

APPENDIX K – WHOOPING CRANE HABITAT REVIEW

Sweetland Wind Project

Whooping Crane Stopover Habitat Assessment

Prepared for:

Scout Clean Energy

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Pre-Decisional Document - Privileged and Confidential - Not For Distribution

This document or presentation includes Whooping Crane migration use data from the Central Flyway stretching from Canada to Texas, collected, managed and owned by the U.S. Fish and Wildlife Service. Data were provided to “Western Ecosystems Technology, Inc.” as a courtesy for their use. The U.S. Fish and Wildlife Service has not directed, reviewed, or endorsed any aspect of the use of these data. Any and all data analyses, interpretations, and conclusions from these data are solely those of “Western Ecosystems Technology, Inc.”

INTRODUCTION

Scout Clean Energy is proposing construction of the Sweetland Wind Project (Sweetland) in Hand County, SD (Figure 1). Federally-listed endangered whooping cranes migrate through the U.S. along an approximately 200-mile wide corridor between breeding grounds in Canada and wintering grounds in Texas along the Gulf of Mexico (Canadian Wildlife Service [CWS] and U.S. Fish and Wildlife Service [USFWS] 2007). Sweetland is located in the distance bands where 75% of migratory whooping crane observations have occurred, based on confirmed sightings (Pearse et al. 2018; Figure 1). Potential stop-over habitat for whooping cranes was evaluated using a model developed by The Watershed Institute, Inc. (TWI 2012). This model has been recommended by the U.S. Fish and Wildlife Service (USFWS) Kansas Ecological Services Field Office and was also discussed with USFWS South Dakota Ecological Services Field Office personnel during an in-person meeting in August 2017. This report describes results of the desktop evaluation of potential whooping crane stopover habitat using the TWI model for the Sweetland project area plus a 10-mile buffer, and results are evaluated along with other available data (i.e. whooping crane observations and USGS Site Use Intensity data) on whooping crane stop-over site use.

TWI WHOOPING CRANE HABITAT ASSESSMENT

The TWI habitat assessment model is a quantitative and easily-replicated desktop approach to evaluating the quantity, quality, and locations of potential whooping crane stopover habitat in a given area. It is based on available data on water regime, water depth, visibility obstructions, wetland size, disturbance, and proximity to feeding areas, which are all factors that have been shown to affect how whooping cranes choose stopover habitat. The initial goal of the TWI model was to provide electric utilities with a tool for making power line-marking decisions, but the USFWS stated in a personal communication (D. Mulhern, USFWS [retired], November 19, 2012) that it should be applicable to wind power development areas for the identification of potential whooping crane stop-over habitat as well.

The TWI model is based on National Wetlands Inventory (NWI) wetlands data (USFWS 2016). It should be noted that wetland features identified in the NWI dataset may not meet all of the criteria defined by the U.S. Army Corps of Engineers for jurisdictional wetlands. NWI features were selected that intersected a 10-mile buffer of the Sweetland project area. Wetland features were then screened for unsuitability based on size, construction, and proximity to human disturbance and visual obstructions. U.S. National Agriculture Imagery Program (NAIP) aerial imagery from 2015 was used to evaluate the presence of human development and visual obstructions such as wooded areas. Spatial datasets for roads, highways, and railroads were available from the US Census Bureau (USCB), TIGER data (USCB 2018). Bridges, and electric transmission lines were digitized by WEST from available topographic and aerial imagery.

Screening and scoring of wetlands occurred in a step-wise fashion. Wetlands were first screened based on wetland type; wetlands described as forested, scrub-shrub, or excavated

were removed from the dataset. The second screening step removed wetlands with calculated total acreage of 0.25 acre or less. The third screening step was to designate buffers around human developments/sources of disturbance and screen the wetlands or portions of wetlands within those disturbance buffers. Table 1 lists human disturbance types included and the disturbance buffers used (based on the TWI model).

Table 1. Disturbance types and buffer distances used to screen wetlands, based on TWI 2012.

Disturbance Type	Disturbance Buffer (m)*	Comments
Paved Roads	400	Non-State Trunk Road Inventory (NSTRI)
Gravel Roads	200	Non-State Trunk Road Inventory (NSTRI)
Dwellings and Developments	200	South Dakota GIS; only occupied structures were selected
Railroads	400	Spatial data not publicly available. Digitized from USGS 1:24,000 topographic map.
Power Lines	200	Spatial data not publicly available. Digitized from USGS 1:24,000 topographic map.
Bridges	400	Spatial data not publicly available. Digitized from NAIP 2015 aerial imagery.

* Width of the buffer applied to each side of a linear feature, or radius applied to a point feature

Following the TWI model, wetlands were assigned scores based on five attributes that contribute to high-quality stop-over habitat for whooping cranes, including water regime, distance to crop fields for feeding, wetland size, whether the wetland is natural or man-made, and if the wetland is part of a wetland mosaic (Table 2). The scores for the five attributes were summed. Resulting scores were compared to the scores calculated by TWI for Quivira National Wildlife Refuge (NWR), which is a traditional stop-over site for whooping cranes in Kansas. Based on the average score for Quivira wetlands, scores of 12 or higher were considered by TWI to be potentially suitable habitat.

Aside from a few traditional stop-over sites such as Quivira NWR and Cheyenne Bottoms in Kansas, whooping crane stop-over sites are highly variable from year to year. If a wetland feature is scored by the TWI as potentially suitable (12 or higher), that does not necessarily mean that a whooping crane will ever visit that site; however, if a whooping crane is migrating through the area and conditions (stormy or foggy weather, inclement winds, sunset) cause the bird to look for a place to stop, whooping cranes may be more likely to choose a feature that possesses the characteristics scored highly by the TWI model, compared to lower scoring features.

Table 2. Wetland scoring system used by the TWI model (TWI 2012).

Score Type	Attributes	Score Value
Water Regime	Permanent (H) ¹	5
	Intermittently Exposed (G) ¹	4
	Semi-Permanent (F) ¹	3
	Seasonally Flooded (C) ¹	2
	Intermittently/Temporarily Flooded (J/A) ¹	1
Distance to Food	Within/adjacent to cropland ²	5
	<0.5 km from cropland ²	4
	0.51 – 1.0 km from cropland ²	3
	1.1 – 1.5 km from cropland ²	2
	>1.5 km from cropland ²	1
Wetland Size	>7 acres	5
	5 - 6.9 acres	4
	3 – 4.9 acres	3
	1 – 2.9 acres	2
	<1 acre	1
Natural Wetland	Natural ³	2
	Created ³	0
Wetland Mosaic	Yes ⁴	3
	No ⁴	0

¹ – Codes in parenthesis are codes from the Wetlands and Deepwater Habitats Classification system (Cowardin et al. 1979) used by the NWI system

² – Cropland areas from National Land Cover Database (NLCD; USGS 2014) and include the “cultivated crops” category.

³ – Based on NWI wetland codes indicating the wetland was diked or impounded.

⁴ – A wetland was considered part of a mosaic if it was within ¼ mile of four or more other wetlands and with no visual obstructions such as wooded areas or buildings between the wetlands. Visual obstructions were assessed based on NAIP (2016) aerial imagery.

RESULTS

TWI Whooping Crane Habitat Assessment

For the Sweetland project area and a surrounding 10-mile buffer combined, 9,454 NWI features initially were identified and scored and of these, 1,459 received scores of 12 or higher. Within the Sweetland project area, there were 527 features that were scored, with scores ranging from 3 to 18 (Figures 2 and 3). Of these 527 within the Sweetland project area, 74 scored 12 or higher. The features that scored 12 or higher within the Sweetland project area are generally located along the western and south-western edge of the project boundary (Figure 3).

Within a 10-mile buffer of the Sweetland project area and excluding the area within the Project area, 8,927 wetland features were scored by the TWI model. There were 1,385 high-scoring (12+) features present throughout the 10-mile buffer area and included emergent wetlands,

ponds, lakes and rivers (Figure 5). High-scoring features of note included Spring Lake in the southwest, and Jones Lake in the northwest (Figure 5).

When comparing the TWI model results between the Sweetland project area and the 10-mile buffer area, the areas are similar in that features scoring between seven through 10 were most common (Figures 2 and 4). The largest high-scoring features in terms of acreage, and the areas with the most densely occurring high-scoring features were outside of the Sweetland project area to the east, west, and northeast. The widespread availability of suitable stopover habitat indicates that if cranes are displaced from suitable habitat by development within the Sweetland project area, they are likely to find similar habitat nearby.

Whooping Crane Observations

Through spring 2017, three whooping crane observations were confirmed within the 10 mi buffer (16 km) of the Sweetland project area (CWCTP 2016; Figure 6). The CWCTP emphasizes that the whooping crane observation data are incidental sightings and not accurate documentations of absence in areas where no observations are recorded, nor are observation locations representative of all sites used by cranes since only the location of the first observation is logged in the database.

To date, no whooping cranes have been observed during fixed-point avian use surveys that have been occurring at the Project since May 2017.

USGS Site Use Intensity Data

The U.S. Geological Survey (USGS) evaluated spatial intensity of use by 58 whooping cranes fitted with platform transmitting terminals (PTT; Pearse et al. 2015). Stopover sites used during spring and fall migration were monitored over five years. Based on stopover site use density and duration, 20-square-kilometer grid cells were categorized as unoccupied, low use, core intensity, or extended-use core intensity. The resulting data were meant to help identify areas that may be important for migrating whooping cranes. Overlaying the USGS site use intensity data with the Sweetland project area indicates that the majority of the area is located in core use intensity, the second highest of the four categories identified by Pearse et al. (2015; Figure 7). Higher intensity (extended use core intensity) cells do occur to the south, east, and northwest (Figure 7).

Summary

The assessment indicates that there is potentially suitable stopover habitat for whooping cranes in the project area, and there is the potential for whooping cranes to use or fly through the area during the life of the project. This finding is based on the following:

- Located within the corridor
- Suitable habitat within the project area
- Documented sightings in the area within the last decade
- Presence of core use intensity area

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- U. S. Fish and Wildlife Service (USFWS). 2016. National Wetlands Inventory - Wetlands, Version 1. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. <http://www.fws.gov/wetlands/>

U.S. Geological Survey (USGS). 2014. NLCD 2011 Land Cover. USGS, Sioux Falls, South Dakota. http://www.mrlc.gov/nlcd06_data.php

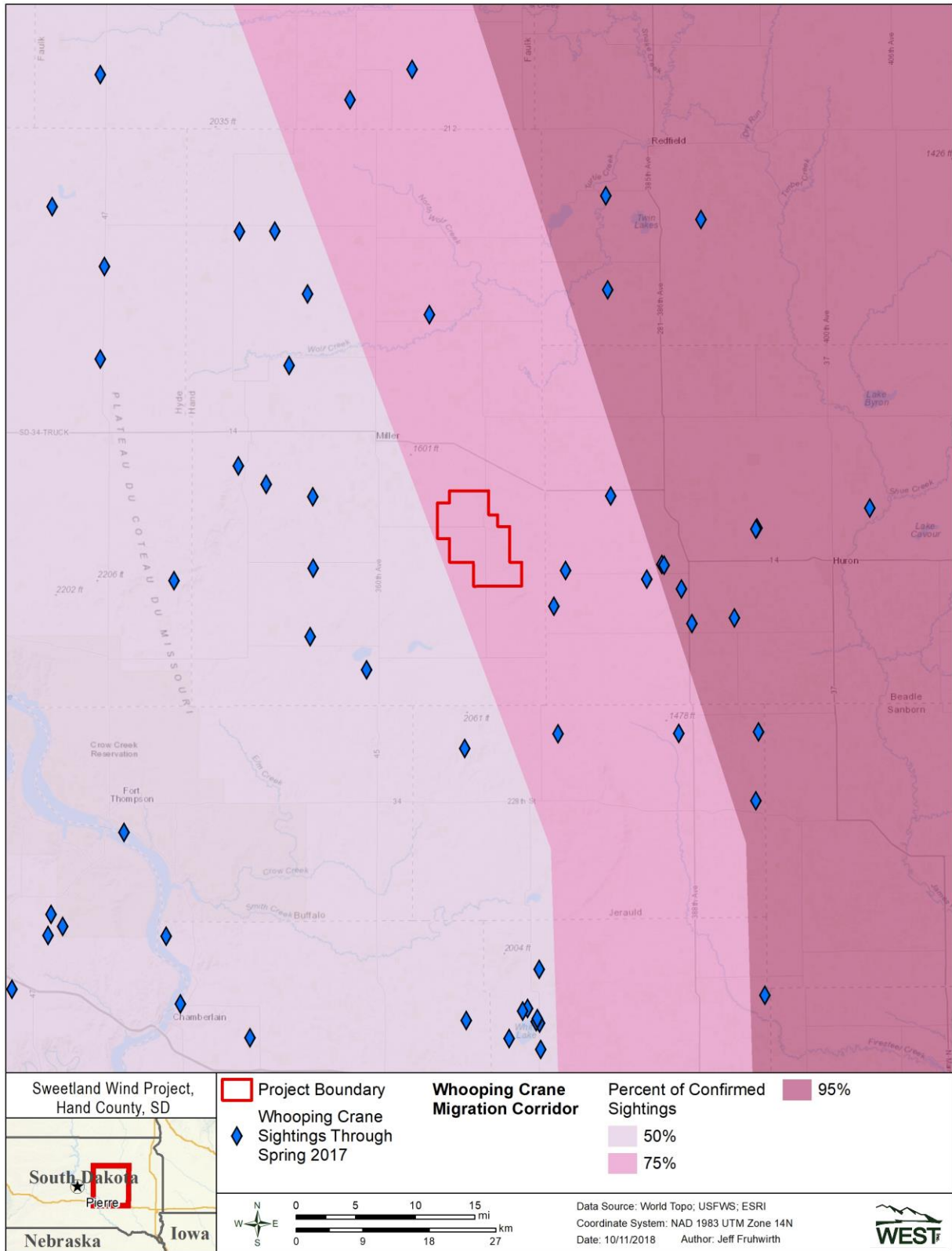


Figure 1. Sweetland Wind Project evaluated for whooping crane stopover habitat.

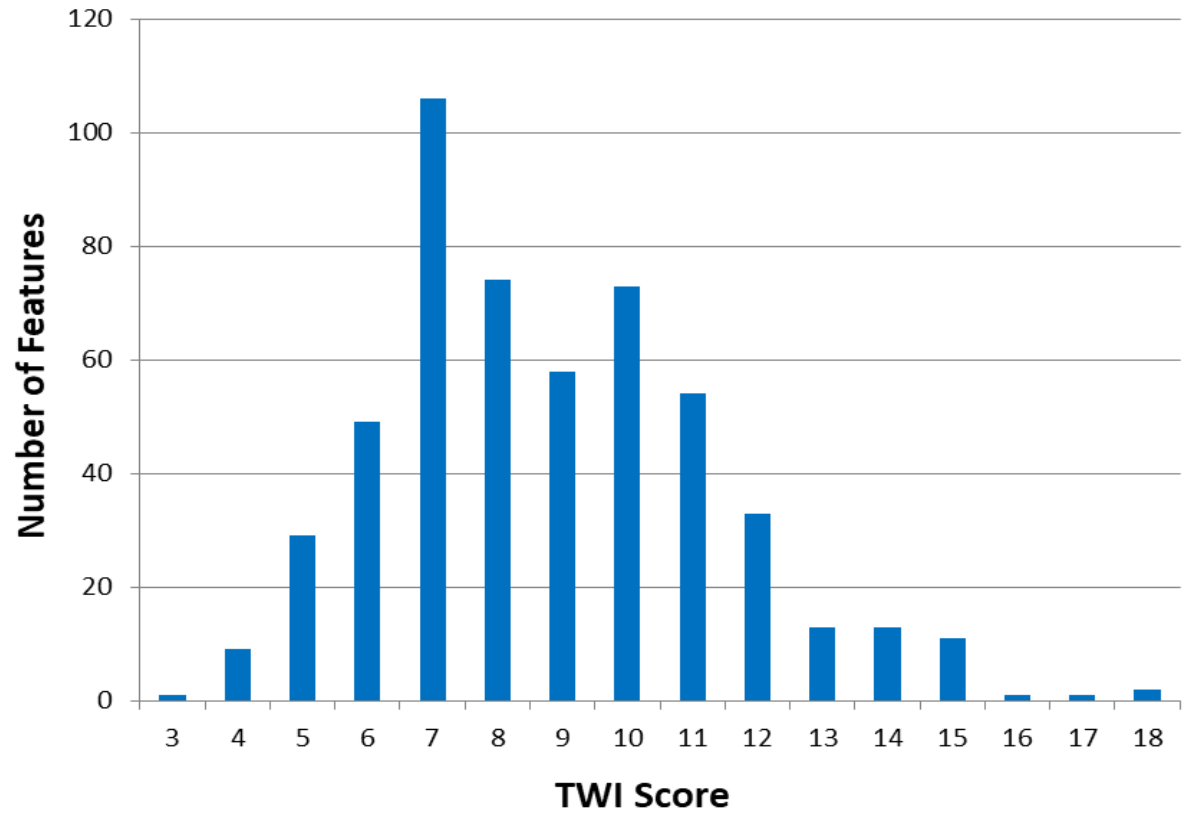


Figure 2. TWI scores for NWI wetland features within the Sweetland Wind Project.

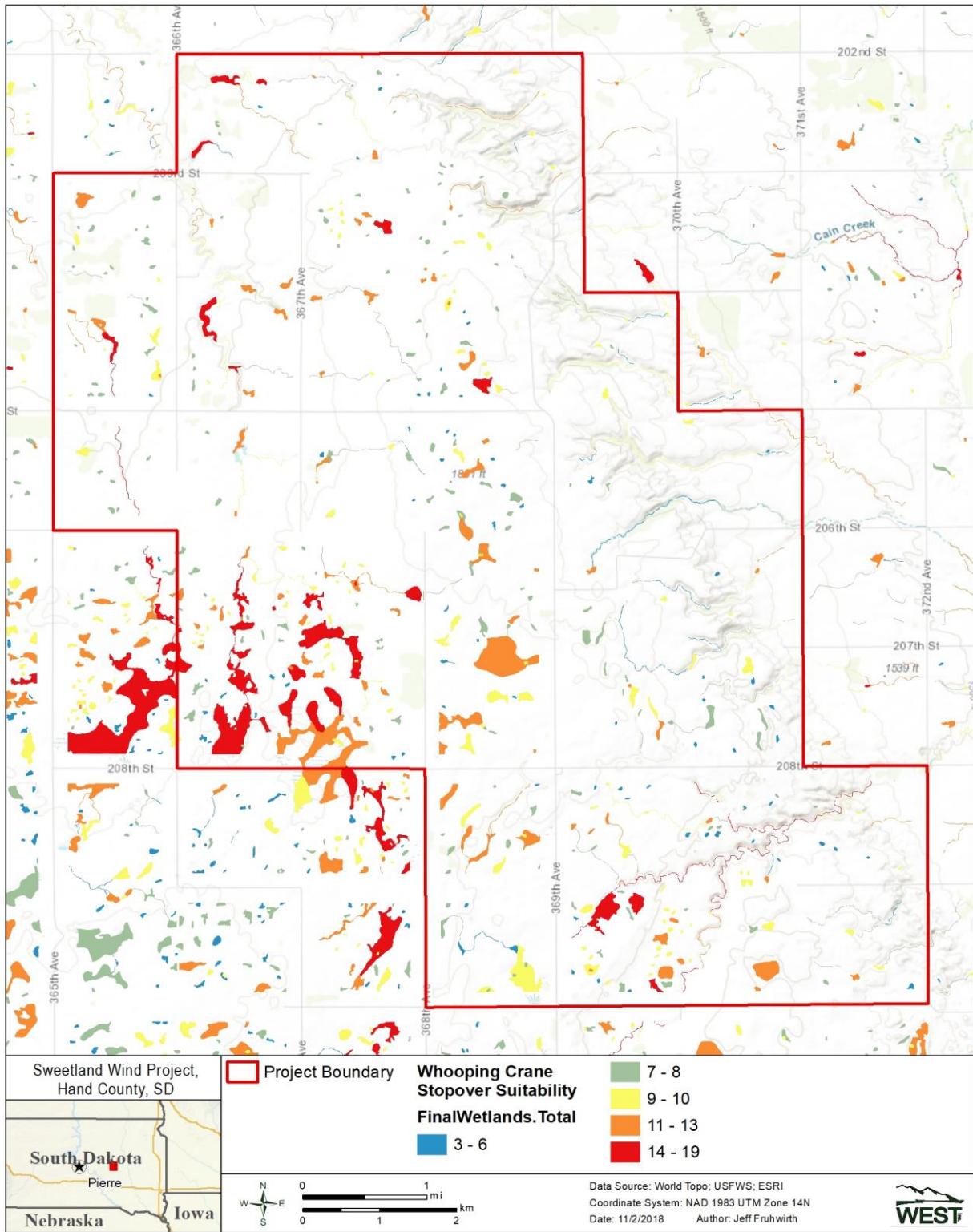


Figure 3. Wetland scores for the Sweetland Wind Project using the TWI model.

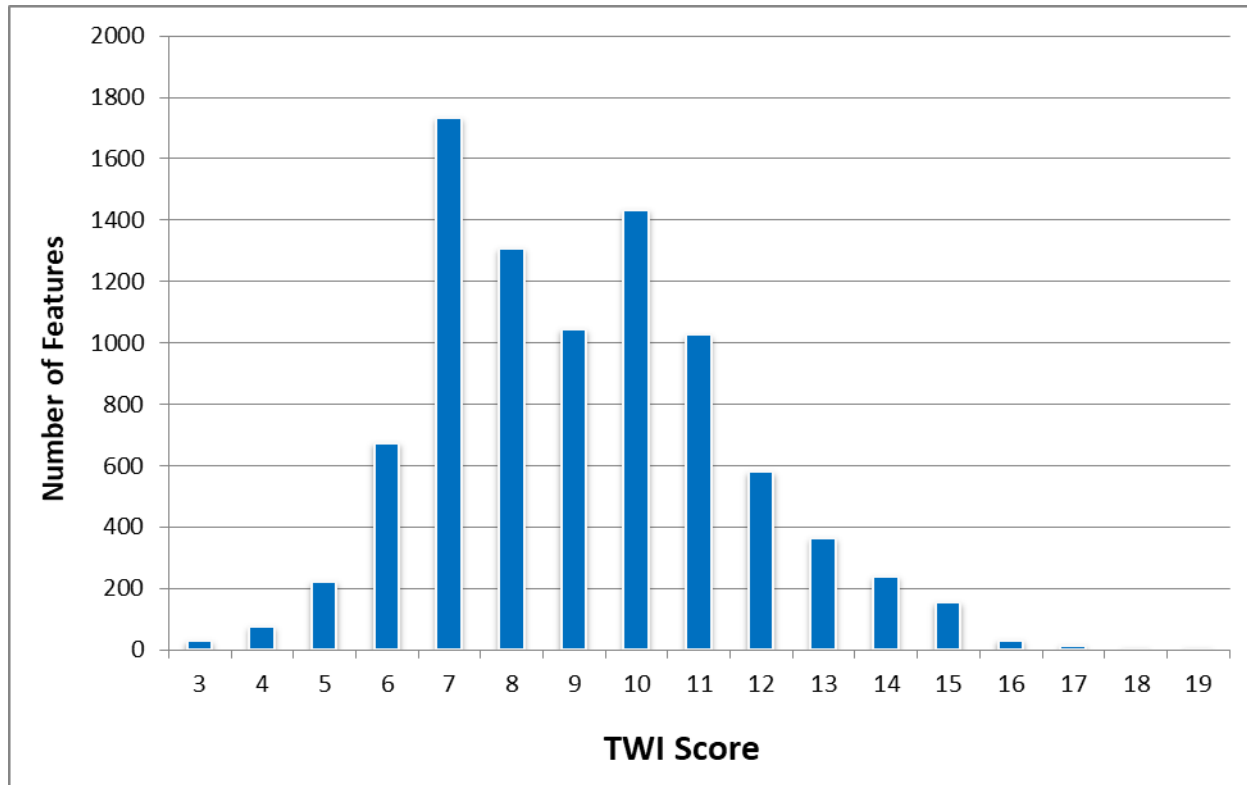


Figure 4. TWI scores for wetlands in the 10-mile buffer but excluding land within the Sweetland Wind Project boundary.

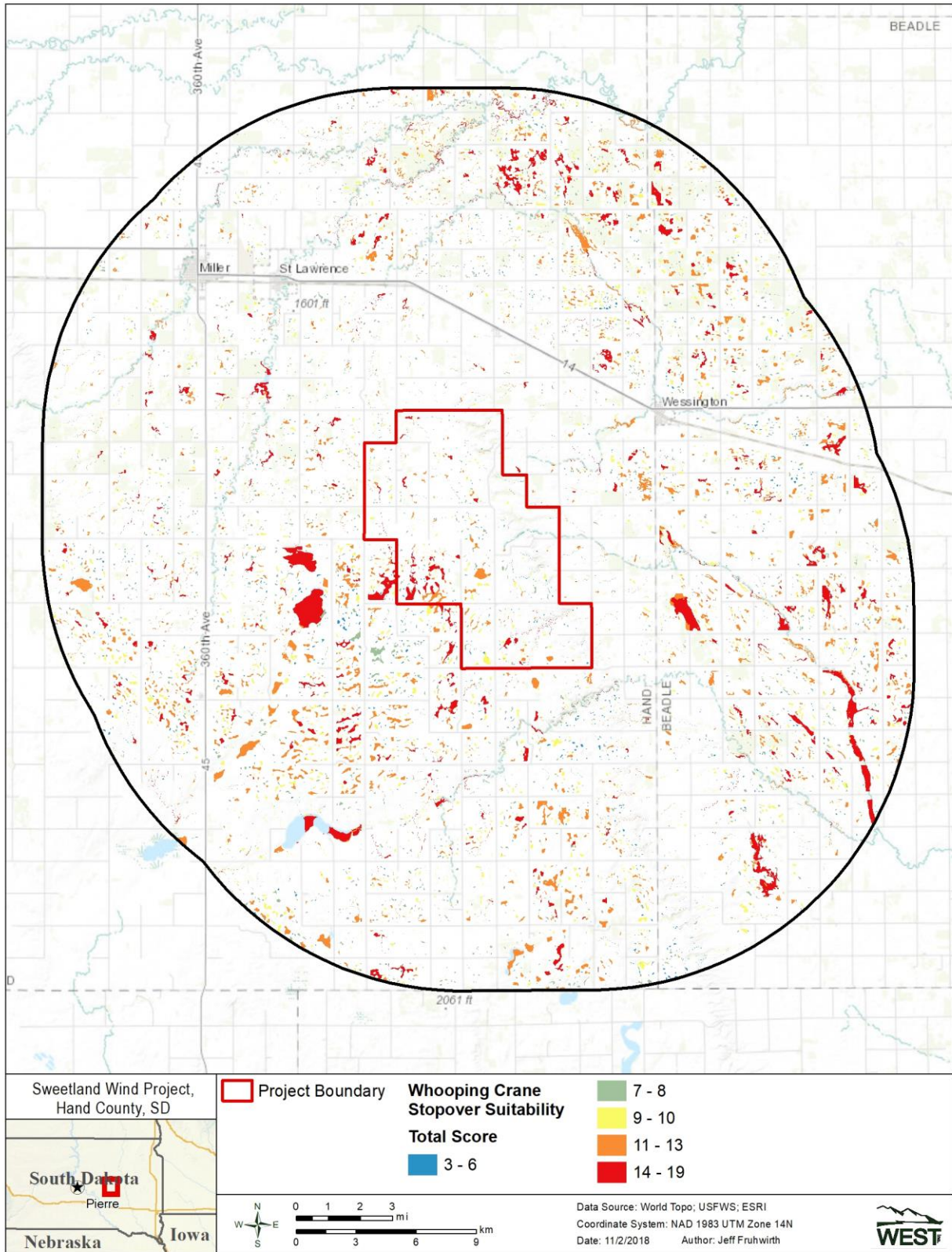


Figure 5. Map of wetlands scored using the TWI model for the Sweetland Wind Project and 10-mile buffer.

