placed on the conservation of these species indicates populations are declining.

Baird's sparrows breed in the north-western and north-central part of the state. Throughout most of its breeding range, it is known to prefer native mixed grass prairie interspersed with forbs (broad-leaved, herbaceous plant), moderate amounts of litter (dead layers of vegetation), and little to no shrub cover. Although the Baird's Sparrow has a strong tendency to prefer native prairie, it can be observed in non-native grasslands (e.g. crested wheatgrass) that provide appropriate habitat structure. Baird's sparrows are known to prefer large patches of grassland habitat and show avoidance of areas with extensive woody vegetation and areas near roads.

Sprague's pipits are found in the northwestern portion of the state, preferring plains and short-grass prairie with intermediate vegetation height. This species prefers native prairie, although they are known to occupy habitat consisting of non-native plant species. Sprague's pipits are most common in large contiguous grassland areas and are known to be area sensitive.

Properly timed, species-appropriate pre-construction surveys should be conducted for grassland bird species. Surveys for most breeding grassland birds are best conducted in June, although mid-May through early July is suitable. Prairie grouse surveys should be conducted in spring when breeding individuals are on communal display grounds (leks).

**Wetland habitats** - McPherson County is located within the Prairie Pothole Region. This glaciated region, characterized by a diversity and quantity of basin wetlands, extends from Iowa into Minnesota, the Dakotas, Montana and parts of Canada. It is the major waterfowl production area in North America. Wetland losses in the Prairie Pothole Region are staggering and ranging from 99% in Iowa to 35% in South Dakota. Throughout McPherson County, wetland basin density is high (270 - over 420 basins/10 mi<sup>2</sup>). More specifically, the eastern quarter of the County has some of the highest concentrations of temporary and seasonal wetlands (Johnson and Higgins 1997) in the state. Remaining wetlands provide important wildlife habitat.

**Wetland birds** - In terms of waterfowl breeding activity, the western two-thirds of McPherson County has over 100 breeding duck pairs/mi<sup>2</sup>. This is some of the highest breeding waterfowl densities in the Prairie Pothole region. Conservation of this habitat also is critical to waterbirds and shorebirds for breeding, feeding, and migration habitat.

**Bird diversity** - Reflective of the diversity and quality of native wetland and grassland habitats in the region, the northeastern portion of McPherson County has some of the highest bird species richness in the state (Peterson 1995). This is based upon data gathered from a five-year, state-wide breeding bird survey efforts.

**Bats** - Bats forage and migrate along rivers, streams and lakes. Construction of a wind power project may affect daily and seasonal bat movements between breeding and foraging areas. Thirteen species of bats are found in South Dakota, some of which are summer residents, year-round residents, or migratory (Table 1). There has been limited research conducted on bats in South Dakota, especially in McPherson County. The NHP database has no records of bat species considered rare in the proposed project. However, this does not preclude the presence of any of these or other bat species in the area. Because of limited information on bats in McPherson County, we would suggest pre-construction surveys of the area for potential bat habitat and species. Surveys for species should be conducted for at least one full year before construction.

Recently, SDGFP in cooperation with the SDBWG, developed a South Dakota Bat Management Plan specific to bats and their habitats in South Dakota (<http://www.sdgfp.info/Wildlife/Diversity/batmanagementplan71304.pdf>). Please review this document for pertinent information. Again, because bats reside and migrate through South Dakota, it is important to evaluate the propose project area for roosting, feeding, migration and/or stopover habitat and to survey these areas for bats.

**Landscape considerations** - Placement of a wind power project should take into account larger landscape-level (e.g. surrounding land uses) and cumulative impacts (e.g. existing and potential wind power projects) as well as project associated infrastructure (i.e. transmission lines, roads).

**Public lands** - Several Game Production Areas within McPherson County are managed by SDGFP. Placement of public lands is often done so in areas with existing and potential wildlife habitat. Management of these lands, for wildlife, is conducted in the public interest. In addition, several U. S. Fish and Wildlife Service Waterfowl Protection Areas are also located within McPherson County. Public lands managed for wildlife may be affected by the placement of a

wind power project in the vicinity.

**Migrating wildlife** - The resulting mosaic of grassland and wetland basins and corridors in the County make it an important migration route for birds (e.g., neotropical migrants, shorebirds, waterfowl). The Central Flyway, an important pathway for migratory ducks, geese, swans, and cranes runs through the midsection of the country, including South Dakota. Species using this flyway during migration, and particularly during inclement weather when birds alter their flight altitude, may suffer increased mortality due to direct strikes with wind turbines and associated power lines. Appropriately timed, pre-construction surveys for migratory bird species should be conducted. Spring migration can begin as early as late-March, early-April, tapering off in mid-May, depending on the species. Fall migration can begin as early as mid-July and extend through October/November depending on weather conditions and species.

**Powerlines** - Construction of powerlines is often associated with a proposed wind power project. Power line strikes are a known cause of mortality to birds (Erickson et al. 2005). Waterfowl (ducks, geese, swans, and cranes), raptors, and passerines are species most susceptible to powerline collisions. The Avian Protection Power line Interaction Committee (APLIC) has developed two documents that may be of use to reduce powerline strikes and mortality: 1) 'Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006' and 2) 'Mitigating Bird Collisions with Power lines'. Both of these documents are available from the Edison Institute (<http://www.aplic.org/>, under 'products and services'). The new and existing power lines associated with the proposed project should be buried, marked, or retrofitted to reduce strikes and electrocutions of bird species.

**Non-native species** - During the construction and maintenance phase of a wind power projects existing roads often experience increased traffic and new roads are constructed. This increases the amount of area disturbed and allows for the introduction and establishment of non-native species. Resulting control of those species through pesticides and herbicides may also impact habitats of rare wildlife species. Non-native species are one of the major threats to rare and declining wildlife species. Improved access can also increase human activity in the area.

The matrix of grassland and wetland habitats in the proposed project area plays a crucial role in the life history of several wildlife species whether migratory or resident. Because of the potential impacts placement of the proposed wind power project would have on unique and declining habitats in the region and their associated species, we recommend the placement of turbines in areas currently disturbed (e.g. cultivated areas) and the use of existing infrastructure (roads and transmission lines) as much as possible.

## Research and Monitoring


As outlined above, our agency has concerns regarding direct and indirect impacts to wildlife and habitats in association with the siting of the proposed project. Before project construction, appropriate monitoring should be conducted to determine bird and bat use of the project areas. Based upon results of these studies, project construction should be modified, continued, or cancelled. If the project is continued, monitoring should be conducted for a minimum of two years post-construction to determine if and how many bird and bat strikes are caused by this project, if habitats have been significantly altered, and if the surrounding public lands and their uses have been impacted. Any mitigation should be carefully planned, funded, and followed.

If monitoring involves live trapping or collection of wildlife species, you must first obtain a collection permit from our agency. Also, we kindly request that if you or your associates observe any of the animal (<http://www.sdgifp.info/Wildlife/Diversity/RareAnimal.htm>) or plant species (<http://www.sdgifp.info/Wildlife/Diversity/rareplant2002.htm>) monitored by the NHP, please contact myself or any of our NHP staff ([http://www.sdgifp.info/Wildlife/Diversity/staff\\_contact.htm](http://www.sdgifp.info/Wildlife/Diversity/staff_contact.htm)).

In coordination with the SDBWG, the SDGFP has developed 'Siting Guidelines for Wind Power Projects in South Dakota' This document addresses many of the concerns involved with siting wind power projects in South Dakota and may be found at on the world wide web (<http://www.sdgifp.info/Wildlife/Diversity/windpower.htm>). I have enclosed a copy for your convenience.

The SDGFP appreciates the opportunity to provide comments on the proposed project wind resource areas. As plans are further refined, I would be willing to conduct a site visit with you or your associates to continue to provide siting recommendations to reduce conflicts with wildlife. If you have any questions on the above comments, please feel free to contact me at 605-773-2742 or [Silka.Kempema@state.sd.us](mailto:Silka.Kempema@state.sd.us).

Regards,



Silka L. F. Kempema  
Terrestrial Wildlife Biologist

CC: Natalie Gates, US Fish and Wildlife Service, Pierre, SD  
Will Morlock, SD Game, Fish and Parks, Watertown, SD  
Mary Clawson, SD Game, Fish and Parks, Aberdeen, SD

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CPA-0113  
United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services  
420 South Garfield Avenue, Suite 400  
Pierre, South Dakota 57501-5408

February 5, 2010

Ms. Anne-Marie Griger  
Tetra Tech, EC Inc.  
7800 Shoal Creek Boulevard, Suite 253 East  
Austin, Texas 78757

Re: Proposed Crowned Ridge Wind Energy  
Center, Codington and Grant Counties,  
South Dakota

Dear Ms. Griger:

This letter is in response to your request dated December 7, 2009, for environmental comments regarding the above referenced project involving construction of a wind farm up to 150 megawatts in size and an associated 34-mile transmission line. The proposed location of the project is north and east of the city of Watertown and includes various sections within Townships 118- 121 North, Ranges 48-52 West, Codington and Grant Counties, South Dakota. Herein we provide information regarding U.S. Fish and Wildlife Service (Service) trust resources, including easement properties, federally endangered species, eagles, birds of conservation concern, and other migratory birds that may occur in the project area. We have included recommended measures to be applied to various components of a wind farm, including meteorological towers, power lines, and the turbines themselves in order to minimize impacts to Service trust resources and to assist the development company in achieving compliance with Federal laws.

**Threatened/Endangered Species**

In accordance with section 7(c) of the Endangered Species Act (ESA), as amended, 16 U.S.C. 1531 et seq., we have determined that the following federally listed species may occur in the project area (this list is considered valid for 90 days):

<u>Species</u>	<u>Status</u>	<u>Expected Occurrence</u>
Topeka shiner ( <u>Notropis topeka</u> )	Endangered	Known Resident.

Topeka shiners are known to occupy numerous small streams within eastern South Dakota and are concentrated within the Big Sioux, Vermillion, and James River watersheds. Willow Creek in the Big Sioux watershed of Codington County is a known occupied stream with a tributary that appears to fall within the project area. Project activities that may impact this waterway directly or indirectly have the potential to negatively affect the Topeka shiner. The Service recommends avoidance of these impacts, particularly related to instream work. Further consultation may be required to determine the possibility of adverse affects to this species.

As indicated by Appendix 1 included with your letter (Summary of Surveys Conducted to Date), you are aware that the Dakota skipper (Hesperia dacotae) is known to occur in northeastern South Dakota. The Dakota skipper is a candidate species and accordingly is not, at present, provided Federal protection under the ESA. Their candidate status defines these butterflies as a species in decline that the Service believes needs to be listed as threatened or endangered, but listing is currently precluded by other priorities. Dakota skippers are obligate residents of high quality prairie ranging from wet-mesic tallgrass prairie to dry-mesic mixed grass prairie. In northeastern South Dakota, Dakota skippers inhabit dry-mesic hill prairies with abundant purple coneflower but also use mesic to wet-mesic tallgrass prairie habitats characterized by wood lily and smooth camas. Per your surveys, it appears that significant percentages of good to excellent Dakota skipper grasslands exist in the project area. Surveys for this species by a qualified biologist may be useful to confirm the ranking of habitat (excellent, good, poor) described in the summary of surveys. The Service requests the results of any such surveys and recommends avoidance and minimization of impacts to Dakota skipper habitats.

If a Federal nexus exists for this project and the Federal action agency or their designated representative determines that the project "may adversely affect" listed species in South Dakota, it should request formal consultation from this office. If a "may affect - not likely to adversely affect" determination is made for this project, it should be submitted to this office for concurrence. If a "no effect" determination is made, further consultation may not be necessary; however, a copy of the determination should be forwarded to our office.

Please note that, if impacts to federally listed species may occur as a result of projects with no Federal nexus, avenues to avoid violations of section 9 of the ESA should be investigated via contact with this office.

### **Bald and Golden Eagles**

A golden eagle was reported in Appendix 1 included with your letter (Summary of Surveys Conducted to Date). Please note also that the bald eagle (Haliaeetus leucocephalus) occurs throughout South Dakota in all seasons, and new nests are appearing each year. While ESA protections for the bald eagle have been removed, effective August 8, 2007, both bald and golden eagles will continue to be protected under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) (more on these laws below). These laws protect eagles from a variety of harmful actions and impacts. The Service has developed guidance for the public regarding means to avoid take of the bald eagle under these laws. The "*National Bald Eagle Management Guidelines*" are available online at: <http://www.fws.gov/migratorybirds/baldeagle.htm>. We recommend reviewing these guidelines as they serve to advise of circumstances where these laws may apply and to assist in avoiding potential violations on this and future projects. Additionally, permit regulations have been published for bald eagles and golden eagles. These regulations may be found in the Federal Register (Volume 74, No. 175, Friday, September 11, 2009) online at: <http://www.gpoaccess.gov/fr/index.html>.

### **Birds of Conservation Concern**

Your survey efforts revealed South Dakota state-sensitive species in the project area. Please note that the Migratory Birds Division of the Service has identified bird species of conservation concern: "*Birds of Conservation Concern 2008*" may be found online at: <http://www.fws.gov/migratorybirds/NewReportsPublications/SpecialTopics/BCC2008/BCC2008.pdf>. This document is intended to identify species in need of coordinated and proactive



conservation efforts among State, Federal, and private entities, with the goals of precluding future evaluation of these species for ESA protections and promoting/conserving long-term avian diversity. A primary threat to many of these species is habitat loss and fragmentation.

In accordance with Executive Order 13186 regarding migratory bird protection, we recommend avoidance, minimization, and finally compensation to reduce the impacts to species protected by the MBTA. Compliance with this law may be partially addressed in an Avian and Bat Protection Plan (see below); however, a separate mitigation plan that specifically addresses direct and indirect take of birds during and after construction is also recommended. Particularly if placement must occur within intact native habitats, we strongly recommend development of mitigative/offsetting measures for this habitat and its associated wildlife.

### **U.S. Geological Survey (USGS) Research**

The USGS's Northern Prairie Wildlife Research Center in Jamestown, North Dakota, has initiated studies of avian responses to wind turbines in both North Dakota and South Dakota. Their research may be relevant to your project, depending on habitat within the project area. We recommend that you contact Ms. Jill Shaffer of the Northern Prairie Wildlife Research Center at Telephone No. (701) 253-5547 for more information and for the possibility of participation in that research.

### **Service Wetland Management District**

Our records indicate that the Service holds easements on some of the properties proposed for construction, and your letter indicates that you have been in contact with the Habitat and Population Evaluation Team's office to obtain the locations of these easements. If you have not already done so, please also contact Mr. Larry Martin of the Service's Waubay Wetland Management District at 44401 134A Street, Waubay, South Dakota 57273, Telephone No. (605) 947-4521, for additional information.

### **Bats**

Bats are known to suffer mortality due to direct collisions with wind turbines, and it has been recently determined that many also die as a result of air pressure changes at the turbine blades that cause internal injuries. The South Dakota Department of Game, Fish and Parks (SDDGFP) has completed a State management plan for bats and may be able to provide additional information and/or recommendations on bats relative to this project. Your letter states that you have contacted the SDDGFP; thus, you may have already received a response from Silka Kempema of that agency. Nonetheless, her contact information is SDDGFP-Wildlife Division, Joe Foss Building, 523 East Capitol Avenue, Pierre, South Dakota 57501, Telephone No. (605) 773-2742.

### **Fisheries**

As per the map sent with your letter, the project area contains the Whetstone River and the North Fork Yellow Bank River which have been classified by the Service as Type II, High Priority Fishery Resources. Riverine and riparian areas are among the highest resource priorities in this region of the Service. We recommend minimization of impacts to these resources and mitigation of all unavoidable habitat losses. The following methods should be implemented to minimize environmental impacts:



1. Instream work should not be undertaken during fish spawning periods. Most spawning occurs in April, May, and June.
2. Stream bottoms and wetlands impacted by construction activities should be restored to pre-project elevations.
3. Removal of vegetation and soil should be accomplished in a manner to reduce soil erosion and to disturb as little vegetation as possible.
4. Grading operations and reseedling of native species should begin immediately following construction.
5. If trees or brush will be impacted by the project, a ratio of at least 2:1 acres planted versus acres impacted should be incorporated into mitigation plans for the project.

### **Wetlands**

According to National Wetlands Inventory maps (available online at <http://wetlands.fws.gov/>), numerous wetlands exist within the proposed project area. If a project may impact wetlands or other important fish and wildlife habitats, the Service, in accordance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347) and other environmental laws and rules, recommends complete avoidance of these areas, if possible; then minimization of any adverse impacts; and finally, replacement of any lost acres; in that order. Alternatives should be examined and the least damaging practical alternative selected. If wetland impacts are unavoidable, a mitigation plan addressing the number and types of wetland acres to be impacted and the methods of replacement should be prepared and submitted to the resource agencies for review.

### **Wind Turbine Guidelines**

Among the Service's primary concerns regarding wind turbines are avian collision mortality and the loss of habitat/habitat avoidance behaviors by wildlife, including federally listed species as indicated above. While there is still much to be learned regarding wind turbine-wildlife interactions, we do know that wind turbines can have adverse impacts on some species. Turbine location, spacing, aspect, lighting, size, and design are all potential factors related to the risk posed to resident and migratory wildlife as are the types of surrounding habitats, their use by various species of wildlife, landscape features, prey base, migration corridors, and behavioral patterns. Direct collision mortality is a concern as is loss of habitat caused by the footprint of the turbines and associated roads and structures, along with impacts that can occur with encroachment of invasive weeds as a result of these disturbances. Recent studies of grassland nesting birds have shown a tendency for avoidance of areas immediately surrounding turbines, causing indirect habitat loss as well. Currently, perhaps the best means of avoiding impacts to wildlife is to avoid placing wind farms within high wildlife use areas. Placement of turbines within existing cropland or other disturbed areas is recommended for this reason.

The Service has developed voluntary "*Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines*" to assist energy companies in accomplishing the goal of reducing the risk posed by turbines to wildlife. These guidelines may be accessed on the internet at: <http://www.fws.gov/habitatconservation/Service%20Interim%20Guidelines.pdf>. The guidelines stress the importance of proper evaluation of potential wind turbine development sites (via development of a Potential Impact Index score for the proposed site and a reference area), appropriate location and design of turbines and related facilities, and pre- and post-construction

research and monitoring. If the proposed project is to be constructed, we request the results of any pre-/post-construction wildlife monitoring, including any incidental mortality detected.

Please note that the SDDGFP has coordinated with the South Dakota Public Utilities Commission (SDPUC) regarding distribution of SDDGFP's *"Siting Guidelines for Wind Power Projects in South Dakota"* to wind developers intending to construct projects within the state of South Dakota. You may wish to contact the SDPUC and/or the Wildlife Diversity Division of the SDDGFP in Pierre for more information. Contact information may be found on their respective websites: <http://puc.sd.gov/> and <http://www.sdgifp.info/Wildlife/Diversity/index.htm>. The guidelines themselves may be found online at: <http://www.sdgifp.info/wildlife/diversity/windpower.htm>.

### **Meteorological Towers**

Meteorological towers constructed in association with wind turbines are often similar in design to typical communication towers: tall, lighted, lattice structured, and guyed. These types of towers can be problematic for birds, particularly during inclement weather, as they enter the lighted area, become reluctant to leave it, and suffer mortality as they circle the structure and collide with the guy wires or the lattice tower itself. We recommend following the guidance set forth in *"U.S. Fish and Wildlife Service Interim Guidelines for Recommendations on Communications Tower Siting, Construction, Operation and Decommissioning,"* found online at: <http://www.fws.gov/habitatconservation/communicationtowers.html>, to minimize the threat of avian mortality at these towers. Monitoring at these towers would provide insight to the effectiveness of the minimization measures. We request the results of any wildlife monitoring and any data obtained regarding wildlife mortality at towers associated with this project.

In order to obtain information on the usefulness of the communications tower guidelines in preventing birds strikes and to identify any recurring problems with their implementation which may necessitate modifications, please advise us of the final location and specifications of any towers associated with the wind turbine project and which of the measures recommended for the protection of migratory birds were implemented. If any of the recommended measures cannot be implemented, please explain why they were not feasible. A Tower Site Evaluation Form is also available via the above communication tower website (<http://www.fws.gov/habitatconservation/communicationtowers.html>). If meteorological towers are to be constructed, please complete this form and forward it to our office.

### **Power Lines**

The construction of additional overhead power lines associated with wind farms creates the threat of avian electrocution, particularly for raptors, and collisions. Thousands of these birds, including endangered species, are killed annually as they attempt to utilize overhead power lines as nesting, hunting, resting, feeding, and sunning sites. The Service recommends the installation of underground, rather than overhead, power lines whenever possible/appropriate to minimize environmental disturbances. For all new overhead lines or modernization of old overhead lines, we recommend incorporating measures to prevent avian electrocutions. The publication entitled *"Suggested Practices for Avian Protection on Power Lines - The State of the Art in 2006"* has many good suggestions, including pole extensions, modified positioning of live phase conductors and ground wires, placement of perch guards and elevated perches, elimination of cross arms, use of wood (not metal) braces, and installation of various insulating covers. You may obtain this publication by contacting the Edison Electric Institute via their website at [www.eei.org](http://www.eei.org) or by calling 1-800-334-5453.



Please note that utilizing just one of the "*Suggested Practices . . .*" methods may not entirely remove the threat of electrocution to raptors. In fact, improper use of some methods may increase electrocution mortality. Perch guards, for example, may be only partially effective as some birds may still attempt to perch on structures with misplaced or small-sized guards and suffer electrocution as they approach too close to conducting materials. Among the most dangerous structures to raptors are poles that are located at a crossing of two or more lines, exposed above-ground transformers, or dead end poles. Numerous hot and neutral lines at these sites, combined with inadequate spacing between conductors, increases the threat of raptor electrocutions. Perch guards placed on other poles has in some cases served to actually shift birds to these more dangerous sites, increasing the number of mortalities. Thus, it may be necessary to utilize other methods or combine methods to achieve the best results. The same principles may be applied to substation structures.

Please also note that the spacing recommendation within the "*Suggested Practices . . .*" publication of at least 60 inches between conductors or features that cause grounding may not be protective of larger raptors such as eagles. This measure was based on the fact that the skin-to-skin contact distance on these birds (i.e., talon to beak, wrist to wrist, etc.) is less than 60 inches. However, an adult eagle's wingspan (distance between feathertips) may vary from 66 to 96 inches depending on the species (golden or bald) and gender of the bird. Unfortunately, wet feathers in contact with conductors and/or grounding connections can result in a lethal electrical surge. Thus, the focus of the above precautionary measures should be to a) provide more than 96 inches of spacing between conductors or grounding features, b) insulate exposed conducting features so that contact will not cause raptor electrocution, and/or c) prevent raptors from perching on the poles in the first place.

Additional information regarding simple, effective ways to prevent raptor electrocutions on power lines is available in video form. "*Raptors at Risk*" may be obtained by contacting EDM International, Inc. at 4001 Automation Way, Fort Collins, Colorado 80525-3479, Telephone No. (970) 204-4001, or by visiting their website at: <http://www.edmlink.com/raptorvideo.htm>.

In addition to electrocution, overhead power lines also present the threat of avian line strike mortality. Particularly in situations where these lines are adjacent to wetlands or where waters exist on opposite sides of the lines, we recommend marking them in order to make them more visible to birds. For more information on bird strikes, please see "*Mitigating Bird Collisions With Power Lines: The State of the Art in 1994*" which may be obtained by contacting the Edison Electric Institute at the same website and telephone number listed above. Please note that, while marking of power lines reduces line strike mortality, it does not preclude it entirely. Thus, marking of additional, existing, overhead lines is recommended to further offset the potential for avian line strike mortality.

### **Avian Protection Plans**

As a means to address some of the above issues, the Service has coordinated with the Avian Power Line Interaction Committee (APLIC) to develop guidelines to assist companies in formulating Avian (and Bat) Protection Plans (APP). APPs are utility-specific and designed to reduce avian and operational risks that result from avian interactions with electric utility facilities, but they may be adapted to wind energy facilities as well and include consideration of bat species which are known to suffer mortality at wind farms. We encourage project developers to investigate the formulation of an Avian (and Bat) Protection Plan for specific projects and perhaps generate APPs at the company level. The APP guidelines may be accessed at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/BirdHazards.html>.

The Service has developed an online reporting system for mortalities. Instructions for our "Bird Fatality/Injury Reporting Program" may be found online at: [http://www.aplic.org/USFWS\\_BirdFatality\\_FilerInstructions.pdf](http://www.aplic.org/USFWS_BirdFatality_FilerInstructions.pdf), and the reporting site itself is located online at: <https://birdreport.fws.gov/>. Migratory bird mortalities or injuries located by your company, contractors, or other individuals should be recorded to this online site within 30 days of discovery. Use of this reporting program will benefit migratory birds by increasing our tracking capability of activities impacting migratory birds. This program may be used to compliment an Avian (and Bat) Protection Plan.

### **MBTA and BGEPA**

Although adherence to the Service's recommendations will provide some protection for migratory birds, implementation of these measures alone will not remove any liability should violations of the law occur. The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. The BGEPA prohibits knowingly taking, or taking with wanton disregard for the consequences of an activity, any bald or golden eagles or their body parts, nests, or eggs, which includes collection, molestation, disturbance, or killing activities (again, refer to the new regulations regarding take of eagles in the September 11, 2009, publication of the Federal Register for additional information).

While the MBTA has no provision for allowing unauthorized take, the Service realizes that some birds may be killed as a result of this project even if all reasonable measures to protect them are used. The Service's Office of Law Enforcement carries out its mission to protect migratory birds through investigations and enforcement as well as by fostering relationships with individuals, companies, and industries that have taken effective steps to minimize their impacts on migratory birds and by encouraging others to enact such programs. It is not possible to absolve individuals, companies, or agencies from liability even if they implement avian mortality avoidance or similar conservation measures. However, the Office of Law Enforcement focuses its resources on investigating and prosecuting individuals and companies that take migratory birds without regard for their actions or without following specific agreements to avoid take.

In summary, the following items are pertinent to the proposed project, and we recommend addressing these issues if/when the project progresses:

- ✓ ESA listed species impacts: Topeka shiner
- ✓ Bald and golden eagle impacts (BGEPA and MBTA)
- ✓ Migratory bird impacts (MBTA), including Birds of Conservation Concern, with application of pre-/post-construction monitoring and mortality data and mitigative/offsetting measures to be coordinated with and reported to the Service
- ✓ USGS avian/wind studies and potential participation in their ongoing research
- ✓ Service easement impacts
- ✓ Fisheries and wetlands impacts
- ✓ SDDGFP wind siting guidelines and bat issues



✓ Existing guidelines for various project components:

- a) Wind farm siting: Service's *"Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines"*
- b) Meteorological Towers: Service's *"Interim Guidelines for Recommendations on Communications Tower Siting, Constructions, Operation and Decommissioning"* and the associated Tower Site Evaluation Form
- c) Overhead power lines: APLIC's *"Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006"* and *"Mitigating Bird Collisions With Power Lines: The State of the Art in 1994"*
- d) Overall project construction/operation: Service's *"National Bald Eagle Management Guidelines,"* APLIC's *"Avian Protection Plan Guidelines,"* and the Service's *"Bird Fatality/Injury Reporting Program"*

If changes are made in the project plans or operating criteria, or if additional information becomes available, the Service should be informed so that the above determinations can be reconsidered.

The Service appreciates the opportunity to provide comments. If you have any questions on these comments, please contact Natalie Gates of this office at (605) 224-8693, Extension 234.

Sincerely,



Pete Gober  
Field Supervisor  
South Dakota Field Office

cc: Service/Waubay WMD; Waubay, SD  
(Attention: Larry Martin)  
Secretary, SDDGFP; Pierre, SD  
(Attention: Silka Kempema)  
USGS/NPWRC; Jamestown, ND  
(Attention: Jill Shaffer)  
SDPUC; Pierre, SD  
(Attention: Brian Rounds)

NAG:se

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February 11, 2015

Mr. Jeff Vonk  
Secretary  
South Dakota Game Fish and Parks  
523 East Capitol Avenue  
Pierre, SD 57501

**RE: Crowned Ridge Wind Energy Center in Codington and Grant Counties, South Dakota**

Dear Mr. Vonk:

As part of our Tier 1 preliminary site evaluation and Tier 2 site characterization under the U.S. Fish and Wildlife Service (USFWS) voluntary Land-Based Wind Energy Guidelines, Tetra Tech, Inc. (Tetra Tech) is writing on behalf of NextEra Energy Resources, LLC (NextEra), to request information regarding ecologically significant areas and listed endangered, threatened or special concern species including eagles at a potential wind energy development site in Codington and Grant counties, South Dakota. We contacted your agency in 2007 regarding a much larger area for wind energy development that NextEra may develop in a later phase (see attached response letter dated December 3, 2007); however, the current project area in in Codington and Grant counties is the subject of this inquiry.

The proposed Crowned Ridge Wind Energy Center (Project) is anticipated to have a nameplate capacity of 200 megawatts and to begin commercial operation in 2016. A 40-mile, 230-kV transmission line is also proposed. We will submit an application to the South Dakota Public Utilities Commission (PUC) for a Facility Permit, as required under South Dakota Codified Law (SDCL) Chapter 49-41B and South Dakota Administrative Rules, Section 20:10:22.

The 26,038-acre Project Area is depicted on the enclosed United States Geological Survey (USGS) topographic map; a corridor for the proposed 40-mile transmission line is also shown on the map. The land sections within the Project Area and transmission line corridor are listed in the tables below. We have provided the map to facilitate your review and greatly appreciate your efforts to treat the Project and its location as confidential at this time.

**Project Area:**

County	Township Name	Township	Range	Sections
Grant	Mazeppa	120N	51W	7-8, 17-20, 29, 32
Codington	Germantown	119N	52W	24-26, 36
	Leola	119N	51W	4-5, 7-9, 17-19, 26-35
	Germantown	118N	52W	24
	Waverly	118N	51W	2-5, 8-11, 14-19, 22-23, 26-27

**Transmission Line Corridor:**

County	Township Name	Township	Range	Sections
Codington	Leola	119N	51W	13-17, 20-30, 36
Grant	Vernon	119N	48W	6,7,19
Grant	Madison	119N	49W	1-2, 10-24, 30, 31
Grant	Stockholm	119N	50W	13-36
Grant	Alban	120N	48W	1-2, 11-14, 20-33
Grant	Grant Center	120N	49W	25, 36
Grant	Big Stone	121N	46W	18
Grant	Big Stone	121N	47W	13, 24-26, 34-36

In addition to federally protected wildlife and plant species, Tetra Tech is interested in sensitive habitats and wildlife management areas that may be located in or proximate to the proposed Project Area. In particular, we would like information on documented eagle nests within 10 miles of the Project Area and 2 miles of the transmission line corridor. Tetra Tech has also contacted the USFWS South Dakota Field Office, the USFWS Habitat and Population Evaluation Team, and the Waubay Wetland Management District.

Additionally, we have initiated Tier 3 field studies at the Project Area. We have previously conducted fall and spring avian use surveys and native prairie surveys and performed wetland delineations. In March 2014, we initiated a year of eagle use surveys. Our survey protocol for the eagle use surveys are attached as Appendix 1 for your review and comment. We also conducted fall avian point-count surveys in 2014 and will conduct spring avian point-count surveys in 2015. It is our goal to perform a thorough analysis of environmental concerns within the potential Project Area. We will use the information provided by the USFWS and South Dakota Game Fish and Parks to help guide Project development in a manner that avoids impacts to sensitive resources to the extent possible. If possible, we would appreciate a response by March 10, 2015.

Should you have any questions or require additional information, please do not hesitate to contact me directly by phone at 512-213-8501 or email at [anne-marie.griger@tetrattech.com](mailto:anne-marie.griger@tetrattech.com). Thank you for your assistance.

Respectfully submitted,

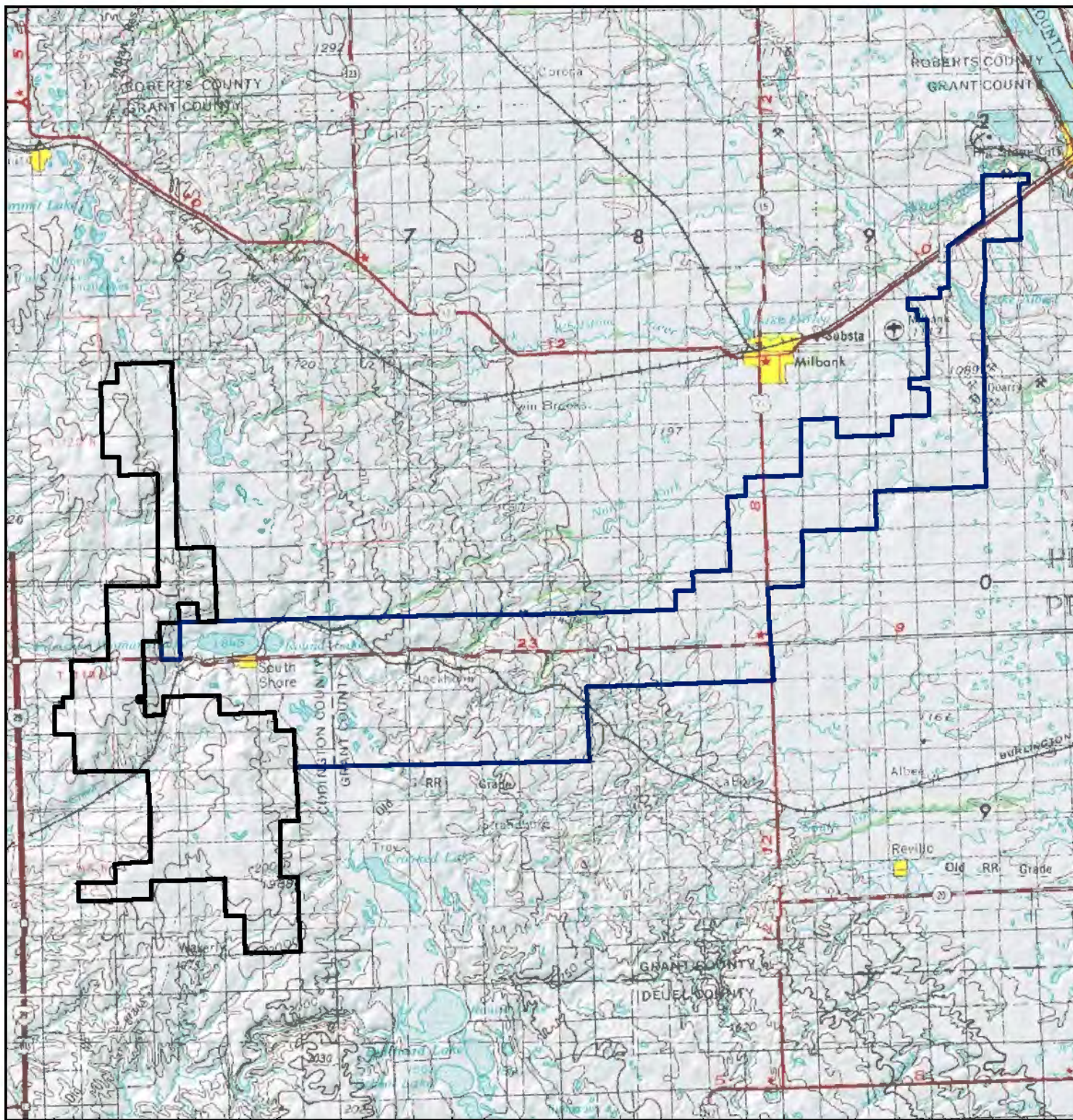


Anne-Marie Griger, AICP  
Tetra Tech, Inc  
8911 N. Capital of Texas Hwy, Bldg 2 Suite # 2310  
Austin, TX 78759

Attachments: SDGFP letter dated December 3, 2007  
Map  
Appendix 1







### Crowned Ridge

Codington and Grant Counties, SD  
February 2015



1:238,000 WGS84 UTM Zone 14N

0 0.5 1 2 3 4 Miles



Project Boundary (11-24-2014)

Transmission Line Boundary (2015-02-04)



Project  
Location





## APPENDIX 1

### 1) Eagle Use Surveys

The objective of eagle use surveys is to document eagle movements and behavior within and adjacent to the Project Area in all four seasons in order to assess risk to eagle species. Tetra Tech will conduct eagle use surveys following the general methods outlined in the Eagle Conservation Plan Guidance. Eagle use surveys will focus exclusively on eagles, and will occur at up to 18 survey plots. This number of point-count locations is sufficient to provide spatial coverage of approximately 26 percent of a 1-km buffer around turbine locations.

Eagle use surveys will be conducted by a qualified avian biologist beginning in spring 2014 and continue for one calendar year to capture temporal variation in eagle use of the Project Area. Surveys will be conducted twice per month during the spring (March 16 – June 15), summer (June 16 – August 15), fall (August 16 – November 15), and winter (November 16 – March 15). Each survey visit will occur over 2.5 days. There will be 26 survey weeks in total. Individual surveys will consist of a 1-hour observation period at each of the 18 point-count locations during each week of surveys, for a total of 468 hours of observations.

Eagle use data will be collected in 1-minute intervals so that the data can be translated into eagle exposure minutes, as recommended in the ECP Guidance. The data recorded for each survey will include the count start and stop times, eagle species observed, numbers and age classes of eagles seen, minutes of eagle flight in two height categories based on the ECP Guidance ( $\leq 200$  and  $>200$  meters {m} above ground), notes on flight and other behaviors, and an individual identifier for each flight observation allowing it to be linked to a flight map. Each eagle flight observed will be drawn on a topographic map or aerial image of the Project Area and digitized using a GIS so that eagle locations and behaviors can be overlaid with Project features. Numerical data will be collected within 800-m-radius plots, but flight lines will be documented across line-of-sight and will not be limited to the 800-m-radius survey plot.



## DEPARTMENT OF GAME, FISH AND PARKS

Foss Building  
523 East Capitol  
Pierre, South Dakota 57501-3182

December 3, 2007

Erik W. Jansen, Biologist  
Tetra Tech EC, Inc.  
1750 SW Harbor Way, Suite 400  
Portland, OR 97201

RE: Environmental review of Eastern and North-central Wind Resource Area as potential wind power project areas

Dear Mr. Jansen:

The following comments are in response to your letter dated 19 October 2007 requesting environmental considerations and concerns of the Eastern (W1/2 Grant Co., NE 1/4 Codington Co., W1/2, S1/2 Duel Co., and NE1/4 Brookings Co.) and North-central (McPherson County) Wind Resource Areas.

The proposed siting and operation of these wind power projects have potential to directly and indirectly impact area wildlife by killing bats and birds through wind turbine and power line strikes and altering important and declining habitats and breeding and movement behavior of wildlife. While we applaud efforts to provide alternative energy sources, we offer the following considerations for your planning efforts, encouraging responsible siting and mitigation where appropriate to avoid or lessen direct and indirect impacts. As requested, I have provided separate comments for each wind resource area in addition to final comments that apply to any other potential wind power project in South Dakota.

### Eastern Wind Resource Area (EWRA)

**Grasslands** - The EWRA is located within the tall-grass prairie zone. Native grasslands within this zone are decreasing at an alarming rate. Less than one percent of native tall-grass prairie habitat in South Dakota remains (Samson et al. 1998). Other grassland types such as rangeland (grazed grasslands with native plant spp.), pasture (grazed grasslands with non-native plant spp.) and Conservation Reserve Program lands (tilled land planted to vegetative cover) serve as grassland wildlife habitat (Haufler 2005). Fragmentation resulting from woody encroachment, road construction, and conversion of surrounding habitat has resulted in the remaining grassland habitats existing as smaller disjunct patches. Patches often provide less suitable habitat for many native species of grassland wildlife. Some of the last remaining contiguous grasslands tracts occur along the Coteau escarpment that angles through the EWRA.

**Grassland birds** - Placement of turbines in this area may fragment grassland wildlife habitat reducing its suitability to serve as habitat and modify behavior of grassland bird species, a group of species which has shown the most consistent and long term declines of any other group of bird species in North America (Peterjohn and Sauer 1999). This area is known to have abundant sharp-tailed grouse populations. Greater prairie chickens also are present. The greater prairie chicken is a species known to be area-sensitive, requiring comparatively large tracts of open, contiguous grassland. The lesser prairie chicken, a similar species found more commonly in the southern Great Plains, avoids nesting within 400 m of transmission lines or improved roads (Pitman et al 2004). This highly suggests that placement of turbines and associated infrastructure (roads and transmission lines) may also negatively affect greater prairie chickens.

Birds are susceptible to direct strikes with wind turbines. Based on a study conducted in the Buffalo Ridge area of Minnesota, species with known wind turbine strike mortality and are known to occur in the EWRA include grasshopper sparrow and western meadowlark (Higgins et al 2007).

Properly timed, species-appropriate surveys for prairie grouse (greater prairie chickens and sharp-tailed grouse) and other grassland bird species should be conducted pre-construction. Prairie grouse surveys should be conducted in spring when breeding individuals are on communal display grounds (leks). Surveys for other breeding grassland birds are best conducted in June, although mid-May through early July is acceptable.

**Butterflies** - Four rare butterfly species are located within the EWRA. These species are classified as Species of Greatest Conservation Need, as listed in our State Wildlife Action Plan ([http://www.sdgifp.info/Wildlife/Diversity/Comp\\_Plan.htm](http://www.sdgifp.info/Wildlife/Diversity/Comp_Plan.htm)) and are rare species monitored by our Natural Heritage Program (NHP). They include: 1) Dakota skipper, 2) Powesheik skipperling, 3) regal fritillary, and 4) Ottoe skipper.

The range of the Dakota skipper in South Dakota is limited to eleven counties in the north eastern portion of the state. The Dakota skipper requires native mid- to tall-grass prairie and is found on rolling rangeland with abundant wetlands. Larval host plants are grasses, especially little bluestem. Flight of emerging adults occurs from June to mid-July. This species is a candidate for listing under the Federal Endangered Species Act (ESA). As such, I recommend contacting the U.S. Fish and Wildlife Ecological Services Field office in Pierre, South Dakota (605-224-8693) for further information regarding the protection of this species required under ESA. Current threats to this species include, but are not limited to, improper land management uses, agricultural cultivation, road construction, and invasive plant species. South Dakota populations are important to the existence of this species and approximately half of known populations are located on private lands.

The Powesheik skipperling distribution in South Dakota also is limited to eleven counties in the north eastern portion of the state. The Powesheik skipperling prefers native tall-grass prairie and wetlands. Larval host plants are sedges. Flight of emerging adults occurs primarily in July. Threats include excessive prescribed burning, loss of habitat due to conversion to other uses, invasive plants, population isolation, and extreme population crashes.



The regal fritillary is rapidly declining across its range in the United States. In South Dakota, its range is restricted to native prairie sites. Some of the last strongholds of this species are located in prairie states, such as South Dakota, with areas of large expanses of suitable habitat (such as the EWRA) that support larval host plants (violets). Flight periods are from June to September. Threats include loss and fragmentation of habitat to agriculture (excluding grazing or haying), conversion to cropland, woody encroachment, chemicals (e.g., pesticides and herbicides), and improper fire management.

The Ottoe skipper also requires relatively undisturbed native prairie with nectar sources (coneflowers, grayfeathers, asters, etc). It is uncommon to rare throughout the state. Peak flight for the Ottoe skipper is in mid-July. The reduction and degradation of prairie habitat is the main threat to this species.

The conservation of the four rare butterfly species documented in the EWRA requires protection of remaining undisturbed tracts of native prairie with associated nectar sources and larval host plants. There are potential disturbances to these rare butterfly species associated with the construction and maintenance of a wind power project. Road construction and turbine pad maintenance increases the chances of non-native, invasive plant species invasion. Chemical control of these species is a known threat. Pre-construction surveys for these species should be conducted during the appropriate times (flight periods). Construction in areas that are or potential butterfly habitat should be avoided.

**Wetlands** - The proposed project area is located within the Prairie Pothole region. This glaciated region, characterized by high densities of wetland basins of various depths and sizes, extends from Iowa into Minnesota, the Dakotas, Montana and parts of Canada. It is the major waterfowl production area in North America. Wetland losses in the Prairie Pothole Region are staggering and range from 99% in Iowa to 35% in South Dakota. Wetland basin densities (# of basins/10 mi<sup>2</sup>) in the EWRA range from 90 to over 420 basins/10 miles<sup>2</sup>. More specifically, this area is known to have some of the highest seasonal and semipermanent wetland basin densities in the state (Johnson and Higgins 1997). These remaining, high density wetlands provide critical wildlife habitat.

**Wetland birds** - Waterbird species such as loons, black terns, great egrets, and green backed herons are known to occur in the EWRA. Abundant waterfowl such as mallard, blue-winged teal, redhead, ruddy duck, American coot, and bufflehead also can be found in the area. Birds are susceptible to direct strikes with wind turbines. Based on a study conducted in the Buffalo Ridge area of Minnesota, species with known wind turbine strike mortality and are known to occur in the EWRA include ruddy duck, American coot, and Franklin's gull (Higgins et al 2007). Proper siting of turbines outside of daily and seasonal migration routes of waterbirds and waterfowl and the protection of remaining wetlands within the proposed project area is crucial to reduce the impact to wetland dependent species.

**Bats** - Bats forage and migrate along rivers, streams, and lakes. Construction of a wind power plant may affect daily and seasonal bat movements between breeding and foraging areas. Thirteen species of bats are found in South Dakota, some of which are summer residents, year-round residents, or migratory (Table 1).

Table 1. South Dakota Bats

Common Name	Scientific Name	State Residency
Big Brown Bat	<i>Eptesicus fuscus</i>	Year-round resident
Fringed Myotis	<i>Myotis thysanodes</i>	Year-round resident
Little Brown Myotis	<i>Myotis lucifugus</i>	Year-round resident
Long-eared Myotis	<i>Myotis evotis</i>	Year-round resident
Long-legged Myotis	<i>Myotis volans</i>	Year-round resident
Northern Myotis	<i>Myotis septentrionalis</i>	Year-round resident
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	Year-round resident
Western Small-footed Myotis	<i>Myotis ciliolabrum</i>	Year-round resident
Hoary Bat	<i>Lasiurus cinereus</i>	Summer resident
Silver-haired Bat	<i>Lasionycteris noctivagans</i>	Summer resident
Evening Bat	<i>Nycticeius humeralis</i>	Migratory
Eastern pipistrell	<i>Pipistrellus subflavus</i>	unclassified

There has been limited research conducted on bats in South Dakota. However, Swier (2006) reported four species of bats occurring near the EWRA: 1) big brown bat, 2) Eastern red bat, 3) hoary bat, and 4) little brown myotis.

Six bat species are considered rare and monitored by the NHP: 1) long-eared myotis, 2) fringed myotis, 3) Northern myotis, 4) silver-haired bat, 5) Townsend's big-eared bat, and 6) evening bat. Although the NHP data base has no records of these species in the proposed project area, this does not preclude the presence of any of these species in the area. Because of limited, EWRA-specific data, we would suggest pre-construction surveys of the area for potential bat habitat and species. Surveys for species should be conducted for at least one full year before construction.

Recently, South Dakota Department of Game, Fish and Parks (SDGFP) in cooperation with the South Dakota Bat Working Group (SDGWG), developed a South Dakota Bat Management Plan specific to bats and their habitats in South Dakota (<http://www.sdgfp.info/Wildlife/Diversity/batmanagmentplan71304.pdf>). Please review this document for pertinent information. Again, because bats reside and migrate through South Dakota, it is important to evaluate the propose project area for roosting, feeding, migration and/or stopover habitat and to survey these areas for bats.

**Landscape considerations** - Placement of a wind power project should take into account larger landscape-level (e.g. surrounding land uses) and cumulative impacts (e.g. existing and potential wind power projects) as well as project associated infrastructure (i.e. transmission lines and roads).

**Public lands** - Several Game Production Areas within the EWRA are managed by SDGFP. Placement of public lands is often done so in areas with existing and potential wildlife habitat. Management of these lands, for wildlife, is conducted in the public interest. In addition, several USFWS Waterfowl Protection Areas are also located within the EWRA. Public lands managed

for wildlife may be affected by the placement of a wind power project in the vicinity.

**Migrating wildlife** - The resulting mosaic of grassland and wetland basins and corridors makes it an important migration route for birds (e.g., neotropical migrants, shorebirds, and waterfowl). The Central Flyway, an important pathway for migratory ducks, geese, swans, and cranes runs through the midsection of the country, including South Dakota. Species using this flyway during migration, and particularly during inclement weather when birds alter their flight altitude, may suffer increased mortality due to direct strikes with wind turbines and associated power lines. Appropriately timed, pre-construction surveys for migratory bird species should be conducted. Spring migration can begin as early as late-March, early-April, tapering off in mid-May, depending on the species. Fall migration can begin as early as mid-July and extend through October/November depending on weather conditions and species.

**Powerlines** - Construction of powerlines is often associated with a proposed wind power project. Power line strikes are a known cause of mortality to birds (Erickson et al. 2005). Waterfowl (ducks, geese, swans, and cranes), raptors, and passerines are species most susceptible to powerline collisions. The Avian Protection Power line Interaction Committee (APLIC) has developed two documents that may be of use to reduce powerline strikes and mortality: 1) 'Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006' and 2) 'Mitigating Bird Collisions with Power lines'. Both of these documents are available from the Edison Institute (<http://www.aplic.org/>, under 'products and services'). The new and existing power lines associated with the proposed project should be buried, marked, or retrofitted to reduce strikes and electrocutions of bird species.

**Non-native species** - During the construction and maintenance phase of a wind power project existing roads often experience increased traffic and new roads are constructed. This increases the amount of area disturbed and allows for the introduction and establishment of non-native species. Resulting control of those species through pesticides and herbicides may also impact habitats of rare wildlife species. Non-native species are one of the major threats to rare and declining wildlife species. Improved access can also increase human activity in the area.

The matrix of grassland and wetland habitats in the proposed project area plays a crucial role in the life history of several wildlife species whether migratory or resident. Because of the potential impacts placement of the proposed wind power project would have on unique and declining habitats in the region and their associated species, we recommend the placement of turbines in areas currently disturbed (e.g. cultivated areas) and the use of existing infrastructure (roads and transmission lines) as much as possible.

## North-central Wind Resource Area (McPherson County)

**Grassland habitat** - McPherson County is located within the mixed-grass prairie zone. In the United States, native mixed-grass prairie is disappearing at an alarming rate. In South Dakota, the area of mixed-grass prairie has decreased 70% (Samson et al. 1998). The native prairie that still remains is most often grazed (i.e. rangeland). These and other grassland types such as pasture (grazed grasslands of non-native plant spp.) and Conservation Reserve Program lands (tilled land idled and planted to vegetative cover) also serve as grassland wildlife habitat (Haufler 2005). Fragmentation resulting from woody encroachment, road construction, and conversion of surrounding habitat has resulted in the remaining grassland habitats existing as smaller disjunct patches. Patches often provide less suitable habitat for many native species of grassland wildlife. McPherson County has large tracts of contiguous grassland habitat (including rangeland) located along the ridge extending through Wacker, Weber, Hoffman, and Central McPherson townships.

**Grassland birds** - Placement of turbines in this area may fragment grassland wildlife habitat reducing its suitability to serve as habitat and modify behavior of grassland bird species, a group of species which has shown the most consistent and long term declines of any other group of species in North America (Peterjohn and Sauer 1999). Two grassland bird species, Baird's sparrow and Sprague's pipit, are known to occur in McPherson County. Range-wide, both of these species have exhibited significant long term negative population trends. In South Dakota, these species hold special conservation status and are classified as Species of Greatest Conservation Need, as listed in our State Wildlife Action Plan ([http://www.sdgap.info/Wildlife/Diversity/Comp\\_Plan.htm](http://www.sdgap.info/Wildlife/Diversity/Comp_Plan.htm)) and are rare species monitored by our NHP. In addition, these species are considered Grassland Species of Concern in South Dakota (Bakker 2005). Regionally they are Species of Special Concern as defined by Partner's in Flight and are considered a Species of Conservation Concern by the USFWS. The amount of emphasis placed on the conservation of these species indicates populations are declining.

Baird's sparrows breed in the north-western and north-central part of the state. Throughout most of its breeding range, it is known to prefer native mixed grass prairie interspersed with forbs (broad-leaved, herbaceous plant), moderate amounts of litter (dead layers of vegetation), and little to no shrub cover. Although the Baird's Sparrow has a strong tendency to prefer native prairie, it can be observed in non-native grasslands (e.g. crested wheatgrass) that provide appropriate habitat structure. Baird's sparrows are known to prefer large patches of grassland habitat and show avoidance of areas with extensive woody vegetation and areas near roads.

