Avian and Bat Protection Plan
Elm Creek II Wind Project
Jackson and Martin Counties, Minnesota

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1. INTRODUCTION

The Elm Creek II Wind Project (Project) is an existing 148.8-megawatt (MW) wind power facility in Jackson and Martin counties, Minnesota (Figure 1). The Project commenced commercial operations in December 2010, and is owned and operated by Elm Creek Wind II, LLC (Elm Creek II), a subsidiary of Avangrid Renewables, LLC (Avangrid). A proposed upgrade to the Project's wind turbines, by retrofit or partial repowering, will maximize efficiency and extend the operating life of the Project. Construction associated with retrofit activities at the Project is planned to begin as early as the second quarter of 2026 and may start commercial operations as early as December 31, 2026.

In Minnesota, development of an Avian and Bat Protection Plan (ABPP) for Project operation is a requirement of the Large Wind Energy Conversion System (LWECS) Site Permit process. This ABPP incorporates information from the Project's original ABPP (last updated in January of 2011) and is based on recommendations in the Land-based Wind Energy Guidelines (WEG; United States Fish and Wildlife Service [USFWS] 2012); however, many portions of the tiered approach outlined in the WEG were not used during initial siting and construction because Project development pre-dated the WEG recommendations. The Minnesota Public Utilities Commission (MNPUC) issued Elm Creek II a LWECS Site Permit for the original Project on February 25, 2010, and amended it on March 14, 2011 (Docket No. IP-6728/WS-09-553). The original Project also received a Certificate of Need (CON) from the MNPUC on February 19, 2010 (Docket No. IP-6728/CN-09-471). Elm Creek II plans to submit an application to amend the LWECS Site Permit in 2025 for the repowering activities.

This ABPP documents the steps taken to avoid and minimize environmental impacts during the design of the original Project (Section 2); however, the majority of the document focuses on the proposed retrofit activities. The purpose of this ABPP is to document strategies for avoiding and minimizing risks to wildlife during the construction associated with the turbine retrofit and subsequent operation of the repowered Project, to support the 2025 LWECS Site Permit amendment application, and to meet the anticipated requirements of an amended LWECS Site Permit, which typically includes the development of an ABPP. This document also describes monitoring and adaptive management protocols for potential impacts to affected species, specifically birds and bats.

1.1. Project Description

The Project is located in Jackson and Martin counties in southern Minnesota. The Project is associated with an LWECS Site Permit boundary (Site Permit Boundary) comprised of approximately 123.1 square kilometers (km^2; 47.5 square miles [mi^2]; Figure 1, Table 1). This was modified from the original 2010 Site Permit Boundary to include additional parcels required for retrofitted turbine wind access buffers. The modified Site Permit Boundary is included in this ABPP.

The Project is located in an agricultural area between several existing wind facilities including the Trimont Wind Farm and Elm Creek I Wind Farm, owned and operated by Avangrid.

Table 1. Site Permit Boundary location in Jackson and Martin counties, Minnesota.

Township Name	Township	Range	Sections
Enterprise	103	34	1-3, 10-15, 20-29, 32-36
Wisconsin	102	34	1-5, 8-12
Cedar	104	33	17-20, 29-32
Elm Creek	103	33	5-8, 17-20, 29-32
Jay	102	33	6-7

Elm Creek II plans to retrofit up to 62 existing wind turbines from 2.4 MW Mitsubishi turbines with a 95-meter (m; 312-foot [ft]) rotor diameter (RD) to 2.2 MW turbines with an up to 120-m (394-ft) RD. Elm Creek II continues to explore equipment options such as using 2.2 MW turbines with a 110 RD or maintaining existing Mitsubishi turbines. Overall, this retrofit will decrease nameplate capacity from 148.8 MW. Assuming 62, 2.2 MW turbine layout the nameplate capacity may decrease to 136.4 MW. Based on engineering evaluation, there will be no changes to the turbine locations, access road locations, collection line locations[1], operations and maintenance (O&M) building, substation, or meteorological (met) tower (Figure 2). The following will occur as part of repowering activities:

- Replacement of the nacelle and internal components.
- Replacement of the rotor (nose cone, hub, and blades).
- Installation of an up to 7-m (23-ft) tower adapter section. The addition of the tower adapter section and new nacelle will increase the total hub height from 78 up to 86 m (256 to 282 ft), and these components with new rotors will increase the tip height from 127.5 up to 145 m (418 up to 476 ft).
- Replacing generators from 2.4 MW up to 2.2 MW.
- Installation of new 34.5-kilovolt (kV) collector line system (aboveground and buried) and pole or pad mounted capacitors within existing easements, as needed.

The retrofit construction activities are limited to the Site Permit Boundary. Elm Creek II will minimize temporary disturbance by utilizing previously disturbed construction areas such as turbine pads, electrical collector line easements, and permanent access roads. Retrofit construction changes that are proposed include temporarily widening and improvements to existing turbine pads, gravel access roads, temporary crane paths, and two up to 4-hectare (ha; 10-acre [ac]) primary staging/laydown areas for construction equipment and materials. It is estimated that construction work areas at each turbine pad location would encompass an approximately 300-foot buffer that will be utilized to temporarily stage turbine blades, nose cone, and nacelle. Grading will not be required for the entire base area; however, this area will contain an engineered crane pad upon which the main crane will be placed. Overall, the repower activities are expected to temporarily disturb less than 2.9% of the Site Permit Boundary.

[1] Currently, Elm Creek II is assuming that upgraded collector lines will be placed adjacent to the old lines within the original easements.

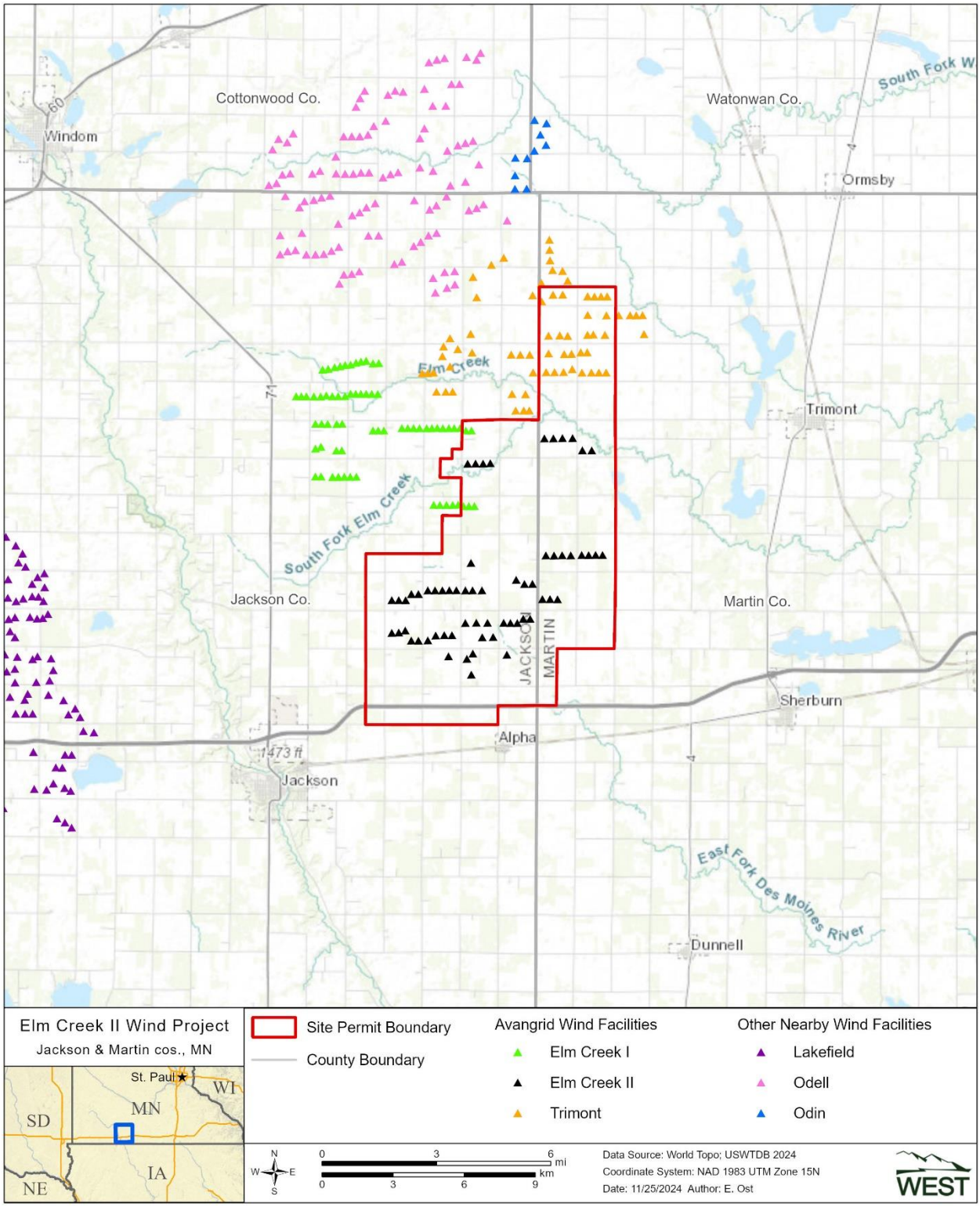

Figure 1. Location of the Elm Creek II Wind Project in Jackson and Martin counties, Minnesota.

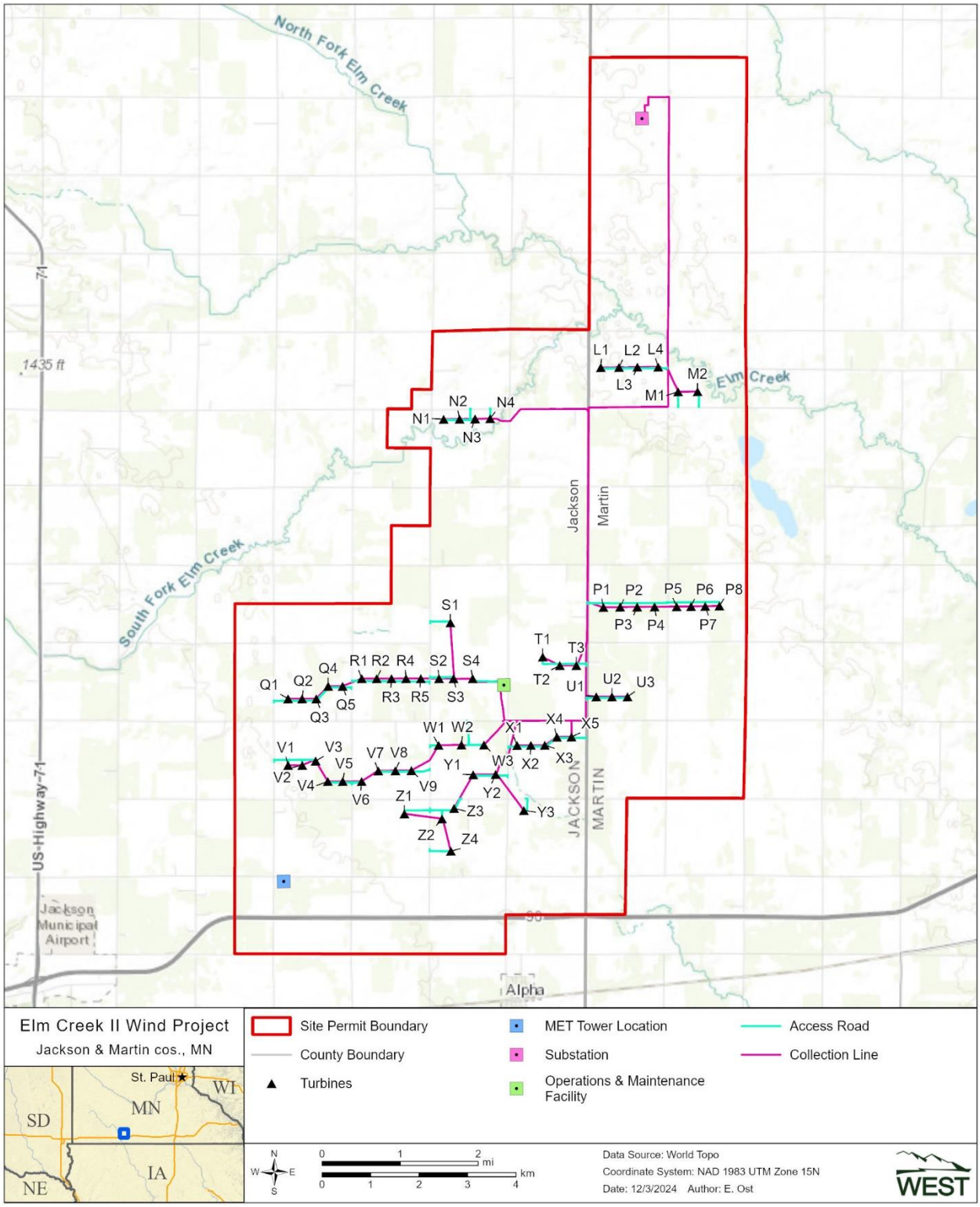

Figure 2. As-built layout of the Elm Creek II Wind Project.

1.2. Regulatory Framework

1.2.1. State of Minnesota Site Permitting

The Minnesota Wind Energy Conversion Systems Statute (Minnesota Statute Chapter 216F) requires that a site permit be issued from the MNPUC to build and operate an LWECS. A LWECS is defined as "any combination of "wind energy conversions system" with a combined nameplate capacity of 5,000 kilowatts or more." The siting of an LWECS must be compatible with environmental preservation, sustainable development, and the efficient use of resources (Minnesota Statute § 216F.03). Further, the criteria considered by the MNPUC in designating LWECS sites must include the impact of the LWECS on humans and the environment (Minnesota Statute § 216F.05). The original LWECS Site Permit for the Project was issued in February 2010, amended in March 2011. The application to amend the permit to cover the proposed retrofit activities will be submitted in Q1 2025 (MNPUC Docket No. IP-6728/WS-09-553), with an anticipated permit issuance by Q3 2025.