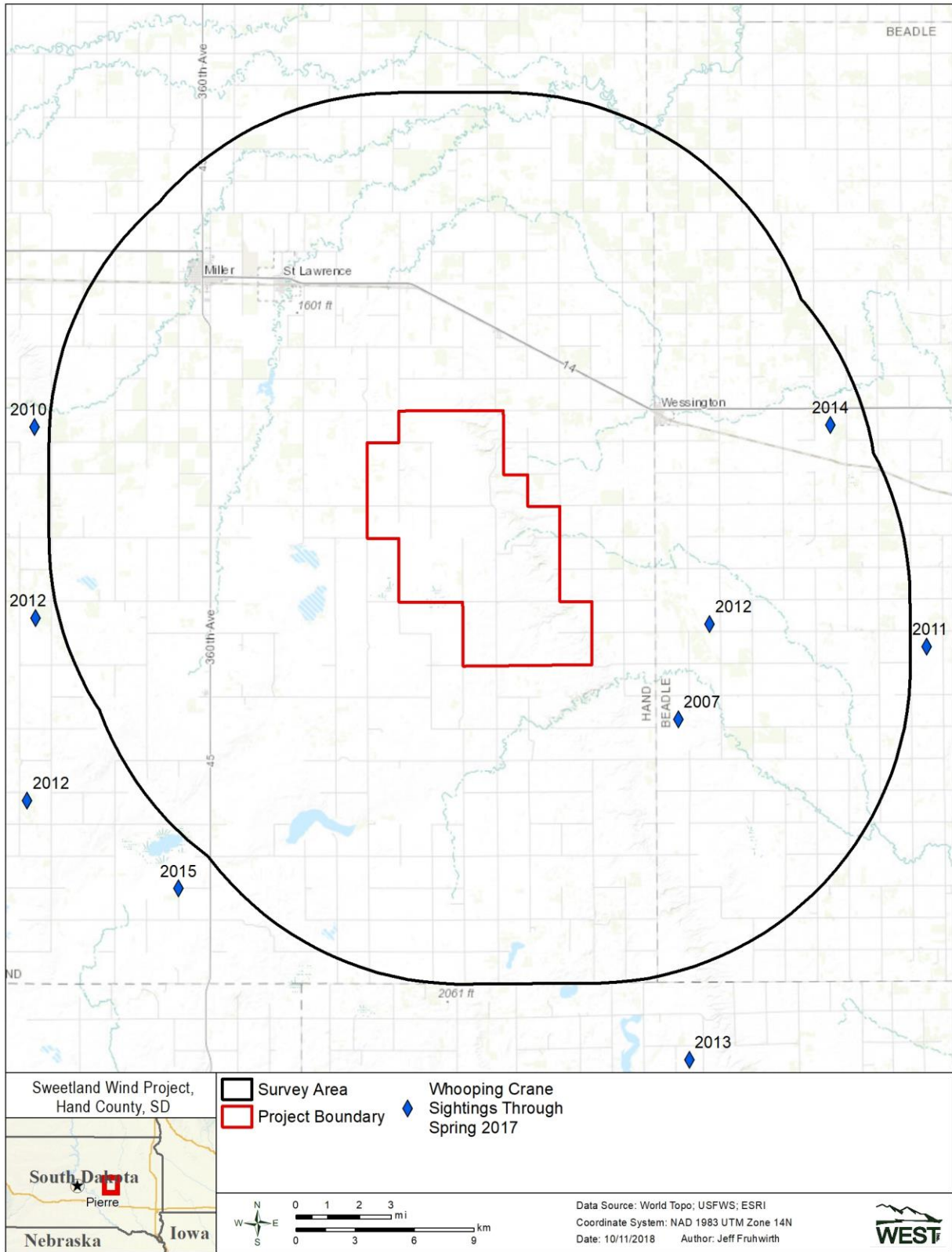


Figure 6. Whooping crane observations through spring 2017 Data from the USFWS Nebraska Ecological Services Field Office.

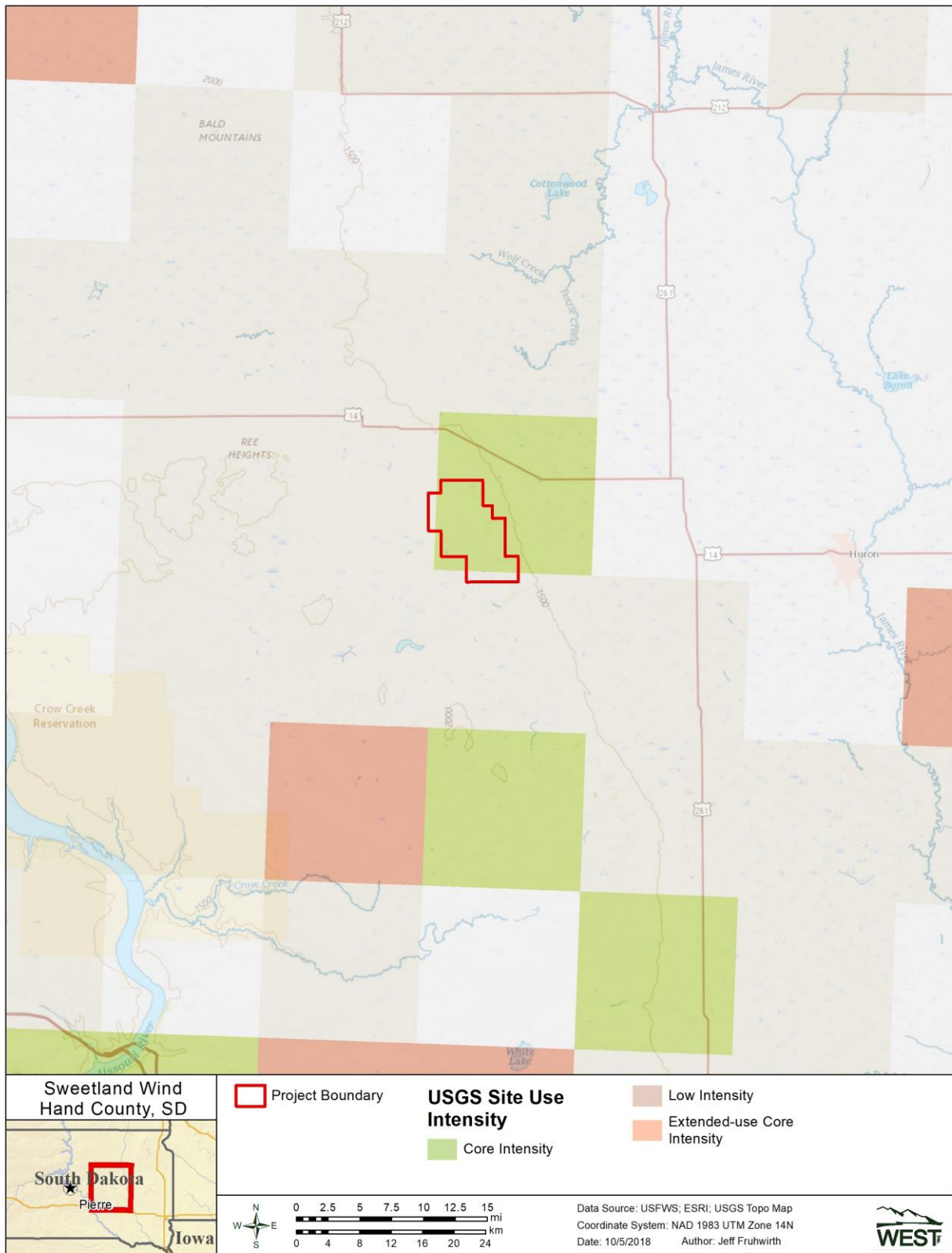


Figure 7. USGS site use intensity data for the vicinity of Sweetland Wind Project (USGS 2015).

APPENDIX L – CONSISTENCY EVALUATION FORMS

Programmatic Biological Assessment Project Consistency Evaluation Form*
Upper Great Plains Region Wind Energy Development Program

(for USFWS Internal Use Only) TAILS S7 Bundle #: _____
 Individual TAILS Log #: _____

Project Proponent	
Project Name: <u>Sweetland Wind Farm</u>	Developer: <u>Scout Clean Energy</u>
State: <u>South Dakota</u>	City: <u>Boulder</u>
County: <u>Hand</u>	State: <u>Colorado</u>
Township, Range & Sections: <u>S3-11,T110N,R66W; S5-7,18-21,28-33,T111N,R66W; S1-2,10-15,22-26,35,T111N,R67W</u>	POC: <u>Mark Wengierski</u>
	Phone: <u>(720) 592-0512</u>

Federal Agency/Point of Contact	
Fish & Wildlife Service Ecological Services Field Office	Western Area Power Administration
City: <u>Pierre</u>	City: <u>Billings</u>
State: <u>South Dakota</u>	State: <u>Montana</u>
POC: <u>Natalie Gates</u>	POC: <u>Christina Gomer</u>
Phone: <u>(605) 224-8903</u>	Phone: <u>(406) 255-2811</u>

For actions involving USFWS Land interests:

USFWS Wetland Management District: <u>Huron</u>	City: <u>Huron</u>	State: <u>South Dakota</u>	USFWS Property Interest	Y <input type="checkbox"/>	N <input checked="" type="checkbox"/>
POC: <u>Deborah Williams</u>			Grassland Easement Exchange	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Phone: <u>(605) 352-5894</u>					

Project Description Overview with Best Estimates					
Construction Initiation Date: <u>Q1 2020</u>	Max. Turbine Ht: <u>499 ft</u>	Project Area Size: <u>21,006 ac.</u>			
Construction Completion Date: <u>Q4 2020</u>	Turbine Pad Size: <u>0.18 ac. (permanent)</u>	Wind Reserve Area Size: _____			
Number Turbines: <u>71</u>	Miles (km) of New Road: <u>21.7 miles</u>	Power Generating Initiation Date: <u>Q4 2020</u>			
Turbine Tower Height (ft/m): <u>80m to 89m</u>	Miles (km) Improved Road: <u>14.5 miles</u>	Project Termination Date: <u>Q4 2055</u>			
Turbine RSA: <u>136,354 sq. ft.</u>	Miles (km) Existing County Rd: <u>5.7 miles</u>				
Turbine Size (MW), Make & Model: <u>68 GE 2.82-127 at 89m and three GE 2.32-116 at 80m</u>					
Collector Lines from Turbine to Substation: Miles Buried: <u>41.9 miles</u> Miles Overhead: <u>7 miles</u>					
To help demonstrate compliance with the BMPs, Species Specific Avoidance and Minimization Measures, a complete application must include maps of the project area and associated species/habitat/buffer zones. Maps attached					
			Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Land Cover Types Affected								
		Acres					Description/Comments	
Yes	No	Private	State	Federal	Subtotal	% Total		
Native Grass	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0			0	0%	untilled & dominated entirely by native tallgrass species
Tame Grass	<input checked="" type="checkbox"/>	<input type="checkbox"/>	12,986			12,986	62%	
Agricultural	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7,339			7,339	35%	cultivated crops, hay/pasture wetlands, open water
Wetland	<input checked="" type="checkbox"/>	<input type="checkbox"/>	217			217	1%	
Riparian	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0			0	0%	
Trees	<input checked="" type="checkbox"/>	<input type="checkbox"/>	157			157	1%	deciduous forest
Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>	336			336	2%	developed, open space, scrub/shrub
Total			21,006			21,006	100%	Sources: USGS NLCD, 2018; Bauman et. al., 2016; Native Grasslands Habitat Report (including field survey)

ESA Listed (L), Proposed (P) and Candidate (C) Species Affected (Check Boxes)

- | Plants | Invertebrates | Fish | Reptiles | Birds | Mammals |
|--|--|---|---|--|---|
| <input type="checkbox"/> EP Fringed Orchid (L) | <input type="checkbox"/> American Burying Beetle (L) | <input type="checkbox"/> Bull Trout (L) | <input type="checkbox"/> Eastern Massasauga (C) | <input type="checkbox"/> G. Sage Grouse (C) | <input type="checkbox"/> Black-footed Ferret (L) |
| <input type="checkbox"/> Mead's Milkweed (L) | <input type="checkbox"/> Dakota Skipper (L) | <input type="checkbox"/> Pallid Sturgeon (L) | | <input type="checkbox"/> Int. Least Tern (L) | <input type="checkbox"/> Canada Lynx (L) |
| <input type="checkbox"/> Prairie Bush Clover (L) | <input type="checkbox"/> Higgins Eye (L) | <input checked="" type="checkbox"/> Topeka Shiner (L) | | <input type="checkbox"/> Piping Plover (L) | <input type="checkbox"/> Gray Wolf (L) |
| <input type="checkbox"/> Ute Ladies'-Tresses (L) | <input type="checkbox"/> Poweshiek Skipperling (L) | | | <input checked="" type="checkbox"/> Rufa Red Knot (L) | <input type="checkbox"/> Grizzly Bear (L) |
| <input type="checkbox"/> WP Fringed Orchid (L) | <input type="checkbox"/> Salt Creek Tiger Beetle (L) | | | <input type="checkbox"/> Sprague's Pipit (C) | <input type="checkbox"/> Indiana Bat (L) |
| <input type="checkbox"/> Whitebark Pine (C) | <input type="checkbox"/> Scaleshell Mussel (L) | | | <input checked="" type="checkbox"/> Whooping Crane (L) | <input checked="" type="checkbox"/> N. Long-Eared Bat (L) |

Programmatic Biological Assessment Project Consistency Evaluation Form*
Upper Great Plains Region Wind Energy Development Program

Project proponent has reviewed the Programmatic Wind Energy EIS and BA, Appendix B of the BA relating to Species Consistency Evaluation Forms, and the U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines.

Commitment to incorporate applicable BMPs and Species-Specific Avoidance & Minimization Measures into the project plan:

Mark Wengierski

Project Proponent (Point of Contact)

Mark Wengierski
Signature

11/25/2019

Date

Agency Verification of Compliance with the Programmatic Wind Energy Biological Assessment:

Alyssa Fellow

Western Area Power Administration (Point of Contact)

Alyssa Fellow
Signature

9 Jan 2020

Date

Scott Larson

U.S. Fish & Wildlife Service (Point of Contact)

Scott Larson
Signature

12/20/19

Date

NATALIE GATES

U.S. Fish & Wildlife Service (ES Field Office Lead Biologist)

Natalie Gates
Signature

12/20/19

Date

*Version 3: March 2015

**Programmatic Biological Assessment Species Consistency Evaluation Form
Upper Great Plains Region Wind Energy Development Program
Impact Information and Consistency Determination**

Northern long-eared bat (*Myotis septentrionalis*)

Project Name: Sweetland Wind Farm

Company: Sweetland Wind Farm, LLC, 4865 Sterling Drive, Suite 200, Boulder, Colorado 80301

Best Management Practices

- All general BMPs, as stated in the final *Programmatic Environmental Impact Statement for the Upper Great Plains Region Wind Energy Program* and table 4.5-1 of the final *Programmatic Biological Assessment for the Upper Great Plains Region Wind Energy Program*, will be implemented where appropriate, during each phase of the project (i.e., site characterization, construction, operations, and decommissioning). Although not all-inclusive, several of the more important BMPs for the conservation of this species follow.
- Activities with continuous periods (i.e., longer than 24 hours) of noise disturbances greater than 75 db measured on the A scale (e.g., loud machinery) should be avoided within a 1-mi (1.6-km) radius of known or assumed northern long-eared bat hibernacula.
- Restrict use of herbicides for vegetation management near known or assumed northern long-eared bat hibernacula to those specifically approved for use in karst (e.g., sinkholes) and water (e.g., streams, ponds, lakes, wetlands).
- Avoid clearing of suitable habitat (spring staging, fall swarming, summer roosting) within a 5-mile (8.0 km) radius of known or assumed northern long-eared bat hibernacula. Retain snags, dead/dying trees, and trees with exfoliating (loose) bark ≥ 3 -in. (7.6-cm) diameter at breast height (dbh) in areas ≤ 1 mi (1.6 km) from water.
- Develop and implement a Bird and Bat Conservation Strategy (BBCS) as described in the *Land-Based Wind Energy Guidelines* that includes survey protocols acceptable to the USFWS in the project area during the spring and fall bird and bat migration seasons. Mortality monitoring will help to identify individual turbines that contribute to avian and bat mortality. This information could be used to provide design layout information for future wind development projects and to reduce the potential for future avian and bat mortality.

Species-Specific Avoidance Measures

- Throughout the range of the northern long-eared bat within the UGP Region, conduct preconstruction evaluations and/or surveys to identify suitable foraging, roosting, and commuting habitat within project boundaries and to identify the distance from project boundaries to hibernacula known/presumed used by northern long-eared bats. Disturbance of hibernacula is prohibited throughout the year.
- Avoid all suitable habitat (do not site turbines) in areas within 5 mi (8 km) of hibernacula used by northern long-eared bats or within 0.5 mi (0.8 km) of known or presumed occupied foraging, roosting, and commuting habitat. Habitat evaluations should be coordinated with the local USFWS Ecological Services Office prior to or during turbine site planning.

Species-Specific Minimization Measures

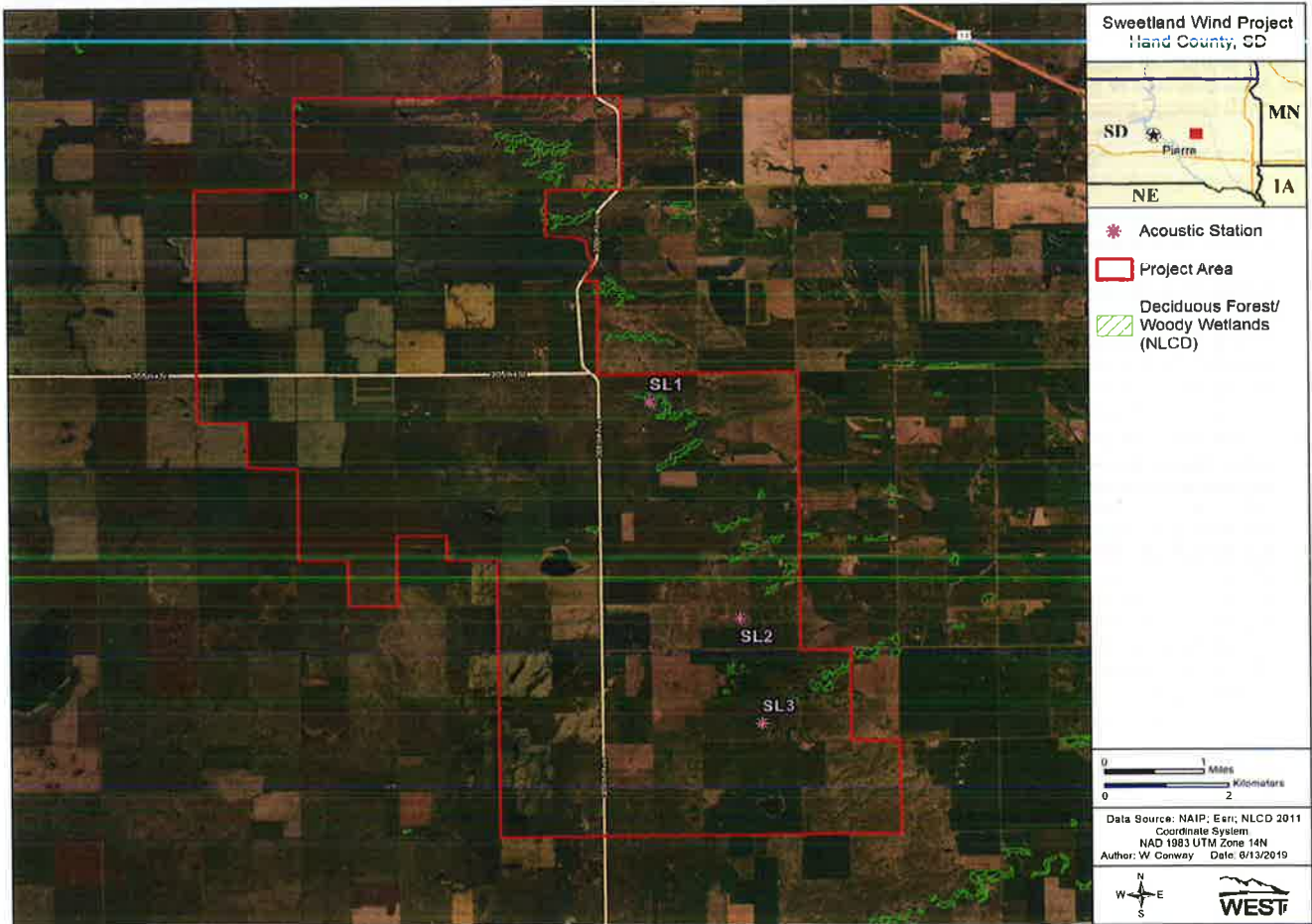
- A robust survey developed and implemented as part of the BBCS program, consistent with the *Wind Energy Guidelines* and approved by the USFWS during the preconstruction evaluation and survey stage, will be implemented for a minimum of 1 yr preconstruction.
- The need for implementation of cut-in speeds higher than manufacturers' recommendations during the fall bat migration period will be based on the following site-specific, project-by-project risk assessments by the State Ecological Services Field Office of the USFWS:
 - During the preconstruction evaluation and survey stage, and based on a collision risk assessment of location of the project, proximity to potential summer habitat, distance to known occurrences, distance to known hibernacula, and suspected migration patterns, the applicant will coordinate with Western, Refuges, and the local Ecological Services Field Offices of the USFWS to determine if the risk of injury or mortality is sufficiently high to warrant higher cut-in speeds.
 - In the event that preconstruction surveys indicate species occurrence or occupancy of habitat adjacent to the project area, higher turbine cut-in speeds will be required to offset the increased risk for injury or mortality. The monitoring must be rigorous enough to meet standards acceptable to the local USFWS State office.
 - When warranted by either of the two aforementioned conditions for specific projects, turbine cut-in speeds will be increased to 16.4 ft/sec (5.0 m/sec) or greater from 0.5 hour before sunset to 0.5 hour after sunrise during the fall migration period (generally August 15–October 15, but consult with the USFWS for the established migration dates in each State) for northern long-eared bats in the western and central areas of the UGP Region. In the eastern fringe of the UGP Region, a minimum cut-in speed of 22.6 ft/sec (6.9 m/sec) from 0.5 hour before sunset to 0.5 hour after sunrise during the fall migration period (generally August 15–October 15, but consult with the USFWS for established migration dates in each State) for northern long-eared bats is required. Areas within the UGP Region that occur east of the western borders of Minnesota and Iowa will be used as the line of demarcation where the minimum cut-in speed of 22.6 ft/sec (6.9 m/sec) will be used. Use of feathering below the respective cut-in speed of 16.4 ft/sec (5.0 m/sec) or 22.6 ft/sec (6.9 m/sec) will also be implemented at night during the fall migration season to eliminate turbine rotation and avoid mortality of migrating northern long-eared bats. Increased cut-in speed and feathering can be suspended from 0.5 hour after sunrise to 0.5 hour before sunset.
- Immediately report observations of northern long-eared bat mortality to the appropriate USFWS office.

Programmatic Biological Assessment Species Consistency Evaluation Form
Upper Great Plains Region Wind Energy Development Program
Impact Information and Consistency Determination

Northern long-eared bat (*Myotis septentrionalis*)

Impact Information			
Project within county with recorded northern long-eared bat?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Preconstruction evaluations conducted with USFWS?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Dates: 8/7/18
Parties involved: USFWS, WAPA, WEST, BM&D, Hand County, and Sweetland			
Suitable foraging or roosting habitat in or near project footprint?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Distance from suitable habitat:	0	Miles	
Distance from hibernacula:	233.2	Miles	
Has habitat been surveyed to protocol?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Dates of survey: July 5 - July 10, 2018
Result of survey:	<input type="checkbox"/> Occupied (species detected)	<input checked="" type="checkbox"/> Not occupied (species not detected)	
Turbine cut-in speed:	3.0	m/sec	
Map of project footprint and species habitat attached?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

Effects—Explanation of consistency determination with programmatic effects determination of "may affect, not likely to adversely affect" or "no effect": Pre-construction surveys and evaluations did not result in identification of any known or presumed occupied foraging, roosting or commuting habitat for the species. Operation of the Project could impact the northern long-eared bat because there is potential for collisions with turbines if the bat passes through the area during migration and the turbines are operating, resulting in injury or fatality. However, the probable absence of the northern long-eared bats in the study area indicates a low collision risk. The Project site is more than 35 miles from the Missouri River, and the likelihood of hibernacula or suitable habitat decreases with distance from rivers. The nearest hibernaculum is 200 miles away and very few trees are slated for removal. Thus, there is a discountable risk of roost removal or disturbance to individuals during construction. No additional impacts would result from construction, maintenance, or decommissioning of the Project. The Project would immediately report detections of northern long-eared bat injury or mortality to the appropriate USFWS office. Therefore, WAPA has determined the Project may affect, not likely to adversely affect northern long-eared bat.



**Programmatic Biological Assessment Species Consistency Evaluation Form
Upper Great Plains Region Wind Energy Development Program
Impact Information and Consistency Determination**

Whooping crane (*Grus americana*)

Project Name: Sweetland Wind Farm

Company: Sweetland Wind Farm, LLC, 4865 Sterling Drive, Suite 200, Boulder, Colorado 80301

Best Management Practices

- All general BMPs, as stated in the final *Programmatic Environmental Impact Statement for the Upper Great Plains Region Wind Energy Program* and table 4.5-1 of the final *Programmatic Biological Assessment for the Upper Great Plains Region Wind Energy Program*, will be implemented where appropriate, during each phase of the project (i.e., site characterization, construction, operations, and decommissioning). Although not all-inclusive, several of the more important BMPs for the conservation of this species follow.
- The use of guy wires on meteorological towers shall be avoided or minimized. Any needed guy wires shall have guys appropriately marked with approved bird flight diverters.