Sprague's pipits are found in the northwestern portion of the state, preferring plains and short-grass prairie with intermediate vegetation height. This species prefers native prairie, although they are known to occupy habitat consisting of non-native plant species. Sprague's pipits are most common in large contiguous grassland areas and are known to be area sensitive.

Properly timed, species-appropriate pre-construction surveys should be conducted for grassland bird species. Surveys for most breeding grassland birds are best conducted in June, although mid-May through early July is suitable. Prairie grouse surveys should be conducted in spring when breeding individuals are on communal display grounds (leks).

**Wetland habitats** - McPherson County is located within the Prairie Pothole Region. This glaciated region, characterized by a diversity and quantity of basin wetlands, extends from Iowa into Minnesota, the Dakotas, Montana and parts of Canada. It is the major waterfowl production area in North America. Wetland losses in the Prairie Pothole Region are staggering and ranging from 99% in Iowa to 35% in South Dakota. Throughout McPherson County, wetland basin density is high (270 - over 420 basins/10 mi<sup>2</sup>). More specifically, the eastern quarter of the County has some of the highest concentrations of temporary and seasonal wetlands (Johnson and Higgins 1997) in the state. Remaining wetlands provide important wildlife habitat.

**Wetland birds** - In terms of waterfowl breeding activity, the western two-thirds of McPherson County has over 100 breeding duck pairs/mi<sup>2</sup>. This is some of the highest breeding waterfowl densities in the Prairie Pothole region. Conservation of this habitat also is critical to waterbirds and shorebirds for breeding, feeding, and migration habitat.

**Bird diversity** - Reflective of the diversity and quality of native wetland and grassland habitats in the region, the northeastern portion of McPherson County has some of the highest bird species richness in the state (Peterson 1995). This is based upon data gathered from a five-year, state-wide breeding bird survey efforts.

**Bats** - Bats forage and migrate along rivers, streams and lakes. Construction of a wind power project may affect daily and seasonal bat movements between breeding and foraging areas. Thirteen species of bats are found in South Dakota, some of which are summer residents, year-round residents, or migratory (Table 1). There has been limited research conducted on bats in South Dakota, especially in McPherson County. The NHP database has no records of bat species considered rare in the proposed project. However, this does not preclude the presence of any of these or other bat species in the area. Because of limited information on bats in McPherson County, we would suggest pre-construction surveys of the area for potential bat habitat and species. Surveys for species should be conducted for at least one full year before construction.

Recently, SDGFP in cooperation with the SDBWG, developed a South Dakota Bat Management Plan specific to bats and their habitats in South Dakota (<http://www.sdgfp.info/Wildlife/Diversity/batmanagementplan71304.pdf>). Please review this document for pertinent information. Again, because bats reside and migrate through South Dakota, it is important to evaluate the propose project area for roosting, feeding, migration and/or stopover habitat and to survey these areas for bats.

**Landscape considerations** - Placement of a wind power project should take into account larger landscape-level (e.g. surrounding land uses) and cumulative impacts (e.g. existing and potential wind power projects) as well as project associated infrastructure (i.e. transmission lines, roads).

**Public lands** - Several Game Production Areas within McPherson County are managed by SDGFP. Placement of public lands is often done so in areas with existing and potential wildlife habitat. Management of these lands, for wildlife, is conducted in the public interest. In addition, several U. S. Fish and Wildlife Service Waterfowl Protection Areas are also located within McPherson County. Public lands managed for wildlife may be affected by the placement of a

wind power project in the vicinity.

**Migrating wildlife** - The resulting mosaic of grassland and wetland basins and corridors in the County make it an important migration route for birds (e.g., neotropical migrants, shorebirds, waterfowl). The Central Flyway, an important pathway for migratory ducks, geese, swans, and cranes runs through the midsection of the country, including South Dakota. Species using this flyway during migration, and particularly during inclement weather when birds alter their flight altitude, may suffer increased mortality due to direct strikes with wind turbines and associated power lines. Appropriately timed, pre-construction surveys for migratory bird species should be conducted. Spring migration can begin as early as late-March, early-April, tapering off in mid-May, depending on the species. Fall migration can begin as early as mid-July and extend through October/November depending on weather conditions and species.

**Powerlines** - Construction of powerlines is often associated with a proposed wind power project. Power line strikes are a known cause of mortality to birds (Erickson et al. 2005). Waterfowl (ducks, geese, swans, and cranes), raptors, and passerines are species most susceptible to powerline collisions. The Avian Protection Power line Interaction Committee (APLIC) has developed two documents that may be of use to reduce powerline strikes and mortality: 1) 'Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006' and 2) 'Mitigating Bird Collisions with Power lines'. Both of these documents are available from the Edison Institute (<http://www.aplic.org/>, under 'products and services'). The new and existing power lines associated with the proposed project should be buried, marked, or retrofitted to reduce strikes and electrocutions of bird species.

**Non-native species** - During the construction and maintenance phase of a wind power projects existing roads often experience increased traffic and new roads are constructed. This increases the amount of area disturbed and allows for the introduction and establishment of non-native species. Resulting control of those species through pesticides and herbicides may also impact habitats of rare wildlife species. Non-native species are one of the major threats to rare and declining wildlife species. Improved access can also increase human activity in the area.

The matrix of grassland and wetland habitats in the proposed project area plays a crucial role in the life history of several wildlife species whether migratory or resident. Because of the potential impacts placement of the proposed wind power project would have on unique and declining habitats in the region and their associated species, we recommend the placement of turbines in areas currently disturbed (e.g. cultivated areas) and the use of existing infrastructure (roads and transmission lines) as much as possible.

## Research and Monitoring


As outlined above, our agency has concerns regarding direct and indirect impacts to wildlife and habitats in association with the siting of the proposed project. Before project construction, appropriate monitoring should be conducted to determine bird and bat use of the project areas. Based upon results of these studies, project construction should be modified, continued, or cancelled. If the project is continued, monitoring should be conducted for a minimum of two years post-construction to determine if and how many bird and bat strikes are caused by this project, if habitats have been significantly altered, and if the surrounding public lands and their uses have been impacted. Any mitigation should be carefully planned, funded, and followed.

If monitoring involves live trapping or collection of wildlife species, you must first obtain a collection permit from our agency. Also, we kindly request that if you or your associates observe any of the animal (<http://www.sdgifp.info/Wildlife/Diversity/RareAnimal.htm>) or plant species (<http://www.sdgifp.info/Wildlife/Diversity/rareplant2002.htm>) monitored by the NHP, please contact myself or any of our NHP staff ([http://www.sdgifp.info/Wildlife/Diversity/staff\\_contact.htm](http://www.sdgifp.info/Wildlife/Diversity/staff_contact.htm)).

In coordination with the SDBWG, the SDGFP has developed 'Siting Guidelines for Wind Power Projects in South Dakota' This document addresses many of the concerns involved with siting wind power projects in South Dakota and may be found at on the world wide web (<http://www.sdgifp.info/Wildlife/Diversity/windpower.htm>). I have enclosed a copy for your convenience.

The SDGFP appreciates the opportunity to provide comments on the proposed project wind resource areas. As plans are further refined, I would be willing to conduct a site visit with you or your associates to continue to provide siting recommendations to reduce conflicts with wildlife. If you have any questions on the above comments, please feel free to contact me at 605-773-2742 or [Silka.Kempema@state.sd.us](mailto:Silka.Kempema@state.sd.us).

Regards,



Silka L. F. Kempema  
Terrestrial Wildlife Biologist

CC: Natalie Gates, US Fish and Wildlife Service, Pierre, SD  
Will Morlock, SD Game, Fish and Parks, Watertown, SD  
Mary Clawson, SD Game, Fish and Parks, Aberdeen, SD

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February 11, 2015

Mr. Scott Larson  
Field Supervisor  
USFWS – South Dakota Field Office  
420 S. Garfield Avenue, Suite 400  
Pierre, SD 57501-5408

**RE: Crowned Ridge Wind Energy Center in Codington and Grant Counties, South Dakota**

Dear Mr. Larson:

As part of our Tier 1 preliminary site evaluation and Tier 2 site characterization under the U.S. Fish and Wildlife Service (USFWS) Land-Based Wind Energy Guidelines, Tetra Tech, Inc. (Tetra Tech) is writing on behalf of NextEra Energy Resources, LLC (NextEra), to request information regarding ecologically significant areas and listed endangered, threatened or special concern species including eagles at a potential wind energy development site in Codington and Grant counties, South Dakota. We contacted your agency in 2007 regarding a much larger area for wind energy development that NextEra may develop in a later phase (see attached response letter dated November 26, 2007); however, the current the project area in Codington and Grant counties is the subject of this inquiry.

The proposed Crowned Ridge Wind Energy Center (Project) is anticipated to have a nameplate capacity of 200 megawatts and to begin commercial operation in 2016. A 40-mile, 230-kV transmission line is also proposed. We will submit an application to the South Dakota Public Utilities Commission (PUC) for a Facility Permit, as required under South Dakota Codified Law (SDCL) Chapter 49-41B and South Dakota Administrative Rules, Section 20:10:22.

The 26,038-acre Project Area is depicted on the enclosed United States Geological Survey (USGS) topographic map; a corridor for the proposed 40-mile transmission line is also shown on the map. The land sections within the Project Area and transmission line corridor are listed in the tables below. We have provided the map to facilitate your review and greatly appreciate your efforts to treat the Project and its location as confidential at this time.

**Project Area:**

County	Township Name	Township	Range	Sections
Grant	Mazeppa	120N	51W	7-8, 17-20, 29, 32
Codington	Germantown	119N	52W	24-26, 36
	Leola	119N	51W	4-5, 7-9, 17-19, 26-35
	Germantown	118N	52W	24
	Waverly	118N	51W	2-5, 8-11, 14-19, 22-23, 26-27

**Transmission Line Corridor:**

County	Township Name	Township	Range	Sections
Codington	Leola	119N	51W	13-17, 20-30, 36
Grant	Vernon	119N	48W	6,7,19
Grant	Madison	119N	49W	1-2, 10-24, 30, 31
Grant	Stockholm	119N	50W	13-36
Grant	Alban	120N	48W	1-2, 11-14, 20-33
Grant	Grant Center	120N	49W	25, 36
Grant	Big Stone	121N	46W	18
Grant	Big Stone	121N	47W	13, 24-26, 34-36

In addition to federally protected wildlife and plant species, Tetra Tech is interested in sensitive habitats and wildlife management areas that may be located in or proximate to the proposed Project Area. In particular, we would like information on documented eagle nests within 10 miles of the Project Area and 2 miles of the transmission line corridor. Tetra Tech has also contacted the USFWS Habitat and Population Evaluation Team, the Waubay Wetland Management District, and the South Dakota Game, Fish, and Parks Department (SDGFP).

Additionally, we have initiated Tier 3 field studies at the Project Area. We have previously conducted fall and spring avian use surveys and native prairie surveys and performed wetland delineations. In March 2014, we initiated a year of eagle use surveys. Our survey protocol for the eagle use surveys are attached as Appendix 1 for your review and comment. We also conducted fall avian point-count surveys in 2014 and will conduct spring avian point-count surveys in 2015. It is our goal to perform a thorough analysis of environmental concerns within the potential Project Area. We will use the information provided by the USFWS and SDGFP to help guide Project development in a manner that avoids impacts to sensitive resources to the extent possible. If possible, we would appreciate a response by March 10, 2015.

Should you have any questions or require additional information, please do not hesitate to contact me directly by phone at 512-213-8501 or email at [anne-marie.griger@tetrattech.com](mailto:anne-marie.griger@tetrattech.com). Thank you for your assistance.

Respectfully submitted,

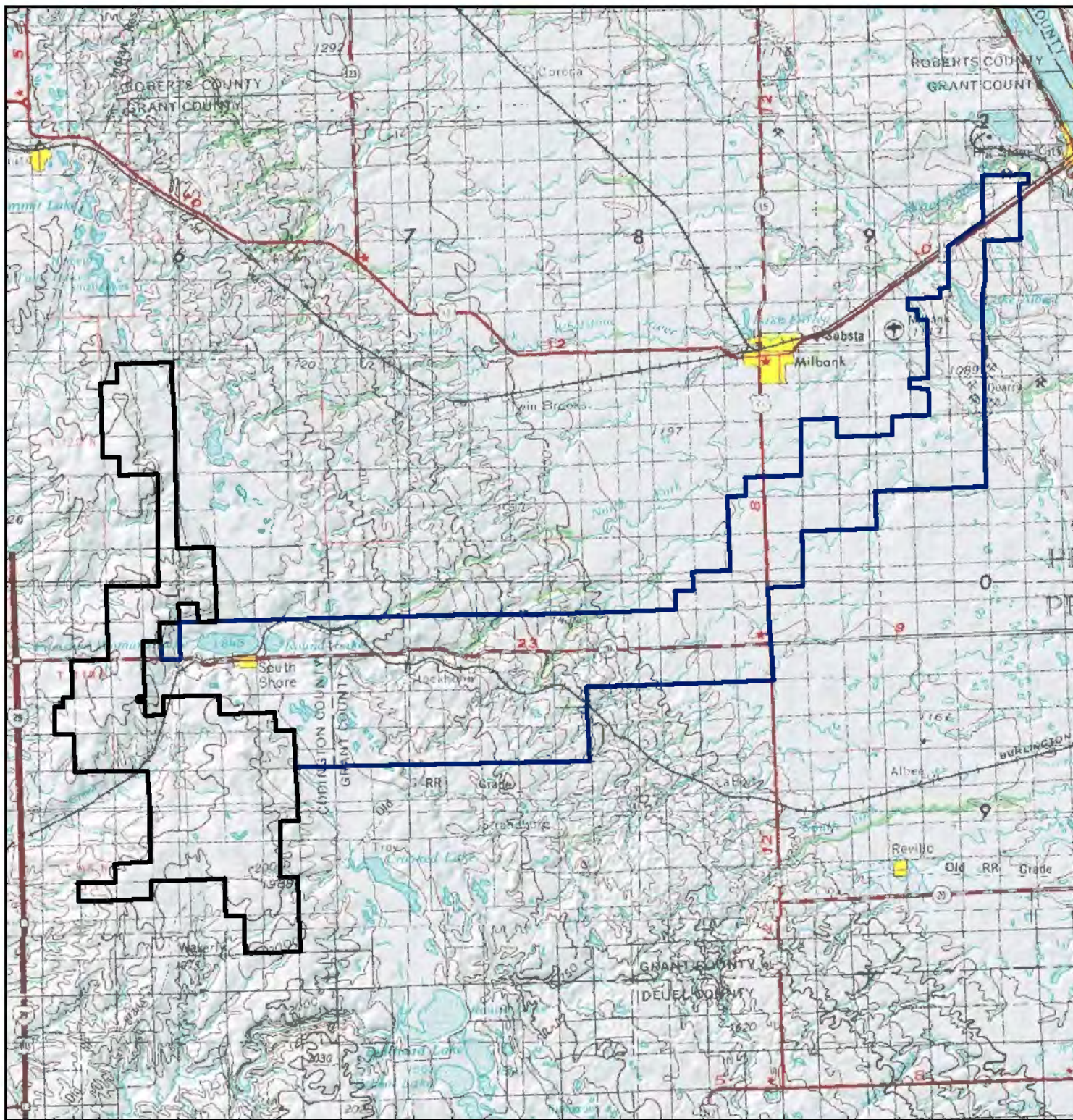


Anne-Marie Griger, AICP  
Tetra Tech, Inc  
8911 N. Capital of Texas Hwy, Bldg 2 Suite # 2310  
Austin, TX 78759

Attachments: USFWS letter dated November 26, 2007  
Map  
Appendix 1









### Crowned Ridge

Codington and Grant Counties, SD  
February 2015

1:238,000 WGS84 UTM Zone 14N

0 0.5 1 2 3 4 Miles

-  Project Boundary (11-24-2014)
-  Transmission Line Boundary (2015-02-04)



Project  
Location





## APPENDIX 1

### 1) Eagle Use Surveys

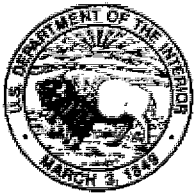
The objective of eagle use surveys is to document eagle movements and behavior within and adjacent to the Project Area in all four seasons in order to assess risk to eagle species. Tetra Tech will conduct eagle use surveys following the general methods outlined in the Eagle Conservation Plan Guidance. Eagle use surveys will focus exclusively on eagles, and will occur at up to 18 survey plots. This number of point-count locations is sufficient to provide spatial coverage of approximately 26 percent of a 1-km buffer around turbine locations.

Eagle use surveys will be conducted by a qualified avian biologist beginning in spring 2014 and continue for one calendar year to capture temporal variation in eagle use of the Project Area. Surveys will be conducted twice per month during the spring (March 16 – June 15), summer (June 16 – August 15), fall (August 16 – November 15), and winter (November 16 – March 15). Each survey visit will occur over 2.5 days. There will be 26 survey weeks in total. Individual surveys will consist of a 1-hour observation period at each of the 18 point-count locations during each week of surveys, for a total of 468 hours of observations.

Eagle use data will be collected in 1-minute intervals so that the data can be translated into eagle exposure minutes, as recommended in the ECP Guidance. The data recorded for each survey will include the count start and stop times, eagle species observed, numbers and age classes of eagles seen, minutes of eagle flight in two height categories based on the ECP Guidance ( $\leq 200$  and  $>200$  meters {m} above ground), notes on flight and other behaviors, and an individual identifier for each flight observation allowing it to be linked to a flight map. Each eagle flight observed will be drawn on a topographic map or aerial image of the Project Area and digitized using a GIS so that eagle locations and behaviors can be overlaid with Project features. Numerical data will be collected within 800-m-radius plots, but flight lines will be documented across line-of-sight and will not be limited to the 800-m-radius survey plot.



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# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Ecological Services  
420 South Garfield Avenue, Suite 400  
Pierre, South Dakota 57501-5408



March 23, 2014

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

Re: Crowned Ridge Wind Energy Center,  
Codington and Grant Counties, South  
Dakota

Dear Ms. Griger:

This letter is in response to your February 11, 2015, request for environmental comments regarding the above referenced project involving installation of the 200-MW Crowned Ridge Wind Energy Center and an associated 40- mile 230 kV transmission line. The 26,038-acre wind project area includes numerous sections in Townships 118-120 North, Ranges 51 and 52 West; the transmission line includes numerous sections in Townships 119-121 North, Ranges 46-51 West, all within Grant and Codington Counties, South Dakota.

Your current letter includes a previous (November 26, 2007) response from our office to Tetra Tech's October 19, 2007, inquiry for the Crowned Ridge facility; however, we sent an additional letter to you dated February 5, 2010 (copy enclosed) and a similar letter to Western Area Power Administration dated December 30, 2010. Herein we provide updated information.

In accordance with section 7(c) of the Endangered Species Act, as amended, 16 U.S.C. 1531 et seq., we have determined that the following federally listed/proposed species may occur in the project area (this list is considered valid for 90 days):

<u>Species</u>	<u>Status</u>	<u>Expected Occurrence</u>
Topeka Shiner ( <i>Notropis topeka</i> )	Endangered	Known resident
Dakota Skipper ( <i>Hesperia dacotae</i> )	Threatened	Resident in native prairie, northeastern SD
Poweshiek Skipperling ( <i>Oarisma poweshiek</i> )	Endangered	Possible resident in native prairie, northeastern SD

Rufa Red Knot ( <i>Calidris canutus rufa</i> )	Threatened	Rare seasonal migrant
Whooping Crane ( <i>Grus americana</i> )	Endangered	Migration

Additionally, the following species have been proposed for listing under the Endangered Species Act and may occur in the project area:

<u>Species</u>	<u>Status</u>	<u>Expected Occurrence</u>
Northern Long-eared Bat ( <i>Myotis septentrionalis</i> )	Proposed Endangered	Summer resident, seasonal migrant, known winter resident in Black Hills

The Topeka shiner is an endangered minnow known to occupy numerous small streams within the Big Sioux, Vermillion and James watersheds of eastern South Dakota. Willow Creek in Codington County is a known occupied stream, tributaries of which occur within the proposed project area. We recommend avoidance of impacts to this waterway and its tributaries. If instream work in the Willow Creek watershed is proposed, specific measures may be necessary to ensure that adverse impacts to the Topeka shiner are not incurred as a result of this project.

The Dakota skipper is a small prairie butterfly listed as a threatened species under the Endangered Species Act (see: <http://www.gpo.gov/fdsys/pkg/FR-2014-10-24/pdf/2014-25190.pdf>). Dakota skippers are obligate residents of high quality prairie ranging from wet-mesic tallgrass prairie to dry-mesic mixed grass prairie. In northeastern South Dakota, Dakota skippers inhabit dry-mesic hill prairies with abundant purple coneflower (*Echinacea angustifolia*), but also use mesic to wet-mesic tallgrass prairie habitats characterized by wood lily (*Lilium philadelphicum*) and mountain deathcamas (smooth camas; *Zigadenus elegans*). Their dispersal ability is very limited due in part to their short adult life span and single annual flight. Extirpation from a site may be permanent unless it occurs within about 0.6 miles of an inhabited site that generates a sufficient number of emigrants. Avoidance of impacts to native prairie habitat is recommended to reduce the risk of adverse effects to this species.

The Poweshiek skipperling is a small prairie butterfly listed as endangered under the Endangered Species Act (see: <http://www.gpo.gov/fdsys/pkg/FR-2014-10-24/pdf/2014-25190.pdf>). The habitat of Poweshiek skipperlings includes prairie fens, grassy lake and stream margins, moist meadows, and wet-mesic to dry tallgrass prairie. Preferred nectar plants for adult Poweshieks include smooth ox-eye (*Heliopsis helianthoides*) and purple coneflower (*Echinacea angustifolia*), but they also use stiff tickseed (*Coreopsis palmate*), black-eyed susan (*Rudbeckia hirta*), and palespike lobelia (*Lobelia spicata*). Larval food plants are assumed to include spike-rush, sedges, prairie dropseed (*Sporobolus heterolepis*) and little bluestem (*Schizachyrium scoparium*). Poweshiek skipperlings have one flight per year from about the middle of June through the end of July (depending upon weather). They have a low dispersal capability, and may not cross areas that are not structurally similar to native prairies. Extirpation from

fragmented and isolated prairie remnants may be permanent unless it occurs within about 0.6 miles of an inhabited site that generates a sufficient number of emigrants. They are vulnerable to extreme weather conditions, dormant season fire, and other disturbances (e.g., intense cattle grazing). Avoidance of impacts to native prairie habitat is recommended to reduce the risk of adverse effects to this species.

Whooping cranes migrate through South Dakota on their way to northern breeding grounds and southern wintering areas. They occupy numerous habitats such as cropland and pastures; wet meadows; shallow marshes; shallow portions of rivers, lakes, reservoirs, and stock ponds; and both freshwater and alkaline basins for feeding and loafing. Overnight roosting sites frequently require shallow water in which to stand and rest. Line strike mortality is one of the greatest threats to this species. More information on this topic is provided below. Additionally, should construction occur during spring or fall migration, the potential for disturbances to whooping cranes exists. Disturbance (flushing the birds) stresses them at critical times of the year. We recommend remaining vigilant for these birds. There is little that can be done to reduce disturbance besides ceasing construction at sites where the birds have been observed. The birds normally do not stay in any one area for long during migration. Any whooping crane sightings should be reported to this office.

The rufa red knot is a robin-sized shorebird listed as threatened under the Endangered Species Act (see: <<http://www.gpo.gov/fdsys/pkg/FR-2014-12-11/pdf/2014-28338.pdf>> for more information). The red knot migrates annually between its breeding grounds in the Canadian Arctic and several wintering regions, including the Southeast United States, the Northeast Gulf of Mexico, northern Brazil, and Tierra del Fuego at the southern tip of South America. Although it is primarily a coastal species, small numbers of rufa red knots are reported annually across the interior United States (i.e., greater than 25 miles from the Gulf or Atlantic Coasts) during spring and fall migration. These reported sightings are concentrated along the Great Lakes, but multiple reports have been made from nearly every interior State, including South Dakota. Any rufa red knot sightings should be reported to this office.

The northern long-eared bat is a medium-sized brown bat that has been proposed for listing as endangered under the Endangered Species Act primarily due to impacts of White Nose Syndrome (see: <<http://www.fws.gov/midwest/endangered/mammals/nlba/pdf/FRpropListNLBA2Oct2013.pdf>> for more information). Their proposed status defines these bats as a species in decline that the Service believes needs to be listed. Northern long-eared bats are known to be present in South Dakota during the summer months in forested habitat, primarily roosting singly or in colonies underneath bark, in cavities or in crevices of both live and dead trees. Some hibernacula have been documented in caves/mines in the Black Hills and the species have been documented in the Missouri River corridor during migration. White nose syndrome, a fungus affecting hibernating bats, is considered a significant threat to this species, but individuals may be harmed by other activities such as modifications to hibernacula, timber harvest, human disturbance, and collisions with wind turbines. Actions that may jeopardize the continued existence of this proposed species may require formal conference procedures in coordination with the Service. A decision regarding listing of the northern long-eared bat is anticipated to be made April 2, 2015. Interim guidance has been issued for this species that may be helpful to you (see: <<http://www.fws.gov/midwest/endangered/mammals/nlba/pdf/>>).

NLEBinterimGuidance6Jan2014.pdf>. We request any northern long-eared bat survey data you may collect.

Per earlier correspondence, it is our understanding that the Western Area Power Administration (Western) is the federal action agency for this project. If Western or their designated representative determines that the project "may adversely affect" listed species in South Dakota, it should request formal consultation from this office. If a "may affect - not likely to adversely affect" determination is made for this project, it should be submitted to this office for concurrence. If a "no effect" determination is made, further consultation may not be necessary. However, a copy of the determination should be sent to this office.

### **Bald Eagles**

Our U.S. Fish and Wildlife Service (USFWS) *Eagle Conservation Plan Guidance* (ECPG) was issued in April 2013, and per your letter you are familiar with the guidance and will be conducting eagle surveys at the project site. We have reviewed the protocol you provided. We note that the ECPG suggests at least 2 years of preconstruction surveys for eagles, as well as coverage of at least 30% of a 1-km buffer around turbine locations, while your protocol currently includes only 1 year of study, and 26% coverage. Following the ECPG more closely will strengthen the data used to estimate the risk to eagles and determine the appropriate risk category of the proposed project. Additionally, you have requested locations of documented eagle nests within 10 miles of the project area. The South Dakota Department of Game, Fish and Parks (SDDGFP) monitors known eagle nests annually, thus you may obtain this information from SDDGFP. Consider conducting surveys for eagle nests within the 10 mile radius of the project to identify any nests not currently known to SDDGFP.

### **Birds of Conservation Concern**

In our February 5, 2010, letter we indicated the potential for occurrence of species listed in our Birds of Conservation Concern 2008 publication. That information remains relevant to this project with exception of our recommendation to develop an Avian and Bat Protection plan for the wind facility. Although that type of plan would be appropriate for the transmission portion of this project, impacts from the wind energy facility may be better addressed via development of a Bird and Bat Conservation Strategy as outlined in our *Land-Based Wind Energy Guidelines* (see page 55 of the Guidelines: <[http://www.fws.gov/windenergy/docs/WEG\\_final.pdf](http://www.fws.gov/windenergy/docs/WEG_final.pdf)>).

Note that some species of migratory birds, particularly grassland dependent species such as the grasshopper sparrow, may tend to avoid wind turbines. This equates to habitat loss via negative behavioral response to turbines. We recommend offsetting that loss, perhaps via establishment of grassland easements, or restoration of degraded prairie/former grasslands. If the Crowned Ridge facility will impact intact grasslands, we recommend further coordination on this issue with both this office and the USFWS Waubay Wetland Management District whom you have already contacted. We request any survey data collected at the Crowned Ridge project area.



## Agency Coordination

Our February 5, 2010, letter included recommended coordination with other agencies, including the U.S. Geological Survey at the Northern Prairie Wildlife Research Center, as they were conducting wind energy/wildlife interaction studies, but it is our understanding that that work has been completed. Again, continued coordination is recommended with USFWS Waubay Wetland Management District and SDDGFP regarding their areas of expertise.

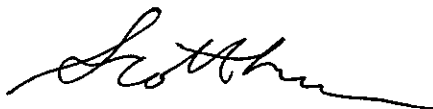
## Other Guidance Updates

No changes from our February 5, 2010, recommendations and advisories are provided herein regarding fisheries, wetlands, or the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act. Your letter indicates you are familiar with our 2013 *Land-based Wind Energy Guidelines* which have been finalized since our last correspondence, and you are following the tiered steps therein, which we highly recommend. We provided information in our February 5, 2010, letter regarding meteorological towers, but note that we have updated our communication tower guidance which extends to meteorological towers; that updated guidance is enclosed. Also note that the publication *Mitigating Bird Collisions with Power Lines: The State of the Art in 1994* we had previously recommended has been updated with a 2012 version: *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* which may be obtained by contacting the Edison Electric Institute at: <<http://www.eei.org/resourcesandmedia/products/Pages/ProductDetails.aspx?prod=F20558BF-A097-4289-A8BA-1674B6096523&type=P>>.

If changes are made in the project plans or operating criteria, or if additional information becomes available, the Service must be informed so that the above determinations can be reconsidered.

We appreciate the opportunity to provide comments on this project. If you have any questions on these comments, please contact Natalie Gates of this office at (605) 224-8693, Extension 227.

Sincerely,



Scott Larson  
Field Supervisor  
South Dakota Field Office

Enclosures

Cc: USFWS Waubay NWR; Waubay, SD  
(Attn: Connie Mueller)  
Western Area Power Administration; Billings, MT  
(Attn: Matt Marsh)  
SDDGFP; Pierre, SD  
(Attn: Silka Kempema)  
USFWS HAPET; Bismarck, ND

***2013 U.S. Fish and Wildlife Service (USFWS) Revised Voluntary Guidelines for Communication Tower Design, Siting, Construction, Operation, Retrofitting, and Decommissioning –***

**Suggestions Based on Previous USFWS Recommendations to FCC Regarding WT Docket No. 03-187, FCC 06-164, Notice of Proposed Rulemaking, "Effects of Communication Towers on Migratory Birds" (2007), Docket No. 08-61, FCC's Antenna Structure Registration Program (2011), Service 2012 Wind Energy Guidelines, and Service 2013 Eagle Conservation Plan Guidance**

Submitted by:

Albert M. Manville, II, Ph.D., C.W.B.  
Senior Wildlife Biologist & Avian-Structural Lead  
Division of Migratory Bird Management, U.S. Fish & Wildlife Service  
4401 N. Fairfax Dr. -- MBSP-4107  
Arlington, VA 22203  
703/358-1963, [albert\\_manville@fws.gov](mailto:albert_manville@fws.gov)

Last updated: September 27, 2013

[Comm Tower 2013 Revised Guidance-to FCC-AMM.docx]

1. Collocation of the communications equipment on an existing communication tower or other structure (e.g., billboard, water and transmission tower, distribution pole, or building mount) is strongly recommended. Depending on tower load factors and communication needs, from 6 to 10 providers should collocate on an existing tower or structure provided that frequencies do not overlap/"bleed" or where frequency length or broadcast distance requires higher towers. New towers should be designed structurally and electronically to accommodate the applicant's antenna, and antennas of at least 2 additional users – ideally 6 to 10 additional users, if possible – unless the design would require the addition of lights and/or guy wires to an otherwise unlit and/or unguyed tower. This recommendation is intended to reduce the number of towers needed in the future.

2. If collocation is not feasible and a new tower or towers are to be constructed, it is strongly recommended that the new tower(s) should be not more than 199 feet above ground level (AGL), and that construction techniques should not require guy wires. Such towers should be unlighted if Federal Aviation Administration (FAA) regulations and lighting standards (FAA 2007, Patterson 2012, FAA 2013 lighting circular anticipated update) permit. Additionally, the Federal Communications Commission (FCC) through recent rulemaking now requires that new towers  $\geq$  450 ft AGL contain no red-steady lights. FCC also recommends that new towers 350-450 ft AGL also contain no red-steady lights, and they will eventually recommend that new towers  $<$  350 ft AGL convert non-flashing lights to flash with existing flashing lights. LED lights are being suggested as replacements for all new construction and for retrofits, with the intent of future synchronizing the flashes. Given these dynamics, the Service recommends using lattice tower or monopole structures for all towers  $<$  200 ft AGL and for taller towers where feasible. The Service considers the less than 200 ft AGL option the "gold standard" and suggests that this

is the environmentally preferred industry standard for tower placement, construction and operation – i.e., towers that are unlit, unguyed, monopole or lattice, and less than 200 ft AGL.

3. If constructing multiple towers, the cumulative impacts of all the towers to migratory birds – especially to Birds of Conservation Concern (FWS 2008) and threatened and endangered species, as well as the impacts of each individual tower, should be considered during the development of a project.

4. The topography of the proposed tower site and surrounding habitat should be clearly noted, especially in regard to surrounding hills, mountains, mountain passes, ridge lines, rivers, lakes, wetlands, and other habitat types used by raptors, Birds of Conservation Concern, and state and federally listed species, and other birds of concern. Active raptor nests, especially those of Bald and Golden Eagles, should be noted, including known or suspected distances from proposed tower sites to nest locations. Nest site locations for Golden Eagles may vary between years, and unoccupied, inactive nests and nest sites may be re-occupied over multiple years. The Service's 2013 Eagle Conservation Plan Guidance, Module 1, Land-based Wind Energy, Version 2, available on our website, is a useful document (USFWS 2013).

5. If at all possible, new towers should be sited within existing "antenna farms" (i.e., clusters of towers), in degraded areas (e.g., strip mines or other heavily industrialized areas), in commercial agricultural lands, in Superfund sites, or other areas where bird habitat is poor or marginal. Towers should not be sited in or near wetlands, other known bird concentration areas (e.g., state of federal refuges, staging areas, rookeries, and Important Bird Areas), in known migratory, daily movement flyways, areas of breeding concentration, in habitat of threatened or endangered species, or key habitats for Birds of Conservation Concern (FWS 2008). Disturbance can result in effects to bird populations which may cumulatively affect their survival. The Service has recommended some disturbance-free buffers, e.g., 0.5 mi around raptor nests during the nesting season, and 1-mi disturbance free buffers for Ferruginous Hawks and Bald Eagles during nesting season in Wyoming (FWS WY Ecological Services Field Office, referenced in Manville 2007:23). The effects of towers on "prairie grouse," "sage grouse," and grassland and shrub-steppe bird species should also be considered since tall structures have been shown to result in abandonment of nest site areas and leks, especially for "prairie grouse" (Manville 2004). The issue of buffers is currently under review, especially for Bald and Golden Eagles. Additionally, towers should not be sited in areas with a high incidence of fog, mist, and low cloud ceilings.

6. If taller (> 199 ft AGL) towers requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA should be used. Unless otherwise required by the FAA, only white strobe or red strobe lights (red preferable since it is generally less displeasing to the human eye at night), or red flashing incandescent lights should be used at night, and these should be the minimum number, minimum intensity (< 2,000 candela), and minimum number of flashes per minute (i.e., longest duration between flashes/"dark phase") allowable by the FAA. The use of solid (non-flashing) warning lights at night should be avoided (Patterson 2012, Gehring et al. 2009) – see recommendation #2 above. Current research indicates that solid red lights attract night-migrating birds at a much higher rate than flashing lights (Gehring et al. 2009, Manville 2007, 2009). Recent research

indicates that use of white strobe, red strobe, or red flashing lights alone provides significant reductions in bird fatalities (Patterson 2012, Gehring et al. 2009).

7. Tower designs using guy wires for support, which are proposed to be located in known raptor or waterbird concentrations areas, daily movement routes, major diurnal migratory bird movement routes, staging areas, or stopover sites, should have daytime visual markers or bird deterrent devices installed on the wires to prevent collisions by these diurnally moving species. The efficacy of bird deterrents on guy wires to alert night migrating species has yet to be scientifically validated. For guidance on markers, see Avian Power Line Interaction Committee (APLIC). 2006. *Suggested Practices for Avian Protection on Power Lines -- State of the Art in 2006*. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, DC, and Sacramento, CA. 207 pp, and APLIC. 2012. *Reducing Avian Collisions with Power Lines -- the State of the Art in 2012*. Edison Electric Institute and APLIC. Washington, DC. 159 pp. Also see [www.aplic.org](http://www.aplic.org), [www.energy.ca.gov](http://www.energy.ca.gov), or call 202-508-5000.

8. Towers and appendant facilities should be designed, sited, and constructed so as to avoid or minimize habitat loss within and adjacent to the tower "footprint." However, a larger tower footprint is preferable to the use of guy wires in construction. Several shorter, un-guyed towers are preferable to one, tall guyed, lighted tower. Road access and fencing should be minimized to reduce or prevent habitat fragmentation, disturbance, and the creation of barriers, and to reduce above ground obstacles to birds in flight.

9. If, prior to tower design, siting and construction, if it has been determined that a significant number of breeding, feeding and roosting birds, especially of Birds of Conservation Concern (FWS 2008), state or federally-listed bird species, and eagles are known to habitually use the proposed tower construction area, relocation to an alternate site is highly recommended. If this is not an option, seasonal restrictions on construction are advised in order to avoid disturbance, site and nest abandonment, especially during breeding, rearing and other periods of high bird activity.

10. Security lighting for on-ground facilities, equipment and infrastructure should be motion- or heat-sensitive, down-shielded, and of a minimum intensity to reduce nighttime bird attraction and eliminate constant nighttime illumination, but still allow safe nighttime access to the site (USFWS 2012, Manville 2011).

11. Representatives from the USFWS or researchers from the Research Subcommittee of the Communication Tower Working Group should be allowed access to the site to evaluate bird use; conduct dead-bird searches; place above ground net catchments below the towers (Manville 2002); and to perform studies using radar, Global Position System, infrared, thermal imagery, and acoustical monitoring, as necessary. This will allow for assessment and verification of bird movements, site use, avoidance, and mortality. The goal is to acquire information on the impacts of various tower types, sizes, configurations and lighting protocols.

12. Towers no longer in use, not re-licensed by the FCC for use, or determined to be obsolete should be removed from the site within 12 months of cessation of use, preferably sooner.

13. In order to obtain information on the usefulness of these guidelines in preventing bird strikes and better understanding impacts from habitat fragmentation, please advise USFWS personnel of the final location and specifications of the proposed tower, and which measures recommended in these guidelines were implemented. If any of these recommended measures cannot be implemented, please explain why they are not feasible. This will further advise USFWS in identifying any recurring problems with the implementation of the guidelines, which may necessitate future modifications.

#### **Reference Sources:**

Federal Aviation Administration. 2007. Obstruction marking and lighting. Advisory Circular AC 70/7460-1K. U.S. Department of Transportation.

Gehring, J., P. Kerlinger, and A.M. Manville, II. 2009. Communication towers, lights and birds: successful methods of reducing the frequency of avian collisions. *Ecological Applications* 19(2): 505-514. Ecological Society of America.

Gehring, J., P. Kerlinger, and A.M. Manville, II. 2011. The role of tower height and guy wires on avian collisions with communication towers. *Journal of Wildlife Management* 75(4): 848-855. The Wildlife Society.

Manville, A.M., II. 2002. Protocol for monitoring the impact of cellular telecommunication towers on migratory birds within the Coconino, Prescott, and Kaibab National Forests, Arizona. Protocol requested by U.S. Forest Service. 9 pp.

Manville, A.M., II. 2004. Prairie grouse leks and wind turbines: U.S. Fish and Wildlife Service justification for a 5-mile buffer from leks; additional grassland songbird recommendations. Division of Migratory Bird Management, USFWS, Arlington, VA, peer-reviewed briefing paper. 17 pp.

Manville, A.M., II. 2007. Comments of the U.S. Fish and Wildlife Service Submitted Electronically to the FCC on 47 CFR Parts 1 and 17, WT Docket No. 03-187, FCC 06-164, Notice of Proposed Rulemaking, "Effects of Communication Towers on Migratory Birds." February 2, 2007. 32 pp.

Manville, A.M., II. 2009. Towers, turbines, power lines, and buildings – steps being taken by the U.S. Fish and Wildlife Service to avoid or minimize take of migratory birds at these structures. Pages 262-272 *In* T.D. Rich, C. Arizmendi, D. Demarest, and C. Thompson (eds.). *Tundra to Tropics: Connecting Habitats and People*. Proceedings 4th International Partners in Flight Conference, McAllen, TX.

Manville, A.M., II. 2011. Comments of the U.S. Fish and Wildlife Service's Division of Migratory Bird Management Filed Electronically on WT Docket No. 08-61 and WT Docket No. 03-187, Regarding the Environmental Effects of the Federal Communication's Antenna Structure Registration Program. January 14, 2011. 12 pp.



Patterson, J.T., Jr. 2012. Evaluation of new obstruction lighting techniques to reduce avian fatalities. DOT/FAA/TC-TN12/9, Federal Aviation Administration, U.S. Department of Transportation. 28 pp, plus appendices.

U.S. Fish and Wildlife Service. 2000. Service Guidance on the Siting, Construction, Operation, and Decommissioning of Communication Towers. September 14, 2000. <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

U.S. Fish and Wildlife Service. 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, VA. 85 pp. <http://www.fws.gov/migratorybirds/>>

U.S. Fish and Wildlife Service. 2012. U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines. March, 82 pp.

U.S. Fish and Wildlife Service. 2013. Eagle Conservation Plan Guidance, Module 1, Land-based Wind Energy, Version 2. Division of Migratory Bird Management. April, 103 pp.

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## Kely Mertz

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**Subject:** Information included: Crowned Ridge project discussion  
**Location:** Conference Line

**Start:** Thu 4/20/2017 12:00 PM  
**End:** Thu 4/20/2017 1:00 PM  
**Show Time As:** Tentative

**Recurrence:** (none)

**Meeting Status:** Not yet responded

**Organizer:** Kely Mertz  
**Required Attendees:** Kempema, Silka; Natoma Hansen; Natalie\_Gates@fws.gov; Mueller, Connie; Wells, Kimberly; Tyler.Williams@nexteraenergy.com; patrick.flowers@xcelenergy.com

Good morning,

Below, please find the agenda and call-in information for the call. We are also attaching a project overview, which we will walk through during the call. We understand the late circulation and do not expect review prior to the call.

We look forward to talking tomorrow.

Thank you,

Kely

### Call-in Information

305-552-3001

11855446#

### Agenda

- I. Introductions
- II. Project overview
- III. Current studies
- IV. PUC process
- V. USFWS easements
- VI. Questions



# Memorandum

**Date:** April 19, 2017

**Re:** Crowned Ridge II Project Background

---

## PROJECT OVERVIEW

Crowned Ridge Wind, LLC, an indirect subsidiary of NextEra Energy Resources, LLC (NEER), plans to develop a 600-megawatt (MW) wind facility known as the Crowned Ridge Wind Energy Facility (the project) in Deuel, Grant, and Codington Counties. The northern 300 MW will produce energy sold to Xcel through a Power Purchase Agreement. The southern 300 MW is a build-own-transfer project, with Xcel Energy (Xcel) as the ultimate owner-operator (Figure 1). The project's point of interconnection will be Otter Tail Power's Big Stone South 230-kilovolt (kV) substation near Big Stone City, South Dakota. Construction is anticipated to commence in early 2019, and the project is scheduled to achieve commercial operation on or before the end of 2019. For purposes of discussion, the northern 300 MW can be referenced as Crowned Ridge I, and the southern 300 MW can be referenced as Crowned Ridge II.

## STUDIES AND SURVEYS

NEER has completed numerous studies in the general vicinity of the project area (Table 1). NEER has coordinated with the U.S. Fish and Wildlife Service and South Dakota Game, Fish and Parks multiple times (2005, 2007, 2009, 2010, 2015, 2017) to request information regarding ecologically significant areas (e.g., easements) and endangered, threatened, or special status species (e.g., eagles) in this general area of South Dakota.

**Table 1.** Surveys and Studies Completed or in Progress for the Crowned Ridge Wind Energy Facility Project Area and Vicinity

Survey/Study Date	Survey/ Study Description	Description or Summary of Results	Federal or State Listed Species Observed? If Y, describe.
Fall 2007	Critical Issues Analysis (CIA) Bemis Wind Resource Area (WRA)	Recommended additional investigations; identified potential constraints.	NA
Mar 2007 – Jun 2008	Avian Surveys – Spring (Bemis WRA)	Identified 27 active raptor nests (mostly red-tailed hawks); several leks.	Y (11 South Dakota state-sensitive species)
Jun 2008	Native Prairie Surveys (Bemis WRA)	Delineated grassland, native and tame, and potential Dakota skipper habitat.	N
Aug – Nov 2008	Avian Surveys – Fall (Bemis WRA)	Documented avian species.	Y (12 South Dakota sensitive species)
Jun – Jul 2009	Native Prairie Surveys (Crowned Ridge WRA)	Delineated native and tame grassland and potential Dakota skipper habitat.	N

**Table 1.** Surveys and Studies Completed or in Progress for the Crowned Ridge Wind Energy Facility Project Area and Vicinity (Continued)

Survey/Study Date	Survey/ Study Description	Description or Summary of Results	Federal or State Listed Species Observed? If Y, describe.
2013	CIA (Crowned Ridge Wind Energy Center [WEC])	Recommended additional investigations and identified potential constraints or resources for consideration.	NA
Aug – Nov 2014	Avian Surveys – Fall (Crowned Ridge WEC)	Documented avian species.	N
Mar – Nov 2014; Nov – Mar 2015	Eagle Survey (Crowned Ridge WEC)	Documented eagle presence and use.	NA
2015	Dakota Skipper Habitat Evaluation (Crowned Ridge WEC)	Identified approximately five areas (ranging from 39 to 193 acres each and comprising 3% of the Project Area) of potential Dakota skipper habitat in the Project Area.	N
Summer 2015	Northern long-eared bat (NLEB) summer bat habitat assessment (Crowned Ridge Transmission Line Route)	Identified marginal potential suitable NLEB roosting habitat.	NA
Aug – Oct 2015; April – Oct 2016	Bat acoustic survey (Crowned Ridge WEC)	Documented bat activity.	NA
Apr, May 2017	Aerial Raptor Survey (Crowned Ridge Wind Energy Facility [WEF])	Identified raptor nests within project area plus 2- and 10-mile buffers. April complete.	TBD
April – Nov 2017	Avian point count surveys (Crowned Ridge WEF)	In progress. April point count complete.	TBD
Apr – Nov 2017	Bat Acoustic monitoring (Crowned Ridge WEF)	In progress.	TBD

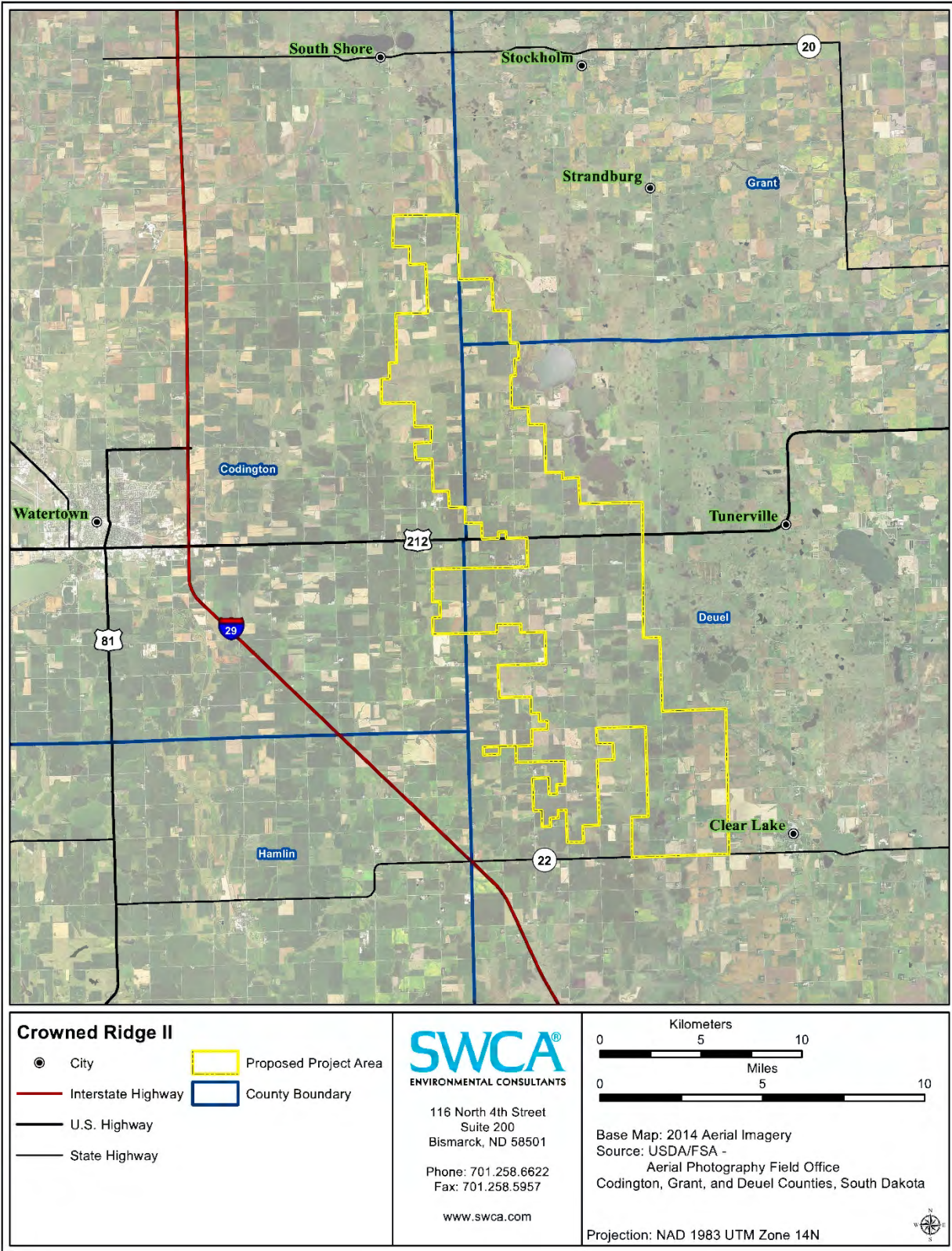
Notes:

N = No.

NA = Not Applicable.

TBD = To Be Determined.

Y = Yes.



**Figure 1.** Crowned Ridge Wind Energy Facility, Crowned Ridge II, South Dakota.



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## Scott Phillips

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**From:** Zonna Barnes  
**Sent:** Friday, June 16, 2017 5:02 PM  
**To:** Paige Olson; Scott Phillips; Carolyn.Stewart@nexteraenergy.com;  
Richard.Estabrook@nexteraenergy.com; Tyler.Wilhelm@nexteraenergy.com;  
Kimberly.Wells@nexteraenergy.com  
**Cc:** Norma Crumbley; Stephen Sabatke  
**Subject:** RE: Crowned Ridge Project Meeting  
**Attachments:** Cultural Resources\_overview-methods\_memo\_swca\_14Jun2017.docx

Hi all,

In preparation for the call on Monday morning, the cultural resource overview document is attached.

Thanks!

Zonnie

-----Original Appointment-----

**From:** Zonna Barnes  
**Sent:** Monday, June 12, 2017 5:07 PM  
**To:** Zonna Barnes; Paige Olson; Scott Phillips; Carolyn.Stewart@nexteraenergy.com;  
Richard.Estabrook@nexteraenergy.com; Tyler.Wilhelm@nexteraenergy.com; Kimberly.Wells@nexteraenergy.com  
**Cc:** Norma Crumbley; Stephen Sabatke  
**Subject:** Crowned Ridge Project Meeting  
**When:** Monday, June 19, 2017 9:00 AM-10:00 AM (UTC-07:00) Mountain Time (US & Canada).  
**Where:** 866.740.1260 Access Code: 9951661

9 am (MDT)/10 am (CDT)

Conference Call information:  
1-866-740-1260  
Access code: 9951661

# Memorandum

**Date:** June 14, 2017

**Re:** Crowned Ridge Wind Energy Facility Overview and Cultural Resources Review

---

## PROJECT OVERVIEW

Crowned Ridge Wind, LLC, an indirect subsidiary of NextEra Energy Resources, LLC (NEER), plans to develop a 600-megawatt (MW) wind facility known as the Crowned Ridge Wind Energy Facility (the project) in Deuel, Grant, and Codington Counties. The northern 300 MW will produce energy sold to Xcel Energy (Xcel) through a Power Purchase Agreement. The southern 300 MW is a build-own-transfer project, with Xcel as the ultimate owner-operator (Figures 1 and 2). The project's point of interconnection will be Otter Tail Power's Big Stone South 230-kilovolt (kV) substation near Big Stone City, South Dakota. Construction is anticipated to commence in early 2019, and the project is scheduled to achieve commercial operation on or before the end of 2019. For purposes of discussion, the northern 300 MW can be referenced as Crowned Ridge I, and the southern 300 MW can be referenced as Crowned Ridge II.