1.2.2. Endangered Species Act

Federal law protects endangered and threatened species under the Endangered Species Act of 1973 (ESA; Public Law 93-205, 87 Statute 884, 16 United States Code [USC] §§ 1531-1544). The ESA is administered by the USFWS and National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries). Listed species and their critical habitats are protected under the ESA, which prohibits the take or trade of listed animals; however, there is a mechanism to grant permission for incidental take.

1.2.3. Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (MBTA) assigns legal authority to USFWS to protect migratory birds from takings. These include over 800 species of raptors, diurnal migrants, and passerine migratory birds. The MBTA only regulates direct takings, not habitat modifications. The USFWS does not have a permit for incidental take of migratory birds associated with otherwise lawful activities, such as commercial or industrial operations.

1.2.4. Bald and Golden Eagle Protection Act

Bald (*Haliaeetus leucocephalus*) and golden (*Aquila chrysaetos*) eagles are afforded legal protection under authority of the Bald and Golden Eagle Protection Act (BGEPA), 16 United States Code (USC) 668–668d. BGEPA prohibits the take, sale, purchase, barter, offer of sale, purchase, or barter, transport, export or import, at any time or in any manner of any bald or golden eagle, alive or dead, or any part, nest, or egg thereof. Take is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb," 16 USC 668c. Disturb is defined as agitating or bothering an eagle to a degree that causes, or is likely to cause, injury, or either a decrease in productivity or nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior.

1.2.5. State Threatened and Endangered Species Laws

Minnesota's Endangered Species Statute (Minnesota Statutes § 84.0895) requires the Minnesota Department of Natural Resources (MNDNR) to adopt rules designating species meeting the statutory definitions of Endangered, Threatened, and Special Concern Species (ETSC). The resulting list of ETSC species is codified in Minnesota Rules, Chapter 6134. The Endangered Species Statute also authorizes the MNDNR to adopt rules that regulate treatment of species designated as endangered and threatened. These regulations are codified in Minnesota Rules, Parts 6212.1800 to 6212.2300.

1.2.6. Wind Development Guidance

Guidance, recommendations, and regulations regarding wind project development and wildlife impacts are being developed and constantly changing at federal, state, and local levels. On March 23, 2012, USFWS released the final WEG to mitigate impacts to wildlife and their habitats related to land-based wind energy facilities (USFWS 2012). The WEG outline a tiered research approach that includes searches of existing literature and data to identify potential issues of concern, field studies to provide additional data where necessary, and post-construction fatality studies to identify and quantify impacts. This guidance document recommends that wind developers voluntarily adhere to these guidelines and communicate with USFWS as part of their due diligence process in order to avoid, minimize, and mitigate impacts to species protected under the BGEPA and MBTA. In turn, USFWS will "regard a developer's or operator's adherence to these Guidelines, including communication with USFWS, as appropriate means of identifying and implementing reasonable and effective measures to avoid the take of species protected under the MBTA and BGEPA" (USFWS 2012).

The MNDNR *Guidance for Commercial Wind Energy Projects* (MNDNR 2018), outlines the necessary issues to consider when applying for commercial wind energy permits in Minnesota. Additionally, in June 2014, the state issued the *Avian and Bat Survey Protocols for Large Wind Energy Conversion Systems in Minnesota* (Mixon et al. 2014). This document outlines the recommended pre- and post-construction fatality surveys for avian and bat species for large-scale wind projects in the state; while this document is primarily focused on new or greenfield wind projects, several of the survey protocols can also be applied to existing wind projects proposed for repowering. Because the Project was built prior to issuance of either of these documents, and the retrofit will not involve changing the location of turbines, this ABPP focuses on the post-construction fatality survey guidance in the MNDNR 2014 protocols document (see Section 6.2.3).

1.3. Retrofit Agency Consultation

Agency coordination that has occurred to date for the proposed Project repower is summarized in Table 2. This ABPP will be submitted to the MNDNR, Minnesota Department of Commerce (MNDOC), and USFWS for comment.

Table 2. Agency coordination for development of the repowered Elm Creek II Wind Project.

Date	Description
July 14, 2023	A Natural Heritage Information System (NHIS) review request for the leased lands within the Site Permit Boundary was submitted to the Minnesota Department of Natural Resources (MNDNR). These leased lands would include the repower Project's infrastructure and construction limits of disturbance.
August 10, 2023	A letter was mailed to the U.S. Army Corps of Engineers, Minnesota Department of Agriculture, MNDNR, Minnesota Department of Health, Minnesota Department of Transportation, Minnesota Pollution Control Agency requesting comments on the proposed repower Project. A copy of the letter was resent to MNDNR via email on October 23, 2023.
September 6-7, 2023	Agency letters mailed to the State Historic Preservation Office, Minnesota Office of the State Archaeologist, Minnesota Indian Affairs Council, Tribes, and county/township agencies requesting comments on the proposed repower Project.
September 8, 2023	Meeting with the Minnesota Department of Commerce Energy Environmental Review and Analysis (EERA) unit to introduce the proposed repower Project.
November 14, 2023	A letter was mailed to the U.S. Fish and Wildlife Service (USFWS) requesting comments on the proposed repower Project.
December 5, 2023	MNDNR provided a response letter from the NHIS database review noting records of three species in the vicinity of the Project: Sullivant's milkweed (*Asclepias sullivantii*) and two species of caddisfly (*Limnephilus secludens* and *Ironoquia punctatissima*). The NHIS review also noted the Artz Wildlife Management Area (WMA) and three sites of biodiversity significance (SBS) as occurring within the Project. Recommendations included avoidance of MNDNR-mapped native communities and the SBS bordering Elm Creek within the Project, and a minimum 0.40-km (0.25-mi) setback from WMAs.
December 29, 2023	MNDNR's Regional Environmental Assessment Ecologist (REAE) in the MNDNR's South Region provided comments on the proposed repower Project. Comments noted the setback from the Artz WMA and the requirement for an Avian and Bat Protection Plan, curtailment between April and October, and a request for past post-construction monitoring data.
January 5, 2024	USFWS provided comments on the proposed repower Project. Recommendations included that Elm Creek II conduct an evaluation of risk factors to listed or proposed listed bat species at the Project, and additional fatality monitoring.
January 19, 2024	Meeting with the MNDNR to introduce the proposed repower Project and obtain feedback on the NHIS review. The MNDNR recommended repower activities ideally avoid SBS within the Project. The MNDNR indicated they would need to review additional information (updated Avian and Bat Protection Plan [ABPP], post-construction monitoring data from the original Project), in order to provide comments on the Artz WMA. Avangrid committed to a 3.0 m/s cut-in speed at sunset and sunrise between April and October as well as providing a summary of the post-construction monitoring completed at the site in 2011 as part of the revised ABPP.
March 6, 2024	Meeting with the Flandreau Santee Sioux Tribal Historic Preservation Officers to introduce the proposed repower Project and obtain feedback. The

Table 2. Agency coordination for development of the repowered Elm Creek II Wind Project.

Date	Description
	Flandreau Santee Sioux Tribal Historic Preservation Officers provided a response on March 7, 2024, stating no concerns with the repower Project.
September 20, 2024	Meeting with the USFWS and the MNDNR to provide additional background information on the proposed repower Project and included a summary of post-construction fatality results from the Project. The MNDNR commented that at the time of this meeting they would not support repowering of the turbine nearest to the Artz WMA due to wildlife concerns, but would discuss further once additional information was reviewed. The USFWS asked if tricolored bat habitat and risk were being considered.
September 26, 2024	Meeting with the Minnesota Department of Commerce Energy EERA unit to discuss wind right buffers requirements for repower Projects.
November 6, 2024	Meeting requested with the MNDNR wildlife regional managers to provide additional background information on the proposed repower Project and to discuss MNDNR wildlife concerns with repowering of the turbines nearest to the Artz WMA. Elm Creek II proposed the opportunity for a wind rights agreement with the MNDNR regarding the Artz WMA since the repowered Project would overlap with the WMA's wind rights buffer. The MNDNR indicated they would need to review the updated ABPP and discuss internally whether a wind rights agreement would be possible.

2. ORIGINAL PROJECT CONSIDERATIONS

Elm Creek II followed the state siting and permitting protocols for wind energy development that were in place at the time of the original Project design and construction in 2009 and 2010. In addition to these assessments (summarized in Sections 2.2.1 – 2.2.3), Elm Creek II coordinated with the USFWS, the MNDNR, the MNPUC, and the MNDOC (specifically, the Office of Energy Security; see Section 2.2.4) and used the results of these assessments and agency correspondence to minimize environmental impacts in the original siting and design of the Project (see Sections 2.4 and 2.5 below).

2.1. Preliminary Site Screening

Environmental conditions and permitting requirements were evaluated in late 2008 and early 2009 for the Project. Based on the earlier analyses completed for Avangrid's adjacent Elm Creek I and Trimont Wind projects, it was anticipated that avian and bat fatality rates for the Project would be lower than or similar to the fatality rates across the region and no fatal flaws for the development of the Project were identified. A review of state and federal databases identified Sullivant's milkweed (*Asclepias sullivantii*; state-listed threatened) and loggerhead shrike (*Lanius ludovicianus*; state-listed endangered) as listed and rare species potentially occurring at the Project at that time.

2.2. Site Characterization

2.2.1. Site visit

A site visit was conducted for the Project vicinity on February 10, 2009, to assist with screening and characterization of the site and to evaluate potential impacts to federal and state-listed species, sensitive habitat, migratory birds, and bats. Additionally, a site characterization study (SCS) was prepared, including habitat mapping that was used to assist in turbine siting and reduce potential impacts to sensitive habitat. These efforts were done concurrently with consultation and outreach to stakeholders such as the MNDOC, MNPUC, MNDNR, and USFWS. The MNDNR and USFWS expressed a general concern for the risk to birds from the wind Project, even though the site is predominantly agricultural row crop (92%).

2.2.2. Site Characterization Study

Results from the SCS indicated that bird and bat fatality rates were expected to be below or similar to regional fatality levels. The potential for occurrence for species of concern was low, as these species were expected to be infrequent visitors to the area. Results from the SCS also indicated that direct and indirect impacts to wildlife could occur from Project construction through loss or modification of habitat, and direct impacts (i.e., fatalities) to birds and bats could occur due to collisions with operating wind turbines (Derby and Dahl 2009).

As part of original SCS development, Elm Creek II sent letters to the USFWS and MNDNR requesting comments on the potential project in January of 2009 (Table 2). The USFWS response letter (dated May 19, 2009) stated there were no records of federally listed threatened or endangered species or critical habitat at the Project. The USFWS commented that Artz WMA and Watkins Lake are located in the Project's vicinity and could provide habitat for migratory birds, and recommended setbacks from native prairie remnants, Conservation Reserve Program (CRP) grasslands, and Wetland Reserve parcels, as well as implementing a bird and bat monitoring protocol. The MNDNR response letter (dated March 6, 2009) included NHIS records of Sullivant's milkweed along a railroad corridor located south of Interstate Highway 90, and mesic prairies identified as having potential native habitat that may include sensitive species along the same railroad corridor. However, these prairie remnants were located outside of the final Project development area (Table 2).

2.2.3. Avian and Bat Fatality Risk

Avian fatality rates at the Project were expected be similar to projects in the region. Prior to the construction of the original Project, many wind developers, including the developers of Elm Creek II, contributed to a three-year study for birds and bats at the three phases of the Buffalo Ridge wind-power development in southwest Minnesota. The results of this study were used as a risk index for avian and bat species for wind projects in Minnesota, including Elm Creek II, prior to the publication of the WEG and MNDNR guidance, and are summarized below.

Post-construction fatality monitoring was conducted at the three phases of the 354-turbine Buffalo Ridge wind-power development from 1996 to 1999, and resulted in the documentation of 55 bird fatalities (42 passerines, five waterbirds, three ducks, three upland game birds, one raptor, and

one shorebird; Johnson et al. 2002) and 184 bat fatalities, with hoary bats (*Lasiurus cinereus*) and eastern red bats (*Lasiurus borealis*) comprising most of the fatalities (Johnson et al. 2003). Bat fatalities were only found from May-October, with the majority found from July through September (Johnson et al. 2003). The study concluded that 71% of avian fatalities were likely migrating through the area, 20% were likely breeding in the study area, and 9% were resident species. Total annual avian fatalities were estimated at 72 (2.88 birds/MW/year), 324 (3.02 birds/MW/year), and 613 (5.92 birds/MW/year) at phases 1–3 of the wind development, respectively (Johnson et al. 2002). Total annual bat fatalities were estimated at five (0.20 bats/MW/year), 254 (2.37 bats/MW/year), and 282 (2.72 bats/MW/year) at phases 1–3 of the wind development, respectively (Johnson et al. 2003).

Based on the fatality estimates from the Buffalo Ridge studies, the original Elm Creek II Wind Project was considered likely a low-risk site for wind development. It was determined at the time that construction and operation of the original Project may result in the fatality of some bats. The magnitude of fatalities and degree to which bat species will be affected is difficult to determine, but fatalities may be within or below the average range of bat fatalities found throughout the US. Most of the bat casualties at wind-energy facilities to-date are species that conduct long migrations between summer roosts and winter areas.

The 2010 Site Permit Boundary was originally surveyed for existing Wildlife Management Areas (WMAs), scientific and natural areas, recreation areas, native prairies and forests, wetlands, and any other biologically sensitive areas. HDR Engineering, Inc. (HDR) conducted wetland delineations in 2009 and a biological resources report was developed as part of the LWECS permit process. No specific plant communities of concern were located within the 2010 Site Permit Boundary. An area of remnant prairie located adjacent to the railroad was identified and avoided during original Project development. Known areas of animal congregation were determined not to be present, and none were identified by state or federal agencies.

Local vegetation was noted as predominantly agricultural crops and pasture, with a mix of deciduous and coniferous trees planted for windbreaks. Crops included corn, soybeans, small grains, and forage crops. In the roadside swales, occasional patches of native vegetation were present. The Artz WMA and a portion of Watkins Lake were located within the original 2010 Site Permit Boundary, which provided the best potential habitat for wildlife. Elm Creek was also noted as being within the original Project and is a thinly forested, meandering stream that drains into Watkins Lake.

2.2.4. Agency Coordination

Agency coordination that occurred prior to development of the original Project from 2009-2010 is summarized in Table 3.

