

Appendix G

Tier 1/Tier 2 Study

This page is intentionally blank

**ROSE CREEK WIND, LLC
Mower County, Minnesota**

Tier 1 and 2 Report

Prepared by:



May 2021

TABLE OF CONTENTS

INTRODUCTION	1
Project Area.....	2
TIER 1 AND TIER 2 STUDIES	2
Land Use.....	3
Topography	4
Wetlands and Waterbodies.....	4
Floodplains.....	4
Protected Areas.....	4
Protected Species	5
Federally Listed Wildlife Species.....	5
Federally Listed Plant Species	7
Federally Designated Critical Habitat	7
State-Protected and Rare Species	7
Migratory Birds.....	10
Bats.....	11
POST-CONSTRUCTION FACILITY MONITORING	12
CONCLUSIONS.....	12
SOURCES	16

LIST OF TABLES

Table 1	Land Cover within the Project Boundary	3
Table 2	Wetlands within the Project Boundary	4
Table 3	Sites of Biodiversity Significance within 1 Mile of the Project Boundary	5
Table 4	Native Plant Communities within 1 Mile of the Project Boundary.....	5
Table 5	Federally Listed Species Potentially Present in the Project Area.....	6
Table 6	State-Protected and Rare Species within 1 Mile of the Project Boundary.....	7
Table 7	Most Commonly Observed Native Species on the LeRoy and Austin Transects of the North American Breeding Bird Survey between 1993 and 2019.....	10
Table 8	Bat Species Known to Occur within Minnesota	11

LIST OF FIGURES

Figure 1	Project Location – Aerial Map
Figure 2	National Land Cover Database Map
Figure 3	Topographic Map
Figure 4	Surface Water Features
Figure 5	Public Lands

ACRONYMS AND ABBREVIATIONS

BBS	Breeding Bird Survey
BCC	Birds of Conservation Concern
BCRs	Bird Conservation Regions
CED	ConEdison Development
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
IBAs	Important Bird Areas
IPaC	Information Planning and Consultation
LWECS	Large Wind Energy Conversion System
Merjent	Merjent, Inc.
MNDNR	Minnesota Department of Natural Resources
MW	megawatts
NCED	National Conservation Easement Database
NHD	National Hydrography Dataset
NHIS	Natural Heritage Information System
NLEB	northern long-eared bat
NPCs	Native Plant Communities
NPP	Native Prairie Protection Plan
NWI	National Wetland Inventory
Project	Rose Wind Project
Repower Project	Rose Wind Project
SOBS	Sites of Biodiversity Significance
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

INTRODUCTION

ConEdison Development (CED) is planning to re-power an existing wind farm in Mower County, Minnesota. The currently operating Rose Wind Project (Project or Repower Project), owned by CED, consists of 11 turbines that were built in 2004 and 2005. The power generated by the 11 turbines is sold to Dairyland Power under a Power Purchase Agreement. CED also owns Adams Wind, which is a four-turbine project immediately adjacent to Rose Wind. Adams Wind delivers power to a nearby Alliant Energy substation and will remain in operation. The four turbines that make up Adams Wind are not part of the Repower Project.

The Repower Project will involve decommissioning the 11 Rose Wind turbines (see Figure 1) and constructing 5 to 7 new turbines. The Repower Project will be called Rose Creek Wind, LLC. The 11 existing Rose Wind turbines that will be decommissioned range in size from 1.5 to 1.65 megawatts (MW), for a total power generation capacity of 17.4 MW. They were originally developed by seven separate limited liability companies and are all connected to a project substation that delivers the power to Dairyland Power. The existing 11 turbines were originally granted Conditional Use Permits by Mower County.

As part of the Repower Project, CED will replace the 11 existing Rose Wind turbines with 5 to 7 new, larger wind turbines. The new turbines will not necessarily be built in the same locations as the existing turbines but will be in the general vicinity. The Repower Project will have a nameplate capacity of 17.4 MW or less. Because the existing turbines were originally permitted by Mower County, the Repower Project does not have a Large Wind Energy Conversion System (LWECS) Site Permit from the Minnesota Public Utilities Commission. Based on conversations with staff at the Minnesota Department of Commerce's Energy Environmental Review and Analysis unit, Rose Creek Wind will require a new LWECS Site Permit. At this time, Mower County does not accept site permitting jurisdiction for LWECS projects between 5 MW and 25 MW in size.