Species-Specific Avoidance Measures

For projects that occur within the portion of the whooping crane migration corridor that encompasses 95 percent of historic sightings:

- Conduct preconstruction evaluations and/or surveys to identify wetlands that provide potentially suitable stopover habitat and areas of occurrence within project boundaries.
- Do not site turbines, transmission lines, access roads, or other project facilities within 1 mi (1.6 km) of wetlands that provide suitable stopover habitat or within 5 mi (8 km) of the Platte or Niobrara Rivers in Nebraska.
- Do not site turbines, transmission lines, access roads, or other project facilities within 5 mi (8 km) of designated critical habitat.

Species-Specific Minimization Measures

For projects that occur within the portion of the whooping crane migration corridor that encompasses 95 percent of historic sightings:

- Place approved bird flight diverters on the top static wire on any new or upgraded overhead collector, distribution, and transmission lines within 1 mi (1.6 km) of suitable stopover habitat.
- Establish a procedure for preventing whooping crane collisions with turbines during operations by establishing and implementing formal plans for monitoring the project site and surrounding area for whooping cranes during spring and fall migration periods throughout the operational life of the project (or as determined by the local USFWS field office) and shutting down turbines and/or construction activities within 2 mi (3.2 km) of whooping crane sightings. Monitoring can be done by existing onsite personnel trained in whooping crane identification. Specific requirements of the monitoring and shutdown plan will be determined during preconstruction evaluations. Sightings of whooping cranes in the vicinity of projects will be reported to the appropriate USFWS field office immediately.
- Instruct workers in the identification and reporting of sandhill and whooping cranes and to avoid disturbance of cranes present near project areas.
- The acreage of wetlands that are potentially suitable migratory stopover habitat located within a 0.5 mi (0.8 km) radius of turbines may be mitigated based upon site-specific evaluations.

**Programmatic Biological Assessment Species Consistency Evaluation Form
Upper Great Plains Region Wind Energy Development Program
Impact Information and Consistency Determination**

Whooping crane (*Grus americana*)

Impact Information			
Project within county with recorded whooping crane?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Preconstruction evaluations conducted with USFWS?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Dates: 8/7/18
Parties involved: USFWS, WAPA, WEST, BM&D, Hand County, and Sweetland			
Suitable habitat in or near project footprint?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Distance from suitable stopover habitat:	0	Miles	
Distance from designated critical habitat?	249.7	Miles	
Distance from the Platte or Niobrara River?	99.9	Miles (from Niobrara River)	
New overhead distribution/transmission lines proposed?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Distance from suitable stopover habitat?	0	Miles	
Marking with approved bird flight diverters proposed?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Monitoring plan for spring/fall migration (copy attached)?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Employees trained in identification of whooping cranes?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Shut-down protocol for sitings within 2 mi (3.2 km) (attached)?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	
Map of project footprint and species habitat attached?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	

Effects—Explanation of consistency determination with programmatic effects determination of "may affect, not likely to adversely affect" or "no effect": The project area has a low likelihood of occurrence for whooping cranes based on a number of factors, including the project's location, the lack of whooping crane sightings, and the quality of habitat. The project is located in the outer edge (90-95% bands) of the whooping crane flyway and has been sited away from areas with the highest potential use. Historical sightings in Hand County since 2012 are 8–12 mi away from project facilities and represent a single stopover event with no sightings in the project area from recent studies. No high-use areas are located within 1 mile of the Project facilities. No mortality of sandhill cranes (a comparable species) have been observed when habitat use areas are greater than 0.99 mile from existing power lines (at this distance individuals cross the power lines at sufficient altitudes to avoid a strike). It is assumed that whooping cranes would respond similarly.

This lack of previous use may be attributable to either an abundance of potentially suitable habitat on the landscape that is readily available to migrating whooping cranes or the absence of habitat features in the Project that would attract migrating whooping cranes. Extensive suitable habitat occurs outside the project area while only a minority (13.6%) of wetlands in the project area may provide suitable habitat. Project turbines are located in habitats modeled to have a low (76% of turbines) or medium (24% of turbines) probability of whooping crane occurrence. Some project facilities would be sited within 1 mi of wetlands that may provide suitable habitat, however, these are not high use areas and only one suitable wetland would be spanned by the gen-tie line. Bird flight diverters will be applied to the entire gen-tie line and maintained throughout the life of the project.

Although historical occurrences may not be an accurate predictor of whooping crane use in the future, the above data, which represent the best available science, suggest the proposed power lines present a significantly lower risk of collision than power lines placed in high-use areas documented within the migration corridor. The risk of collisions with power lines would be further minimized by the planned use and maintenance of bird flight diverters. No whooping crane fatalities have been documented at wind facilities in the U.S. to date, and a whooping crane monitoring plan and shut-down protocol will be implemented for the life of the project to minimize the likelihood of collisions.

The Project's wind turbines and new power lines could lead to a negligible increase in collision risk to migrating whooping cranes, however, risk based upon the best available science coupled with the conservation measures proposed for the project lead to the determination of a very low level of risk. Effects, if any, to migrating whooping cranes resulting from the construction and operation of the proposed power lines and turbines would be insignificant and discountable. Based on these factors, the Project may effect, but is not likely to adversely affect this species.

**WHOOPING CRANE MONITORING PLAN
AND SHUT-DOWN PROTOCOL
SWEETLAND WIND ENERGY PROJECT,
Hand County, South Dakota**

Prepared for:

Sweetland Wind Farm, LLC

4865 Sterling Drive, Suite 200
Boulder, Colorado 80301

Prepared by:

Western EcoSystems Technology, Inc.

September 13, 2019



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1 INTRODUCTION

Sweetland Wind Farm, LLC (Sweetland) is proposing to develop the Sweetland Wind Energy Project (Project) in Hand County, South Dakota (Figure 1). As currently proposed, the Project would have a generation capacity of approximately 200 megawatts (MW), consisting of up to 71 GE 2.8/1272 wind turbines encompassing approximately 20,979 acres. The Project would also include electric underground collection lines and communication lines, a transmission line, a Project substation, a switchyard, an Operations and Maintenance (O&M) facility, access roads connecting turbines and associated facilities, up to four permanent meteorological towers, an Aircraft-Detection Lighting System (ADLS), and a temporary laydown yard (Burns and McDonnell Engineering Company, Inc. [BMEC] 2019).

The Project is located within the migration corridor of the whooping crane (*Grus americana*). Sweetland conducted a stopover habitat assessment to identify suitable wetlands for whooping cranes (Figure 2). Niemuth et al. 2018 created a predictive map of relative probability of occurrence by cranes using GIS data layers. Those layers were overlaid on the Project (Figure 3). The research conducted by Neimuth and the TWI model stopover habitat assessment show similar results. Suitable stopover habitat for whooping cranes occurs in limited amounts within the Project and with low probability of occurrence when compared to the surrounding landscape.

Sweetland has developed migration monitoring and voluntary shut-down protocols to minimize potential impacts to whooping cranes, discussed further below. This study plan is based on commitments contained in the Application to South Dakota Public Utilities Commission for Facility Permits (BMEC 2019), Sweetland Wind Farm Project Draft Environmental Assessment (U.S. Department of Energy Western Area Power Administration 2019), and Sweetland Bird and Bat Conservation Strategy (BBCS).

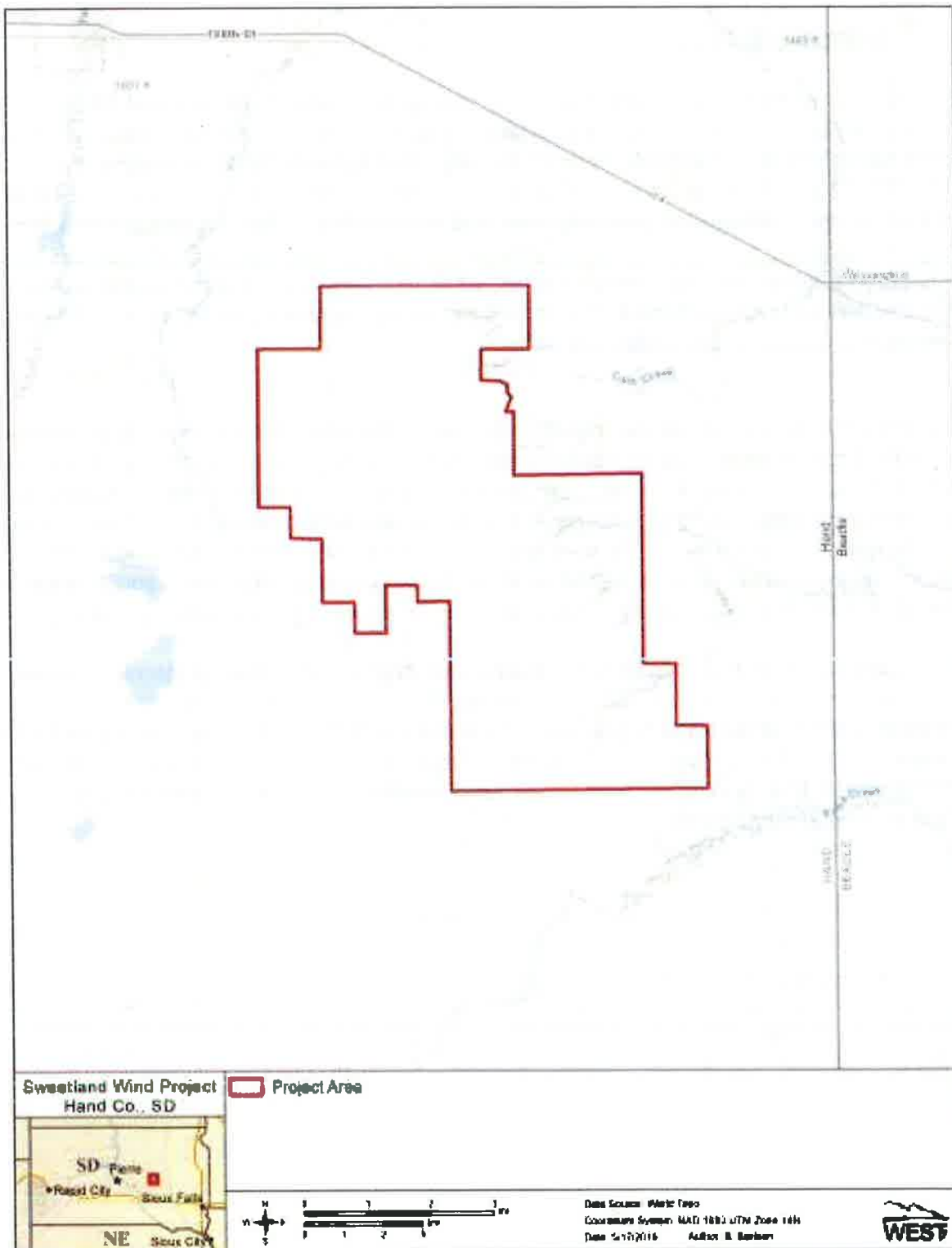


Figure 1. Location of the Sweetland Wind Energy Project, Hand County, South Dakota.

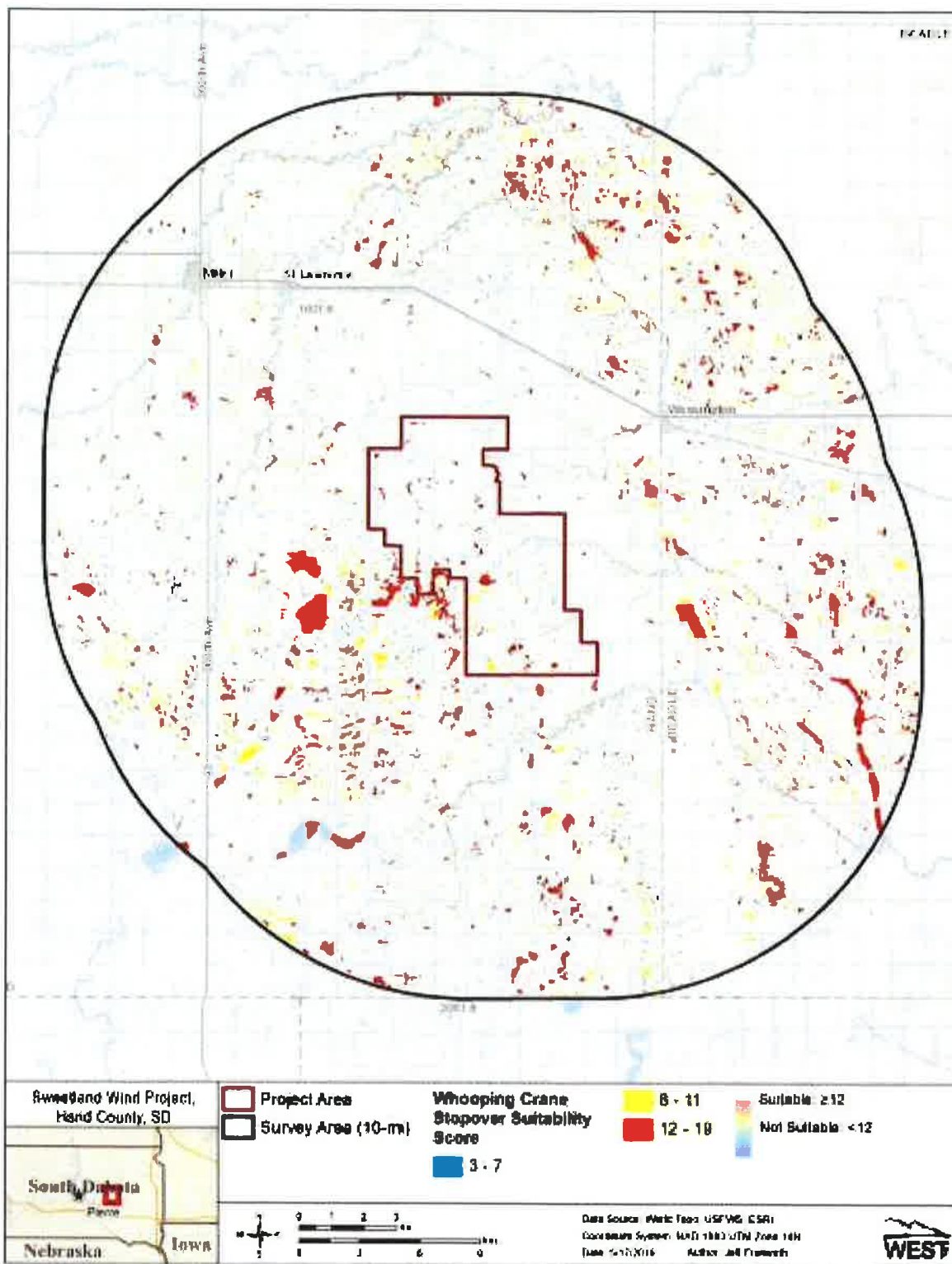


Figure 2. Suitable whooping crane stopover habitat wetland scores for the Sweetland Wind Energy Project using the The Watershed Institute model.

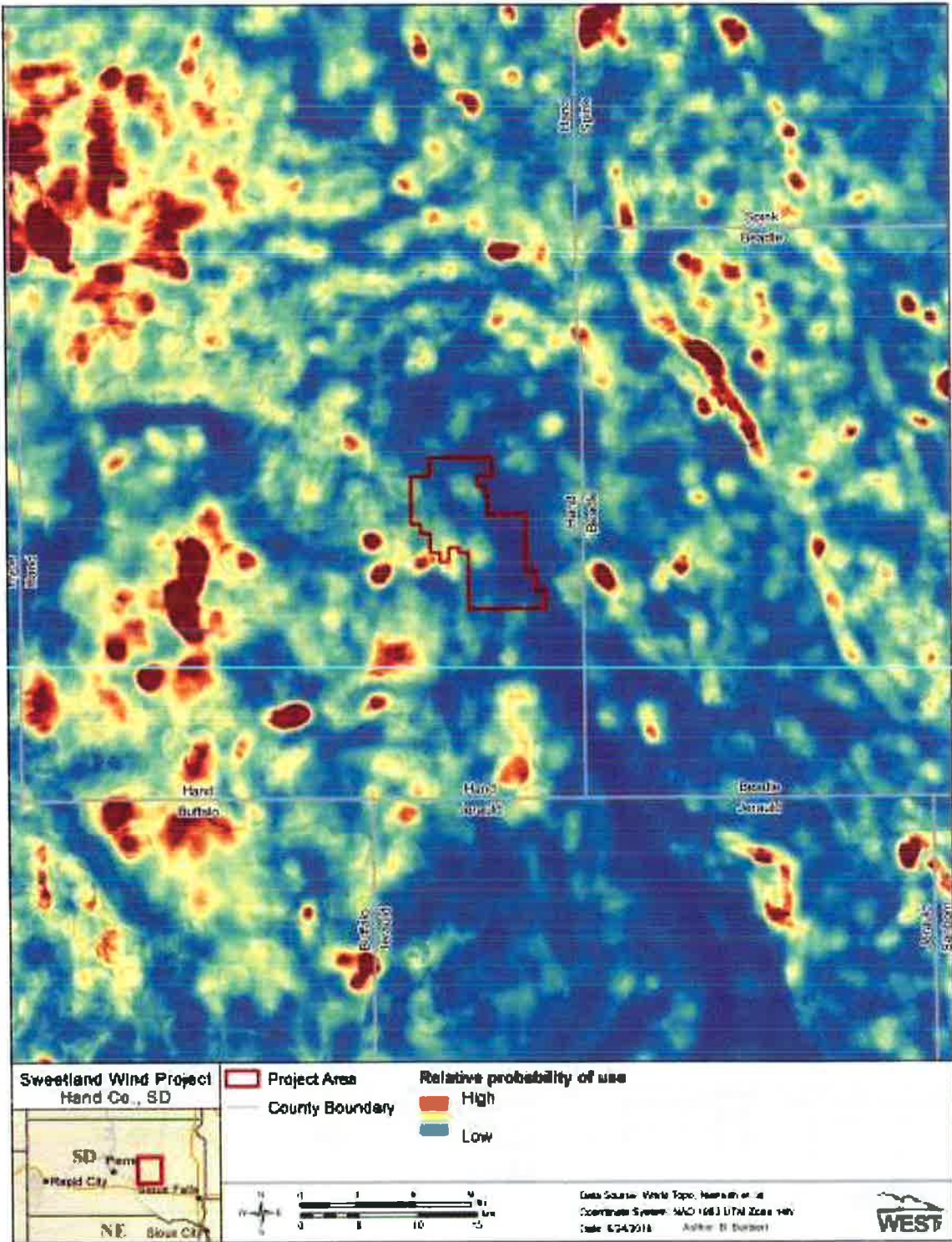


Figure 3. Relative probability of whooping crane occurrence within the Sweetland Wind Project based on Niemuth et al. 2018 data layers.

2 WHOOPING CRANE MONITORING

Monitoring of whooping cranes will be conducted daily during the spring and fall migration seasons during construction or operations of the Project. The spring migration season is defined as approximately April 1 to May 15, and the fall migration season is September 10 to October 31. Nebraska Ecological Services Field Office will be contacted to better understand the timing of the annual whooping crane migration. Monitoring will take place between sunrise and 10:30 a.m. and from 4:00 p.m. to sunset, for a total of approximately 5.5 hours per day. Construction Manager or Site Manager or their designees will drive along public roads and Project access roads within two miles of turbine locations and scan the skies, open fields, grasslands, wetlands, and other open areas for the presence of cranes, using binoculars or a spotting scope. If any whooping cranes are detected, the number of cranes, UTM location coordinates, and behaviors will be recorded, along with maps depicting any flight paths in the Project Area. Any flocks of sandhill cranes (*Grus canadensis*) also will be monitored and examined closely because whooping cranes sometimes travel with sandhill cranes.

The whooping crane monitoring applies to both construction and operation periods as outlined below:

- Construction Manager or their designee will conduct construction monitoring during the above defined spring and fall migration seasons, and stop construction activities (see shut-down protocol below) within 2 mi of observed whooping cranes until the crane leaves.
- Site Manager or their designee will conduct operational monitoring during the above defined spring and fall migration seasons, operations staff will be trained to identify whooping cranes, and if any are noted in the Project Area, turbines will be shut-down (see shut-down protocol below) within 2 mi of the crane until it leaves.

3 WHOOPING CRANE SHUT-DOWN PROTOCOL

Construction and Operations and Maintenance (O&M) personnel will be made aware of potential for the species to occur during spring and fall migration and the process to follow if a whooping crane is believed to have been observed in the Project Area. A whooping crane identification poster will be permanently posted in the O&M facility for reference.

If construction personnel observe a crane(s) within 2 mi of the Project Area, the Construction Manager or their designee will halt construction activities within 2 mi of the observed crane(s) until cranes(s) are greater than 2 mi away. Sweetland will inform the agencies of any whooping crane observations.

Similarly, if operations personnel observe a crane(s) within 2 mi of the Project Area, the Site Manager or their designee will halt all turbine operations within 2 mi of the observed crane(s) until cranes(s) are greater than 2 mi away. Sweetland will inform the agencies of any whooping crane observations and any corresponding shut-downs of turbines.

4 REFERENCES

- ArcGIS. GIS Software. ArcGIS 10.2. ESRI, Redlands, California.
- Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell). 2019. Application to the South Dakota Public Utilities Commission for Facility Permits. Sweetland Wind Farm, LLC, Sweetland Wind Farm Project, Hand County, South Dakota. Burns & McDonnell Project No. 10 3828. Prepared by Burns & McDonnell Engineering Company, Inc., Centennial, Colorado. March 6, 2019. 29 pp.
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- Niemuth, N. D., A. J. Ryba, A. T. Pearse, S. M. Kvas, D. A. Brandt, B. Wangler, J. E. Austin, and M. J. Carlisle. 2018. Opportunistically Collected Data Reveal Habitat Selection by Migrating Whooping Cranes in the U.S. Northern Plains. *Condor* 120(2): 343-356. doi: 10.1650/CONDOR-17-80.1.
- North American Datum (NAD). 1983. Nad83 Geodetic Datum.
- The Watershed Institute, Inc. (TWI) 2012. Potentially suitable habitat assessment for the whooping crane (*Grus americana*). Topeka, KS.
- US Department of Energy (DOE) Western Area Power Administration. 2019. Sweetland Wind Farm Project Draft Environmental Assessment. DOE/EA 2095. May 14, 2019.

**APPENDIX M – WHOOPING CRANE MONITORING PLAN AND SHUT-DOWN
PROTOCOL**

**WHOOPING CRANE MONITORING PLAN
AND SHUT-DOWN PROTOCOL
SWEETLAND WIND ENERGY PROJECT,
Hand County, South Dakota**

Prepared for:

Sweetland Wind Farm, LLC

4865 Sterling Drive, Suite 200
Boulder, Colorado 80301

Prepared by:

Western EcoSystems Technology, Inc.

September 13, 2019



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1 INTRODUCTION

Sweetland Wind Farm, LLC (Sweetland) is proposing to develop the Sweetland Wind Energy Project (Project) in Hand County, South Dakota (Figure 1). As currently proposed, the Project would have a generation capacity of approximately 200 megawatts (MW), consisting of up to 71 GE 2.8/1272 wind turbines encompassing approximately 20,979 acres. The Project would also include electric underground collection lines and communication lines, a transmission line, a Project substation, a switchyard, an Operations and Maintenance (O&M) facility, access roads connecting turbines and associated facilities, up to four permanent meteorological towers, an Aircraft-Detection Lighting System (ADLS), and a temporary laydown yard (Burns and McDonnell Engineering Company, Inc. [BMEC] 2019).

The Project is located within the migration corridor of the whooping crane (*Grus americana*). Sweetland conducted a stopover habitat assessment to identify suitable wetlands for whooping cranes (Figure 2). Niemuth et al. 2018 created a predictive map of relative probability of occurrence by cranes using GIS data layers. Those layers were overlaid on the Project (Figure 3). The research conducted by Neimuth and the TWI model stopover habitat assessment show similar results. Suitable stopover habitat for whooping cranes occurs in limited amounts within the Project and with low probability of occurrence when compared to the surrounding landscape.

Sweetland has developed migration monitoring and voluntary shut-down protocols to minimize potential impacts to whooping cranes, discussed further below. This study plan is based on commitments contained in the Application to South Dakota Public Utilities Commission for Facility Permits (BMEC 2019), Sweetland Wind Farm Project Draft Environmental Assessment (U.S. Department of Energy Western Area Power Administration 2019), and Sweetland Bird and Bat Conservation Strategy (BBCS).

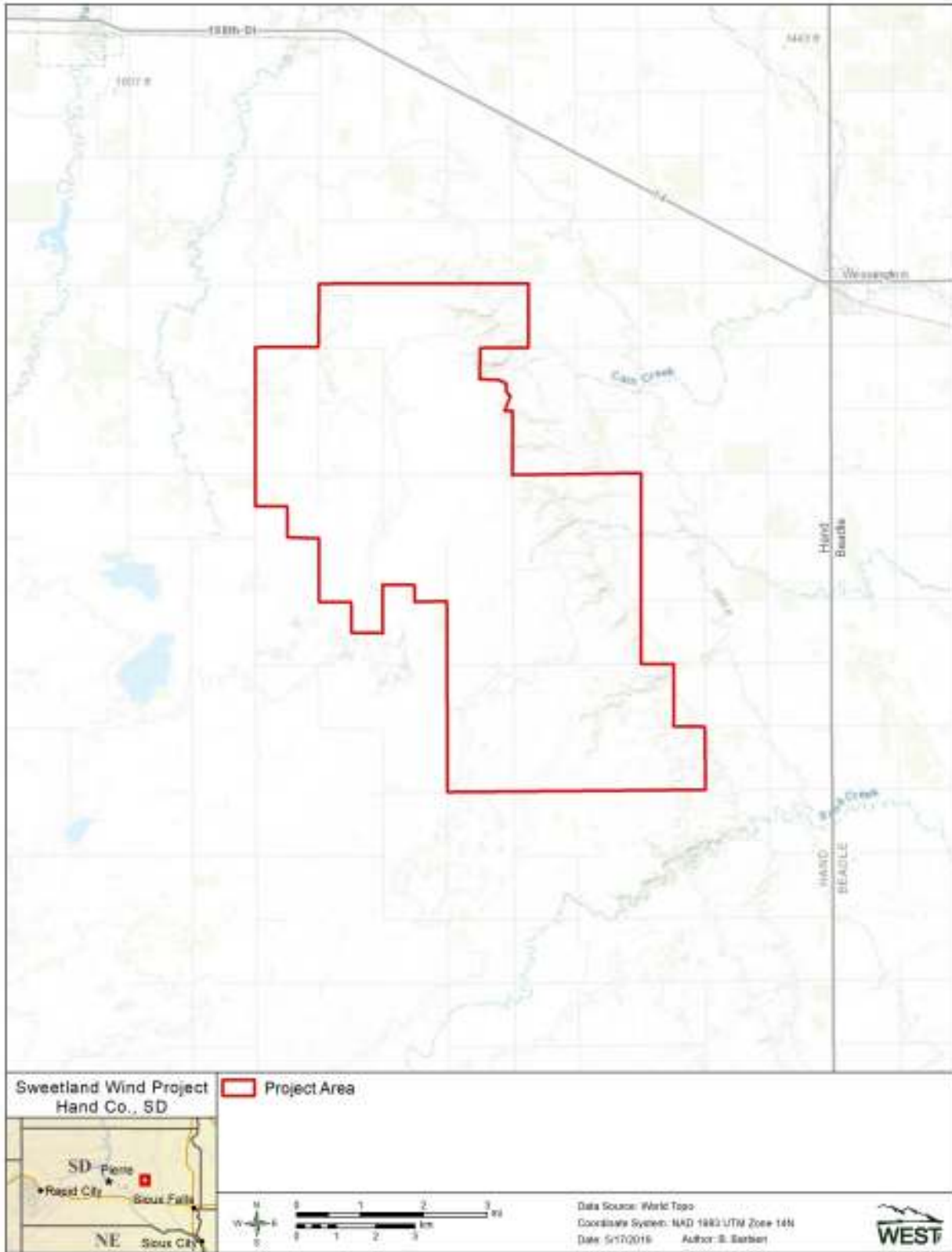


Figure 1. Location of the Sweetland Wind Energy Project, Hand County, South Dakota.