Table 3. Agency coordination for development of the original Elm Creek II Wind Project.

Date	Description
January 27, 2009	Agency letters to Minnesota Department of Natural Resources (MNDNR), US Fish and Wildlife Service (USFWS), and the State Historic Preservation Office requesting comments on the potential Project.
March 6, 2009	MNDNR provided a response letter from the Natural Heritage Information System database review noting that Artz Wildlife Management Area (WMA) is located within the Project boundary, documented occurrences of Sullivant's milkweed (*Asclepias sullivantii*) along a railroad corridor located south of Interstate Highway 90, and mesic prairies identified as having potential native habitat that may include sensitive species along the railroad corridor. These prairie remnants were outside of the final Project construction footprint.
March 19, 2009	MNDNR regional ecologist sent a letter describing potential natural resources in the Project including Artz WMA, CRP grasslands, public waters and wetlands. A recommendation for post-construction monitoring was included.
May 12, 2009	First meeting with the Minnesota Department of Commerce (MNDOC) Office of Energy Security (OES) / Minnesota Public Utilities Commission (MNPUC)[1] to review results of the Site Characterization Study, habitat mapping, National Wetlands Inventory evaluation, and identification of sensitive land features.
May 19, 2009	USFWS response letter stated there are no records of federally listed threatened or endangered species or critical habitat at the Project. The USFWS commented that Artz WMA and Watkins Lake are located in the Project and could provide habitat for migratory birds, and recommended setbacks from native prairie remnants, CRP, and Wetland Reserve parcels. The USFWS described migratory bird regulations and recommended a bird and bat monitoring protocol.
May 19, 2009	Large Wind Energy Conversion System (LWECS) Site Permit Application submitted to MNDOC/MNPUC.
June 8, 2009	Certificate of Need Application submitted to MNDOC/MNPUC.
June 30, 2009	Site visit with Matt Langan from MNDOC/MNPUC and Sarah Emery and Adam Sokolski from Avangrid to review Artz WMA, Watkins Lake, and the Project for potential wildlife habitat. A post-construction monitoring plot at the adjacent Elm Creek I Project was also visited.
June 2009 through February 2010	The Martin and Jackson County Farm Service Agency (FSA) offices were contacted for CRP data in the Project. That request was denied. A Freedom of Information Act was filed with the US Department of Agriculture requesting CRP location information. That information request was denied in September 2009. Since CRP data is not publicly available, signed releases were obtained from each leased landowner so the FSA would provide CRP data. In February 2010 the county FSA offices provided CRP data for leased lands.
July 17, 2009	Meeting with MNDOC/MNPUC, USFWS, and MNDNR to discuss post-construction fatality monitoring. Andy Linehan, Sarah Emery, and Adam Sokolski from Avangrid presented the Avian and Bat Protection Plan (ABPP) and described the proposed post-construction fatality protocol and preliminary results for the adjacent Elm Creek I Project. The MNDNR agreed during this meeting that the Elm Creek II site has a limited amount of natural habitat that would be directly or indirectly impacted by the construction of the wind farm. The MNDNR recommended a setback distance of five times the rotor diameter for the only

Table 3. Agency coordination for development of the original Elm Creek II Wind Project.

Date	Description
	WMA near the Project. The MNDNR also determined that one year of post-construction monitoring would be sufficient.
July 29, 2009	MNDOC/MNPUC issues draft LWECS permit and opens public comment period (open through September 23, 2009).
September 3, 2009	MNDOC/MNPUC staff held public meeting for the Elm Creek II LWECS permit.
November 23, 2009	Notice of Availability for the MNDOC/MNPUC-prepared Environmental Report and the Certificate of Need public comment period (open through December 23, 2009).
December 15, 2009	Public hearing for the Certificate of Need.
February 19, 2010	MNDOC/MNPUC issued Certificate of Need for the Elm Creek II Wind Project.
February 25, 2010	MNDOC/MNPUC issued final LWECS Site Permit for the Elm Creek II Wind Project.
March 15, 2010	Conditional Use Permit Application submitted to Jackson County for the construction of the Operations and Maintenance Facility.
March 26, 2010	Provided final layout shapefiles to Rich Davis of the USFWS to conduct a Geographic Information Systems review in lieu of a site visit.
April 9, 2010	Applications for Wetlands and Waters Permits (three addendums submitted between April 22, 2010 and June 4, 2010).
April 13, 2010	Provided site map to USFWS showing natural resources and layout.
April 16, 2010	Jackson County issues Condition Use Permit for construction of the Operations and Maintenance Facility.
April 23, 2010	Pre-construction meeting with MNDOC/MNPUC.
May 4, 2010	Construction kick-off meeting held with landowners and contractors, including construction environmental compliance training.
May 5, 2010	Received Section 404 General Permit, amended May 27, 2010.
May 11, 2010	Stormwater Pollution Prevention Plan and National Pollution Discharge Elimination System (NPDES) Notice of Intent; received NPDES permit from the Minnesota Pollution Control Agency.
June 1, 2010	No Loss Decision from the Jackson County Soil and Water Conservation District (SWCD).
June 8, 2010	Exemption Decision from the Martin County SWCD.
June 15, 2010	Received public water permit from the MNDNR, amended June 17, 2010.
June 30, 2010	Received Public Waters Inventory License from MNDNR
December 22, 2010	Pre-operation meeting with MNDOC/MNPUC.

[1.] MNDOC/MNPUC are referred to together because at the time of original Project development, the MNDOC OES provided staffing to the MNPUC for energy projects.

2.2.5. Overview

Conclusions from the SCS and agency consultations included:

- The relative lack of topography decreases the potential for concentrated raptor use and concentrations of birds during migration.
- Suitable habitat for small mammals has moderate potential to attract raptors.
- Protected species may occur in the area of the Project (e.g., bald eagle).

- The relative lack of native grasslands and woodlands creates a low-level potential to impact state-listed species.
- Overall habitat at the Project is not unique compared to the surrounding landscape.
- No federally listed plants are known to occur in Jackson or Martin counties.
- The site has scattered trees, buildings, and wetlands that could potentially be used by bats.

2.3. Field Studies and Impacts Assessment

The pre-construction screenings and analyses (including habitat mapping and agency coordination) conducted during the Tier 1 and Tier 2 phases for the original Project indicated that there was no potential for significant adverse impacts to sensitive species or that habitat fragmentation would occur from development of the Project. Therefore, other than the site visit and wetland delineations which occurred in 2009 (mentioned above), no additional field studies or impact assessment were needed during Tier 3.

2.4. Original Pre-construction Siting and Design

Elm Creek II worked closely with both WEST and HDR to site the Project to avoid biologically sensitive habitat and minimize the potential for avian and wildlife impacts. Agency coordination resulted in concurrence that development of the original Project would only directly or indirectly impact a limited amount of natural habitat.

Several avoidance and minimization measures were implemented to minimize impacts to wildlife and habitat, including:

- Siting facilities to exclude established wildlife management, recreation, and scientific and natural areas from consideration for wind turbine, access road, or feeder/collector line placement.
    - The Artz WMA and Watkins Lake were both avoided through Project siting, including implementing the required MNPUC setbacks.
- Siting facilities to avoid Conservation Reserve Enhancement Program (CREP) easements and minimize impacts to Conservation Reserve Program (CRP) easements.
    - Turbine M2 was shifted west approximately 46 m (150 ft) to avoid all permanent impacts to CRP and CREP easements.
    - Installation of the underground electrical collection system resulted in temporary disturbance to the CRP grassland east of Turbine N4; namely, approximately 283 sq km (928 sq ft) of CRP grassland was disturbed and was replanted in switchgrass (*Panicum virgatum*) per Farm Service Agency coordination.
- All turbines and access roads were sited completely within cropped agricultural land, maximizing use of cultivated land and minimizing habitat fragmentation.
- Siting facilities to minimize wetland and stream impacts to the extent practicable.
- Minimally lighting turbines according to the Federal Aviation Administration (FAA; 2016) and Minnesota Department of Transportation requirements.

- Designing and constructing aboveground power lines to Avian Power Line Interaction Committee (APLIC) guidelines (APLIC 2006, 2012).
- Installing an un-guyed permanent met tower.

2.5. Original Avoidance and Minimization Measures Implemented during Project Construction and Operations

- Development of a Storm Water Pollution Prevention Plan (SWPPP), which was approved by the Minnesota Pollution Control Agency who subsequently issued the National Pollution Discharge Elimination System (NPDES) permit on May 15, 2010.
    - The SWPPP included Best Management Practices to control the sediment erosion and prevent storm water pollution during construction, including but not limited to, pollution controls, silt fences, fiber logs, erosion control blanket, seeding, water crossing details, dewatering methods.
- Two construction trainings were held for the Project where all onsite workers were briefed on environmental permit conditions and SWPPP compliance.
- Post-construction reclamation activities included removing and disposing of debris, dismantling all temporary facilities (including staging and lay down areas), leveling or filling tire ruts, decompacting soil, employing appropriate erosion control measures and reseeding areas disturbed by construction activities with vegetation similar to that which was removed.
- Elm Creek II committed to annual reporting of fatalities to the USFWS, and to notify the MNPUC and MNDNR within 24-hours of an extraordinary event (defined as fatalities of threatened or endangered species, or the discovery of a large number of dead birds or bats of any variety on site). Elm Creek II would also submit a report to the MNPUC describing the cause of the extraordinary event and the steps taken to avoid future occurrences within 30 days.
- Elm Creek II implemented ongoing training of operations personnel on the Wildlife Monitoring and Reporting System (WMRS).

2.6. Baseline Fatality Monitoring

2.6.1. Incidental Fatalities

One bald eagle fatality was discovered incidentally at the Project on February 17, 2023, while the original turbines were still operational. The bald eagle carcass was discovered near Turbine V9. As part of the WMRS implemented at the Project and reporting commitments outlined above, this fatality was reported to the USFWS, MNDNR, and MNPUC within 24 hours of discovery. In response, Elm Creek II continued to implement risk reduction measures, including but not limited to, non-avian carcass management, maintaining visual contact of eagles until risk of collision has abated, and informed curtailment. Elm Creek II obtained a Bald Eagle General Permit (PER10658505) for the existing Project from the USFWS in May 2024.

2.6.2. Post-construction Fatality Monitoring

As noted above, Avangrid owns and operates an adjacent wind project in the area: Elm Creek I. Elm Creek I sits just to the north of the Elm Creek II Project, consists of 67 1.5 MW turbines with

a 77-m RD, and became operational in November of 2008. Avangrid contracted WEST to conduct one year of post-construction fatality monitoring studies at both Elm Creek I (2009-2010; Derby et al. 2010) and Elm Creek II (2011-2012; Derby et al. 2012). Additionally, one year of post-construction fatality monitoring was conducted at the nearby Trimont Wind Project (Trimont) in 2020-2021 (Stucker et al. 2022). Trimont was repowered similarly to the proposed approach at the Project, where the repowered turbines remained in the same locations as the original turbines. The results of each of these studies are summarized below as potentially relevant indicators of the level of fatalities expected at the Project (Elm Creek II) after the retrofit is completed.

At Elm Creek I, a total of three birds (one killdeer [*Charadrius vociferus*], one ring-necked pheasant [*Phasianus colchicus*], and one yellow-throated vireo [*Vireo flavifrons*]) and five bats (two silver-haired bats (*Lasionycteris noctivagans*), one hoary bat, one little brown bat [*Myotis lucifugus;* currently under review for federal listing under the ESA], and one unidentified bat) were found during standardized carcass surveys, with one additional injured bird found incidentally outside of a search plot (red-tailed hawk [*Buteo jamaicensis*]). The overall bird fatality rate was estimated at 1.55 birds/MW/year, which falls at the low end of the range of other fatality estimates at wind farms in Minnesota and the Midwest (Derby et al. 2010). Most bat fatalities occurred during the fall migration season, which is consistent with other studies in North America. Overall, the fatality rate for bats was estimated at 1.49 bats/MW/year, which is also on the low end of the range for fatality rates at other wind projects in the Midwest (Derby et al. 2010). No federal or state-threatened or endangered species were found as fatalities at the Elm Creek I Project from 2009-2010 (Derby et al. 2010).

At Elm Creek II, a total of ten birds (one cliff swallow [*Petrochelidon pyrrhonota*], one horned lark [*Eremophila alpestris*], one song sparrow [*Melospiza melodia*], one sora [*Porzana carolina*], one Tennessee warbler [*Oreothlypis peregrina*], one Wilson's warbler [*Cardellina pusilla*], and four unidentified birds) and 17 bats (eight hoary bats, six eastern red bats, and three little brown bats) were found during standardized carcass surveys. Additionally, two bird fatalities (one American coot [*Fulica americana*] and one yellow-bellied sapsucker [*Sphyrapicus varius*]) and seven bat fatalities (four hoary bats, one eastern red bat, and two little brown bats) were found incidentally within search areas, and three birds (two mallards [*Anas platyrhynchos*] and one unidentified passerine) and two bats (one big brown bat [*Eptesicus fuscus*] and one silver-haired bat) were found incidentally outside of search areas. The overall bird fatality rate was estimated at 3.64 birds/MW/year, which falls within the range of other fatality estimates at wind projects in Minnesota and the Midwest (Derby et al. 2012). The majority of bat fatalities were located during the fall migration season, which is consistent with other studies in North America. Overall, the fatality rate for bats was estimated at 2.81 bats/MW/year, which is within the lower portion of the range for fatality rates at wind projects in Minnesota and the Midwest (Derby et al. 2012). No federal or state-threatened or endangered species were found as fatalities at the Elm Creek II Project from 2011-2012 (Derby et al. 2012).

At Trimont, six birds (one American redstart [*Setophaga ruticilla*], one indigo bunting [*Passerina cyanea*], one red-eyed vireo [*Vireo olivaceus*], one Savannah sparrow [*Passerculus sandwichensis*], one sedge wren [*Cistothorus stellaris*], and one yellow-billed cuckoo [*Coccyzus*

americanus]) and 14 bats (six hoary bats, five eastern red bats, and three silver-haired bats) were found during standardized carcass surveys from 2020-2021 (Stucker et al. 2022). No federal or state-threatened or endangered species were found as fatalities at Trimont during post-construction fatality monitoring. The overall bird fatality rate was estimated at 0.66 birds/MW/year and the overall bat fatality rate was estimated at 1.70 bats/MW/year. Both the bird and bat fatality rates fall at the lower end of the range of other fatality estimates at wind projects in Minnesota and the Midwest (WEST 2021).