Conducting a preliminary evaluation of the proposed Project's geographic area provides a useful ecological context to prepare for working with federal, state, and local agencies. Merjent, Inc. (Merjent) prepared this Tier 1 and 2 Report based on desktop data and publicly available information gathered from multiple sources, including the U.S. Fish and Wildlife Service (USFWS) and the Minnesota Department of Natural Resources (MNDNR). The report was prepared in accordance with the 2012 Land-Based Wind Energy Guidelines (USFWS, 2012), which correspond to stages 1 and 2 of the 2013 Eagle Conservation Plan Guidance (USFWS, 2013), and the Indiana Bat Range-Wide Summer Survey Guidelines (which also includes recommendations relevant to northern long-eared bats (NLEB) (*Myotis septentrionalis*) Phase 1 initial project screening (USFWS, 2020a).

The Wind Energy Guidelines are based on a tiered approach to assessing the potential impacts on wildlife and their habitats from a proposed wind energy development. This approach is an iterative decision-making process to collect information, quantify risks, and evaluate those risks to make informed siting, construction, and operation decisions. The tiers are described as follows:

- Tier 1 – Preliminary site evaluation (landscape-level screening)
- Tier 2 – Site characterization (characterization of specific sites)
- Tier 3 – Field studies to document habitat and predict project impacts
- Tier 4 – Post-construction fatality studies
- Tier 5 – Other post-construction studies

This report is based on a review of desktop data of known conditions in the Project area, including sensitive resources, avian species, land use, and water resources. This report serves as the Tier 1 preliminary site evaluation and Tier 2 site characterization. The report will identify potential environmental risks associated with development and operation of the Project and will support coordination with the USFWS, if required or voluntarily initiated.

Project Area

The Project will be located on private land south of the City of Adams, Mower County, Minnesota. The Project is located immediately north of the Iowa state line. The preliminary Project boundary currently encompasses approximately 12,567 acres (see Figure 1).

TIER 1 AND TIER 2 STUDIES

Merjent conducted a desktop review using publicly available information, gathered from a variety of sources, including:

- Topographic maps.
- National Land Cover Database.
- MNDNR Natural Heritage Information System (NHIS) database.
- Iowa Department of Natural Resources – eagle data.
- USFWS National Wetlands Inventory (NWI) database and the U.S. Geological Survey (USGS) National Hydrography Dataset (NHD).
- Minnesota Native Plant Communities (NPCs).
- Minnesota Sites of Biodiversity Significance (SOBS).
- Native Prairies/grassland from the MNDNR.
- Known bird migration routes from USFWS.
- Threatened, endangered, and protected species information from the USFWS.
- Designated critical habitat from USFWS.
- Bat Distribution and Locations of Hibernacula from the MNDNR.
- Locations of designated critical habitat protected under the federal Endangered Species Act.
- Conservation Land.
- Audubon Important Bird Areas (IBAs).
- USGS Breeding Bird Surveys.

- USFWS Bird Conservation Regions (BCRs) and associated Birds of Conservation Concern (BCC).
- Cornell Lab of Ornithology's Ebird.
- Published and available literature regarding impacts of wind energy facilities on wildlife in Minnesota.

Land Use

The Project area is located in U.S. Environmental Protection Agency's (EPA) Ecoregion 3 – Western Corn Belt Plains and Ecoregion 4 – Eastern Iowa and Minnesota Drift Plains. The Western Corn Belt is comprised of gently rolling glaciated till plains and hilly loess plains and was historically characterized by tallgrass prairie, riparian forests, oak-prairie savanna, and wetlands (EPA, 2021).

Land within the preliminary Project boundary now consists almost entirely of cultivated farmland (corn and soybeans) (see Figure 1). Farmsteads and associated outbuildings are located within the Project site and may include cattle ponds, potential farm dumps, disturbed areas, and wooded areas that are typically associated with farm groves and waterbody features.

The Project is surrounded to the north and south by existing wind turbines.

The Project is located directly south of the City of Adams and is bounded by 140th Street to the north, 120th Street to the south, and 680th Avenue to the east, and 650th Street to the west.