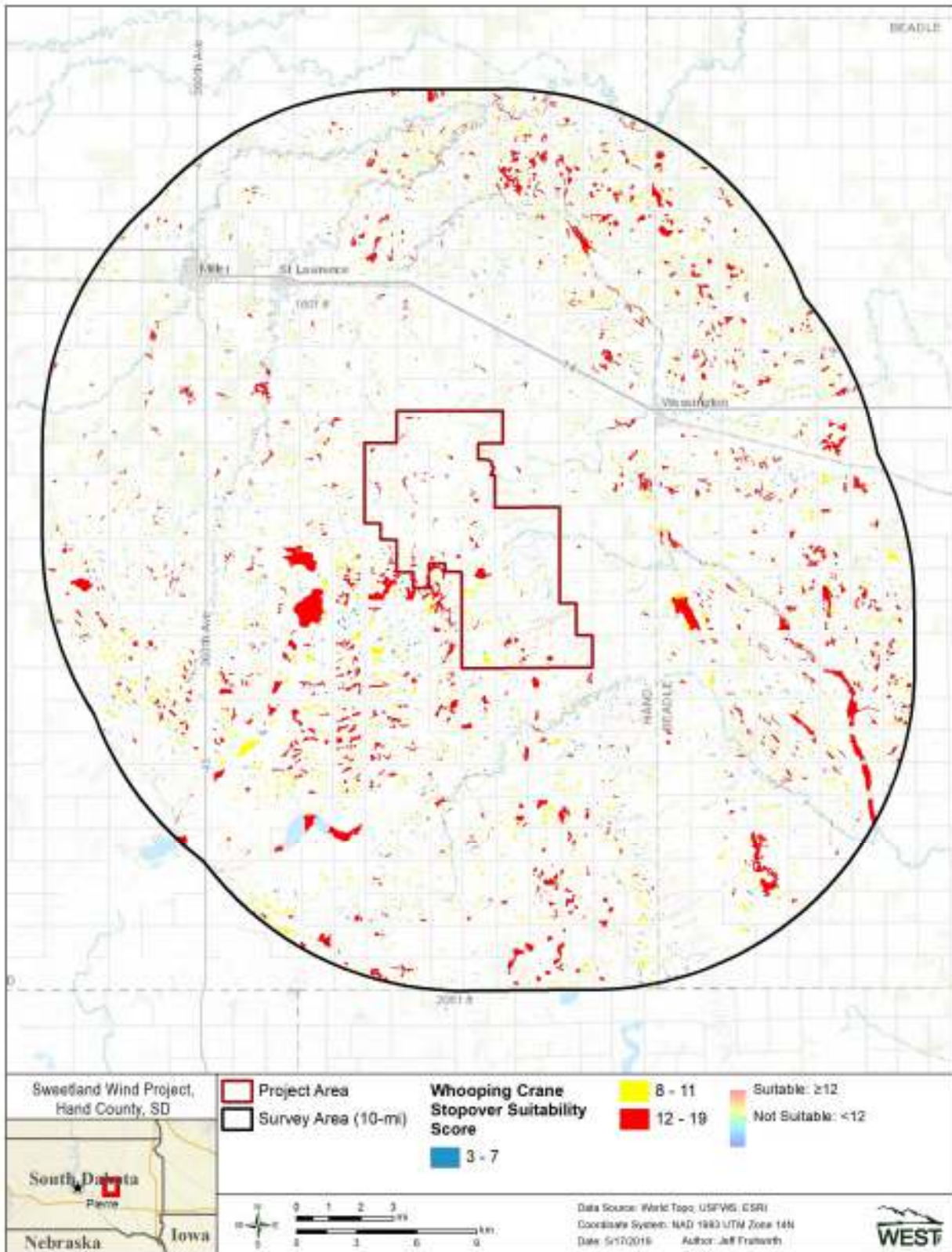


Figure 2. Suitable whooping crane stopover habitat wetland scores for the Sweetland Wind Energy Project using the The Watershed Institute model.

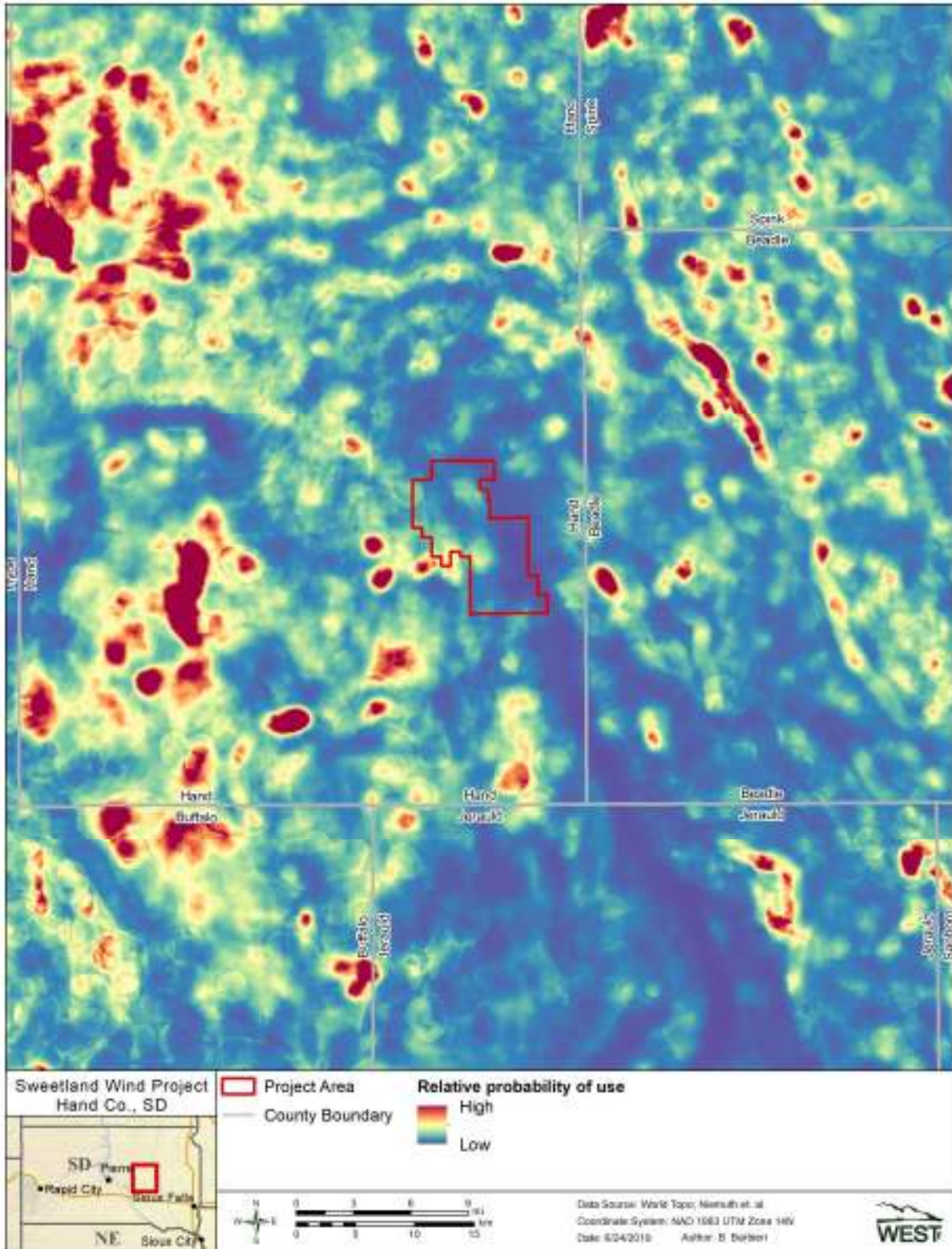


Figure 3. Relative probability of whooping crane occurrence within the Sweetland Wind Project based on Niemuth et al. 2018 data layers.

2 WHOOPING CRANE MONITORING

Monitoring of whooping cranes will be conducted daily during the spring and fall migration seasons during construction or operations of the Project. The spring migration season is defined as approximately April 1 to May 15, and the fall migration season is September 10 to October 31. Nebraska Ecological Services Field Office will be contacted to better understand the timing of the annual whooping crane migration. Monitoring will take place between sunrise and 10:30 a.m. and from 4:00 p.m. to sunset, for a total of approximately 5.5 hours per day. Construction Manager or Site Manager or their designees will drive along public roads and Project access roads within two miles of turbine locations and scan the skies, open fields, grasslands, wetlands, and other open areas for the presence of cranes, using binoculars or a spotting scope. If any whooping cranes are detected, the number of cranes, UTM location coordinates, and behaviors will be recorded, along with maps depicting any flight paths in the Project Area. Any flocks of sandhill cranes (*Grus canadensis*) also will be monitored and examined closely because whooping cranes sometimes travel with sandhill cranes.

The whooping crane monitoring applies to both construction and operation periods as outlined below:

- Construction Manager or their designee will conduct construction monitoring during the above defined spring and fall migration seasons, and stop construction activities (see shut-down protocol below) within 2 mi of observed whooping cranes until the crane leaves.
- Site Manager or their designee will conduct operational monitoring during the above defined spring and fall migration seasons, operations staff will be trained to identify whooping cranes, and if any are noted in the Project Area, turbines will be shut-down (see shut-down protocol below) within 2 mi of the crane until it leaves.

3 WHOOPING CRANE SHUT-DOWN PROTOCOL

Construction and Operations and Maintenance (O&M) personnel will be made aware of potential for the species to occur during spring and fall migration and the process to follow if a whooping crane is believed to have been observed in the Project Area. A whooping crane identification poster will be permanently posted in the O&M facility for reference.

If construction personnel observe a crane(s) within 2 mi of the Project Area, the Construction Manager or their designee will halt construction activities within 2 mi of the observed crane(s) until cranes(s) are greater than 2 mi away. Sweetland will inform the agencies of any whooping crane observations.

Similarly, if operations personnel observe a crane(s) within 2 mi of the Project Area, the Site Manager or their designee will halt all turbine operations within 2 mi of the observed crane(s) until cranes(s) are greater than 2 mi away. Sweetland will inform the agencies of any whooping crane observations and any corresponding shut-downs of turbines.

4 REFERENCES

ArcGIS. GIS Software. ArcGIS 10.2. ESRI, Redlands, California.

Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell). 2019. Application to the South Dakota Public Utilities Commission for Facility Permits. Sweetland Wind Farm, LLC, Sweetland Wind Farm Project, Hand County, South Dakota. Burns & McDonnell Project No. 10 3828. Prepared by Burns & McDonnell Engineering Company, Inc., Centennial, Colorado. March 6, 2019. 29 pp.

ESRI. 2019. World Imagery and Aerial Photos. (World Topo). ArcGIS Resource Center. Environmental Systems Research Institute (ESRI), producers of ArcGIS software. Redlands, California. Information online: <http://www.arcgis.com/home/webmap/viewer.html?useExisting=1>

Niemuth, N. D., A. J. Ryba, A. T. Pearse, S. M. Kvas, D. A. Brandt, B. Wangler, J. E. Austin, and M. J. Carlisle. 2018. Opportunistically Collected Data Reveal Habitat Selection by Migrating Whooping Cranes in the U.S. Northern Plains. *Condor* 120(2): 343-356. doi: 10.1650/CONDOR-17-80.1.

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APPENDIX N – SHADOW FLICKER REPORT

SHADOW FLICKER ANALYSIS REPORT

Sweetland Wind Project Hand County, South Dakota

Prepared for:

Scout Clean Energy

4865 Sterling Drive, Suite 200
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Prepared by:



Epsilon Associates, Inc.

3 Mill & Main Place, Suite 250
Maynard, MA 01754

March 5, 2019

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1.0 EXECUTIVE SUMMARY

The Sweetland Wind Farm, LLC (the Project) is a proposed wind power electric generation facility expected to consist of up to 71 wind turbines in Hand County, South Dakota. The Project is being developed by Scout Clean Energy, LLC (SCE). Epsilon Associates, Inc. (Epsilon) has been retained by SCE to conduct a shadow flicker modeling study for the Project. This report presents results of the study.

Shadow flicker modeling was conservatively conducted for 86 turbines, including 15 alternates. All wind turbines for this Project are proposed to be General Electric (GE) 2.82-127 units. The purpose of this assessment is to predict the expected annual duration of shadow flicker at modeled locations in the vicinity of the Project due to the operation of the proposed wind turbines and to evaluate the Project with respect to the shadow flicker requirements in the Hand County Development Agreement (Development Agreement).

Using the Project specific data provided by SCE, the annual expected duration of shadow flicker was modeled at all occupied residences in the vicinity of the Project. The maximum expected annual flicker resulting from the operation of the proposed and alternate wind turbines is 55 hours, 23 minutes. This occurs at a participating receptor. The maximum expected annual flicker at a non-participating receptor is 9 hours, 16 minutes. The maximum expected annual flicker at a receptor with pending participation is 14 hours, 49 minutes. There is a total of four receptors predicted to have over 30 hours of annual flicker and all four receptors are participating. It is Epsilon's understanding that waivers will be acquired for these receptors. Therefore, the Project meets the requirements with respect to shadow flicker in the Development Agreement.

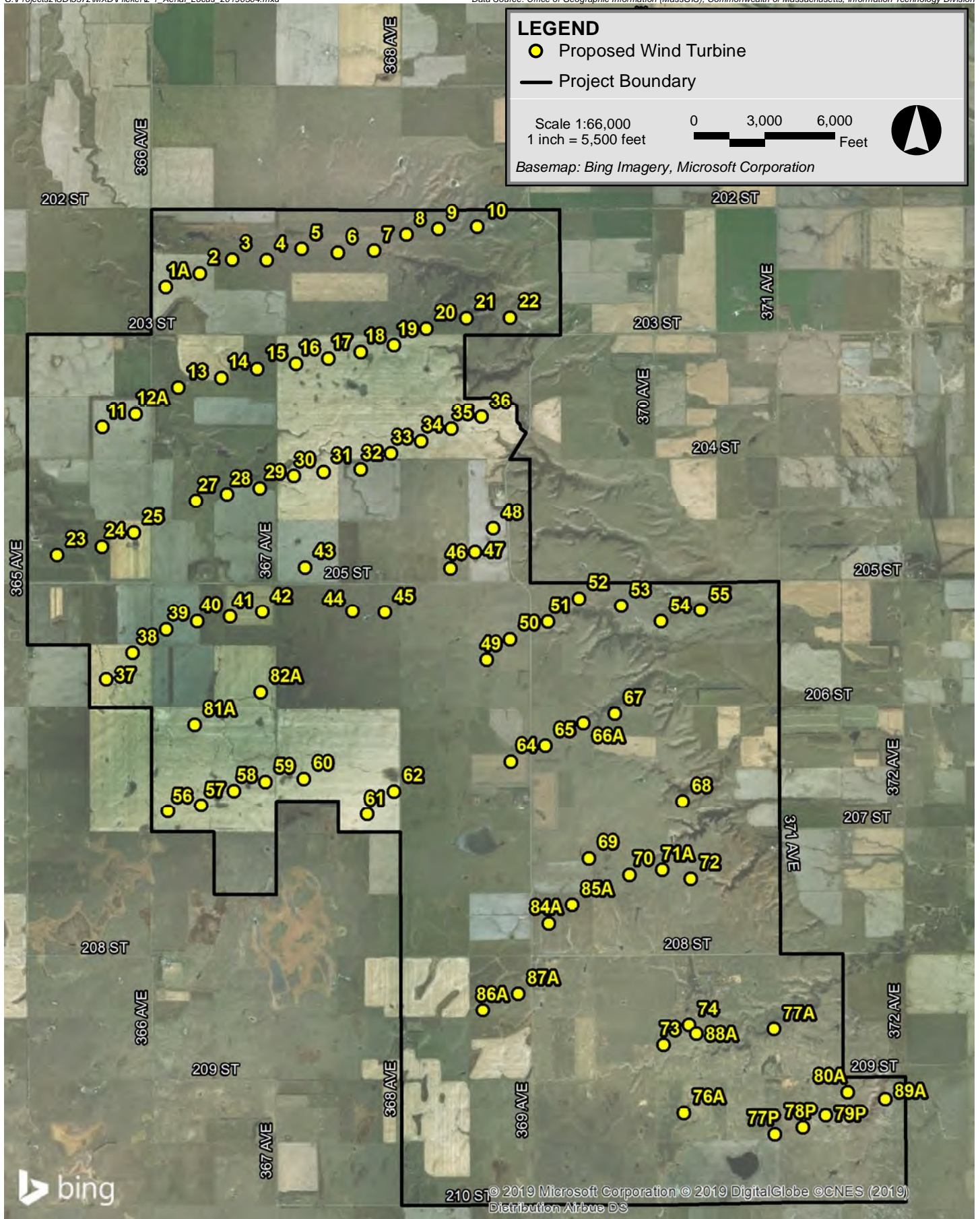
The modeling results are conservative in that modeling receptors were treated as "greenhouses", i.e. there was a window on each side of a building, and the surrounding area was assumed to be without vegetation or structures ("bare earth").

2.0 INTRODUCTION

The Project is located in Hand County, South Dakota, consisting of 71 GE wind turbines. A total of 15 alternate wind turbine locations are also proposed for the Project. The wind turbines will be GE 2.82-127 units with a rotor diameter of 127 meters. A total of 64 primary and 9 alternate wind turbines are proposed to have a hub height of 114 meters and a total of 7 primary and 6 alternate wind turbines are proposed to have a hub height of 89 meters. Figure 2-1 shows the locations of the 71 proposed and 15 alternate wind turbines and the Project boundary over aerial imagery in Hand County.

With respect to wind turbines, shadow flicker can be defined as an intermittent change in the intensity of light in a given area resulting from the operation of a wind turbine due to its interaction with the sun. While indoors, an observer experiences repeated changes in the brightness of the room as shadows cast from the wind turbine blades briefly pass by windows as the blades rotate. In order for this to occur, the wind turbine must be operating, the sun must be shining, and the window must be within the shadow region of the wind turbine, otherwise there is no shadow flicker. A stationary wind turbine only generates a stationary shadow similar to any other structure.

The wind turbines were modeled with the WindPRO software package using information provided by SCE. The expected annual duration of shadow flicker was calculated at discrete receptor points and shadow flicker isolines for the area surrounding the Project were generated. The results of this analysis are found within this report.



Sweetland Wind Hand County, South Dakota

3.0 REGULATIONS

3.1 Federal Regulations

There are no federal shadow flicker regulations applicable to this Project.

3.2 South Dakota State Regulations

There are no state shadow flicker regulations applicable to this Project.

3.3 Hand County Regulations

Hand County currently has no zoning ordinance containing language regulating shadow flicker. However, the Hand County Development Agreement was executed on December 4, 2018 with Sweetland Wind Farm, LLC. The Project is therefore subject to the following shadow flicker requirement per the agreement:

Developer agrees to site Project wind turbines so as to limit shadow flicker resulting from Project wind turbines at currently occupied residences to 30 hours per year or less, unless waived in writing by the owner of the occupied residence.

All receptors (occupied residences) have been evaluated in this analysis against the 30 hour per year limit.

4.0 SHADOW FLICKER MODELING

4.1 Modeling Methodology

Shadow flicker was modeled using a software package, WindPRO version 3.2.737. WindPRO is a software suite developed by EMD International A/S and is used for assessing potential environmental impacts from wind turbines. Using the Shadow module within WindPRO, worst-case shadow flicker in the area surrounding the wind turbines was calculated based on data inputs including:

- ◆ location of the wind turbines,
- ◆ location of discrete modeling points,
- ◆ wind turbine dimensions,
- ◆ shadow flicker calculation distance limits, and
- ◆ terrain data.

Based on these data, the model was able to incorporate the appropriate sun angle and maximum daily sunlight for this latitude into the calculations. The resulting worst-case calculations assume that the sun is always shining during daylight hours and that the wind turbine is always operating. The WindPRO Shadow module can be further refined by incorporating sunshine probabilities and wind turbine operational estimates by wind direction over the course of a year. The values produced by this further refinement, also known as the “expected” shadow flicker, are presented in this report.

The proposed wind turbine layout for the Project dated February 6, 2019 was provided by SCE. Of the 86 conservatively modeled wind turbines, 15 are alternative wind turbine locations. Locations of the turbines are shown in Figure 4-1 and the coordinates are provided in Appendix A. All wind turbines are GE 2.82-127 units with a rotor diameter of 127 meters. A total of 64 primary and 9 alternate wind turbines are proposed to have a hub height of 114 meters and a total of 7 primary and 6 alternate wind turbines are proposed to have a hub height of 89 meters. The hub height of each wind turbine in the layout is included in Appendix A. Each wind turbine has the following characteristics based on the technical data provided by SCE:

		<u>GE 2.82-127</u>
◆ Rated Power	=	2,820 kW
◆ Hub Height	=	89 or 114 meters
◆ Rotor Diameter	=	127 meters
◆ Cut-in Wind Speed	=	3 m/s
◆ Cut-out Wind Speed	=	30 m/s

To-date, there are no federal, state, or local regulations regarding the maximum radial distance from a wind turbine to which shadow flicker should be analyzed applicable to this Project. In the United States, shadow flicker is commonly evaluated out to a distance of ten

times the rotor diameter. According to the Massachusetts Model Bylaw for wind energy facilities, shadow flicker impacts are minimal at and beyond a distance of ten rotor diameters.¹ Defining the shadow flicker calculation area has also been addressed in Europe where the ten times rotor diameter approach has been accepted in multiple European countries.² Some jurisdictions conservatively require a larger calculation area. The New Hampshire Site Evaluation Committee through rulemaking docket 2014-04 adopted rules on December 15, 2015 outlining application requirements and criteria for energy facilities, including wind energy facilities. As part of these revised regulations, Site 301.08(a)(2) requires an evaluation distance of at least 1 mile from a wind turbine.³ Section 16-50j-94, part (g), of the Regulations of Connecticut State Agencies identifies the components required in a shadow flicker evaluation report which includes the calculation of shadow flicker from each proposed wind turbine to any off-site occupied structure within a 1.25 mile radius.⁴ For this Project, ten times the rotor diameter of the proposed wind turbine corresponds to a distance of 0.79 miles (1,270 m). Conservatively, this analysis includes shadow flicker calculations out to 1.25 miles (2,012 m) from each wind turbine in the model for the proposed layout.

A modeling receptor dataset was provided by SCE for occupied residences in Hand County within ~4 miles of any proposed wind turbine on January 2, 2019. A total of 41 receptors from this dataset were input into the model.⁵ These were all modeled as discrete points and are shown on Figure 4-1. Each modeling point was assumed to have a window facing all directions (“greenhouse” mode) which yields conservative results. Participation status for each of the 41 modeling receptors was assigned based on the parcel data provided by SCE on January 7, 2019. Parcels identified as Wind Lease and Easement Agreement (“Controlled Land”) and Good Neighbor Agreements (“GNA”) within the dataset have been considered participating parcels. Participating parcels within the Project boundary are indicated on Figure 4-1.⁶ Parcels containing wind turbines that were not identified as ‘Controlled Land’ or ‘GNA’ have been given “pending participation” status and are indicated as such on the figure. All other parcels are considered non-participating properties. All receptors are

¹ Massachusetts Department of Energy Resources, “Model As-of-Right Zoning Ordinance or Bylaw: Allowing Use of Wind Energy Facilities” 2009.

² Parsons Brinckerhoff, “Update of UK Shadow Flicker Evidence Base” Prepared for Department of Energy and Climate Change, 2011.

³ State of New Hampshire Site Evaluation Committee Site 300 Rules (2015), available at http://www.gencourt.state.nh.us/rules/state_agencies/site100-300.html Accessed in January 2019.

⁴ State of Connecticut CSC Wind Regulations (2014), available at <https://www.cga.ct.gov/asp/CGARegulations/CGARegulations.aspx?Yr=2014&Reg=2012-054&Amd=E> Accessed in January 2019.

⁵ The original dataset contained 42 receptors; however, it was later determined that one of the receptors was not an occupied residence, as confirmed by the Hand County Tax Assessor on February 1, 2019. This receptor was excluded from the model.

⁶ Participating parcels that extend beyond the Project boundary have been excluded from figures.

indicated as either participating, pending participation, or non-participating on Figure 4-1. The model was set to limit calculations to 2,012 meters from a wind turbine, the equivalent of 1.25 miles. Consequently, shadow flicker at any of the 41 modeling receptors greater than the corresponding limitation distance from a wind turbine was zero. In addition to modeling discrete receptors, shadow flicker was calculated at grid points in the area surrounding the modeled wind turbines to generate flicker isolines. A 20-meter spacing was used for this grid.

The terrain height contour elevations for the modeling domain were generated from elevation information derived from the National Elevation Dataset (NED) developed by the U.S. Geological Survey. Conservatively, obstacles, i.e. buildings and vegetation, were excluded from the analysis. This is effectively a “bare earth” scenario which is conservative. When accounted for in the shadow flicker calculations, such obstacles may significantly mitigate or eliminate the flicker effect depending on their size, type, and location. In addition, shadow flicker durations were calculated only when the angle of the sun was at least 3° above the horizon.

Monthly sunshine probability values were input for each month from January to December. These numbers were obtained from a publicly available historical dataset for Huron, South Dakota from the National Oceanic and Atmospheric Administration’s (NOAA) National Centers for Environmental Information (NCEI).⁷ Table 4-1 shows the percentage of sunshine hours by month used in the shadow flicker modeling. These values are the percentages that the sun is expected to be shining during daylight hours.

The number of hours the wind turbines are expected to operate for the 16 cardinal wind directions was input into the model. The number of operational hours per wind direction sector was provided by SCE for a 114-meter height, which were conservatively used in the model for all wind turbines. Operational hours at an 89-meter height would be fewer. These hours per wind direction sector are used by WindPRO to estimate the “wind direction” and “operation time” reduction factors. Based on this dataset, the wind turbines would operate 90% of the year due to cut-in and cut-out specifications of the proposed unit. Table 4-2 shows the distribution of operational hours for the 16 wind directions.