Based on fatality data from the original Project, the adjacent Elm Creek I project, and the repowered adjacent Trimont project, no significant adverse impacts are anticipated from Project operations following the retrofit. While the proposed 120-m (394-ft) RD and rotor swept area for the 53 retrofit turbines is larger than the 77-m (253-ft) RD turbines at Elm Creek I and the existing 95-m (312-ft) RD turbines, the anticipated fatality rate for birds and bats at the Project after the retrofit will likely fall within the range documented at other wind projects in Minnesota and the Midwest (several wind facilities have been recently permitted and constructed in Minnesota with rotor diameters of 120 m or greater). Bird and bat species found as fatalities will likely be composed of the same general species (non-listed and found relatively commonly as fatalities) as those documented at the original Project and in the region. A potential exception is the little brown bat, noted below in Section 3.3, which is currently under review for potential federal listing. The little brown bat was documented as a fatality during the 2010 and 2011 post-construction fatality monitoring studies at Elm Creek I and Elm Creek II, but not at the post-construction fatality monitoring study at Trimont in 2020-2021. See Section 5 for further discussion of little brown bats.

3. RETROFIT SITE CHARACTERIZATION AND SITE VISIT

As the Project is already built and the permanent impact areas (turbines, roads, substation and O&M building) are not changing due to the retrofit (i.e., only temporary disturbance will occur as part of the retrofit activities [e.g., collection line upgrades, crane paths, laydown areas]), these site characterization analyses, including both a desktop review and site visit (completed on June 22, 2023), were used to identify broader potential environmental and operational impacts rather than for siting purposes. An additional site visit was completed on October 3, 2023, to assess the quality of a Site of Biodiversity Significance (SBS) within the Site Permit Boundary east of Turbine M2. The following subsections describe a summary of the results of the site characterization assessments that Elm Creek II conducted in 2023 for this ABPP as part of the planning for the proposed retrofit work. Additional site characterization details can be found in the *Biological Resources Assessment Report* (Patterson et al. 2024).

3.1. Habitats and Landcover near the Elm Creek II Wind Project

The Project is in the Western Corn Belt Plains (47) Level III ecoregion and the Des Moines Lobe (47b) Level IV ecoregion (US Environmental Protection Agency [USEPA] 2018). This region was once covered with tallgrass prairie; however, currently over 80% of the Western Corn Belt Plains is used for cropland agriculture and forage for livestock (Omernik and Gallant 1988, USEPA 2013). The topography is a combination of nearly level to gently rolling glaciated till plains, hilly loess plains, and morainal hills (Omernik and Gallant 1988). Average annual precipitation of 66–

94 centimeters (cm; 26–37 inches [in]) and fertile, warm, moist soils make this one of the most important areas of corn and soybean production in the world (USEPA 2013). Surface and groundwater contamination from fertilizer and pesticide applications associated with cropland agriculture as well as concentrated livestock production are pertinent environmental issues in the region (USEPA 2013).

According to the National Land Cover Database (NLCD; 2024), land cover within the Site Permit Boundary is primarily cultivated crops (90.9%; Table 4, Figure 3). Other substantial land cover types within the Site Permit Boundary include developed lands (5.6%; open space, low, medium, and high intensity). The remaining land cover types within the Site Permit Boundary (hay pasture, emergent herbaceous wetlands, deciduous forest, open water, woody wetlands, mixed forest, herbaceous, barren land, and shrub/scrub) each account for less than 2.0% of the Site Permit Boundary. Natural lands are highly fragmented and generally associated with water features in the area. Near the Site Permit Boundary, these water features include Elm Creek, which flows through the northeast portion of the Site Permit Boundary. Within the cropland complex that occurs throughout most of the Site Permit Boundary, small natural patches include grasslands along roads, drainage ditches, fence rows, and woodlots and wind breaks associated with farmsteads.

3.2. Managed and/or Natural Habitats

Ownership within the Site Permit Boundary is almost all private agricultural land, with one MNDNR WMA located within the Site Permit Boundary. The MNDNR Artz WMA is a 6-ha (16 ac) parcel that encompasses part of Hassings Slough and is located in Jackson County (N1/2 of Section 28, T103N, R 34W; Figure 4). The Artz WMA encompasses a high-quality wetland that could support a variety of birds (such as pheasants, waterfowl), amphibians, reptiles, insects, and other small game wildlife. One Reinvest in Minnesota Reserve Partnership easement and one Conservation Reserve Enhancement Program area are located within the northeast portion of the Site Permit Boundary, north of Turbine L4 (Figure 4). Two additional Conservation Reserve Enhancement Program areas are located within the northeast portion of the Site Permit Boundary, north of Turbines L1 and L2 and southeast of Turbine M2 (Figure 4). An American Farmland Trust (McLaren) area is located west of Turbine V1 in the west portion of the Site Permit Boundary, and a small portion of Marginal Cropland – Perpetual is located along the southern border of the Site Permit Boundary (Figure 4). No state Scientific Natural Areas, game refuges, or federal lands occur in the Site Permit Boundary.

Table 4. Land cover types within the Elm Creek II Wind Project.

Land Classification	Site Permit Boundary (acres)	Percent of Total Site Permit Boundary
Cultivated Crops	27,651	90.9
Developed, Classes Merged	1,701	5.6
Hay/Pasture	558	1.8
Emergent Herbaceous Wetlands	350	1.2
Deciduous Forest	102	0.3
Open Water	44	0.1
Woody Wetlands	12	<0.1
Mixed Forest	2	<0.1
Herbaceous	2	<0.1
Barren Land	1	<0.1
Shrub/Scrub	<1	<0.1
Total	**30,423**	**100**

National Land Cover Database 2024

Note: Totals may not equal the sum of addends due to rounding.

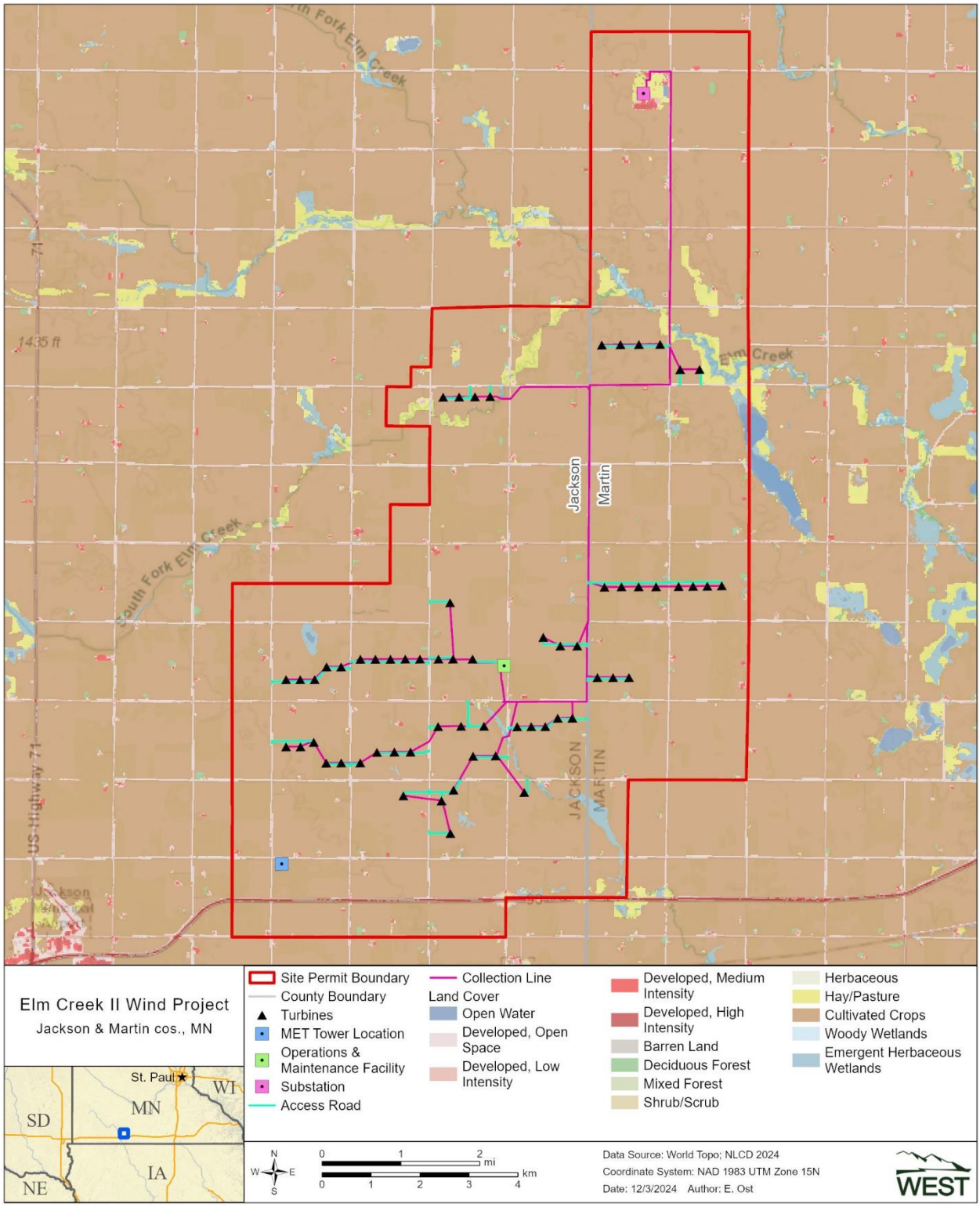

Figure 3. Land cover types within and near the Elm Creek II Wind Project.

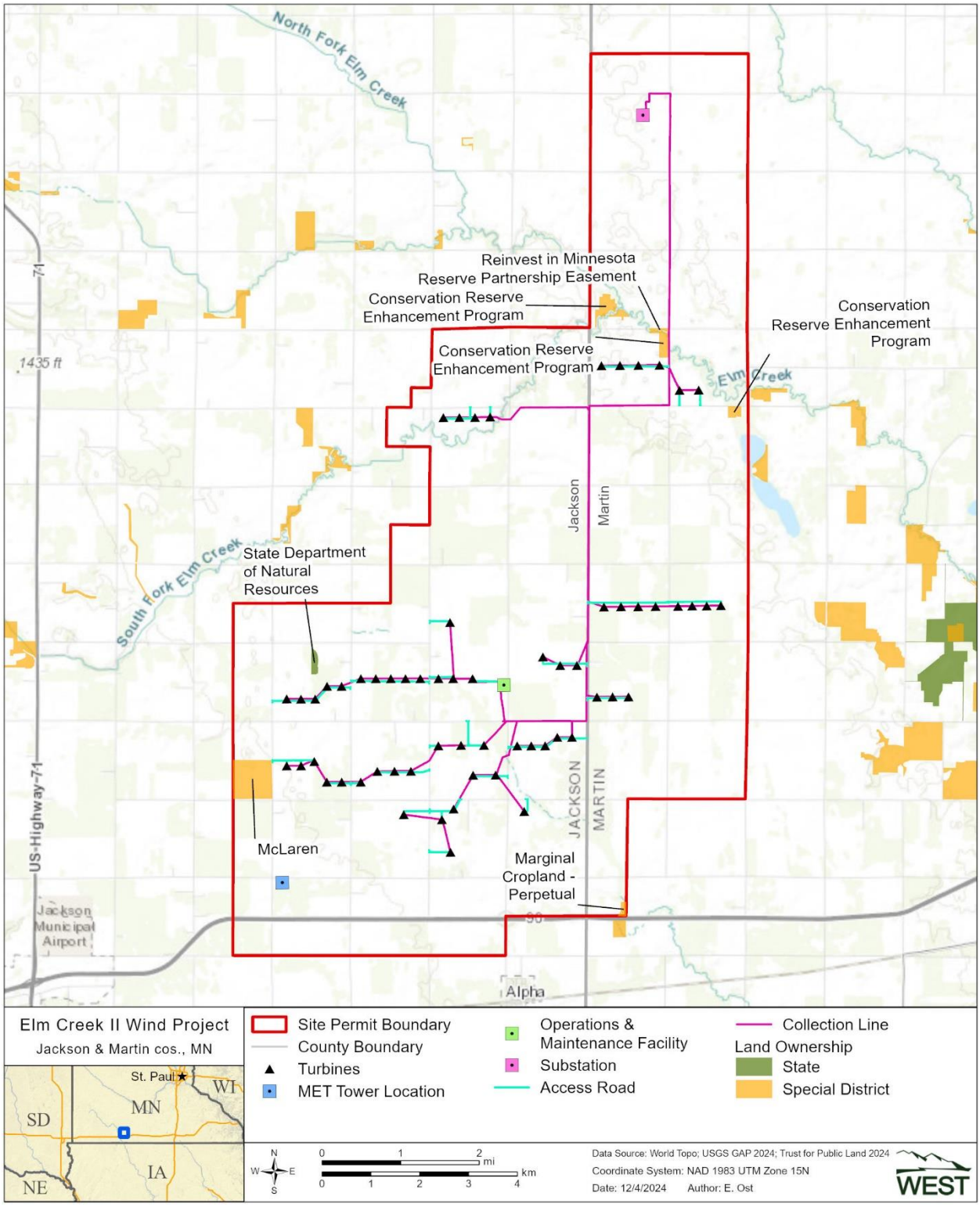

Figure 4. Protected conservation lands within and near the Elm Creek II Wind Project.

The National Audubon Society (Audubon) identifies Important Bird Areas (IBAs) as sites that provide essential habitat for breeding, wintering, and migrating birds (National Audubon Society 2015). IBAs are given a priority designation ranging from global (highest priority) to state (lowest priority; National Audubon Society 2015). No IBAs occur within the Site Permit Boundary. The Des Moines River IBA, a state-level IBA, is the IBA nearest to the Project, located approximately 3.2 km (2.0 mi) west and southwest of the Site Permit Boundary in Jackson County (National Audubon Society 2023).