Based on the National Land Cover Database and Merjent site observations, approximately 94 percent of the Project site is used for cultivated crops (National Land Cover Database, 2016). Other land types include developed low intensity (0.78 percent); developed open space (2.6 percent); hay/pasture (1.14 percent); and deciduous forests, developed medium intensity, emergent herbaceous wetlands, and herbaceous cover, each comprising less than 1 percent of the preliminary Project boundary (see Figure 2, and Table 1).

TABLE 1 Land Cover within the Project Boundary		
Land Cover Types	Acres	% of Project Area
Barren Land	10.44	0.08%
Cultivated Crops	11,817.22	94.03%
Deciduous Forest	17.54	0.14%
Developed, High Intensity	3.85	0.03%
Developed, Low Intensity	97.58	0.78%
Developed, Medium Intensity	24.19	0.19%
Developed, Open Space	326.61	2.60%
Emergent Herbaceous Wetlands	40.44	0.32%
Hay/Pasture	143.37	1.14%
Herbaceous	79.49	0.63%
Total	12,567	100

Topography

The Project site is relatively flat across the upland agricultural fields, with topographic relief near minor drainageways and the tributary to Little Cedar River, which is located immediately west of the Project boundary. Elevations vary from approximately 1,250 feet in drainageways to 1,320 feet above sea level in the uplands (see Figure 3).

Wetlands and Waterbodies

Formal wetland delineations have not been completed for the Project; however, based on the USFWS' NWI data, wetlands are concentrated near waterbodies in low-lying areas (drainageways and road ditches) and generally consist of freshwater emergent wetlands, freshwater forested wetlands, and riverine wetlands (see Figure 4) (USFWS, 2020b). Approximately 112 acres of NWI wetlands are present within the Project boundary (see Table 2). NWI data is a widely used tool for preliminary wetland identification and is developed by the USFWS from desktop resources such as aerial imagery, soils data, and topography. The actual location, extent, and type of wetlands present within the Project are unknown without field surveys. No Public Waters Inventory wetlands are present within the Project boundary (MNDNR, 2020a).

TABLE 2 Wetlands within the Project Boundary		
Wetland Type	Project Acres	% of Project Area
Artificially Flooded Non-Vegetated Aquatic Community	0.97	<0.1%
Hardwood Wetland	2.99	<0.1%
Non-Vegetated Aquatic Community	4.00	<0.1%
Seasonally Flooded/Saturated Emergent Wetland	103.24	0.8%
Shrub Wetland	0.74	<0.1%
Total	112.00	-

The NHD (USGS, 2020) indicates that waterbodies are present within the Project boundary. They are tributaries to the Little Cedar River and the Wapsipinicon River. Two state regulated Public Water Waterways, are present within the Project boundary (MNDNR, 2020a), a tributary to Little Cedar River and the Wapsipinicon River (see Figure 4) (MNDNR, 2020a).

Floodplains

Based on Federal Emergency Management Agency (FEMA) floodplain maps, an area of 100-year floodplain is located along the southwest border of the Project (see Figure 4) (MNDNR, 2020b). No additional FEMA-designated floodplains are present within the Project boundary.

Protected Areas

A review of the Minnesota Biological Survey data identified multiple SOBS within 1 mile of the proposed Project (MNDNR, 2021g). A site's biodiversity significance rank is based on a variety of factors, including the quality (i.e., size and condition) of native plant communities within the site, the presence and numbers of rare species populations, and the site's context within the landscape (i.e., whether the site is isolated in a landscape dominated by cropland or developed land, or whether it is contiguous with or close to other areas with intact native plant communities). These sites are ranked by grouping and rated within each of the state's ecological classification system subsections. A rank of outstanding is assigned to those sites that contain the largest, most intact functional landscapes, and the best occurrences of the rarest plant and animal species.

SOBS within 1 mile of the Project boundary are provided in Table 3 and shown on Figure 5. The Project boundary includes Adams 35, a site of moderate biodiversity significance, and Lodi 32, a site of below biodiversity significance (MNDNR, 2021g). Adams 35 overlaps with a NPC, which is discussed in additional detail below.

TABLE 3 Sites of Biodiversity Significance within 1 Mile of the Project Boundary	
Site Name	Biodiversity Significance
Adams 28	Moderate
Adams 16	Below
Adams 10	Moderate
Adams 11	Moderate
Adams 12	Below
Lodi 7	Below
Lodi 32	Below
Adams 35	Moderate
Taopi Prairie	High

State of Minnesota NPCs are referred to as native habitats or natural communities and are named for the characteristic plant species within them or for characteristic environmental features (MNDNR, 2021h). Table 4 lists NPCs within 1 mile of the Project boundary. One NPC, WMs83a1, is located within the Project boundary and overlaps with Adams 35, a site of moderate biodiversity significance.