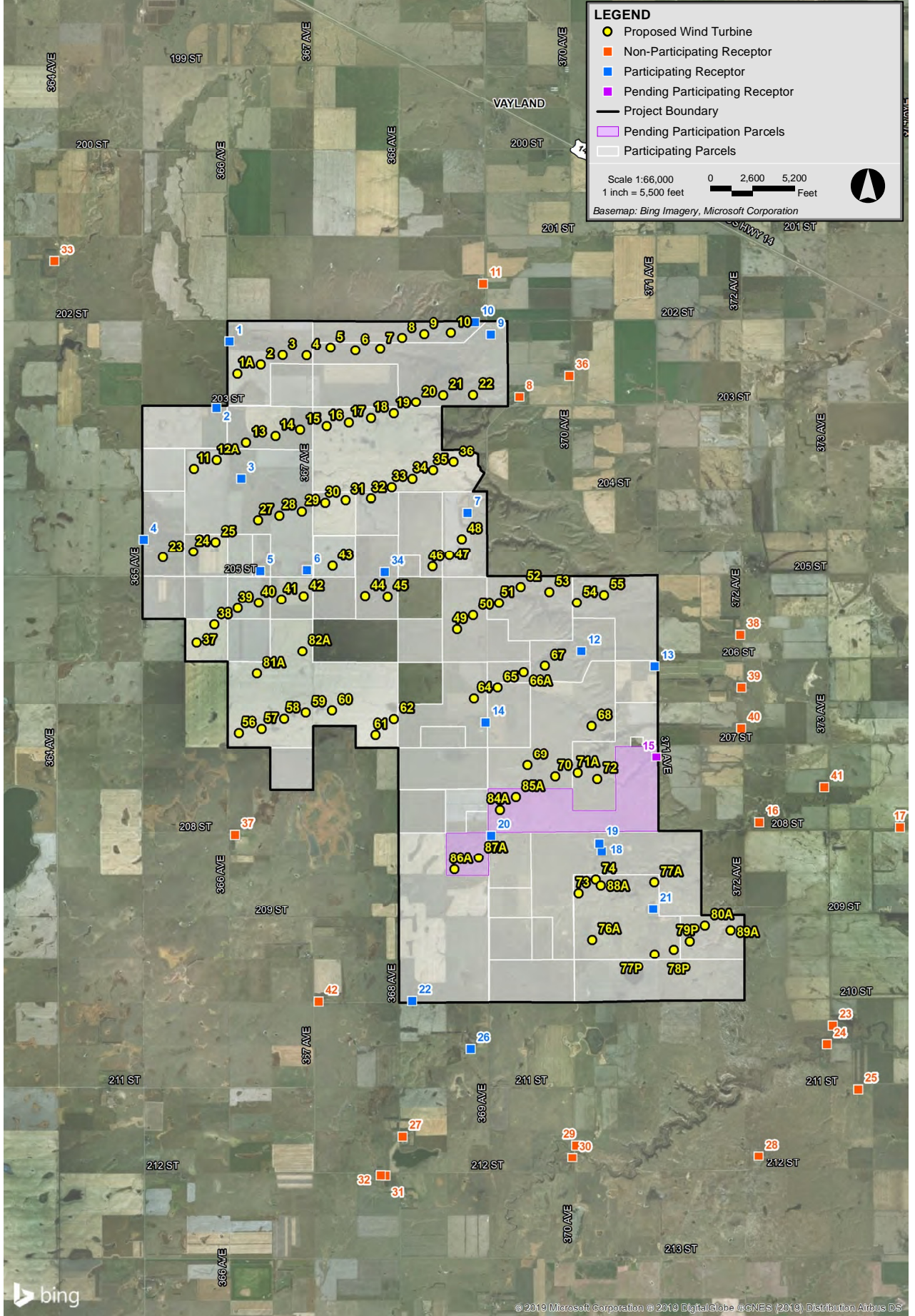
⁷ NCEI (formerly NCDC), <http://www1.ncdc.noaa.gov/pub/data/ccd-data/pctpos15.dat>. Accessed in February 2019.

Table 4-1 Monthly Percent of Possible Sunshine

Month	Possible Sunshine
January	62%
February	62%
March	62%
April	59%
May	66%
June	69%
July	76%
August	74%
September	69%
October	59%
November	51%
December	51%

Table 4-2 Operational Hours per Wind Direction Sector

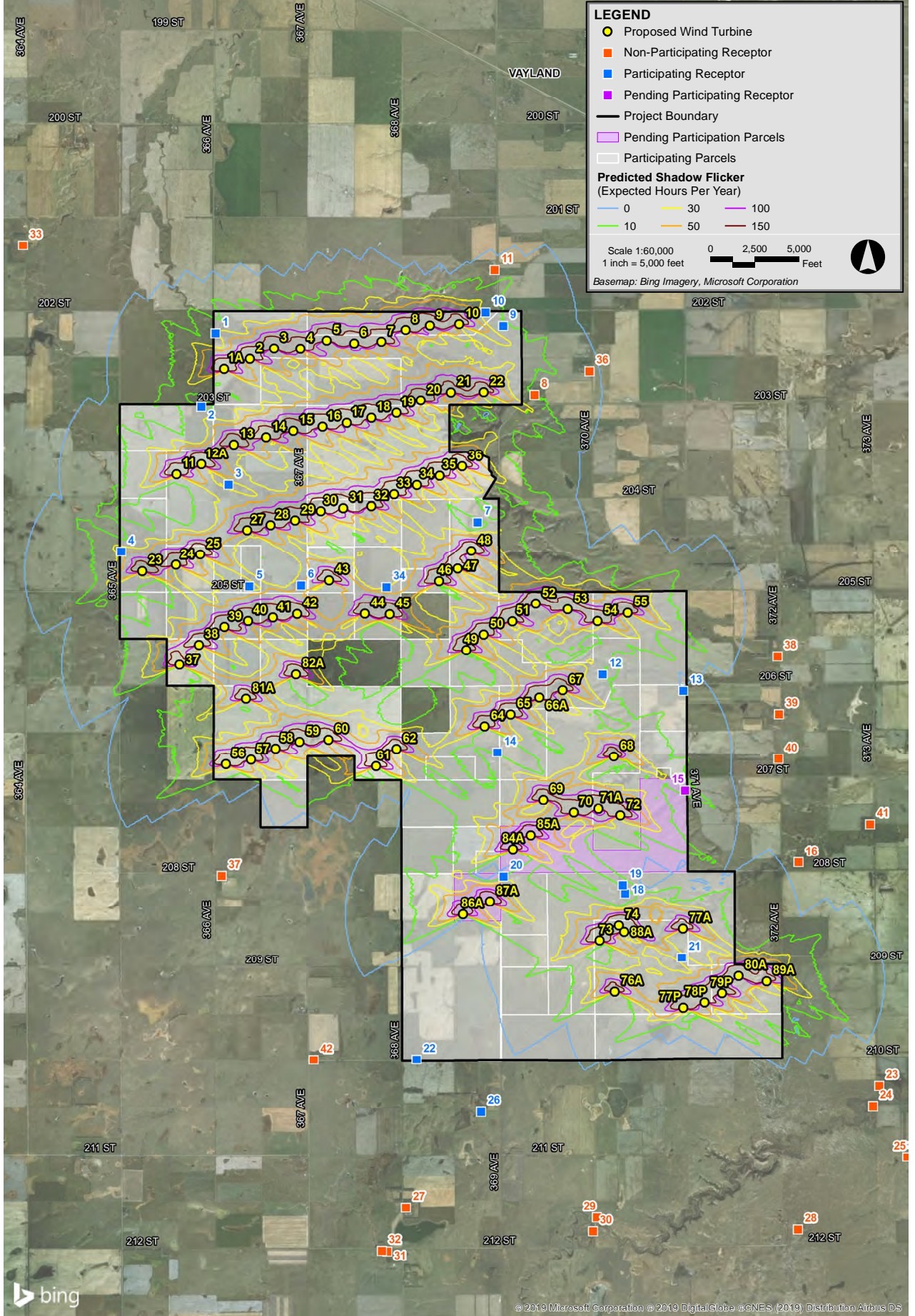
Wind Sector	Operational Hours
N	546
NNE	333
NE	234
ENE	231
E	261
ESE	398
SE	646
SSE	759
S	624
SSW	461
SW	348
WSW	363
W	384
WNW	695
NW	903
NNW	695
Annual	7,881



4.2 Results

Following the modeling methodology outlined in Section 4.1, WindPRO was used to calculate shadow flicker at the 41 discrete receptor points in Hand County and generate shadow flicker isolines based on the grid calculations.

Table B-1 in Appendix B presents the shadow flicker modeling results for the 41 receptors. The predicted expected annual shadow flicker duration ranged from 0 hours, 0 minutes per year to 55 hours, 23 minutes per year. Many of the receptors in Hand County (20) were predicted to experience no annual shadow flicker. Seven (7) locations were predicted to experience some shadow flicker but less than 10 hours per year. The modeling results showed that 10 locations would be expected to have 10 to 30 hours of shadow flicker per year, and four (4) locations would be expected to have over 30 hours of shadow flicker per year. Figure 4-2 displays the modeled flicker isolines over aerial imagery in relation to modeled wind turbines and receptors.



5.0 EVALUATION

The Sweetland Wind Project is limited to 30 hours per year of shadow flicker at occupied residences, as per the Development Agreement. The maximum expected annual flicker resulting from the operation of the proposed and alternate wind turbines is 55 hours, 23 minutes. This occurs at a participating receptor. The maximum expected annual flicker at a non-participating receptor is 9 hours, 16 minutes. The maximum expected annual flicker at a receptor with pending participation is 14 hours, 49 minutes. There is a total of four receptors predicted to have over 30 hours of annual flicker and all four receptors are participating (#6-Eric Fanning, #4-Jeremy & Marci Stevens, #21-Wayne & Joan Horsley, and #34-Dale G Christiansen). It is Epsilon's understanding that waivers will be acquired for these receptors. Therefore, the Project meets the requirements with respect to shadow flicker in the Development Agreement.

6.0 CONCLUSIONS

A shadow flicker analysis was conducted to determine the duration of shadow flicker in the vicinity of the proposed Project within Hand County, SD. Shadow flicker resulting from the operation of the proposed wind turbine layout and alternate wind turbine locations was calculated at 41 occupied residences, and isolines were generated from a grid encompassing the area surrounding the wind turbines. The maximum expected annual flicker resulting from the operation of the proposed and alternate wind turbines is 55 hours, 23 minutes. This occurs at a participating receptor. The maximum expected annual flicker at a non-participating receptor is 9 hours, 16 minutes. The maximum expected annual flicker at a receptor with pending participation is 14 hours, 49 minutes. There is a total of four receptors predicted to have over 30 hours of annual flicker and all four receptors are participating. It is Epsilon's understanding that waivers will be acquired for these receptors. Therefore, the Project meets the requirements with respect to shadow flicker in the Development Agreement.

The modeling results are conservative in that modeling receptors were treated as "greenhouses" and the surrounding area was assumed to be without vegetation or structures ("bare earth").

Appendix A

Wind Turbine Coordinates

Table A-1: Wind Turbine Coordinates (Layout 190206)

Wind Turbine ID	Hub Height (m)	Coordinates NAD83 UTM Zone 14N (meters)	
		X (Easting)	Y (Northing)
1A	89	511012.21	4921687.08
2	114	511453.33	4921859.46
3	114	511870.19	4922038.85
4	114	512321.24	4922032.65
5	114	512774.51	4922174.47
6	114	513244.56	4922123.89
7	114	513710.73	4922151.63
8	114	514128.93	4922358.66
9	114	514543.93	4922430.56
10	114	515045.88	4922458.48
11	114	510193.66	4919873.20
12A	89	510620.94	4920044.27
13	114	511176.44	4920385.98
14	114	511733.46	4920510.93
15	114	512198.31	4920625.64
16	114	512699.15	4920693.91
17	114	513119.71	4920762.30
18	114	513540.47	4920848.10
19	114	513970.65	4920934.88
20	114	514387.31	4921145.50
21	114	514905.57	4921284.73
22	114	515470.08	4921288.61
23	114	509603.78	4918211.78
24	114	510183.19	4918322.66
25	114	510600.13	4918502.72
27	114	511405.11	4918917.06
28	114	511804.96	4919001.75
29	114	512229.95	4919082.95
30	114	512672.33	4919240.36
31	114	513058.38	4919293.06
32	114	513537.27	4919326.90
33	114	513931.55	4919533.22
34	114	514321.46	4919691.24
35	114	514711.34	4919849.29
36	114	515101.21	4920007.25
37	114	510243.63	4916605.53
38	114	510579.50	4916943.29
39	89	511017.08	4917250.36
40	114	511418.75	4917354.69
41	114	511845.57	4917412.66
42	89	512265.78	4917475.42
43	114	512815.20	4918054.27
44	114	513429.64	4917481.64
45	89	513853.67	4917471.46
46	89	514702.38	4918039.82
47	114	515021.66	4918255.13
48	89	515255.92	4918559.94
49	114	515168.17	4916854.45

Table A-1: Wind Turbine Coordinates (Layout 190206)

Wind Turbine ID	Hub Height (m)	Coordinates NAD83 UTM Zone 14N (meters)	
		X (Easting)	Y (Northing)
50	114	515469.25	4917120.17
51	114	515962.07	4917348.53
52	114	516365.98	4917651.25
53	114	516911.45	4917557.34
54	114	517426.35	4917351.11
55	114	517943.89	4917497.10
56	114	511042.17	4914893.71
57	114	511469.67	4914971.97
58	114	511894.42	4915162.79
59	114	512305.67	4915277.95
60	114	512803.14	4915317.02
61	114	513621.17	4914858.56
62	114	513970.70	4915157.35
64	114	515484.40	4915543.47
65	89	515930.55	4915748.62
66A	89	516423.31	4916038.94
67	114	516827.22	4916161.87
68	114	517706.12	4915026.43
69	114	516494.56	4914281.40
70	114	517021.22	4914069.27
71A	114	517443.63	4914133.45
72	114	517815.36	4914019.51
73	114	517461.35	4911864.45
74	89	517789.29	4912125.25
76A	114	517721.01	4910983.29
77A	114	518892.06	4912070.45
77P	114	518901.20	4910709.17
78P	114	519264.70	4910797.24
79P	114	519563.99	4910955.49
80A	89	519848.54	4911253.43
81A	114	511384.00	4916015.74
82A	89	512244.18	4916438.26
84A	114	515973.83	4913442.12
85A	114	516278.60	4913679.95
86A	114	515116.95	4912318.92
87A	89	515575.65	4912534.49
88A	114	517882.92	4912011.96
89A	114	520332.80	4911161.95

Appendix B

Shadow Flicker Modeling Results: Occupied Residences

Table B-1: Shadow Flicker Modeling Results at Occupied Residences

Modeling ID	Description	Participation Status	Coordinates NAD83 UTM Zone 14N (meters)		Expected Shadow Flicker Hours per Year
			X (Easting)	Y (Northing)	(HH:MM/year)
1	Dale& Leanna Resel	Participating	510861.20	4922299.80	24:33
2	Dale& Leanna Resel	Participating	510617.45	4921033.54	12:18
3	John& Kimberly Fanning	Participating	511084.98	4919693.62	23:21
4	Jeremy& Marci Stevens	Participating	509240.44	4918553.74	45:27
5	James& Renae Aalbers	Participating	511442.82	4917952.72	23:31
6	Eric Fanning	Participating	512329.39	4917967.20	55:23
7	Jason D Resel	Participating	515363.03	4919055.61	5:43
8	Lyle& Rebecca Resel	Non-Participating	516342.30	4921246.06	9:16
9	James Major	Participating	515803.65	4922429.04	14:06
10	36891 St	Participating	515499.23	4922661.77	23:31
11	Steve Runge	Non-Participating	515658.09	4923385.39	7:05
12	Craig& Cheryl Van Asperen	Participating	517511.88	4916440.42	12:06
13	Cole Mehling	Participating	518901.01	4916154.62	2:11
14	Karen& Clinton Haigh	Participating	515701.85	4915097.07	7:26
15	Gilbert& Stephanie Rodgers	Pending Participation	518930.64	4914440.16	14:49
16	Reynolds Family Farms LLC	Non-Participating	520879.37	4913213.26	0:00
17	L Brewer 37386	Non-Participating	523539.62	4913117.77	0:00
18	Jay Anderberg	Participating	517896.23	4912672.02	5:14
19	Jay Anderberg cabin	Participating	517856.16	4912818.41	13:50
20	Jeremy& Marci Stevens	Participating	515809.40	4912961.25	11:31
21	Wayne& Joan Horsley Residence	Participating	518872.55	4911572.32	40:35
22	Travis Letsche	Participating	514315.01	4909824.50	0:00
23	Robert Duxbury	Non-Participating	522266.31	4909368.02	0:00
24	Paul Duxbury	Non-Participating	522159.03	4909019.95	0:00
25	Dean Duxbury	Non-Participating	522748.18	4908152.95	0:00
26	Leon& Lori Boomsma	Participating	515422.97	4908930.39	0:00
27	Scot Parmely	Non-Participating	514136.35	4907279.00	0:00
28	Non-valuated property	Non-Participating	520868.09	4906901.58	0:00
29	Non-valuated property	Non-Participating	517417.40	4907112.62	0:00
30	M Anson	Non-Participating	517347.17	4906873.43	0:00
31	Joe Jensen	Non-Participating	513813.93	4906527.92	0:00
32	Howard Jensen	Non-Participating	513722.68	4906535.03	0:00
33	Kevin& Marcie Bertsch	Non-Participating	507556.69	4923810.27	0:00
34	Dale G Christiansen	Participating	513798.02	4917935.51	35:17
36	Larry& Deanne Rowen	Non-Participating	517289.54	4921647.66	1:19
37	Robert& Patricia Moriarty	Non-Participating	510971.00	4912975.40	0:00
38	Jerrit Mehling	Non-Participating	520521.55	4916748.02	0:00
39	Deborah A Mehling Rev Trust	Non-Participating	520543.07	4915750.09	0:00
40	Gregory Roy Mehling	Non-Participating	520533.48	4914986.86	0:00
41	Kenneth& Dieanne Wedge	Non-Participating	522108.26	4913867.58	0:00
42	Daniel W Jensen	Non-Participating	512549.23	4909816.85	0:00

APPENDIX O – CULTURAL RESOURCES REPORTS

APPENDIX P – SCOPING MEETING INFORMATION



Department of Energy
Western Area Power Administration
Upper Great Plains Customer Service Region
P.O. Box 35800
Billings, MT 59107-5800

JUL 17 2018

B0401.BL

Dear Customers and Interested Parties:

This letter is to notify you of the proposed Sweetland Wind Farm Project (Project) and to request your input on the Project. The Project would involve construction of a 200-megawatt (MW) wind farm generating facility that includes approximately 80 turbines and associated pads. Other Project components would include an underground power collection system, a new substation, a potential new overhead transmission line, access roads, and an operations and maintenance facility. The Project would be located on approximately 23,000 acres of land, approximately 8 miles southeast of the City of Miller, in Hand County, South Dakota (see enclosed map).

The Project would interconnect with Western Area Power Administration's (WAPA) 230-kilovolt Fort Thompson to Huron Transmission Line. As a result, WAPA will provide federal oversight of the preparation of an Environmental Assessment (EA) under the National Environmental Policy Act. The EA will evaluate the environmental effects of the proposed Project on resources such as wetlands, vegetation and wildlife, cultural and recreation resources, as well as other social, economic, and environmental effects.

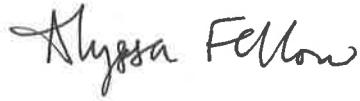
WAPA is announcing a public scoping period for the Project. The scoping period provides an opportunity for the general public, government agencies, and tribal governments to identify issues and alternatives that will help WAPA define the scope of the EA. One public scoping meeting (open house format) will be held to provide an opportunity for interested parties to discuss the Project with resource specialists and to submit comments. The meeting will be held on Tuesday, August 7, 2018, from 5:00 p.m. to 7:30 p.m., at the Miller Community Center, 526 N. Broadway Avenue, Miller, SD, 57362.

Comments may be submitted in the following ways:

- By mail to:
Western Area Power Administration
Attn: Ms. Christina Gomer
2900 4th Avenue North
Billings, MT 59101
- By fax to (406) 255-2900
- By email to gomer@wapa.gov
- In writing at the public scoping open house meeting:
August 7, 2018
5:00 p.m. – 7:30 p.m.
Miller Community Center
526 N. Broadway Avenue
Miller, SD 57362

For your input to be considered during preparation of the draft EA, WAPA requests comments by September 7, 2018. If you have any questions, or need more information about the Project, please contact WAPA using the methods listed above. Thank you for your time and interest in the Project.

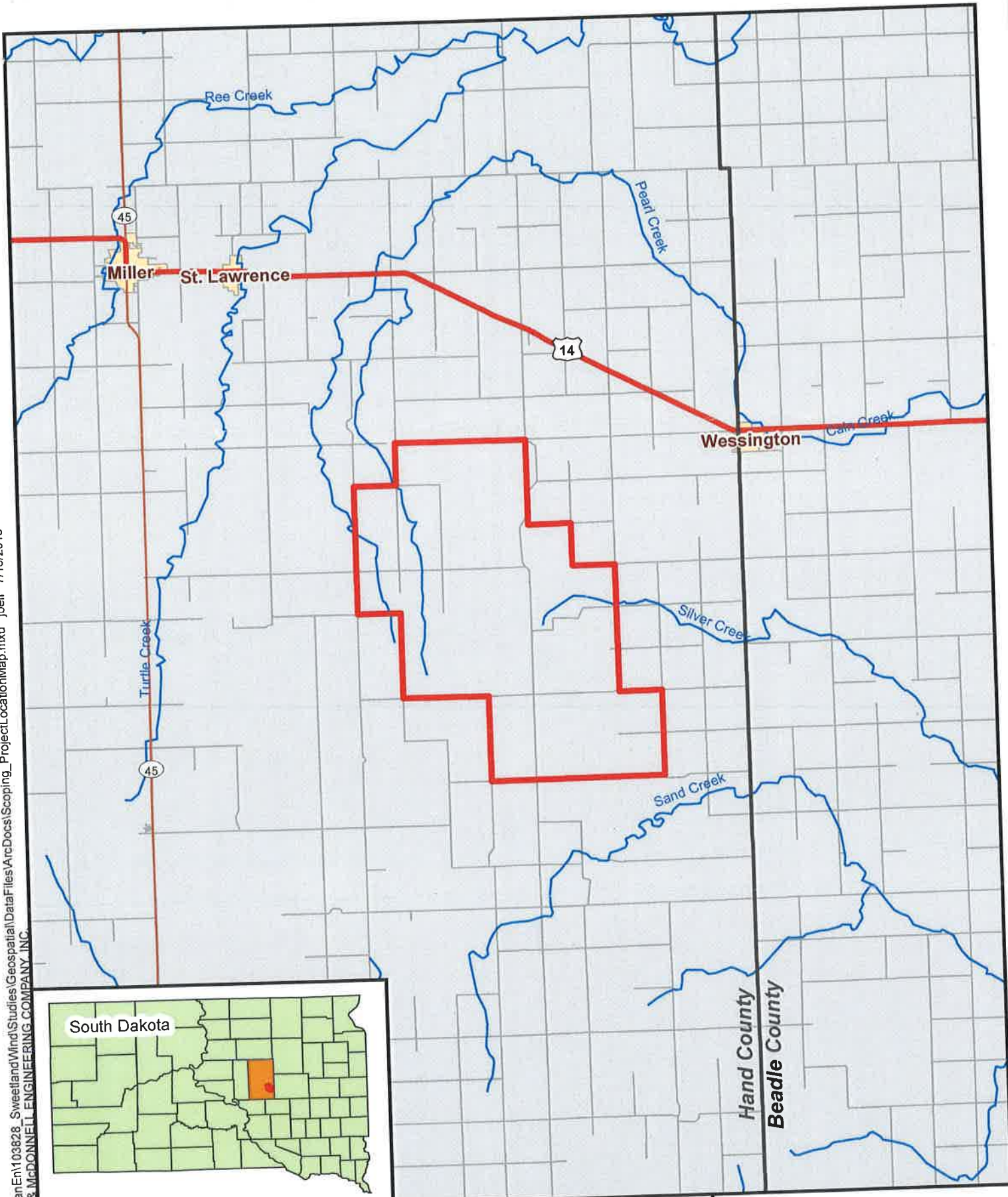
Sincerely,







A handwritten signature in black ink that reads "Alyssa Fellow". The signature is written in a cursive, flowing style.

Alyssa Fellow
Biologist

Enclosure

Path: Z:\Clients\EN\ScoutClean\En103828_Sweetland\Wind\Studies\Geospatial\DataFiles\ArcDocs\Scoping_Project\LocationMap.mxd jbell 7/16/2018
COPYRIGHT © 2018 BURNS & MCDONNELL ENGINEERING COMPANY, INC.



 Project Boundary	 U.S. Highway
 County Boundary	 State Highway
 Municipalities	 Rivers

3 1.5 0 3
Miles



Project Location Map
Sweetland Wind Farm Project
Scout Clean Energy
Hand County, South Dakota

Sweetland Wind Farm Project

Public Scoping Meeting & Open House

August 7, 2018, 5-7:30 p.m., Miller Community Center, Miller, SD

Thank you for your interest in the Sweetland Wind Farm Project. After reviewing all of the exhibits and speaking with project representatives, please complete the appropriate sections of this form to be included on the project mailing list and/or to provide comments. Written comments can be submitted:

- At the scoping meeting
- Faxed to (406) 255-2900
- E-mailed to gomer@wapa.gov
- Mailed to Ms. Christina Gomer, NEPA Coordinator

Your comments are important to us and will be accepted through September 7, 2018 for formal consideration in the NEPA process.

Please Print Contact Information Below:

<u>Name:</u>	<u>Organization:</u>
<u>E-mail Address:</u>	<u>Daytime Phone No. (optional):</u>
<u>Street Address:</u>	<u>City / State / Zip Code:</u>

- Please e-mail me the web link to the NEPA document when it becomes available (quickest and preferred method).
- I would like a Compact Disk (CD) of the NEPA document when it becomes available.
- I do not need a copy of the NEPA document.

Please Share Comments, Questions, or Concerns Below (continue on separate sheet if necessary):

Thank you for your time and interest in the project.



Please fold in thirds and tape

Place
postage
here

Ms. Christina Gomer
NEPA Coordinator - Upper Great Plains Region
Western Area Power Administration
2900 4th Avenue North
Billings, MT 59101




SDNA
SOUTH DAKOTA NEWSPAPER ASSOCIATION

We've got South Dakota covered.

AFFIDAVIT OF PUBLICATION

I hereby certify that the public notice "Sweetland Wind Farm – Public Input Meeting" ran as requested on July 18, July 25 and August 1, 2018 in the Miller Press.

By: South Dakota Newspaper Services

Signature: 

Print Name: Sandy DeBeer, Advertising Placement Coordinator

Date: 8/3/2018



Double the birthday fun

Seventy-five years ago, July 24, Shirley and Sharon, "the twins" as they are affectionately referred to, surprised their family.