MNDNR-mapped Native Communities are located in the northeastern portion of the Site Permit Boundary, associated with Elm Creek (Figure 5). The three Native Communities include a Complex Community and an Upland Prairie along Elm Creek (riparian area with a variety of grassland, tree, and avian species), and an isolated Upland Prairie along an unnamed tributary to Elm Creek. An SBS ranked as containing moderate biodiversity is also located along Elm Creek within the Site Permit Boundary, bordering the access road to Turbine M2. The north and eastern portion of this SBS overlaps the mapped Native Communities described above. An additional SBS ranked as containing moderate biodiversity is located along Elm Creek and South Fork Elm Creek north of Turbines L1, L2, and L3 within the northern portion of the Site Permit Boundary. An SBS ranked as below the minimum threshold for biodiversity significance and an SBS ranked as moderate (also overlapping with the isolated Upland Prairie Native Community described above) are located southwest of Elm Creek (Figure 5). No other SBS are located in the Site Permit Boundary.

Due to its proximity to existing Project infrastructure, the quality of the SBS bordering Turbine M2 was assessed from the turbine access road on October 3, 2023. The SBS contained a moderate amount of native grasses and forbs (greater than 50%), although evidence of reseeding was noted. A desktop review of historical aerial imagery revealed that the portion of the SBS near the turbine was farmed as recently as 2003 and subsequently reseeded as grassland.

South Dakota State University developed a dataset of potentially undisturbed lands (PUDL), specifically grasslands and forested areas. This dataset extends into a portion of southwestern Minnesota, including the portion of the Site Permit Boundary in Jackson County. Nine areas of PUDL, nine grassland areas and one forested area, were identified within the Site Permit Boundary (Figure 5). Eight of the areas identified as PUDL were associated with nearby waterbodies or wetlands, including along the South Fork Elm Creek, East Fork Des Moines River, and three unnamed tributaries. Two areas identified as PUDL were located in the western portion of the Site Permit Boundary; one area overlapped with the Artz State WMA and one area overlapped with McLaren.

No areas of critical habitat, as designated under the Endangered Species Act of 1973, occur within the Site Permit Boundary (USFWS 2024a).

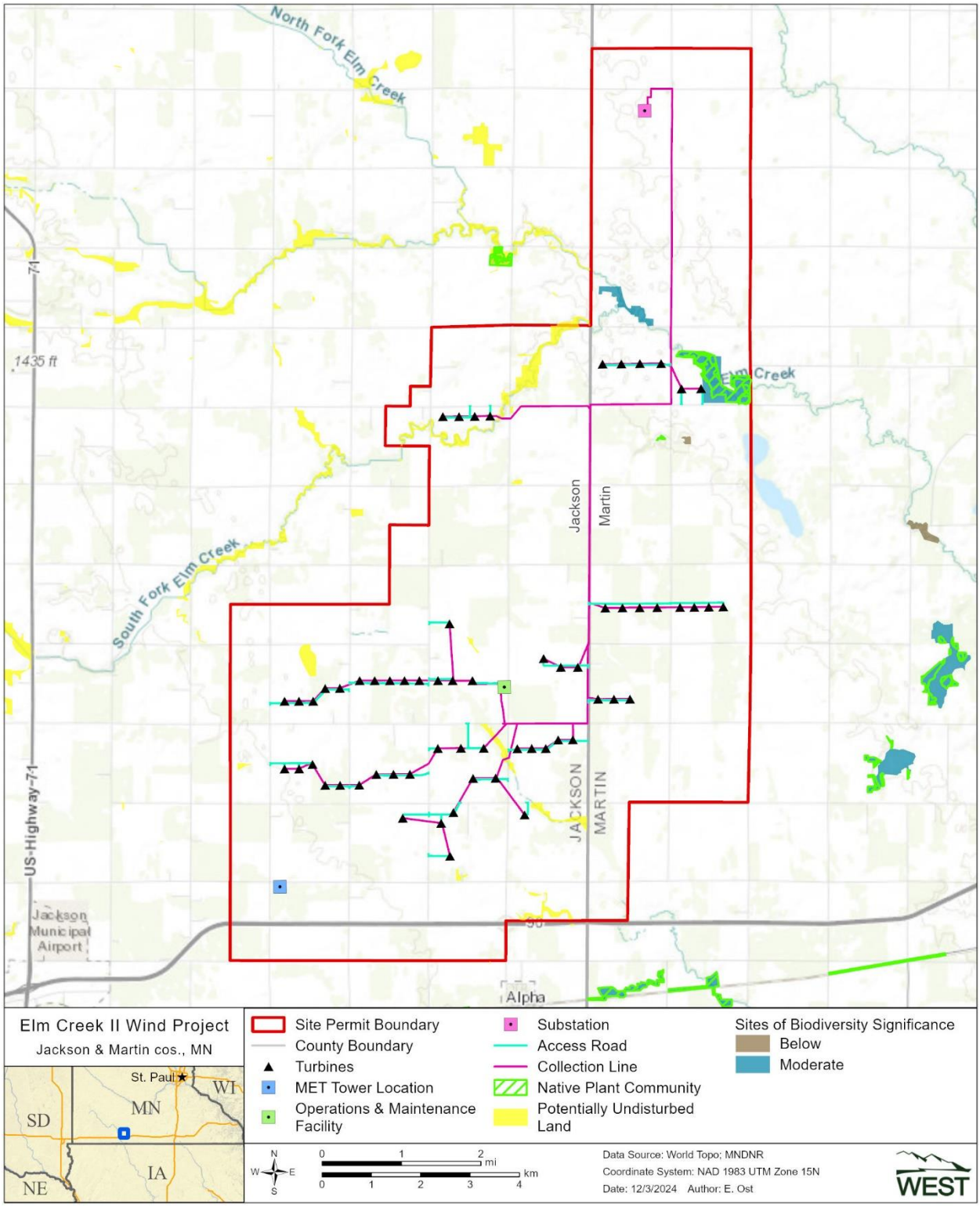

Figure 5. Lands with identified native or biodiverse habitats within and near the Elm Creek II Wind Project.

3.3. Endangered, Threatened, and Special Concern Species

The USFWS Information Planning and Consultation (IPaC) Environmental Conservation Online System (USFWS 2024b) and MNDNR Rare Species Guide for Jackson and Martin counties (MNDNR 2022a) were reviewed in June 2023 and November 2024 to determine federally and state-protected wildlife and plant species (including candidate species and species proposed for, or under review for federal listing) that have potential to occur at the Project based on current and historical distributions, and the species' habitat associations. The IPaC review focused on leased lands within the Site Permit Boundary where the Project's infrastructure and repower construction activities will occur. The NHIS review, completed on December 5, 2023, was also reviewed; this review also focused on leased lands within the Site Permit Boundary. Results from the NHIS response letter are valid for one year following receipt; therefore, Elm Creek II will resubmit the NHIS review request prior to the start of construction. No species of concern were documented during the 2023 site visits.

Two eagle species protected under BGEPA and nine species listed under the ESA, proposed for listing, or being considered for potential listing, were identified as possibly occurring within the Project, including three mammals, two birds, four insects, and two plants (Table 5). The potential for occurrence for these species is summarized in Table 5. Impacts to federally protected species are anticipated to be minimal due to the limited disturbance associated with retrofit construction activities. Operation of Project turbines after the retrofit construction poses ongoing collision risk to the federally protected bat and avian species listed in Table 5. Avoidance and minimization measures outlined in Sections 5 and 6, below, would be implemented to minimize this ongoing risk. For additional discussion on the bat species discussed in Table 5, including northern long-eared bat, tricolored bat, and little brown bat, see Section 5.

Table 5. Species protected, or proposed or considered for potential listing, under the Endangered Species Act and Bald and Golden Eagle Protection Act with known or potential for occurrence at the Elm Creek II Wind Project, Jackson and Martin counties, Minnesota.

Species	Status[1]	Habitat	Potential Occurrence within the Project[2,3]
MAMMALS			
Northern long-eared bat *Myotis septentrionalis*	FE, SSC	Roosts and forages during spring and summer in dense forest stands and riparian areas; typically avoids open habitats. May roost in old buildings. Swarms in wooded areas surrounding caves and mines in autumn and hibernates in caves and mines in winter (Bat Conservation International 2023; USFWS 2022b).	**Summer: Unlikely** **Migration: Possible** Scattered potentially suitable summer roosting habitat occurs in small patches of forest throughout the Project. The species may pass through the Project during migration and is highly mobile. There are no records of the species in the Project and the species has low population numbers due to white-nose syndrome.

Table 5. Species protected, or proposed or considered for potential listing, under the Endangered Species Act and Bald and Golden Eagle Protection Act with known or potential for occurrence at the Elm Creek II Wind Project, Jackson and Martin counties, Minnesota.

Species	Status[1]	Habitat	Potential Occurrence within the Project[2,3]
Tricolored bat *Perimyotis subflavus*	PE, SSC	Hibernates in cave, mines, and tunnels. Summer roosts include trees, manmade structures, and rarely caves. Maternity colony locations include trees, rock crevices, and manmade structures (MNDNR 2022b).	**Summer: Possible** **Migration: Likely** Scattered potentially suitable summer roosting habitat occurs in small patches of forest throughout the Project. The species may pass through the Project during migration. The species is highly mobile. No confirmed records in Jackson or Martin counties have been documented, but recent (2023 and 2024) fatality records in southwest Minnesota in Nobles and Murray counties have been documented.
Little brown bat *Myotis lucifugus*	UR	Preferred habitat is similar to tricolored bat. Hibernates in caves and roosts in man-made structures and trees during the summer (MNDNR 2018g).	**Summer: Possible** **Migration: Likely** Scattered potentially suitable summer roosting habitat occurs in small patches of forest and outbuildings throughout the Project. The species may pass through the Project during migration. The species is highly mobile. No recent records in Jackson or Martin counties have been documented.
BIRDS			
Bald eagle *Haliaeetus leucocephalus*	BGEPA	Nests in forested areas near large waterbodies; forages near water and in herbaceous habitats throughout the year (Buehler 2022).	**Occurs** Species may be found in this part of the range throughout the year, scattered suitable habitat is present, active nests were documented within 1 mi of the Project in 2023, and records exist within the Project (eBird 2024).
Golden eagle *Aquila chrysaetos*	BGEPA	Nests in cliffs and occasionally trees, primarily in the south and west of the United States (USFWS 2023a).	**Possible** They may migrate through or be infrequently seen in winter. No confirmed records in the Project (eBird 2024).

Table 5. Species protected, or proposed or considered for potential listing, under the Endangered Species Act and Bald and Golden Eagle Protection Act with known or potential for occurrence at the Elm Creek II Wind Project, Jackson and Martin counties, Minnesota.

Species	Status[1]	Habitat	Potential Occurrence within the Project[2,3]
INSECTS			
Rusty patched bumble bee *Bombus affinis*	FE	Occurs in areas with flowers that bloom from early spring through fall to provide enough resources for the entire year (MNDNR 2023b).	**Unlikely** The Project contains suitable habitat, such as forests, grasslands, wetlands, and agricultural areas, but the Project is outside of the USFWS high and low potential zones. A record of occurrence has been noted in Jackson County (MNDNR 2022a), although no confirmed records occur in the Project.
Poweshiek skipperling *Oarisma poweshiek*	FE, SE	Wet or dry native prairie (MNDNR 2018h).	**Unlikely** The Project contains very little native prairie. A record of occurrence has been noted in Jackson County (MNDNR 2022a), although no confirmed records occur in the Project.
Monarch butterfly *Danaus plexippus*	FC	Widespread; occurs in open habitats with milkweed species present for larvae development (USFWS 2023b).	**Likely** The Project contains suitable habitat; namely, hay/pasture areas and grassland-lined roadside ditches where milkweed may be present. Records of occurrence have been noted in Martin County (iNaturalist 2024), although no confirmed records occur in the Project.
Western regal fritillary *Argynnis idalia occidentalis*	PT, SSC	Upland and wet prairies (MNDNR 2018b).	**Unlikely** The Project contains very little high-quality prairie. Records of occurrence have been noted in Jackson and Martin counties (MNDNR 2022a), although no confirmed records occur in the Project.
PLANTS			
Prairie bush clover *Lespedeza leptostachya*	FT, ST	Open, tall grass prairie with well drained to moderately drained soils (MNDNR 2018f).	**Possible** The Project is within the species' range but contains limited suitable habitat. Records of occurrence have been noted in Jackson and Martin counties (MNDNR 2022a), although no confirmed records occur in the Project.

Table 5. Species protected, or proposed or considered for potential listing, under the Endangered Species Act and Bald and Golden Eagle Protection Act with known or potential for occurrence at the Elm Creek II Wind Project, Jackson and Martin counties, Minnesota.

Species	Status[1]	Habitat	Potential Occurrence within the Project[2,3]
Western prairie fringed orchid *Platanthera praeclara*	FT, SE	Occurs exclusively in remnant native habitats (MNDNR 2020).	**Unlikely** The Project contains very little high-quality prairie; historical records from Minnesota likely represent extirpated populations (MNDNR 2020). A record of occurrence has been noted in Martin County (MNDNR 2022a), although no confirmed records occur in the Project.

Source: US Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC; USFWS 2024b), USFWS Environmental Conservation Online System (USFWS 2024c), and the Minnesota Department of Natural Resources (MNDNR) Rare Species Guide for Jackson and Martin counties.

Also includes species under review for listing, proposed for listing, and candidates for listing under the ESA.

1. FC = candidate for federal listing; FE = federally listed as endangered; FT = federally listed as threatened; PE = proposed for federal listing as endangered; PT = proposed for federal listing as threatened; SE = state listed as endangered; SSC = state special concern; UR = under review for federal listing; BGEPA = Bald and Golden Eagle Protection Act of 1940.
2. Unlikely – The Site Permit Boundary is outside the species' known range or suitable habitat appears absent in the Site Permit Boundary. The species may have restricted mobility and population size; however, the species may occur in the Site Permit Boundary during migration or other times of the year; Possible – The Site Permit Boundary is within the species' known range, but the Site Permit Boundary contains limited suitable habitat; and/or the species is highly mobile and may occur year round; Likely – The Site Permit Boundary is within the species' known range and contains suitable habitat and/or records exist of the species' occurrence nearby; Occurs – Records exist of the species' occurrence in the Site Permit Boundary based on the sources described above or other survey data.
3. The IPaC review focused on leased lands within the Site Permit Boundary where the Project's infrastructure and repower construction activities will occur.