## CULTURAL RESOURCE REVIEW

Cultural resources review for the project is to meet the requirements of the South Dakota Public Utilities Commission (PUC) for project permitting. No federal involvement is triggered for the project that would require review under Section 106 of the National Historic Preservation Act. NEER has engaged the Sisseton-Wahpeton Oyate of the Lake Traverse Reservation (SWO), HDR, Inc. (HDR), and SWCA Incorporated (SWCA) to conduct the tribal resource, archaeological, and historic—or collectively “cultural resource”—review for the project. SWCA is leading and coordinating this combined effort.

### Existing Knowledge Bases

Records searches from the South Dakota Archaeological Research Center (SARC) databases indicate 562 cultural resources previously recorded within the vicinity of the project by 103 previous surveys (Table 1). Identification of tribal resources, such as sacred sites, Traditional Cultural Properties (TCPs), sites of religious importance, and historic properties, will be identified by SWO and may overlap with sites identified by others in the SARC databases. SWO is also working with NEER to lead outreach to other concerned tribes. As a result, the Spirit Lake Tribe and the Yankton Sioux Tribe are anticipated to participate in field survey efforts.

### Field Survey

A Level III intensive inventory of tribal, archaeological, and historic resources of the project area will be conducted including all turbine locations, collection lines, roads, 230-kV substations, and 230-kV transmission lines connecting the project to the Otter Tail Power 230-kV Big Stone Substation. Resource specialists from SWCA, HDR, SWO, and other engaged tribes will cover these areas with systematic pedestrian transects spaced no more than 30 meters (m) apart for an intensive survey of cultural resources.

**Table 1.** Previously Recorded Cultural Resources in the Project Vicinity per SARC Databases

<b>Cultural Resource Category</b>	<b>Quantity Identified</b>
Archaeological Sites	118
Historic Districts	1
Historic Bridges	49
Cemeteries	11
Historic Structures	383
<b>Total</b>	<b>562</b>

During the inventory, any previously recorded sites will be re-evaluated and re-recorded as necessary. Newly discovered cultural resources will be mapped to scale and recorded in accordance with South Dakota State Historic Preservation Officer (SHPO) guidelines. Global positioning system shapefiles will be created and additionally used to assist NEER in planning project design in relation to cultural resources.

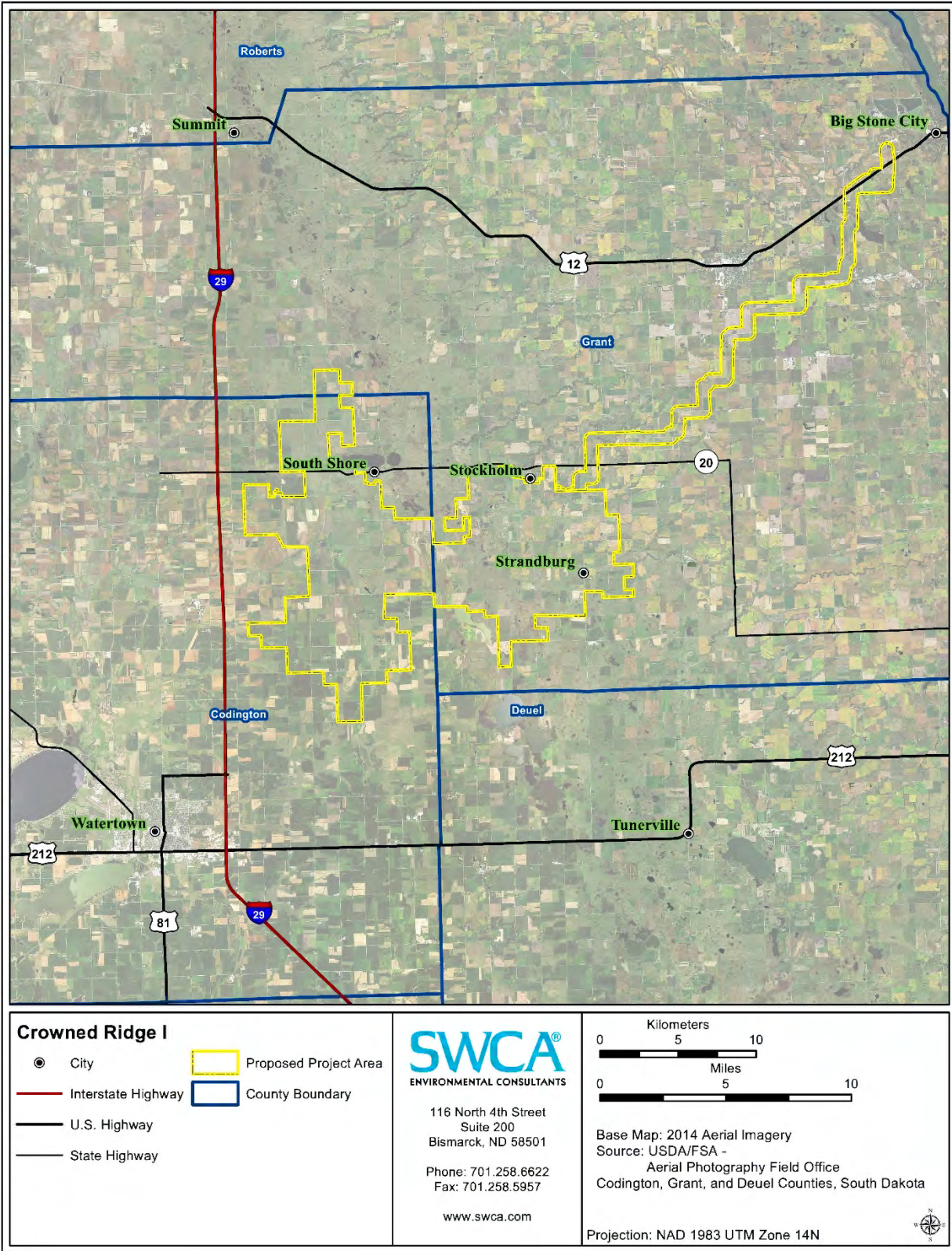
Principal Investigators from this team will evaluate the significance of all identified historic and prehistoric resources in terms of eligibility for the National Register of Historic Places and in relation to tribal significance. While evaluations of significance for an archaeological resource might use information from subsurface testing of both sites and isolated finds, subsurface testing will largely be limited to historical archaeological sites and excluded from potentially tribally significant resources that may be alternately assessed through nonintrusive means.

Based upon the PUC permits required for project components, NEER anticipates that up to four phases of cultural resources reporting may be required: one each for the Off-site and On-site Gen-ties, and one each for Crowned Ridge I and II. The Off-Site Gen-tie will connect from the northern end of the project to the Big Stone South 230- kV substation and is to begin PUC permitting by August 2017. The On-site Gen-tie will connect between Crown Ridge I and II, and these project components are to begin PUC permitting by October 2017.

## **Reporting**

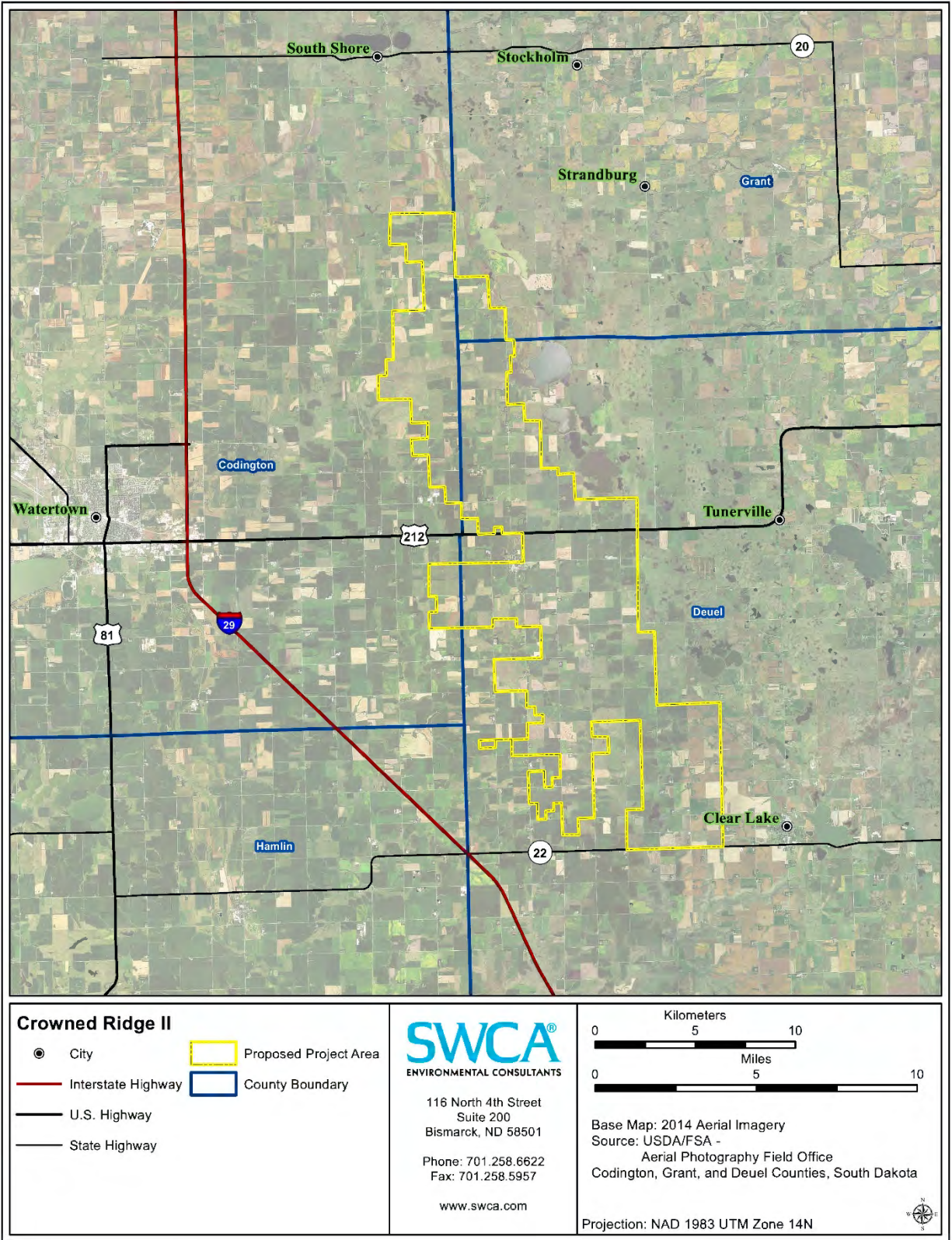
The team will prepare Level III intensive inventory reports to current SHPO standards. Reporting will include a project description, environmental setting, cultural setting, background research results, research design, methods, results of investigations, recommendations, and references cited. The report will provide recommendations regarding the management of cultural resources identified in the project area, with particular recommendations for avoidance, minimization, and other mitigation, as needed, for significant (National Register of Historic Places–eligible) cultural resources. The information will assist NEER with micro-siting, focusing upon the avoidance of effects to cultural resources to the extent achievable. An unanticipated discovery plan will also be drafted in consultation with NEER and the SHPO. This plan will detail specific actions to take during the construction phase of the project should any cultural resource discoveries be identified.

This memorandum was prepared for NEER by SWCA.



**Figure 1.** Crowned Ridge Wind Energy Facility, Crowned Ridge I, South Dakota.





**Figure 2.** Crowned Ridge Wind Energy Facility, Crowned Ridge II, South Dakota.



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**From:** [Kely Mertz](#)  
**To:** [Runia, Travis](#)  
**Subject:** RE: Lek data  
**Date:** Thursday, June 15, 2017 10:53:00 AM  
**Attachments:** [Generalized\\_Polygon.zip](#)

---

Travis,  
Attached is the general area of interest, which is confidential at this time.  
Thank you!  
Kely

**From:** Runia, Travis [mailto:Travis.Runia@state.sd.us]  
**Sent:** Thursday, June 15, 2017 8:43 AM  
**To:** Kely Mertz <KMertz@swca.com>  
**Subject:** RE: Lek data

Hi Kely,

Do you have a shapefile of the area of interest? I understand you might not be able to share the exact project boundary.

We usually respond to these requests by providing any lek data we may have, but we also let the developer know what surveys have been completed in the area. Our survey foot print is quite small, so many times we do not have any known lek locations in the proposed project area, but it is because surveys have not been conducted.

Thanks,

**Travis Runia** | *Senior Upland Game Biologist*  
South Dakota Department of Game, Fish and Parks  
895 3<sup>rd</sup> St. SW | Huron, SD 57350  
605.353.8477 | [Travis.Runia@state.sd.us](mailto:Travis.Runia@state.sd.us)

---

**From:** Kely Mertz [mailto:KMertz@swca.com]  
**Sent:** Thursday, June 15, 2017 7:39 AM  
**To:** Runia, Travis  
**Subject:** FW: [EXT] Lek data

Good morning Travis,  
I was inquiring about current data regarding lek locations, and Casey indicated you might have more information. Is this data that your agency has, and can share? This is in reference to ongoing coordination with SDGFP and USFWS regarding a potential wind project in eastern South Dakota.  
Thank you in advance,

Kely

**Kely Mertz**

Senior Project Manager

200 W. 22<sup>nd</sup> Street, Suite 220

Lombard, IL 60148

Office 630.705.1762

Cell 614.580.6715

Visit Our Website: <http://www.swca.com>

**From:** Heimerl, Casey [<mailto:Casey.Heimerl@state.sd.us>]

**Sent:** Thursday, June 15, 2017 8:36 AM

**To:** Kely Mertz <[KMertz@swca.com](mailto:KMertz@swca.com)>

**Subject:** RE: Lek data

Hi Kely,

We do not keep lek data in our Natural Heritage Database. I recommend you contact our upland gamebird biologist to see what he may be able to provide. His email is [Travis.Runia@state.sd.us](mailto:Travis.Runia@state.sd.us)

~Casey

---

**From:** Kely Mertz [<mailto:KMertz@swca.com>]

**Sent:** Thursday, June 15, 2017 7:15 AM

**To:** Heimerl, Casey

**Subject:** [EXT] Lek data

Hi Casey,

We are interested in the most current information regarding lek data also. Can we make that request under the same data use agreement form, or would we need to do another request separately? I would need to provide you with a slightly updated shapefiles and buffer.

Thank you,

Kely

**Kely Mertz**

Senior Project Manager

200 W. 22<sup>nd</sup> Street, Suite 220

Lombard, IL 60148

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Cell 614.580.6715

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**From:** [Kely Mertz](#)  
**To:** [Runia, Travis](#)  
**Cc:** [Heimerl, Casey](#)  
**Subject:** RE: Lek data  
**Date:** Tuesday, July 11, 2017 9:44:00 AM

---

This is very helpful, thank you Travis!  
Kely

**From:** Runia, Travis [mailto:Travis.Runia@state.sd.us]  
**Sent:** Tuesday, July 11, 2017 9:43 AM  
**To:** Kely Mertz <KMertz@swca.com>  
**Cc:** Heimerl, Casey <Casey.Heimerl@state.sd.us>  
**Subject:** RE: Lek data

Hi Kely,

We have very limited survey effort for prairie grouse leks in your project area. However, see below the information for 4 recent lek locations.

2014 – STGR – 11 males - -96.877056, 44.960364  
2016 – GPCH – 25 birds - -96.879337, 45.161802  
2016 – Unknown Species – 6 birds - -96.912922, 45.131501  
2016 – Unknown Species – 20 birds - -96.872471, 45.129682

Thanks,

**Travis Runia** | *Senior Upland Game Biologist*  
South Dakota Department of Game, Fish and Parks  
895 3<sup>rd</sup> St. SW | Huron, SD 57350  
605.353.8477 | [Travis.Runia@state.sd.us](mailto:Travis.Runia@state.sd.us)

---

**From:** Kely Mertz [mailto:KMertz@swca.com]  
**Sent:** Monday, July 10, 2017 12:52 PM  
**To:** Runia, Travis  
**Subject:** RE: [EXT] Lek data

Good afternoon, Travis –  
I was just following up to see if you had any lek data available for the area of interest I provided in June?  
Thank you!  
Kely

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July 12, 2017

Silka Kempema  
South Dakota Game Fish and Parks  
523 East Capitol Avenue  
Pierre, SD 57501

**Re: Crowned Ridge I and II Wind Energy Projects in Codington, Deuel, and Grant Counties, South Dakota**

Dear Ms. Kempema:

SWCA Environmental (SWCA) is writing on behalf of NextEra Energy Resources, LLC (NEER), to request information regarding ecologically sensitive areas and federally and state listed endangered, threatened, or special concern species occurrences in reference to the proposed Crowned Ridge Wind, LLC and Crowned Ridge Wind II, LLC projects in Codington, Deuel, and Grant counties, South Dakota.

The two projects are adjacent and will total 600 megawatts (MW). The northern 300 MW and northern gen-tie are known as the Crowned Ridge I project. The southern 300 MW and southern (on-site) gen-tie is known as the Crowned Ridge II project. The projects' point of interconnection will be Otter Tail Power's Big Stone South 230-kilovolt substation near Big Stone City, South Dakota. Construction is anticipated to commence in late 2018, and the projects are scheduled to achieve commercial operation on or before the end of 2019.

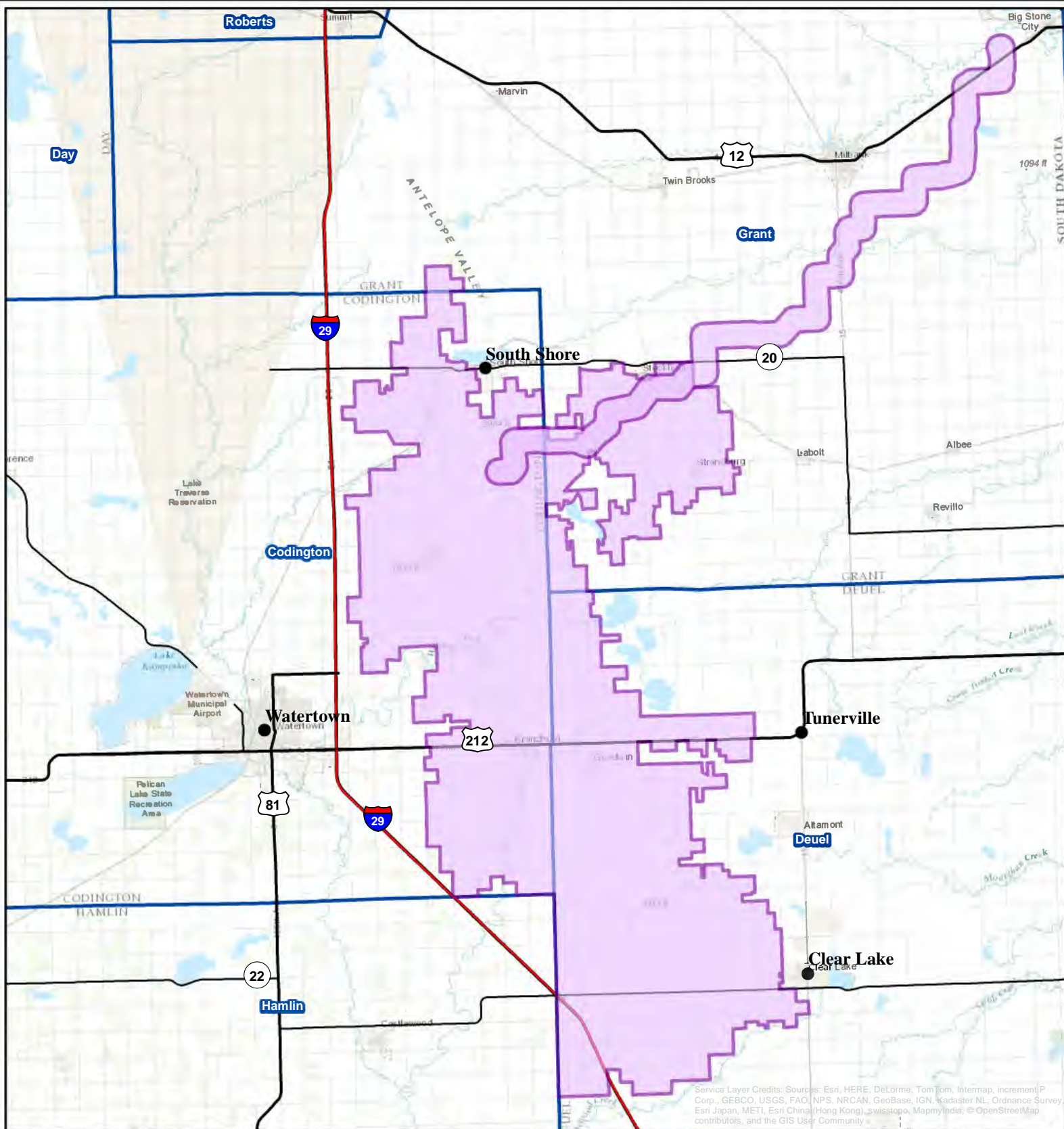
We have provided Shapefiles and a figure to facilitate your review, and we greatly appreciate your ongoing efforts to treat the projects and their locations as confidential at this time. Please note that the area provided is larger than what ultimately will be needed to develop the projects. However, querying this area will allow NEER to accommodate micro-siting adjustments to avoid sensitive resources to the extent possible.

NEER has coordinated with the South Dakota Game, Fish, and Parks and US Fish and Wildlife Service (USFWS) since 2005 regarding potential wind energy development in this general region. Recent coordination includes our April 20, 2017 conference calls with you and the USFWS. As you are aware from this past and ongoing coordination, NEER's goal is to perform a thorough analysis of environmental resources using the best available information.

Should you have any questions or require additional information, please do not hesitate to contact me at 614.580.6715 or kmertz@swca.com. Thank you for your assistance.

Sincerely,

Kely Mertz  
Senior Project Manager



## Crowned Ridge I and II Wind Projects

- City
- County Boundary
- Interstate Highway
- U.S. Highway
- State Highway
- Area of Interest

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Kilometers

0 5 10

Miles

0 5 10

Base Map: USGS 7.5' Topographic Map  
Source: Esri ArcGIS Online service  
Codington, Grant, and  
Deuel Counties, South Dakota

Projection: NAD 1983 UTM Zone 14N



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Lombard, Illinois 60148  
Tel 630.705.1762  
www.swca.com

July 12, 2017

Natalie Gates  
US Fish and Wildlife Service  
420 S. Garfield Avenue, Suite 400  
Pierre, SD 57501

**Re: Crowned Ridge I and II Wind Energy Projects in Codington, Deuel, and Grant Counties, South Dakota**

Dear Ms. Gates:

SWCA Environmental (SWCA) is writing on behalf of NextEra Energy Resources, LLC (NEER), to request information regarding ecologically sensitive areas and federally and state listed endangered, threatened, or special concern species occurrences in reference to the proposed Crowned Ridge Wind, LLC and Crowned Ridge Wind II, LLC projects in Codington, Deuel, and Grant counties, South Dakota.

The two projects are adjacent and will total 600 megawatts (MW). The northern 300 MW and northern gen-tie are known as the Crowned Ridge I project. The southern 300 MW and southern (on-site) gen-tie is known as the Crowned Ridge II project. The projects' point of interconnection will be Otter Tail Power's Big Stone South 230-kilovolt substation near Big Stone City, South Dakota. Construction is anticipated to commence in late 2018, and the projects are scheduled to achieve commercial operation on or before the end of 2019.

We have provided Shapefiles and a figure to facilitate your review, and we greatly appreciate your ongoing efforts to treat the projects and their locations as confidential at this time. Please note that the area provided is larger than what ultimately will be needed to develop the projects. However, querying this area will allow NEER to accommodate micro-siting adjustments to avoid sensitive resources to the extent possible.

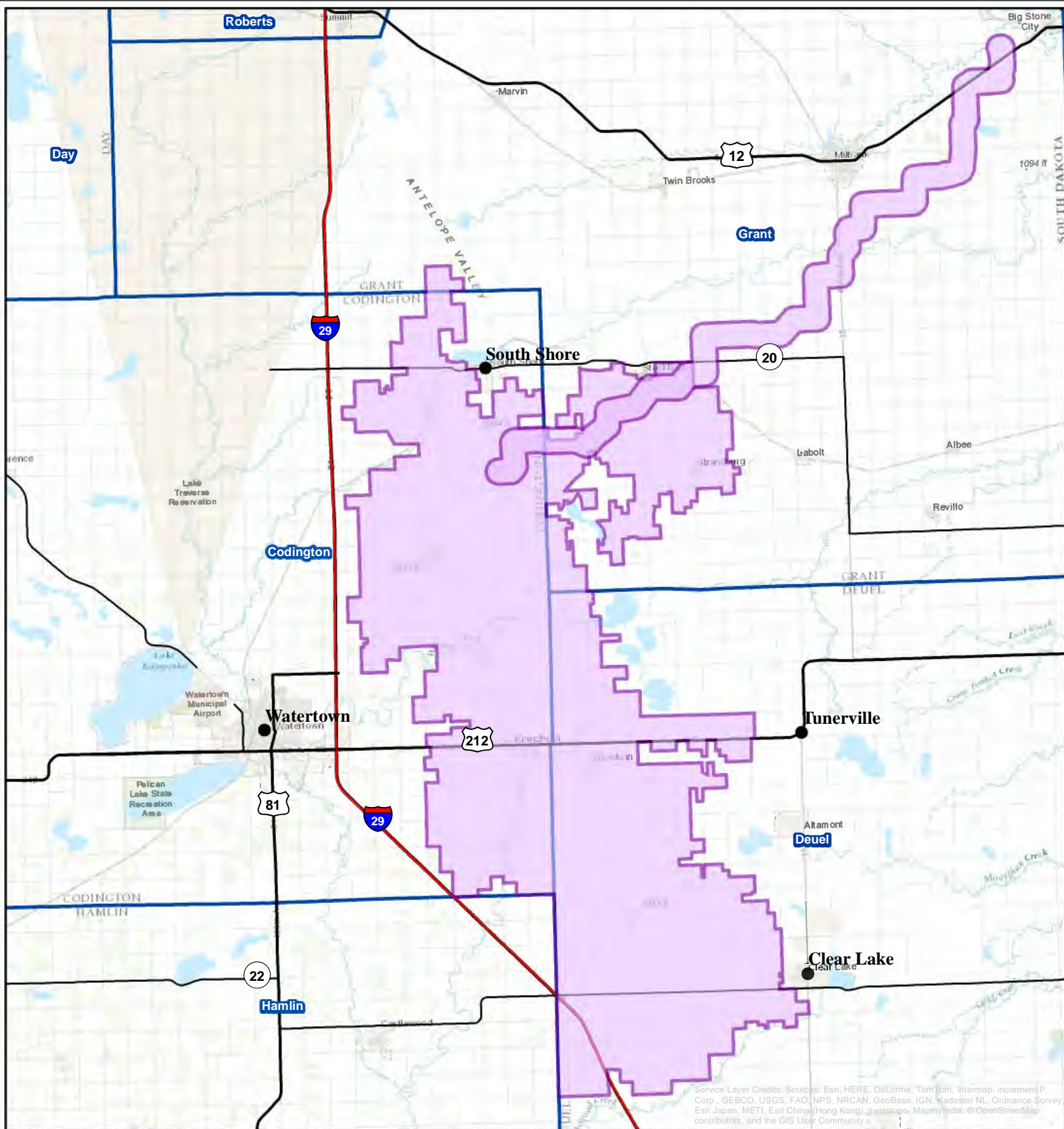
NEER has coordinated with the US Fish and Wildlife Service and South Dakota Game, Fish, and Parks (SDGFP) since 2005 regarding potential wind energy development in this general region. Recent coordination includes our April 20, 2017 conference calls with you and the SDGFP. As you are aware from this past and ongoing coordination, NEER's goal is to perform a thorough analysis of environmental resources using the best available information.

Should you have any questions or require additional information, please do not hesitate to contact me at 614.580.6715 or kmertz@swca.com. Thank you for your assistance.

Sincerely,

Kely Mertz  
Senior Project Manager





## Crowned Ridge I and II Wind Projects

- City
- County Boundary
- Interstate Highway
- U.S. Highway
- State Highway
- Area of Interest

**SWCA**<sup>®</sup>  
ENVIRONMENTAL CONSULTANTS

116 North 4th Street  
Suite 200  
Bismarck, ND 58501

Phone: 701.258.6622  
Fax: 701.258.5957

[www.swca.com](http://www.swca.com)

Kilometers

0 5 10

Miles

0 5 10

Base Map: USGS 7.5' Topographic Map  
Source: Esri ArcGIS Online service  
Codington, Grant, and  
Deuel Counties, South Dakota

Projection: NAD 1983 UTM Zone 14N



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## Kely Mertz

---

**From:** Heimerl, Casey <Casey.Heimerl@state.sd.us>  
**Sent:** Tuesday, August 01, 2017 11:57 AM  
**To:** Kely Mertz  
**Cc:** Kempema, Silka  
**Subject:** RE: Data request - Crowned Ridge projects  
**Attachments:** SDNHD\_8-1-17.zip; Invoice SDNHP-08-01-17-01.pdf; EOdatafields.pdf

Hi Kely,

Attached is a zipped shapefile of the Element Occurrence within your request area along with an invoice for your data request.

The SDNHD tracks species at risk. These species are those that are legally designated as either state or federally threatened or endangered (legally protected) or rare. Rare species are those that are declining and restricted to limited habitat, peripheral to a jurisdiction, isolated or disjunct due to geographic or climatic factors, or that are classified as such due to lack of survey data. A list of all monitored species can be found at <http://gfp.sd.gov/wildlife/threatened-endangered>.

I also included a description of the data fields included in the attribute table of the shapefile.

Please note that many places in South Dakota have not been surveyed for rare or protected species and the absence of any additional species from the database does not preclude its presence.

If you have any question please feel free to contact me,

~Casey

---

**From:** Kely Mertz [mailto:KMertz@swca.com]  
**Sent:** Monday, July 31, 2017 10:03 AM  
**To:** Heimerl, Casey  
**Subject:** RE: [EXT] Data request - Crowned Ridge projects

Hi Casey,  
Yes, we are fine with the fees.  
Thank you,  
Kely

**From:** Heimerl, Casey [mailto:Casey.Heimerl@state.sd.us]  
**Sent:** Monday, July 31, 2017 9:32 AM  
**To:** Kely Mertz <KMertz@swca.com>  
**Subject:** RE: Data request - Crowned Ridge projects

Hi Kely,

Silka forwarded me your request. I can conduct a search of our Natural Heritage Database and provide you with any records of rare, threatened or endangered species within the project areas. Silka will be providing you with a review of the projects.

Before I proceed with the data search, I want to make sure you are aware of the fees associated with data requests. Fees include \$30/hour of staff time required and \$30 per database search. If needed, I can provide you with a cost estimate for your request.

Thanks,

~Casey

---

**From:** Kely Mertz [<mailto:KMertz@swca.com>]  
**Sent:** Wednesday, July 12, 2017 10:15 AM  
**To:** Kempema, Silka  
**Subject:** [EXT] Data request - Crowned Ridge projects

Good morning Silka,

Attached please find a data request, and accompanying figure and shapefiles for the Crowned Ridge I and II projects.

Please let me know if you have any questions.

Thank you!

Kely

**Kely Mertz**  
Senior Project Manager

200 W. 22<sup>nd</sup> Street, Suite 220  
Lombard, IL 60148  
Office 630.705.1762  
Cell 614.580.6715  
Visit Our Website: <http://www.swca.com>

## EO Data Fields

FIELD	DEFINITION
EO_ID	Element Occurrence ID - Unique identifier for the EO record in the Biotics database system; used as the primary key.
EO_NUM	Element Occurrence Number - A number identifying the particular occurrence in a subnation.
SNAME	Subnational (state) recognized scientific name.
SCOMNAME	Subnational (state) recognized common name.
GNAME	Global Scientific Name - The standard global (i.e., rangewide) scientific name (genus and species) adopted for use by the NatureServe Central Databases based on selected standard taxonomic references.
GCOMNAME	Global Common Name - Species: The common name of an element adopted for use by NatureServe. Associations: A colloquial name for the association. Note: Common names have not been tracked for all plants. Names for other groups may be incomplete. Many elements have several common names, often in different languages. Spellings of common names follow no standard conventions and are not systematically edited.
NAME_CAT_1	Broad zoological, botanical or ecological category for the species to which the Scientific Name applies.
G_RANK	Global Rank - The NatureServe Conservation Status of a species from a global (i.e., rangewide) perspective, characterizing the relative rarity or imperilment of the species or community. The basic global ranks are: GX - Presumed Extinct, GH - Possibly Extinct, G1 - Critically Imperiled, G2 - Imperiled, G3 - Vulnerable, G4 - Apparently Secure, and G5 - Secure. For more detailed definitions and additional information, please see: <a href="http://www.natureserve.org/explorer/granks.htm">http://www.natureserve.org/explorer/granks.htm</a> .
S_RANK	Subnational Conservation Rank - The conservation status of a species from the subnational jurisdiction perspective, characterizing the relative rarity or imperilment of the species. Together these values provide national distribution data. The basic subnational conservation ranks are: SX - Presumed Extirpated, SH - Possibly Extirpated (Historical), S1 - Critically Imperiled, S2 - Imperiled, S3 - Vulnerable, S4 - Apparently Secure, S5 - Secure, SNR - Rank not yet assessed, SU - Unrankable, SHB - State Hybrid, SNA - Rank Not Applicable. For more detailed definitions and additional information, please see: <a href="http://www.natureserve.org/explorer/nsranks.htm">http://www.natureserve.org/explorer/nsranks.htm</a> .
CONFIDENCE	Confidence Extent - Indicator whether the full extent of the Element is known (i.e., has been determined through field survey) at that location and, therefore, is represented by the Element Occurrence (EO).
BASIC_EO_RANK	EO Rank Codes - Value that indicates the relative value of the Element Occurrence (EO) with respect to other occurrences of the Element, based on an assessment of estimated viability (i.e., probability of persistence) for species. In other words, EO ranks provide an assessment of the likelihood that if current conditions prevail the occurrence will persist for a defined period of time, typically 20-100 years. EO ranks may be used effectively in conjunction with NatureServe Conservation Status Ranks for the Element to guide which occurrences should be recorded and mapped, and to help prioritize EOs for purposes of conservation planning or action, both locally and rangewide. The basic EORANKs are: A - Excellent, B - Good, C - Marginal / Fair, D - Poor, E - Verified Extant, F - Failed to Find, X - Extirpated, H - Historic (possibly extirpated), U - Unrankable, NR - Not Ranked.

FIRST_OBS_DATE	First Observation Date - Date that the Element Occurrence (EO) was first reported at the site. If the EO is known from only one field report, then the date entered in this field should be the same as in the Last Observation Date field.
LAST_OBS_DATE	Last Observation Date - The date that the Element Occurrence (EO) was last observed to be extant at the site. Note that the last observation date is not necessarily the date the site was last visited (i.e., the survey date) or the date on which the occurrence was assigned an EO rank (i.e., the EO rank date). However, for E-ranked (extant) EOs, the last observation date should be the same as the date on which the occurrence was ranked.
EO_DATA	EO Data - Data collected on the biology of this EO, including the number of individuals, vigor, habitat, soils, associated species, particular characteristics, etc.
GEN_DESC	General Description - A general (capsule) description or word picture of the area where the Element Occurrence (EO) is located (i.e., the physical setting/context surrounding the EO).
DIRECTIONS	Direction to Element Occurrence
STATE_STAT	State Protection Status, i.e. ST=State Threatened, SE=State Endangered
FED_STAT	Federal Protection Status, i.e. LT=Federally Threatened, LE=Federally Endangered, C=Candidate Species

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**From:** Kely Mertz  
**To:** ["Heimerl, Casey"](#)  
**Subject:** Request for nest data  
**Date:** Friday, April 20, 2018 9:44:00 AM  
**Attachments:** [PROJECT\\_AREA\\_BUFFER\\_20180419.zip](#)

---

Hi Casey,

We would like to submit an updated request (current area of interest attached) for raptor nest data. Could you please review and let me know if you have any questions?

Thank you,  
Kely

**From:** Kely Mertz  
**Sent:** Tuesday, April 4, 2017 10:35 AM  
**To:** Heimerl, Casey <Casey.Heimerl@state.sd.us>  
**Subject:** Request for nest data (shapefiles 2 of 2)

Casey,

The attached shapefiles depict a corridor (2 of 2 project shapefiles) for which we would like to request nest data. Please let me know if you have any questions.

Thank you,  
Kely

**Kely Mertz**  
Senior Project Manager

200 W. 22<sup>nd</sup> Street, Suite 220  
Lombard, IL 60148  
Office 630.705.1762  
Cell 614.580.6715  
Visit Our Website: <http://www.swca.com>



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**From:** [Heimerl, Casey](#)  
**To:** [Kely Mertz](#)  
**Subject:** RE: Request for nest data  
**Date:** Tuesday, April 24, 2018 11:32:00 AM  
**Attachments:** [SDNHP-4-24-18.zip](#)

---

Hi Kely,

Attached is an updated shapefile of raptor records. I will waive the fee since there are only a few additional records from last year. The data use agreement that you signed last year is also good for another year.

Please let me know if you have any questions,

~Casey

---

**From:** Kely Mertz [mailto:KMertz@swca.com]  
**Sent:** Tuesday, April 24, 2018 9:17 AM  
**To:** Heimerl, Casey  
**Subject:** FW: [EXT] Request for nest data

Hi Casey,  
Sorry about that, not sure what happened. Can you see if this file works?  
Thank you,  
Kely

---

**From:** Mike Sobiech  
**Sent:** Tuesday, April 24, 2018 10:16 AM  
**To:** Kely Mertz <[KMertz@swca.com](mailto:KMertz@swca.com)>  
**Subject:** RE: Request for nest data

Interesting. This contains the shapefile.

**Mike Sobiech**  
GIS Lead/OSR - Bismarck

---

**From:** Kely Mertz  
**Sent:** Tuesday, April 24, 2018 9:14 AM  
**To:** Mike Sobiech <[MSobiech@swca.com](mailto:MSobiech@swca.com)>  
**Subject:** FW: Request for nest data

Mike,  
Casey says this folder is empty when she opens it?

---

**From:** Kely Mertz  
**Sent:** Friday, April 20, 2018 9:45 AM

**To:** 'Heimerl, Casey' <[Casey.Heimerl@state.sd.us](mailto:Casey.Heimerl@state.sd.us)>

**Subject:** Request for nest data

Hi Casey,

We would like to submit an updated request (current area of interest attached) for raptor nest data. Could you please review and let me know if you have any questions?

Thank you,  
Kely

**From:** Kely Mertz

**Sent:** Tuesday, April 4, 2017 10:35 AM

**To:** Heimerl, Casey <[Casey.Heimerl@state.sd.us](mailto:Casey.Heimerl@state.sd.us)>

**Subject:** Request for nest data (shapefiles 2 of 2)

Casey,

The attached shapefiles depict a corridor (2 of 2 project shapefiles) for which we would like to request nest data. Please let me know if you have any questions.

Thank you,  
Kely

**Kely Mertz**

Senior Project Manager

200 W. 22<sup>nd</sup> Street, Suite 220

Lombard, IL 60148

Office 630.705.1762

Cell 614.580.6715

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April 3, 2019

Silka Kempema  
South Dakota Game Fish and Parks  
523 East Capitol Avenue  
Pierre, SD 57501

**Re: Crowned Ridge I Wind Energy Project in Codington and Grant Counties, South Dakota**

Dear Ms. Kempema:

SWCA Environmental (SWCA) is writing on behalf of NextEra Energy Resources, LLC (NextEra), to request updated information regarding ecologically sensitive areas and federally and state listed endangered, threatened, or special concern species occurrences in reference to the proposed Crowned Ridge I Wind Energy Facility (the project) in Codington and Grant Counties, South Dakota. We have provided Shapefiles and a figure to facilitate your review.

Crowned Ridge Wind, LLC, an indirect, wholly owned subsidiary of NextEra, plans to develop the approximately 300-megawatt (MW) project. The project will produce energy sold to Xcel Energy through a Power Purchase Agreement. A new approximately 34-mile transmission line will be constructed to connect the project to Otter Tail Power's Big Stone South 230-kilovolt (kV) substation near Big Stone City, South Dakota.

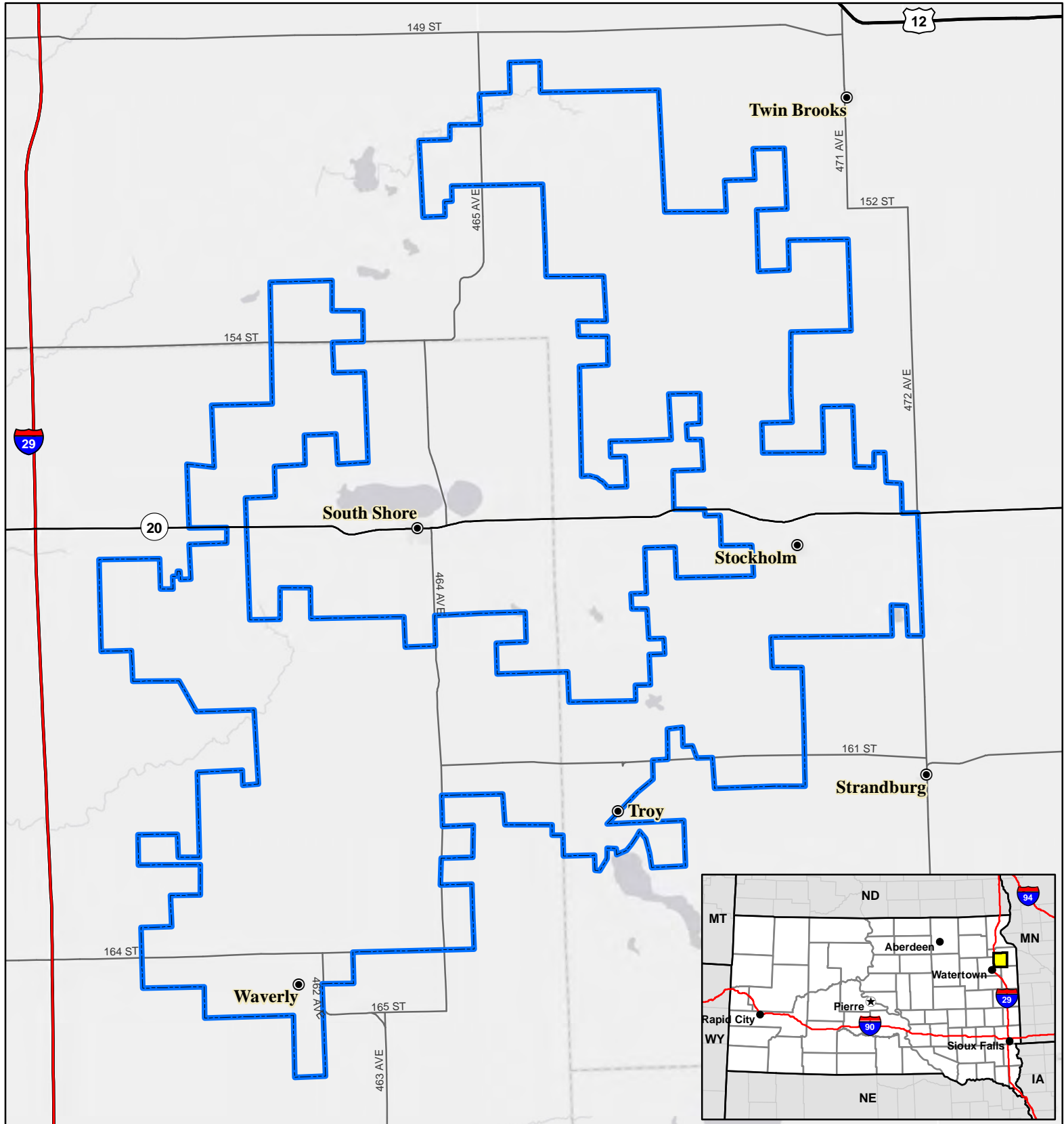
NEER has coordinated with the South Dakota Game, Fish, and Parks and U.S. Fish and Wildlife Service since 2005 regarding potential wind energy development in this general region. Recent coordination includes a data request letter dated July 2017, and an updated raptor nest data request dated April 2018. As you are aware from this past and ongoing coordination, NextEra's goal is to perform a thorough analysis of environmental resources using the best available information.

Should you have any questions or require additional information, please do not hesitate to contact me at 614.580.6715 or kmertz@swca.com. Thank you for your assistance.

Sincerely,

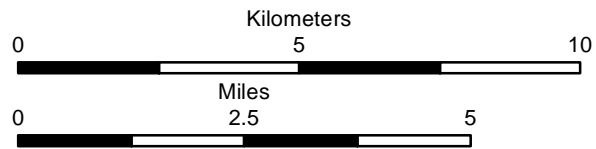
A handwritten signature in dark ink, appearing to read "Kely Mertz". The signature is stylized with a large, sweeping "K" and a cursive "Mertz".

Kely Mertz  
Senior Project Manager



## Project Area

- City
- Project Boundary
- Interstate Highway
- U.S. Highway
- State Highway
- County Road



Base Map: World Light Gray Canvas Base  
 Sources: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community  
 Codington and Grant Counties, South Dakota

Projection: NAD 1983 UTM Zone 14N

**SWCA**  
 ENVIRONMENTAL CONSULTANTS



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**From:** [Heimerl, Casey](#)  
**To:** [Becky Braeutigam](#)  
**Cc:** [Meyer, Hilary](#); [Kempema, Silka](#)  
**Subject:** RE: EXTERNAL:RE: Data request - Crowned Ridge I  
**Date:** Friday, April 26, 2019 10:35:56 AM  
**Attachments:** [image001.png](#)  
[CRII SDNHD 4-26-19.zip](#)  
[CRII SDNHP 4-26-19.zip](#)  
[CRII AdditionalTopekaShiner 4-26-2019.zip](#)  
[EOdatafields.pdf](#)  
[Invoice SDNHP 4 26 19 01.pdf](#)

---

Good morning Becky,

Attached are shapefiles for documented records from the SD Natural Heritage Database (SDNHD) that occurred within the Crown Ridge I and Crown Ridge II project areas. There were also additional records of Topeka Shiners (Federally Endangered) within CRII that had not yet been entered into the Heritage Database but I included these as a separate shapefile.

Also included is a description of the main fields in the attribute table and an invoice for your request.

Please note that the SDGFP does not conduct annual surveys for rare species and communities and the absence of data in your project area does not preclude its presence.

If you have any questions please feel free to contact me.

~Casey

---

**From:** Becky Braeutigam [mailto:[becky.braeutigam@swca.com](mailto:becky.braeutigam@swca.com)]  
**Sent:** Thursday, April 25, 2019 11:00 AM  
**To:** Heimerl, Casey  
**Subject:** RE: [EXT] EXTERNAL:RE: Data request - Crowned Ridge I

Hi Casey-  
Just within the provided shapefile would be great. Thanks for checking.  
Becky

---

**From:** Heimerl, Casey <[Casey.Heimerl@state.sd.us](mailto:Casey.Heimerl@state.sd.us)>  
**Sent:** Thursday, April 25, 2019 11:45 AM  
**To:** Becky Braeutigam <[becky.braeutigam@swca.com](mailto:becky.braeutigam@swca.com)>  
**Subject:** RE: EXTERNAL:RE: Data request - Crowned Ridge I

Thanks Becky,

Would you like me to conduct the search for record occurring within your provided shapefile, or should I extend the search any distance beyond the boundary?

~Casey

---

**From:** Becky Braeutigam [<mailto:becky.braeutigam@swca.com>]

**Sent:** Thursday, April 25, 2019 9:43 AM  
**To:** Heimerl, Casey  
**Subject:** RE: [EXT] EXTERNAL:RE: Data request - Crowned Ridge I

Hi Casey-

Thanks for getting back with me. The signed data use agreement is attached. We are indeed aware of the fees and the \$120 estimate sounds in line with what we were anticipating. Please let me know if you need anything else to complete the request.

Thanks,  
Becky

---

**From:** Heimerl, Casey <[Casey.Heimerl@state.sd.us](mailto:Casey.Heimerl@state.sd.us)>  
**Sent:** Thursday, April 25, 2019 9:37 AM  
**To:** Becky Braeutigam <[becky.braeutigam@swca.com](mailto:becky.braeutigam@swca.com)>  
**Subject:** EXTERNAL:RE: Data request - Crowned Ridge I

Good morning Becky,

My apologies for not responding sooner, somehow your email got buried in my inbox. I can conduct a search of the Natural Heritage Database for records of rare, threatened or endangered species within the project areas you provided for the Crowned Ridge I and II projects.

The SDNHD tracks species at risk. These species are those that are legally designated as either state or federally threatened or endangered (legally protected) or rare. Rare species are those that are declining and restricted to limited habitat, peripheral to a jurisdiction, isolated or disjunct due to geographic or climatic factors, or that are classified as such due to lack of survey data. A list of all monitored species can be found at <https://gfp.sd.gov/natural-heritage-program/>

Before I proceed, I will need you to read over and sign the attached data use agreement form. Also, I want to make sure you are aware of the fees associated with data requests. Fees include \$30/hr of staff time required and \$30 database search. I would estimate your cost to be around \$120.00

Please let me know if you have any questions,

~Casey

**Casey Heimerl** | *Wildlife Biologist*  
South Dakota Game, Fish and Parks  
523 East Capitol Avenue | Pierre, SD 57501  
605.773.4345 | [Casey.Heimerl@state.sd.us](mailto:Casey.Heimerl@state.sd.us)

---

**From:** Kempema, Silka  
**Sent:** Wednesday, April 03, 2019 9:59 AM  
**To:** Kirschenmann, Tom; Meyer, Hilary; Heimerl, Casey  
**Subject:** FW: [EXT] Data request - Crowned Ridge I

---

**From:** Becky Braeutigam [<mailto:becky.braeutigam@swca.com>]  
**Sent:** Wednesday, April 03, 2019 9:03 AM  
**To:** Kempema, Silka  
**Cc:** Kely Mertz  
**Subject:** [EXT] Data request - Crowned Ridge I

Good morning Silka-

Please find attached a data request and associated overview map and shapefiles for the Crowned Ridge I project in Codington and Grant counties. Please let me know if you have any questions or if you require any additional information to complete the request.

Thanks,  
Becky

**Becky Braeutigam**  
Natural Resources Project Manager

**SWCA Environmental Consultants**  
200 W. 22<sup>nd</sup> St., Suite 220

Lombard, IL 60148  
M 937.405.8256



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IN REPLY REFER TO:  
CROWNED RIDGE  
I AND II

## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

South Dakota Ecological Services  
420 South Garfield Avenue, Suite 400  
Pierre, South Dakota 57501-5408  
(605) 224-8693, southdakotafieldoffice@fws.gov



July 2, 2019

Ms. Kimberly Wells  
NextEra Energy Resources, LLC  
601 Travis Street, Suite 1900  
Houston, Texas 77002

Darren Kearney  
South Dakota Public Utilities Commission  
500 E. Capitol Avenue  
Pierre, South Dakota 57501

Dear Ms. Wells/Mr. Kearney:

This letter is in regard to the Crowned Ridge wind energy projects (I and II); we request that the South Dakota Public Utilities Commission include this letter as part of the record of evidence for these projects. Herein we convey our primary concerns, provide associated updated recommendations, and raise additional issues related to information obtained via the South Dakota Public Utilities Commission (SDPUC) website.

We have provided several letters since at least 2007 regarding this project and participated in an April 19, 2017, conference call where we learned the Crowned Ridge project would be divided into parts I and II. Summaries of wildlife/habitat studies and results to date were conveyed over the phone during that call, but prior to that, we had relatively little information on project activities, and it was not clear how or whether environmental recommendations provided to date had been considered or applied. We accessed SDPUC's website to obtain Crowned Ridge I and II application materials, including updated project maps, and wildlife/habitat surveys and information. We request that NextEra provide any existing/future Crowned Ridge reports not already on the SDPUC website; if the projects move forward this includes information regarding post-construction studies.