Sharon Davis and Shirley Peterman were the fourth for their mom, but she had no idea she was having twins. She referred to them as her surprises. They were born in Wagner, with Shirley weighing in at five pounds ten ounces and Sharon tipped the scales at six pounds two ounces.

The twins attended country school where they wore name tags so

the teachers could tell the girls apart. Shirley stated, "Mom always said we were very shy."

When questioned if they had ever pulled a trick on their parents by switching, Shirley answered, "No, but the boyfriends will never know if we switched."

Shirley relayed there is a different bonding between twins and other siblings. Neither Sharon or Shirley had twins, but Shirley stated, "As twins skip a generation, hopefully twins will be coming with the next generation."



THE SCHROEDER FAMILY celebrated a four-generation Fathers' Day in Sioux Falls this year. Will Ramsey and his mom, Erica Schroeder Ramsey, holding daughter Elliott Ramsey, is pictured with grandpa Steve Schroeder (standing), and great-grandfather Bob Schroeder.

70+ games out of town
.....too much time
Thousands of miles to watch her play
.....too much money
A State Championship on your birthday
.....priceless!

Happy 15th Birthday Cooper!

Master Gardeners share variety of country gardens

Dakota Prairie Master Gardener members and guests toured the yards and gardens of three MG members, on July 13, 2018. As gardening enthusiasts they experienced three very different scenarios.

The tour began on the farm of Donna Hoyes where her focus is on continuing to establish gardens containing grasses and flowers native to the prairie, as well as trying new ideas/techniques. She often scouts in her pastures for plants to take home to try in her gardens. This year in the vegetable area she planted a "Three Sisters" garden, a practice of the Native Americans. Plant corn, five days later plant beans near and around the corn, then follow up five days later with planting squash. Each plant has a purpose and supplements the needs of the others.

The yard and gardens of Gloria Beck are in differing stages of renovation which provided an opportunity to think about different mulches, critter damage control, and the right (or wrong) choices of plants for sunny or shady locations.



THE COUNTRY GARDEN of Master Gardener Donna Hoyes provided a variety of sites as visitors toured her yard on Fri., July 13, 2018.

The tour ended at the home of Sharon Stewart where she showcased a variety of plantings for sunny, shady, and windy areas. Her gardens are more formal with the use of various edgings and hardscape pieces. Having come to South Dakota from Illinois, she continues to adjust to the differing growing conditions.

This event provided opportunities for the exchange of ideas, comparing garden successes and failures as well as the constant challenges of country living. Wind, damage from wild animals, unwanted sprouting seeds, landscape designs, use or non-use of chemicals,

and watering needs were among other topics of conversation. Following the tour of gardens, a luncheon was served and dia- logue continued.

Through these experiences gardeners continue to teach and learn from each other. Though many

gardeners face similar challenges each yard/garden is unique depending on an array of variables such as personal preferences, water needs, soil type, space obtainable, animal intruders, interest, time available for tending them, etc. Variety is the spice of life.

Bridal shower for Duxbury

Please join us for a bridal shower honoring Abby Duxbury. The bride to be of Zeb Husted.

Come to the Wessington American Legion on Sat., July 28 between 2 and 4 p.m.

She is registered at Target and Amazon.

Color Copies
THE MILLER PRESS
114 W 3rd St • 605-853-3575

The Ole Fisherman Larry Rezek is turning 90 on July 31. Help him celebrate with a card shower 1124 West 5th St. Redfield, SD 57469

THANKS

Fern and Charles Droz want you all to know how much we appreciated your best wishes, which were expressed in so many loving ways, on Sat., July 14. Also, many of our family members and friends who sponsored the celebration and went beyond all expectations: Thank You!

You will remain forever in our memory of this 70th Anniversary and Fern's 90th Birthday Party.

Bless You All

Let's Shower the Bride
Join us for a bridal shower honoring
Taylor Pekarek
Bride to be of Kiley Canham

Sat., July 28 @ 10 a.m.
American Bank & Trust
Community Room

The couple is registered online. Bath & Beyond and www.rola.com/weddingcanham

Ranked in the Top 100 Critical Access Hospitals in the nation.

Live better. Live balanced. Avera.

MONTHLY SERVICES AND EVENTS CALENDAR

At Avera Hand County Memorial Hospital and Avera Medical Group Miller, we're making a positive impact in the lives and health of our community.

• OUTREACH SPECIALISTS

- **Orthopedics** – 605-224-7070
Dr. Sanchez – Aug. 10
- **Orthopedics** – 800-782-4798
Dr. Harbert – Aug. 23
- **Cardiology** – 605-853-0390
North Central Heart, A Division of Avera Heart Hospital
- **Ophthalmology/Surgery** – 605-853-3285
Dr. Bormes – Aug. 9
- **Vision Care** – 605-853-3285
Dr. Bormes – Aug. 10
- **Di. Strubbe** – Aug. 7, 14, 21, 28
• **Dr. Porcich** – Aug. 13, 20, 27
CLOSED EACH FRIDAY
- **Urology** – 800-750-5901
Dr. Wyatt – Aug. 21
- **Audiology** – 800-827-1622
Audiology Associates – Aug. 21
- **General Surgery** – 605-853-2421
Dr. Werth – Aug. 15

• CAMPUS SERVICES AND EVENTS

- **Hospital Auxiliary** – Will reconvene in September
- **Ultrasounds** – Tuesdays and Fridays
- **Mammograms** – Aug. 9, 23
- **Sleep Studies**
By appointment – 605-853-0300
Aug. 14, 15, 16
- **Dietitians/Nutritionists, call for appointment**
Kelsey Johnson 605-870-1026
April Sorensen 605-751-9043
- **Dexa Scans**
By appointment – 605-853-0380
- **Enhanced 64-Slice CT Services** – 605-853-0380
- **Community Counseling, Shawn Cudmore-Kremer** – 605-552-8536
Mondays and Wednesdays
- **Community Health/WIC** – 605-853-2147
- **Avera@Home** – 605-853-0343
- **Avera Home Medical Equipment** – 605-853-0390
- **Cardiac/Pulmonary Services** – 605-853-2421



Hospital: 605-853-2421 • Clinic: 605-853-0175 • AveraMiller.org

PUBLIC INPUT ENCOURAGED!

Public comments are sought to define the scope and alternatives for an Environmental Assessment of a proposed wind energy facility in Hand County, to the southeast of Miller, South Dakota. The proposed project, to be called Sweetland Wind Farm, would include up to 80 wind turbine generators, an underground power collection system, project substation, interconnection facilities, power connection facilities, a potential new overhead transmission line, access roads, temporary laydown yard, temporary batch plant, and an operations and maintenance facility. Construction of the Sweetland Wind Farm is proposed to begin as early as fall 2019.

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To learn more about this project and to share your ideas, join us at:

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5:00 p.m. to 7:30 p.m.
Miller Community Center
526 N. Broadway Avenue
Miller, SD 57362

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- By mail to: Western Area Power Administration
Attn: Ms. Christina Gomer
2900 4th Avenue North
Billings, MT 59101
- By fax to (406) 255-2900
- By email to gomer@wapa.gov
- In writing at the public scoping open house meeting.

Comments should be postmarked no later than September 7, 2018.



THE BLOCKS. Jesse and Shawn, presented Miller Area Foundation members Jaime Russell and Dawn Joy a check for \$250. The Blacks held an Olive's Army poker run on June 16. Close to 150 people of all ages participated. They raised \$2,200 in poker hands and auction items. They also donated to a child in Webster and the Children's Hospital.

July blood drive brings in 146 units

Another successful United Blood Services drive, sponsored by the Avera Hand County hospital auxiliary, was held at Trinity Lutheran Church on July 9 and 10. There were nine new and renewed donors, including high school student Talon Knox. Others were Dave Peterman, Tammy Aalters, Laine Warkestein, Darla Miller, Michael Wetz, Ving Whetsel, Robert Moriarty and Josh Hoffman.

On Monday 62 procedures performed resulted in 43 units of whole blood, 35 units of red cells and one unit of plasma for a total of 79 units. On Tuesday 53 procedures produced 38 units of whole blood, and 29 units of red cells for a total of 67 units. The July 2017 drive produced 134 units.

Several donors received gallon pins. Derek Engel and Evan Steers at one gallon; JD Wangness, Carter Kindle, and Renee Clarent got two gallon pins; Jim Henson got his three gallon pin; four gallon pins were earned by Nancy Tay-

lor, Lynn Harrell and Doty Knox; five gallon pins went to Gayle Vrooman and Troy Beckett; Chris Howard, Heath Smith and Mark Wangness got six gallon pins; Bob Cremer got a seven gallon pin and Doug Simmons hit the 10 gallon mark.

Hospital auxiliary president, Phyllis Testerman, contacted the members who staffed the registration table and members who provided cookies.

Coordinator JoDean Joy, Marilyn Johnson, Arlette Heitzman, Judith Jensen, Verna Becker and Kay Fawcett were at registration and Phyllis Testerman, Verna Becker, Darlene Cox and Doris Schultz provided cookies. Vernon and JoDean Joy furnished doughnuts. Reminder calls were made by Chris Keeter and Norma Carr. American Bank and Trust and Quoin Financial furnished cups and napkins.

The Beau Keeter Memorial blood drive will be held at the American Legion/VFW Hall on November 5-7. Mark your calendar to make an appointment to save a life by donating blood. We live in a very giving community and this is just one more way to participate.

Ree Heights

Carole Beck
Box 178
Ree Heights, SD 57371
605-943-5532

The weather this past week was hot, but Sunday brought relief. Sunday temps were only into the mid 70s while the rest of the week was into the 90s. We did get a light sprinkle of rain; the lawns are looking very green for this time of year. The crops are growing by leaps and bounds.

It has been reported it is green and beautiful all the way to the Black Hills.

Saturday evening there was a wedding reception and dance at the auditorium. (I am trying to find out who's) Delton and Carole Beck visited at the Jeff and Margie Parnely home in Miller on Sunday.

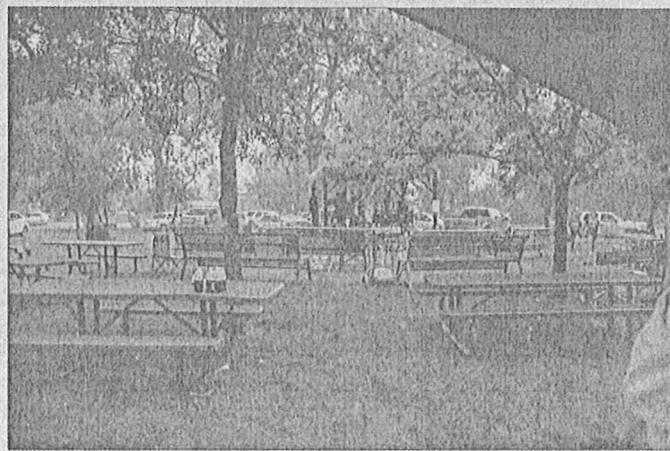
Friendship Center

Marene Pratt-Pietz

Due to street construction near the Community Center beginning July 23, there will not be a coffee and rolls event on July 24 or July 30.

Since parking near the entrance may be a problem, it has been suggested that we use the back southeast door which will be open for our use.

We will have the potluck dinner as planned on Thurs., July 19, so get a dish ready to pass and come join us. We are still accepting membership dues, for those of you who have not done that yet.



RAINED OUT on Thurs., July 12, 2018, during the Central Plains Arts Council summer night program of the Pull Type Spreaders at Crystal Park. The Miller Area Foundation started the evening with a free pork loin supper. As the crowd trickled in, people enjoyed conversation and filled in around the gazebo. About 6:30 p.m., the clouds started to rumble and opened a sprinkle of water from the sky. One foundation check presentation was held before a down pour began. Everyone ran to cars or got close under the canopies, which is the picture above from. The foundation and council appreciate who all did come out but unfortunately the band was unable to play with the wet gear and will not be rescheduled.

Outdoor activities entertain Good Sam residents

Pastor Kevin Robinson from the New Beginnings Worship Center Church led worship service Sun., July 8. He read scripture from Matthew 7:13-14. The message was on "Following the Right Spiritual GPS." Darlene Hamner accompanied hymns on piano. Coffee and cookies were served afterwards. Volunteer helper was Eleanor Steptoe and Verna Becker.

Monday morning, a few residents watched a sensory video on "Great Barrier Reef." Later Rev. Max Miller from Trinity Lutheran Church was in charge of communion service. After communion, Michelle Leisy led devotions, exercise, and read the news. Florine Henning accompanied hymns on piano. In the afternoon Delton Beck led vinyl record time. He played vinyl records "Old Time Special Polkas and John Wilfahrt Orchestra." Coffee and cookies were served while the residents listened to music.

Rosary was led by Jane Gilk Tuesday morning. Carol Schütz played piano before and after Rosary. Later Leisy led devotions, exercise, and read the news. Henning accompanied hymns on piano. Marge Meriwether led the pledge of allegiance to the

Good Samaritan Society, Miller

Kevin Hofer

American flag. Bingo was played in the afternoon with Carole Beck as caller. Other helpers were Linda Aalbers, Delton Beck, Verna Becker, Marilyn Engelmann, Kay Fawcett, Violet Moncú, Karen Rembold, Eleanor Steptoe, Charlotte Taylor, and Janice Wilbur. Afterwards, coffee and cookies were served.

Father Paul led Mass for St. Ann Catholic Church Wednesday morning. Mid-morning, Leisy led devotions, exercise, and read the news. Henning accompanied hymns on piano. Bonnie Hoesley led the pledge of allegiance to the Christian flag while Marge Meriwether led the pledge of allegiance to the American flag. In the afternoon, Robinson from New Beginnings Worship Center Church was in charge of a Bible study from 1 Kings 18 about "Between two Altars." Coffee and ice cream were served after the Bible study.

Thursday morning men's group met with Scottie Gibson and Dennis Gilk. They led a dis-

ussion of current events and served coffee and donuts. Mid-morning, Kevin Hofer led devotions and read the news. Henning accompanied hymns on piano. In the afternoon, a few residents gathered for arts and crafts to color summer pictures to decorate their rooms. Coffee, chocolate chip cookies, and ice cream were served after arts and crafts. Bingo was played in the evening with Corey Leisy as caller. Other helpers were Charlotte Christopherson, Linda Aalbers, and Michelle Leisy. Also a few residents tried going to the music in the park to listen to local entertainment. Unfortunately, it was rained out.

A few lady residents had their finger nails polished Friday morning. Mid-morning, Leisy led devotions, exercise, and read the news. Henning accompanied hymns on piano. In the afternoon, a few residents gathered for some outdoor time and watermelon. In the evening, residents watched the movie "Miracles from Heaven."

We appreciate residents from Center of Independence helping with delivering mail this week on Monday, Wednesday, and Thursday.

Birth

Eric and Erica Ramsey of Sioux Falls announce the birth of their daughter, Elliott Ruby, May 22, 2018. She weighed nine pounds, eight ounces, and was 21 1/2 inches long. She joins a two and a half year old brother, Will. Grandparents include Glen and Cindy Ramsey of Brandon, and Steve and Connie Schroeder of Miller. Bob Schroeder of Sioux Falls is the proud great-grandfather.



Moncur celebrates turning 85

Family and friends want to wish Margaret Moncur a happy eighty-fifth birthday. They are requesting a card shower for her. Please send greetings to 217 West 1st Ave. Miller, SD 57362.

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Billings, MT 59101
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- By email to gomez@wapa.gov
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Benefit Meal and Silent Auction for Kay Lynn Burnham
Saturday, July 28
School Gym in Highmore
Park Loin Sandwich Meal starts at 5:30 p.m. (Free-will Donation)
SILENT AUCTION TO FOLLOW
Anyone wishing to donate an item may contact Gladys Volek, 852-2522 or Diane Asby, 852-3150. Monetary donations may be sent to Kay Burnham Family, c/o Financial Bank, Box 154, Highmore, SD 57345.

Happy 75th Birthdays

Twins Shirley & Sharon

please join us for a
Bridal Shower
honoring
Abby Duxbury
Bride-to-be of Zeb Husted
Wessington American Legion | Saturday July 28 | 2 o'clock
Sisters | July 28 | 4 o'clock
Registered at Target and Amazon

Memory Lane

10 Years Ago (2008)
Brittany Van Diepen and Keith Larsen, Wolsey, announce their engagement and upcoming wed-

ding. Parents of the couple are Bob and Connie Van Diepen of Huron and Tony Larsen of Wolsey and Connie Larsen of Huron. The

bride-to-be is a 2005 graduate of Huron High School and a 2007 graduate of Colorado Technical University with an associate of science degree in medical assisting. The groom-to-be graduated from Wolsey High School in 2003, and from SDSU, with a B.S. degree in animal science. A Sept. 13 wedding is planned.

Lacey Hofhenke, Wolsey, took part in the 2008 National Farmers Union All-States Leadership Camp, held in Estes Park, CO.

Larry and Carol Gildemaster, Hazel Curtis and June Gildemaster were guests of Mark and Tyson Gildemaster for Austin Gildemaster's 12th birthday.

20 Years Ago (1998)

Gail Eichstadt, 33-year-old daughter of Ervin and Gloria Eichstadt, is trying for three golds, one each in Barrel, stock seat and trail, at the fifth Annual Special Olympics Equestrian Competition. She already has three medals in horsemanship from previous competitions: a gold in barrel racing, another in stock seat, and a silver in trail. "I taught myself to ride," said Gail proudly as she nuzzled the neck of her favorite horse, Pat-the-Palomino, her companion for the last 26 years.

Onward Wolsey's "Lawn of the Week" for the week of July 26 has been awarded to Dennis and Sandi Ransom.

Herb Rohlfs, Wolsey, fished in the 20th Annual National Guards Recruiter's Tourney July 20-21 at West Whitlock. Herb's partner was his Grandpa, Junior Rohlfs, of Redfield. The pair got first place

with 29 pounds 10 ounces. They also got the biggest walleye at six pounds nine ounces.

Gertrude "Gertie" Kahre, 83, of Wolsey died Fri., July 14, 1998, at Huron Nursing Home. The funeral was July 27 at St. John's Lutheran Church in Wolsey, with the Rev. Daryl Tompkins officiating. Pallbearers were Joel Wilczek, Kurt Kahre, Bryan Miedema, Jon Rowe, Pat Winegar, Roger and Curtis Waldner.

Karla Hofhenke of Wolsey will join the South Dakota Farmers Union staff as receptionist and assistant education director. Hofhenke is a graduate of Miller high School and was employed by Shallbetter, Inc., for the past nine years. She and her husband Doug have three children.

30 Years Ago (1988)

A contingent of Wolsey Firefighters joined firemen from nearly 60 departments in the state in fighting the forest fire that threatened Rapid City last week. The Wolsey fire squad included Gene Holst, Bill Houck, Dale Getscher, Bob Brodkorb, Kevin Reilly and John Crandall.

Howard and Linda Haeder announce the engagement of their daughter, Laura, to Rodney Liebnow, son of Herschel and Dorris Liebnow, all of Wolsey. Haeder is a 1987 graduate of Wolsey High School and is employed by Huron Area Adjustment Training Center. Liebnow is a 1983 graduate of Wolsey High School and a 1985 graduate of Lake Area Vocational Technical Institute. He is engaged in farming with his father. They will be married Aug. 20.

Sam Nettinga, Sr., 76, of Wolsey, died Sun., July 31, 1988, at the Huron Nursing Home. The fu-

neral was We the Wolsey Pr Church with t ald Seeger offi tive pallbearer tis and Stacy l Greg, Rod and stadt, and Dor

40 Years A

Wolsey mu er, Linda Ham with several o teachers, atte Choir Worksh in conjunctio South Dakota Honors Choir at Northern St July 24-28.

Mr. and Mr Schroeder cele 40th wedding ry July 16 dur house in Virgi Methodist Chu grandchildren at the event w Woldt, Christi lie Ellingboe, J Robin and Lor er, Lisa Walter Frye, Eric and eder.

Hugo Haed the meeting of of Evangelism South Dakota the Lutheran (souri Synod h Lutheran Chu ell on Monday

50 Years A

Two former High School st numbered am dents who we the Dean's Lis lege of Home ics at South D. University, Br The two girls a Smith, daught and Mrs. E. Ke senior; and De ker, daughter o Mrs. Harold N gil.

A bridal sho or of Sandra M held Wednesd in the Bonilla an Church par Edward Peters ed the contest: going to Mrs. (

Ina Wicks

Service Notice

Ina Wicks, age 89, Brookings, formerly of Nunda, died on Thurs., July 26, 2018, at the United Living Community in Brookings.

Funeral service will be 10:30 a.m. on Mon., August 6 at Grace Lutheran Church, Nunda with Rev. Phillip Hofinga officiating. Visitation will be 2-4 p.m.

on Sun., August 5 at Weiland Funeral Chapel with a prayer service at 4 p.m. Visitation will continue on Monday one hour prior to the service at the church. Burial will be in the Prairie Queen Cemetery. Online condolences can be sent at www.weilandfuneralchapel.com.

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APPENDIX Q – AGENCY CORRESPONDENCE AND PUBLIC COMMENTS

Letter Number	Comment Number	Entity	Date of Comment	Comment	Response	Section in EA/PEIS	Comment Topic
Scoping							
A	1	Private Citizen	8/30/2018	We are land owners in Pearl Township in Hand County. We support the Sweetland Wind Project and believe it is good for the area.	Comment noted.	No section.	General
B	1	Bureau of Indian Affairs	8/2/2018	We received your letter regarding the proposed Sweetland Wind Farm Project. We have considered the potential for both environmental damage and impacts to archaeological and Native American religious sites on lands held in trust by the Bureau of Indian Affairs, Great Plains Region. You should be aware, however, that Tribes or Tribal members may have lands in fee status near the sites of interest. These lands would not necessarily be in our databases, and the Tribes should be contacted directly to ensure all concerns are recognized.	Comment noted. WAPA has initiated consultations with Tribes.	4.8, 4.9, 5.8, 5.9 of PEIS 3.8 of EA	Cultural
B	2	Bureau of Indian Affairs	8/2/2018	We have no environmental objects to this action as long as the project complies with all pertinent laws and regulations. Questions regarding environmental opinions and conditions can be addressed to Marilyn Bercier, Regional Environmental Scientist, at (605) 226-7656.	Comment noted.	No section.	General
B	3	Bureau of Indian Affairs	8/2/2018	We also find that the listed action will not affect cultural resources on Tribal or individual landholdings for which we are responsible. Methodologies for the treatment of cultural resources now known or yet to be discovered - particularly human remains - must nevertheless utilize the best available science in accordance with provisions of the Native American Graves Protection and Repatriation Act, the Archeological Resources Protection Act of 1979 (as amended), and all other pertinent legislation and implementing regulations. Archeological concerns can be addressed to Dr. Sebastian C. LeBeau II, Acting Regional Archaeologist, at (605) 226-7656.	The Project has developed an inadvertent discovery plan. If any inadvertent discoveries are made during project implementation, work will cease in the area of discovery and the THPO will be contacted within 72 hours.	4.8, 4.9, 5.8, 5.9 of PEIS 3.8 of EA	Cultural
C	1	Cheyenne and Arapaho Tribes, Tribal Historic Preservation Office	8/10/2018	On behalf of the Tribal Historic Preservation Office of the Cheyenne and Arapaho Tribes, thank you for the notice of the referenced project. I have reviewed your Consultation request under Section 106 of the National Historic Preservation Act regarding the project proposal and have commented as follows. At this time, it is determined to be categorized as No Adverse Effect; However, if at any time during the project implementation should any change orders occur which would affect the current APE, or if inadvertent discoveries are made that reflect additional evidence of traditional cultural properties (TCP) such as: ceremonial or celebration objects, stone rings, villages, burial mounds, battlefield artifacts, or human remains please cease work immediately, in area of discovery and notify the Cheyenne Arapaho THPO Office within 72 hours.	Comment noted.	4.8, 4.9, 5.8, 5.9 of PEIS 3.8 of EA	Cultural
C	2	Cheyenne and Arapaho Tribes, Tribal Historic Preservation Office	8/10/2018	Also, if inadvertent discoveries are made; pursuant to Title 36 Code of Federal Regulation Part 800.13, as amended; you will also be required to make arrangements for a professional archaeologist to visit the site of discovery and assess the potential significance of any artifacts or features that were unearthed. If human remains are discovered State and Tribal NAGPRA representatives will be contacted and protocols will be executed. Please contact me with the THPO ID number at (405) 422-7416 or mdemery@c-a-tribes.org, if you have any questions or concerns. Thank you again for your notification!	The Project has developed an inadvertent discovery plan. If any inadvertent discoveries are made during project implementation, work will cease in the area of discovery and the THPO will be contacted within 72 hours.	4.8, 4.9, 5.8, 5.9 of PEIS 3.8 of EA	Cultural
D	1	Federal Aviation Administration	7/27/2018	This is in response to your letter dated Jul 17, 2018, for the proposed Sweetland Wind Farm Project. Typically, turbines are in excess of 200' in height and require an aeronautical study for each of the towers. The studies can be submitted at oea.faa.gov. There are a number of tools on the left side of the webpage for wind turbines, including a FAQ link.	Sweetland submitted Form 7460-1, Notice of Proposed Construction or Alteration with the FAA for each turbine location in February 2017, assuming the GE 2.5/127 turbine with an 89-meter hub height option. The FAA issued Determination of No Hazard for the preliminary layout. Since that time, the Project has been revised to a new turbine model, GE 2.82/127, with a 114-meter hub height. New Forms 7460-1 were filed on February 14, 2019, for the new turbine array. As required, Sweetland expects a Determination of No Hazard would be issued for the finalized layout, and the Project would comply with applicable FAA requirements. Sweetland continues to work with the FAA to receive Determination of No Hazard. As required, Sweetland would also file Tall Structures Aeronautical Hazard Applications with the South Dakota Aeronautics Commission for a permit approving the proposed wind turbine and permanent meteorological tower locations.	3.8.2 of PEIS 3.9 of EA	General
D	2	Federal Aviation Administration	7/27/2018	If there is a power line associated with the proposal, that may also need to have an aeronautical study completed. Also on the left side of the website is a link called "Notice Tool Criteria" that can be used to determine if the powerline would need additional studies done. If you have any questions, please contact me.	Additional studies are not necessary as the structures are under 200 feet in height and not in proximity to an airport.	3.6, 3.8 of PEIS 3.9 of EA	General
E	1	Private Citizen	8/11/2018	Great project - like to see it happen.	Comment noted.	No section.	General
E	2	Private Citizen	8/11/2018	Need to see equipment power washed and cleaned before coming to our area free of invasive weeds. We take pride in a weed control area.	A Noxious and Invasive Weed Management Plan would be developed to identify and establish the procedures to limit the introduction and spread of noxious and invasive weeds during construction and ongoing operations.	4.6, 5.6 of PEIS 3.5 of EA	Wildlife Vegetation
F	1	Private Citizen	8/28/2018	We live in the Sweetland Project Area. We feel this is a great opportunity for clean energy, income, and local progress.	Comment noted.	No section.	General
F	2	Private Citizen	8/28/2018	Our concerns are clean equipment coming in to build and work on our area. Invasive weed control is a priority in our area. Professional people and direction are a must when on our roads and the local people living and traveling in our area need the respect of workers in our community.	Noxious and Invasive Weed Management Plan would be developed to identify and establish the procedures to limit the introduction and spread of noxious and invasive weeds during construction and ongoing operations. Before the start of construction, Sweetland will have a road haul agreement in place with Hand County.	4.6, 5.6 of PEIS 3.5, 3.9 of EA	General Wildlife Vegetation
F	3	Private Citizen	8/28/2018	As chairmen of the township board, it would be great to have updates on the project so we can answer questions when local people are looking for updates.	WAPA has created a website dedicated to this project. The website is updated periodically and can be accessed at the following link: https://www.wapa.gov/regions/UGP/Environment/Pages/SweetlandWind.aspx	No section.	General
F	4	Private Citizen	8/28/2018	Up to date, the people with Scout and the workers here have been great to work with and answer questions. Thank you for your inquiry regarding the Floodplain Comments, Sweetland Wind Farm Project located in the City of Miller, in Hand County, South Dakota. FEMA's major concern is if this project is located within a mapped Special Flood Hazard Area, as development in these areas requires further consideration.	Comment noted.	No section.	General
G	1	Federal Emergency Management Agency	7/25/2018	We recommend that you contact Mr. Ronald Blackford, Mayor at 605-853-2705, to receive further guidelines regarding the floodplain comments of the Sweetland Wind Farm Project, which might be relative to the regulations and policies of the National Flood Insurance Program. Considering that floods are the most devastating of all natural disasters in this country, any efforts to reduce the impacts of that hazard is worthwhile. Let me know if I can be of assistance and please feel free to contact me at 303-235-4802. Thank you for giving us the opportunity to assist you in the proposed project in the City of Miller, in Hand County, South Dakota.	In an email dated October 3, 2018, the Hand County Flood Plain Manager confirmed the Project is not located in a Special Flood Hazard Area. Mayor Blackford was contacted on October 4, 2018, and provided a project map to confirm the project is not located within a mapped Special Flood Hazard Area.	4.3, 5.3 of PEIS 3.2 EA	Water Resources
H	1	Farm Service Agency	8/20/2018	Thank you for the opportunity to comment on the project information involving the proposed construction of the Sweetland Wind Farm Project located in Hand County South Dakota. As a Federal nexus, the Farm Service Agency (FSA) is requesting more detail of the project area in order to determine if any of our producers may be affected. If there is a shapefile that you would be able to share with us, we can make a determination on what interest we have in the project prior to the completion of your EA. Again, we appreciate the opportunity to comment.	Sweetland met with a representative from the Farm Service Agency on September 5, 2018, to discuss the Project. In a follow-up email on September 17, 2018, Sweetland provided a project map detailing the project area.	4.10, 5.10 of PEIS 3.1, 3.10 of EA	Soil Socioeconomics
I	1	Private Citizen	8/29/2018	I am a landowner of a farm property of approximately 300 acres in Rose Hill Township, Hand County, SD, that directly abuts the southern end of the Sweetland Wind Farm development area. The farm is subject to both wetland and grassland easements with the US Fish and Wildlife Service (USFWS).	As the property is outside the Sweetland Wind Farm Project Area, it will not have any wind infrastructure installed.	No section.	Ecological Resources
I	2	Private Citizen	8/29/2018	Development of alternative energy is a global imperative in the future and I am highly supportive of both wind and solar energy, including research and development of energy storage, to rapidly reduce the dependence on fossil fuels and substantially reduce CO2 emissions in the generation of electricity.	Comment noted.	No section.	General
I	3	Private Citizen	8/29/2018	To that end, I am highly supportive of the Sweetland Wind development. I am also highly appreciative of the cooperation and coordination between WAPA, the USFWS and Scout Clean Energy to address and protect natural and other resources, including other interests, in the environmental assessment process. I believe the development is largely an economic win-win for the Sweetlands, the farm community, the townships, the county and the clean energy benefits to a better world. In the future, I would be open to a wind lease on my property should there be subsequent phases of development. I appreciate the opportunity to comment.	Comment noted.	No section.	General