TABLE 4 Native Plant Communities within 1 Mile of the Project Boundary	
Site Name	Description
FFs59a - Silver Maple - Green Ash - Cottonwood Terrace Forest	Floodplain Forest System
UPs23a - Mesic Prairie (Southern)	Upland Prairie System
MHs38 - Southern Mesic Oak-Basswood Forest	Mesic Hardwood Forest System
WMs83a1 - Seepage Meadow/Carr, Tussock Sedge Subtype	Wet Meadow/Carr System
UPs23a - Mesic Prairie (Southern)	Upland Prairie System

In 1997, the MNDNR surveyed active railroad rights-of-way for native prairie remnants. Many native or sensitive plants in Minnesota can be found in native prairie remnants along railroads. No prairie railroads as identified and designated by the MNDNR are located within 1 mile of the Project boundary (Minnesota County Biological Survey, 2021).

There are no National Conservation Easements (National Conservation Easement Database [NCED], 2018), state parks, wildlife refuges, state and natural areas, or wildlife management areas within 1 mile of the Project boundary (NCED, 2018)

Protected Species

Federally Listed Wildlife Species

Merjent consulted information from the USFWS' Information Planning and Consultation (IPaC) tool to determine the potential presence of listed species (USFWS, 2021a). Results are provided in Table 5 below as well as species accounts and an analysis of potential impacts.

TABLE 5 Federally Listed Species Potentially Present in the Project Area		
Scientific Name	Common Name	Status
<i>Myotis septentrionalis</i>	Northern long-eared bat	Threatened
<i>Lespedeza leptostachya</i>	Prairie bush clover	Threatened

Northern long-eared bat

The NLEB is a temperate, insectivorous, migratory bat that hibernates in mines and caves in the winter and spends summers in wooded areas. The key stages in the annual cycle of NLEBs are: hibernation, spring staging and migration, pregnancy, lactation, volancy/weaning, fall migration, and swarming. While varying with weather and latitude, generally NLEBs will typically hibernate between mid-fall through mid-spring each year. The spring migration period likely runs from mid-March to mid-May. Females depart shortly after emerging and are pregnant when they reach their summer area. Birth of young occurs between mid-June and early July and then nursing continues until weaning, which is shortly after young become volant in mid- to late July. Fall migration likely occurs between mid-August and mid-October (USFWS, 2021b).

The NLEB was listed as a federally threatened species in May 2015, with an interim 4(d) rule; effective February 16, 2016, the USFWS finalized the 4(d) rule. A 4(d) rule may only be applied to species listed as threatened, and is a tool periodically utilized by the USFWS to allow for flexibility in Endangered Species Act implementation. The rule allows the USFWS to tailor take restrictions to those that make the most sense for protecting and managing at-risk species and directs the USFWS to issue regulations considered “necessary and advisable to provide for the conservation of threatened species” (USFWS, 2020c).

In January 2020, the D.C. District Court found that the USFWS decision to list the species as threatened was arbitrary and capricious. The threatened listing has been remanded back to the USFWS for determination; in the meantime, the listing determination and 4(d) rule have not been vacated.

Incidental take of NLEB is not prohibited under the 4(d) rule for the species provided project activities are not conducted within 0.25 mile of known hibernacula and do not remove known roost trees or trees within 150 feet of known roosts.

Merjent reviewed the MNDNR and USFWS Townships Containing Documented NLEB Maternity Roost Trees and/or Hibernacula Entrances in Minnesota (dated June 3, 2020). No known roost trees or hibernacula have been recorded in Mower County (USFWS, 2020c). Suitable hibernacula such as caves or mines have not been documented within the Project area.

Tree clearing is not currently proposed for the Project. In addition, and as described above, there are no known roost trees or hibernacula within Mower County (USFWS, 2020c).

Landcover within the Project site is primarily row-crop agriculture; however, stands of trees greater than 3 inches diameter at breast height could provide suitable roosting or foraging habitat for NLEBs and may be present within the Project site.