Our foremost concerns with the Crowned Ridge projects are potential impacts to the Topeka shiner, the Dakota skipper, and grassland/wetland habitats and associated wildlife (direct and indirect effects).



Topeka shiner

Our concerns regarding the Topeka shiner are in relation to information within the SDPUC application materials submitted by NextEra. It appears a portion of a known occupied tributary to Willow Creek exists within the Crowned Ridge I project boundary; we are uncertain whether this waterway will be affected by the project. The Crowned Ridge II project will require four crossings of Willow Creek and Stray Horse Creek during construction; these are both known occupied Topeka shiner streams. The nature of these crossings is unknown to us. The applications for both Crowned Ridge projects state: “There is no information available to determine whether the Topeka shiner currently inhabits streams in the actual Project Area or Project Construction Easement.” When actions will occur in/adjacent to waterways known to be occupied by the species, we recommend working with the assumption that Topeka shiners may be present at the sites and could be directly and/or indirectly affected by the actions. This also applies to potentially occupied waterways that are connected to the known occupied habitats (assuming water is present in both cases). We refer you to the 2018 Species Status Assessment for the Topeka shiner for maps and additional species information:

<https://ecos.fws.gov/ServCat/Reference/Profile/95656>. Please note that instream activities in known/potential Topeka shiner occupied habitats, as well as actions conducted adjacent to these areas, have the potential to adversely affect this endangered minnow (and, depending on activities conducted, may include latent impacts when water returns to a site that was impacted when the stream was dry). Best Management Practices (BMPs) are proposed in the Crowned Ridge I and II application materials to protect water quality due to actions adjacent to the stream, but without additional information, it is not clear these BMPs are adequate to preclude the potential for adverse effects to this species. If complete avoidance is not possible, further coordination with this office may be needed to ensure the proposed action does not result in section 9 violations of the Endangered Species Act (ESA). Additionally, a permit may be required for work within these waters via the U.S. Army Corps of Engineers, and section 7 consultation with this office may then be necessary to ensure ESA compliance.

Dakota skipper/Poweshiek skipperling

Regarding the Dakota skipper/Poweshiek skipperling, BMPs were submitted with the application materials that will likely reduce the risk of impacts, but it appears potential habitats for these species may still be impacted. A single survey was conducted by consultant SWCA for Dakota skippers and Poweshiek skipperlings for each Crowned Ridge project area in 2018 following the Service’s 2018 *Dakota Skipper (Hesperia dacotae) North Dakota Survey Protocol*. Neither species was detected. During our review of the reports submitted for these surveys, however, we noticed several issues of concern:

- The survey reports appear to indicate that thousands of acres identified as potentially suitable habitat via desktop methods were not field verified due partly to lack of landowner access and an undefined criteria describing some areas “qualitatively assessed as occurring in small or isolated patches” among other screening factors. Note that these species are known to occur in remnant small and isolated patches. The reports lack information on the number of acres omitted from field verification due to these criteria, the specifics of the criteria (e.g. how small the omitted patches were, their distances from other suitable patches), and whether these unchecked areas will be impacted by project activities.

- Among the unknown acreages that were field verified, 1,038 acres on Crowned Ridge I and 174.5 acres on Crowned Ridge II were identified as suitable habitat for these butterflies. Of these suitable acreages, only 12% (127.5 acres) and 23% (40.4 acres) for Crowned Ridge I and II respectively were selected for flight surveys, with larger patch sizes prioritized. It is not clear how the surveyors arrived at these acreages as subsets or the adequacy of this level of effort, but it appears the majority of suitable habitat locations were not surveyed for presence of the species.
- It also appears the flight-period survey areas these butterflies at Crowned Ridge II overlapped with disturbance areas for turbine construction sites, but it is not clear whether the same is true within the Crowned Ridge I survey report. Additionally, the overlap of surveyed suitable habitat with other ground-disturbing activities (e.g. roads, underground lines, crane paths, laydown areas) is not mentioned, thus the extent to which these potential habitats will be impacted is not clear, nor quantified.
- We are not certain whether another year of surveys for these butterflies will occur at either project site (we recommend at least 2 years of surveys), but the reports describe single-year protocols (e.g. three surveys, 48 hours apart, during peak flight period), thus it appears surveys will be limited to 2018. Missing from the single-year protocols in the survey reports is whether buffers to the sites of interest were also surveyed. The protocols include surveying 250 m buffer areas to the site of interest when there are no known populations nearby and 500 m buffers when there are records within 1 km (0.6 mi). The reports do not indicate the presence/absence of observation records in/near the project areas, nor surveys of buffer areas of any size.
- There is also no mention of designated critical habitat for these species in the reports. Critical habitat unit 4 for both the Dakota skipper and Poweshiek skipperling is located approximately one mile from the Crowned Ridge I project boundary. Dakota Skipper critical habitat unit 3/Poweshiek skipperling unit 3A exists only two miles from the project boundary of Crowned Ridge II. The Crowned Ridge projects are located between these two sites. Critical habitat tracts are located close to the projects and suitable habitat is present in the project areas, thus a thorough survey effort is appropriate. Given the above-described issues it is not clear this occurred.

We encourage revision of the reports, and/or addendums to them, to address the above concerns and further explain the methods/rationale so that the risks posed to these listed butterfly species as a result of the Crowned Ridge projects may be better understood and addressed appropriately.

The application materials for these projects describe the potential for impacts to suitable habitat and the possibility these sites will be determined occupied by the species in the future. BMPs proposed for these species are likely helpful, but concerns for impacts remain if the species are present. To preclude the risk of take of these federally listed species, we recommend complete avoidance of suitable habitats which are described in the final listing rule (79 FR 63672-63748, October 24, 2014). If this is not possible, and take of these species may occur as a result of these projects, development of a Habitat Conservation Plan to achieve Endangered Species Act

compliance is available to non-federal entities. See: <https://www.fws.gov/endangered/what-we-do/hcp-overview.html>.

#### Grassland/wetland habitats and wildlife

Regarding grassland/wetland habitats at these project sites, based on our review of revised boundary maps for both Crowned Ridge projects, it appears efforts were made to avoid many of these areas by altering project boundaries; we commend efforts to focus project impacts in previously disturbed areas. However, it appears wildlife habitats are not entirely avoided and the proposed projects will still incur impacts to these sites. The Crowned Ridge I and II project areas are within the Big Sioux Basin and Prairie Coteau Ecoregions within the larger Prairie Pothole Region. The Prairie Coteau in particular, with intact grassland and wetland habitats, harbors high numbers of breeding waterfowl and other migratory birds. These habitats exist within and adjacent to the projects' boundaries. The native grasslands in this part of eastern South Dakota are composed of tallgrass prairie species. A small percentage of the original tallgrass prairie remains intact today and this habitat is considered one of North America's most endangered ecosystems. Our agency has implemented conservation programs targeting this habitat type, and have purchased easements to conserve remaining tracts, help maintain biodiversity, and slow habitat fragmentation in this area. It is a priority conservation habitat for the Service.

Our Madison and Waubay Wetland Management Districts manage the Service's grassland and wetland easements in the counties that would be impacted by the Crowned Ridge I and II projects. While we are aware that NextEra has committed to avoiding direct impacts to the Service's grassland easements, thereby avoiding the associated federal nexus, construction is still proposed on tracts of land that have Service wetland easements. On these easement tracts, the wetland basins are protected by easement restrictions, but adjacent uplands are not. While project development on these tracts will not directly impact these protected basins, indirect impacts affecting wildlife use (see below) of those wetlands will occur due to proximity of project facilities. Similarly, indirect impacts are anticipated on grassland easements if facilities are placed adjacent to these protected tracts of land. Further, facilities for both projects that will be placed on/or adjacent to wetland/grassland habitats that are not protected by easements will incur direct and indirect impacts. We continue to recommend that all project facilities be placed on previously disturbed sites (e.g. croplands) to avoid direct habitat impacts, and encourage situating facilities as far from intact wildlife habitats as possible to reduce indirect impacts.

For those direct and indirect effects that cannot be avoided, we also continue to recommend quantifying and offsetting those impacts. Proposed BMPs submitted for these projects may serve to reduce, but not preclude, impacts. As you know per our prior coordination on this and other NextEra projects, we regard several published literature sources as the best available science regarding avian avoidance of turbines. The U.S. Geological Survey research project funded by NextEra (Shaffer and Buhl 2016) revealed displacement of grassland nesting birds by turbines occurs out to at least 300 m. The Service's own research (Loesch et al. 2013) revealed displacement of breeding waterfowl pairs from wetlands within ½ mile of turbines. Additionally, an independent study of avian species in replanted grasslands (Conservation Reserve Program) (Leddy et al. 1999) also identified grassland nesting bird displacement within 180 m of turbines. Offsetting these impacts is consistent with our March 2012 U.S. Fish and

Wildlife Service Land-Based Wind Energy Guidelines (WEG), developed in coordination with wind industry.

NextEra has committed to development and implementation of habitat offset plans in relation to wind energy facilities in North Dakota; South Dakota harbors similar habitat and wildlife resources and conservation of those resources is important in this state as well. To ensure compliance with the WEG, reduce the environmental impacts of your projects, and help sustain and conserve native South Dakota wildlife species and habitats long-term, we recommend you evaluate the Crowned Ridge projects for any opportunities to further reduce impacts to habitat and wildlife. Then, quantify the remaining direct and indirect impacts to these resources and utilize the aforementioned published studies to develop/implement a plan to offset those impacts. We are willing to work with you in that regard.

Some other items of concern based on our review of NextEra's SDPUC permit application information for the Crowned Ridge projects include the following:

- Grouse Leks Although prairie grouse leks are known to exist in the vicinity of the projects, the only measure currently proposed by NextEra to reduce impacts to these leks is adjustment of the timing of construction (presumably to avoid the lekking season). While this may reduce impacts within the year of construction, it will have no bearing on operational impacts that are likely to displace grouse from leks in subsequent years. Avoiding leks by at least one mile is recommended by South Dakota Game, Fish and Parks; we submit further distance may be needed to preclude displacement.
- Line Marking A significant length (34+ miles) of overhead transmission lines will be constructed with these projects. It is not clear whether line-marking to make lines visible to birds or designs to prevent electrocutions will be applied. We refer you to our earlier letters on these topics and recommend application of the Avian Powerline Interaction Committee's (APLIC) guidelines to reduce the risk of avian mortality at these structures, including eagles (potential violations of the Bald and Golden Eagle Protection Act). Overhead lines in the vicinity of wetlands pose an increased risk to birds. We recommend marking those lines in particular, and ensuring the long-term maintenance of all marking devices and measures used to prevent electrocutions.
- Tallgrass Prairie Crowned Ridge application materials indicate use of Bauman et al. (2016), which identified areas of unbroken prairie in South Dakota. However, while the methods in that publication are described and quantity of unbroken prairie in the project areas are given, it is not clear whether these areas will be avoided – we recommend doing so. As stated above, the tallgrass prairie remaining in South Dakota is a very limited and valuable habitat.

- Bat Surveys Acoustic surveys for bats were conducted for these projects, resulting in detections of several bat species, but no northern long-eared bats. However, based on our review of the survey reports, the survey locations and level of effort appear inadequate to determine whether the northern long-eared bat may occur in the project areas. Each of the six bat species with potential to occur in the project area is associated with forested habitats, yet it appears forested habitats were not surveyed. At Crowned Ridge I, consultant SWCA identified 246 acres of suitable moderate quality habitat (based on patch size between 15-114 acres), but only two sites were surveyed, neither within the identified suitable habitat, and one was outside the project boundary. At Crowned Ridge II, 123 acres of suitable moderate quality (15-114 ac size) habitat were identified, yet only one location was surveyed, and it was not in suitable habitat. It appears all potential habitat patches were consolidated into a single acreage for each Crowned Ridge project, and the values were used to determine the number of bat survey locations. This method is not recommended to evaluate project area use by tree-roosting bat species, as it does not address the nature (small, isolated, scattered patches) of forested habitats in South Dakota and the potential occupancy of those areas by bats. As you know, the 4(d) rule for the northern long-eared bat does not prohibit mortality via collisions with wind turbines. However, if the intent of habitat evaluations and acoustic surveys is to determine the potential presence of this species, the survey methods applied for these projects appear inadequate for that purpose. We recommend targeting suitable habitats for surveys and surveying an increased number of those small, isolated, scattered patches of forest to detect a bat species that prefers trees and does not often utilize open areas.
- Eagles Raptor nest surveys revealed no eagle nests within project boundaries, but six nests were located within the 10-mile buffer surrounding these projects. One nest by the town of South Shore, while not technically within project boundaries, would ultimately be surrounded by turbines if the project area is developed as proposed. Bald eagles were observed during avian use surveys on Crowned Ridge II, but none at Crowned Ridge I. We recommend closely following the Service's *Eagle Conservation Plan Guidance* (<https://www.fws.gov/migratorybirds/pdf/management/eagleconservationplanguidance.pdf>) including implementation of the eagle model used to determine risk and evaluate whether an eagle take permit may be appropriate for these projects.

If changes are made in the project plans or operating criteria, or if additional information becomes available, the Service should be informed so that the above determinations can be reconsidered.

The Service appreciates the opportunity to provide comments. If you have any questions on these comments, please contact Natalie Gates of this office at (605) 224-8693, Extension 227.

Sincerely,

Scott Larson  
Field Supervisor  
North and South Dakota Field Offices

*Cc (email):* Hilary Meyer, SDDGFP, Pierre, SD  
Brad Johnson, USFWS, Waubay, SD  
Natoma Hansen, USFWS, Madison, SD

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Crowned Ridge Wind, LLC  
700 Universe Boulevard  
Juno Beach, FL 33408

July 8, 2019

**VIA Electronic Mail**

Kristen N. Edwards  
Staff Attorney  
South Dakota Public Utilities Commission  
500 East Capitol Avenue  
Pierre, SD 57501  
Phone (605)773-3201  
Kristen.edwards@state.sd.us

Dear Ms. Edwards:

Thank you for forwarding the July 2, 2019 letter from the U.S. Fish and Wildlife Service (the USFWS), that was filed in Docket No. EL19-003. The purpose of this response is to elaborate on Crowned Ridge Wind, LLC's (Crowned Ridge) commitment to continued coordination with the Service, and also to address certain topics discussed by the Service in its letter.

By way of summary, this response shows the following:

- While the USFWS does not have jurisdiction over the Crowned Ridge Wind Project (Project), Crowned Ridge has voluntarily consulted with the USFWS for many years, most recently via email and telephone to discuss the issues raised in this letter on July 3, 2019;
- Crowned Ridge is committed to continue the voluntary consultation with the USFWS, including describing the commitments Crowned Ridge has made in this proceeding that address the items set forth in the letter. For example:
  - Crowned Ridge will avoid impacts to the Topeka Shiner;
  - Crowned Ridge will use seed mixes that incorporate vegetation that supports federally listed butterfly species during revegetation efforts in native prairie that occur in potentially suitable Dakota Skipper and Poweshiek Skipperling habitat;
  - Crowned Ridge will implement a Stormwater Pollution Prevention Plan (SWPPP) that addresses restoration of any disturbed areas following construction, including revegetating non-cultivated grasslands using a seed mix that is recommended by the

Natural Resource Conservation Service (NRCS), or other land management agency, unless otherwise agreed upon with the landowner in writing; and

- A 1.5 mile buffer from any known occupied bald eagle nest.
- Crowned Ridge's voluntary consultation with the Service has been interactive. For example:
  - The Service approved the biologist and the protocols used to conduct the Dakota skippers and Poweshiek Skipperling survey; and
  - The Service also indicated to Crowned Ridge that Northern Long-Eared Bat is generally located in the Black Hills region, except for periods of migration where it is unlikely to occur at the Project.

Crowned Ridge has already reached out to the USFWS, and is confident it can provide the additional information to further demonstrate Crowned Ridge's commitment to protect the environment.

By way of background, the NextEra Energy Resources, LCC ("NEER") family of companies, which includes its indirect, wholly-owned subsidiary Crowned Ridge Wind, LLC (Crowned Ridge), have a long history of coordination with USFWS on its wind projects throughout the U.S. As the record in EL19-003 demonstrates, Crowned Ridge has coordinated with the USFWS for many years on the Project. For example, Appendix B of the Application (Ex. A1-B) shows that Crowned Ridge's first coordination with the USFWS occurred in 2007 and Crowned Ridge has continued to coordinate with the USFWS throughout the development of the Project. Crowned Ridge remains committed to continuing coordination with USFWS, and reached out to discuss the letter last week, but was unable to reach USFWS personnel.

Crowned Ridge will continue, as would be the normal course of business on any NEER wind project, to voluntarily coordinate with the USFWS throughout the Project's development, construction, and operation on the Crowned Ridge Wind project. For example, in its letter the USFWS requests that Crowned Ridge provide copies of post-construction studies. Crowned Ridge commits to provide these studies to the USFWS in the spirit of voluntary coordination, as the Service has no jurisdiction over the Project. In its letter, the USFWS acknowledges that the Project has been sited to avoid federal impacts, thus there is no federal nexus and jurisdiction over the Project. Therefore, while the USFWS' citation in its letter to federal statutes and regulations may be informative for Crowned Ridge's voluntary coordination with the USFWS, these legal authorities are not controlling or applicable to the Project.

The remainder of our response addresses the specific topics discussed by the USFWS. The purpose is to provide context and demonstrate Crowned Ridge's commitment to working with the USFWS as well as state agencies on similar issues throughout the development process, and, if approved for a Facility Permit, the construction and operation of the Project.

### **Topeka Shiner**

In its letter, the USFWS questions whether the Project will avoid impacts to the Topeka Shiner. As Crowned Ridge's Application at pages 11 and 70-71 indicate, Crowned Ridge is aware of the potential for Topeka Shiner to be found in the Project area, which includes the Willow and Stray Horse Creeks. Crowned Ridge plans to completely avoid potential impacts to the Willow and Stray Horse Creeks by boring under the streams. This avoidance measure will be included in the Wildlife Conservation Strategy that will be filed with the Commission prior to construction, and will also be communicated to the Service as a courtesy.

### **Dakota Skipper**

In its letter, the USFWS questions whether the Project appropriately surveyed for the presence of Dakota Skipper and included an avoidance strategy. It is puzzling why the USFWS raised this concern. The Application clearly demonstrates that Crowned Ridge's surveying for the Dakota Skipper was conducted by a USFWS-approved biologist and in accordance with protocols approved by the USFWS. With respect to surveying, in Appendix C of the Application (Ex. A1-C) Crowned Ridge submitted a Dakota Skipper and Poweshiek Survey Report. The Report shows that Jake Powell of SWCA, a contractor for the Project, is a USFWS-approved biologist authorized to complete protocol-level surveys for Dakota Skippers and Poweshiek Skipperlings. Attachment A of the Dakota Skipper and Poweshiek Survey Report also describes concurrence *issued by the USFWS* that the required protocol proposed for survey use was appropriate and sufficiently based on USFWS requirements. The survey results that show no detections of either butterfly species were shared with the USFWS via email in January 2019, including a copy sent to Scott Larson of the Service. A copy of that report was also included as Appendix C of Application filed with the Commission in January 2019.

A summary of the findings regarding the absence of Dakota Skippers is set forth in Section 11.3.1.2.1 and Section 11.3.1.4.1 of the Application. These sections explain there is a small proportion of suitable habitat for Dakota Skippers within the Project area. Nonetheless, Crowned Ridge set forth an avoidance strategy to minimize any impacts to suitable habitat areas of the Dakota Skipper during the flight season in Section 11.3.2.1 and 11.3.2.5 of the Application. Further, Crowned Ridge committed to use seed mixes that incorporate vegetation that supports these prairie butterfly species during revegetation efforts in potentially suitable Dakota Skipper and Poweshiek Skipperling habitat areas. Crowned Ridge will ensure the USFWS understands we have properly surveyed and documented the lack of the presence of Dakota Skipper and our commitments to protect the Dakota Skipper, should it occur.

### **Tallgrass Prairie and Wetlands**

In its letter, the Service asserts that not all wildlife habitats, such as grasslands and wetlands, were avoided by the Crowned Ridge Project. As the Application in Section 2.1 shows, Crowned Ridge is committed to avoiding and minimizing the impacts to grasslands and wetlands. Further, the Application sets forth an analysis of the potential presence of native prairie in Section 11.1.1 of the Application, showing approximately 47% of the Project area is grass/pasture and approximately 36% is in agriculture. The Project Construction Easement or subset of the Project area that will be potentially disturbed, is 26% in grass/pasture and 71% in agriculture that further demonstrates the Project's avoidance and

minimization efforts. Section 11.1.2 of the Application also states the permanent impact to grass/pasture is approximately 21.5 acres of the total 53,186 acre Project area or less than one tenth of one percent (< 0.004%). Further, as Crowned Ridge's Exhibit A70 shows, only 19 of the proposed 130 turbines impact native prairie as mapped by Bauman et al. 2016; and native prairie makes up approximately 17,889 acres of the Project area (Application at 50).<sup>1</sup> Of the 19 turbines on mapped native prairie, all 19 were sited due to minimize impacts on other environmental constraints, such as wetlands or cultural resources, or to incorporate landowner preferences not to have the turbine in land used to produce crops, or to incorporate specific turbine placement if the landowner only owned land in grasslands. Further, only 17 of the 19 turbine locations are actually located on native prairie based on field surveys that refined regional scale mapping of native prairie completed by Bauman et al. 2016 that was used in the preliminary analysis for the Project.

To minimize the impact to grasslands and native prairie, Crowned Ridge has committed to implement a Stormwater Pollution Prevention Plan that addresses restoration of any disturbed areas following construction. Crowned Ridge has also committed to address temporary impacts by revegetating non-cultivated grasslands using a seed mix that is recommended by the Natural Resource Conservation Service (NRCS), or other land management agency, unless otherwise agreed upon with the landowner in writing.

Project impacts to wetlands are described in Section 11.2.1 and avoidance and minimization measures are described in Section 11.2.2 of the Application. The Project committed to avoiding temporary and permanent impacts to wetlands and waters to the extent practical, including boring under potentially regulated features for collection lines and shifting roads for avoidance, where practical. The Project has also committed to keeping any unavoidable impacts below thresholds necessary to qualify for the conditions of the U.S. Army Corps of Engineers (USACE) Nationwide 12 permit for utility lines and associated facilities. The Project has further committed to a restoration process that will include revegetating native prairie areas with a seed mix recommended by NRCS unless otherwise agreed upon with the landowner.

### **USFWS Easements**

The potential for Project impacts to USFWS easements are described in Section 10.2.1.1 and avoidance and minimization measures are described in Section 10.2.2 of the Application. The Project has avoided (1) all parcels with grassland or combination wetland/grassland USFWS easements on them, and (2) all protected basins within USFWS' jurisdiction. In fact, while there are turbines sited within a parcel containing a wetland easement, none of the turbines in that easement are sited on a wetland protected basin. As the USFWS specifically acknowledges in their letter, USFWS easements do not extend to the uplands on a USFWS wetland easement surrounding the protected basin and only cover the protected basin. The Project avoids all direct impacts to protected basins on USFWS wetland easements, which is documented in Section 2.1 of the Application.

---

<sup>1</sup> Bauman, P., B. Carlson, and T. Butler. 2016. Quantifying Undisturbed (Native) Lands in Eastern South Dakota: 2013. Brookings: South Dakota State University Extension.

As part of its continued coordination with the USFWS, Crowned Ridge will explain the Project's impacts on native prairie and the lack of turbine impacts to protected basins, and explain the commitments Crowned Ridge made in its Application and in the stipulated conditions proposed for adoption in EL19-003.

### **Grouse Leks**

The record in EL19-003 shows that Crowned Ridge has made more specific commitments to protect the Grouse Lek than is claimed in the USFWS letter. Crowned Ridge has made the following commitments: (1) to avoid construction activities within 2 miles of known leks during the lekking period (March 1 to June 30) (Ex. A42 at 13) and (2) to impose a 0.3 mile buffer for turbine siting from any known historic lek (Evid. Hrg. Tr. at 196). Also, Crowned Ridge used survey data of known historic leks when siting its infrastructure, and has only sited 17 of the 130 turbines on native prairie, both of which help protect grouse leks. In addition, Crowned Ridge is unaware of any empirical peer-reviewed data reviewing the effects of wind turbine development on greater prairie-chicken or sharp-tailed grouse activities at lek locations in the Upper Great Plains (including South Dakota, North Dakota, and Minnesota) supporting the hypothesis that prairie grouse exhibit avoidance or displacement behavior around turbines. The avoidance and minimization efforts of the Project were also acknowledged by Staff witness Kirschenmann of the South Dakota, Department of Game, Fish, and Parks during the evidentiary hearing. Evid. Hrg. Tr. at 500 (June 12, 2019). During Crowned Ridge's continued coordination with the USFWS, it will explain these commitments to protecting leks.

### **Line Marking**

The USFWS letter questions whether the Project used Avian Powerline Interaction Committee's (APLIC) guidelines in the planned construction of transmission for the Project. The transmission lines were approved by Commission in EL17-050 and EL18-018, and Crowned Ridge and Crowned Ridge Wind, II, LLC, respectively agreed to design the transmission lines following APLIC suggested practices. Crowned Ridge, during its coordination with USFWS, will explain this commitment in further detail.

### **Northern Long-Eared Bats**

In its letter, the USFWS recommends targeting suitable habitats for bat surveys and surveying an increased number of those small, isolated, scattered patches of forest to detect a bat species that prefers trees and does not often utilize open areas. Crowned Ridge's Application (in Section 11.3.2.1) acknowledges that removal and fragmentation of forested patches could impact the Northern Long-Eared Bat, if present. As explained further in Section 11.3.2.4 of the Application, Crowned Ridge minimized tree clearing to avoid impacts to potential bat habitat, if occupied. In support of appropriate implementation of avoidance and minimization measures for bats, Crowned Ridge conducted a habitat suitability assessment (Appendix F to the Application) and an acoustic survey (Appendix G to the Application).

The intent of the habitat assessment was to determine the availability and suitability of bat habitat within the study area and used that information to determine a likelihood of occurrence for listed bat

species. The definition of “suitable habitat” was specific to each species. Suitable summer habitat for northern long-eared bats, as defined by the available, peer-reviewed literature, makes up less than 1 percent of the Project area. The known distribution of Northern Long-Eared Bats in South Dakota, according to coordination with USFWS, is primarily limited to the Black Hills region in the summer and winter, though a potential migrant throughout the State. Thus, it is reasonable to conclude that the species has a low likelihood of occurrence at most within the Project area. Email correspondence from Ms. Natalie Gates of the USFWS to SWCA’s biologist Drew Carson on June 6, 2018 regarding the Project is consistent with this conclusion and describes no known hibernacula of Northern Long-Eared Bats in South Dakota outside of the Black Hills, and that if the species were to occur in the Project area, it would likely be as a migrant only. Correspondence attached.

The intent of the acoustic surveys was to assess relative bat activity in habitat where construction of turbines is likely (i.e., open agricultural land) and determine if the activity is similar to that at operational wind energy facilities in the same region. This survey showed that a reasonable conclusion is that relative activity in habitat where turbines are planned for construction is lower than that at operational wind energy facilities in the region. Crowned Ridge will explain the results of these surveys and its avoidance and minimization measures to address potential Northern Long-Eared Bat habitat during its continued coordination with the Service.

#### **Eagles**

In Section 11.3.2.5 of its Application, Crowned Ridge committed not to site a turbine within 1.5 miles of a known occupied bald eagle nest. This buffer is comparable to the 1.6 mile buffer recommended by the USFWS in the Region 3 Midwest Wind Multi Species Habitat Conservation Plan (HCP) for Wind released in April 2016. This USFWS Plan describes expected measures for an applicant who is pursuing a voluntary HCP under Section 10 of the Endangered Species Act and although not the intention for Crowned Ridge, represents the best available science to inform turbine siting. As with all topics discussed in the July 2, 2019 Letter, Crowned Ridge will continue to coordinate with the Service on eagles.

Again, thank you for the opportunity to reiterate Crowned Ridge's strong commitments to environmental protection.

Sincerely,

/s/

Kimberly Wells, PhD  
Senior Manager, Environmental Services  
NextEra Energy Resources, LLC  
On behalf of Crowned Ridge Wind, LLC

Attachments: Email correspondence from USFWS to SWCA



## Wells, Kimberly

---

**From:** Gates, Natalie <[natalie\\_gates@fws.gov](mailto:natalie_gates@fws.gov)>  
**Sent:** Wednesday, June 6, 2018 3:58 PM  
**To:** Kely Mertz <[KMertz@swca.com](mailto:KMertz@swca.com)>  
**Cc:** Drew Carson <[DCarson@swca.com](mailto:DCarson@swca.com)>  
**Subject:** Re: [EXTERNAL] South Dakota project area

At this time, the only known NLEB hibernacula in South Dakota are in the Black Hills, and I'm not aware of any maternity roosts in the state (though there almost certainly are some in the Hills and could be others so far undetected).

So while the bat could occur in the area, its more likely to be migrant rather than breeding or hibernating.

*Natalie Gates / U.S. Fish and Wildlife Service / Ecological Services South Dakota Field Office  
420 South Garfield Avenue, Suite 400 / Pierre, South Dakota 57501  
Phone: 605-224-8693, Ext. 227 / Fax: 605-224-1416  
<http://www.fws.gov/southdakotafieldoffice/>*

On Wed, Jun 6, 2018 at 12:54 PM, Kely Mertz <[KMertz@swca.com](mailto:KMertz@swca.com)> wrote:

Hi Natalie,

Can you share whether or not either of the attached polygons are within 0.25 mile of a known northern long-eared bat hibernacula or within 150 feet of a known maternity roost tree? Please note that these polygons are not final project boundaries.

Thank you,

Kely

**Kely Mertz**

Senior Project Manager

**SWCA Environmental Consultants**

[200 W. 22<sup>nd</sup>](#) Street, Suite 220

Lombard, IL 60148

M 614.580.6715 | O 630.705.1762



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**From:** [Wells, Kimberly](#)  
**To:** [Gates, Natalie](#)  
**Cc:** [Kely Mertz](#); [Wells, Kimberly](#)  
**Subject:** Crowned Ridge follow up  
**Date:** Tuesday, July 9, 2019 2:46:31 PM  
**Attachments:** [CRI USFWS response to PUC 07082019 app.pdf](#)

---

**EXTERNAL: This email originated from outside SWCA. Please use caution when replying.**

---

Hi Natalie,

I am following up on my email and voice mail from 7/3 on our Crowned Ridge I project. The attached letter provides a copy of what we shared with PUC and can discuss with you when we connect.

I will try you again today via telephone to see if we can schedule a future conversation or meeting to discuss in more detail.

Kim

Kimberly Wells, Ph.D.  
Senior Manager, Environmental Services  
Mid Continent Region  
**NEXtera** Energy Resources, LLC  
708 Main Street, 10<sup>th</sup> Floor (mail c/o WeWork)  
Houston, TX 77002  
713.951.5372 (office)  
832.538.7935 (mobile)  
[Kimberly.Wells@NEE.com](mailto:Kimberly.Wells@NEE.com)

\*\* NOTE new physical mailing address



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**From:** [Wells, Kimberly](#)  
**To:** [Larson, Scott](#)  
**Cc:** [Gates, Natalie](#); [Kely Mertz](#)  
**Subject:** FW: Crowned Ridge follow up  
**Date:** Tuesday, July 9, 2019 3:05:27 PM  
**Attachments:** [CRI USFWS response to PUC 07082019 app.pdf](#)

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**EXTERNAL: This email originated from outside SWCA. Please use caution when replying.**

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Hi Scott,

I see Natalie is out this week, so forwarding the email below and attachment to you while she is out to make sure you receive. Should we work with you to set up our next conversation?

Kim

Kimberly Wells, Ph.D.  
Senior Manager, Environmental Services  
Mid Continent Region  
**NEXtera** Energy Resources, LLC  
708 Main Street, 10<sup>th</sup> Floor (mail c/o WeWork)  
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713.951.5372 (office)  
832.538.7935 (mobile)  
[Kimberly.Wells@NEE.com](mailto:Kimberly.Wells@NEE.com)

\*\* NOTE new physical mailing address



---

**From:** Wells, Kimberly  
**Sent:** Tuesday, July 09, 2019 1:46 PM  
**To:** Gates, Natalie  
**Cc:** Kely Mertz; Wells, Kimberly  
**Subject:** Crowned Ridge follow up

Hi Natalie,

I am following up on my email and voice mail from 7/3 on our Crowned Ridge I project. The attached letter provides a copy of what we shared with PUC and can discuss with you when we connect.

I will try you again today via telephone to see if we can schedule a future conversation or meeting to discuss in more detail.

Kim

Kimberly Wells, Ph.D.  
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**From:** [Kely Mertz](#)  
**To:** [Kely Mertz](#)  
**Subject:** FW: Crowned Ridge response  
**Date:** Monday, August 19, 2019 2:11:59 PM  
**Attachments:** [USFWS ES response to NextEra July 8, 2019 letter.pdf](#)  
[ATT00001.htm](#)

---

**From:** Wells, Kimberly <Kimberly.Wells@nexteraenergy.com>  
**Sent:** Wednesday, July 17, 2019 6:08 PM  
**To:** Kely Mertz <KMertz@swca.com>; Sarah Sappington <SSappington@swca.com>  
**Subject:** Fwd: Crowned Ridge response

**EXTERNAL: This email originated from outside SWCA. Please use caution when replying.**

---

Begin forwarded message:

**From:** "Gates, Natalie" <[natalie\\_gates@fws.gov](mailto:natalie_gates@fws.gov)>  
**Date:** July 17, 2019 at 3:47:52 PM CDT  
**To:** "Wells, Kimberly" <[Kimberly.Wells@nexteraenergy.com](mailto:Kimberly.Wells@nexteraenergy.com)>  
**Cc:** Kristen Edwards <[Kristen.Edwards@state.sd.us](mailto:Kristen.Edwards@state.sd.us)>, Scott Larson  
<[Scott\\_Larson@fws.gov](mailto:Scott_Larson@fws.gov)>, Hilary Meyer <[Hilary.Meyer@state.sd.us](mailto:Hilary.Meyer@state.sd.us)>  
**Subject:** Crowned Ridge response

CAUTION - EXTERNAL EMAIL

Hi Kim,

Thank you for sending your response to our recent letter and for the conversation yesterday.

FYI, I've attached some thoughts on these issues and incorporated some of the information we discussed.

-Natalie

*Natalie Gates / U.S. Fish and Wildlife Service / Ecological Services South Dakota Field Office  
420 South Garfield Avenue, Suite 400 / Pierre, South Dakota 57501  
Phone: 605-224-8693, Ext. 227 / Fax: 605-224-1416*

Crowned Ridge Wind, LLC  
700 Universe Boulevard  
Juno Beach, FL 33408

July 8, 2019

**VIA Electronic Mail**

Kristen N. Edwards  
Staff Attorney  
South Dakota Public Utilities Commission  
500 East Capitol Avenue  
Pierre, SD 57501  
Phone (605)773-3201  
Kristen.edwards@state.sd.us

Dear Ms. Edwards:

Thank you for forwarding the July 2, 2019 letter from the U.S. Fish and Wildlife Service (the USFWS), that was filed in Docket No. EL19-003. The purpose of this response is to elaborate on Crowned Ridge Wind, LLC's (Crowned Ridge) commitment to continued coordination with the Service, and also to address certain topics discussed by the Service in its letter.

By way of summary, this response shows the following:

- While the USFWS does not have jurisdiction over the Crowned Ridge Wind Project (Project), Crowned Ridge has voluntarily consulted with the USFWS for many years, most recently via email and telephone to discuss the issues raised in this letter on July 3, 2019;
- Crowned Ridge is committed to continue the voluntary consultation with the USFWS, including describing the commitments Crowned Ridge has made in this proceeding that address the items set forth in the letter. For example:
  - Crowned Ridge will avoid impacts to the Topeka Shiner;
  - Crowned Ridge will use seed mixes that incorporate vegetation that supports federally listed butterfly species during revegetation efforts in native prairie that occur in potentially suitable Dakota Skipper and Poweshiek Skipperling habitat;
  - Crowned Ridge will implement a Stormwater Pollution Prevention Plan (SWPPP) that addresses restoration of any disturbed areas following construction, including revegetating non-cultivated grasslands using a seed mix that is recommended by the

Natural Resource Conservation Service (NRCS), or other land management agency, unless otherwise agreed upon with the landowner in writing; and

- A 1.5 mile buffer from any known occupied bald eagle nest.
- Crowned Ridge's voluntary consultation with the Service has been interactive. For example:
  - The Service approved the biologist and the protocols used to conduct the Dakota skippers and Poweshiek Skipperling survey; and
  - The Service also indicated to Crowned Ridge that Northern Long-Eared Bat is generally located in the Black Hills region, except for periods of migration where it is unlikely to occur at the Project.

Crowned Ridge has already reached out to the USFWS, and is confident it can provide the additional information to further demonstrate Crowned Ridge's commitment to protect the environment.

By way of background, the NextEra Energy Resources, LCC ("NEER") family of companies, which includes its indirect, wholly-owned subsidiary Crowned Ridge Wind, LLC (Crowned Ridge), have a long history of coordination with USFWS on its wind projects throughout the U.S. As the record in EL19-003 demonstrates, Crowned Ridge has coordinated with the USFWS for many years on the Project. For example, Appendix B of the Application (Ex. A1-B) shows that Crowned Ridge's first coordination with the USFWS occurred in 2007 and Crowned Ridge has continued to coordinate with the USFWS throughout the development of the Project. Crowned Ridge remains committed to continuing coordination with USFWS, and reached out to discuss the letter last week, but was unable to reach USFWS personnel.

Crowned Ridge will continue, as would be the normal course of business on any NEER wind project, to voluntarily coordinate with the USFWS throughout the Project's development, construction, and operation on the Crowned Ridge Wind project. For example, in its letter the USFWS requests that Crowned Ridge provide copies of post-construction studies. Crowned Ridge commits to provide these studies to the USFWS in the spirit of voluntary coordination, as the Service has no jurisdiction over the Project. In its letter, the USFWS acknowledges that the Project has been sited to avoid federal impacts, thus there is no federal nexus and jurisdiction over the Project. Therefore, while the USFWS' citation in its letter to federal statutes and regulations may be informative for Crowned Ridge's voluntary coordination with the USFWS, these legal authorities are not controlling or applicable to the Project.

The remainder of our response addresses the specific topics discussed by the USFWS. The purpose is to provide context and demonstrate Crowned Ridge's commitment to working with the USFWS as well as state agencies on similar issues throughout the development process, and, if approved for a Facility Permit, the construction and operation of the Project.

### **Topeka Shiner**

In its letter, the USFWS questions whether the Project will avoid impacts to the Topeka Shiner. As Crowned Ridge's Application at pages 11 and 70-71 indicate, Crowned Ridge is aware of the potential for Topeka Shiner to be found in the Project area, which includes the Willow and Stray Horse Creeks. Crowned Ridge plans to completely avoid potential impacts to the Willow and Stray Horse Creeks by boring under the streams. This avoidance measure will be included in the Wildlife Conservation Strategy that will be filed with the Commission prior to construction, and will also be communicated to the Service as a courtesy.

### **Dakota Skipper**

In its letter, the USFWS questions whether the Project appropriately surveyed for the presence of Dakota Skipper and included an avoidance strategy. It is puzzling why the USFWS raised this concern. The Application clearly demonstrates that Crowned Ridge's surveying for the Dakota Skipper was conducted by a USFWS-approved biologist and in accordance with protocols approved by the USFWS. With respect to surveying, in Appendix C of the Application (Ex. A1-C) Crowned Ridge submitted a Dakota Skipper and Poweshiek Survey Report. The Report shows that Jake Powell of SWCA, a contractor for the Project, is a USFWS-approved biologist authorized to complete protocol-level surveys for Dakota Skippers and Poweshiek Skipperlings. Attachment A of the Dakota Skipper and Poweshiek Survey Report also describes concurrence *issued by the USFWS* that the required protocol proposed for survey use was appropriate and sufficiently based on USFWS requirements. The survey results that show no detections of either butterfly species were shared with the USFWS via email in January 2019, including a copy sent to Scott Larson of the Service. A copy of that report was also included as Appendix C of Application filed with the Commission in January 2019.

A summary of the findings regarding the absence of Dakota Skippers is set forth in Section 11.3.1.2.1 and Section 11.3.1.4.1 of the Application. These sections explain there is a small proportion of suitable habitat for Dakota Skippers within the Project area. Nonetheless, Crowned Ridge set forth an avoidance strategy to minimize any impacts to suitable habitat areas of the Dakota Skipper during the flight season in Section 11.3.2.1 and 11.3.2.5 of the Application. Further, Crowned Ridge committed to use seed mixes that incorporate vegetation that supports these prairie butterfly species during revegetation efforts in potentially suitable Dakota Skipper and Poweshiek Skipperling habitat areas. Crowned Ridge will ensure the USFWS understands we have properly surveyed and documented the lack of the presence of Dakota Skipper and our commitments to protect the Dakota Skipper, should it occur.

### **Tallgrass Prairie and Wetlands**

In its letter, the Service asserts that not all wildlife habitats, such as grasslands and wetlands, were avoided by the Crowned Ridge Project. As the Application in Section 2.1 shows, Crowned Ridge is committed to avoiding and minimizing the impacts to grasslands and wetlands. Further, the Application sets forth an analysis of the potential presence of native prairie in Section 11.1.1 of the Application, showing approximately 47% of the Project area is grass/pasture and approximately 36% is in agriculture. The Project Construction Easement or subset of the Project area that will be potentially disturbed, is 26% in grass/pasture and 71% in agriculture that further demonstrates the Project's avoidance and

minimization efforts. Section 11.1.2 of the Application also states the permanent impact to grass/pasture is approximately 21.5 acres of the total 53,186 acre Project area or less than one tenth of one percent (< 0.004%). Further, as Crowned Ridge's Exhibit A70 shows, only 19 of the proposed 130 turbines impact native prairie as mapped by Bauman et al. 2016; and native prairie makes up approximately 17,889 acres of the Project area (Application at 50).<sup>1</sup> Of the 19 turbines on mapped native prairie, all 19 were sited due to minimize impacts on other environmental constraints, such as wetlands or cultural resources, or to incorporate landowner preferences not to have the turbine in land used to produce crops, or to incorporate specific turbine placement if the landowner only owned land in grasslands. Further, only 17 of the 19 turbine locations are actually located on native prairie based on field surveys that refined regional scale mapping of native prairie completed by Bauman et al. 2016 that was used in the preliminary analysis for the Project.

To minimize the impact to grasslands and native prairie, Crowned Ridge has committed to implement a Stormwater Pollution Prevention Plan that addresses restoration of any disturbed areas following construction. Crowned Ridge has also committed to address temporary impacts by revegetating non-cultivated grasslands using a seed mix that is recommended by the Natural Resource Conservation Service (NRCS), or other land management agency, unless otherwise agreed upon with the landowner in writing.

Project impacts to wetlands are described in Section 11.2.1 and avoidance and minimization measures are described in Section 11.2.2 of the Application. The Project committed to avoiding temporary and permanent impacts to wetlands and waters to the extent practical, including boring under potentially regulated features for collection lines and shifting roads for avoidance, where practical. The Project has also committed to keeping any unavoidable impacts below thresholds necessary to qualify for the conditions of the U.S. Army Corps of Engineers (USACE) Nationwide 12 permit for utility lines and associated facilities. The Project has further committed to a restoration process that will include revegetating native prairie areas with a seed mix recommended by NRCS unless otherwise agreed upon with the landowner.

### **USFWS Easements**

The potential for Project impacts to USFWS easements are described in Section 10.2.1.1 and avoidance and minimization measures are described in Section 10.2.2 of the Application. The Project has avoided (1) all parcels with grassland or combination wetland/grassland USFWS easements on them, and (2) all protected basins within USFWS' jurisdiction. In fact, while there are turbines sited within a parcel containing a wetland easement, none of the turbines in that easement are sited on a wetland protected basin. As the USFWS specifically acknowledges in their letter, USFWS easements do not extend to the uplands on a USFWS wetland easement surrounding the protected basin and only cover the protected basin. The Project avoids all direct impacts to protected basins on USFWS wetland easements, which is documented in Section 2.1 of the Application.

---

<sup>1</sup> Bauman, P., B. Carlson, and T. Butler. 2016. Quantifying Undisturbed (Native) Lands in Eastern South Dakota: 2013. Brookings: South Dakota State University Extension.

As part of its continued coordination with the USFWS, Crowned Ridge will explain the Project's impacts on native prairie and the lack of turbine impacts to protected basins, and explain the commitments Crowned Ridge made in its Application and in the stipulated conditions proposed for adoption in EL19-003.

### **Grouse Leaks**

The record in EL19-003 shows that Crowned Ridge has made more specific commitments to protect the Grouse Lek than is claimed in the USFWS letter. Crowned Ridge has made the following commitments: (1) to avoid construction activities within 2 miles of known leks during the lekking period (March 1 to June 30) (Ex. A42 at 13) and (2) to impose a 0.3 mile buffer for turbine siting from any known historic lek (Evid. Hrg. Tr. at 196). Also, Crowned Ridge used survey data of known historic leks when siting its infrastructure, and has only sited 17 of the 130 turbines on native prairie, both of which help protect grouse leks. In addition, Crowned Ridge is unaware of any empirical peer-reviewed data reviewing the effects of wind turbine development on greater prairie-chicken or sharp-tailed grouse activities at lek locations in the Upper Great Plains (including South Dakota, North Dakota, and Minnesota) supporting the hypothesis that prairie grouse exhibit avoidance or displacement behavior around turbines. The avoidance and minimization efforts of the Project were also acknowledged by Staff witness Kirschenmann of the South Dakota, Department of Game, Fish, and Parks during the evidentiary hearing. Evid. Hrg. Tr. at 500 (June 12, 2019). During Crowned Ridge's continued coordination with the USFWS, it will explain these commitments to protecting leks.

### **Line Marking**

The USFWS letter questions whether the Project used Avian Powerline Interaction Committee's (APLIC) guidelines in the planned construction of transmission for the Project. The transmission lines were approved by Commission in EL17-050 and EL18-018, and Crowned Ridge and Crowned Ridge Wind, II, LLC, respectively agreed to design the transmission lines following APLIC suggested practices. Crowned Ridge, during its coordination with USFWS, will explain this commitment in further detail.

### **Northern Long-Eared Bats**

In its letter, the USFWS recommends targeting suitable habitats for bat surveys and surveying an increased number of those small, isolated, scattered patches of forest to detect a bat species that prefers trees and does not often utilize open areas. Crowned Ridge's Application (in Section 11.3.2.1) acknowledges that removal and fragmentation of forested patches could impact the Northern Long-Eared Bat, if present. As explained further in Section 11.3.2.4 of the Application, Crowned Ridge minimized tree clearing to avoid impacts to potential bat habitat, if occupied. In support of appropriate implementation of avoidance and minimization measures for bats, Crowned Ridge conducted a habitat suitability assessment (Appendix F to the Application) and an acoustic survey (Appendix G to the Application).

The intent of the habitat assessment was to determine the availability and suitability of bat habitat within the study area and used that information to determine a likelihood of occurrence for listed bat

species. The definition of “suitable habitat” was specific to each species. Suitable summer habitat for northern long-eared bats, as defined by the available, peer-reviewed literature, makes up less than 1 percent of the Project area. The known distribution of Northern Long-Eared Bats in South Dakota, according to coordination with USFWS, is primarily limited to the Black Hills region in the summer and winter, though a potential migrant throughout the State. Thus, it is reasonable to conclude that the species has a low likelihood of occurrence at most within the Project area. Email correspondence from Ms. Natalie Gates of the USFWS to SWCA’s biologist Drew Carson on June 6, 2018 regarding the Project is consistent with this conclusion and describes no known hibernacula of Northern Long-Eared Bats in South Dakota outside of the Black Hills, and that if the species were to occur in the Project area, it would likely be as a migrant only. Correspondence attached.

The intent of the acoustic surveys was to assess relative bat activity in habitat where construction of turbines is likely (i.e., open agricultural land) and determine if the activity is similar to that at operational wind energy facilities in the same region. This survey showed that a reasonable conclusion is that relative activity in habitat where turbines are planned for construction is lower than that at operational wind energy facilities in the region. Crowned Ridge will explain the results of these surveys and its avoidance and minimization measures to address potential Northern Long-Eared Bat habitat during its continued coordination with the Service.

### **Eagles**

In Section 11.3.2.5 of its Application, Crowned Ridge committed not to site a turbine within 1.5 miles of a known occupied bald eagle nest. This buffer is comparable to the 1.6 mile buffer recommended by the USFWS in the Region 3 Midwest Wind Multi Species Habitat Conservation Plan (HCP) for Wind released in April 2016. This USFWS Plan describes expected measures for an applicant who is pursuing a voluntary HCP under Section 10 of the Endangered Species Act and although not the intention for Crowned Ridge, represents the best available science to inform turbine siting. As with all topics discussed in the July 2, 2019 Letter, Crowned Ridge will continue to coordinate with the Service on eagles.



Again, thank you for the opportunity to reiterate Crowned Ridge's strong commitments to environmental protection.

Sincerely,

/s/

Kimberly Wells, PhD  
Senior Manager, Environmental Services  
NextEra Energy Resources, LLC  
On behalf of Crowned Ridge Wind, LLC

Attachments: Email correspondence from USFWS to SWCA

## Wells, Kimberly

---

**From:** Gates, Natalie <[natalie\\_gates@fws.gov](mailto:natalie_gates@fws.gov)>  
**Sent:** Wednesday, June 6, 2018 3:58 PM  
**To:** Kely Mertz <[KMertz@swca.com](mailto:KMertz@swca.com)>  
**Cc:** Drew Carson <[DCarson@swca.com](mailto:DCarson@swca.com)>  
**Subject:** Re: [EXTERNAL] South Dakota project area

At this time, the only known NLEB hibernacula in South Dakota are in the Black Hills, and I'm not aware of any maternity roosts in the state (though there almost certainly are some in the Hills and could be others so far undetected).

So while the bat could occur in the area, its more likely to be migrant rather than breeding or hibernating.

*Natalie Gates / U.S. Fish and Wildlife Service / Ecological Services South Dakota Field Office  
420 South Garfield Avenue, Suite 400 / Pierre, South Dakota 57501  
Phone: 605-224-8693, Ext. 227 / Fax: 605-224-1416  
<http://www.fws.gov/southdakotafieldoffice/>*

On Wed, Jun 6, 2018 at 12:54 PM, Kely Mertz <[KMertz@swca.com](mailto:KMertz@swca.com)> wrote:

Hi Natalie,

Can you share whether or not either of the attached polygons are within 0.25 mile of a known northern long-eared bat hibernacula or within 150 feet of a known maternity roost tree? Please note that these polygons are not final project boundaries.

Thank you,

Kely

**Kely Mertz**

Senior Project Manager

**SWCA Environmental Consultants**

[200 W. 22<sup>nd</sup>](#) Street, Suite 220

Lombard, IL 60148

M 614.580.6715 | O 630.705.1762



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**From:** [Wells, Kimberly](#)  
**To:** [Gates, Natalie](#); [hilary.meyer \(hilary.meyer@state.sd.us\)](mailto:hilary.meyer@state.sd.us)  
**Cc:** [Larson, Scott](#); [Kely Mertz](#); [Sarah Sappington](#); [Wilhelm, Tyler](#); [HART, DARYL](#); [Wells, Kimberly](#)  
**Subject:** Crowned Ridge Follow up  
**Date:** Tuesday, August 6, 2019 4:05:44 PM  
**Attachments:** [Crowned Ridge Wind Final Order 7.26.19.pdf](#)  
[CRI and II USFWS follow up draft minutes 08062019.docx](#)

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**EXTERNAL: This email originated from outside SWCA. Please use caution when replying.**

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Natalie/Hilary,

Please review the draft minutes we recorded from our conference call on Crowned Ridge earlier this month and let us know if any comments or corrections. We file these in our PUC docket.

I am also attaching the Final Order for the wind farm and have highlighted the grouse condition below that we discussed briefly.

45. Applicant will undertake a minimum of two years of independently-conducted postconstruction grouse lek monitoring of known leks that are located less than 1 mile from a wind turbine. Known leks are SDGFP confirmed lek locations and leks documented during any wildlife surveys conducted by Applicant for Project development. Applicant shall file with the Commission its proposed independent third-party's credentials and survey methodology for approval by the Commission 60 days prior to the commencement of Project operation. The study shall be conducted on the ground. Applicant shall consult with SDGFP and USFWS on the proposed survey methodology for the post-construction lek monitoring. Results of the post-construction lek monitoring shall be reported to the SDGFP and USFWS after the first year of monitoring and a final report should be compiled and submitted to the SDGFP and USFWS at the end of the second year of monitoring. Within 90 days of the issuance of this Final Order, Applicant and Staff shall work together to develop a mitigation plan that will be incorporated into Applicant's Wildlife Conservation Strategy in case impacts to prairie grouse leks are found.