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J	1	Private Citizen	8/31/2018	Just a note - in your letter you state you were including a copy of the 8/1 article that was in the Miller Press. It was not included and the self addressed envelope was not stamped - make sure your statements match your actions. I did read the Mille Press so didn't need article	WAPA believes the commenter may have confused the WAPA announcement letter with a project mailing from a different entity. WAPA's announcement letter indicated that a project map was attached. The letter was mailed on July 17, 2018 and could not have included an August 1, 2018, news article. Additionally, WAPA's announcement letter did not include a self addressed envelope. Sweetland sent a copy of the article to commenter on October 8, 2018, for the commenter's reference.	No section.	General
J	2	Private Citizen	8/31/2018	We support the Sweetland Wind Farm Project. We believe it will be beneficial to our community and country.	Comment noted.	No section.	General
K	1	Private Citizen	8/7/2018	We really enjoyed this meeting. Very informative and knowledgeable representatives. Enjoyed the posters but handouts would have been nice.	Comment noted. WAPA will consider your feedback to improve future public meetings.	No section.	General
L	1	Private Citizen	8/30/2018	I like the idea of renewable energy. This project is in a good place to help us be energy giving back.	Comment noted.	No section.	General
M	1	Private Citizen	9/7/2018	I attended the Sweetland Wind Farm Project public scoping meeting on August 7, 2018 in Miller, SD.	Comment noted. WAPA will consider your feedback to improve future public meetings.	No section.	General
M	2	Private Citizen	9/7/2018	The open house format intentionally inhibits group education and the sharing of good questions and answers. Many of the attendees have already signed wind turbine contracts with gag clauses.	WAPA's review of human health impacts (such as shadow flicker, infrasound), as detailed in the PEIS, used the best available credible scientific evidence and found no significant impacts. WAPA is committed to scientific integrity and will review and consider any new additional information during the review of the Sweetland Wind Project.	3.5, 3.8, 3.10, 4.10, 5.10, 5.13 of PEIS 3.4, 3.6, 3.9, 3.12 of EA	Human Health Decommissioning Economics Transportation
M	3	Private Citizen	9/7/2018	We are very concerned that the human health impacts in relation to industrial wind turbines are being denied and ignored. The many consequences including shadow flicker, ice throw, blade throw, infra sound, residential setbacks, road costs, decommission costs and property devaluation are not being addressed. When we asked questions about human health, we were either stared at in silence, or told that there are no peer reviewed studies.	Thank you for the link. WAPA is committed to scientific integrity. WAPA will review and consider the best available credible scientific evidence regarding health impacts of wind turbine noise.	3.8, 4.5, 4.7, 5.5, 5.7, and 5.13 of the PEIS 3.4 of EA	Human Health Noise
M	4	Private Citizen	9/7/2018	Here is a link to "21 Peer Reviewed Articles On the Adverse Health Effects of Wind Turbines": https://stopthesethings.com/2014/12/17/21-peer-reviewed-articles-on-the-adverse-health-effects-of-wind-turbine-noise/	WAPA's role in the Project is limited to the interconnection request. The federal interconnection process is separate from any State, County, or local permitting and approvals that may be required. Sweetland Wind is responsible for compliance with any State or local regulations, including permits.	No section.	General
M	5	Private Citizen	9/7/2018	Scout moved Hand County dirt in 2016 without state permits. Again in 2018, Scout dug 10 X 12 feet wide and 2-4 feet deep holes in Hand County roads without Hand County Commission approval. Why should this company be trusted?	Please email me the web link to the NEPA document when it becomes available.	No section.	General
N	1	Private Citizen	7/26/2018	Received a letter in the mail about your wind tower project. How close to occupied buildings will these towers be? When will you start and complete this project? On whose land or exactly where will these towers be located?	Comment noted. You have been added to the distribution list. WAPA responded on 7/26/18: Thank you for your interest in the project. The Project is being proposed by Sweetland Wind Farm, LLC, a private Sweetland. Sweetland Wind has not yet finalized the layout of the project and is working with landowners to secure leases. The project layout (location of turbines, access roads, etc.) will depend upon the leases and landowner access that Sweetland Wind can secure. Until such time, the location of project facilities and the distance to occupied buildings is unknown. Sweetland Wind will be required to abide by State, County, and local ordinances regarding zoning and setback distances from occupied buildings, if any ordinances exist (some Counties have not adopted setback distances for wind turbines). Sweetland Wind proposes to begin construction in the Fall of 2019. WAPA encourages you to attend the public scoping meeting on Tuesday, August 7th at the Miller Community Center from 5-7:30. Representatives from Sweetland Wind will be available to answer any additional questions you might have. You can also view WAPA's webpage for more project updates and information, as it becomes available. The webpage address is: https://www.wapa.gov/regions/UGP/Environment/Pages/SweetlandWind.aspx . Again, thank you for your interest in the project.	No section.	General
O	1	Natural Resources Conservation Service	8/30/2018	Thank you for the opportunity to provide Farmland Protection Policy Act (FPPA) review of this project. The project area does encompass prime farmland and land of statewide importance. Enclosed are Web Soil Survey maps delineating the FPPA farmland classifications of the project area. At this stage of project planning, it is impossible to tell how much farmland land the individual components of the project may impact. Typically the best sites for individual towers are not prime or important farmland, and the underground power collection system should not prevent the land from being farmed after it is installed. The surface components, (substation, overhead transmission line, access roads, and operations and maintenance facility will have small footprints relative to the size of the project area, and the attached maps can help you avoid the best farmland early in the planning stage.	Above ground project facilities were sited to avoid prime farmland. Above ground project facilities would impact 18.1 acres of farmlands of statewide importance. Impacts to these important farmlands are discussed in Section 3.1 of the EA.	4.1, 5.1 of PEIS 3.1 of EA	Soil
O	2	Natural Resources Conservation Service	8/30/2018	I have attached a Farmland Conversion Impact Rating Form (AD-1006) for the project. It is to be completed by both your agency and by NRCS (instructions are on the back). After you have identified the specific sites for the individual components, please complete parts I and II, and return it to us, along with diagrams of the chosen sites with sufficient detail to allow us to complete Parts II, IV, and V. We will then return it to you for completion of parts VI and VII, (see the attached Site Assessment Scoring for the Twelve Factors Used in FPPA for guidance. If the TOTAL POINTS in part VII are less than 160, the proposed activity will have no significant impact on prime farmland or farmland of statewide importance in Hand County, and no further alternatives will need to be considered.	Sweetland and WAPA will complete Form AD-1006 and return to your office.	4.1, 5.1 of PEIS 3.1 of EA	Soil
O	3	Natural Resources Conservation Service	8/30/2018	Before actual project construction begins the Natural Resources Conservation Service (NRCS) would advise the applicant to consult with the local NRCS and Farm Service Agency offices regarding any United States Department of Agriculture easements or contracts in the project areas that may be affected. For any other easements outside of the NRCS, you should check with the local courthouse.	Sweetland coordinated with the USFWS, NRCS, and SDGFP regarding the exact boundaries of the USFWS Wetland and Grassland Easements, Grassland Reserve Program, and Game Production Areas. The northern end of the Project Area contains one Grassland Reserve Program parcel. Part of the Agricultural Conservation Easement Program, the Grassland Reserve Program is a voluntary conservation program to protect, restore, and enhance grassland, including rangeland, pastureland, shrubland, and certain other lands. Sweetland will not construct wind facilities on the Grassland Reserve Program Conservation Easement without prior consultation and approval of the landowner and the NRCS.	Section 3.5 of EA	Public Lands
P	1	Private Citizen	9/3/2018	I am concerned about the potential adverse effects on human health that will result from this project. These concerns have not been adequately addressed by the developer.	WAPA's PEIS included a review of human health impacts. The EA will also include an evaluation of human health impacts.	3.8, 4.5, 4.7, 5.5, 5.7, and 5.13 of the PEIS 3.12 of EA	Human Health
P	2	Private Citizen	9/3/2018	I am highly concerned about human health consequences, including sleep disturbance, vibroacoustic disease, headache, and consequences of flicker effect. These need to be adequately studies and addressed.	WAPA's PEIS included a review of human health impacts, including sleep impacts, infrasound, and shadow flicker. The EA will also include an evaluation of human health impacts.	3.8, 4.5, 4.7, 5.5, 5.7, and 5.13 of the PEIS 3.12 of EA	Human Health
P	3	Private Citizen	9/3/2018	I am disturbed by confidentiality clauses in wind tower contracts and worry about decommission costs. Why are these topics not being addressed?	Because the Project is located on private property, any leases or contracts are negotiated between landowners and Sweetland. These contracts are outside of WAPA's authority. Decommissioning requirements will be specified in the SDPUC permit. A decommissioning plan has been prepared for the Project and is available at https://puc.sd.gov/commission/dockets/electric/2019/e19-012/appendixp.pdf	3.5 of PEIS 2.1 of EA	Decommissioning General
Q	1	Private Citizen	8/7/2018	I am in support of this project as I believe it will benefit the county and state and myself when its done. I just hope I am one of the landowners chosen to receive a wind site.	Comment noted.	No section.	General
R	1	Private Citizen	8/23/2018	What happens if the funding stops?	This is a privately developed Project. If insufficient funds are not available, the Project will not be constructed.	No section.	General
R	2	Private Citizen	8/23/2018	Do the electric company have plans for decommission or take down plans?	A decommissioning plan has been prepared for the Project and is available at https://puc.sd.gov/commission/dockets/electric/2019/e19-012/appendixp.pdf	3.5 of PEIS 2.1 of EA	Decommissioning
R	2	Private Citizen	8/23/2018	How much money is set aside for decommission and who handles it?			

Letter Number	Comment Number	Entity	Date of Comment	Comment	Response	Section in EA/PEIS	Comment Topic
R	3	Private Citizen	8/23/2018	If there is a fire at a wind turbine or started from a wind turbine, who is responsible?	During construction, the Project contractor would work with local and county emergency management to develop procedures for response to emergencies, natural hazards, hazardous materials incidents, manmade problems, and potential incidents concerning construction. The contractor would provide site maps, haul routes, construction schedules, contact numbers, training, and other requested information to local and county emergency management. During operations, the wind farm operator would coordinate with local and county emergency management to protect the public and the property related to the wind farm during natural, manmade, or other incidents. Sweetland would register each turbine location and the O&M facility with the rural identification/addressing (fire number) system and 911 systems.	3.8, 5.13 of PEIS 3.12 of EA	Safety
R	4	Private Citizen	8/23/2018	Will this impact artesian water and wells?	The proposed Wind Farm would not have impacts on either municipal or private water uses in the Project Area. Water storage, reprocessing, or cooling is not required for either the planned construction or operation of the facilities. The Project would comply with applicable permit requirements for water rights and the protection of groundwater quality.	4.3, 5.3 of PEIS 3.1 of EA	Water Resources
R	5	Private Citizen	8/23/2018	Who will maintain the wind turbines?	A team of 8 to 10 personnel would operate and maintain the wind farm. This team would be at the Project site or O&M facility during normal business hours and would perform routine checks, respond to issues, and optimize the performance of the Wind Farm. The team would also have specified personnel on-call 24 hours per day, 7 days per week, should an issue arise outside of normal business hours.	No section.	General
R	6	Private Citizen	8/23/2018	What are the health issues with wind turbines?	WAPA's review of human health impacts (such as shadow flicker, infrasound), as detailed in the PEIS, used the best available credible scientific evidence and found no significant impacts. WAPA is committed to scientific integrity and will review and consider any new additional information during the review of Sweetland Wind Farm.	3.8, 4.5, 4.10, 5.5, 5.7, 5.10, and 5.13 of PEIS 3.12 of EA	Human Health
S	1	The Nature Conservancy	8/21/2018	We are writing in regard to the potential impacts of the proposed Sweetland Wind Farm in Hand County, South Dakota and the Environmental Assessment conducted by the Western Area Power Administration. The mission of The Nature Conservancy is to conserve the lands and waters on which all life depends. We own and manage more than 17,000 acres in South Dakota. The area within and surrounding the Sweetland Wind Farm project area is part of the Missouri Coteau physiographic region and home to many declining grassland songbirds, such as chestnut-collared longspur, western meadowlark, and grasshopper sparrow, as well as non-migratory game species like sharp-tailed grouse. The Missouri Coteau is the last remaining stronghold of intact grasslands and wetlands in the Prairie Pothole Region, a geography that produces 50-80% of North America's dabbling duck population in addition to supporting numerous waterbird, shorebird and songbird species. Further, the rich natural resources of the region are critical to the hunting and tourism industry of South Dakota.	Comment noted. Potential impacts to wildlife, including grassland birds and waterbirds, are discussed in Section 3.5 of the EA.	4.6, 5.6 of PEIS 3.5 of EA	Wildlife
S	2	The Nature Conservancy	8/21/2018	The Nature Conservancy is supportive of climate-friendly renewable energy production, with wind power representing an important component. However, the footprint of wind energy is necessarily large and has the potential for significant detrimental effects within intact grassland systems. To prevent these impacts, we advocate for the development of wind energy in a way that avoids and minimizes its impact to native ecosystems and their biodiversity. To that end, we strongly encourage tower development on previously disturbed lands, such as fields previously converted to row crops, which are abundant in the region. We recommend avoiding all wind energy development on grassland that has never been tilled, even those that are currently being grazed, as grazing is an important ecological disturbance in grasslands.	No Project facilities are sited on untilled native grasslands. For more information on land cover, see Section 3.5 of the EA.	4.1, 5.1 of PEIS 3.5 of EA	Land use Land cover
S	3	The Nature Conservancy	8/21/2018	Work done by South Dakota State University in eastern South Dakota makes avoiding undisturbed grassland a straight forward process. Placing wind turbines on grassland that has never been tilled will contribute to the insidious trend in loss of tallgrass prairie nationwide.	No Project facilities are sited on untilled native grasslands. For more information on land cover, see Section 3.5 of the EA.	4.1, 5.1 of PEIS 3.5 of EA	Vegetation
S	4	The Nature Conservancy	8/21/2018	The Environmental Assessment should consider both the direct and indirect impacts of the wind development over the entire life of the project. There is ample evidence to suggest that in addition to the direct loss of habitat from the installation of wind energy infrastructure, the turbines have indirect effects that extend beyond the footprint of the turbine itself to reduce the habitat quality for many species of wildlife. Large blocks of intact grassland are important for grassland obligate birds. Fragmenting these grasslands with wind turbines will cause displacement for several declining species. Dr. Shaffer with the U.S. Geological Survey published a study in 2015 demonstrating that seven grassland bird species displayed displacement effects from wind turbine development up to 300 m from each turbine, and grasshopper sparrows, which have been declining sharply in the region, were particularly sensitive to development. Waterfowl have been shown to display avoidance of turbines at distances of 800 m, and given the importance of this landscape to breeding waterfowl, these indirect effects could have profound consequences. Furthermore, prairie grouse have been shown to avoid areas with vertical structures, including energy development infrastructure, and sharp-tailed grouse occur in Hand County.	Direct and indirect impacts are discussed in Section 3.5 of the EA. A Grassland Habitat Assessment was completed to identify grasslands within the Project Area and is included as Appendix E to the EA. Figure 3-3 in the EA shows the proposed turbine locations and other Project facilities overlain on grasslands and other land cover types. Section 3.5 of the EA quantifies grassland habitat impacts within the construction buffers for the Project. Eagle and Report Nest Surveys, Avian Use Surveys, and a Whooping Crane Habitat Review were completed for the Project and included as Appendices F, G, and J to the EA. These studies identified bird species within the Project Area. Potential Project impacts to birds are described in Section 3.5 and Figures 3-5, 3-6, 3-9, and 3-10 of the EA. In addition, a Wetland Delineation Report was prepared for the Project and attached as Appendix B to the EA. Potential Project impacts to wetlands are described in Section 3.2 on Figure 3-1 of the EA.	4.1, 4.6, 5.1, 5.6 of PEIS. 3.5, Appendices B, F, G, J of EA	Land use Land cover Wildlife
S	5	The Nature Conservancy	8/21/2018	Finally, the construction and continued maintenance of turbines and the roads and paths that go to each turbine are conduits for invasive weeds. Invasive species degrade the biodiversity of the grassland and reduce the habitat quality for wildlife and livestock. We strongly recommend that practices that are used to reconstruct habitat post-construction use high diversity seed mixes (greater than or equal to 30 species) of native grasses and forbs and that a long-term plan is in place with the developers to treat and reduce noxious weeds and invasive species around the facility.	A Noxious and Invasive Weed Management Plan will be developed prior to the start of construction to identify and establish the procedures to limit the introduction and spread of noxious and invasive weeds during construction and ongoing operations, as discussed in Section 3.5 of the EA. Sweetland would restore and regrade disturbed soils after construction, as discussed in Section 3.1 of the EA. The construction contractor would coordinate with the NRCS and/or the landowner on seed mixes for revegetation. The seed mixes and revegetation plan would be developed as part of the SWPPP for the Project.	4.6, 5.6 of PEIS 3.1, 3.5 of EA	Wildlife Vegetation
S	6	The Nature Conservancy	8/21/2018	Siting wind energy development in previously disturbed landscapes can avoid all of these concerns while still producing renewable energy and economic development. Please feel free to contact us with any questions or concerns, and thank you for your consideration in this process.	Comment noted.	No section.	General
T	1	U.S. Fish and Wildlife Service	8/28/2018	This letter is in response to your July 17, 2018, request for input regarding the proposed Sweetland Wind Farm Project. Per your letter, the Sweetland project is a 200 megawatt wind farm composed of approximately 80 wind turbines and associated facilities on 23,000 acres located in Hand County, approximately 8 miles southeast of the City of Miller, South Dakota. The proposed wind project would connect to Western Area Power Administration's (WAPA) 230 kilovolt Fort Thompson to Huron Transmission line. In this letter, we provide information regarding important wildlife habitats and U.S. Fish and Wildlife Service (Service) trust resources including federally listed species, eagles, birds of conservation concern and other migratory birds that may occur on 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 you in achieving compliance with Federal laws.	Comment noted.	No section.	General
T	2	U.S. Fish and Wildlife Service	8/28/2018	U.S. Fish and Wildlife Service Easements Per ongoing coordination with the Service, you are aware that the location of the proposed wind facility is within the jurisdictional area of the Service's Huron Wetland Management District (WMD). It is our current understanding that the Sweetland Project developer, Scout Energy, is not proposing to place turbines on Service easements administered by the Huron WMD; however, direct impacts (via associated infrastructure placement on easements) or indirect impacts (via avian avoidance of turbines near easements, described in more detail below) to these properties may occur. Note that Service easement concentration in a given area typically indicates a corresponding high wildlife value and relatively significant environmental impacts that may be anticipated if the proposed project is constructed there. We recommend continued coordination with Ms. Deborah Williams at the Huron WMD regarding easement concerns. Ms. Williams' contact information: U.S. Fish and Wildlife Service, Huron Wetland Management District, Rm 309 Federal Building, 200 4th St. SW, Huron, SD 57350; telephone: 605-352-5894.	WAPA and Sweetland will continue coordination with the Huron Wetland Management District. USFWS Easements are discussed in Section 3.5 of the EA. Figure 3-4 (Public Lands and Conservation Easements) in the EA depicts the locations of USFWS Easements in the Project Area.	Section 3.5 of EA	Land Use, Water Resources