Western EcoSystems Technologies, Inc. (WEST) conducted a habitat assessment for the Project to quantify the amount of potentially suitable NLEB summer habitat located within the Project area and within a 2.5-mile buffer (WEST, 2021). A total of 30.4 acres of potentially suitable NLEB

summer habitat was identified within the Project area, mostly along the western Project boundary. This habitat connects with the Little Cedar River riparian corridor outside of the Project area. An additional 2,094.5 acres of potentially suitable habitat was mapped outside of the Project area, but within 2.5 miles, and was primarily associated with the riparian corridors around the Little Cedar River, Wapsipinicon River, and Iowa River, as well as their associated tributaries.

Federally Listed Plant Species

Prairie bush clover

Prairie bush clover is found only in the tallgrass prairie region of four Midwestern states. It is a member of the bean family and a midwestern “endemic,” known only from the tallgrass prairie region of the upper Mississippi River Valley (USFWS, 2020d). Landcover within the Project site is primarily row crop agriculture; however, any areas of native, unplowed prairie could provide suitable habitat for prairie bush clover. Remnants of native prairie habitat have been known to occur along roadsides, railroad rights-of way, and isolated patches of private land throughout Minnesota, and if present could provide habitat for this species.

Federally Designated Critical Habitat

No federally designated critical habitat, for either species, is present within the Project area (USFWS, 2021a).

State-Protected and Rare Species

Merjent, under MNDNR license agreement LA-958, conducted a query of the MNDNR’s NHIS to determine if state-listed and rare species have been documented within 1 mile of the Project boundary (see Table 6). Descriptions of these species follows.

TABLE 6 State-Protected and Rare Species within 1 Mile of the Project Boundary			
Scientific Name	Common Name	Category	State Status
<i>Eryngium yuccifolium</i>	Rattlesnake Master	Plant	Special Concern
<i>Lythrurus umbratilis</i>	Redfin Shiner	Fish	Special Concern
<i>Phenacobius mirabilis</i>	Suckermouth Minnow	Fish	Special Concern
<i>Lasmigona compressa</i>	Creek Heelsplitter	Mussel	Special Concern
<i>Parthenium integrifolium</i>	Wild Quinine	Plant	Endangered
<i>Asclepias sullivantii</i>	Sullivant’s Milkweed	Plant	Threatened
<i>Valeriana edulis</i> var. <i>ciliata</i>	Edible Valerian	Plant	Threatened
<i>Rudbeckia triloba</i> var. <i>triloba</i>	Three-leaved Coneflower	Plant	Threatened

Redfin shiners and suckermouth minnows

Redfin shiners and suckermouth minnows are restricted to the Cedar, Zumbro, Root, and Upper Iowa River systems in southern Minnesota (MNDNR, 2021b; MNDNR 2021c). Tributaries to the Cedar River are present within the Project boundary; however, they are unlikely to provide suitable habitat since this species is restricted to the Cedar River.

Creek heelsplitter

The creek heelsplitter typically occurs in creeks, small rivers, and the upstream portions of large rivers. Its preferred substrates are sand, fine gravel, and mud (MNDNR, 2021d). They most often colonize areas downstream of riffles in small pools and typically are found in swift currents with water depths ranging from 1 to 3 feet. The tributaries within the Project boundary may provide suitable habitat.

Three-leaved Coneflower

Three-leaved coneflower was listed as special concern in 1984, when there were only five records of the species in Minnesota, all of which were pre-1961. The rarity of the species was confirmed via a systematic biological inventory, and its status was elevated to threatened in 2013. This species prefers mesic hardwood forests and floodplain forests, specifically where there are canopy gaps that allow more light to reach the forest floor. They prefer moist and loamy soils (MNDNR, 2021i).

The Project is located within an area largely used for agricultural purposes, and based on a desktop review, no mesic hardwood forests or floodplain forests are present within the Project boundary.

Rattlesnake master

Rattlesnake master is found in mesic prairies in southern Minnesota (MNDNR, 2021a). Soils are usually glacial tills and range from dry to moist. Most commonly, the plant is found on deep mesic loam but occasionally it is also found on well-drained, sand-gravel substrates (MNDNR, 2021a). Based on a desktop review, no prairies have been documented within the Project boundary.