Lastly, is there a particular seed mix recommended for restoration of native prairie for pollinators/DASK you all like or have had success with?

Thanks!

Kim

Kimberly Wells, Ph.D.  
Senior Manager, Environmental Services  
Mid Continent Region

**NEXtera** Energy Resources, LLC

708 Main Street, 10<sup>th</sup> floor

c/o WeWork

Houston, TX 77002

713.951.5372 (office)

832.538.7935 (mobile)

[Kimberly.Wells@NEE.com](mailto:Kimberly.Wells@NEE.com)



# BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION )	FINAL DECISION AND ORDER
BY CROWNED RIDGE WIND, LLC FOR A )	GRANTING PERMIT TO
PERMIT OF A WIND ENERGY FACILITY IN )	CONSTRUCT FACILITY; NOTICE
GRANT AND CODINGTON COUNTIES )	OF ENTRY
)	
)	EL19-003

## APPEARANCES

Commissioners Gary Hanson, Chris Nelson, and Kristie Fiegen.

Miles Schumacher, Lynn, Jackson, Shultz and Lebrun, PC, 110 N. Minnesota Ave., Suite 400, Sioux Falls, South Dakota 57104, and Brian Murphy, NextEra Energy Resources, LLC, 700 Universe Blvd., Juno Beach, FL 33408, appeared on behalf of Applicant, Crowned Ridge Wind, LLC.

Kristen Edwards, Amanda Reiss, and Mikal Hanson, 500 E. Capitol Ave., Pierre, South Dakota 57501, appeared on behalf of the South Dakota Public Utilities Commission Staff (Staff).

David Ganje, Ganje Law Offices, 17220 N. Boswell Blvd., Suite 130L, Sun City, AZ 85373, appeared on behalf of intervenors Allen Robish, Amber Christenson, Kristi Mogen, Patrick Lynch, and Melissa Lynch (Intervenors).

## PROCEDURAL HISTORY

On January 30, 2019, the South Dakota Public Utilities Commission (Commission) received an Application for a Facility Permit for a wind energy facility (Application) from Crowned Ridge Wind, LLC (Crowned Ridge or Applicant) to construct a wind energy conversion facility to be located in Grant County and Codington County, South Dakota (Project).<sup>1</sup> Also on January 30, 2019, Crowned Ridge filed the prefiled Direct Testimony and Exhibits of Jay Haley, Kimberly Wells, Mark Thompson, Tyler Wilhelm, and Sam Massey.

On January 31, 2019, the Commission electronically transmitted notice of the filing and the intervention deadline of April 1, 2019, to interested individuals and entities on the Commission's PUC Weekly Filings electronic listserv.

On January 31, 2019, Crowned Ridge filed copies of the Application with the Grant and Codington County auditors.

On February 6, 2019, the Commission issued a Notice of Application; Order for and Notice of Public Input Hearing; Notice of Opportunity to Apply for Party Status (Order). The Order scheduled a public input hearing for March 20, 2019, at 5:30 p.m., CDT, at the Waverly-South Shore School Gymnasium, 319 Mary Place, Waverly, South Dakota.

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<sup>1</sup> See Ex. A1 (Application).

On February 7, 2019, Crowned Ridge filed a Supplemental Figure 3a.

On February 22, 2019, the Commission issued an Order Assessing a Filing Fee; Order Authorizing Executive Director to enter into Necessary Consulting Contracts; Order Granting Party Status (Amber Christenson, Allen Robish, Kristi Mogen).

On February 27, 2019, Crowned Ridge filed updated appendices for Appendix H and Appendix I.

On February 28, 2019, Crowned Ridge filed additional Updated Supplements to Appendix H and Appendix I.

On March 12, 2019, Crowned Ridge filed a Supplement to Appendix B.

On March 20, 2019, a public input hearing was held as noticed at the Waverly-South Shore School Gymnasium, 319 Mary Place, Waverly, South Dakota.

On March 21, 2019, the Commission issued an Order Granting Party Status (Melissa Lynch).

On March 25, 2019, Patrick Lynch filed an Application for Party Status.

On March 26, 2019, Staff filed a Motion for Procedural Schedule.

On March 27, 2019, Crowned Ridge filed its Response to the Motion for Procedural Schedule.

On March 28, 2019, Intervenor filed a Response to Crowned Ridge's Response to the Motion for Procedural Schedule.

On March 28, 2019, Affidavits of Publication were filed by Staff confirming that the Notice of Public Hearing was published in the *Watertown Public Opinion* on February 20 and March 13, 2019, in the *South Shore Gazette* on February 21 and March 14, 2019, and in the *Grant County Review* on February 20 and March 13, 2019.

On April 2, 2019, Affidavits of Publication were filed by Crowned Ridge confirming that the Notice of Public Hearing was published in the *Watertown Public Opinion* on February 13 and 20, 2019, in the *South Shore Gazette* on February 14 and 21, 2019, and in the *Grant County Review* on February 13 and 20, 2019.

On April 2, 2019, Crowned Ridge filed a Proof of Mailing to affected landowners pursuant to SDCL 49-41B-5.2.

On April 5, 2019, the Commission issued an Order Granting Party Status (Patrick Lynch); Order Establishing Procedural Schedule.

On April 9, 2019, Crowned Ridge filed the prefiled Supplemental Testimony and Exhibits of Mark Thompson, Jay Haley, Tyler Wilhelm, Sam Massey, and Dr. Christopher Ollson.

On April 10, 2019, Crowned Ridge filed the prefiled Direct Testimony and Exhibits of Sarah



Sappington adopting the Direct Testimony of Kimberly Wells.

On April 25, 2019, Intervenors filed a Motion to Deny and Dismiss.

On April 30, 2019, the Commission issued an Order for and Notice of Motion Hearing on Less Than 10 Days' Notice.

On April 30, 2019, Staff and Crowned Ridge each filed a Response to Motion to Deny and Dismiss.

On May 6, 2019, Intervenors filed a Reply Brief in Support of Motion to Deny and Dismiss.

On May 10, 2019, the Commission issued an Order Denying Motion to Deny and Dismiss; Order to Amend Application.

On May 10, 2019, the Commission issued an Order for and Notice of Evidentiary Hearing.

On May 10, 2019, Intervenors filed the testimony of John Thompson and Allen Robish.<sup>2</sup>

On May 15, 2019, Applicant filed an Amendment to the Application.

On May 17, 2019, Intervenors filed a Second Motion to Deny and Dismiss.

On May 22, 2019, the Commission issued an Order for and Notice of Motion Hearing.

On May 23, 2019, Crowned Ridge filed a Response to Intervenors' Second Motion to Deny and Dismiss.

On May 23, 2019, Staff filed a Request for Exception to Procedural Schedule.

On May 23, 2019, Crowned Ridge filed Revised Maps.

On May 24, 2019, Crowned Ridge filed the prefilled Rebuttal Testimony and Exhibits of Mark Thompson, Jay Haley, Tyler Wilhelm, Sam Massey, Andrew Baker, Dr. Robert McCunney, Richard Lampeter, Sarah Sappington, and Dr. Christopher Ollson.

On May 28, 2019, Crowned Ridge filed the prefilled Rebuttal Exhibits 1 and 2 of Tyler Wilhelm and Sam Massey.

On May 28, 2019, Intervenors filed a Reply Brief in Support of Motion to Deny and Dismiss and a Motion to Take Judicial Notice.

On May 30, 2019, the Commission issued an Order for and Notice of Motion for Exception to Procedural Schedule on Less Than 10 Days' Notice.

On May 30, 2019, Staff filed the prefilled Direct Testimony and Exhibits of David Hessler, Darren Kearney, Tom Kirschenmann, and Paige Olson.

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<sup>2</sup> During the evidentiary hearing, Intervenors did not move for its testimony to be made part of the evidentiary record, and, therefore, it is not part of the evidentiary record.

On May 31, June 3, and June 5, 2019, Intervenor filed its prefiled Exhibits.

On June 6, 2019, the evidentiary hearing commenced to hear the testimony of Staff witness, David Hessler.

On June 7, 2019, Crowned Ridge filed a Final Land Status Map.

On June 10, 2019, Crowned Ridge filed a Replacement Final Land Status Map.

On June 11, 2019, prior to the start of the evidentiary hearing, the Commission heard the Second Motion to Deny and Dismiss. The Commission voted unanimously to deny the Second Motion to Deny and Dismiss.

On June 11, 2019, the evidentiary hearing was resumed, as scheduled, and concluded on June 12, 2019.

On June 12, 2019, the Commission issued an Order Granting Request for Exception to Procedural Schedule; Order Denying Motion to Take Judicial Notice; Order Denying Motion to Strike.

On June 13, 2019, the Commission received a late-filed Application for Party Status from Timothy and Linda Lindgren.

On June 18, 2019, the Commission issued an Order Setting Post-Hearing Briefing Schedule and Decision Date.

On June 18, 2019, Staff filed its Response to Late Application for Party Status.

On June 19, 2019, Intervenor filed an email regarding the Late Application for Party Status.

On June 25, 2019, at its regularly scheduled meeting, the Commission heard the late-filed Application for Party Status and denied it.

On June 26, 2019, the Commission issued an Order Denying Late-Filed Application for Party Status.

On July 2, 2019, post-hearing briefs were filed by Crowned Ridge, Staff, and Intervenor.

On July 9, 2019, at its regularly scheduled meeting, the parties made oral arguments. After questions of the parties by the Commissioners and public discussion among the Commissioners, the Commission voted unanimously to grant a permit to construct the Project to Crowned Ridge, subject to the approved Permit Conditions.

Having considered the evidence of record, applicable law, and the briefs and arguments of the parties, the Commission makes the following Findings of Fact, Conclusions of Law, and Final Decision and Order Granting Permit to Construct Facility:

## **FINDINGS OF FACT**

### **I. PROCEDURAL FINDINGS.**

1. The Procedural History set forth above is hereby incorporated by reference in its entirety in these Procedural Findings. The procedural findings set forth in the Procedural History are a substantially complete and accurate description of the material documents filed in this docket and the proceedings conducted and decisions rendered by the Commission in this matter.

### **II. PARTIES.**

2. Applicant, Crowned Ridge Wind, LLC, is a wholly-owned, indirect subsidiary of NextEra Energy Resources, LLC (NextEra).<sup>3</sup> NextEra, through its affiliates, is the world's largest generator of renewable energy from the wind and sun, generating over 19,000 MWs in 29 states and Canada.<sup>4</sup>

3. Amber Christenson, Allen Robish, Kristi Mogen, Melissa Lynch, and Patrick Lynch were granted party status (Intervenors).

4. Staff fully participated as a party in this matter, in accordance with SDCL 49-41B-17.

### **III. PROJECT DESCRIPTION.**

5. The Project is an up to 300 MW wind facility to be located in Codington County and Grant County, South Dakota.<sup>5</sup> It will be owned and operated by Applicant.<sup>6</sup> The Project is situated within an approximately 53,186-acre Project Area and will include the following: (i) up to 130 GE 2.3 MW wind turbine generators; (ii) access roads to turbines and associated facilities; (iii) underground 34.5-kilovolt (kV) electrical collector lines connecting the turbines to the collection substation; (iv) underground fiber-optic cable for turbine communications co-located with the collector lines; (v) the low-side of a 34.5 to 345-kV collection substation; (vi) one permanent meteorological (met) tower; (vii) an operations and maintenance (O&M) facility; and (viii) temporary construction areas, including laydown and batch plant areas.<sup>7</sup> The estimated construction cost associated with the wind facility is approximately \$400 million.<sup>8</sup> Fluctuations in Project costs could be as much as 20% percent, dependent on final micrositing and MISO interconnection costs.<sup>9</sup> The Project will utilize the Crowned Ridge 34-mile 230 kV generation tie line and a new reactive power compensation substation<sup>10</sup> to transmit the generation from the Project's collector substation to the Project's point of interconnection located at the Big Stone South 230 kV Substation, which is owned by Otter Tail Power Company.<sup>11</sup> Applicant has no plans for future expansion of the Project.<sup>12</sup>

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<sup>3</sup> Ex. A1 at 1 (Application).

<sup>4</sup> Ex. A5 at 1 (Wilhelm and Massey Direct Testimony).

<sup>5</sup> Ex. A1 at 1 (Application); Ex A1-A (Figures); Ex. A42-1 (Sappington Rebuttal Testimony); and Ex. A54 (Final Land Status Map).

<sup>6</sup> Ex. A1 at 14 (Application) and Ex. A29 (Amendment to Application on Ownership).

<sup>7</sup> Ex. A1 at 1, 17-25 (Application); Ex. A1-A (Figures 4a, 4b, and 5); Ex. A54 (Final Land Status Map); and Ex. A59 (Final Land Status and Hessler 7 Turbine Moves).

<sup>8</sup> Ex. A1 at 17 (Application).

<sup>9</sup> *Id.*

<sup>10</sup> The transmission gen-tie and reactive compensation substation were approved in Docket No. EL17-050.

<sup>11</sup> Ex. A1 at 1 (Application).

<sup>12</sup> *Id.* at 112.

6. All turbines will be constructed within the Project Area consistent with the configuration presented in Exhibit A44-2 (Updated Project Layout Map) and subject to all commitments, conditions, and requirements of the Commission's Final Order and Permit Conditions.

7. Applicant has agreed, if feasible, to use alternative turbine locations instead of the following primary turbine locations: CR-16, CR-19, CR-23, CR-49, CR-60, CR-67, and CR-68.<sup>13</sup> Applicant testified that based on the final land status map, there would be a shift in turbines CR-50 and CR-Alt22.<sup>14</sup> Crowned Ridge further testified that final land status required the dropping of CR-17 and CR-40, to be replaced with CR-Alt42 and CR-Alt45.<sup>15</sup> Crowned Ridge also testified that turbines CR-56, CR-57, CR-79, CR-Alt20, and CR-Alt19 will be removed due to Crowned Ridge not having leases for those properties.<sup>16</sup>

8. Crowned Ridge presented evidence of consumer demand and need for the Project.<sup>17</sup> Applicant has executed a PPA with Northern States Power Company (NSP) to sell NSP the full output of the Project.<sup>18</sup> On July 6, 2017, the Minnesota Public Utilities Commission approved NSP's Petition for Approval of the Acquisition of Wind Generation from the Company's 2016-2030 Integrated Resource Plan, including the PPA with Applicant. On December 6, 2018, North Dakota Public Service Commission issued an order granting an advance determination of prudence for the PPA between NSP and Applicant.<sup>19</sup> The commercial operation date for the Project is projected to be in or before the first quarter of 2020.<sup>20</sup>

9. With regard to micrositing, Crowned Ridge identified the need for turbine and associated facility flexibility.<sup>21</sup> With respect to turbine flexibility, Crowned Ridge and Staff agreed to the turbine flexibility and "material change" provisions set forth in Permit Condition 22. With respect to the access roads, the collector and communications systems, meteorological towers, Aircraft Detection Lighting System (ADLS) facilities, the O&M facility, the Project Substation, and temporary facilities, Crowned Ridge and Staff agreed to Permit Condition 23.

10. Applicant has entered into lease and easement agreements with private landowners within the Project Area for the placement of Project infrastructure.<sup>22</sup> Applicant anticipates that the life of the Project will be approximately 25 years, which is consistent with the Project's contracted term.<sup>23</sup> At the end of the Project's contracted life there may be opportunities to extend the life of the Project by repowering the Project by retrofitting the turbines and power system with upgrades based on new technology, which may allow the wind farm to produce efficiently and successfully for many more years.<sup>24</sup>

11. In the event the Project's contracted life is not extended, the record demonstrates that Applicant has appropriate and reasonable plans for decommissioning.<sup>25</sup> The Project will be

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<sup>13</sup> Permit Conditions ¶ 27.

<sup>14</sup> Ex. A59 (Final Land Status and Hessler 7 Turbine Moves); Ex. A55 (Proposed Turbine Drops and Moves). Evid. Hrg. Tr. at 229-230 (Wilhelm).

<sup>15</sup> Ex. A59 (Final Land Status and Hessler 7 Turbine Moves). Ex. A 55 (Proposed Turbine Drops and Moves). Evid. Hrg. Tr. at 231 (Wilhelm).

<sup>16</sup> Evid. Hrg. Tr. at 229-230 (Wilhelm).

<sup>17</sup> See, e.g., Ex. A1 at Ch. 4.0 (Application).

<sup>18</sup> Ex. A1 at 1, 15 (Application).

<sup>19</sup> *Id.* at 1.

<sup>20</sup> *Id.* at 1, 94.

<sup>21</sup> Ex. A5 (Wilhelm and Massey Direct Testimony); Ex. A44 (Wilhelm and Massey Rebuttal Testimony).

<sup>22</sup> Ex. A1 at 113 (Application) and Ex. A54 (Final Land Status Map).

<sup>23</sup> Ex. A1 at 113 (Application).

<sup>24</sup> *Id.*

<sup>25</sup> *Id.* at Appendix L and Ex. A4 at 9-11 (Thompson Direct Testimony).

decommissioned in accordance with applicable state and county regulations.<sup>26</sup> Applicant has agreed to establish an escrow account for the purpose of financing the decommissioning of the Project.<sup>27</sup>

12. The record demonstrates that Crowned Ridge submitted substantial evidence on the potential cumulative impacts of the Project, and that the Project will not have a significant impact.<sup>28</sup>

#### **IV. APPLICABLE STATUTES AND REGULATIONS FOR AN ENERGY FACILITY PERMIT.**

13. The following South Dakota statutes are applicable: SDCL 49-41B-1, 49-41B-2, 49-41B-2.1, 49-41B-4, 49-41B-5.2, 49-41B-12 through 49-41B-19, 49-41B-22, 49-41B-25, 49-41B-26, 49-41B-35, 49-41B-36, and applicable provisions of SDCL Chapters 1-26 and 15-6.

14. The following South Dakota administrative rules are applicable: ARSD Chapters 20:10:01 and 20:10:22.

15. Pursuant to SDCL 49-41B-22, Applicant has the burden of proof to establish that:

- a) The proposed facility will comply with all applicable laws and rules;
- b) The facility will not pose a threat of serious injury to the environment nor to the social and economic condition of inhabitants or expected inhabitants in the siting area;
- c) The facility will not substantially impair the health, safety or welfare of the inhabitants; and
- d) The facility will not unduly interfere with the orderly development of the region with due consideration having been given the views of governing bodies of affected local units of government.

16. SDCL 49-41B-25 provides that the Commission must make a finding that the construction of the facility meets all of the requirements of Chapter 49-41B.

17. There is sufficient evidence on the record for the Commission to assess the proposed Project using the criteria set forth above.

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<sup>26</sup> Ex. A1 at 113 (Application).

<sup>27</sup> Ex. A44 at 5 (Wilhelm and Massey Rebuttal Testimony); Permit Conditions ¶ 32.

<sup>28</sup> Ex. A7 at 5-7 (Applicant's Responses to Staff First Set of Data Requests); Ex. A26 at 2-3 (Applicant's Responses to Staff's Third Set of Data Requests); Ex. A43 at 2 (Haley Rebuttal); Ex. A56 (Appendix D and ISO-Lines Map Book); Ex. A57 (Appendix C-3 Sound Results Table Rev 6); Ex. A67 (Appendix C-1 Shadow Flicker Results Table Rev 5); and Ex. A68 Appendix C-2 Shadow Flicker Results Table Rev 5).

**V. SATISFACTION OF REQUIREMENTS FOR THE ISSUANCE OF AN ENERGY FACILITY PERMIT.**

**A. The proposed facility will comply with all applicable laws and rules.**

18. The evidence submitted by Crowned Ridge demonstrates that the Project will comply with applicable laws and rules.<sup>29</sup> Applicant committed that it will obtain all governmental permits which reasonably may be required by any township, county, state agency, federal agency, or any other governmental unit for the construction and operation activity of the Project prior to engaging in the particular activity covered by that permit.<sup>30</sup>

19. The record demonstrates that construction of the Project, subject to the Permit Conditions, meets all applicable requirements of SDCL Chapter 49-41B and ARSD Chapter 20:10:22.<sup>31</sup>

**B. The facility will not pose a threat of serious injury to the environment nor to the social and economic condition of inhabitants or expected inhabitants in the siting area.**

**1. Environment.**

20. The evidence demonstrates that the Project does not pose a threat of serious injury to the environment in the Project Area.<sup>32</sup> The evidence also shows that Crowned Ridge will implement reasonable avoidance and mitigation measures, as well as commitments, to further limit potential environmental impacts.<sup>33</sup>

21. With respect to geological resources, the evidence shows that construction of the Project will not pose a threat of serious injury to these resources.<sup>34</sup> The risk of seismic activity in the vicinity of the Project Area is "low" according to data from the South Dakota Dept of Natural Resources.<sup>35</sup> The evidence further shows that the impact to geological resources from the Project will be minimal.<sup>36</sup>

22. The evidence demonstrates that the Project does not pose a threat of serious injury to soil resources, including prime farmland.<sup>37</sup> The Project during construction will only impact 2,134.4-acres of the 53,186.2-acre Project Area, and only 86.0 acres on a permanent basis.<sup>38</sup> Table 11.1.2 of the Application sets forth additional detail on the temporary and permanent impacts from the Project, broken down by land cover type.<sup>39</sup> During and after construction a number of mitigation measures, including best management practices (BMP), a Storm Water Pollution Prevention Plan (SWPPP), and a Spill Prevention, Control, and Countermeasures Plan (SPCCP), will be implemented to minimize the impacts to soil resources.<sup>40</sup> Applicant has

<sup>29</sup> Ex. A1 at 75-78, 118-119 (Application) and Ex. A5 at 8-11 (Wilhelm and Massey Direct Testimony).

<sup>30</sup> Permit Conditions ¶ 1; Evid. Hrg. Tr. at 243 (Wilhelm); Evid. Hrg. Tr. at 295 (Massey).

<sup>31</sup> Ex. A1 through Ex. A61.

<sup>32</sup> Ex. A1 at 29-87, 89-93 (Application); Ex. A25 at 3-11 (Sappington Direct Testimony); Ex. A42 at 3-10, 12-21, 23-24 (Sappington Rebuttal Testimony); Ex. A42-1 (Updated Maps); and Ex. A54 (Final Land Status Map).

<sup>33</sup> Ex. A1 at 24-25, 29-87, 89-93 (Application); Ex. A4 at 4-5 (Thompson Direct Testimony); Ex. A25 at 3-11 (Sappington Direct Testimony); and Ex. A42 at 3-10, 12-21, 23-24 (Sappington Rebuttal Testimony).

<sup>34</sup> Ex. A1 at 32-35 (Application) and Ex. A42-1, Figures 9a, 9b, and 10 (Updated Maps). See Ex. A1 at § 9.0 (Application).

<sup>35</sup> Ex. A1 at 34 (Application).

<sup>36</sup> Ex. A1 at 34-35 (Application).

<sup>37</sup> Ex. A1 at 28-29, 35-39 (Application) and Ex. A42-1, Figure 11 (Updated Maps).

<sup>38</sup> Ex. A1 at 37 and 50 (Application) and Ex. A42 at 5, 13-14, 23-24 (Sappington Rebuttal Testimony).

<sup>39</sup> Ex. A1 at 50 (Application); Ex. A25 at 5-7 (Sappington Direct Testimony); Ex. A42 at 6-7 (Sappington Rebuttal Testimony).

<sup>40</sup> Ex. A1 at 24, 38-39 (Application).

committed that during construction, it will protect topsoil and minimize soil erosion. Soil areas disturbed during construction will be decompacted and returned to preconstruction contours to the extent practicable and in accordance with landowner agreements.<sup>41</sup>

23. The evidence also demonstrates that the Project does not pose a threat of serious injury to hydrological resources.<sup>42</sup> The evidence shows there will only be limited and temporary impacts to: (i) groundwater resources; (ii) existing surface water resources; and (iii) current and planned water uses.<sup>43</sup> To minimize impacts, Applicant has committed to implement BMPs, a SWPPP, and SPCCP to mitigate impacts to hydrology resources.<sup>44</sup> The evidence also shows there will be no impact to impaired waters and flood storage areas.<sup>45</sup> Applicant has indicated the amount of water it will likely use during construction, and has committed to obtain any necessary permits for water sources used during construction and operations.<sup>46</sup>

24. The evidence demonstrates that the Project does not pose a threat of serious injury to terrestrial ecosystems.<sup>47</sup> Specifically, there are no anticipated impacts to federally or state-listed plants.<sup>48</sup> The Project will not involve any major tree-clearing.<sup>49</sup> Also, Crowned Ridge has designed the Project so that turbines will not be sited in wetlands.<sup>50</sup> To minimize temporary impacts to vegetation due to construction, Applicant has also committed to implement BMP, a SWPPP, and SPCCP. Applicant will avoid impacts to United States Fish and Wildlife Services (USFWS) grasslands and grassland-wetland combination easements, as well as avoid impacts to native grassland to the extent practicable.<sup>51</sup> BMPs will include re-vegetation practices and erosion control devices.<sup>52</sup> Applicant has also agreed to compensate landowners for crop damage.<sup>53</sup> Applicant will develop and implement a plan to control noxious weeds.<sup>54</sup> Further, Applicant indicated that the minor shifts in the siting of collector lines, access roads, two turbines, and the use of alternative turbine sites does not change the overall impact of the Project on the terrestrial environment.<sup>55</sup>

25. The evidence demonstrates that the Project does not pose a threat of serious injury to wildlife however, the potential impact to prairie grouse leks is unknown.<sup>56</sup> Applicant has conducted extensive studies and consulted relevant studies to understand the potential impact to wildlife.<sup>57</sup> Applicant will implement an avoidance, minimization, and mitigation approach to lessen the impact the Project has on wildlife.<sup>58</sup>

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<sup>41</sup> *Id.* at 38.

<sup>42</sup> *Id.* at 40-46; Ex. A42-1, Figure 12.

<sup>43</sup> Ex. A1 at 40-46 (Application).

<sup>44</sup> *Id.*

<sup>45</sup> *Id.* at 45.

<sup>46</sup> Ex. A1 at 23, 41, 42 (Application) and Ex. A45 at 5-10 and 5-11 (Applicant's Responses to Intervenor's Fifth Set of Data Requests).

<sup>47</sup> Ex. A1 at 46-69 (Application); Ex. A1-C (Dakota Skipper and Poweshiek Skipperling Survey); Ex. A1-D (2017-2018 Raptor Nest Survey Report); Ex. A1-E (Avian Use Survey Report); Ex. A1-F (Bat Habitat Assessment Report); and Ex. A1-G (Bat Acoustic Survey Report).

<sup>48</sup> Ex. A1 at 50 (Application).

<sup>49</sup> *Id.* at 51.

<sup>50</sup> Ex. A1 at 52 (Application) and Ex. A42 at 8 (Sappington Rebuttal Testimony).

<sup>51</sup> Ex. A1 at 12, 43 (Application).

<sup>52</sup> *Id.* at 51.

<sup>53</sup> Ex. A1 at 50 (Application) and Ex. A23 at 3-7 (Wilhelm and Massey Supplemental Testimony); Permit Conditions ¶ 20.

<sup>54</sup> Permit Conditions ¶ 16.

<sup>55</sup> Ex. A42 at 11 (Sappington Rebuttal Testimony); Ex. A42-1 (Updated Maps); Ex. A59 (Final Land Status and Hessler 7 Turbine Moves); Evid. Hr. Tr. at 173, 308 (Sappington).

<sup>56</sup> Ex. A1 at 53-69 (Application).

<sup>57</sup> Ex. A1 at 53-66 (Application); Ex. A1-C (Dakota Skipper and Poweshiek Skipperling Survey); Ex. A1-D (2017-2018 Raptor Nest Survey Report); Ex. A1-E (Avian Use Survey Report); Ex. A1-F (Bat Habitat Assessment Report); and Ex. A1-G (Bat Acoustic Survey Report); Ex. A42 at 9-10 (Sappington Rebuttal Testimony).

<sup>58</sup> Ex. A1 at 69 (Application); Ex. A25 at 3 and 12-13 (Wells Direct Testimony adopted by Sappington); Evid. Hr. Tr. at 172-173.

26. Prairie grouse leks are the locations at which male prairie grouse make displays to attract females to mate.<sup>59</sup> Prairie grouse are known to historically use the same areas for leks year after year.<sup>60</sup> Crowned Ridge acknowledges that "sharp-tailed grouse and greater prairie-chicken could be affected by Project development if Project infrastructure disturbs or displaces grouse from leks or areas of preferred habitat (grasslands)."<sup>61</sup>

27. Crowned Ridge observed several active greater prairie-chicken leks during a spring survey in 2007-2008 and four active leks were recorded during a spring 2016 survey in, or near, an earlier iteration of the Project Area, including two greater prairie-chicken leks and two unknown leks.<sup>62</sup> The SD GF&P recommended Crowned Ridge place a one-mile buffer around leks when siting and placing infrastructure and that a two-mile buffer should be placed around known leks for construction occurring during the lekking period (March 1 to June 30).<sup>63</sup> Applicant agreed to follow the SD GF&P's construction buffer recommendation of 2-miles during the lekking period, however Crowned Ridge elected to use a reduced buffer from Project infrastructure and sited wind turbines as close as 0.3 miles from known lek locations.<sup>64</sup>

28. Both the SD GF&P and Crowned Ridge wildlife experts testified that the effect of wind turbines on leks is still not well known.<sup>65</sup> SD GF&P recommended 2 years of post-construction grouse lek monitoring of confirmed leks less than 1 mile from proposed turbines in order to gain additional information on the effect of operating wind turbines on leks and to aide with future discussions around cumulative effects of wind energy development on prairie grouse.<sup>66</sup>

29. The Commission finds that Crowned Ridge decided to site wind turbines less than 1 mile from known leks and not implement the SD GF&P's recommendation for siting project infrastructure at least 1 mile from known leks. Further, the Commission finds that the effects of wind turbines on prairie grouse leks is still not sufficiently understood. Therefore, to add to the scientific knowledge on the impact operating wind turbines may have on prairie grouse leks, if any, the Commission adopts Staff's proposed condition.<sup>67</sup>

30. The Commission's review of correspondence and comment letters from the South Dakota Game, Fish & Parks (SD GF&P) and USFWS wildlife experts found that neither of the agencies recommended general mammal studies be done, therefore general mammal studies are not needed in the Project Area.<sup>68</sup> The wildlife experts did recommend a survey to be conducted for bats, which are a mammal, and Crowned Ridge conducted the recommend survey.<sup>69</sup>

31. Intervenor's argue that Crowned Ridge's Application is materially incomplete since the Avian Use Survey<sup>70</sup> did not include the portion of the Crowned Ridge Project Area that was formerly known as Cattle Ridge. Crowned Ridge's expert witness, Ms. Sarah Sappington, testified that while the avian use survey did not include the Cattle Ridge portion of the Project Area, the

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<sup>59</sup> Evid. Hrg. Tr. at 193 (Sappington).

<sup>60</sup> *Id.*; Evid. Hrg. Tr. at 504, 505 (Kirschenmann).

<sup>61</sup> Ex. S2 at 430 (Kearney Direct Testimony).

<sup>62</sup> Ex. A1 at 61 (Application).

<sup>63</sup> Ex. S2 at 440 (Kearney Direct Testimony).

<sup>64</sup> *Id.*; Ex. A1-A, Figure 6 at 25 (Application).

<sup>65</sup> Ex. S6; Evid. Hrg. Tr. at 198 (Sappington); Evid. Hrg. Tr. at 508 (Kirschenmann).

<sup>66</sup> Ex. S3 at 20 (Kirschenmann Direct Testimony).

<sup>67</sup> Permit Conditions ¶ 45.

<sup>68</sup> Ex. A1-B; Ex. A12.

<sup>69</sup> Ex. A1-G.

<sup>70</sup> Ex. A1-E.



raptor nest surveys did include that area.<sup>71</sup> Ms. Sappington further testified that Crowned Ridge did study the full extent of the Project Area as detailed in the Application and that shapefiles of the full extent of the Project Area were sent to the SD GF&P.<sup>72</sup> Staff's witness, Mr. Tom Kirschenmann, from the SD GF&P, testified that the survey methods used by Crowned Ridge followed the USFWS guidelines, and were reasonable and appropriate.<sup>73</sup> The Commission finds that the lack of an avian use survey in the Cattle Ridge portion of the Project Area is not fatal to the Application since Section 11.3 of the Application<sup>74</sup> identified the Project's potential effects to wildlife for the entire Project Area, as testified to by Ms. Sappington, and that proper survey methods were used by Crowned Ridge, as testified to by Mr. Kirschenmann.

32. Crowned Ridge will also mitigate temporary impacts to habitat consistent with Mr. Kirschenmann's recommendations.<sup>75</sup> There will be no turbines on game production areas, with the closest two turbines .24 mile and .35 mile away from a game production area.<sup>76</sup> Further, Applicant is required to conduct two years of independently-conducted post-construction avian and bat mortality monitoring for the Project.<sup>77</sup> Applicant committed to file a Wildlife Conservation Strategy, which includes both direct and indirect effects as well as the wildlife mitigations measures set forth in the Application, prior to the start of construction.<sup>78</sup> Applicant will file a Bird and Bat Conservation Strategy prior to the start of construction.<sup>79</sup> Also, Mr. Kirschenmann testified that Applicant had appropriately coordinated with SD GF&P on the impact of the Project on wildlife.<sup>80</sup>

33. The evidence demonstrates that the Project does not pose a threat of serious injury to aquatic ecosystems.<sup>81</sup> Similarly, the evidence demonstrates that the Project does not pose a threat of serious injury to land use and will comply with local controls.<sup>82</sup> Applicant has coordinated with landowners to locate infrastructure in a manner that minimizes the impact to their land uses.<sup>83</sup> The evidence further demonstrates that there are no anticipated material impacts to existing air and water quality, and the Project will comply with applicable air and water quality standards and regulations.<sup>84</sup> Applicant also committed to implement a number of BMPs to mitigate the impact of the Project on air and water quality.<sup>85</sup>

34. Applicant will install and use lighting required by the Federal Aviation Administration (FAA).<sup>86</sup> Applicant has also committed to use an FAA-approved Aircraft Detection Lighting System to minimize visual impact of the Project.<sup>87</sup>

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<sup>71</sup> Evid. Hrg. Tr. at 178.

<sup>72</sup> Evid. Hrg. Tr. at 180.

<sup>73</sup> Ex. S3 at 6.

<sup>74</sup> Ex. A1.

<sup>75</sup> Ex. A42 at 4 (Sappington Rebuttal Testimony); S3 (Kirschenmann Direct Testimony).

<sup>76</sup> Ex. A42 at 10 (Sappington Rebuttal Testimony).

<sup>77</sup> Permit Conditions ¶ 29.

<sup>78</sup> Ex. A42 at 6 (Sappington Rebuttal Testimony) and Evid. Hrg. Tr. at 212-213 (June 11, 2019).

<sup>79</sup> Permit Conditions ¶ 30.

<sup>80</sup> Ex. S3 at 3-5 (Kirschenmann Direct Testimony).

<sup>81</sup> Ex. A1 at 70-73 (Application).

<sup>82</sup> Ex. A1 at 73-88 (Application); Ex. A1-A (Figures); Ex. A5 at 8-11 (Wilhelm and Massey Direct Testimony); Ex. A2 (Haley Direct Testimony); Ex. A1-H (Sound Modelling Report); Ex. A1-J (Shadow Flicker Report); Ex. A1-L (Decommissioning Plan); Ex. A22 (Haley Supplemental Testimony); Ex. A43 (Haley Rebuttal Testimony); Ex. A43-1 (Shadow Flicker ISO-Lines); Ex. A43-2 (Sound Pressure ISO-Lines); Ex. A56 (Appendix D Sound ISO-Lines Map Book); Ex. A57 (Appendix C3 Sound Results Table Rev 6); Ex. A67 (Appendix C-1 Shadow Flicker Results) and Ex. A68 Appendix C-2 Shadow Flicker Results).

<sup>83</sup> Ex. A5 at 11-12 (Wilhelm and Massey Direct Testimony).

<sup>84</sup> Ex. A1 at 89-91, 92-93 (Application).

<sup>85</sup> Ex. A1 at 90-93 (Application) and Ex. A42 at 12-13, 18-20 (Sappington Rebuttal Testimony).

<sup>86</sup> Ex. A1 at 87 (Application). See also, Permit Conditions ¶ 33.

<sup>87</sup> *Id.*

35. Applicant has undertaken extensive study, surveys, and consultation with applicable tribes to identify and avoid sites of cultural, archaeological, and historical importance.<sup>88</sup> For example, Applicant's Records Search per the South Dakota State Historic Preservation Office (SD SHPO) guidance identified 133 previously documented archaeological sites, 6 previously documented historic bridges, 83 previously documented standing historic structures, and 5 previously documented cemeteries that have been recorded inside and within 1 mile of the Project Area.<sup>89</sup> As a mitigation measure, Applicant will avoid direct physical impacts to National Register of Historic Places listed sites.<sup>90</sup>

36. Applicant also consulted with the tribal members from the Sisseton Wahpeton Oyate, Yankton Sioux, and Spirit Lake Nation tribes (who were selected by the affected tribes to represent those all applicable tribes) to identify significant tribal resources, and Applicant included them as part of the survey field team.<sup>91</sup> Applicant further consulted with the SD SHPO on the type and content of surveys.<sup>92</sup> Applicant agrees to avoid direct impacts to cultural resources not previously identified and evaluated or notify the Commission and the SD SHPO if avoidance cannot be achieved so to coordinate minimization and/or treatment measures.<sup>93</sup> Applicant will also develop a plan to address any unanticipated discovery of cultural resources, consistent with SDCL 34-27-25, 34-27-26, and 34-27-28.<sup>94</sup> Applicant will file with the Commission a Level III Archaeological survey for, among other facilities, access roads, crane paths, and collection lines prior to commercial operation.<sup>95</sup> Further, Applicant will implement specific avoidance, minimization, and mitigation measures for Traditional Cultural Properties.<sup>96</sup> Based on the record in this proceeding and the Permit Conditions, Applicant has demonstrated that it will minimize or avoid impacts to cultural resources.<sup>97</sup>

## 2. Social and Economic.

37. Applicant has been developing the Project for 10 years through an iterative process to identify the Project Area.<sup>98</sup> During this time, Applicant worked closely with federal and state agencies, landowners, and tribal and local governments to properly design and site the infrastructure for the Project.<sup>99</sup> After accounting for land status and Project changes as identified in Finding of Fact 7, Applicant has all land rights needed to construct and operate the Project.<sup>100</sup>

38. Applicant has demonstrated that the Project does not pose a threat of serious injury to the community.<sup>101</sup> The Project will only permanently impact approximately 86 acres of farmland.<sup>102</sup> The Project is expected to have a negligible effect, if any, on the assessed values of private property and, therefore, on property taxes.<sup>103</sup> Applicant has committed to coordinate with first responders and provide them with the Applicant's safety plan.<sup>104</sup> Further, Applicant has

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<sup>88</sup> Ex. A1 at 104-110 (Application); Ex. A25 13-16 (Sappington Direct Testimony); and Ex. A42 at 2-3 (Sappington Rebuttal Testimony).

<sup>89</sup> Ex. A1 at 105 (Application); Ex. A16 at 2-30 and Attachment 1 to 2-30 Confidential (Applicant's Responses to Staff Second Set of Data Requests).

<sup>90</sup> Ex. A1 at 108 (Application).

<sup>91</sup> Ex. A25 at 15 (Sappington Direct Testimony).

<sup>92</sup> Ex. A25 at 15-16 (Sappington Direct Testimony); Ex. A1-B (Agency Coordination); Ex. S4 at 3-7 (Olson Direct Testimony).

<sup>93</sup> Permit Conditions ¶ 11.

<sup>94</sup> Permit Conditions ¶ 12.

<sup>95</sup> Permit Conditions ¶ 13.

<sup>96</sup> Permit Conditions ¶ 37.

<sup>97</sup> Permit Conditions ¶ 48.

<sup>98</sup> Ex. A1 at 2, 26-28, 88 (Application).

<sup>99</sup> Ex. A1 at 2, 26-28, 88; Ex. A5 at 6-15.

<sup>100</sup> Exs. A52, A53, A54, A64, and A65; Evid. Hear. Tr. at 228-231 and 260 (Wilhelm Testimony).

<sup>101</sup> Ex. A1 at 95-110, 117 (Application); Ex. A1-K (Property Value Effects Studies); and Ex. A1-M (Telecommunication Study).

<sup>102</sup> Ex. A1 at 102 (Application).

<sup>103</sup> Ex. A1 at 100 (Application) and Ex. A1-K (Property Value Effects Studies); Ex. S8.

<sup>104</sup> Ex. A1 at 101 (Application); Permit Conditions ¶¶ 8, 28, 43.

demonstrated that the construction and operation of the Project will result in benefits to South Dakota and local economies through payment of property taxes and lease payments.<sup>105</sup> Also, there will be approximately 250 temporary workers used during the construction of the Project, and 12 permanent workers in South Dakota to conduct operation and maintenance activities, including 10 wind technicians, 1 lead wind technician, and 1 site manager.<sup>106</sup>

39. The record also demonstrates that the Project is not expected to adversely impact communication systems, such as microwave, AM, FM, cellular, TV, and aviation towers.<sup>107</sup> Also, Applicant has agreed to take action to minimize interference the Project causes to radio, television, and other licensed communication transmitting or receiving equipment.<sup>108</sup>

40. The record demonstrates that Applicant will avoid and/or minimize impacts to transportation.<sup>109</sup> Applicant has committed to coordinate with the South Dakota Department of Transportation (SDDOT), Codington County and Grant County, and Project Area townships to manage construction traffic, and to ensure that equipment and components are delivered safely to the Project. Applicant will also obtain SDDOT Highway Access and Utility Permits prior to construction, and contractors will be required to obtain applicable over height or overweight haul permits. County road permits required for right-of-way occupancy, utility crossings, road approaches, and overweight loads will be obtained by Applicant from Codington County and Grant County prior to beginning construction activities for which the permit is required.<sup>110</sup> Applicant is required to obtain applicable road use agreements and implement specific road protection practices.<sup>111</sup>

41. Crowned Ridge has demonstrated that the Project will not adversely impact property values. Applicant's witness, Mr. Andrew Baker, a licensed appraiser in South Dakota, with experience evaluating the impact of wind turbines on property values, conducted a Market Analysis to analyze the potential impact of the Project on the value of the surrounding properties and found no market data indicating property values will be adversely impacted due to proximity to the Project.<sup>112</sup> This conclusion is also consistent with the Commission's recent findings regarding property values in the Prevailing Wind Park, Dakota Range I and II, Crocker, and Deuel Harvest wind farm proceedings.<sup>113</sup>

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<sup>105</sup> Ex. A1 at 15, 98 (Application).

<sup>106</sup> Ex. A1 at 111 (Application); Ex. A4 at 8 (Thompson Direct Testimony); Ex. A5 at 12 (Wilhelm and Massey Direct Testimony); and Ex. A28 (Allocation of Tax Revenues).

<sup>107</sup> Ex. A1 at 103-104 (Application) and A1-M (Telecommunication Study).

<sup>108</sup> Permit Conditions ¶ 24.

<sup>109</sup> Ex. A1 at 103 (Application).

<sup>110</sup> Permit Conditions ¶¶ 7, 8, 9.

<sup>111</sup> *Id.*

<sup>112</sup> Ex. A1 at 99-100 (Application); Ex. A1-K (Property Value Effects Studies); Exs. A39; A39-1; A39-2; A39-3 (Baker Rebuttal Testimony); Ex. S8.

<sup>113</sup> See *In the Matter of the Application by Prevailing Wind Park, LLC for a Permit of a Wind Energy Facility in Bon Homme County, Charles Mix County and Hutchinson County, South Dakota, for the Prevailing Wind Park Project*, Docket EL18-026, Final Decision and Order Granting Permit to Construct Facilities and Notice of Entry (Nov. 28, 2018); *In the Matter of the Application by Dakota Range I, LLC and Dakota Range II, LLC for a Permit of a Wind Energy Facility in Grant County and Codington County, South Dakota, for the Dakota Range Wind Project*, Docket EL18-003, Final Decision and Order Granting Permit to Construct Wind Energy Facility; Notice of Entry (July 23, 2018); *In the Matter of the Application by Crocker Wind Farm, LLC for a Permit of a Wind Energy Facility and a 345 kV Transmission Line in Clark County, South Dakota, for Crocker Wind Farm*, Docket EL17-055, Final Decision and Order Granting Permit to Construct Facilities and Notice of Entry (June 12, 2018); *In the Matter of the Application of Deuel Harvest Wind Energy, LLC*, Docket No. EL18-053, Final Decision and Order (May 30, 2019).see also Ex. S8 (Surrebuttal Testimony of David Lawrence in Docket EL18-003).

42. The FAA has not yet issued a Determination of No Hazard for five of the Project's proposed turbine sites.<sup>114</sup> Applicant has committed to not build any wind turbines that do not have an FAA Determination of No Hazard.<sup>115</sup>

43. In prior contested siting dockets, the Commission has considered the following socioeconomic issues in evaluating whether a project would pose a threat of serious injury to the social and economic condition: temporary and permanent jobs; tax revenue; and impacts on commercial, agricultural, and industrial sectors, housing, land values, labor market, health facilities, energy, sewage and water, solid waste management facilities, fire protection, law enforcement, recreational facilities, schools, transportation facilities, and other community and government facilities.<sup>116</sup>

44. The record demonstrates that the Project will not pose a threat of serious injury to the social and economic condition of inhabitants or expected inhabitants in the siting area.<sup>117</sup>

**C. The facility will not substantially impair the health, safety or welfare of the inhabitants.**

45. The record demonstrates that Applicant has appropriately minimized the sound level produced from the Project to the following: (1) no more than 45 dBA at any non-participants' residence and (2) no more than 50 dBA at any participants' residence.<sup>118</sup> These sound levels were modeled using the following conservative assumptions: (1) the wind turbines were assumed to be operating at maximum sound emission levels; (2) a 2 dBA adder was applied to the wind turbines sound emission levels; (3) the wind turbines were assumed to be downwind of the receptor; and (4) the atmospheric conditions were assumed to be the most favorable for sound to be transmitted.<sup>119</sup> The Project will also not result in sound above 50 dBA at any non-participants property boundaries for those residences in Codington County.<sup>120</sup> Applicant modelled sound levels with consideration of the cumulative sound impacts from Dakota Range I and II and Crowned Ridge Wind, II, LLC wind projects.<sup>121</sup> Further, Applicant agreed to further reduce certain non-participant sound levels, consistent with the Permit Condition agreed to by Staff and

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<sup>114</sup> Ex. S7 at 31 (Applicant's Additional Data Request Responses to Staff) (Public); Ex. A62; Evid. Hrg. Tr. at 253.

<sup>115</sup> Evid. Hrg. Tr. at 243; Evid. Hrg. Tr. at 253.

<sup>116</sup> See, e.g., *In the Matter of the Application of Dakota Access, LLC for an Energy Facility Permit to Construct the Dakota Access Pipeline*, Docket HP14-002, Final Decision and Order; Notice of Entry (Dec. 14, 2015); *In the Matter of the Application by TransCanada Keystone Pipeline, LP for a Permit Under the South Dakota Energy Conversion and Transmission Facilities Act to Construct the Keystone XL Project*, Docket HP09-001, Amended Final Decision and Order; Notice of Entry (June 29, 2010) (discussing socioeconomic effects, including tax revenue, jobs, and impacts on agricultural, commercial, and industrial sectors and public facilities); *In the Matter of the Application of Dakota Range I, LLC and Dakota Range II, LLC for a Permit of a Wind Energy Facility in Grant County and Codington County, South Dakota, for the Dakota Range Wind Project*, Final Decision and Order Granting Permit to Construct Wind Energy Facility; Notice of Entry (July 23, 2018); *In the Matter of the Application of Montana-Dakota Utilities Co. and Otter Tail Power Company for a Permit to Construct the Big Stone South to Ellendale 345 kV Transmission Line*, Docket EL13-028, Final Decision and Order; Notice of Entry (Aug. 22, 2014) (discussing impacts to agriculture, property values, and local roads under this criterion). See *In the Matter of the Application by Prevailing Wind Park, LLC for a Permit of a Wind Energy Facility in Bon Homme County, Charles Mix County and Hutchinson County, South Dakota, for the Prevailing Wind Park Project*, Docket EL18-026, Final Decision and Order Granting Permit to Construct Facilities and Notice of Entry (Nov. 28, 2018); *In the Matter of the Application by Crocker Wind Farm, LLC for a Permit of a Wind Energy Facility and a 345 kV Transmission Line in Clark County, South Dakota, for Crocker Wind Farm*, Docket EL17-055, Final Decision and Order Granting Permit to Construct Facilities and Notice of Entry (June 12, 2018); *In the Matter of the Application of Deuel Harvest Wind Energy, LLC*, Docket No. EL18-053, Final Decision and Order (May 30, 2019).

<sup>117</sup> See, e.g., Ex. A1 at § 18 (Application).

<sup>118</sup> Ex. A56 (Appendix D Sound ISO-Lines Map Book); Ex. A57 (Appendix C-3 Sound Results Table Rev 6).

<sup>119</sup> Ex. A22 at 3 (Haley Supplemental Testimony); Evid. Hrg. Tr. at 358 (Haley).

<sup>120</sup> Evid. Hrg. Tr. at 358 (Haley).

<sup>121</sup> Ex. A26 at 3-3 (Applicant's Responses to Staff Third Set of Data Requests); Ex. A56 (Appendix D Sound ISO-Lines Map Book); Ex. A57 (Appendix C-3 Sound Results Table Rev 6); Evid. Hrg. Tr. at 361 (Haley).

Applicant.<sup>122</sup> Applicant agreed to a post construction sound protocol to be used in the event the Commission orders post construction sound monitoring.<sup>123</sup>

46. Similarly, the record also demonstrates that Applicant has appropriately minimized the shadow flicker for the Project to no more than 30 hours for participants and non-participants, with the understanding that there is one participant (CR1-C10-P) who is at 36:57 hours of shadow flicker.<sup>124</sup> Applicant modelled the cumulative impacts of shadow flicker from Dakota Range I and II and Crowned Ridge Wind, II, LLC wind projects when calculating its total shadow flicker hours.<sup>125</sup> Applicant also used conservative assumptions, such as the greenhouse-mode, to model shadow flicker, which, in turn, produces conservative results.<sup>126</sup>

47. Receptor CR1-C10-P is a participating landowner in Codington County.<sup>127</sup>

48. Receptor CR1-C10-P will experience 36 hours and 57 minutes of shadow flicker per year.<sup>128</sup>

49. Nothing in the record indicates that Receptor CR1-C10-P has signed a waiver.

50. Applicant will work with the one participant that will experience 36 hours of shadow flicker to either waive the 6:57 hour overage or implement mitigation, such as curtailing the turbine for the 6:57 hours of shadow flicker.<sup>129</sup>

51. There is no record evidence that the Project will substantially impair human health or welfare. To the contrary, Crowned Ridge witnesses Dr. Robert McCunney and Dr. Christopher Ollson submitted evidence that demonstrates that there is no human health or welfare concern associated with the Project as designed and proposed by Applicant.<sup>130</sup> Both Crowned Ridge witnesses analyzed the scientific peer-reviewed literature in the context of the proposed Project, and Dr. McCunney testified based on his experience and training as a medical doctor specializing in occupational health and the impact of sound on humans.<sup>131</sup>

52. There is no evidence in the record that the Project will substantially impair safety. Applicant will meet or exceed required setbacks established for safety,<sup>132</sup> and, also, implement safety practices during construction, operation, and maintenance, including grounding wind turbines in accordance with National Electrical Safety Code standards.<sup>133</sup> Applicant will monitor the operation of the Project twenty-four hours a day, seven days a week through the Supervisory Control and Data Acquisition system.<sup>134</sup> Also, Applicant will implement a SWPPP and SPCCP, part of which will ensure that state and local disaster services are coordinated with in the event of the accidental release of contaminants.<sup>135</sup> Applicant will illuminate the wind turbines as required

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<sup>122</sup> Ex. A58 (Final Land Status and Hessler 7 on Intervenor); Ex. A60 (Hessler 7 on Hessler Identified Non-Participants); Permit Conditions ¶¶ 26, 27.