Twenty species state listed as endangered or threatened (one mammal, five birds, one reptile, three mollusks, three insects, and seven plants) not previously listed above may occur within the Project. Additionally, among state-listed special concern species not previously listed above, 15 wildlife species (two mammals, seven birds, one amphibian, two mussels, and three insects; Table 6) and seven plants may also occur. The potential for occurrence for state-listed wildlife species is summarized in Table 6. Impacts to state-protected species are anticipated to be minimal due to the limited disturbance associated with retrofit construction activities. Operation of Project turbines after the retrofit construction poses ongoing collision risk to the state-listed avian species listed in Table 6. Avoidance and minimization measures outlined in Sections 5 and 6, below, would be implemented to minimize this ongoing risk.

Table 6. State-listed wildlife species with known or potential for occurrence at the Elm Creek II Wind Project, Jackson and Martin counties, Minnesota.

Species	Status[1]	Habitat	Potential Occurrence within the Project[2,3]
MAMMALS			
Eastern spotted skunk *Spilogale putorius*	ST	Prefers open areas with some cover. In agricultural areas, they will use buildings, piles of trash or rocks, corncribs, and haystacks (MNDNR 2023o).	**Unlikely** Scattered suitable habitat potentially present; restricted mobility and population size in Minnesota. Range overlaps with Project (MNDNR 2023o). Records of occurrence have been noted in Jackson and Martin counties (MNDNR 2022a), although no confirmed records occur in the Project.
Northern grasshopper mouse *Onychomys leucogaster*	SSC	Prefers upland prairie with sparse vegetation and areas with coarse soil, such as inactive quarries (MNDNR 2018i)	**Unlikely** Scattered suitable habitat potentially present; restricted population size in Minnesota. Range overlaps with the Project (MNDNR 2018i). A record of occurrence has been noted in Jackson County (MNDNR 2022a), although no confirmed records occur in the Project.
Western harvest mouse *Reithrodontomus megalotis*	SSC	Prefers upland prairies. Often found in ditches and along fence rows (MNDNR 2018l).	**Possible** Few upland prairies present, but will use ditches, fence rows, and other lower quality grassy areas within the Project. A record of occurrence has been noted in Jackson County (MNDNR 2022a), although no confirmed records occur in the Project.
BIRDS			
Burrowing owl *Athene cunicularia*	SE	Open pastures or mixed-grass prairies (MNDNR 2023a).	**Breeding Season: Possible** **Migration: Possible** Potential range overlaps with the Project. If they occur in the Project, they would be expected in grasslands. A record of occurrence has been noted in Martin County (MNDNR 2022a), although no confirmed records occur in the Project.

Table 6. State-listed wildlife species with known or potential for occurrence at the Elm Creek II Wind Project, Jackson and Martin counties, Minnesota.

Species	Status[1]	Habitat	Potential Occurrence within the Project[2,3]
Henslow's sparrow *Ammodramus henslowii*	SE	Prefers large (more than 247 acres), uncultivated grasslands with a large litter layer (MNDNR 2023d).	**Breeding Season: Unlikely** **Migration: Possible** Potential range overlaps with the Project. No grasslands large enough for breeding occur in the Project. Records of occurrence have been noted in Jackson and Martin counties (MNDNR 2022a), although no confirmed records occur in the Project.
King rail *Rallus elegans*	SE	Nests in densely vegetated wetlands; forages in drier areas (MNDNR 2023n).	**Breeding Season: Unlikely** **Migration: Unlikely** Potential range overlaps with the Project and a densely vegetated wetland is located in the northwestern portion of the southern section of the Project. Records of occurrence have been noted in Jackson and Martin counties (MNDNR 2022a), although no confirmed records occur in the Project.
Loggerhead shrike *Lanius ludovicianus*	SE	Prefers upland native and non-native grasslands but can be found in agricultural areas. In Minnesota, they are primarily found in areas that once were prairie or oak savanna (MNDNR 2018i).	**Breeding Season: Unlikely** **Migration: Unlikely** Suitable habitat is present. Limited population numbers in Minnesota with records primarily in Dakota County (92 mi [148 km] northeast) and Clay County (208 mi [335 km] northwest) of the Project. A record of occurrence has been noted in Jackson County (MNDNR 2022a), although no confirmed records occur in the Project.
Wilson's phalarope *Phalaropus tricolor*	ST	Nests in wet meadows or wetlands near upland prairie; short vegetation near shallow water is important; will use flooded pastures (MNDNR 2018j).	**Breeding Season: Unlikely** **Migration: Occurs** Primary suitable habitat is not present, but flooded pastures and fields are present within the Project. A record of occurrence has been noted in Jackson County (MNDNR 2022a), and one observation within the northern portion of the Project in 2019 (eBird 2024).

Table 6. State-listed wildlife species with known or potential for occurrence at the Elm Creek II Wind Project, Jackson and Martin counties, Minnesota.

Species	Status[1]	Habitat	Potential Occurrence within the Project[2,3]
American white pelican *Pelecanus erythrorhynchos*	SSC	Nests on bare islands in large bodies of water rich in fish where it can easily forage (MNDNR 2023l).	**Breeding Season: Unlikely** **Migration: Occurs** Range overlaps with the Project. One observation within the southern portion of the Project in 2018 (eBird 2024). No large bodies of water in the Project for breeding, but smaller wetlands are present for use during migration.
Common gallinule *Gallinula galeata*	SSC	Uses freshwater cattail-bulrush marshes. Other features, such as size of marsh and water depth, are more variable (MNDNR 2023h).	**Breeding Season: Possible** **Migration: Possible** Scattered freshwater wetlands present in the Project. High quality emergent wetland is located in the northwestern portion of the southern section of the Project.
Forster's tern *Sterna forsteri*	SSC	Nests in marshes with emergent vegetation; they will use floating vegetation platforms and muskrat houses as nesting sites (MNDNR 2023p).	**Breeding Season: Unlikely** **Migration: Likely** Few lakes or ponds in the Project, but several nearby. A record of occurrence has been noted in Jackson County (MNDNR 2022a), although no confirmed records occur in the Project. One observation occurred within 1 mile of the Site Permit Boundary in 2018 (eBird 2024).
Franklin's gull *Leucophaeus pipixcan*	SSC	Nests in prairie marshes with low vegetation density; forages in farm fields and marshes (MNDNR 2014).	**Breeding Season: Unlikely** **Migration: Occurs** Few lakes or ponds in the Project. One high quality wetland located in the northwestern portion of the southern section of the Project. A record of occurrence has been noted in Jackson County (MNDNR 2022a), and three observations within the southern and northeastern portions of the Project in 2016, 2018, and 2024 (eBird 2024).
Lark sparrow *Chondestes grammacus*	SSC	Uses dry grasslands with short grass, bare ground, and scattered trees (MNDNR 2018d).	**Breeding Season: Unlikely** **Migration: Unlikely** Very little suitable habitat in the Project. A record of occurrence has been noted in Jackson County (MNDNR 2022a), although no confirmed records occur in the Project.

Table 6. State-listed wildlife species with known or potential for occurrence at the Elm Creek II Wind Project, Jackson and Martin counties, Minnesota.

Species	Status[1]	Habitat	Potential Occurrence within the Project[2,3]
Purple martin *Progne subis*	SSC	Nests in manmade structures and therefore are often found near human settlements in more open areas (MNDNR 2018k).	**Breeding Season: Unlikely** **Migration: Possible** Although this species requires nesting boxes for breeding, incidental observations could occur. Records of occurrence have been noted in Jackson and Martin counties (MNDNR 2022a), although no confirmed records occur in the Project.
Trumpeter swan *Cygnus buccinator*	SSC	Nests along open water with emergent vegetation (MNDNR 2023e).	**Breeding Season: Unlikely** **Migration: Occurs** Few lakes or ponds in the Project. One high quality wetland located in the northwestern portion of the southern section of the Project. A record of occurrence has been noted in Jackson County (MNDNR 2022a), and one observation within the central portion of the Project in 2023 (eBird 2024).
REPTILES			
Blanding's turtle *Emydoidea blandingii*	ST	In southwestern Minnesota, Blanding's turtles will use streams, marshes, and oxbows adjacent to upland habitats, which can include agricultural fields. Agricultural fields are often used for nesting (MNDNR 2023f).	**Possible** The Project is within the species' range but contains limited suitable habitat. A record of occurrence has been noted in Martin County (MNDNR 2022a), although no confirmed records occur in the Project.
AMPHIBIANS			
Great plains toad *Anaxyrus cognatus*	SSC	Breeds in ephemeral prairie depressions, primarily in flooded agricultural fields; winters in open habitats (MNDNR 2018a).	**Unlikely** Limited suitable habitat in Project. A record of occurrence has been noted in Jackson County (MNDNR 2022a), although no confirmed records occur in the Project.
MUSSELS			
Monkeyface *Quadrula metanevra*	ST	Rivers with stable substrates and over 6.6 feet deep (MNDNR 2023q).	**Unlikely** Streams and rivers that run through the Project are not considered medium to large. A record of occurrence has been noted in Jackson County (MNDNR 2022a), although no confirmed records occur in the Project.

Table 6. State-listed wildlife species with known or potential for occurrence at the Elm Creek II Wind Project, Jackson and Martin counties, Minnesota.

Species	Status[1]	Habitat	Potential Occurrence within the Project[2,3]
Mucket *Actinonaias ligamentina*	ST	Medium to large rivers with coarse sand and gravel (MNDNR 2009).	**Unlikely** Streams and rivers that run through the Project are not considered medium to large. A record of occurrence has been noted in Jackson County (MNDNR 2022a), although no confirmed records occur in the Project.
Spike *Eurynia dilatata*	ST	Small to large rivers, reservoirs, and lakes with sand and gravel (MNDNR 2023g).	**Possible** Streams and rivers run through the Project. A record of occurrence has been noted in Jackson County (MNDNR 2022a), although no confirmed records occur in the Project.
Black sandshell *Ligumia recta*	SSC	Medium to large rivers with sand or gravel (MNDNR 2023j).	**Unlikely** Streams and rivers that run through the Project are not considered medium to large. A record of occurrence has been noted in Jackson County (MNDNR 2022a), although no confirmed records occur in the Project.
Round pigtoe *Pleurobema sintoxia*	SSC	Medium to large rivers with fast current and coarse sand or gravel (MNDNR 2023m).	**Unlikely** Streams and rivers that run through the Project are not considered medium to large. Records of occurrence have been noted in Jackson and Martin counties (MNDNR 2022a), although no confirmed records occur in the Project.
INSECTS			
Northern caddisfly spp.[4] *Limnephilus secludens*	SE	Riparian (MNDNR 2023k).	**Occurs** Riparian corridors exist along rivers and streams within the Project, but populations are historically isolated in southern Minnesota. A record of occurrence near Elm Creek within the Project was noted in the MNDNR NHIS review; however, the date of the occurrence was not provided. As of a 2012 report (State of Minnesota 2012), only one individual was found (in 1999) following extensive sampling, and none have been found since then. Although the species is known to occur in the Project from this historic occurrence, present-day occurrence is unknown.

Table 6. State-listed wildlife species with known or potential for occurrence at the Elm Creek II Wind Project, Jackson and Martin counties, Minnesota.

Species	Status[1]	Habitat	Potential Occurrence within the Project[2,3]
Ottoe skipper *Hesperia ottoe*	SE	Requires native prairie and barrens; forages in mesic and wet prairie (MNDNR 2018e).	**Unlikely** The Project contains very little high-quality prairie. A record of occurrence has been noted in Jackson County (MNDNR 2022a), although no confirmed records occur in the Project.
Northern caddisfly spp.[4] *Ironoquia punctatissima*	ST	Small, cold streams and springs (MNDNR 2023i).	**Occurs** Very little suitable habitat in the Project; low population size in southern Minnesota. A record of occurrence near Elm Creek within the Project was noted in the MNDNR NHIS review; however, the date of the occurrence was not provided. Following extensive statewide sampling, 14 individuals were found, the most recent of which was in 2000 (MNDNR 2023i). Although the species is known to occur in the Project from this historic occurrence, present-day occurrence is unknown.
Abbreviated underwing *Catocala abbreviatella*	SSC	Dry to mesic prairies where leadplant occurs (MNDNR 2023c).	**Unlikely** Very little suitable habitat in the Project; leadplant not documented during site visit. A record of occurrence has been noted in Jackson County (MNDNR 2022a), although no confirmed records occur in the Project.
Arogos skipper (Iowa skipper) *Atrytone arogos iowa*	SSC	Mesic to dry-mesic native prairies (MNDNR 2018c).	**Unlikely** Very little high-quality prairie in the Project. A record of occurrence has been noted in Jackson County (MNDNR 2022a), although no confirmed records occur in the Project.
Leadplant flower moth *Schinia lucens*	SSC	Dry to mesic prairies where leadplant occurs (MNDNR 2018m).	**Unlikely** Very little high-quality prairie in the Project; leadplant not documented during site visit. A record of occurrence has been noted in Jackson County (MNDNR 2022a), although no confirmed records occur in the Project.

Table 6. State-listed wildlife species with known or potential for occurrence at the Elm Creek II Wind Project, Jackson and Martin counties, Minnesota.

Species	Status[1]	Habitat	Potential Occurrence within the Project[2,3]

Source: US Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC; USFWS 2024b), the Minnesota Department of Natural Resources (MNDNR) Natural Heritage Information System (NHIS) review, and the MNDNR Rare Species Guide for Jackson and Martin counties.