Wild Quinine

Wild Quinine was listed as a state-endangered species in 1984, largely due to habitat loss from agricultural activities. The species is typically found in mesic habitats within remnant prairies and savannas. In Minnesota, the only significant populations that currently survive are in remnant prairie strips along railroad rights-of-way. They are highly sensitive to herbicides, cattle grazing, and repeated haying (MNDNR, 2021e). Based on a desktop review, no native railroad prairies, as identified by the MNDNR, are present within the Project boundary.

Sullivant's milkweed

Sullivant's milkweed was listed as a threatened species in 1984. In Minnesota, this species is restricted to undisturbed wet and mesic tallgrass prairies; however, it can be found in degraded prairies (MNDNR, 2021f). In Mower County, it is known to occur within the Wild Indigo Prairie Scientific and Natural Area.

The Project is located within an area largely used for agricultural purposes, and based on a desktop review, suitable habitat for these species does not appear to be present; however, remnants of native prairie habitat have been known to occur along roadsides, railroad rights-of way, and isolated patches of private land throughout Minnesota, and if present could provide habitat for these species.

Edible Valerian

Edible Valerian was listed as a threatened species in 1984, primarily due to habitat loss. This species favors moist, sunny, calcareous habitat, including calcareous fens, wet meadows, and moist prairies. Most of these habitats are located along railroad rights-of-way. In southeastern Minnesota, the species may occur on thin, rocky soil, and on cliff ledges associated with dry bluff prairies (MNDNR, 2021j).

Landcover within the Project site is primarily row crop agriculture and no NPCs or native railroad prairies have been documented within the Project boundary. Suitable habitat, including native, unplowed prairie, degraded prairies, or roadside ditches could provide suitable habitat for rattlesnake master, wild quinine, edible valerian, Sullivant's milkweed. Based on a desktop review, suitable habitat for these species does not appear to be present; however, remnants of native prairie habitat have been known to occur along roadsides, railroad rights-of way, and isolated patches of private land throughout Minnesota, and if present could provide habitat for these species.

CED is in the process of developing a Native Prairie Protection Plan (NPP) and should native prairie be identified, Project infrastructure, including access roads, collector lines, and turbines, will be sited outside of native prairies. In addition, proper siting of turbines and infrastructure, which avoids impacts on streams, jurisdictional wetlands, and native plant communities, should avoid or minimize disturbance to listed plants and the sensitive aquatic habitats required by these species.

Tier 3 surveys may include native prairie surveys, depending on the results of the NPP and the final layout.

Avian Species

Bald Eagles

Eagles may occur within the Project area throughout the year. The Project area lies within the Mississippi Flyway, which is one of the four major migration corridors in North America. Additionally, the Project is within the Prairie Pothole ecoregion, which contains an abundance of native grassland and wetland habitats suitable for migratory birds. The upland areas of the Project consist primarily of agricultural row crops, which do not typically provide suitable nesting or feeding habitat for bald eagles. Trees are associated with farmsteads and are present within the Project boundary; they may provide suitable nesting habitat for bald eagles. Bald eagles may nest and breed within the general Project area and are likely to occur year round. Based on bald eagle data from the USFWS, one documented eagle nest is located within one mile of the Project boundary.

The Cornell Laboratory of Ornithology houses the eBird database, which is the largest set of geospatial data on birds in the world. Data is gathered by bird watchers, which is quality-controlled by editors. The eBird database indicates that eagles have historically occurred within Mower County and one was last observed in February 2021 (Cornell Lab of Ornithology, 2021). No "hot spots" with documented eagle sightings are present within 5 miles of the Project boundary.

No known eagle take has occurred at existing facilities.

Tier 3 studies will validate the USFWS eagle nest data and provide more information on eagle use levels and patterns.

Migratory Birds

The Project area lies within the Mississippi Flyway, which is one of the four major migration corridors in North America. Additionally, the Project is within the Prairie Pothole ecoregion, which contains an abundance of native grassland and wetland habitats suitable for migratory birds.

Audubon Important Bird Areas

The Project is not located within any IBA, as designated by the Audubon Society. IBAs provide essential habitat for one or more species of birds in breeding, wintering, or migration. No IBAs are located in Mower County (National Audubon Society, 2021).