<sup>123</sup> Permit Conditions ¶ 26.

<sup>124</sup> Ex. A67 (Appendix C-1 Shadow Flicker Results); Ex. A68 Appendix C-2 Shadow Flicker Results).

<sup>125</sup> Ex. A26 at 3-3 (Applicant's Responses to Staff Third Set of Data Requests); Ex. A43 at 2 (Haley Rebuttal Testimony).

<sup>126</sup> Ex. A2 at 7 (Haley Direct Testimony); Evid. Hrg. Tr. at 359-360 (Haley).

<sup>127</sup> *Id.*

<sup>128</sup> *Id.*

<sup>129</sup> Ex. A44 at 2-3 (Wilhelm and Massey Rebuttal Testimony); Evid. Hrg. Tr. at 361 (Haley); Permit Conditions ¶¶ 34, 41.

<sup>130</sup> Ex. A24 (Ollson Supplemental Testimony); Ex. A24-1 and through Ex. A24-17; Ex. A38 (Ollson Rebuttal Testimony); Ex. A38-1 through Ex. A38-7; Ex. A40 (McCunney Rebuttal Testimony); Ex. A40-2 through Ex. A40-9; Evid. Hrg. Tr. at 433-435 (McCunney); Evid. Hrg. Tr. at 452-458 (Ollson).

<sup>131</sup> *Id.*

<sup>132</sup> Ex. A1 at 12, 27, 75-78 (Application); Ex. A5 at 9-11 (Wilhelm and Massey Direct Testimony).

<sup>133</sup> Ex. A1 at 20, 114-115 (Application); Ex. A4 at 3, 7 (Thompson Direct Testimony).

<sup>134</sup> Ex. A1 at 23 (Application); Ex. A4 at 5, 7-8 (Thompson Direct Testimony).

<sup>135</sup> Ex. A1 at 41, 90-91, 100, 102 (Application).

by the FAA.<sup>136</sup> Applicant is required to use two methods to detect icing conditions on turbine blades to shut down turbines when they are accumulating ice.<sup>137</sup>

53. Applicant, prior to construction, is required to notify public safety agencies on the location of construction work.<sup>138</sup>

54. Applicant is required to provide each participating and non-participating landowner detailed safety information, including safety precautions, 14 days prior to the commencement of construction.<sup>139</sup>

55. Therefore, the record shows that Crowned Ridge has met its burden to demonstrate that the Project will not substantially impair the health, safety or welfare of the inhabitants of the siting area; indeed, there is no evidence in the record that the Project would substantially impair human health.

**D. The facility will not unduly interfere with the orderly development of the region with due consideration having been given the views of governing bodies of affected local units of government.**

56. The Commission must give due consideration to the views of governing bodies of affected local units of government pursuant to SDCL 49-41B-22(4).

57. The record demonstrates that the Project will not unduly interfere with the orderly development of the region. The Project complies with all applicable local land use requirements as demonstrated by the granting of conditional use permits for the Project by Grant County and Codington County.<sup>140</sup>

58. Applicant has also committed to decommissioning the Project at the end of its 25 year useful life, provided the life of the Project is not extended by retrofitting the turbines and power systems.<sup>141</sup> In support of decommissioning, Applicant will establish an escrow agreement consistent with the Commission's past rulings.<sup>142</sup> The escrow agreement covers decommissioning of the entire project, and, therefore, the Commission finds the escrow agreement required in this proceeding will provide sufficient financial protection for the decommissioning of the Project, and, accordingly, there is no need for Grant County and Codington County to require duplicative financial security related to decommissioning.

59. Staff witness Darren Kearney attached to his testimony 37 proposed conditions that the Intervenor indicated they desired to advance in this proceeding.<sup>143</sup> While Mr. Kearney provided Staff's initial reaction to the 37 conditions, he, also, testified that Staff had not seen supporting information from the Intervenor on the 37 conditions.<sup>144</sup> During the proceeding, the Intervenor submitted no evidence in support of the 37 conditions. In contrast, the Applicant

<sup>136</sup> *Id.* at 12.

<sup>137</sup> Permit Conditions ¶35.

<sup>138</sup> Permit Conditions ¶43.

<sup>139</sup> Permit Conditions ¶4.

<sup>140</sup> Ex. A1 at 88 (Application); Ex. A1-J (County Conditional Use Permits); Ex. A5 at 8-11 (Wilhelm and Massey Direct Testimony); Ex. A44 at 3-4 (Wilhelm and Massey Rebuttal Testimony).

<sup>141</sup> Ex. A1 at 113 (Application); Ex. A1-L (Decommission Plan).

<sup>142</sup> *In the Matter of the Application of Deuel Harvest Wind Energy, LLC*, Docket No. EL18-053, Final Decision and Order (Condition No. 36) (May 30, 2019). The Commission, however, will allow the Crowned Ridge escrow agreement to be filed 30 days (instead of the 60 days in past cases) prior to the commencement of commercial operations in order to allow Crowned Ridge with additional time to work with Grant County and Codington County so that they do not require duplicative escrow agreement(s).

<sup>143</sup> Ex. S2 at 12 (Exhibit DK-9) (Kearney Direct Testimony).

<sup>144</sup> *Id.*

provided evidence that the conditions should not be adopted.<sup>145</sup> Therefore, the 37 conditions proposed by the Intervenor will not be adopted.

## **VI. GENERAL.**

60. Applicants have furnished all information required by the applicable statutes and Commission regulations.

61. Applicants have satisfied their burden of proving all of the requirements imposed by SDCL 49-41B-22 for issuance of the permit to construct by the preponderance of the evidence.

62. An application may be denied, returned, or amended, at the discretion of the Commission, for failure to file an application generally in the form and content required by SDCL Chapter 49-41B and ARSD Chapter 20:10:22.<sup>146</sup> The Commission finds that Applicant filed its application generally in the form and content required by SDCL Chapter 49-41B and ARSD Chapter 20:10:22. The Commission notes that the supplementation of an application with additional information is common.<sup>147</sup>

63. An application may be denied, returned, or amended, at the discretion of the Commission, if there are any deliberate misstatements of material facts in the application or in accompanying statements or studies.<sup>148</sup> The Commission finds that the application and its accompanying statements and studies did not contain any deliberate misstatements of material facts.

64. The Commission finds that the Permit Conditions attached hereto and incorporated herein by reference are supported by the record, are reasonable and will help ensure that the Project will meet the standards established for approval of a construction permit for the Project set forth in SDCL 49-41B-22.

65. The Commission finds that the Project, if constructed in accordance with the Permit Conditions of this decision, will comply with all applicable laws and rules, including all requirements of SDCL Chapter 49-41B and ARSD Chapter 20:10:22.

66. The Commission finds that the Project, if constructed in accordance with the Permit Conditions of this decision, will not pose an unacceptable threat of serious injury to the environment nor to the social and economic conditions of inhabitants or expected inhabitants in the siting area.

67. The Commission finds that the Project, if constructed in accordance with the Permit Conditions of this decision, will not substantially impair the health, safety or welfare of the inhabitants in the siting area.

68. The Commission finds that the Project, if constructed in accordance with the Permit Conditions of this decision, will not unduly interfere with the orderly development of the region

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<sup>145</sup> Ex. A1-K (Property Value Effects Study); Ex. A37 at 4-11 (Thompson Rebuttal Testimony); Ex. A38 at 8-12 (Olson Rebuttal Testimony); Ex. A39 at 2-6 (Baker Rebuttal Testimony); Ex. A40 at 3-11 (McCunney Rebuttal Testimony); Ex. A42 at 12-24 (Sappington Rebuttal Testimony); Ex. A43 at 6-7 (Haley Rebuttal Testimony); and Ex. A44 at 9-19 (Wilhelm and Massey Direct Testimony).

<sup>146</sup> SDCL 49-41B-13(2).

<sup>147</sup> Ex. S2 at 8 (Kearney).

<sup>148</sup> SDCL 49-41B-13(1).

with due consideration having been given the views of governing bodies of affected local units of government.

69. The Commission finds the Intervenor have not presented evidence sufficient to deny the permit under the applicable statutes and Commission regulations.

70. The Commission finds that a permit to construct the Project should be granted subject to the attached Permit Conditions.

71. To the extent that any Conclusion of Law set forth below is more appropriately a finding of fact, that Conclusion of Law is incorporated herein by reference as a Finding of Fact as if set forth in full herein.

72. To the extent that any of the Findings of Fact in this decision are determined to be Conclusions of Law or mixed findings of fact and conclusions of law, the same are incorporated herein by this reference as a Conclusion of Law as if set forth in full herein.

Based on the foregoing Findings of Fact and the record in this proceeding, the Commission hereby makes the following:

### **CONCLUSIONS OF LAW**

From the foregoing Findings of Fact and the record in this proceeding, the Commission now makes the following Conclusions of Law:

1. The Commission has jurisdiction to consider the Application under SDCL Chapter 49-41B.

2. The wind energy conversion facility proposed by Applicant is a wind energy facility as defined under SDCL 49-41B-2(13).

3. The Application submitted by Applicant, as amended and supplemented through the proceedings in this matter, meets the criteria required by SDCL 49-41B-25, and construction of the Project meets the requirements of SDCL 49-41B and ARSD Chapter 20:10:22.

4. The Commission concludes that it possesses the authority under SDCL 49-41B-25 to impose conditions on the construction, operation and maintenance of the Project, that the Conditions set forth in the attached Permit Conditions are supported by the record, are reasonable, and will help ensure that the Project will meet the standards established for approval of a construction permit for the Project set forth in SDCL 49-41B-22 and that the Permit Conditions are hereby adopted.

5. The Commission concludes that it needs no other information to assess the impact of the proposed facility or to determine if Crowned Ridge has met its burden of proof.

6. The Commission satisfied the hearing and notice requirement in SDCL Chapter 49-41B.

7. Applicant satisfied the applicable notice requirements in SDCL Chapter 49-41B.



8. All other applicable procedural requirements in SDCL Chapter 49-41B have been satisfied.
9. Applicant has demonstrated that the proposed facility will comply with all applicable laws and rules.
10. When considered with all Permit Conditions, Applicant has demonstrated that the facility will not pose a threat of serious injury to the environment nor to the social and economic condition of inhabitants or expected inhabitants in the siting area.
11. When considered with all Permit Conditions, Applicant has demonstrated that the facility will not substantially impair the health, safety or welfare of the inhabitants.
12. When considered with all Permit Conditions, Applicant has demonstrated that the facility will not unduly interfere with the orderly development of the region with due consideration having been given the views of governing bodies of affected local units of government.
13. Crowned Ridge must comply with the requirements in the Grant County and Codrington County ordinances.
14. No party has provided sufficient evidence to impose any of the 37 proposed Intervenor conditions.
15. The standard of proof is by the preponderance of evidence. Applicant has met its burden of proof imposed by SDCL 49-41B-22 for issuance of the permit to construct by the preponderance of the evidence and is entitled to a permit to construct as provided in SDCL 49-41B-25.
16. Based on the preponderance of the evidence presented to the Commission, the Commission concludes that all of the requirements of SDCL 49-41B-22 have been satisfied.
17. The Commission thus concludes that the Application should be granted, and a facility permit should be issued for the Project for the reasons stated in these Findings of Fact and Conclusions of Law. The Commission grants the permit to construct requested in the Application, as amended, subject to the Permit Conditions.

### **ORDER**

From the foregoing Findings of Fact and Conclusions of Law, it is therefore:

ORDERED, that a permit to construct the Crowned Ridge Wind Project is granted to Crowned Ridge Wind, LLC for the construction and operation of the Project. It is further

ORDERED, that Applicant shall comply with all of the attached Permit Conditions, which are incorporated by reference into this Order the same as if they had been set forth in their entirety herein. It is further

ORDERED, that Intervenor's Second Motion to Dismiss is hereby denied.

## NOTICE OF ENTRY

PLEASE TAKE NOTICE that this Final Decision and Order Granting Permit to Construct Facility was duly issued and entered on the 26<sup>th</sup> day of July 2019.

Dated at Pierre, South Dakota, this 26<sup>th</sup> day of July 2019.

### CERTIFICATE OF SERVICE

The undersigned hereby certifies that this document has been served today upon all parties of record in this docket, as listed on the docket service list, electronically or by mail.

By: Karen E. Cromer

Date: 07/26/19

(OFFICIAL SEAL)

BY ORDER OF THE COMMISSION:

Gary Hanson  
GARY HANSON, Chairman

Chris Nelson  
CHRIS NELSON, Commissioner

Kristie Fiegen  
KRISTIE FIEGEN, Commissioner

## **PERMIT CONDITIONS**

1. Applicant will obtain all governmental permits which reasonably may be required by any township, county, state agency, or federal agency, or any other governmental unit for construction and operation activity of the Project prior to engaging in the particular activity covered by that permit. Copies of any permits obtained by Applicant shall be filed with the Commission.
2. Applicant shall construct, operate, and maintain the Project in a manner consistent with (1) descriptions in the Application, (2) Application supplements and corrections, (3) commitments made by Applicant in response to data requests, (4) the Final Decision and Order Granting Permit to Construct Facility, and attached Permit Conditions, (5) all applicable industry standards, (6) all applicable permits issued by a federal, state, or local agency with jurisdiction over the Project, and (7) evidence presented by Applicant at the evidentiary hearing.
3. Applicant agrees that the Commission's complaint process as set forth in ARSD Chapter 20:10:01 shall be available to landowners and other persons sustaining or threatened with damage as the result of Applicant's failure to abide by the conditions of the Permit or otherwise having standing to seek enforcement of the conditions of the Permit. Participating landowners are free to use the complaint process free from retribution or consequence regardless of any private easement term to the contrary.
4. At least 14 days prior to commencement of construction, Applicant shall provide each participating and non-participating landowner in the Project Area, using the addresses designated to receive the property tax bill sent by the county treasurer, with the following information:
  - a) A copy of the Final Decision and Order Granting Permit to Construct Facilities with attached Permit Conditions;
  - b) Detailed safety information describing:
    - i. Reasonable safety precautions for existing activities on or near the Project;
    - ii. Known activities or uses that are presently prohibited near the Project; and
    - iii. Other known potential dangers or limitations near the Project;
  - c) Construction/maintenance damage compensation plans and procedures (only to participating landowners);
  - d) The Commission's address, website, and phone number;
  - e) Contact person for Applicant, including name, e-mail address, and phone number.
5. In order to ensure compliance with the terms and conditions of this Permit pursuant to SDCL 49-41B-33, it is necessary for the enforcement of this Order that all employees, contractors, and agents of Applicant involved in this Project be made aware of the terms and conditions of this Permit.

6. Except as otherwise provided in the Permit Conditions, Applicant shall comply with all mitigation measures set forth in the Application and Applicant's commitments in its responses to data requests, and Applicant exhibits and testimony at the evidentiary hearing. Material modifications to the mitigation measures shall be subject to prior approval of the Commission.
7. Applicant will negotiate road use agreements with Codington and Grant Counties and all affected townships, if required. Applicant will comply with such road use agreements. When using haul roads specified in applicable road use agreements, Applicant shall take appropriate action to mitigate wind-blown particles created throughout the construction process, including implementation of dust control measures such as road watering, covering of open haul trucks when transporting material subject to being windblown, and the removal of any soils or mud deposits by construction equipment when necessary.
8. In accordance with applicable road use agreements or applicable law, Applicant shall comply with the following conditions regarding road protection:
  - a) Applicant shall acquire all necessary permits authorizing the crossing of federal, state, county, and township roads.
  - b) Applicant shall coordinate road closures with federal, state, and local governments and emergency responders.
  - c) Applicant shall implement a regular program of road maintenance and repair through the active construction period to keep paved and gravel roads in an acceptable condition for residents and the public.
  - d) After construction, Applicant shall repair and restore deteriorated roads resulting from construction traffic or compensate governmental entities for their repair and restoration of deteriorated roads, such that the roads are returned to their preconstruction condition.
  - e) Within 180 days of completing construction and reclamation of the Project, Applicant shall submit documentation to the Commission identifying that the roads were repaired in accordance with this Condition 8 and to the satisfaction of affected townships and county. If the townships or county will not provide such documentation, then Applicant shall provide a report to the Commission on the outstanding road repair issues and how those issues have been or will be resolved.
  - f) Privately owned areas used as temporary roads or crane paths during construction will be restored to their preconstruction condition, except as otherwise requested or agreed to by the landowner.
  - g) Should Applicant need to widen any existing roadways during construction of the Project, Applicant shall return the roadways back to original width after completion of the Project, unless otherwise agreed upon with the federal, state, county, or township entities, or the landowner.
9. Applicant shall provide signage that identifies road closures and disturbances resulting from the Project in accordance with the most recent editions of the Manual on Uniform Traffic Control Devices as published by the Federal Highway Administration.

10. Applicant shall promptly report to the Commission the presence of any critical habitat of threatened or endangered species in the Project Area that Applicant becomes aware of and that was not previously reported to the Commission.
11. Applicant agrees to avoid direct impacts to cultural resources that are unevaluated, eligible for, or listed in the National Register of Historic Places (NRHP). When a NRHP unevaluated, eligible, or listed resource cannot be avoided, Applicant shall notify the South Dakota State Historic Preservation Office (SHPO) and the Commission of the reasons that complete avoidance cannot be achieved in order to coordinate minimization and/or treatment measures.
12. Prior to the commencement of construction, Applicant agrees to develop an unanticipated discovery plan for cultural resources and comply with SDCL 34-27-25, 34-27-26, and 34-27-28 for the discovery of human remains.
13. Applicant shall file a Level III Archaeological survey of the remaining facilities (i.e. access roads, crane paths, collection lines, O&M facilities, concrete batch plant, and laydown areas) with the Commission and provide a copy of the survey to SHPO prior to commercial operation. The survey report may contain confidential information and all confidential portions of the survey report shall be filed as confidential and not for public disclosure. If any potential adverse impacts to NRHP unevaluated, listed, or eligible cultural resources are identified in the survey, Applicant shall file with the Commission a report describing the SHPO-approved planned measures to ameliorate those impacts.
14. Applicant shall provide the Stormwater Pollution Prevention Plan (SWPPP) to the Commission when Applicant has a final design for the Project. The SWPPP will outline the water and soil conservation practices that will be used during construction to prevent or minimize erosion and sedimentation and be in a form consistent with the South Dakota Department of Environment and Natural Resources guidelines. The SWPPP will be completed before submittal of an application for a National Pollutant Discharge Elimination System (NPDES) general permit for construction activities. All contractors to be engaged in ground disturbing activities will be given a copy of the SWPPP and the requirements will be reviewed with them prior to the start of construction.
15. Applicant shall repair and restore areas disturbed by the construction or maintenance of the Project. Except as otherwise agreed to by the landowner, restoration shall include the replacement of the original pre-construction topsoil or equivalent quality topsoil to its original elevation, contour, and compaction and re-establishment of original vegetation as close thereto as reasonably practical. In order to facilitate compliance with this Permit Condition, Applicant shall:
  - a) Strip the topsoil to the actual depth of the topsoil, or as otherwise agreed to by the landowner in writing (e-mail is sufficient), in all areas disturbed by the Project; however, with respect to access roads, Applicant may remove less than the actual depth of the topsoil to ensure roads remain low-profile and the contours align with the surrounding area;
  - b) Store the topsoil separate from the subsoil in order to prevent mixing of the soil types;
  - c) All excess soils generated during the excavation of the turbine foundations shall remain on the same landowner's land, unless the landowner requests, and the landowner agrees otherwise; and

- d) When revegetating non-cultivated grasslands, Applicant shall use a seed mix that is recommended by the Natural Resource Conservation Service (NRCS), or other land management agency, unless otherwise agreed upon with the landowner in writing.
- 16. Applicant shall work closely with landowners or land management agencies, such as the NRCS, to determine a plan to control noxious weeds and Applicant shall implement the plan.
- 17. Applicant shall stage construction materials in a manner that minimizes the adverse impact to landowners and land users as agreed upon between Applicant and landowner or Applicant and the appropriate federal, state, and/or local government agency. All excess (non-permanent) construction materials and debris shall be removed upon completion of the Project, unless the landowner agrees otherwise.
- 18. In order to mitigate interference with agricultural operations during and after construction, Applicant shall locate all structures, to the extent feasible and prudent, to minimize adverse impacts and interferences with agricultural operations, shelterbelts, and other land uses or activities. Applicant shall take appropriate precautions to protect livestock and crops during construction. Applicant shall repair all fences and gates removed or damaged during construction or maintenance unless otherwise agreed upon with the landowner or designee. Applicant shall be responsible for the repair of private roads damaged when moving equipment or when obtaining access to the right-of-way.
- 19. Applicant shall bury the underground collector system at a minimum depth of 48 inches, or deeper if necessary, to ensure the current land use is not impacted.
- 20. Applicant shall repair or replace all property removed or damaged during all phases of construction, including but not limited to, all fences, gates, and utility, water supply, irrigation, or drainage systems. Applicant shall compensate the owners for damages or losses that cannot be fully remedied by repair or replacement, such as lost productivity and crop and livestock losses. All repair, replacement and/or compensation described above shall be in accordance with the terms and conditions of written agreements between Applicant and affected landowners where such agreements exist.
- 21. Applicant shall, in the manner described in its written agreement with a landowner, indemnify and hold the landowner harmless for loss, damage, claim, or actions resulting from Applicant's use of the easement, including any damage resulting from any release, except to the extent such loss, damage claim, or action results from the negligence or willful misconduct of the landowner or his employees, agents, contractors, invitees, or other representatives.
- 22. Applicant may make turbine adjustments of 250 feet or less from the turbine locations identified at the time a Facility Permit is issued without prior Commission approval, so long as the specified noise and shadow flicker thresholds are not exceeded, cultural resource impacts and documented habitats for listed species are avoided, and wetland impacts are avoided or are in compliance with applicable U.S. Army Corps of Engineers (USACE) regulations. Prior to implementing the turbine adjustment, Applicant will file in the docket an affidavit demonstrating compliance with the limitations set forth above. Any turbine adjustment that does not comply with the aforesaid limitations, or turbine model change, would be considered a "material change," and Applicant shall file a request for approval of the "material change" prior to making the adjustment pursuant to the following approval process:

Applicant will file with the Commission and serve on the official Service List a request for approval of the material change that includes:

- An affidavit describing the proposed turbine adjustment, the reason for the adjustment, the reason the adjustment does not comply with one or more turbine flexibility limitations set forth above, and information regarding compliance with all other applicable requirements; and
  - A map showing both the approved location and the proposed adjustment (in different colors).
  - Once received, the information would be reviewed by Commission staff, and Commission staff will have 10 calendar days within which to request further Commission review.
  - If no further review is requested, Applicant may proceed with the adjustment.
  - If further review is requested, the Commission will issue a decision regarding Applicant's request at its next available regularly scheduled Commission meeting, subject to notice requirements, after the request for further review is made by Commission staff.
23. Applicant may adjust access roads, the collector and communications systems, meteorological towers, Aircraft Detection Lighting System facilities, the operations and maintenance facility, the Project Substation, and temporary facilities, so long as they are located on land leased for the Project, cultural resources are avoided or mitigated in consultation with the SHPO; documented habitats for listed species are avoided; wetland impacts are avoided or are in compliance with applicable USACE regulations; and all other applicable regulations and requirements are met.
24. If the Project causes interference with radio, television, or any other licensed communication transmitting or receiving equipment, Applicant shall take all appropriate action to minimize any such interference and shall make a good faith effort to restore or provide reception levels equivalent to reception levels in the immediate areas just prior to construction of the Project. This mitigation requirement shall not apply to any dwellings or other structures built after completion of the Project.
25. Applicant will provide Global Positioning System (GPS) coordinates of structure locations to affected landowners at any time during the life of the Project. Coordinates will be provided in writing to landowners within 30 days of a request.
26. The Project, exclusive of all unrelated background noise, shall not generate a sound pressure level (10-minute equivalent continuous sound level, Leq) of more than 45 dBA as measured within 25 feet of any non-participating residence unless the owner of the residence has signed a waiver, or more than 50 dBA (10-minute equivalent continuous sound level, Leq) within 25 feet of any participating residence unless the owner of the residence has signed a waiver. The Project Owner shall, upon Commission formal request, conduct field surveys and provide monitoring data verifying compliance with specified noise level limits. If the measured wind turbine noise level exceeds a limit set forth above, then the Project Owner shall take whatever steps are necessary in accordance with prudent operating standards to rectify the situation.

If a field survey and monitoring data is requested by the Commission, the Project Owner shall submit the test protocol to the Commission prior to conducting the survey and sound monitoring for approval. The test protocol shall include and be implemented as follows:

- a) The post-construction monitoring survey shall be conducted following applicable American National Standard Institute (ANSI) methods.
- b) Sound levels shall be measured continuously for 14 days in an effort to capture a sufficient quantity of valid readings meeting the wind conditions delineated below in subpart (e). A sufficient quantity shall be defined as 0.5% of the total number of samples, or a minimum of 10 for a 14-day measurement period. As a precaution against the possibility that a sufficient number of valid readings are not automatically recorded during the chosen 14-day sampling period, 10 on/off tests shall be carried out during the survey period when the Project is operating at full power production irrespective of the ground level wind speed. For the on/off tests, all units in the Project shall be shut down for a 10-minute period synchronized with the monitor's clocks (starting, for example, at the top of the hour or 10 minutes after, 20 minutes after, etc.). The background level measured during the shutdown interval can then be subtracted from the average of the levels measured immediately before and after it to determine the Project-only sound level. The results from these tests may be used to make up for any shortfall in collecting 10 samples measured when the ground level wind speed is less than or equal to 5 m/s.
- c) Measurements shall be conducted at a select number of non-participating and participating residences with the highest expected noise levels and/or at specific residences identified in the Commission's formal request. Typically, 4 to 6 measurement locations total should be selected.
- d) Measurements shall be conducted using sound level meters meeting ANSI Type 1 specifications. An anemometer shall be placed within 20 feet of each microphone, and at a height of approximately 2 meters above the ground.
- e) The measurement data shall be analyzed as follows:
  - i. At a minimum, the closest five wind turbines will be operating for evaluation periods and when at least the closest wind turbine is operating at a condition at full (within one decibel of maximum sound power levels) acoustic emissions.
  - ii. Discard those samples measured when the 10-minute average ground wind speed is greater than 5 m/s.
  - iii. Discard those samples measured during periods with precipitation.
  - iv. If measured (total) sound levels exceed the sound level limits, determine Project-only sound levels by removing transient background noise (i.e. occasional traffic, activities of residents, farming activities, and wind gusts) based upon audio recordings, excessive wind gusts, personal observations, and/or comparison of sound level metrics.
  - v. If measured (total) sound levels exceed the sound level limits, determine Project-only sound levels by removing, continuous background noise. This approach requires wind turbine shut-downs, where the background noise is measured directly. Background noise levels will be subtracted from total noise levels measured during these wind conditions to calculate turbine-only noise levels.



- vi. As necessary, review of the frequency spectra of potential turbine-only samples to identify and remove outliers (spectral shape clearly differing from those samples measured under very low (less than 2 m/s) ground wind conditions, which are the samples most representative of turbine-only noise).
  - f) Compare the resulting turbine-only noise levels to the 45 and 50 dBA limits. Compliance shall be demonstrated if all samples are less than the limits.
27. Applicant agrees to use alternative turbine locations instead of the following primary turbine locations CR-16, CR19, CR-23, CR-49, CR-60, CR-67, and CR-68. If during construction at an alternative turbine, Applicant determines that the location is not suitable for a turbine due to geotechnical, cultural, environmental issues or other constructability issues, Applicant shall file an affidavit with the Commission setting forth why the alternative turbine cannot be used and identifying which primary turbine will be used. If there is a dispute over the use of a primary turbine, Applicant and Commission staff shall meet and attempt to resolve the dispute within 10 business days of the filing of the affidavit. If the dispute cannot be resolved within 10 business days, Applicant shall file a request for a material change with the Commission.
28. Applicant shall seek input from local emergency response personnel to properly and effectively coordinate an emergency response plan consistent with local resources and response abilities. Upon completion of construction, a Project operation emergency response plan shall be provided to Commission staff to make available to the general public on the Commission's website.
29. Applicant agrees to undertake a minimum of two years of independently-conducted post-construction avian and bat mortality monitoring for the Project, and to provide a copy of the report and all further reports to the United States Fish and Wildlife Services, South Dakota Game, Fish and Parks, and the Commission.
30. Applicant shall file a Bird and Bat Conservation Strategy (BBCS) prior to beginning construction of the Project. The BBCS shall be implemented during construction and operation of the Project.
31. If the Project is decommissioned, Applicant will follow Section 21 of the Application and the decommissioning plan laid out in Appendix L of the Application. The Commission shall be notified prior to any decommissioning action.
32. At least 30 days prior to commencement of commercial operation, Applicant shall file an escrow agreement with the Commission for Commission approval that provides a decommissioning escrow account. The escrow agreement shall incorporate the following requirements:
- a) The escrow account is funded by the turbine owner annually at a rate of \$5,000 per turbine per year for the first 30 years, commencing no later than the commercial operation date.
  - b) Beginning in year ten following commercial operation of the Project and each fifth year thereafter, the turbine owner shall submit to the Commission an estimated decommissioning date, if established, and estimated decommissioning costs and salvage values. Based on the verification of the information in the filing the Commission may determine that funds in escrow are sufficient to cover the costs

of decommissioning and that reduced, or no additional deposits are required. The Commission also may determine that additional funding is required and may require additional funding equal to the estimated amount needed for decommissioning.

- c) All revenues earned by the account shall remain in the account.
  - d) An account statement shall be provided annually to the Commission and become a public record in this docket.
  - e) The escrow account obligations will be those of Crowned Ridge and the escrow agreement shall include terms providing that the agreement binds Crowned Ridge's successors, transferees, and assigns. A sale of Project assets shall include the associated Permit that requires Commission approval per SDCL §49-41B-29.
  - f) The escrow account agent shall be a South Dakota chartered state bank or a nationally chartered bank with an office located in South Dakota.
  - g) The escrow agreement shall be subject to the laws of South Dakota and any disputes regarding the agreement shall be venued in South Dakota.
  - h) To minimize the risk that the escrow account would be subject to foreclosure, lien, judgment, or bankruptcy, the escrow agreement will be structured to reflect the follow factors:
    - i. That Crowned Ridge agreed to the creation of the escrow account;
    - ii. Crowned Ridge exercises no (or the least amount possible of) control over the escrow;
    - iii. The initial source of the escrow account;
    - iv. The nature of the funds put into the escrow account;
    - v. The recipient of its remainder (if any);
    - vi. The target of all its benefit; and
    - vii. The purpose and its creation.
  - i) Account funds are to be paid to the Project owner at the time of decommissioning, to be paid out as decommissioning costs are incurred and paid.
  - j) If the Project owner fails to execute the decommissioning requirement found in this section of the Permit Conditions, the account is payable to the landowner who owns the land on which associated Project facilities are located as the landowner incurs and pays decommissioning costs.
33. Applicant shall utilize an Aircraft Detection Lighting System approved by the Federal Aviation Administration.

34. Shadow flicker at residences shall not exceed 30 hours per year unless the owner of the residence has signed a waiver. Prior to construction, Applicant shall obtain and file with the Commission and the Codington County Zoning Officer a waiver for any occupied structure which will experience more than thirty hours of shadow flicker per year. If no waiver is obtained, Applicant shall file a mitigation plan with the Commission prior to construction and obtain Commission approval of the mitigation plan.
35. Applicant will use two methods to detect icing conditions on turbine blades: (1) sensors that will detect when blades become imbalanced or create vibration due to ice accumulation; and (2) meteorological data from on-site permanent meteorological towers, on-site anemometers, and other relevant meteorological sources that will be used to determine if ice accumulation is occurring. These control systems will either automatically shut down the turbine(s) in icing conditions (per the sensors) or Applicant will manually shut down turbine(s) if icing conditions are identified (using meteorological data). Turbines will not return to normal operation until the control systems no longer detect an imbalance or when weather conditions either remove icing on the blades or indicate icing is no longer a concern. Applicant will pay for any documented damage caused by ice thrown from a turbine.
36. Turbines shall be set back at least 1.1 times the tip height, with a minimum set back distance of 500 feet, from any surrounding property line. However, if the owner of the wind turbine tower has a written agreement with an adjacent land owner allowing the placement of the tower closer to the property line, the tower may be placed closer to the property line shared with that adjacent land owner.
37. Applicant shall implement the avoidance, minimization, and mitigation measures identified as follows for Traditional Cultural Properties (TCPs):
  - a) Implement standard avoidance or resource protection practices (e.g., barrier fencing, contractor training) for TCPs, where feasible, in collaboration with the Sisseton-Wahpeton Oyate, Yankton Sioux, Rosebud Sioux and Spirit Lake Tribal Historic Preservation Officers (THPOs) and Applicant;
  - b) Make reasonable efforts to identify participating landowners who may be willing to work with the tribes on site preservation, accessibility, and protection of TCPs on their property;
  - c) Conduct site revisits prior to construction;
  - d) Help facilitate post-construction site revisits for tribes with the landowners; and
  - e) Identify and implement education/interpretation opportunities regarding tribal resource preservation and/or Native American perspectives which may include sensitivity training when needed.
38. For purposes of this Project and the commitments herein, “residences,” “business(es),” “structures,” “schools,” “churches,” “cemeteries,” and “public buildings” shall include only those that are in existence and in use as of the date of the Commission’s order issuing a permit.

39. The terms and conditions of the Permit shall be made a uniform condition of construction and operation, subject only to an affirmative written request for an exemption addressed to the Commission. A request for an exemption shall clearly state which particular condition should not be applied to the property in question and the reason for the requested exemption. The Commission shall evaluate such requests on a case-by-case basis, which evaluation shall be completed within 60 days unless exigent circumstances require action sooner.
40. Applicant shall provide a copy of the Commission's Final Decision and Order Granting Permit to Construct Facility; Notice of Entry and attached Permit Conditions in this docket to the affected county, townships, and municipalities in the Project Area.
41. At least 30 days prior to the commencement of construction work in the field for the Project, Applicant will provide to Commission staff the following information:
- a) the most current preconstruction design, layout, and plans, including the turbine model selected;
  - b) a sound level analysis showing compliance with the applicable sound level requirements;
  - c) a shadow flicker analysis showing the anticipated shadow flicker levels will not exceed applicable requirements per year at any residence, absent a waiver agreement executed by the residence owner(s);
  - d) should Applicant decide at a later point to use a different turbine model, it shall provide the information required in parts a-c above. Applicant shall also demonstrate that in selecting locations for the other turbines, it considered how to reduce impacts on non-participating landowners; and
  - e) additional Project preconstruction information as Commission staff requests.
42. At least 30 days prior to commencement of construction, Applicant shall submit the identity and qualifications of a public liaison officer to the Commission for approval to facilitate the exchange of information between Applicant, including its contractors, landowners, local communities, and residents, and to facilitate prompt resolution of complaints and problems that may develop for landowners, local communities, and residents as a result of the Project. Applicant shall file with the Commission its proposed public liaison officer's credentials for approval by the Commission prior to the commencement of construction. After the public liaison officer has been approved by the Commission, the public liaison officer may not be removed by Applicant without the approval of the Commission. The public liaison officer shall be afforded immediate access to Applicant's on-site Project manager, its executive Project manager, and to the contractors' on-site managers and shall be available at all times to Commission staff via mobile phone to respond to complaints and concerns communicated to the Commission staff by concerned landowners and others. Within 10 working days of when Applicant's public liaison officer has been appointed and approved, Applicant shall provide contact information for him/her to all landowners in the Project Area and to law enforcement agencies and local governments in the vicinity of the Project. The public liaison officer's contact information shall be provided to landowners in each subsequent written communication with them. If the Commission determines that the public liaison officer has not been adequately performing the duties set forth for the position in this Order, the Commission may, upon notice to Applicant and the public liaison officer, take action to

remove the public liaison officer. The public liaison's services shall terminate 90 days after the Project commences commercial operations, unless the appointment is extended by order of the Commission.

43. Prior to the construction of the Project, Applicant will notify public safety agencies by providing a schedule and the location of work to be performed within their jurisdiction. The agencies contacted will include the South Dakota Department of Public Safety, the sheriffs of Codington County and Grant County, and the Codington County and Grant County Offices of Emergency Management.
44. Within 90 days after the Project's commercial operation date, Applicant shall submit a report to the Commission that provides the following information:
  - a) as-built location of structures and facilities, including drawings clearly showing compliance with the setbacks required by state and local governments set forth in Table 13.1.2 of the Application;
  - b) ArcGIS shapefiles of the final turbine and facility layout;
  - c) the status of remedial activities for road damage, landowner property damage, crop damage, environmental damage, or any other damage resulting from Project construction activities; and,
  - d) a summary of known landowner complaints and Applicant's plan for resolving those complaints.
45. Applicant will undertake a minimum of two years of independently-conducted post-construction grouse lek monitoring of known leks that are located less than 1 mile from a wind turbine. Known leks are SDGFP confirmed lek locations and leks documented during any wildlife surveys conducted by Applicant for Project development. Applicant shall file with the Commission its proposed independent third-party's credentials and survey methodology for approval by the Commission 60 days prior to the commencement of Project operation. The study shall be conducted on the ground. Applicant shall consult with SDGFP and USFWS on the proposed survey methodology for the post-construction lek monitoring. Results of the post-construction lek monitoring shall be reported to the SDGFP and USFWS after the first year of monitoring and a final report should be compiled and submitted to the SDGFP and USFWS at the end of the second year of monitoring. Within 90 days of the issuance of this Final Order, Applicant and Staff shall work together to develop a mitigation plan that will be incorporated into Applicant's Wildlife Conservation Strategy in case impacts to prairie grouse leks are found.

## **Crowned Ridge I and II Follow-up Conference Call**

**Date:** July 16, 2019

**Attendees:** Kimberly Wells (KW), Michelle Phillips, and Tyler Wilhelm (NextEra)  
Scott Larson (SL) and Natalie Gates (NG) (USFWS)  
Hillary Meyers (HM) (SDGFP)  
Sarah Sappington and Kely Mertz (KM) (SWCA)

Call began at approximately 11:00 am central.

All parties gave introductions, and KW provided intent of call which was to address questions USFWS raised in its July 2, 2019 letter.

### **Project Overview**

KW: There are four separate SDPUC filings: CRI T-line, which has been approved; CRI Wind Farm, which has been approved; CRII T-line which has been approved; and CRII Wind Farm which was refiled with SDPUC last week. All applications, including most wildlife survey reports are located on the SDPUC website. The Dakota skipper (DASK) survey report also was submitted to USFWS as part of its annual permit reporting requirements.

### **Dakota Skipper**

KM: Provided overview of the DASK survey effort. It was a phased approach beginning with desktop habitat assessment and resulting in targeted surveys in a subset of potentially suitable DASK habitat proposed to be impacted by the design at that time .

SL: Why was a subset of DASK habitat surveyed?

KM: CRW prioritized conducting surveys in areas their permitted biologists felt optimized their opportunity to observe the species if it were present and in an area proposed for impact. It was not feasible to survey the entire project area which includes 53,186 acres for the Crowned Ridge I Wind Farm and 60,996 acres for the Crowned Ridge II Wind Farm, of which only approximately 2,220 acres (4%) and 2,016 acres (3%), respectively, are expected to be temporarily or permanently impacted. The area within which impacts may occur is described in the applications as the "Project Construction Easement." If there are specific questions on methods we can go through those.

NG: Not clear exactly which areas of suitable habitat were not surveyed. Critical Habitat was not addressed.

KM: The project's proximity to DASK Critical Habitat is discussed in the applications, Section 11. CRW has put into place seasonal restrictions regarding activities in suitable DASK habitat. CRW will be avoiding the flight period.

SL: Can you generate a map of suitable habitat areas vs. areas of disturbance?

KW: Yes.

NG: USFWS understands many areas may be degraded, contain invasive species, and provide minimal habitat for DASK within the project boundary.

KW: CRW has avoided placing turbines in grasslands where feasible. CRW has attempted to minimize conflicts between grasslands, tribal, and other Endangered Species Act concerns. In several cases, landowners prefer turbines outside of the land they actively farm.

### **Topeka Shiner**

KW: CRW is considering a number of avoidance measures to avoid impacts to streams potentially occupied by Topeka shiner. Measures include boring, overland collection, rerouting, and total avoidance.

NG: Acknowledged CRW would pursue total avoidance for the species. Noted that avoidance measures should be implemented in the streams where Topeka shiner may occur and their tributaries.

KW: agreed, CRW current plan is to bore under Willow and Stray Horse creeks identified in the USFWS letter or to completely avoid.

### **Effects to Habitats and Wildlife**

NG: Interested in discussing grassland, wetland, and effects to birds such as displacement. Is CRW considering offsets?

KW: Yes, CRW will consider voluntary offsets to address potential direct and indirect effects. What is the funneling mechanism for conservation benefits?

SL: The agency is open to non-governmental organizations and others.

KW: NextEra has worked with several non-profit groups including Ducks Unlimited and Audubon in the past. Are there restrictions for the state? In North Dakota, there are restrictions on the state agency receiving and managing funds, but there do not appear to be the same restrictions for South Dakota.

HM: Is not aware of any restrictions but is following up with her supervisor.

NOTE: After the call and in a follow-up email to KW on 7/23/19, HM indicates there are no restrictions on the state having conservation easements and there may be a specific non-profit entity available to receive offset funds from wind energy projects in general for conservation delivery.

KW: Does GFP have funding opportunities like private match foundations or other stacking opportunities? CRW is summarizing acreage for wetlands and proximity to turbines. Noted that of 130 turbines, only 19 are in grassland areas due to other concerns including landowner preference and only 17 of those are in field-verified grasslands.

SL: How many turbines are in grasslands for CRII?

KW: Not sure but can get that information to USFWS. CRW will treat CRI and CRII separately for offsets. NextEra is the owner and operator for CRI, but CRII will be owned and operated by Xcel.

NOTE: Since the call, CRW verified that 11 of the CRII wind turbines are in mapped grasslands and only 2 of those are in field verified grasslands.

### **Grouse Leks**

KW: The SDPUC conditioned the approval of the CRI Wind Farm with a requirement for CRW to conduct post-construction grouse lek monitoring to potentially gather information on effects of wind energy development on leks. The plan is not yet developed. CRW will work with SDGFP and SDPUC subject matter experts to develop the protocol for post-construction monitoring.

### **Line Marking**

KW: CRW plans to mark the CRI transmission line following the general approach outlined in Upper Great Plains HCP that is a calculation based on proximity to wetland stopover habitat for whooping cranes.

NG: Migratory birds are an issue. She has seen birds hit powerlines this year due to water increases associated with flooding when surrounding sides of a road merge or abut power lines.

KW: CRW and SWCA will take a look at aquatic resources proximate to transmission lines and identify any potential areas to hold additional waters in substantial rainfall years.

### **Bats**

NG: Northern long-eared bats (NLEB): CRW is aware of the 4D rule and under the rule, CRW would not be in violation of ESA for take of a NLEB as a result of operating the wind farm. However, survey methods didn't appear to follow Indiana Bat Survey Guidelines. CRW did not look specifically at forested habitats. How many sites did CRW survey? If the goal was to find the bats, then one has to look in the habitat. CRW did not.

KM: Our objective was not to survey for presence/probably absence of NLEB. CRW did a desktop habitat assessment for the entire project area. CRW conducted the desktop assessment to derive a likelihood of occurrence for the species. Potential summer habitat is less than 1% of the project area.

NG: Did CRW use 15 acres? Information out of Michigan suggests could be lower, approximately 10 acres, in South Dakota. NG will try to obtain those data to share with SWCA.

KM: Yes, CRW used 15 acres for the assessment. Given the paucity of forested area and potentially suitable habitat, and the known distribution for the species, CRW believes it is reasonable to assume low likelihood of NLEB occurrence in the project area. CRW recognizes NLEB may occasionally migrate through the project area. From there, the objective of the acoustic survey was to assess relative bat activity in areas similar to where turbines would be constructed. Therefore, CRW assessed relative bat activity in agricultural lands because that is where the majority of turbines will be placed. Had CRW found more suitable habitat, they may have had different objectives for the acoustic survey. The lack of suitable habitat, in other words, informed the objectives for the acoustic survey.

NG: Did you not identify species? Did you use Anabat?

KM: Yes, CRW used Anabat and analyzed by frequency groups. No calls observed were consistent with those made by *Myotis* species. No *Myotis* species were detected.

NG: Prevailing Winds detected NLEB in the Coulee area. Bats are less likely in the CRW project area. USFWS would like to learn more about species in state. There are some NLEB in the Black Hills and in northwestern South Dakota with proximity to hibernacula.



KM: Did Prevailing Winds survey summer habitat?

NG: Yes.

### **Eagles**

NG: CRW should adhere to the ECPG, and run the risk model to determine appropriate risk category and whether or not an incidental take permit is appropriate. Has CRW run the model? Will CRW pursue a permit?

KW: Based on data collected at the site, CRW does not see that this area is a high risk area, and CRW does not believe a permit is warranted based on the existing data.

### **Other**

KW: Ensured USFWS and SDGFP was aware that CRW's team coordinates regularly with USFWS to map USFWS easements, and to avoid USFWS interests.

NG: Reiterated concern about indirect impacts to birds on easement lands. CRW did make effort to avoid grassland areas. Agency's recommendation is to not site turbines on grassland.

KW: summarized action items:

- CRW will model for offsets and indirect effects.
- CRW will provide map of suitable DASK habitat and areas of disturbance.
- CRW will compile further information regarding vegetation and quality of potentially suitable DASK habitat to share with agencies.
- CRW will look at aquatic resources proximate to transmission lines and identify any potential areas to hold additional waters in substantial rainfall years.
- HM will look at available options for offsets and conservation through the state (since completed on 7/23).
- NG will share 10-acre information re: NLEBs if she is able to obtain.

Call concluded at approximately 11:52 am central time.

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**From:** [Wells, Kimberly](#)  
**To:** [Gates, Natalie](#); [hilary.meyer \(hilary.meyer@state.sd.us\)](mailto:hilary.meyer@state.sd.us)  
**Cc:** [Larson, Scott](#); [Kely Mertz](#); [Sarah Sappington](#); [Wilhelm, Tyler](#); [HART, DARYL](#)  
**Subject:** RE: Crowned Ridge Follow up  
**Date:** Thursday, August 15, 2019 5:51:31 PM  
**Attachments:** [CRI DASK survey map 08152019.pdf](#)

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**EXTERNAL: This email originated from outside SWCA. Please use caution when replying.**

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Hi Natalie/Hilary,

Were there any comments on the draft minutes I circulated on 8/6 for our Crowned Ridge I Project (see below)? We haven't received any so are assuming these are accurate unless we hear otherwise.

I am also attached a revised map showing how our DASK survey areas and areas of proposed impact overlap.

Please let us know when you have reviewed.

Thanks!

Kim

Kimberly Wells, Ph.D.  
Senior Manager, Environmental Services  
Mid Continent Region

**NEXtera** Energy Resources, LLC

708 Main Street, 10<sup>th</sup> floor

c/o WeWork

Houston, TX 77002

713.951.5372 (office)

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[Kimberly.Wells@NEE.com](mailto:Kimberly.Wells@NEE.com)



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**From:** Wells, Kimberly  
**Sent:** Tuesday, August 6, 2019 3:05 PM  
**To:** Gates, Natalie <[natalie\\_gates@fws.gov](mailto:natalie_gates@fws.gov)>; [hilary.meyer \(hilary.meyer@state.sd.us\)](mailto:hilary.meyer@state.sd.us)

<hilary.meyer@state.sd.us>

**Cc:** Larson, Scott <scott\_larson@fws.gov>; Kely Mertz <KMertz@swca.com>; Sarah Baer <SBaer@swca.com>; Wilhelm, Tyler <Tyler.Wilhelm@nexteraenergy.com>; HART, DARYL <DARYL.HART@nexteraenergy.com>; Wells, Kimberly <Kimberly.Wells@nexteraenergy.com>

**Subject:** Crowned Ridge Follow up

Natalie/Hilary,

Please review the draft minutes we recorded from our conference call on Crowned Ridge earlier this month and let us know if any comments or corrections. We file these in our PUC docket.

I am also attaching the Final Order for the wind farm and have highlighted the grouse condition below that we discussed briefly.

45. Applicant will undertake a minimum of two years of independently-conducted postconstruction grouse lek monitoring of known leks that are located less than 1 mile from a wind turbine. Known leks are SDGFP confirmed lek locations and leks documented during any wildlife surveys conducted by Applicant for Project development. Applicant shall file with the Commission its proposed independent third-party's credentials and survey methodology for approval by the Commission 60 days prior to the commencement of Project operation. The study shall be conducted on the ground. Applicant shall consult with SDGFP and USFWS on the proposed survey methodology for the post-construction lek monitoring. Results of the post-construction lek monitoring shall be reported to the SDGFP and USFWS after the first year of monitoring and a final report should be compiled and submitted to the SDGFP and USFWS at the end of the second year of monitoring. Within 90 days of the issuance of this Final Order, Applicant and Staff shall work together to develop a mitigation plan that will be incorporated into Applicant's Wildlife Conservation Strategy in case impacts to prairie grouse leks are found.

Lastly, is there a particular seed mix recommended for restoration of native prairie for pollinators/DASK you all like or have had success with?

Thanks!