1. SCC = state special concern; SE = state-listed as endangered; ST = state-listed as threatened.
2. Unlikely – The Site Permit Boundary is outside the species' known range or suitable habitat appears absent in the Site Permit Boundary. The species may have restricted mobility and population size; however, the species may occur in the Site Permit Boundary during migration or other times of the year; Possible – The Site Permit Boundary is within the species' known range, but the Site Permit Boundary contains limited suitable habitat; and/or the species is highly mobile and may occur year round; Likely – The Site Permit Boundary is within the species' known range and contains suitable habitat and/or records exist of the species' occurrence nearby; Occurs – Records exist of the species' occurrence in the Site Permit Boundary based on the sources described above or other survey data.
3. The MNDNR NHIS review focused on leased lands within the Site Permit Boundary where the Project's infrastructure and repower construction activities will occur.
4. Identified in the MNDNR NHIS review.

4. RETROFIT FIELD STUDIES

4.1. Bat Habitat Assessment

Elm Creek II contracted WEST to conduct a desktop bat habitat assessment to assess the presence of suitable summer habitat for northern long eared bat and tricolored bat within the Project. The objective of the bat habitat assessment was to identify and map potentially suitable summer habitat for northern long-eared bat and tricolored bat in an Assessment Area within the Project (Figure 6), defined as a 305-m (1,000-ft) buffer of each turbine plus the repowered turbine blade length (59 m [194 ft]]). The bat habitat assessment was conducted in accordance with Phase I of the USFWS 2023 *Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines* (Guidelines; USFWS 2023c). The 2023 Guidelines are approved for temporary use for the tricolored bat until formal guidance is released for this species. The 2024 Guidelines have been released since the bat habitat assessment was conducted (USFWS 2024d). Although the 2024 Guidelines provided some updated guidance regarding survey approach specific to northern long-eared bats and tricolored bats, the 2024 approach to mapping potential habitat did not change compared to what was completed for the bat habitat assessment. The little brown bat is not currently federally protected; however, the species is under review with a decision on whether to propose listing expected in 2025 (USFWS 2023d). Although no survey guidance currently exists for the little brown bat, the results of this assessment may help inform future planning for this species until a formal guidance is released.

WEST used aerial imagery and geographic information system data to manually digitize forested areas and associated wooded shelterbelts and tree lines within the Assessment Area. The 2023 Guidelines do not identify a minimum patch size for isolated woodlots to be considered suitable[2];

[2] The 2024 Guidelines similarly do not identify a minimum patch size.

therefore, all forest patches were mapped, regardless of size. A USFWS-permitted WEST bat biologist reviewed all resulting desktop habitat assessment files to evaluate the suitability of each digitized patch to confirm non forested habitat was not identified as suitable habitat, and to ensure no forest patches were excluded. Following the desktop assessment, a qualified WEST biologist completed a site visit on June 22, 2023. The biologist visually assessed all forested areas delineated during the desktop assessment that were visible from public roads and took representative photographs of potentially suitable bat habitat within the Assessment Area. Forest patches were classified by age based on tree diameter at breast height (DBH): early successional (7.6–12.7 cm [3.0–5.0 in] DBH), mid successional (13.0–23.9 cm [5.1–9.4 in] DBH), and late successional (24.1–37.8 cm [9.5–14.9 in] DBH). Potentially suitable bat forested habitat mapped during the desktop assessment was confirmed or removed from the dataset, based on the USFWS habitat criteria described above. The total acreage of habitat within the Assessment Area that could potentially be suitable for the NLEB and TRBA was calculated. Anthropogenic features that could potentially be suitable bat habitat were not mapped during this habitat assessment.

During the desktop assessment, 12.3 ha (30.3 ac) of potentially suitable northern long-eared bat and tricolored bat forested habitat were identified within the Assessment Area (Figure 6). Following the field visit, 0.8 ha (1.9 ac) of the forested areas identified during the desktop assessment were determined to be potentially suitable shrub habitat; the remaining 11.5 ha (28.4 ac) of forested habitat were confirmed as potentially suitable forest habitat (Figure 6). Forested areas noted during the field visit varied in age class. Forest patches were predominately early to mid-successional, with very few late successional (Hyzy and Suehring 2023). The distances from existing turbines to these potentially suitable forest habitat patches ranged from approximately 97 m (317 ft) to 354 m (1,162 ft).

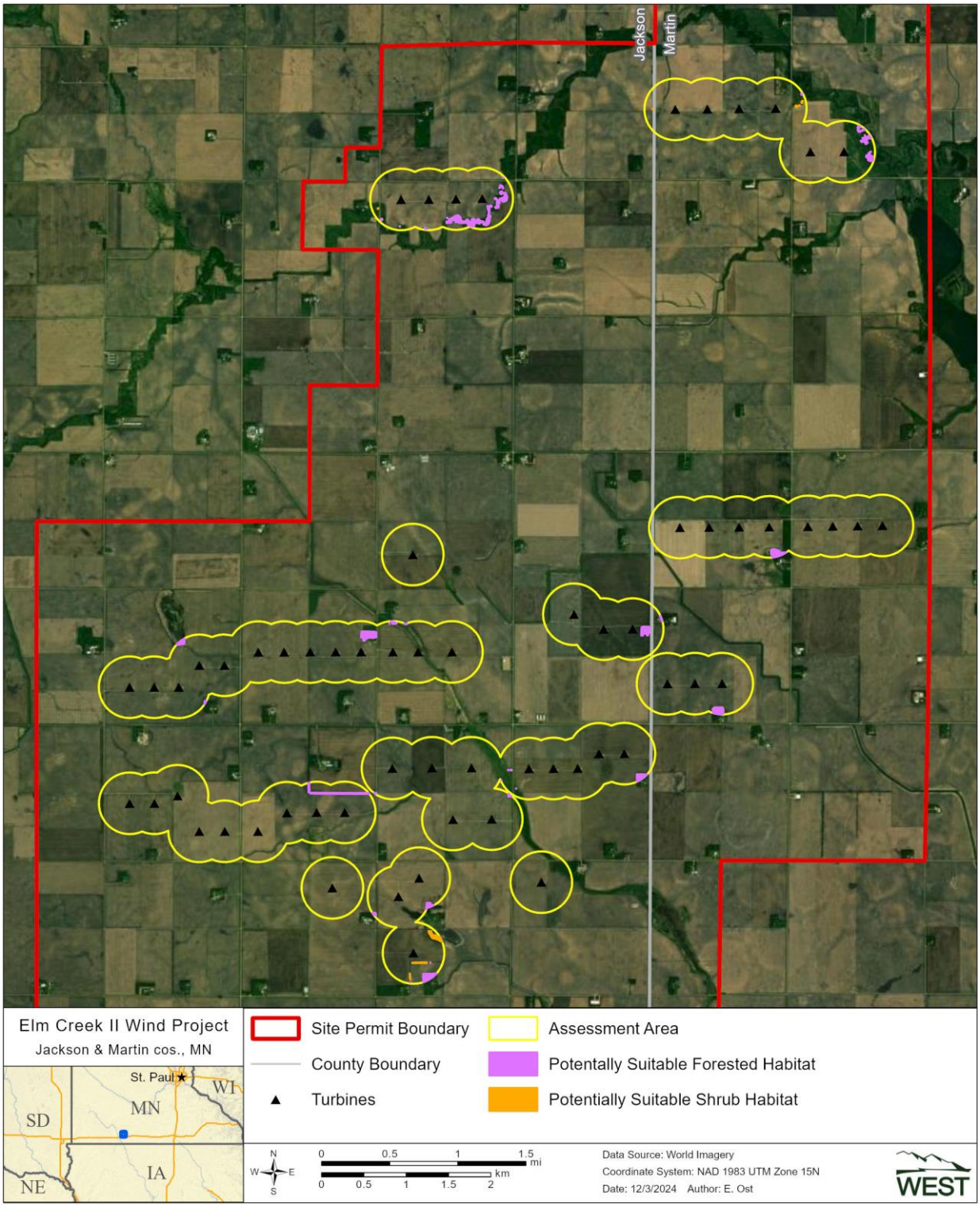

Figure 6. Potentially suitable summer bat habitat based on a desktop review and field assessment at the Elm Creek II Wind Project in Jackson and Martin counties, Minnesota.

4.2. Raptor Nest Survey

Elm Creek II contracted WEST to complete a ground-based eagle nest survey in April 2023 to record the location and status of bald eagle nests within 3.2 km (2.0 mi) of the lands leased with existing wind turbine infrastructure within the Site Permit Boundary (Survey Area). These surveys were conducted in accordance with the USFWS Eagle Conservation Plan Guidance (ECPG; USFWS 2013) and the updated guidance reducing the recommended survey buffer to within 2.0 mi of wind project footprints (USFWS 2020b).

The eagle nest survey was conducted by an experienced WEST biologist from April 7–9, 2023, prior to leaf-out when eagles would be incubating eggs or actively tending a nest or young. The focus of the survey was to identify eagle nests and to determine nest status. The biologist focused on locating large stick nest structures in suitable eagle nesting substrate (e.g., trees, transmission lines) by driving along all public roads within the Survey Area during daylight hours. When a nest or suitable habitat was observed, the biologist safely stopped the vehicle before scanning with binoculars. The locations of eagle nests and nests consistent in size and structure with eagle nests were recorded digitally. To determine the status of a nest, the biologist evaluated behavior of adults on or near the nest, and the presence of eggs, young, whitewash, or fresh building materials. Species, nest type, nest status, nest condition, and nest substrate were recorded at each nest location to the extent possible. If an inactive nest or a nest consistent in size and structure with an eagle nest was observed, the biologist monitored the nest for four hours, or until occupancy was confirmed.

Two occupied active bald eagle nests were documented within the Survey Area (Table 7; Figure 7). Both nests are more than 2.8 km (1.7 mi) from the nearest Project turbines. No other eagle nests or nests consistent in size and structure with eagle nests were observed during the survey; because no inactive nests or nests consistent in size and structure with an eagle nest were observed, no follow-up survey was conducted.

Table 7. Nest data collected during the 2023 eagle nest survey at the Elm Creek II Wind Project, Jackson and Martin counties, Minnesota.

Species[a]	Status	Distance from Nearest Project Turbine (kilometers)	Nest ID	Condition	Latitude	Longitude	Substrate[b]
BAEA	occupied active	2.8	15598	good	43.74836	-94.79248	DT
BAEA	occupied active	4.5	0835	good	43.64461	-94.82912	DT

[a] BAEA = bald eagle

[b] DT = deciduous tree

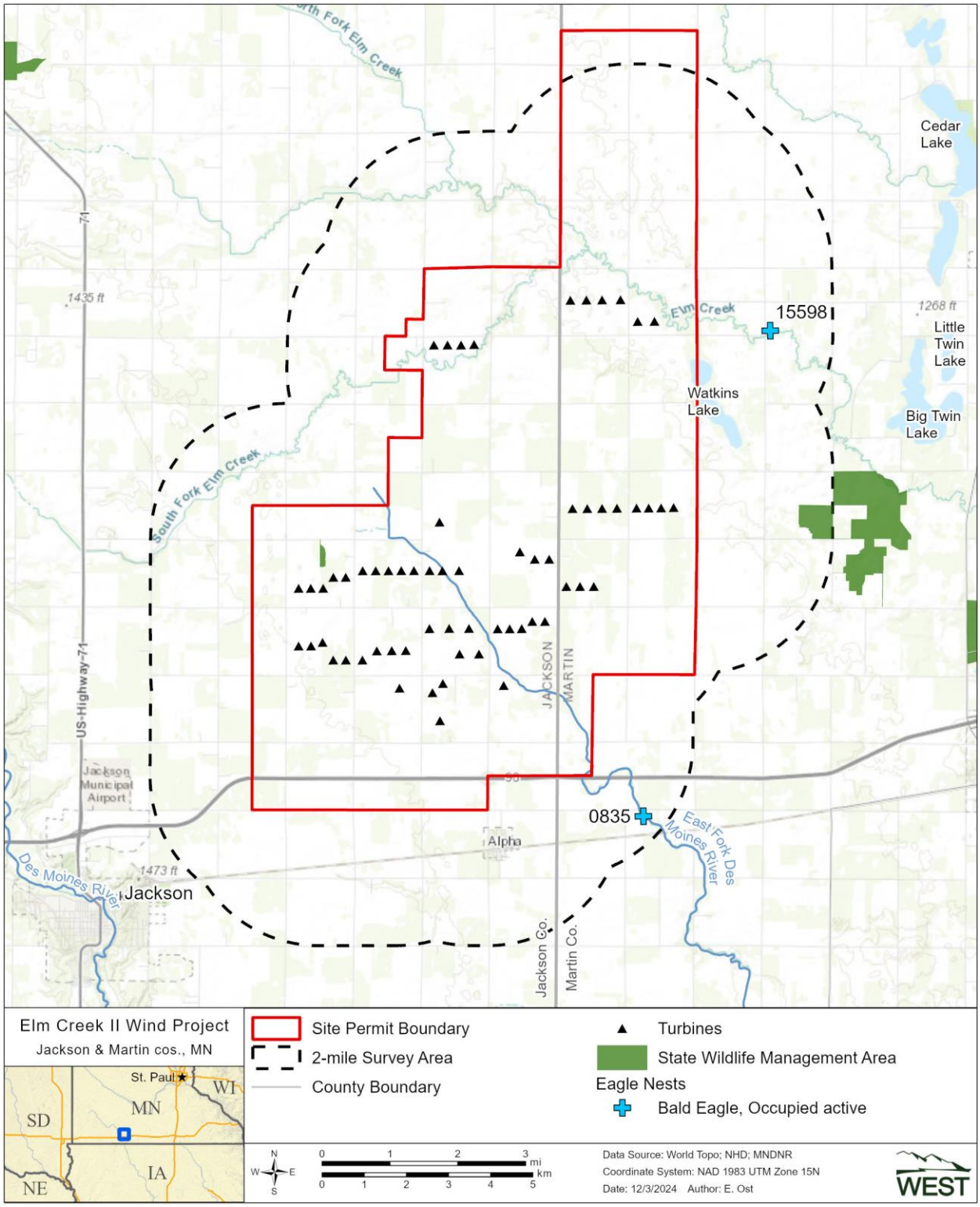

Figure 7. Locations of the bald eagle nests observed in the Survey Area during the 2023 eagle nest survey at the Elm Creek II Wind Project, Jackson and Martin counties, Minnesota.