The Blufflands-Root River IBA is located more than 10 miles east of the Project boundary (National Audubon Society, 2021)

USFWS Bird Conservation Region data

The Project is located within the USFWS BCR 22: Eastern Tallgrass Prairie (North American Bird Conservation Initiative, 2020). This region was formerly high-quality grasslands of the Great Plains; however, it is currently used mainly for agricultural purposes. Several of the BCC in BCR 22 are non-breeding within this BCR or have been delisted from the federal Endangered Species Act. BCC that are grassland specialists may still be present on the landscape, including the greater prairie-chicken and Henslow's sparrow. Cerulean warblers may be present in wooded areas and red-headed woodpeckers may be present in savanna areas. Because the Project includes largely row-cropped agriculture, few BCC are expected to nest within the Project site.

USGS Breeding Bird Survey Area

The USGS North American Breeding Bird Survey (BBS) is a collaborative effort between the USGS Patuxent Wildlife Research Center and Environment Canada's Canadian Wildlife Service. The BBS uses a standard protocol to monitor North American bird populations with the goal of understanding the current status and trends of the populations.

The Le Roy transect is located approximately 10 miles southeast of the Project area. The Austin transect is located approximately 18 miles southwest of the Project area. Breeding bird surveys have been conducted along both routes since 1993 and include all birds seen or heard for a 30-minute period every 0.5 mile along the transects (USGS, 2019). Most commonly occurring species are shown in Table 7.

TABLE 7 Most Commonly Observed Native Species on the LeRoy and Austin Transects of the North American Breeding Bird Survey between 1993 and 2019	
Common name	Scientific name
Common Grackle	<i>Quiscalus quiscula</i>
European Starling	<i>Sturnus vulgaris</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
American Robin	<i>Turdus migratorius</i>
House Sparrow	<i>Passer domesticus</i>

TABLE 7 Most Commonly Observed Native Species on the LeRoy and Austin Transects of the North American Breeding Bird Survey between 1993 and 2019	
Common name	Scientific name
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>
American Crow	<i>Corvus brachyrhynchos</i>
Song Sparrow	<i>Melospiza melodia</i>
Mourning Dove	<i>Zenaida macroura</i>
Ring-necked Pheasant	<i>Phasianus colchicus</i>
Killdeer	<i>Charadrius vociferus</i>
Horned Lark	<i>Eremophila alpestris</i>
American Goldfinch	<i>Spinus tristis</i>
Barn Swallow	<i>Hirundo rustica</i>
House Wren	<i>Troglodytes aedon</i>
Rock Pigeon	<i>Columba livia</i>
Bobolink	<i>Dolichonyx oryzivorus</i>
Brown-headed Cowbird	<i>Molothrus ater</i>
Chipping Sparrow	<i>Spizella passerina</i>
Common Yellowthroat	<i>Geothlypis trichas</i>
Vesper Sparrow	<i>Pooecetes gramineus</i>
Blue Jay	<i>Cyanocitta cristata</i>
Western Meadowlark	<i>Sturnella neglecta</i>
Dickcissel ^a	<i>Spiza americana</i>
Savannah Sparrow	<i>Passerculus sandwichensis</i>
Canada Goose	<i>Branta canadensis</i>
Brown Thrasher	<i>Toxostoma rufum</i>
Gray Catbird	<i>Dumetella carolinensis</i>
Mallard	<i>Anas platyrhynchos</i>
Indigo Bunting	<i>Passerina cyanea</i>
Northern Cardinal	<i>Cardinalis cardinalis</i>
Eastern Kingbird	<i>Tyrannus tyrannus</i>
^a Also listed as a Bird of Conservation Concern (USFWS, 2008).	

Bats

Eight bat species are known to occur within Minnesota (see Table 8). The presence of forests and shelterbelts, wetlands, streams, and open areas (such as crop field edges) within the Project area may provide suitable foraging habitat and water sources for bat species known to occur in Minnesota.

Based on a desktop NLEB habitat assessment, the Project area contains 152.2 acres of forested habitat, primarily within isolated forested shelterbelts and farmsteads, which may provide suitable roosting and foraging habitat for Minnesota bat species. Of that forested habitat, only 30.4 acres or 0.24 percent of the Project area was considered potentially suitable summer habitat for NLEBs. Tier 3 studies will provide more information on bat use levels and seasonal patterns, as well as bat species composition within the Project area.