Kim

Kimberly Wells, Ph.D.  
Senior Manager, Environmental Services  
Mid Continent Region

**NEXtera** Energy Resources, LLC

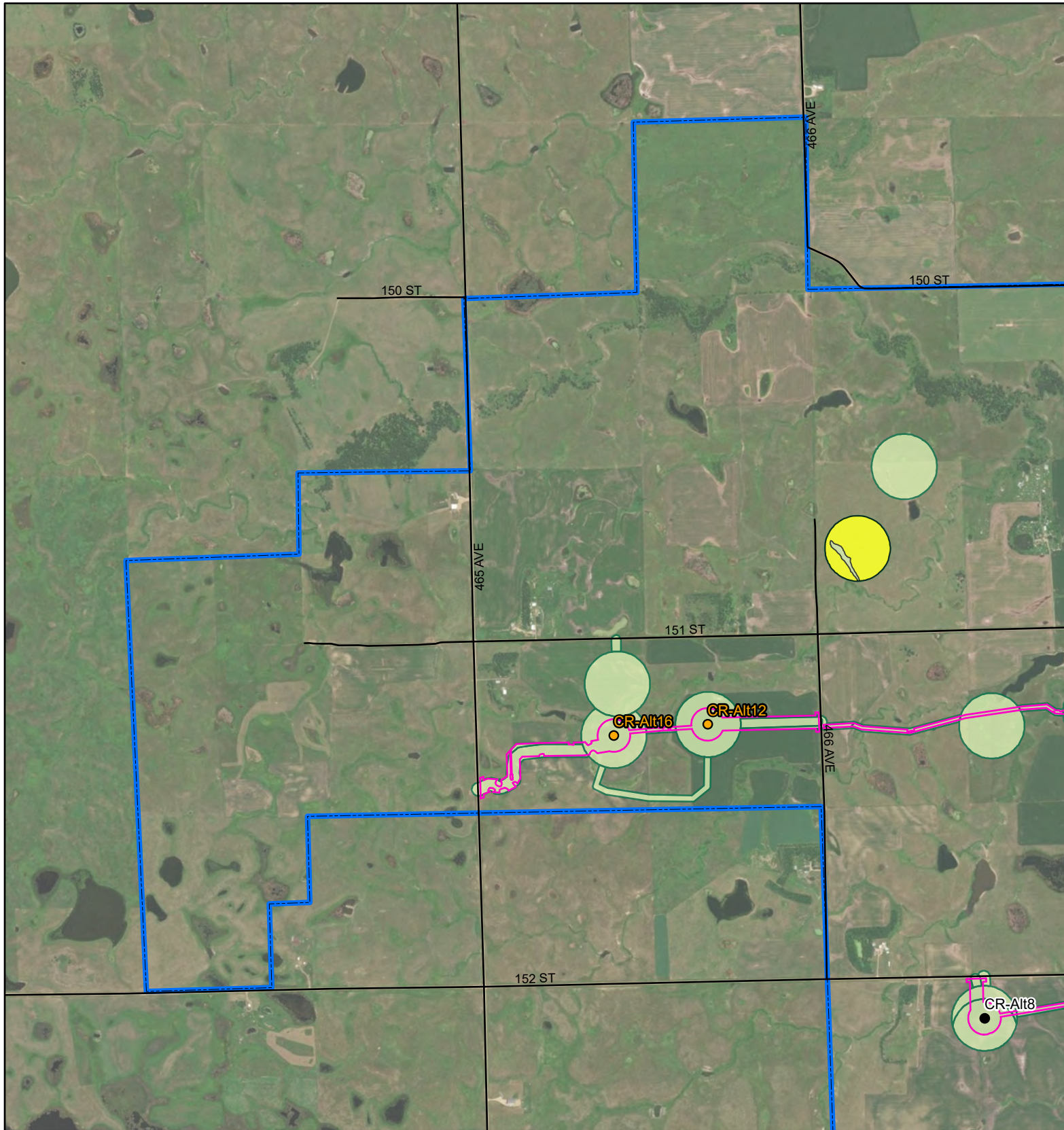
708 Main Street, 10<sup>th</sup> floor  
c/o WeWork  
Houston, TX 77002

713.951.5372 (office)

832.538.7935 (mobile)

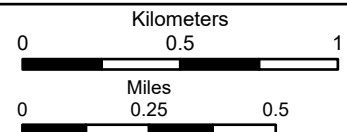
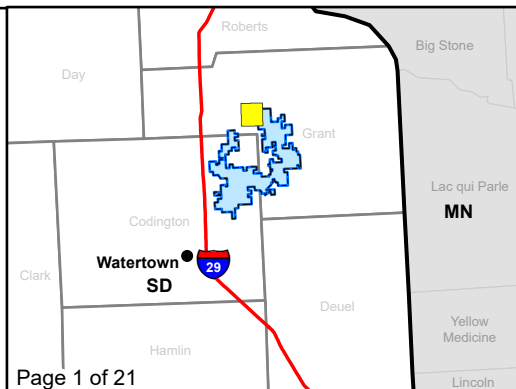
[Kimberly.Wells@NEE.com](mailto:Kimberly.Wells@NEE.com)





## Dakota Skipper Crowned Ridge Wind Farm

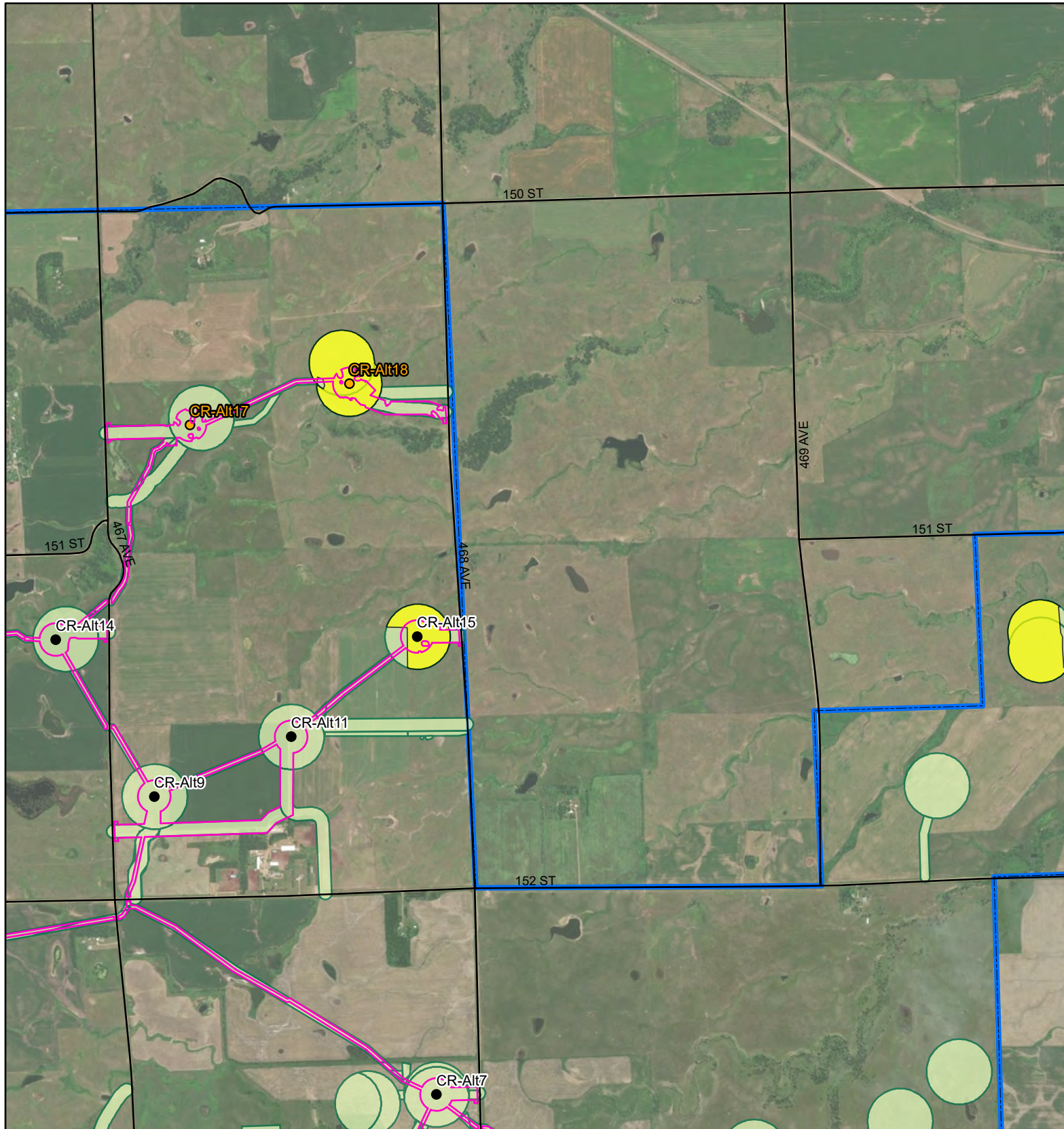
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- Alternate Turbine
- City
- Construction Easement
- Existing Road
- Field-Assessed Dakota Skipper Habitat
- Field-Assessed Dakota Skipper Habitat and Presence/Absence Survey Location 2018
- O&M Facility/ Substation
- Batch Plant
- Laydown Yard
- Survey Area
- Project Boundary
- County Boundary



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 Quadrangle: Antelope Valley (1973), Twin Brooks (1973)  
 Township/Range: T120N, R51W, T120N, R50W  
 Grant County, South Dakota

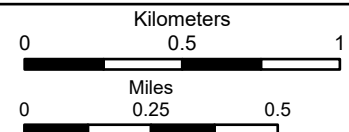
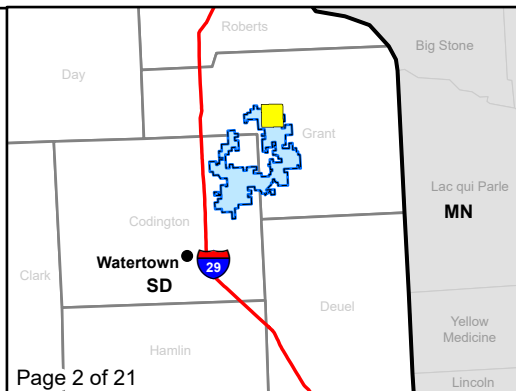
Projection:





## Dakota Skipper Crowned Ridge Wind Farm

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Quadrangle: Twin Brooks (1973)

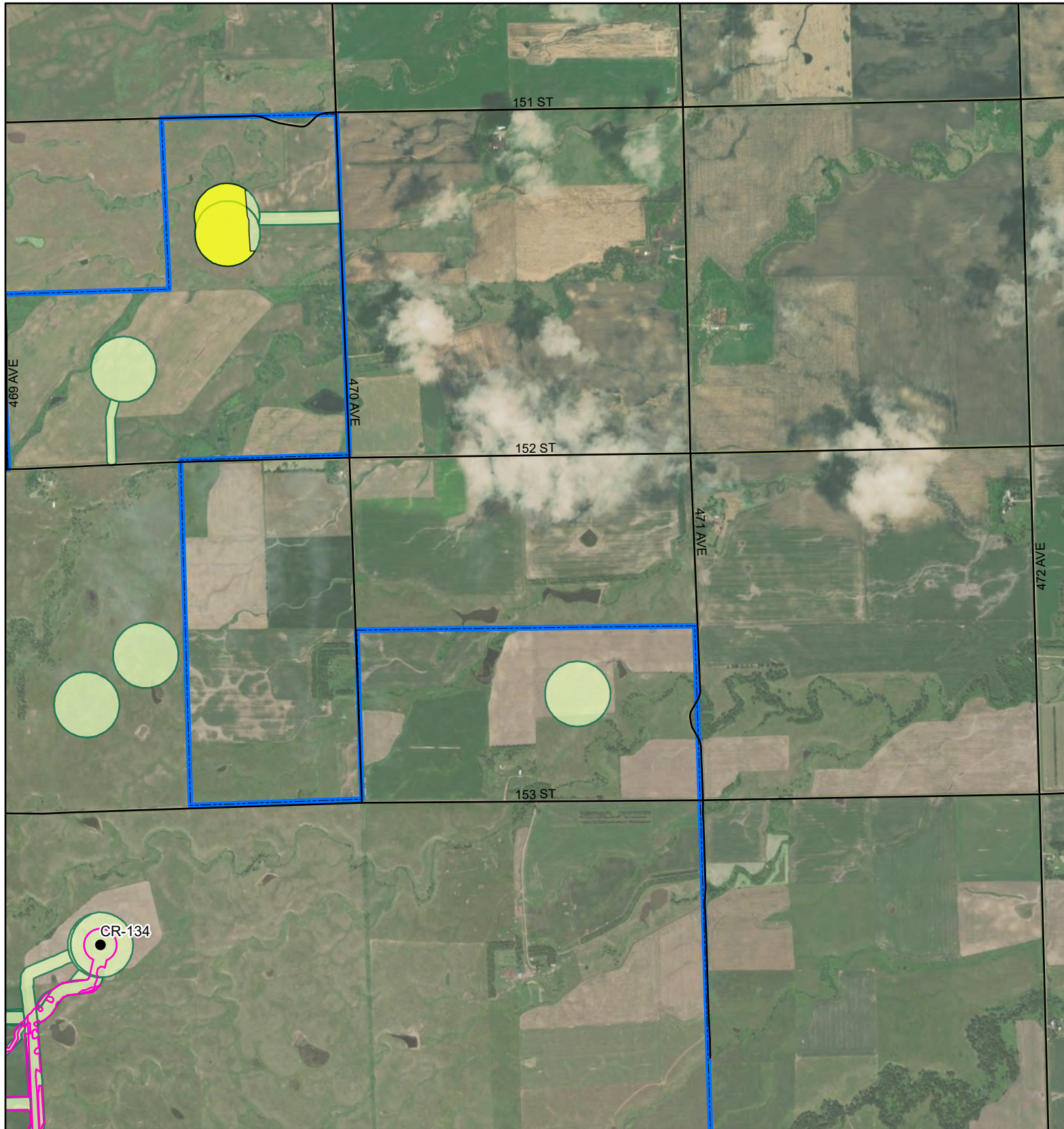
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Grant County, South Dakota

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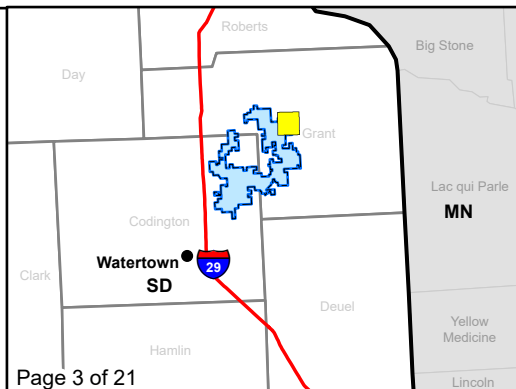
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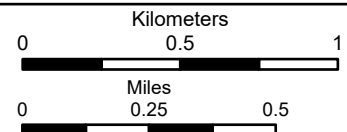


## Dakota Skipper Crowned Ridge Wind Farm

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Page 3 of 21



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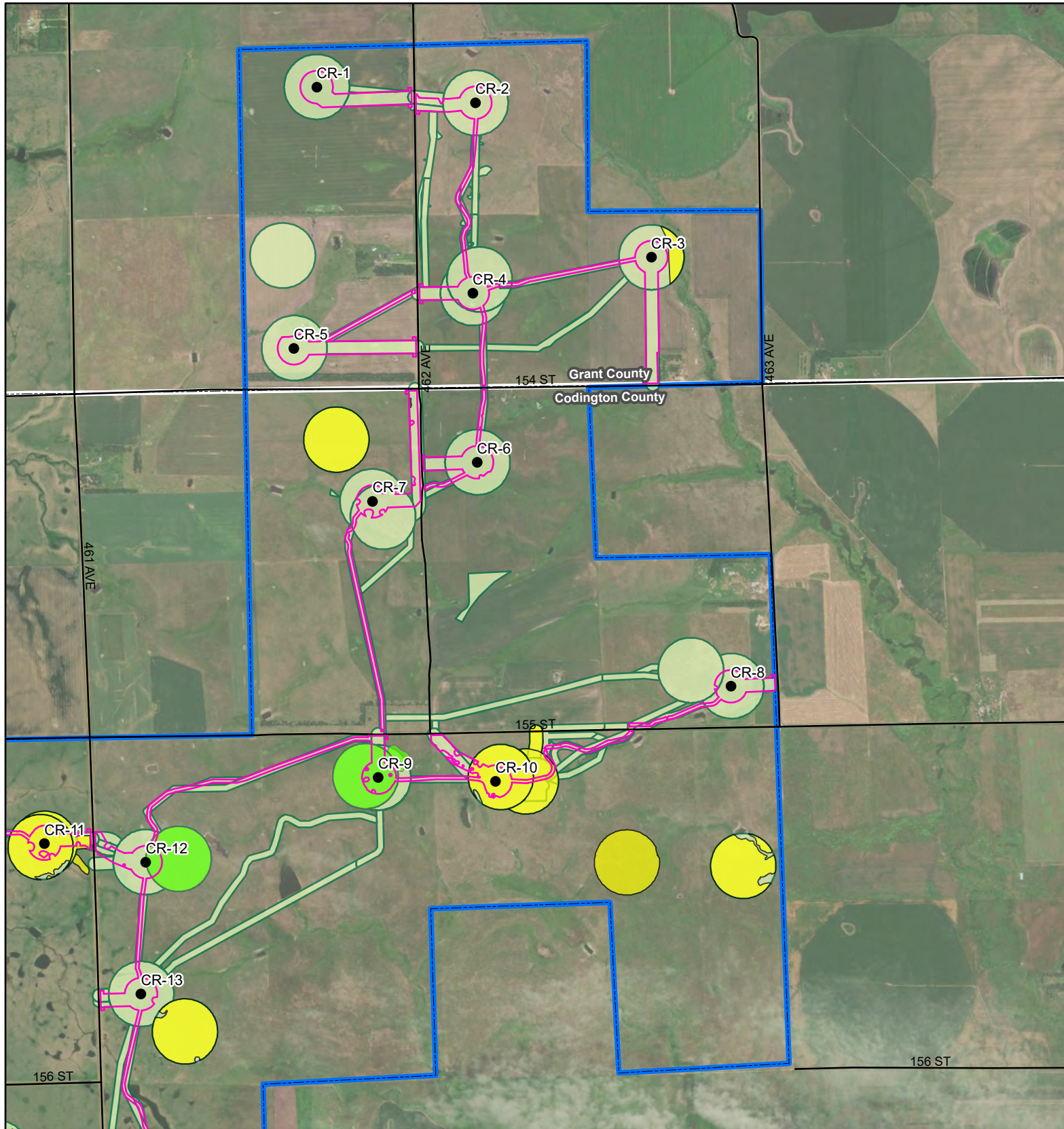
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Grant County, South Dakota

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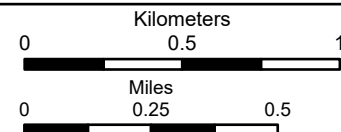
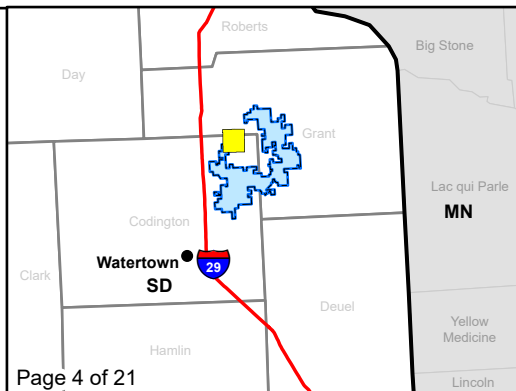
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## Dakota Skipper Crowded Ridge Wind Farm

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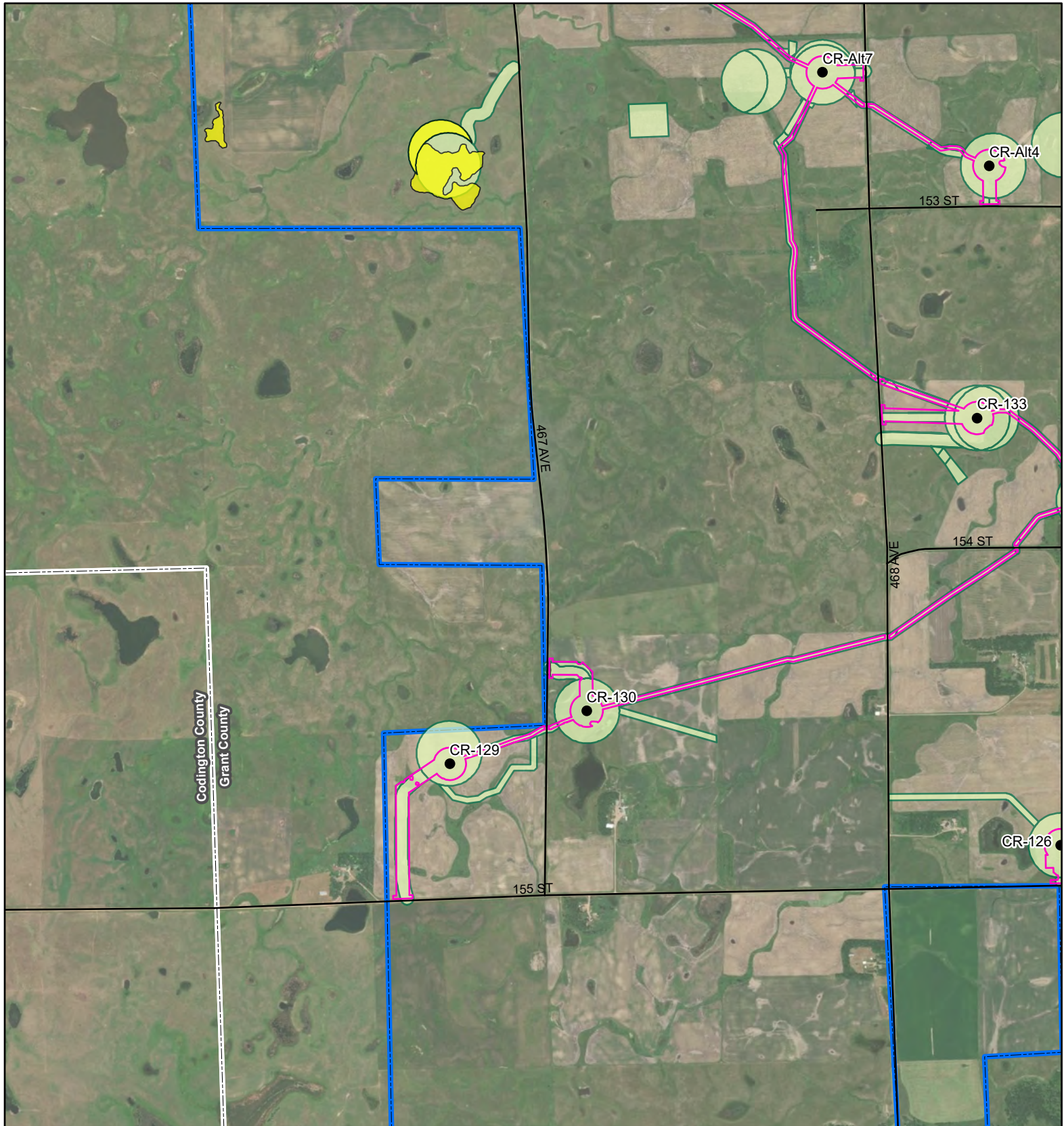


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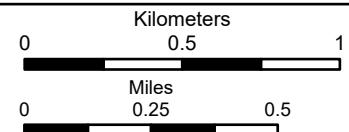
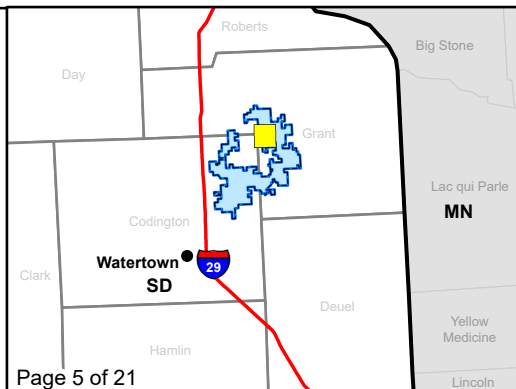
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## Dakota Skipper Crowned Ridge Wind Farm

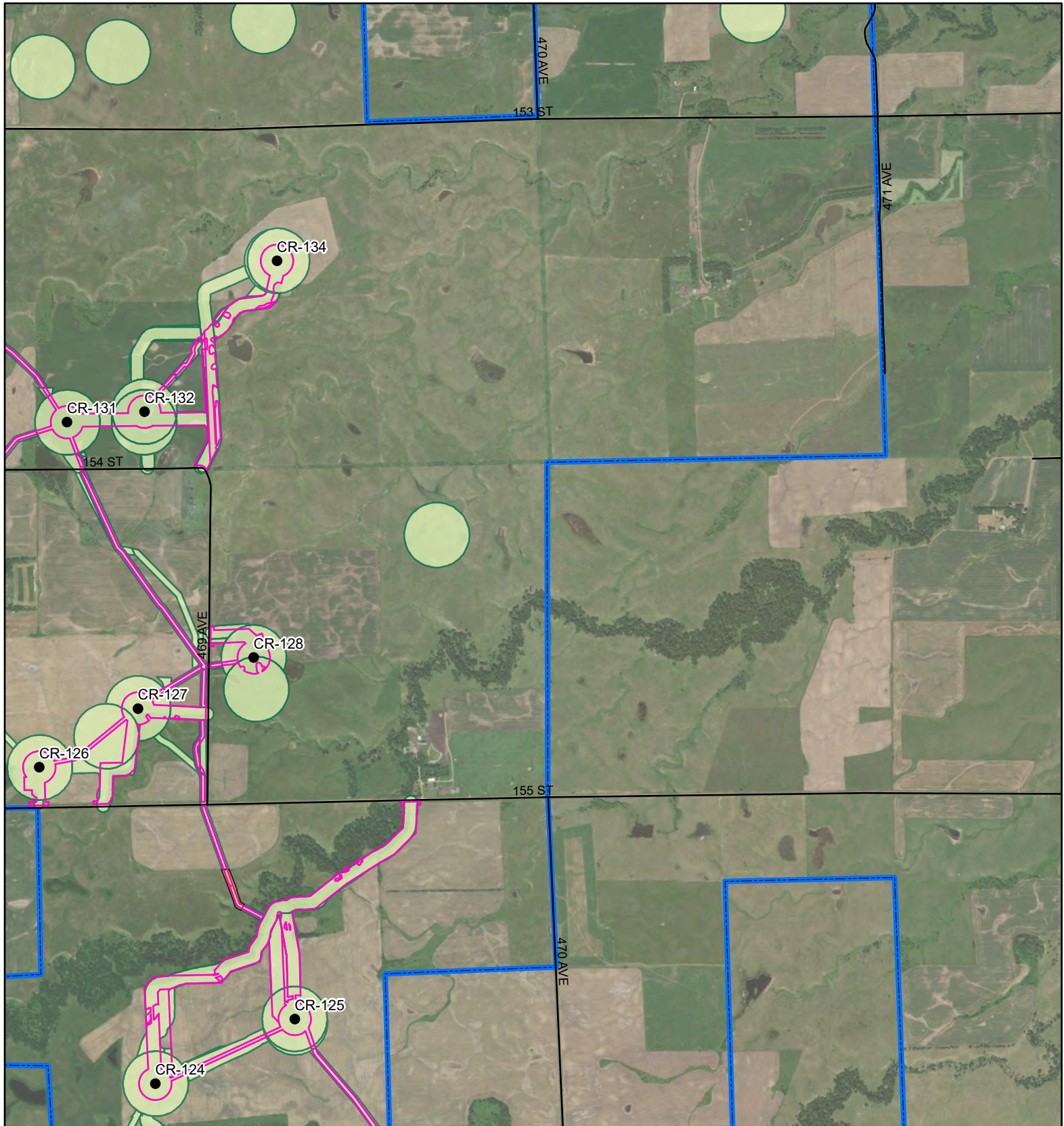
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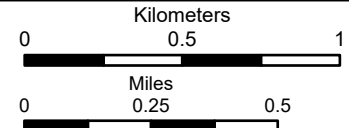
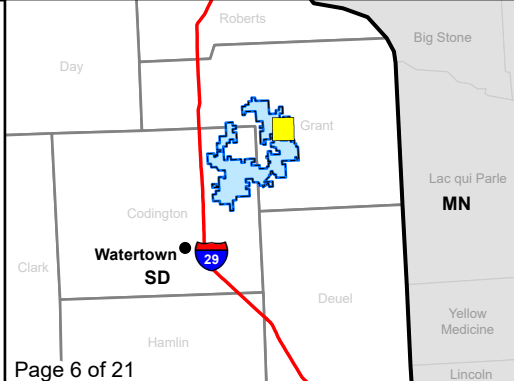
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## Dakota Skipper Crowded Ridge Wind Farm

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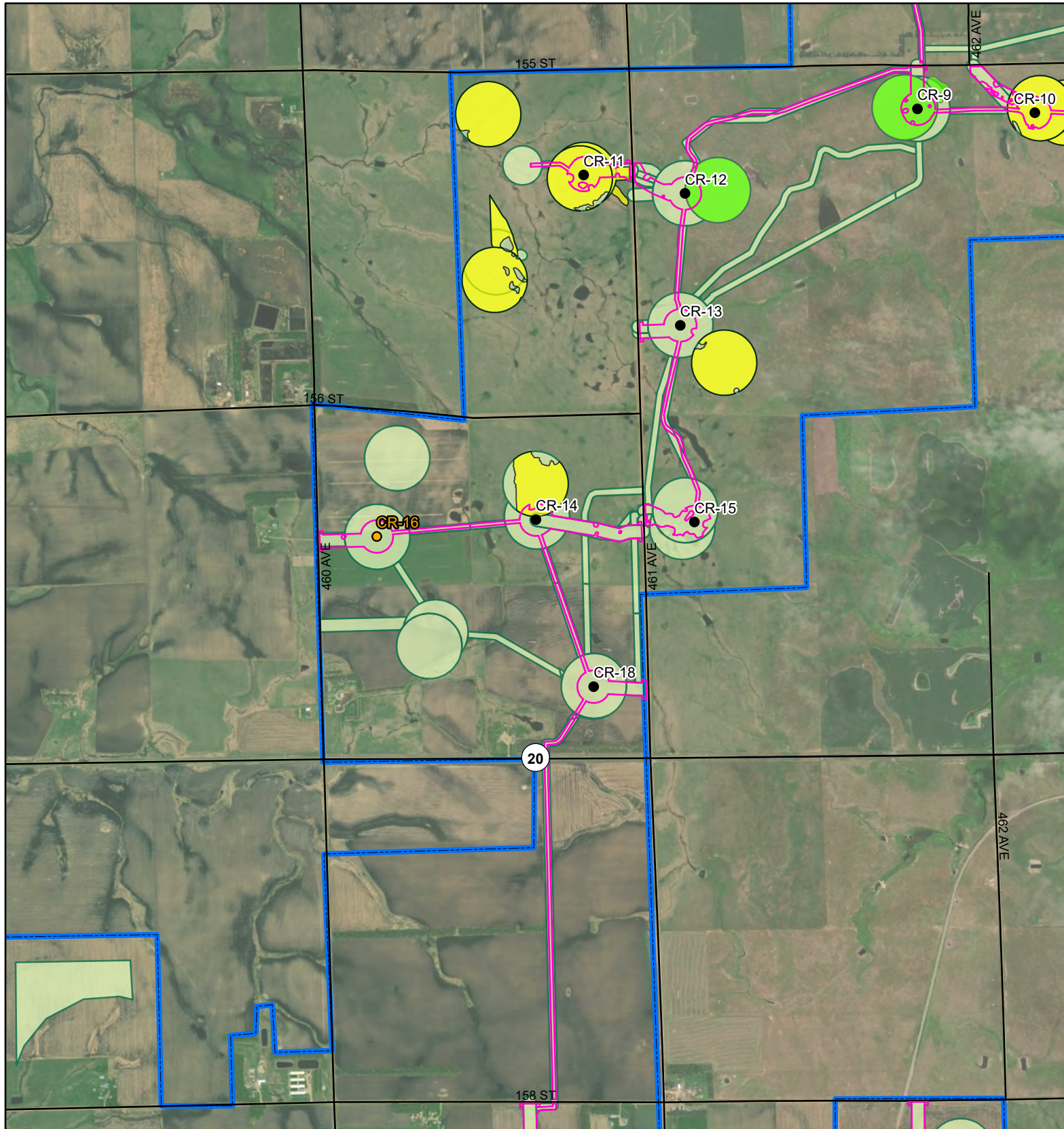


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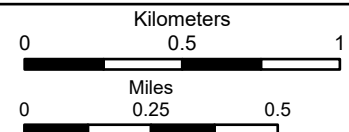
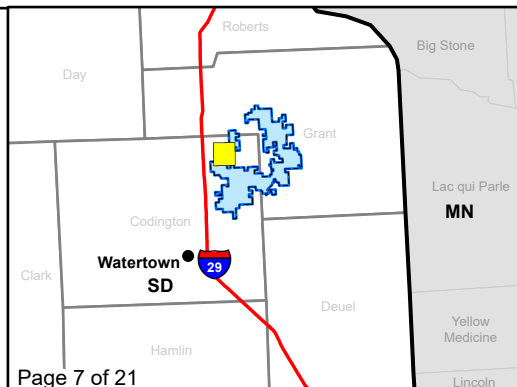
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## Dakota Skipper Crowded Ridge Wind Farm

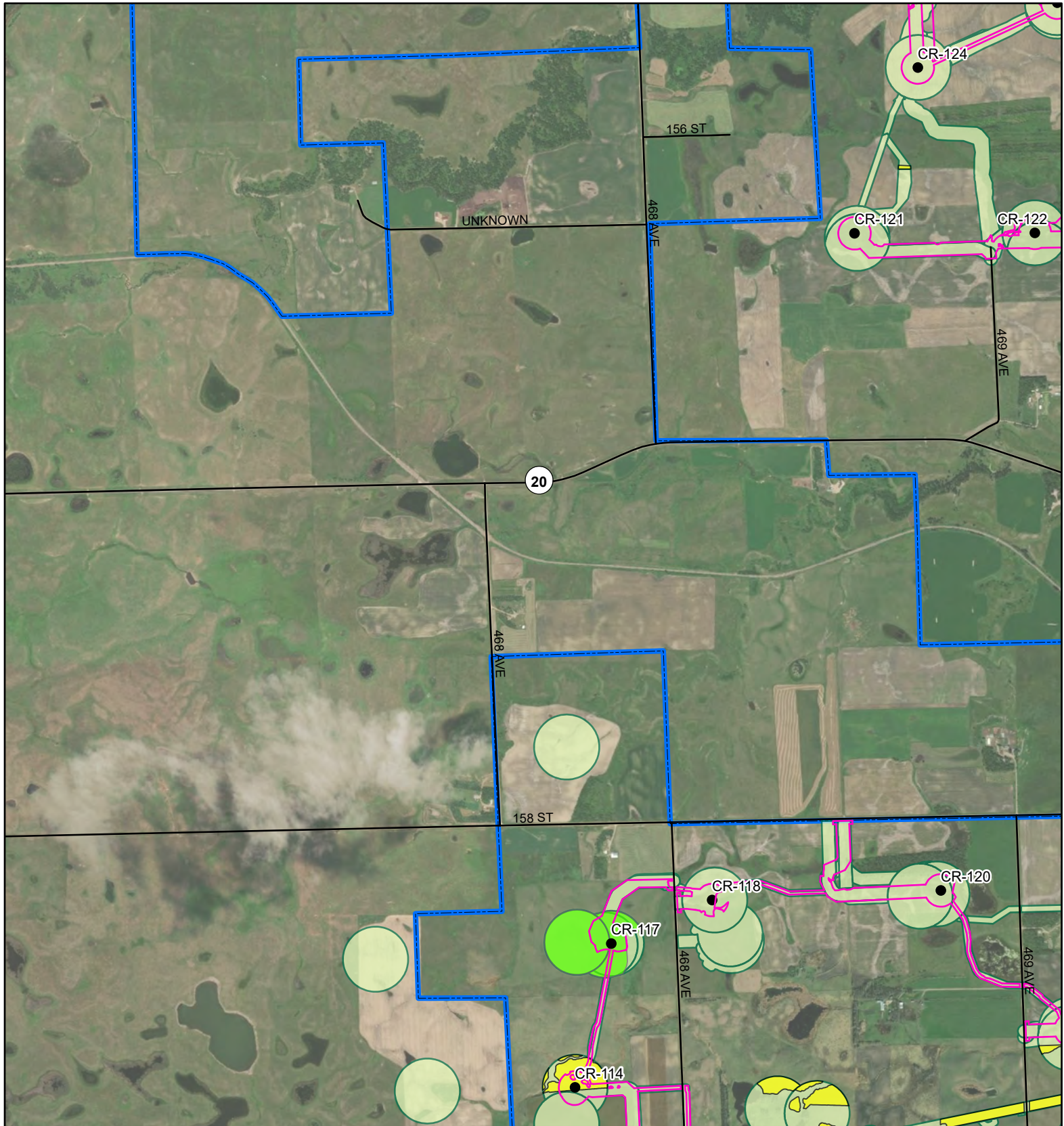
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 Codington County, South Dakota

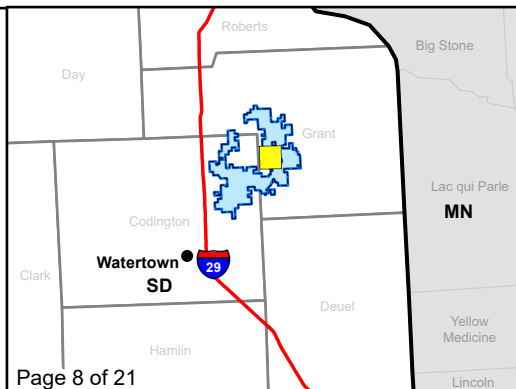
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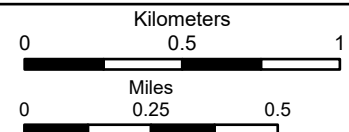


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Page 8 of 21



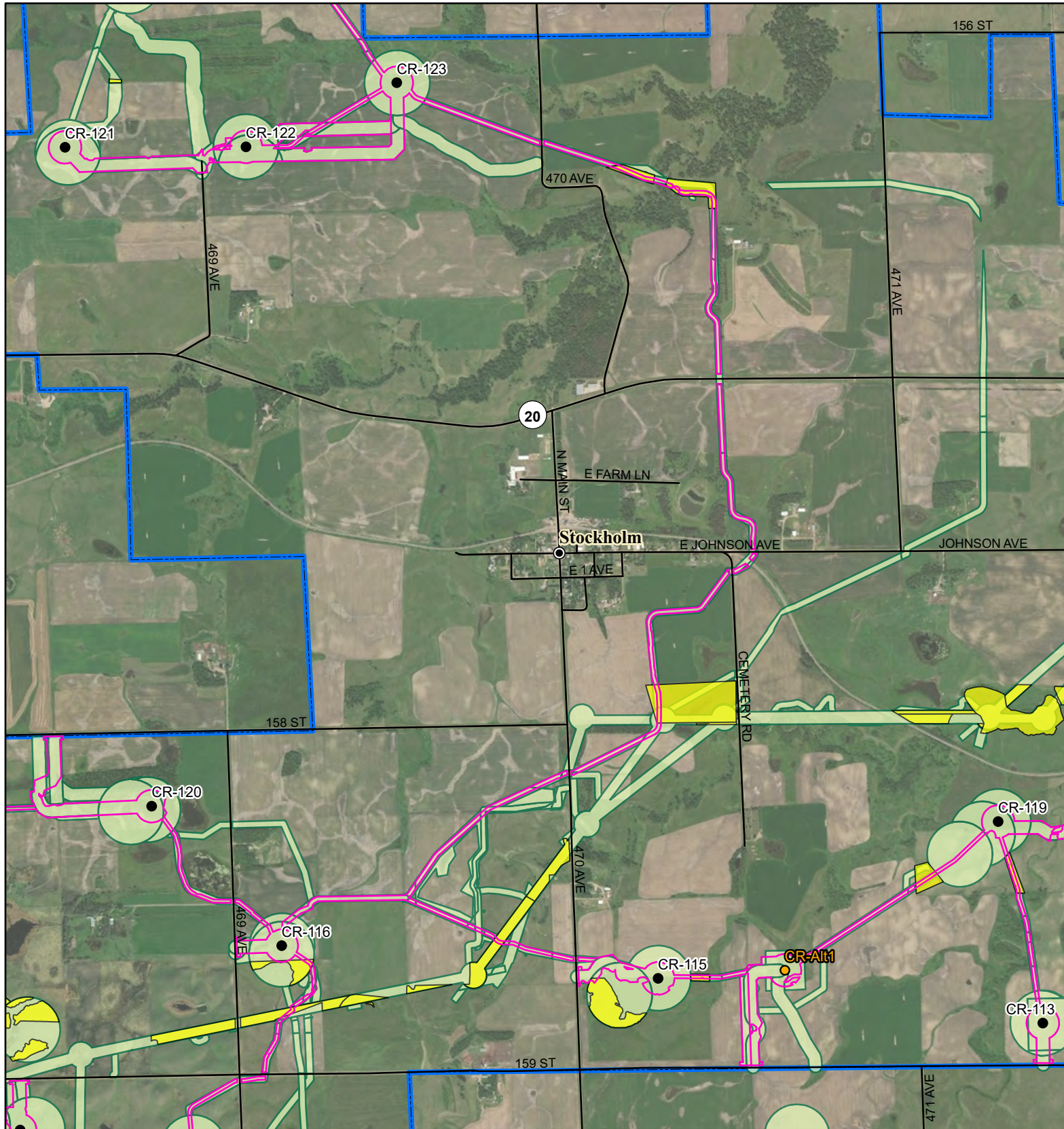
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Grant County, South Dakota

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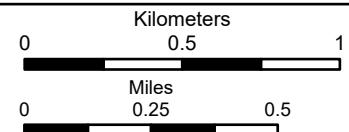
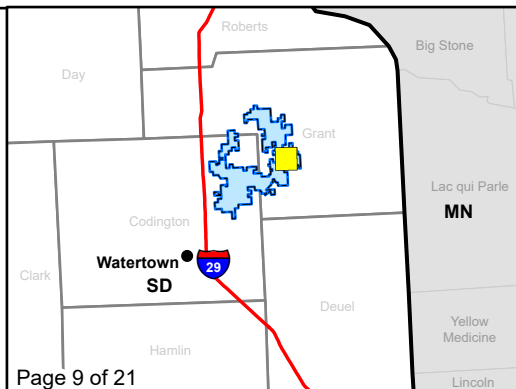
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## Dakota Skipper Crowded Ridge Wind Farm

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Quadrangle: Stockholm (1973)

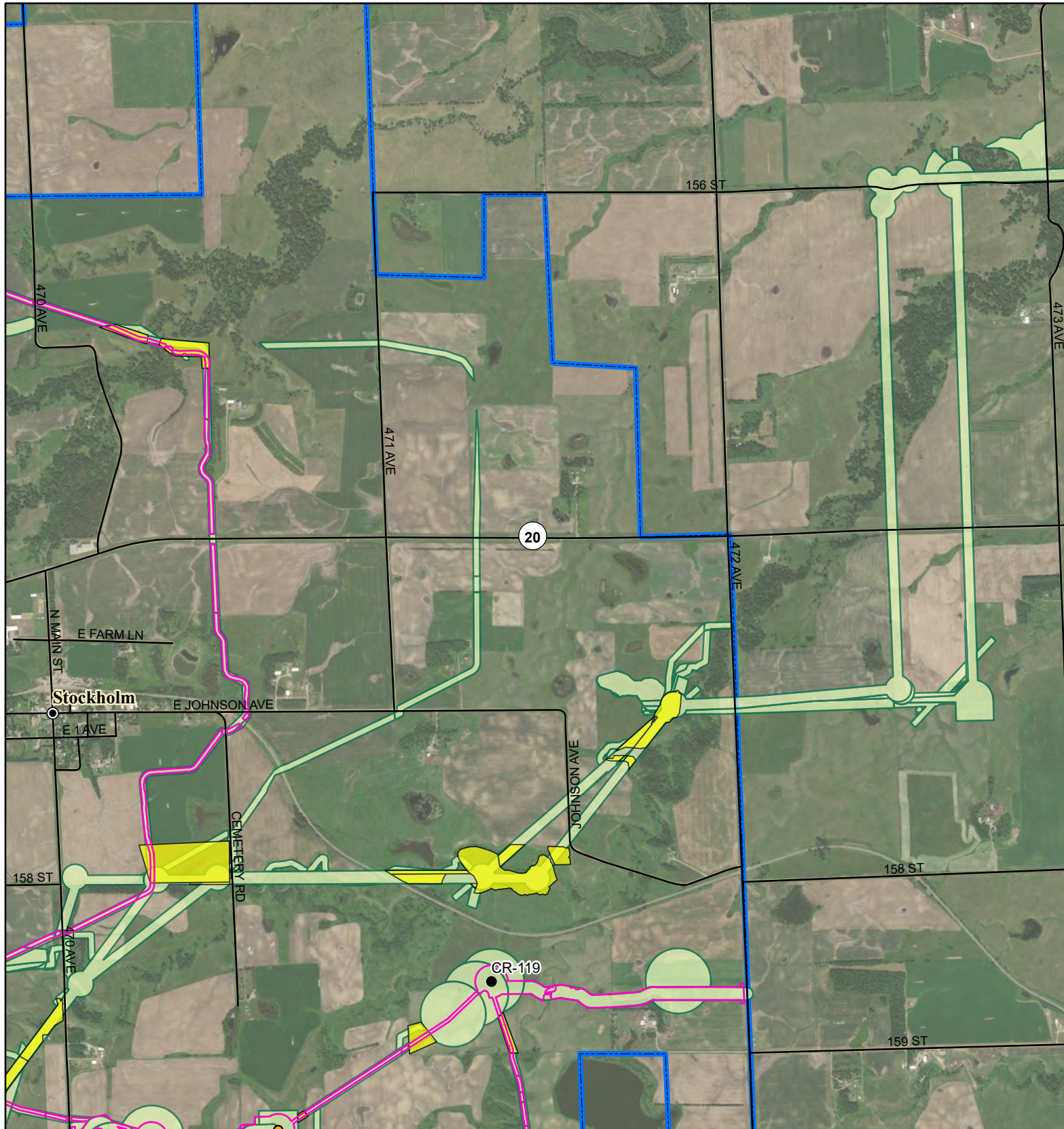
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Grant County, South Dakota

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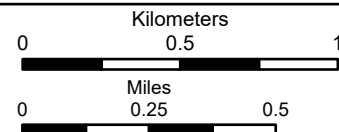
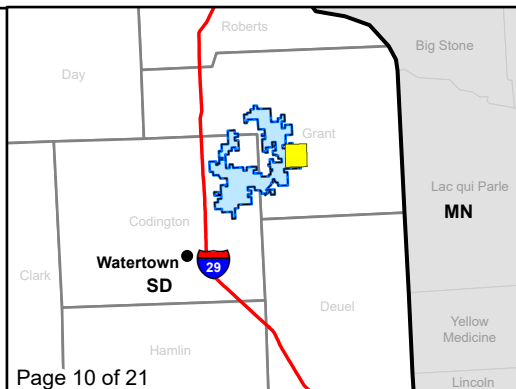
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## Dakota Skipper Crowded Ridge Wind Farm

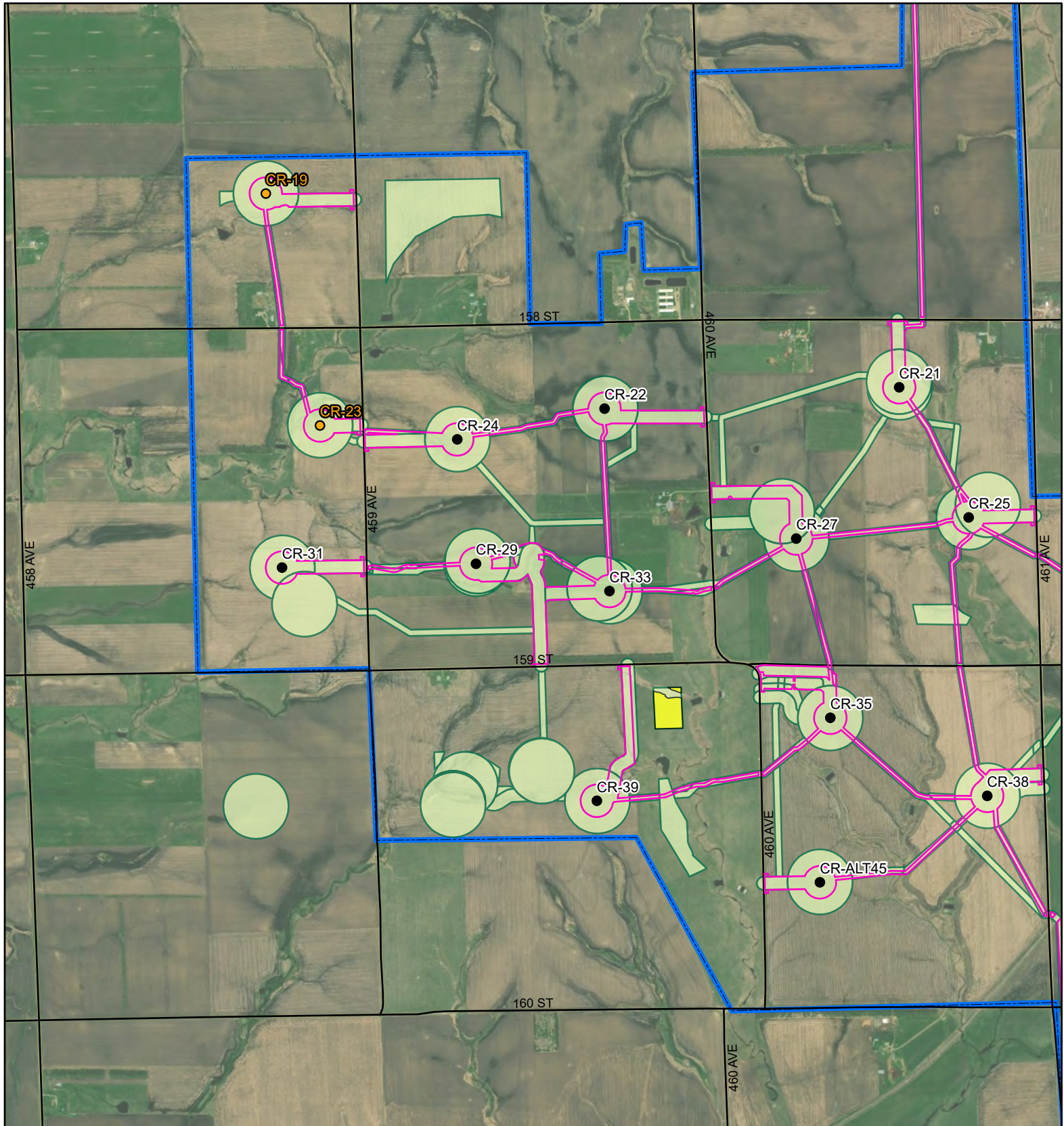
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Grant County, South Dakota

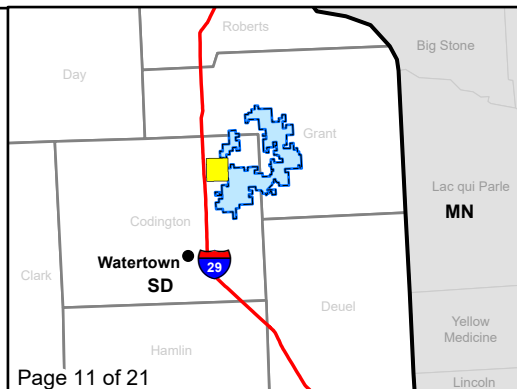
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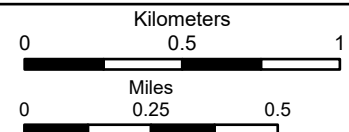