Letter Number	Comment Number	Entity	Date of Comment	Comment	Response	Section in EA/PEIS	Comment Topic
T	3	U.S. Fish and Wildlife Service	8/28/2018	<p>Wind Energy Guidelines</p> <p>Scout Energy has contacted our office and indicated they are applying our US. Fish and Wildlife Service Land-Based Wind Energy Guidelines (WEG). These are available online at: https://www.fws.gov/ecological-services/es-library/pdfs/WEG_final.pdf. We recommend they adhere closely to these guidelines and use the information gathered to first determine whether the project should be placed in the area of interest at all. If the project location is deemed appropriate per the WEG, then the information should be used to guide project specifics, such as turbine locations. Turbine location, spacing, aspect, lighting, size, and design are all potential factors related to the risk posed to resident and migratory wildlife. The types of habitats present, their use by various species of wildlife, landscape features, prey base, migration corridors, and wildlife behavioral patterns also play a role. The effects to wildlife may include direct collision mortality and/or loss of habitat due to the footprint of the turbines/roads/other facilities, habitat fragmentation, avoidance of turbines on the landscape, encroachment of invasive weeds, or other factors. Currently, perhaps the best means of avoiding impacts to wildlife is to avoid placing wind farms within high wildlife use areas, thus, in South Dakota we recommend placement of turbines within existing cropland wherever possible. We request the results of any pre-/post construction wildlife monitoring for this project you may receive.</p> <p>Note that the South Dakota Department of Game, Fish and Parks has also developed siting guidelines for wind developers, Siting Guidelines for Wind Power Projects in South Dakota, available online at: https://gfp.sd.gov/userdocs/docs/wind-energy-guide-lines.pdf.</p>	Sweetland utilized the WEG guidance and the SDGFP guidance to site the Project, including avoiding high quality wildlife use areas wherever possible. Section 3.5 of the EA analyzes direct and indirect effects to wildlife. Sweetland is providing WAPA and the USFWS with all wildlife reports, including pre- and post-construction monitoring.	4.6, 5.6 of PEIS 3.5 of EA	General Wildlife
T	4	U.S. Fish and Wildlife Service	8/28/2018	<p>Eagle Guidance</p> <p>Golden eagles (<i>Aquila chrysaetos</i>) are year-round residents in western South Dakota, and may be found throughout the state in winter or during migration. Bald eagles (<i>Haliaeetus leucocephalus</i>) occur throughout South Dakota in all seasons. Both species are protected under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA). The bald eagle (<i>Haliaeetus leucocephalus</i>) and golden eagle (<i>Aquila chrysaetos</i>) are protected from a variety of harmful actions via take prohibitions in both the Migratory Bird Treaty Act (MBTA; 16 U.S.C. 703-712) and the Bald and Golden Eagle Protection Act (BGEPA; 16 U.S.C. 668-668d). The BGEPA, enacted in 1940 and amended several times, prohibits take of bald eagles and golden eagles, including their parts, nests, young or eggs, except where otherwise permitted pursuant to federal regulations. Incidental take of eagles from actions such as electrocutions from power lines or wind turbine strikes are prohibited unless specifically authorized via an eagle incidental take permit from US Fish and Wildlife Service (Service). BGEPA provides penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." BGEPA defines take to include the following actions: "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." The Service expanded this definition by regulation to include the term "destroy" to ensure that "take" also encompasses destruction of eagle nests. Also the Service defined the term disturb which means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.</p>	Comment noted. Bald and golden eagles are discussed in the Avian Studies included as Appendix G to the EA, the Eagle and Raptor Nest Surveys included as Appendix F to the EA, and in Section 3.5 of the EA.	4.6, 5.6 of PEIS 3.5, Appendices F and G of EA	Wildlife
T	5	U.S. Fish and Wildlife Service	8/28/2018	<p>The Service has developed guidance for the public regarding means to avoid take of bald and golden eagles:</p> <ul style="list-style-type: none"> The 2007 National Bald Eagle Management Guidelines serve to advise landowners, land managers, and others who share public and private lands with bald eagles when and under what circumstances the protective provisions of BG EPA may apply. They provide conservation recommendations to help people avoid and/or minimize such impacts to bald eagles, particularly where they may constitute "disturbance," which is prohibited by the BGEPA. https://www.fws.gov/northeast/ecologicalservices/pdf/NationalBaldEagleManagementGuidelines.pdf The 2013 Eagle Conservation Plan Guidance, Module 1- Land-based Wind Energy, Version 2 is specific to wind energy development and provides in-depth guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities. Development of an Eagle Conservation Plan per these guidelines may serve as the basis for applying for an eagle incidental take permit for wind energy facilities. Applications for such eagle incidental take permits must include an Eagle Conservation Plan. https://www.fws.gov/migratorybirds/pdt1management/eagleconservationplanguidance.pdf 	<p>Comment noted. The Project has reviewed and incorporated the 2013 Eagle Conservation Plan Guidance, as shown in the Eagle and Raptor Nest Surveys included as Appendix F to the EA and in Section 3.5 of the EA. Per the 2018 Eagle and Raptor Nest Surveys, the closest active eagle nest is 5.5 miles from the study area.</p> <p>Sweetland is still evaluating the need for an Eagle Conservation Plan. After the conclusion of field data collection (in spring 2019), Sweetland will analyze the results and make a determination whether an Eagle Conservation Plan would be necessary.</p>	4.6, 5.6 of PEIS 3.5, Appendix F of EA	Wildlife
T	6	U.S. Fish and Wildlife Service	8/28/2018	<p>The Service has also developed recommendations for wind developers specific to the Mountain Prairie Region (Region 6):</p> <ul style="list-style-type: none"> Region 6 Recommendations for Avoidance and Minimization of Impacts to Golden Eagles at Wind Energy Facilities-The goal of these recommendations is to contribute to maintaining stable or increasing breeding populations of eagles by recommending conservation measures that will maintain breeding territories and minimize impacts to other important eagle use areas (e.g., eagle nests, foraging areas, and communal roosts). https://www.fws.gov/coloradoes/documents/Final_GOEA_Buffer_Recommendations_Avoidance_Minimization_WindFacilities_April_10_2013.pdf. Final Outline and Components of an Eagle observation Plan (ECP) for Wind Development: Recommendations from USFWS Region 6 - In the event a project proponent intends to develop an ECP, this Region 6 document provides recommendations, in an outline format, for developing and organizing the content of an ECP, and includes additional details on topics that should be addressed in the plan. https://www.fws.gov/coloradoes/documents/Final_USFWS_R6_ECPguidance.pdf. 	<p>Comment noted. The Project has reviewed the guidance. Golden eagle nests and important use areas are not present in the study area.</p> <p>Sweetland is still evaluating the need for an Eagle Conservation Plan. After the conclusion of field data collection (in spring 2019), Sweetland will analyze the results and make a determination whether an Eagle Conservation Plan would be necessary.</p>	4.6, 5.6 of PEIS 3.5, Appendix F of EA	Wildlife
T	7	U.S. Fish and Wildlife Service	8/28/2018	<p>Finally, the Service has promulgated new permit regulations under BGEPA:</p> <ul style="list-style-type: none"> New eagle permit regulations, as allowed under BGEPA, were promulgated by the Service in 2009 (74 FR 46836; Sept. 11, 2009) and revised in 2016 (81 FR 91494; Dec. 16, 2016). The regulations authorize the limited take of bald and golden eagles where the take to be authorized is associated with otherwise lawful activities. These regulations also establish permit provisions for intentional take of eagle nests where necessary to ensure public health and safety, in addition to other limited circumstances. The revisions in 2016 included changes to permit issuance criteria and duration, definitions, compensatory mitigation standards, criteria for eagle nest removal permits, permit application requirements, and fees in order to clarify, improve implementation and increase compliance while still protecting eagles. https://www.gpo.gov/fdsys/pkg/FR-2016-12-16/pdf/2016-29908.pdf 	<p>Comment noted. The Project has reviewed and incorporated the guidance, as shown in the Avian Studies included as Appendix G to the EA and in Section 3.5 of the EA.</p> <p>Sweetland is still evaluating the need for an Eagle Conservation Plan. After the conclusion of field data collection (in spring 2019), Sweetland will analyze the results and make a determination whether an Eagle Conservation Plan would be necessary.</p>	4.6, 5.6 of PEIS 3.5, Appendix G of EA	Wildlife
T	8	U.S. Fish and Wildlife Service	8/28/2018	<p>The Service's Office of Law Enforcement carries out its mission to protect eagles through investigations and enforcement, as well as by fostering relationships with individuals, companies, industries and agencies that have taken effective steps to avoid take, including incidental take of these species, and encouraging others to implement measures to avoid take. The Office of Law Enforcement focuses its resources on investigating individuals and entities that take eagles without identifying and implementing all reasonable, prudent and effective measures to avoid that take. Those individuals and entities are encouraged to work closely with Service biologists to identify available protective measures, and to implement those measures during all activities or situations where their action or inaction may result in the take of an eagle(s).</p>	Comment noted. Sweetland will continue to coordinate with USFWS biologists on the potential impacts to eagles and has committed to several protective measures to avoid and minimize impacts to eagles. Eagles are discussed in Section 3.5 of the EA.	4.6, 5.6 of PEIS 3.5, Appendix F of EA	Wildlife
T	9	U.S. Fish and Wildlife Service	8/28/2018	<p>It is our understanding that Scout Energy is aware of at least some of the guidance above and potential for an eagle take permit; they have provided us with a report on results of one eagle nest survey at the Sweetland site in 2017, conducted per the ECPG. We recommend close adherence to the guidelines above and request results of any additional eagle data collected at the Sweetland project site you may receive.</p>	Comment noted. Sweetland will continue to implement eagle-related guidance, as applicable to the Project. Sweetland provided the 2018 Eagle and Raptor Nest Report to USFWS on 2/25/2019.	4.6, 5.6 of PEIS 3.5, Appendix F of EA	Wildlife

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				Threatened/Endangered Species			
T	10	U.S. Fish and Wildlife Service	8/28/2018	It is our understanding that this project is to be tiered to the 2015 Upper Great Plains Wind Energy Programmatic Environmental Impact Statement (PEIS), thus we anticipate Consistency Evaluation forms for the PEIS will be submitted to this office to verify project compliance with the PEIS and the associated analysis of impacts to federally listed species. Should adverse impacts be anticipated as a result of this project, individual formal consultation must be initiated by WAPA.	Draft Consistency Evaluation forms are being prepared for the Project and will be included as Appendix K of the EA.	4.6, 5.6 of PEIS Appendix K of EA	Wildlife
T	11	U.S. Fish and Wildlife Service	8/28/2018	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): Topeka Shiner/Endangered/Resident or potential resident Whooping Crane/Endangered/Spring and fall migration Rufa Red Knot/Threatened/Rare seasonal migrant Northern Long-eared Bat/Threatened/Summer resident, seasonal migrant known winter resident in the Black Hills	Comment noted. Potential Project effects to these four species are evaluated in Section 3.5 of the EA.	4.6, 5.6 of PEIS 3.5 of EA	Wildlife
T	12	U.S. Fish and Wildlife Service	8/28/2018	Topeka Shiner The Topeka shiner is a small minnow known to occupy numerous small streams within eastern South Dakota's Big Sioux, Vermillion, and James River watersheds. Sand Creek is a James River tributary and known Topeka shiner occupied stream located in the vicinity of the project area. If the project may affect Sand Creek or its tributaries, particularly if instream work will occur, additional consultation may be necessary to ensure compliance with the ESA.	Comment noted. Potential Project effects to this species is evaluated in Section 3.5 of the EA.	4.6, 5.6 of PEIS Section 3.5 of EA	Wildlife
T	13	U.S. Fish and Wildlife Service	8/28/2018	Whooping Crane: The proposed Sweetland Wind Farm location is within the documented migration corridor of the Aransas/Wood Buffalo population of whooping cranes – the only self-sustaining migratory population of whooping cranes in existence. Whooping cranes migrate through South Dakota twice annually on their way to northern breeding grounds and southern wintering areas, occupying 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. Internal analysis completed by the Service's Habitat and Population Evaluation Team staff indicates the existence of stopover habitat for the whooping crane in the Sweetland project area. Whooping cranes are large birds with low maneuverability. Line strike mortality is the greatest known threat to fledged whooping cranes; more information on this topic is provided herein (see enclosure dated February 4, 2010, and Power Lines section below). Mortality via turbine strikes may also pose a risk if the birds utilize habitat at/near wind farm sites. Loss of stopover habitat in the migration corridor is a concern that may be realized if whooping cranes tend to avoid wind farms. 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 and should be avoided. These issues should be addressed prior to wind farm development. Sightings of whooping cranes at any time should be reported to this office. Please note that use of the proposed project area by sandhill cranes may be indicative of the potential presence of whooping cranes since the two species are often observed utilizing the same habitats and migrating together. Biannual monitoring to detect whooping cranes will be required per the PEIS if the Sweetland project tiers to it.	Comment noted. A Bird and Bat Conservation Strategy (BBCS) is being prepared for the Project. Potential Project effects to this species are evaluated in Section 3.5, Figures 3-9 and 3-10, and Appendix J of the EA. A whooping crane stopover habitat assessment was done using a model developed by The Watershed Institute, Inc. (TWI). This model is recommended by the USFWS and was discussed with the USFWS South Dakota Ecological Services Field Office personnel during an in-person meeting on August 15, 2017. The TWI model identified water features that could serve as potential stopover habitat for whooping cranes within the Study Area and the surrounding 10-mile buffer. Sweetland commits to conducting post-construction fatality monitoring for 2 years to assess impacts.	4.6, 5.6 of PEIS 3.5, Appendix J of EA	Wildlife
T	14	U.S. Fish and Wildlife Service	8/28/2018	Rufa Red Knot: The rufa red knot is a robin-sized shorebird listed as threatened under the Endangered Species Act. 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. The species does not breed in this state.	Comment noted. Potential Project effects to this species are evaluated in Section 3.5 of the EA.	4.6, 5.6 of PEIS 3.5 of EA	Wildlife
T	15	U.S. Fish and Wildlife Service	8/28/2018	Northern Long-eared Bat: The northern long-eared bat is a medium-sized brown bat listed as threatened under the Endangered Species Act. Northern long-eared bats are known to be present in South Dakota during the summer months, 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. The species has been documented in other forested areas in the state during the summer months and along the Missouri River during migration. Summer survey guidelines for this species are identical for those established for the Indiana Bat (available online at: https://www.fws.gov/midwest/endangered/mammals/inbats/summersurveyguidance.html). 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. Currently, feathering turbine blades and increasing cut-in speeds are recommended measures to reduce the risk of bat mortality at wind generation facilities. A 4(d) rule has been published that exempts take of Northern long-eared bats in certain circumstances. For more information, see: https://www.fws.gov/Midwest/Endangered/mammals/nlebb/index.html .	Comment noted. Potential Project effects to this species are evaluated in Section 3.5 of the EA.	4.6, 5.6 of PEIS	Wildlife
T	16	U.S. Fish and Wildlife Service	8/28/2018	Wetlands According to National Wetlands Inventory maps, available online at: https://www.fws.gov/wetlands/ , numerous wetlands exist within the proposed project area, including several relatively large water bodies which may attract high numbers of migratory birds and perhaps whooping cranes mentioned above. If a project may impact wetlands or other important fish and wildlife habitats, the Service, in accordance with the National Environmental Policy Act (NEPA) 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.	As discussed in Section 3.2 of the EA, the Project would be sited to minimize impacts to wetland areas. Total permanent impacts to both wetlands and streams are anticipated to be less than 0.10 acre. Thus, impacts to wetlands and streams would be minor, and are anticipated to be authorized under a USACE NWP 12. Sweetland would be required to adhere to all conditions of the USACE NWP 12, including, but not limited to, restoring all areas with temporary impacts to pre-construction conditions.	4.1, 4.6, 5.1, 5.6 of PEIS 3.2 of EA	Land cover Wildlife
T	17	U.S. Fish and Wildlife Service	8/28/2018	Native Grasslands Native prairie, or grasslands that were tilled then left to return to grass ("go-back prairie"), are particularly important habitats in South Dakota. In addition to the intrinsic value of diverse native prairie plant communities, these areas represent a fraction of the prairie that once existed in the state. These habitats harbor numerous native wildlife species, some of which cannot survive outside the native plant community. We recommend complete avoidance of direct and indirect impacts to these habitats. The likely location of these grasslands in eastern South Dakota has been identified by Bauman et al. (2016). This publication and data layers may be obtained online at: https://openprairie.sdstate.edu/data_land-easternSD/ . Note that while native prairie is considered a conservation priority in the state, lesser-quality grasslands (e.g., grasslands with a high non-native plant component, overgrazed grasslands) can still provide habitat for wildlife and we recommend avoidance of these plant communities whenever possible. Project impacts should instead be directed toward previously disturbed land (e.g., cropland).	WAPA uses the land classification system in the National Land Cover Database. No undisturbed native grasslands are within the Project Area; undisturbed native grasslands are defined as grasslands that both showed no evidence of previous tilling and were dominated entirely by native tallgrass species. A discussion of direct and indirect effects to wildlife species, as well as direct effects to vegetation, are contained in Section 3.5 of the EA. A Grassland Habitat Assessment is attached as Appendix E to the EA.	4.1, 4.6, 5.1, 5.6 of PEIS 3.5, Appendix E of EA	Land cover Land use Wildlife

Letter Number	Comment Number	Entity	Date of Comment	Comment	Response	Section in EA/PEIS	Comment Topic
T	18	U.S. Fish and Wildlife Service	8/28/2018	<p>Birds of Conservation Concern</p> <p>The Migratory Birds Division of the Service has published Birds of Conservation Concern 2008, which may be found online at: https://www.fws.gov/migratorybirds/pdf/grants/BirdsofConservationConcern2008.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. Primary threats impacting grassland species that occur in South Dakota are 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 a Bird and Bat Conservation Strategy (BBCS) (identified within our WEG- and explained further below).</p>	Potential effects to Birds of Conservation Concern are evaluated in Section 3.5 of the EA. A Bird and Bat Conservation Strategy (BBCS) is being prepared for the Project.	4.6, 5.6 of PEIS 3.5 of EA	Wildlife
T	19	U.S. Fish and Wildlife Service	8/28/2018	<p>Avian Avoidance of Wind Turbines</p> <p>As indicated in our WEG, wind turbines are known to impact migratory birds directly, with post construction mortality surveys typically recommended for 1-2 years (or more) in order to identify mortality levels. Importantly, the WEG also identifies the indirect effects of wind energy facilities such as fragmentation effects and avian avoidance of turbines resulting in displacement to other habitats. While direct impacts can readily be observed and quantified, these indirect impacts are more difficult to quantify and require more research, time, cost, and effort. The Before-After-Control-Impact (BACI) method for avian studies is recommended in our WEG. This study design is particularly useful in determining indirect effects of wind projects on wildlife, but such studies are rarely conducted typically due to those research constraints. In the absence of robust project-specific research at every wind farm, two relatively recent government studies are of particular importance to this issue of quantifying avoidance/displacement: Loesch et al. 2013 and Shaffer and Buhl 2016.</p> <p>Loesch et al. 2013 evaluated breeding waterfowl pairs on wetlands at existing wind farms and reference sites in the Prairie Pothole Region. Displacement within 1/2 mile of wind turbines was detected at an average rate of 21% by five waterfowl species.</p> <p>Similarly, Shaffer and Buhl 2016 evaluated wind farms and reference sites in the Prairie Pothole Region, but their research was on grassland nesting birds and also included pre-construction data thus this study applied the BACI method. Their results also detected avoidance of turbines by seven species. The average rate of displacement out to 300 meters from wind turbines was 55%. This research also detected a trend: displacement rates of grassland nesting birds increased annually (the study included 5 years of data).</p> <p>Both of these government studies were conducted over multiple years, on multiple wind farms, involved large sample sizes, used reference sites for comparison, and were conducted on wind farms in North and South Dakota where many of the same species likely to occur at Sweetland were observed to avoid wind turbines. If the Sweetland project proceeds, we recommend quantification of wetlands within 1/2 mile of turbines, of grasslands within 300 m of turbines, and then application of the displacement rates from the Loesch et al. 2013 and Shaffer and Buhl 2016 studies to determine and disclose anticipated indirect impacts. This information is needed to adequately develop an appropriate mitigation plan to offset this form of habitat loss.</p> <p><i>Note that the authors (Loesch and J. Shaffer) are currently working together to publish a manuscript on methods to quantify</i></p>	<p>Section 3.5 of the EA discusses direct and indirect impacts to wildlife species, including waterfowl, wildlife habitat, and bird species. Section 3.5 also discusses the findings of Loesch et al. (2013) and Shaffer and Buhl (2016). Figure 3-1 shows the turbine locations and other Project facilities overlain on NW-identified wetlands. Figure 3-3 shows the turbine locations and other Project facilities overlain on grasslands and other land cover. A Grassland Habitat Assessment evaluated grasslands within the entire Project Area and is included as Appendix E to the EA. A Whooping Crane Habitat Assessment (which includes consideration of wetlands) evaluated the Project Area plus a 10-mile buffer and is included as Appendix J to the EA. Avian/eagle use point-count surveys were completed for the Project following a study plan discussed with the USFWS and SDGFP on August 15, 2017, and are attached to the EA as Appendix G.</p>	4.6, 5.6 of PEIS 3.5, Appendix E, J, and G of EA	Wildlife
T	20	U.S. Fish and Wildlife Service	8/28/2018	<p>Mitigation</p> <p>The Service's mitigation policy, available online at: https://www.fws.gov/policy/alnpl89_02.pdf, was established to help assure consistent and effective mitigation recommendations that help Federal action agencies and developers plan for mitigation measures early, avoid delays, and assure equal consideration of fish and wildlife resources with other project features and purposes. Our policy adopts the definition of the term "mitigation" as stated in the NEPA regulations which includes: "(a) avoiding the impact altogether by not taking a certain action or parts of an action; (b) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) rectifying the impact by restoring the affected environment; (d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (e) compensating for the impact by replacing or providing substitute resources or environments." As noted above, direct and indirect effects to wildlife are known to occur at wind energy facilities. The NEPA requires the analysis of both types of impact and quantification of those impacts whenever possible. The mitigation methods above can be applied to reduce direct and indirect effects at any point in the process of project development; however, we recommend early planning to help ensure full implementation of any necessary mitigation measures.</p>	In the PEIS, WAPA and the USFWS agreed on an evaluation procedure and identified measures to address potential environmental impacts associated with wind energy projects in the Upper Great Plains. This EA will tie to the PEIS and will incorporate the required environmental commitments and minimization and avoidance measures. Direct and indirect effects to wildlife are discussed in Section 3.5 of the EA.	4.6, 5.6 of PEIS Section 3.5 of EA	Wildlife
T	21	U.S. Fish and Wildlife Service	8/28/2018	<p>Bird and Bat Conservation Strategy</p> <p>Bird and bat conservation strategies are recommended in our WEG. We have developed regional document to further assist companies in following our established national guidance on BBCSs, US. Fish and Wildlife Service, Region 6, Mountain-Prairie Region Outline for a Bird and Bat Conservation Strategy: Wind Energy Projects available online at: https://www.fws.gov/coloradoes/documents/Final_USFWS_R6_ECP_guidance.pdf. As stated in the introduction of that document: a BBCS "... is a life-of-a-project framework for identifying and implementing actions to conserve birds and bats during wind energy project planning, construction, operation, maintenance, and decommissioning. It is the responsibility of wind energy project developers and operators to effectively assess project-related impacts to birds, bats and their habitats, and to work to avoid and minimize those impacts." A BBCS explains the actions taken by developers as they progress through the tiers of our Land-Based Wind Energy Guidelines, describing the analyses, studies, and reasoning implemented with the purpose of mitigating for potential avian and bat impacts. It also addresses post-construction monitoring and habitat impacts.</p>	A Bird and Bat Conservation Strategy (BBCS) is being prepared for the Project.	4.6, 5.6 of PEIS Section 3.5 of EA	Wildlife
T	22	U.S. Fish and Wildlife Service	8/28/2018	<p>Meteorological Towers</p> <p>Meteorological towers constructed in association with wind turbines are often similar in design to typical communication towers: tall, lighted, lattice structured, and guyed. Of primary concern are the collision mortality risks posed to migratory birds as towers are currently estimated to kill 6.8 million birds per year in the United States and Canada (Longcore et al. 2012). Our 2016 Recommended Best Practices for Communication Tower Design, Siting, Construction, Operation, Maintenance, and Decommissioning, is available online at: https://www.fws.gov/midwest/es/planning/pdf/GuidelinesCommunicationTowersUSFWS08Aug16.pdf. Among the primary concerns addressed are the establishment of new towers on the landscape, the heights of these towers, their lighting scheme, and means of structural support. Collocation of communications tower facilities on an existing structure is strongly recommended to avoid any additional impacts to migratory birds. If a new tower is necessary, placement of the new tower near other existing structures is recommended to concentrate the risk posed by the towers to relatively small areas. Minimization of tower height (below 200 feet to preclude the need for Federal Aviation Administration lighting requirements), use of only strobe or flashing lights (no steady-burning lights), and avoidance of guy wires (a great deal of avian mortality is a result of collisions with supporting guy wires) are important components intended to minimize potential impacts to migratory birds.</p>	Meteorological tower specifications, locations, minimization measures, and impacts are described in Section 2.1 of the EA.	4.6, 5.6 of PEIS Section 2.1 of EA	Wildlife

Letter Number	Comment Number	Entity	Date of Comment	Comment	Response	Section in EA/PEIS	Comment Topic
T	23	U.S. Fish and Wildlife Service	8/28/2018	<p>Overhead Power Lines</p> <p>The construction of additional overhead power lines associated with wind farms creates the threat of avian electrocution, particularly for raptors. 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 includes many measures to reduce risk to birds 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: http://www.eei.org/resourcesandmedia/products/Pages/products.aspx, or by calling 202-508-5000.</p> <p>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, increase 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.</p>	Sweetland commits to designing transmission lines and facilities using Avian Power Line Interaction Committee (APLIC) (APLIC, 2006; 2012) guidance to minimize the risk of electrocution and collision to avian species, as discussed in Section 3.5 of the EA. This includes installing avian flight diverters the entirety of the Project's gen-tie line.	4.6, 5.6 of PEIS Section 3.5 of EA	Wildlife
T	24	U.S. Fish and Wildlife Service	8/28/2018	<p>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 feather tips) may vary from 66 to 96 inches depending on the species (golden or bald) and gender of the bird, and 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.</p> <p>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: https://www.edmlink.com/component/zoo/item/video-raptors-at-risk.</p>	Sweetland has committed to designing the transmission line using APLIC's Suggested Practice of 60 inch spacing between conductors.	4.6, 5.6 of PEIS Section 3.5 of EA	Wildlife
T	25	U.S. Fish and Wildlife Service	8/28/2018	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 Reducing Avian Collisions with Power Lines: The State of the Art in 2012 which, again, may be obtained by contacting the Edison Electric Institute via their website at http://www.eei.org/resourcesandmedia/products/Pages/products.aspx , or by calling 202-508-5000	Sweetland has committed to designing transmission lines and facilities using APLIC guidance to minimize the risk of electrocution and collision to avian species. The Project is committed to installing avian flight diverters along the length of the Project gen-tie line, as discussed in Section 3.5 of the EA.	4.6, 5.6 of PEIS Section 3.5 of EA	Wildlife
T	26	U.S. Fish and Wildlife Service	8/28/2018	<p>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. As noted above, the whooping crane is particularly susceptible to this type of mortality, and your project occurs within the whooping crane migratory corridor. This region of the Service (Region 6) has developed Guidance for Minimizing Effects From Power Line Projects within the Whooping Crane Migration Corridor (copy enclosed). Marking of existing lines elsewhere in the species' corridor is recommended.</p>	<p>The Project is committed to installing avian flight diverters along the length of the Project gen-tie line. Additionally, Sweetland commits to avoid siting turbines in wetlands and waterbodies, following Avian Power Line Interaction Committee guidance (2006; 2012) in designing and constructing the gen-tie line; preparing a Bird and Bat Conservation Strategy (BBCS); instructing employees, contractors, and site visitors to avoid harassment and disturbance of wildlife, especially during reproductive (e.g., courtship and nesting) seasons; and additional commitments described in Section 3.5 of the EA.</p> <p>Potential impacts to birds, including whooping cranes are discussed in Section 3.5 of the EA. A Whooping Crane Habitat Assessment is included as Appendix J to the EA. The Project will install avian flight diverters along the full length of the gen-tie line. However, the PEIS does not require an additional line of equal distance to be marked; Sweetland will not pursue marking additional line.</p>	4.6, 5.6 of PEIS Section 3.5, Appendix J of EA	Wildlife
T	27	U.S. Fish and Wildlife Service	8/28/2018	<p>Summary</p> <p>Below we reiterate items above that are pertinent to the proposed project:</p> <ul style="list-style-type: none"> • Service easements: <ul style="list-style-type: none"> o Contact: Huron WMD • Wind energy guidelines <ul style="list-style-type: none"> o U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines o South Dakota Game, Fish and Parks Siting Guidelines for Wind Power Projects in South Dakota • Eagle guidance: <ul style="list-style-type: none"> o Bald and Golden Eagle Protection Act (BGEPA) o National Bald Eagle Management Guidelines o Eagle take permit <ul style="list-style-type: none"> o Eagle Conservation Plan Guidance, Module 1 - Land-based Wind Energy Version 2 o Region 6 Recommendations for Avoidance and Minimization of Impacts to Golden Eagles at Wind Energy Facilities o Final Outline and Components of an Eagle Conservation Plan (ECP) for Wind Development: Recommendations from USFWS • Region 6 <ul style="list-style-type: none"> • Threatened/endangered species - Endangered Species Act (ESA): <ul style="list-style-type: none"> o Topeka shiner o Whooping crane o Rufa red knot o Northern long-eared bat • Wetlands - avoid, minimize, mitigate <ul style="list-style-type: none"> o Intact Native Grasslands - Bauman et al. 2016 inventory of untitled land o Birds of Conservation Concern - Birds of Conservation Concern 2008 • Avian Avoidance of Wind Turbines - Indirect effects: <ul style="list-style-type: none"> o Loesch et al. 2013 - waterfowl avoidance o Shaffer and Buhl 2016 - grassland nesting bird avoidance • Mitigation - 1981 Service Mitigation Policy • Bird and Bat Conservation Strategy - WEG and U.S. Fish and Wildlife Service, Region 6, Mountain Prairie Region Outline for a Bird <p>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.</p>	Comment noted. These items will be addressed in the Environmental Assessment.	4.6, 5.6 of PEIS Section 3.5 of EA	Wildlife
T	28	U.S. Fish and Wildlife Service	8/28/2018	<p>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.</p>	Comment noted.	No section.	General