4.3. Grassland Assessment & Native Prairie Protection Plan

Elm Creek II contracted WEST to review potential grasslands within the potential disturbance corridor to identify any grasslands and remnant prairies that could be impacted by construction activities associated with the retrofit and to aid in development of the Project's Native Prairie Protection Plan (NPPP). Field-based grassland transect surveys, if needed to inform development of the NPPP, will be conducted in 2025, and the results will be incorporated into this ABPP once available.

5. EAGLE AND BAT RISK ASSESSMENT

The desktop and field-based analysis for the original Project indicated that the potential for impacts to sensitive species, including bald eagles, was low. However, the USFWS has estimated that bald eagle populations have at least quadrupled from 2009 to 2019 (USFWS 2020a). In 2023 (over ten years since the original desktop and field-based analysis for the original Project was completed) two occupied active bald eagle nests were recorded during the 2023 raptor nest survey, located 2.8 and 4.5 km from the nearest Project turbines, respectively. Additionally, one bald eagle fatality was discovered incidentally at the Project on February 17, 2023, while the original turbines were still operational. Elm Creek II obtained a Bald Eagle General Permit (PER10658505) for the existing Project from the USFWS in May 2024.

As previously stated, the Project is within the range of three bat species that are either listed under the ESA, proposed for federal listing, or under review for federal listing: northern long-eared bat, tricolored bat, and little brown bat, respectively (see Table 5). All three species are under threat primarily due to population declines from white-nose syndrome (WNS). WNS was first confirmed in southern Minnesota in 2015/2016, and has since become more widespread throughout the state, with most positive WNS cases being recorded in 2016/2017 (White-Nose Syndrome.org 2023). While WNS has not been officially documented in Jackson or Martin counties, intensive WNS sampling has not occurred in Minnesota, and all cave-hibernating bats should be assumed to be affected by WNS in Minnesota, regardless of known occurrence in the specific county (White-Nose Syndrome.org 2023).

Recent population estimates for northern long-eared bats in the Midwest showed a 90% decline in winter abundance, a 44% decline of extant winter colonies, and a 91% decline in summer abundance from 2010 – 2019 (USFWS 2022b). Recent population estimates for tricolored bats in the northern representation unit, which includes Minnesota, indicate a 57% decline in abundance and a 24% decline in the number of winter colonies since approximately 2010 (USFWS 2021). Because no northern long-eared bats or tricolored bats were found as fatalities during post-construction fatality monitoring for the original Project and populations for both species have substantially declined since 2011/2012 when the fatality monitoring was conducted, the collision risk for these two species is likely low.

Several studies have documented population declines ranging from 30-99% for little brown bats following the introduction of WNS (Frick et al. 2010, Illinois Department of Natural Resources

2022). While specific population estimates are not available for Minnesota, a recent study conducted in the neighboring state of Wisconsin suggested that little brown bat populations may have the potential to stabilize and even recover after initial WNS declines (Kaarakka et al. 2022). Three little brown bat fatalities were found during standardized post-construction fatality monitoring surveys conducted for the Project in 2011/2012, prior to WNS being detected in Minnesota and prior to population declines being realized in the state. More recently, no little brown bats were found during post-construction fatality monitoring conducted from 2020-2021 at the nearby repowered Trimont (Stucker et al. 2022). Therefore, current collision risk for little brown bats is likely lower than what was observed in 2011/2012, but there may be some continued risk to this species.

While the current level and species composition of bat activity at the Project is unknown, due to population declines from WNS and the limited amount of potentially suitable summer habitat available at the Project (30.3 ac), the potential for occurrence for northern long eared bat, little brown bat, and tricolored bat at the Project has likely reduced since post-construction fatality monitoring at the original Project in 2011/2012.

6. AVOIDANCE AND MINIMIZATION MEASURES

6.1. Construction Practices – Proposed Retrofit Activities

6.1.1. Minimizing Temporary Disturbance

Areas of construction and temporary ground-disturbance activities associated with the retrofit activities will be minimized to the extent practicable. The vast majority of this work will occur within tilled and cultivated agricultural fields, thereby minimizing impacts to higher quality habitat and minimizing habitat fragmentation. The crane paths will follow existing access roads and be in cultivated crop fields as much as possible, further minimizing temporary impacts to all land covers. In any areas where temporary ground-disturbance activities may occur outside of cultivated crop fields (e.g., along short portions of the temporary crane paths), pre-construction vegetation will be restored.

Elm Creek II will develop a SWPPP and submit this to the Minnesota Pollution Control Agency with a Notice of Intent for a NPDES/State Disposal System general stormwater permit for construction activity. The conditions of the Project's stormwater permit and the best management practices identified in the SWPPP will be followed during construction.

Construction traffic, parking, and laydown areas will occur within previously disturbed lands to the extent feasible. The retrofit construction impact corridors have been adjusted to avoid documented native plant communities and most areas with biodiversity significance. Temporary impacts to the SBS that borders the access road to Turbine M2 will be avoided to the extent practicable. If temporary impacts are unavoidable, all construction material will be removed from the SBS after retrofit construction is complete, and the disturbed area will be restored and planted with a native seed/pollinator mix as requested by the landowner and/or the MNDNR. Elm Creek II

will develop a Native Prairie Protection Plan providing details on methods taken to identify and avoid impacts to native prairies during construction.

A new wetland delineation survey was conducted in June 2023 within the potential disturbance areas for the retrofit construction. Wetlands will be avoided to the extent possible or permits sought if temporary wetland impacts cannot be avoided completely. Wetlands disturbed during construction activities will be restored to pre-construction conditions per the SWPPP and wetland permits.

After all practicable avoidance measures are taken to reduce temporary impacts to vegetated areas, temporarily disturbed areas will be restored to pre-construction conditions. Construction teams will be made aware of invasive species and noxious weeds to prevent spreading via the movement of people, materials, and equipment into and out of the site. Invasive plant control measures may include washing off soil, dirt, or debris on equipment, if necessary.

During the construction period, heavy trucks, light trucks, and other construction equipment will access construction sites via existing county and gravel roads, wherever possible. Temporary crane paths will be installed where necessary (i.e., in any areas where existing access roads cannot be used). Erosion and sediment control requirements apply to any ground disturbance activities. Areas with temporary ground disturbance will be restored to pre-construction conditions.

Construction and construction-related activities will be confined to the minimum area necessary to safely retrofit the existing Project. Approved workspace limits will be maintained throughout the construction period. Vehicular speed will be limited to 40 km per hour (25 mi per hour) or less on the Project access roads for employees and contractors. This measure minimizes the risk of wildlife collisions with vehicles and reduces the occurrence of carcasses that may attract avian scavengers to the Project.

6.1.2. Training

A site-specific worker environmental training program will be developed and implemented throughout the construction of the Project. All employees and contractors working in the field will be required to attend the environmental training session prior to working on site. This training will include Project-specific information regarding sensitive biological resources, restrictions, protection measures, and consequences of non-compliance.

The contractor will be the lead entity for construction management and will be responsible for providing training to construction staff working on the Project. A variety of formats may be employed to present information to those receiving training, such as meetings and discussions, one-on-one training, presentations, posters, and/or handouts. Training will include but is not limited to:

- Environmental compliance
- Threatened and endangered species, and species of special concern
- Avian and bat issues

- Sediment and erosion control best management practices
- Vegetation management and noxious weeds
- Wetlands and waterbodies

7. OPERATIONS AND MAINTENANCE

7.1. Operational Procedures

During operations and maintenance, the following measures will be implemented:

1. *Minimize Lighting*. All unnecessary lighting will be turned off, except those lights required for safety by the FAA and other lights needed for safety and security purposes at the plant. Turbines within the Project will be lighted in compliance with FAA minimum standards.
2. *Limit Foraging Opportunities*. Foraging opportunities for raptors and other scavengers will be limited by:
   - Monitor for and remove road-killed animals or other carcasses detected incidentally (e.g., while travelling to/from the site or during daily job functions) by personnel on or near the Project to remove scavenger food sources. Eagles and other migratory birds will not be handled, but sensitive species will be reported as outlined in LWECS permit.
   - Prohibiting food waste littering by employees.
3. *Minimize Risk of Vehicular Collisions*. Project access roads have a 40 km per hour speed limit or less for Project staff.
4. *Minimize Fire Risk*. Fire risk will be minimized by utilizing spark arrestors on all electrical equipment, and by restricting smoking to designated site areas.
5. *Proper Hazardous Materials Handling*. Hazardous materials will be handled in accordance with federal and state regulations.
6. *Blade Feathering*. All 62 retrofit turbines at the Project will be programmed to be feathered at wind speeds up to the manufacturer's standard cut-in speed (3.0 m per second), from one-half hour before sunset to one-half hour after sunrise, between April 1 and October 31 of each year.
7. *Employee Training*. A site-specific worker environmental training plan will be developed and implemented throughout the Project operating life. All employees and contractors working in the field will be required to attend the environmental training session prior to working on site.
8. *Harassment*. Project employees and contractors will be instructed to avoid disturbing or harassing wildlife.
9. *Reporting*. Project employees and contractors will be instructed to report any sensitive wildlife observations or fatalities found incidentally to the Site Environmental Coordinator (EC) so state and federal agencies can be notified if necessary (see section 7.2.3).

7.2. Post-Construction Fatality Monitoring

7.2.1. Operational Incidental Monitoring

Wildlife Monitoring and Reporting System

As stated above, Elm Creek II has voluntarily conducted internal incidental wildlife monitoring as part of the WMRS since the Project became operational in December 2010. Long-term operational wildlife monitoring is conducted by trained operations personnel and consists of incidental observations at any time (incidental observations found by onsite field personnel are reported), monthly scans for carcasses conducted during spill prevention, controls, and countermeasures inspections at every turbine, and seasonal Environmental Coordinator Inspections (EC Inspections). Seasonal EC Inspections are conducted weekly during the spring (eight weeks) and fall (10 weeks) migration periods. Each EC Inspection consists of visual searches of 10 designated Project turbine pads and approximately 160 m (525 ft) of their associated access roads. Fatalities or injuries discovered onsite at any time are reported to the EC for further documentation and reporting. These WMRS protocols will continue for future Project operations with the addition of any formal monitoring and reporting requirements as required in the updated LWECS Site Permit (see Sections 7.2.2 and 7.2.3 below).

7.2.2. Formal Fatality Monitoring

To assess actual direct collision impacts to bird and bat species from the Project, post-construction fatality monitoring will be conducted at the site by a qualified third party for two years after commencement of commercial operations following the turbine retrofits. During the first year of monitoring, formal carcass searches will occur at a subset of cleared plots, each 120 x 120 m (394 x 394 ft). These surveys will include searcher efficiency and carcass removal trials, and the overall fatality rate will be adjusted based on the trial results. The proposed monitoring protocol for the first year will be further developed in a detailed Study Plan, to be included as an appendix to this ABPP once developed, and will generally follow the proposed approach to post-construction fatality surveys for a low-risk site as described in the Avian and Bat Survey Protocols for LWECS in Minnesota (Mixon et al. 2014); the relevant fatality data from the original Project and the adjacent Elm Creek I project indicate that this approach is appropriate. This protocol is also based on guidelines from the WEG (USFWS 2012), and the Comprehensive Guide to Studying Wind Energy/Wildlife Interactions (Strickland et al. 2011). The design and Study Plan for the second year of post-construction fatality monitoring will be developed after the first year is complete, and will take into account the results from the first year to inform any changes to level of effort (e.g., frequency, type and number of search plots, and start and end dates) as appropriate.

Post-construction fatality data will be compiled annually after each of the two years of formal monitoring and reported to the MNPUC, USFWS and MNDNR. Results of the post-construction fatality monitoring will be evaluated based on comparison with other fatality rates for similar wind energy projects. Should any of the bird or bat fatality rates be higher than the range typically seen in Minnesota and the upper Midwest, a process of adaptive management may be used to coordinate with agencies to determine what measures, if any, may be reasonable to employ (see Section 8.0).

7.2.3. Reporting

An annual report documenting the findings of the annual audit of ABPP practices is due to the MNPUC, MNDNR, and USFWS by the 15th of March following each complete or partial year of operations. This report will both provide and summarize the raw data of bird and bat fatalities and injuries, and after the first year of operation after the retrofit activities, will also include the bird and bat fatality estimates for the Project. The report will also identify recommended changes to the ABPP for the Project.

In addition to the annual report, quarterly avian and bat incidental reports will be submitted to the MNPUC, MNDNR, and USFWS by the 15th of January, April, July, and October for each complete or partial year of operations, as stated above.

Per Section 7.5.4 of the 2023 Site Permit, Elm Creek II will notify the MNPUC, MNDNR, and USFWS within 24 hours of the discovery of any of the following:

- Five or more dead or injured birds or bats, at an individual turbine location, within a five-day reporting period;
- Twenty or more dead or injured birds or bats, across the entire facility, within a five-day reporting period;
- One or more dead or injured state threatened, endangered, or species of special concern;
- One or more dead or injured federally listed species, including species proposed for listing; or
- One or more dead or injured bald or golden eagles.

If any of the above are discovered, Elm Creek II will file a compliance report with the MNPUC within seven days detailing what was discovered, which turbine was closest to the discovery, a detailed log of agencies and individuals contacted, and the current, practicable plans being undertaken to address the issue, if any.

8. ADAPTIVE MANAGEMENT

Within the WEG, the USFWS defines adaptive management as “an iterative decision process that promotes flexible decision-making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Comprehensively applying the tiered approach embodies the adaptive management process” (USFWS 2012). Elm Creek II sited and developed the Project in coordination with the MNDNR, USFWS, MNDOC, and MNPUC. Following the state permitting protocols available at the time of original construction, the Project was designed to minimize environmental impacts. Given the protocols used during original site development and the information gathered since beginning operations, this Project appears to pose low risk to bird and bat species of concern. Nevertheless, Elm Creek II acknowledges the value that adaptive management might play to respond to unanticipated circumstances during long-term Project operations.

Findings during post-construction fatality monitoring or operational monitoring may trigger the need for adaptive management actions. Any unexpected findings that could potentially trigger an adaptive management response will be evaluated by Elm Creek II in coordination with the appropriate state and federal agencies. As necessary, Elm Creek II will consider adaptive management options if warranted, based on the effectiveness and practicability of a response.

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Appendix A. Post-Construction Fatality Monitoring Study Plan