## Dakota Skipper Crowded Ridge Wind Farm

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Page 11 of 21

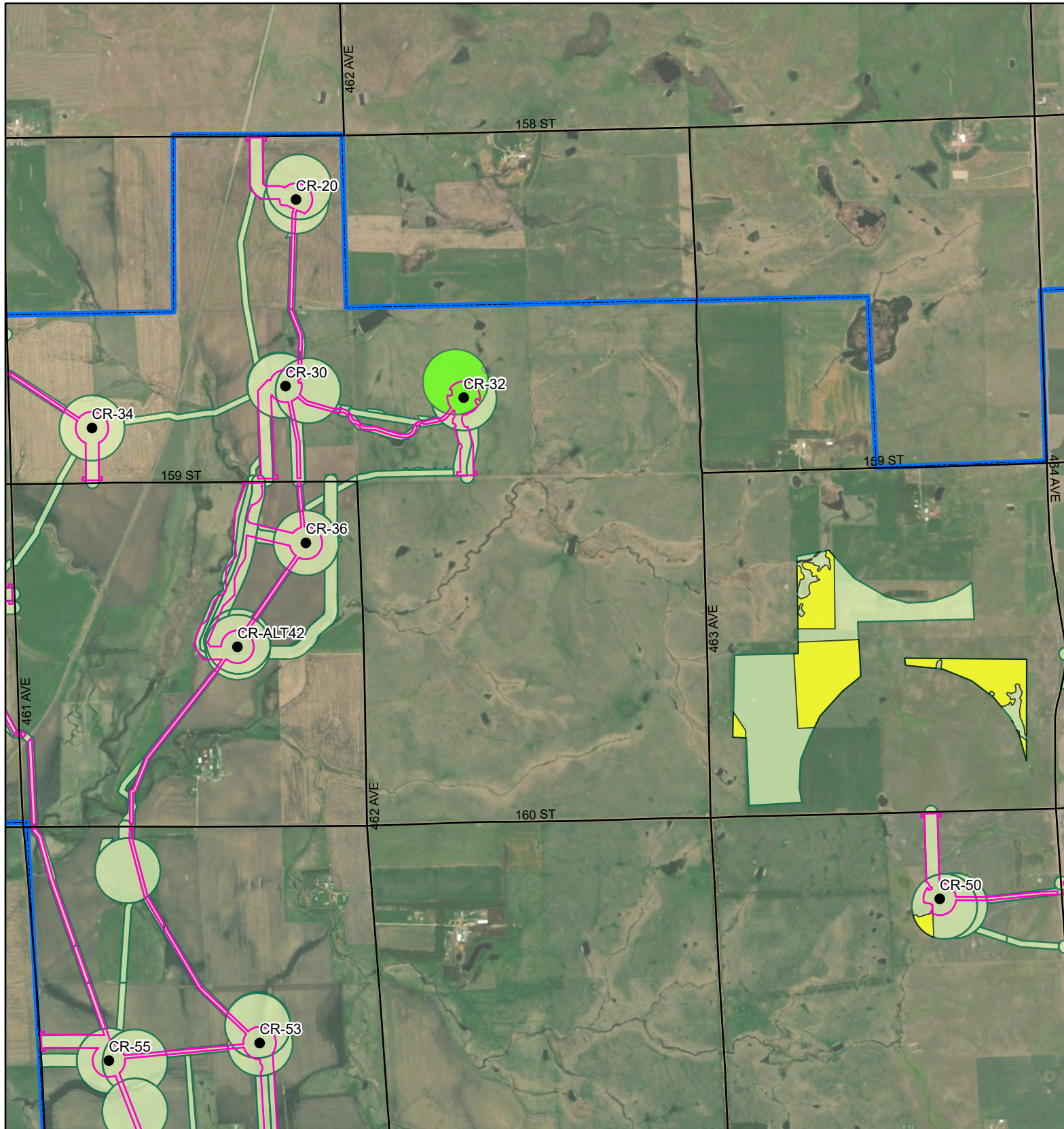


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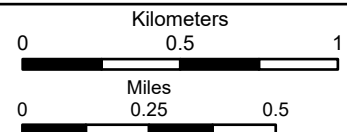
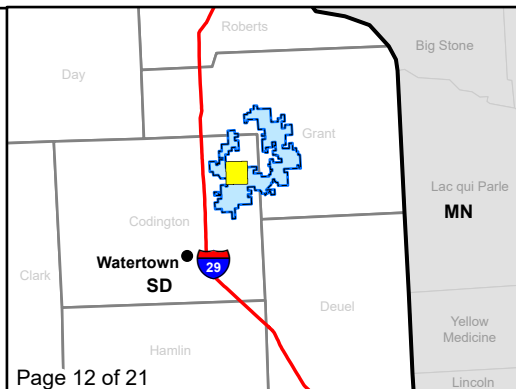
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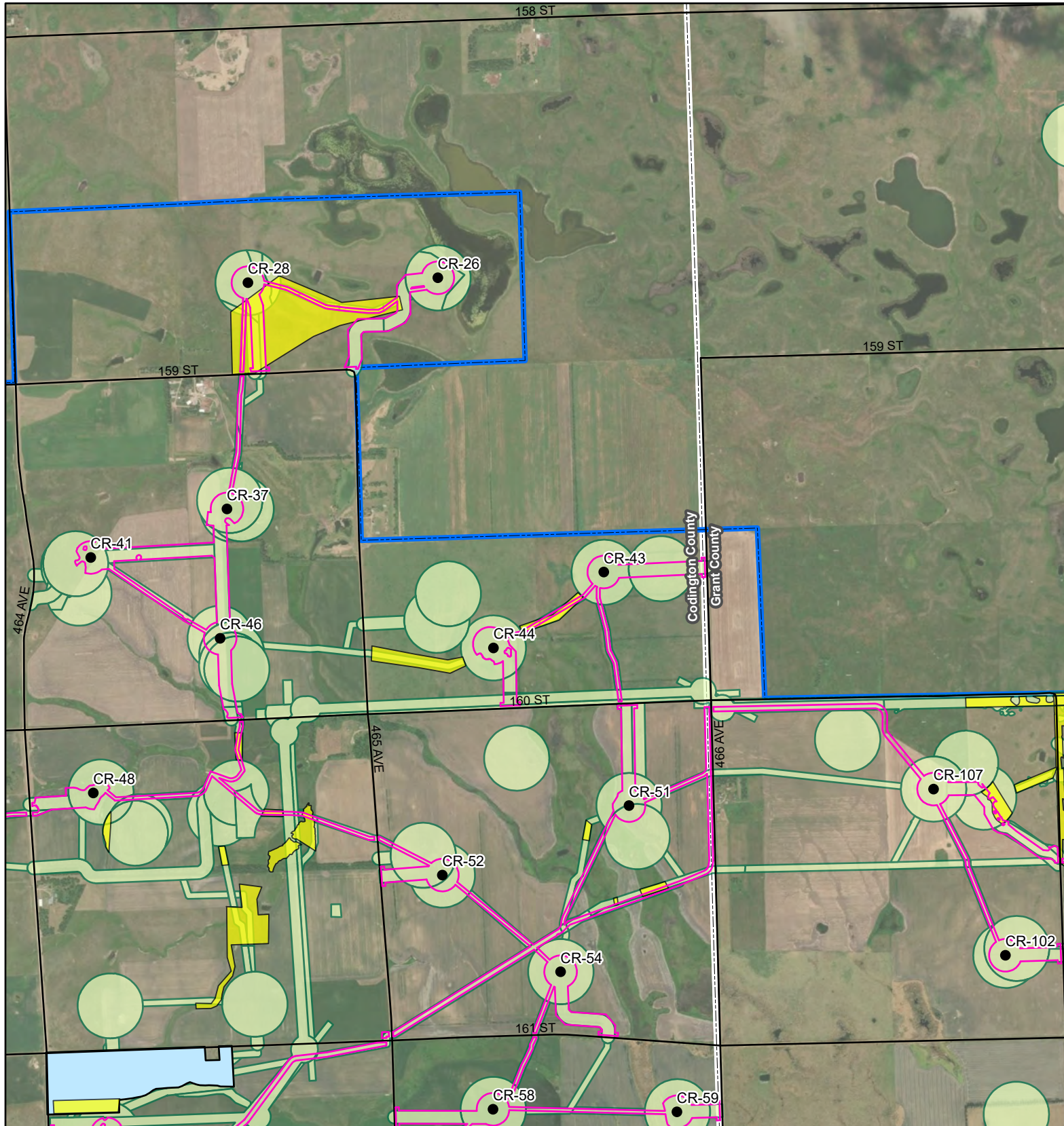
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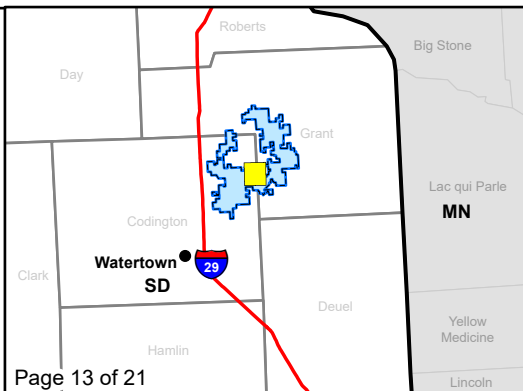
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# Dakota Skipper Crowded Ridge Wind Farm

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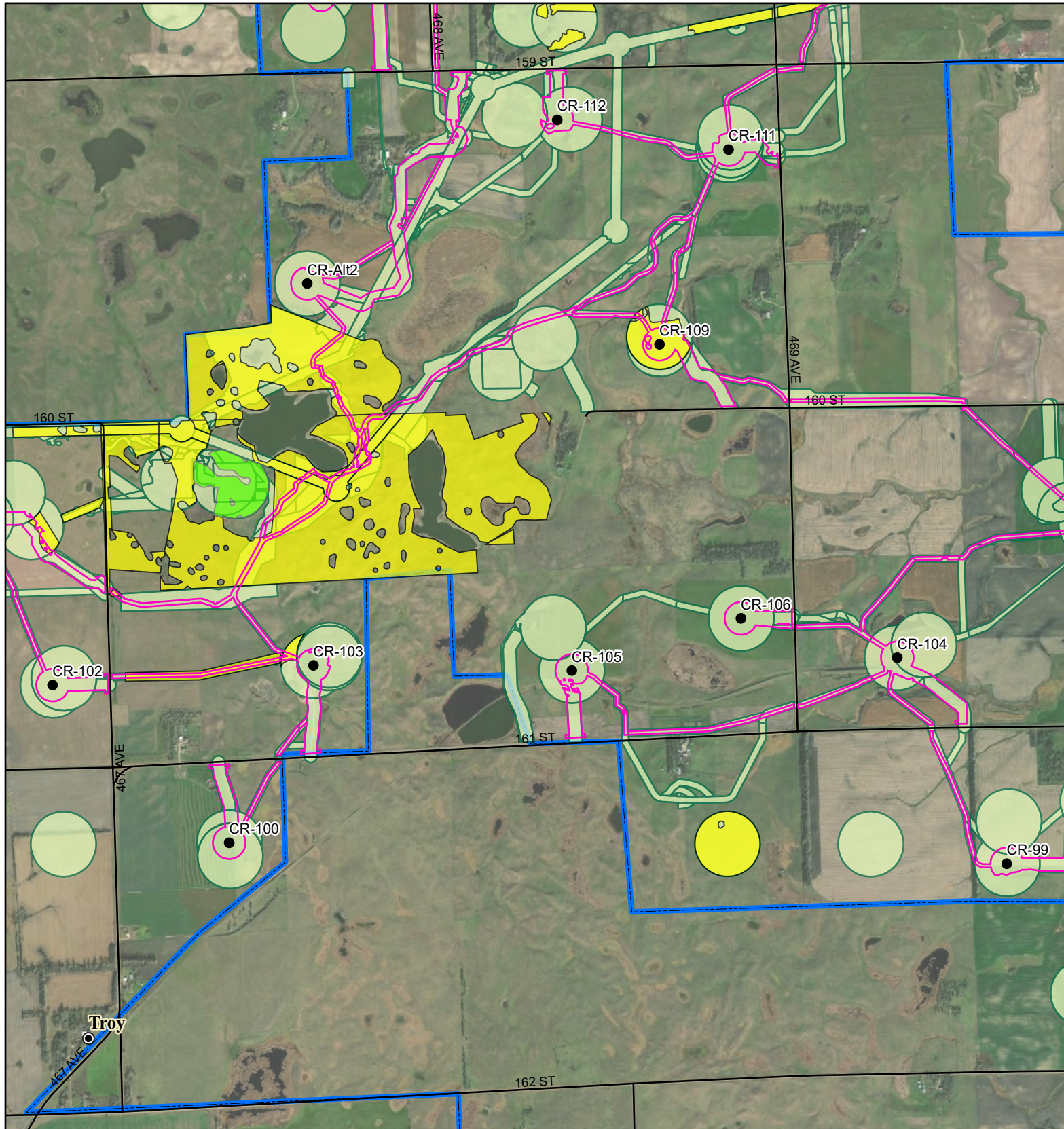
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Miles  
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Codington and Grant Counties, South Dakota

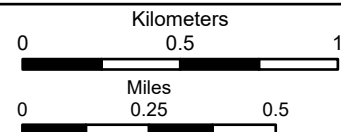
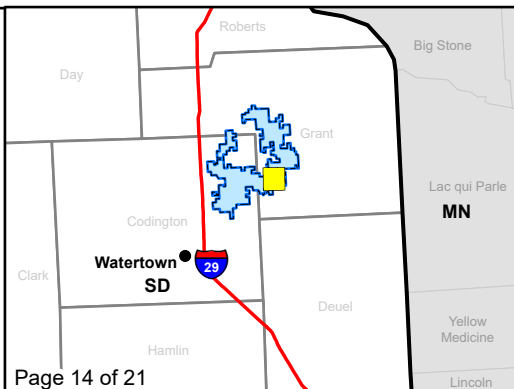
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## Dakota Skipper Crowded Ridge Wind Farm

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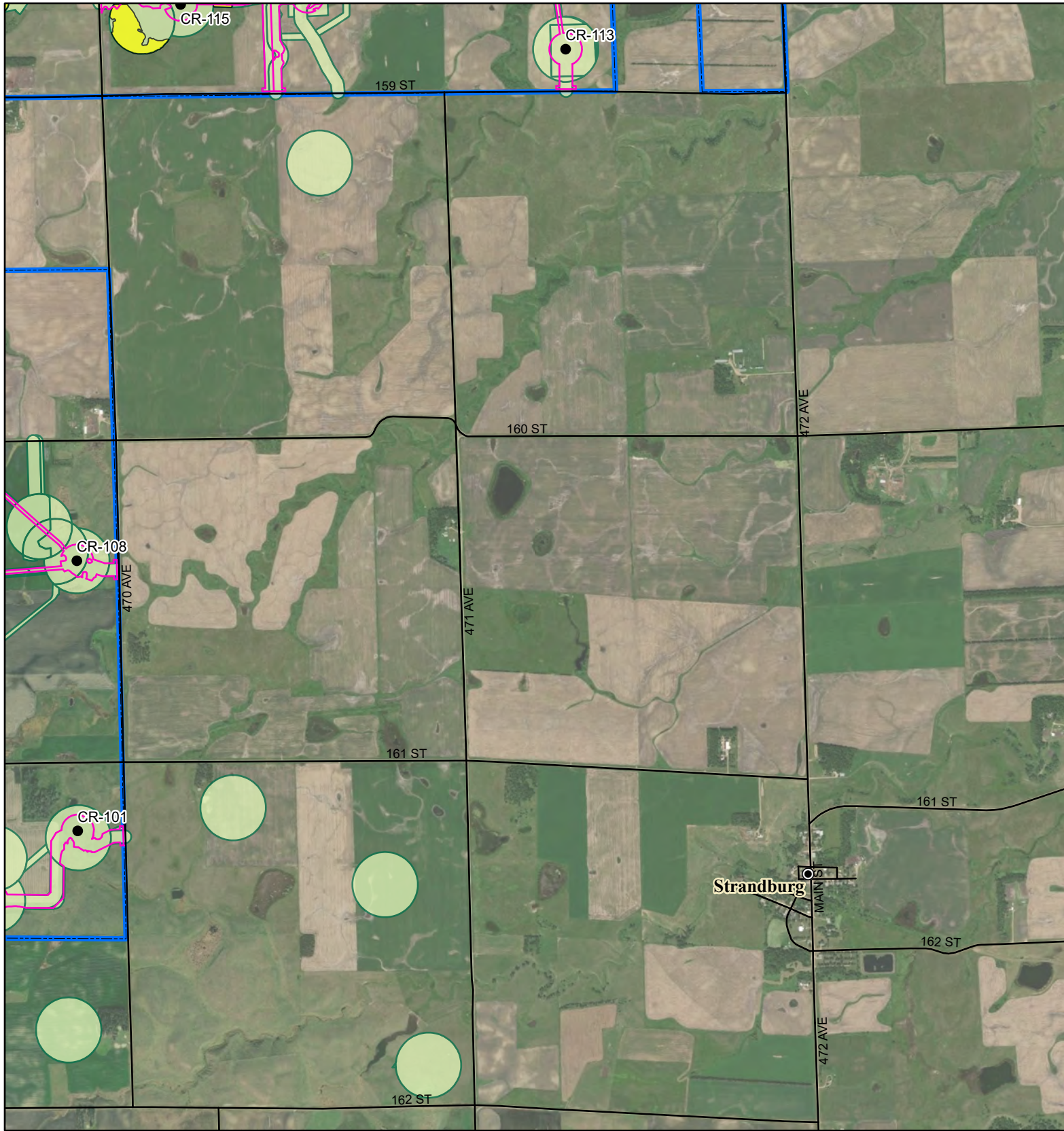
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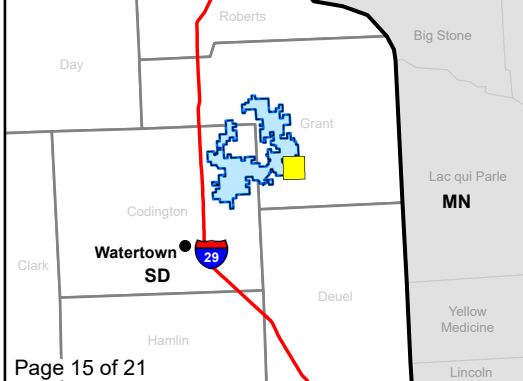
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**Dakota Skipper**  
Crowded Ridge Wind Farm

- |   |                               |
|---|-------------------------------|
| ● Primary Turbine   | ■ O&M Facility/<br>Substation |
| ● Alternate Turbine   | ■ Batch Plant                 |
| ● City  | ■ Laydown Yard                |
| — Construction Easement   | ■ Survey Area                 |
| — Existing Road   | ■ Project Boundary            |
| ■ Field-Assessed<br>Dakota Skipper Habitat  | --- County Boundary           |
| ■ Field-Assessed Dakota Skipper<br>Habitat and Presence/Absence<br>Survey Location 2018 |                               |



Kilometers  
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Miles  
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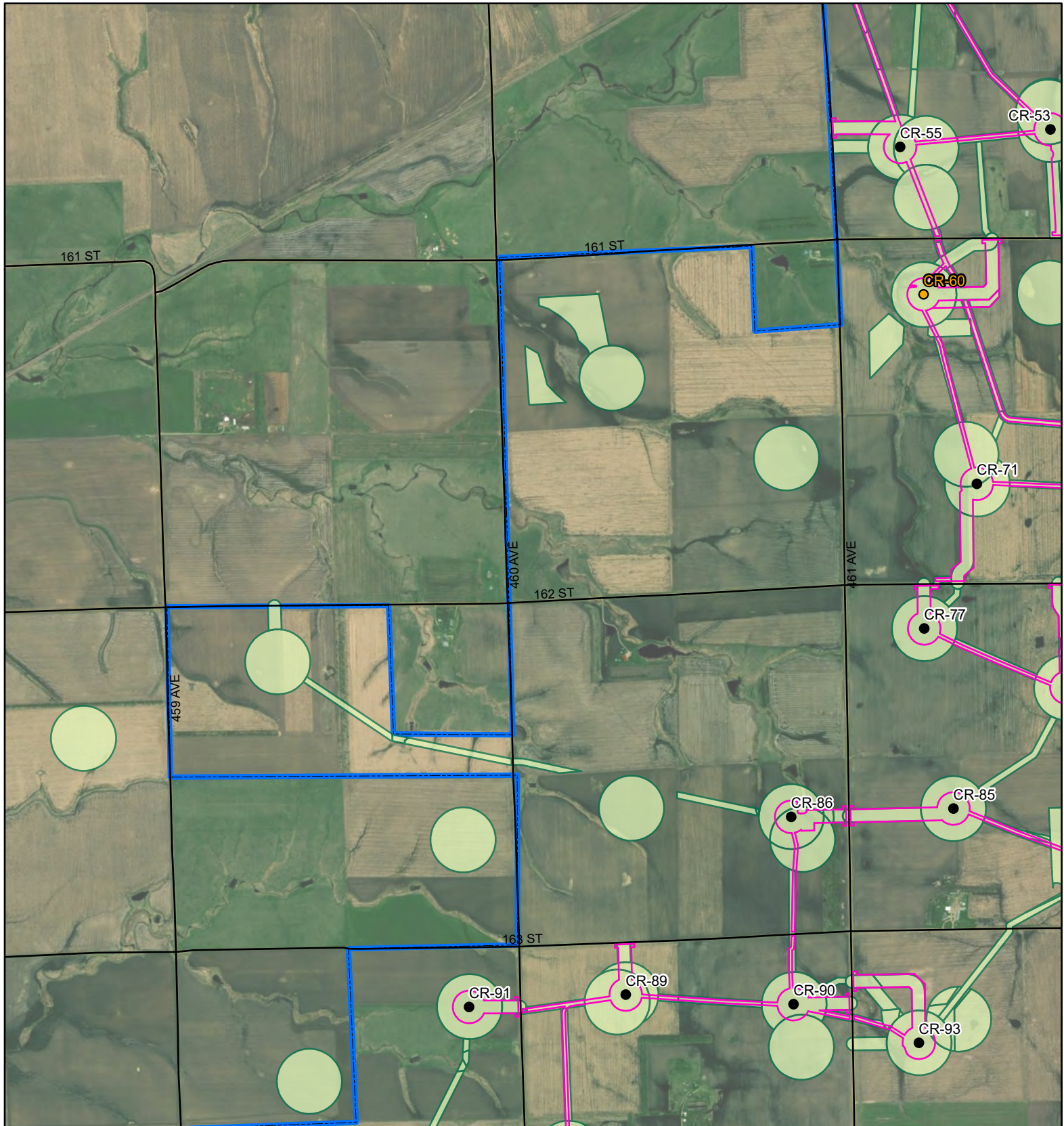
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Grant County, South Dakota

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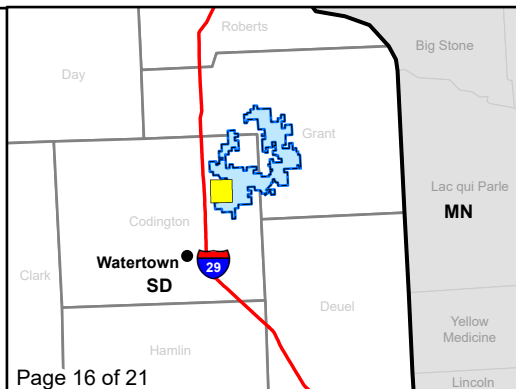
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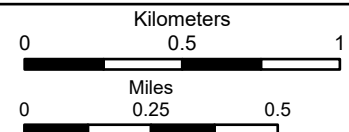


## Dakota Skipper Crowded Ridge Wind Farm

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Page 16 of 21

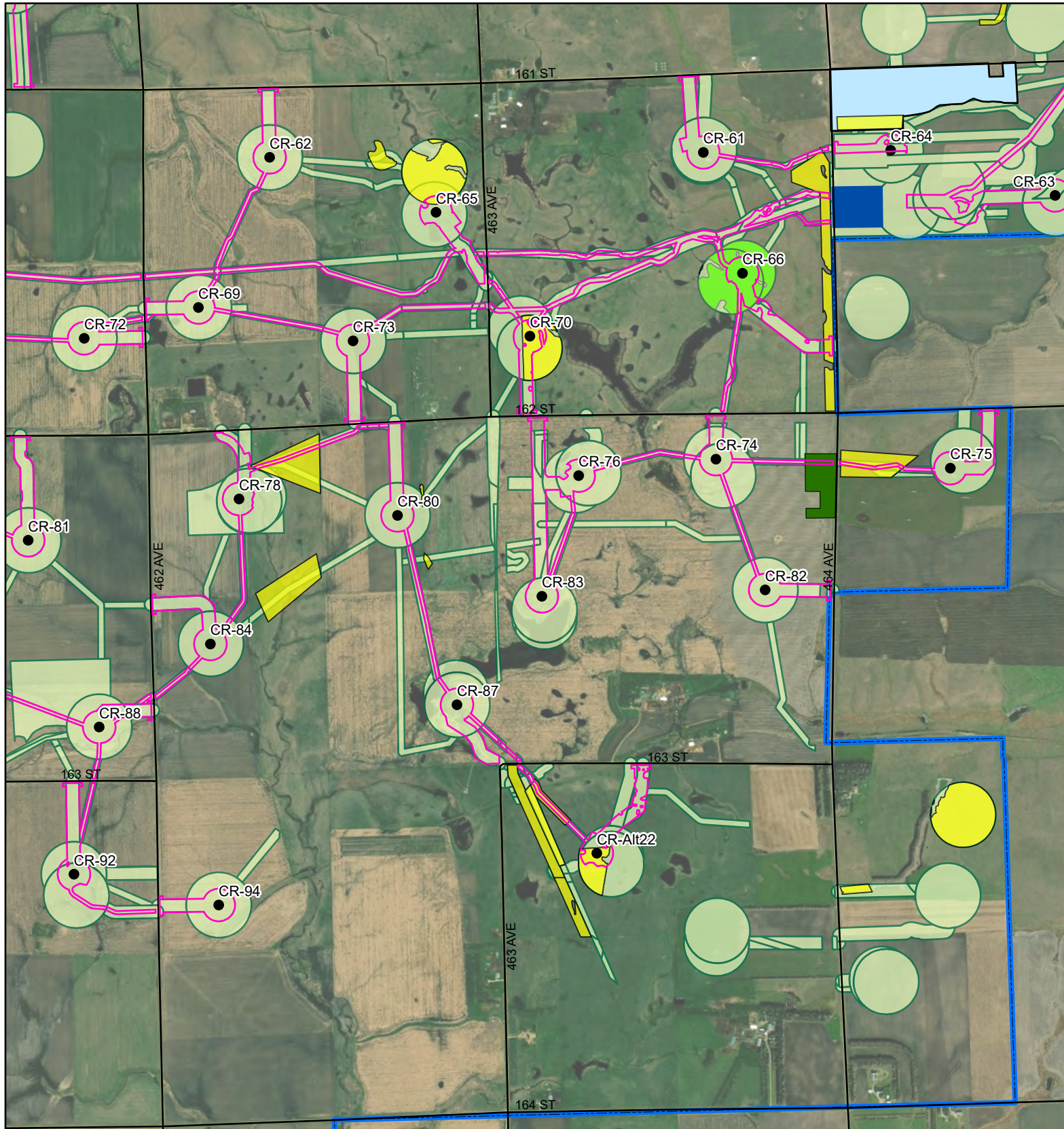


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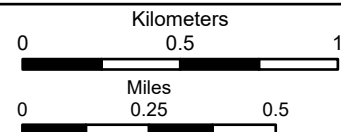
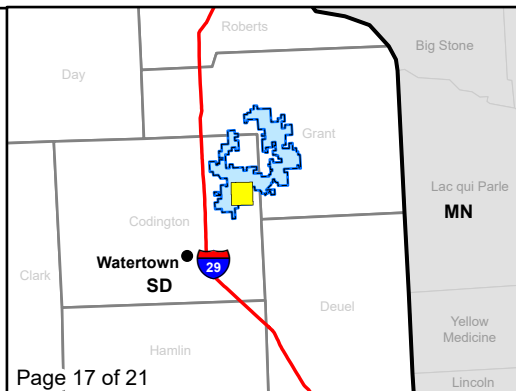
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community  
Quadrangle: South Shore (1973)

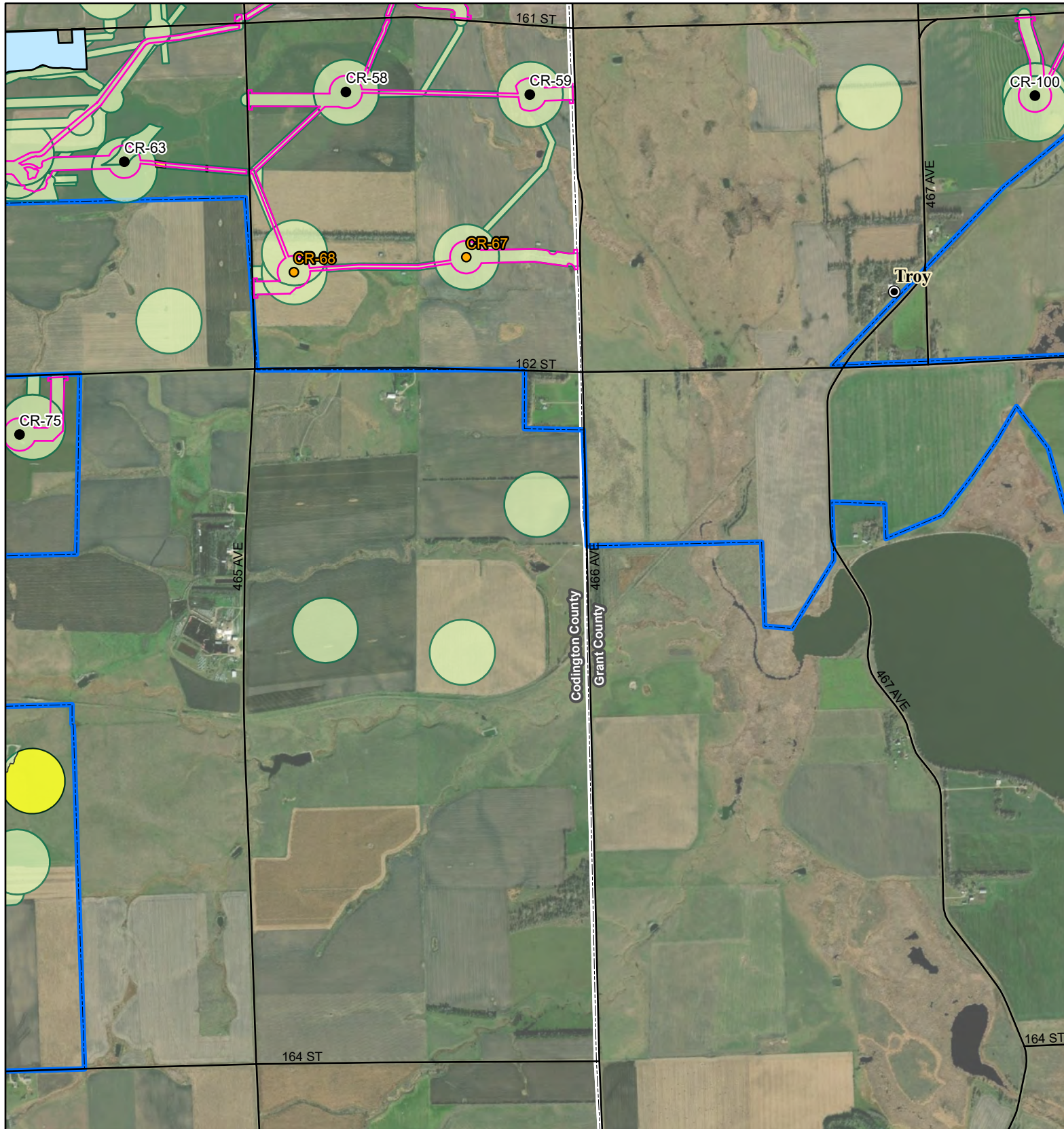
Township/Range: T118N, R51W

Codington County, South Dakota

Projection:

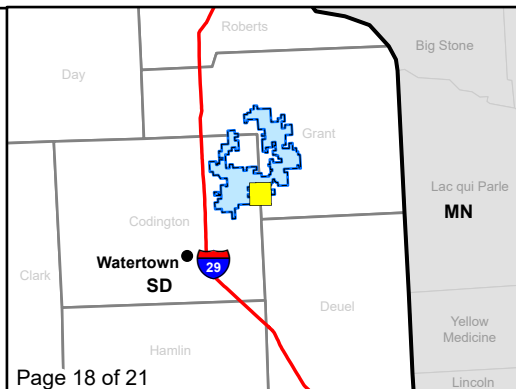
**SWCA**  
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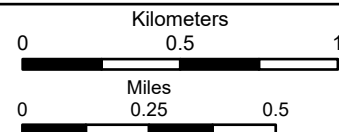


## Dakota Skipper Crowded Ridge Wind Farm

- Primary Turbine
- Alternate Turbine
- ⊙ City
- Construction Easement
- Existing Road
- Field-Assessed Dakota Skipper Habitat
- Field-Assessed Dakota Skipper Habitat and Presence/Absence Survey Location 2018
- O&M Facility/ Substation
- Batch Plant
- Laydown Yard
- Survey Area
- Project Boundary
- County Boundary



Page 18 of 21

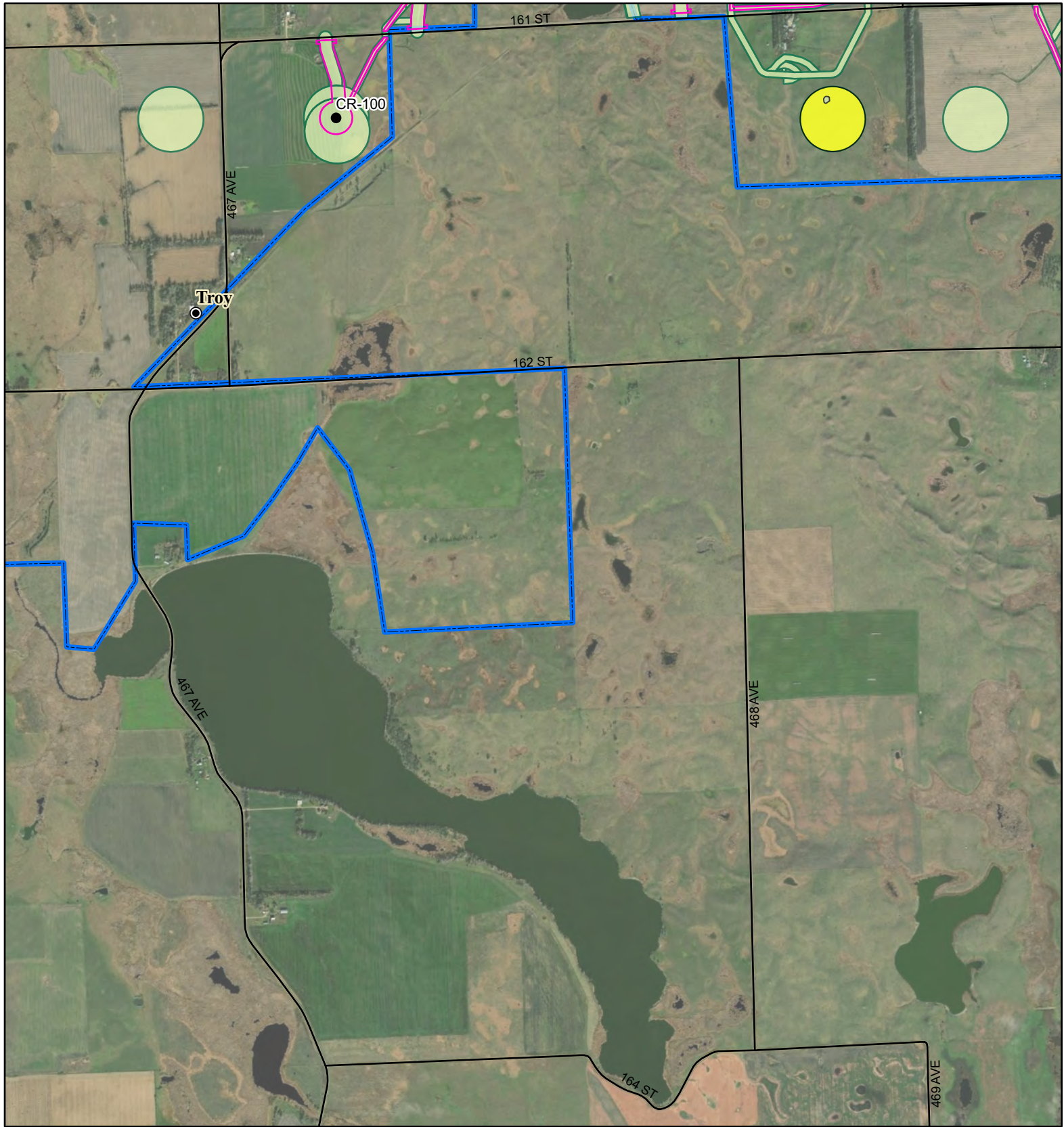


Service Layer Credits: Esri, HERE, Garmin,  
© OpenStreetMap contributors, and the GIS user  
community  
Quadrangle: South Shore (1973),  
Stockholm (1973)  
Township/Range: T118N, R51W,  
T118N, R50W  
Codington and Grant Counties, South Dakota

Projection:

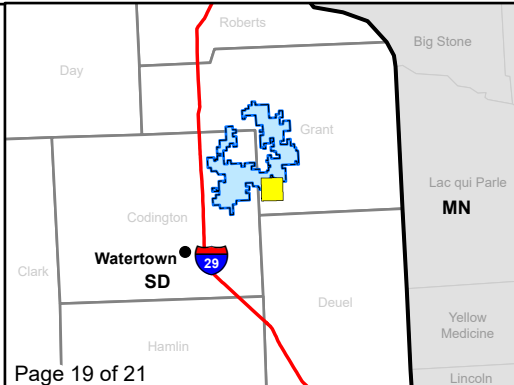
**SWCA**  
ENVIRONMENTAL CONSULTANTS



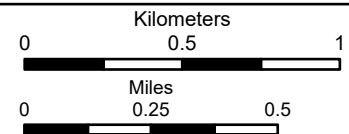


## Dakota Skipper Crowned Ridge Wind Farm

- Primary Turbine
- Alternate Turbine
- City
- Construction Easement
- Existing Road
- Field-Assessed Dakota Skipper Habitat
- Field-Assessed Dakota Skipper Habitat and Presence/Absence Survey Location 2018
- O&M Facility/ Substation
- Batch Plant
- Laydown Yard
- Survey Area
- Project Boundary
- County Boundary



Page 19 of 21



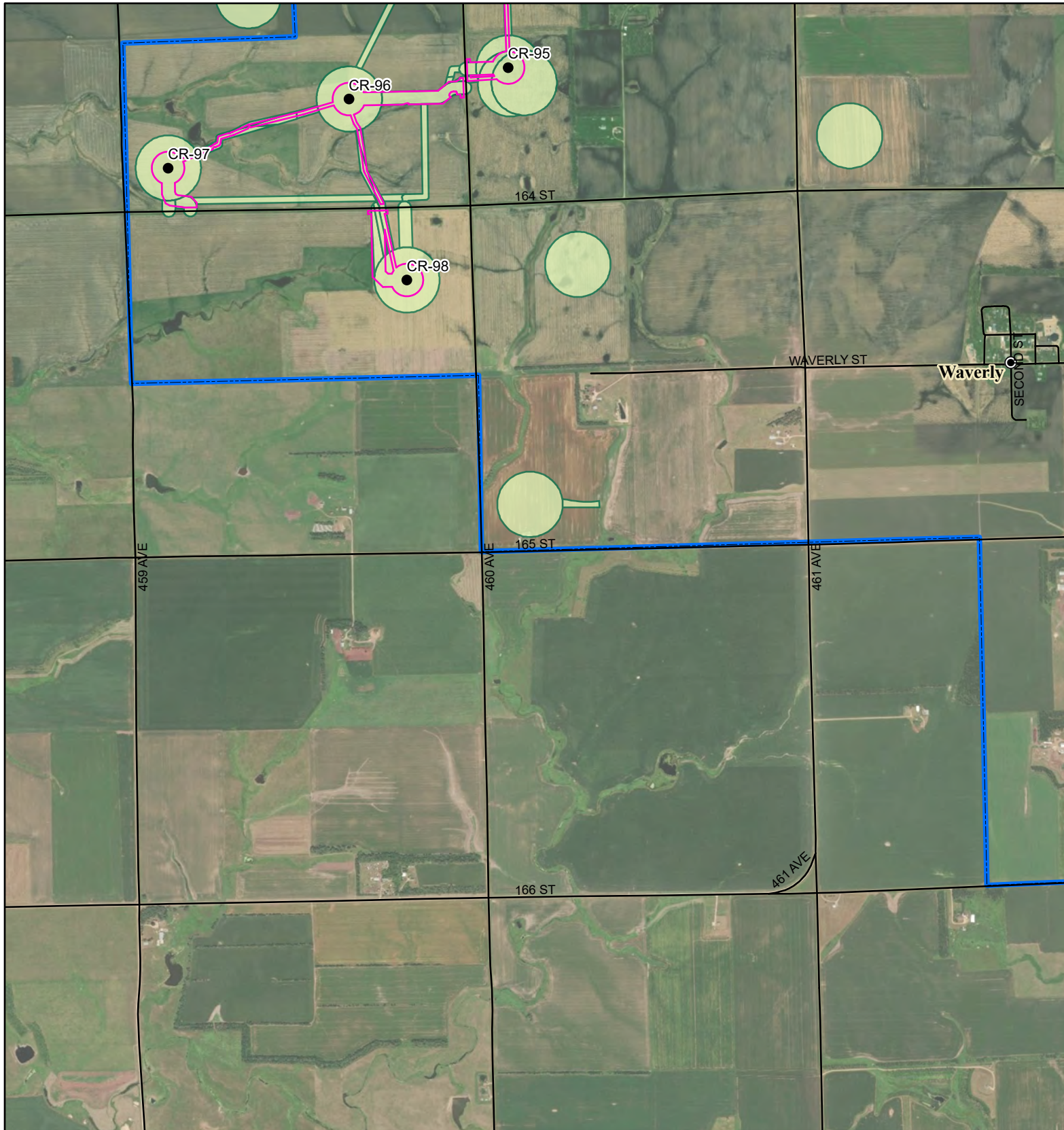
Service Layer Credits: Esri, HERE, Garmin,  
© OpenStreetMap contributors, and the GIS user  
community  
Quadrangle: South Shore (1973),  
Stockholm (1973)  
Township/Range: T118N, R50W

Grant County, South Dakota

Projection:

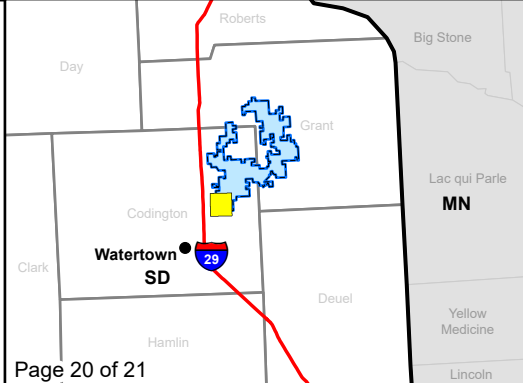
**SWCA**  
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# Dakota Skipper Crowded Ridge Wind Farm

- Primary Turbine
- Alternate Turbine
- ⊙ City
- Construction Easement
- Existing Road
- Field-Assessed Dakota Skipper Habitat
- Field-Assessed Dakota Skipper Habitat and Presence/Absence Survey Location 2018
- O&M Facility/ Substation
- Batch Plant
- Laydown Yard
- Survey Area
- Project Boundary
- County Boundary



0
0.5
1

Kilometers

0
0.25
0.5

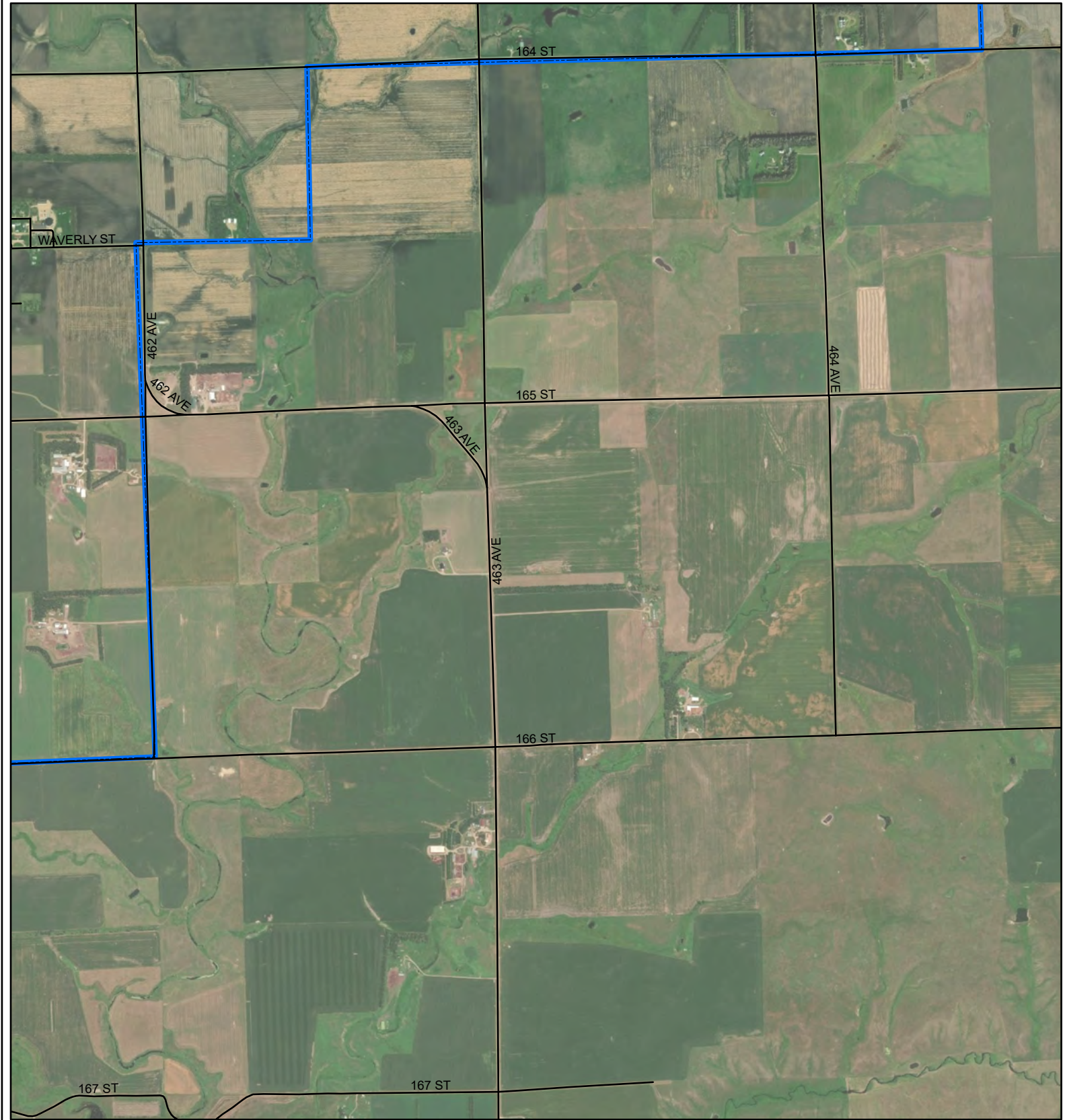
Miles

Service Layer Credits: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community  
Quadrangle: Still Lake SE (1970), Watertown East (1969), South Shore (1973), Kranzburg (1970)  
Township/Range: T118N, R52W, T118N, R51W, T117N, R52W, T117N, R51W  
Codington County, South Dakota

SWCA

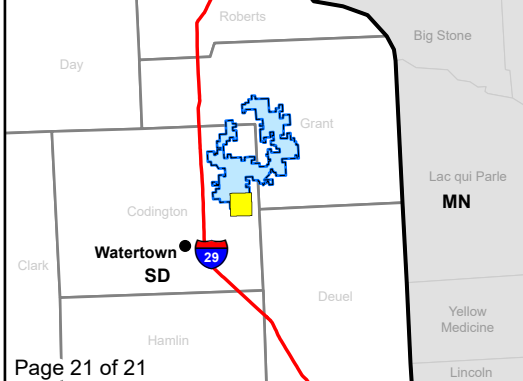
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**Dakota Skipper**  
Crowded Ridge Wind Farm

- Primary Turbine
- Alternate Turbine
- City
- Construction Easement
- Existing Road
- Field-Assessed Dakota Skipper Habitat
- Field-Assessed Dakota Skipper Habitat and Presence/Absence Survey Location 2018
- O&M Facility/ Substation
- Batch Plant
- Laydown Yard
- Survey Area
- Project Boundary
- County Boundary



0 0.5 1  
Kilometers

0 0.25 0.5  
Miles

Service Layer Credits: Esri, HERE, Garmin, © OpenStreetMap contributors, and the GIS user community  
Quadrangle: South Shore (1973), Kranzburg (1970)  
Township/Range: T118N, R51W, T117N, R51W  
Codington County, South Dakota

Projection:

**SWCA**  
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**From:** [Wells, Kimberly](#)  
**To:** [hilary.meyer \(hilary.meyer@state.sd.us\)](mailto:hilary.meyer@state.sd.us)  
**Cc:** [Gates, Natalie](#); [Kely Mertz](#); [Wells, Kimberly](#)  
**Subject:** Crowned Ridge follow up: proposed post-construction lek survey quals  
**Date:** Friday, August 16, 2019 1:53:47 PM  
**Attachments:** [CRI SWCA grouse survey quals - Marcel.pdf](#)

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**EXTERNAL: This email originated from outside SWCA. Please use caution when replying.**

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Hi Hilary,

I am following up on our last conversation regarding post-construction grouse lek surveys at Crowned Ridge I and our collaboration. Do you have any comments or questions on the qualifications of the proposed surveyor described in the attached document from SWCA? If not, we can go ahead and file with PUC staff.

Also, do you have any more details for us on suggested methods or should we just draft a proposal and provide for review? I imagine there is a lot to coordinate with the off-site monitoring discussed and to coordinate between projects so that Crowned Ridge and Sweetwater Wind are providing comparable data.

Thanks in advance for your help.

Kim

Kimberly Wells, Ph.D.  
Senior Manager, Environmental Services  
Mid Continent Region

**NEXtera** Energy Resources, LLC

708 Main Street, 10<sup>th</sup> floor

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832.538.7935 (mobile)

[Kimberly.Wells@NEE.com](mailto:Kimberly.Wells@NEE.com)



## MARCEL SUCH, B.S., BIOLOGICAL FIELD TECHNICIAN

Marcel Such is a biologist working for SWCA as a wildlife field technician, specializing in avian ecology and botany in the Rocky Mountain and Great Plains regions. With sixteen years of experience in ornithology, he is skilled in the identification of all regularly occurring bird species of the Interior West and Midwest, by sight and sound, and has worked with federal threatened and endangered species including the Gunnison sage-grouse and Preble's meadow jumping mouse. Mr. Such's in-field experience includes proficiency in many established survey protocols and techniques, including post-construction mortality surveys on wind farms; excellence in safe backcountry and off-road navigation by foot, ski, and four-wheel drive vehicles; and use of GIS hardware technologies such as Garmin GPS units and Android tablets. He is proficient in training field technicians in avian identification and survey protocol; has produced post-fieldwork reports for various government and academic agencies; and has published several papers in peer-reviewed ornithological journals on a variety of subjects.

### EXPERTISE

Lifelong student of ornithology, highly experienced in visual and auditory bird identification in North America

Ten years' experience conducting various avian surveys, including bird banding, breeding bird surveys, point counts, distance-sampling techniques, and lek surveys

Experienced in botanical anatomy, lab- and field-based plant identification

Five years' experience conducting vegetation surveys in the Interior West, including point-intersect fuels surveys and general species inventories

Experienced in report preparation and review, has provided reports to several government, academic, and private institutions

### EDUCATION

B.S., Environmental Biology and Ecology; Western State Colorado University; Gunnison, Colorado; 2018

B.S., Mathematics; Western State Colorado University; Gunnison, Colorado; 2018

### TRAINING

Yellow-billed Cuckoo Training Workshop, U.S. Fish and Wildlife Service; 2015

### SELECTED PROJECT EXPERIENCE (\* denotes project experience prior to SWCA)

**Confidential Wind Energy Development; Various Counties, Kansas.** *Role: Biological Technician. Avian point counts, avian use surveys, greater prairie-chicken lek surveys, data quality control.*

**\*Siskadee; Western State Colorado University; Gunnison County, Colorado.** *Role: Volunteer Gunnison sage-grouse lek monitor. Four seasons. Lek counts, habitat restoration, public watchable wildlife lek liaison, interpretive naturalist.*

**Confidential Year 2 Environmental Surveys; Confidential Client; Wyoming.** *Role: Biological Technician. Data quality control, report preparation, avian point count and use surveys.*

**Pioneer Wind Park Post Construction Monitoring; Pioneer Wind Park I, LLC; Converse County, Wyoming.** SWCA provided post-construction avian and bat monitoring as well as Phase I ESA and worker environmental training support for the Pioneer Wind Park in compliance with the approved Project Conservation Plan and Eagle Conservation Plans (ECP). *Role: Biological Technician. Data quality control, post-construction mortality surveys.*

**Pumpkin Creek Wind; Invenergy Wind Development, LLC; Carbon County, Kansas.** *Role: Biological Technician. Multiple years - avian point count and large bird surveys.*

**Rattlesnake Creek Avian Mortality; Enel Green Power North America, Inc.; Nebraska.** *Role: Biological Technician. Administered bird and bat fatality training, conducted post-construction mortality surveys.*

**Diamond Vista Avian Mortality; Enel Green Power North America, Inc.; Kansas.** *Role: Biological Technician. Administered bird and bat fatality training, conducted post-construction mortality surveys.*

**Confidential Wind Energy Development; Colorado.** *Role: Biological Technician. Avian point count and large bird surveys.*

**XTO RNPU 197-23A SSPS Monitor; XTO Energy; Meeker, Rio Blanco County, Colorado.** *Role: Biological Technician. Botanical monitor for pipeline construction project.*

**\*Bird Conservancy of the Rockies; Colorado Parks and Wildlife; Montrose,**

**Colorado.** *Role: Assistant Field Technician. Assisted with project trapping, banding, and collecting genetic material from brown-capped rosy-finches as part of a multi-agency research project.*

**\*Bird Conservancy of the Rockies; Fort Collins, Colorado.** *Role: Avian Field Biologist. Independently conducted avian point counts and vegetation surveys in southern Colorado, often in remote, rugged backcountry areas. Communicated and organized access with private landowners.*

**\*Western State Colorado University; Gunnison, Colorado.** *Role: Lead Research Project Supervisor. Designed, organized, and led a research project studying the effect of Douglas-fir forest health on birds of the Gunnison Basin. Responsibilities included grant writing, logistical planning, fieldwork (both avian point counts and vegetation surveys), training and supervision of a field assistant, data entry, data analysis, post-project report preparation, and presentation at professional paper sessions.*

**\*Western State Colorado University; Curecanti National Recreation Area, Gunnison, Colorado.** *Role: Yellow-billed cuckoo surveyor. Conducted playback surveys for a federally threatened population of yellow-billed cuckoos in Curecanti National Recreation Area. Coordinated with National Park Service, wrote grant, and received USFWS training and certification.*

**\*Western State Colorado University; Bureau of Land Management; Coaldale, Colorado.** *Role: Field Technician. Worked cooperatively with field crew to conduct avian and botanical surveys as part of a land management research project in the Piñon-Juniper Woodland between Salida and Cañon City, Colorado.*