TABLE 8 Bat Species Known to Occur within Minnesota	
Common Name	Scientific Name
Eastern red bat	<i>Lasiurus borealis</i>

TABLE 8 Bat Species Known to Occur within Minnesota	
Common Name	Scientific Name
Little brown bat ^b	<i>Myotis lucifugus</i>
Northern long-eared bat ^{a, b}	<i>Myotis septentrionalis</i>
Tri-colored bat ^b	<i>Perimyotis subflavus</i>
Big brown bat	<i>Eptesicus fuscus</i>
Silver-haired bat	<i>Lasionycteris noctivagans</i>
Hoary bat	<i>Lasiurus cinereus</i>
^a	Federally threatened species
^b	State species of special concern.

POST-CONSTRUCTION FACILITY MONITORING

Post-construction fatality surveys were not conducted for the existing Rose Wind Project; however, WEST reviewed publicly available studies at recently constructed (2011 – 2017) wind energy facilities within the Eastern Iowa and Minnesota Drift Plains Level IV Ecoregion to assess potential direct impacts at the Project.

Estimated fatality rates at other projects in the ecoregion ranged from 0.51 to 8.44 bird fatalities per MW per study period and 1.8 to 12.55 bats fatalities per MW per study period (WEST, 2019). Among these wind energy facilities, Pleasant Valley, located approximately 9.3 mi north of the Project, is the closest facility with available bird fatality rates; the Pioneer Prairie II Wind Project, located 0.3 mi south of the Project, is the closest facility with available bat fatality rates. Both of these projects lie within an agricultural landscape similar to the Project. The estimated bird fatality rate at Pleasant Valley during 2016 – 2017 was 0.68 birds per MW (WEST, 2019). The estimated bat fatality rate at Pioneer Prairie II was 10.06 bats per MW during 2011 – 2012, and was 9.83 bats per MW during 2013 (WEST, 2019).

Publicly available fatality counts and species lists for wind energy facilities within the Eastern Iowa and Minnesota Drift Plains Level IV Ecoregion were also reviewed to determine the potential collision risk for sensitive species. Seven studies with available data in the ecoregion reported the discovery of 831 bird and bat fatalities, including 104 (12.5%) state-listed species of special concern (39 big brown bats, 58 little brown bats, three tri-colored bats, two short-eared owls, two purple martins). No other state-listed threatened or endangered species, federally listed species, or eagle fatalities were documented in these studies (WEST, 2019). Big brown bats and little brown bats were the most common sensitive species found as fatalities and appear to be the most susceptible to collision with wind turbines in this region.

The Project area is dominated by agriculture and all turbines will be placed in cultivated fields. Based on the low availability of natural habitats in the Project area and given the similarities between the agricultural landscapes in the Project and nearby wind energy facilities, post-construction bird and bat fatality rates and the collision risk for sensitive species at the Project are expected to be comparable to other wind energy facilities in the region.

CONCLUSIONS

This report describes biological resources within the Project area and meets Tier 1 and Tier 2 of USFWS' Wind Energy Guidelines. The USFWS' Wind Turbine Guidelines Advisory Committee

Recommendations (USFWS, 2012) suggests seven questions to answer while conducting a Tier 1 and Tier 2 report. These questions and their answers follow.

1.) Are known species of concern present on the proposed site, or is habitat (including designated critical habitat) present for these species?

There are two SOBS present within the Project boundary that may provide suitable habitat for sensitive plant species. The Adams 35 SOBs, a site of moderate biodiversity significance, over lands with an NPC that is designated as a seepage meadow/carr tussock sedge subtype. In addition, areas including unplowed prairie, degraded prairies, or roadside ditches could provide suitable habitat for rattlesnake master, wild quinine, edible valerian, Sullivant's milkweed, and prairie bush clover. No railroad prairies are present within the Project area.

Based on the USFWS known eagle nest data, one bald eagle nest is located within one-mile of the Project boundary and eagles are known to occur within Mower County. Suitable nesting and foraging habitat are not present within Project site; however, the wooded riparian systems within two miles of the Project area do provide more suitable bald eagle nesting and foraging habitat.

The Project area contains 30.4 acres of potentially suitable NLEB summer habitat; an additional 2,094.5 acres of potentially suitable NLEB summer habitat was identified outside of the Project area, but within 2.5 miles.

According to IPaC, no designated critical habitat is present within the Project site.

2.) Does the landscape contain areas where development is precluded by law or designated as sensitive according to scientifically credible information? Examples of designated areas include, but are not limited to: federally designated critical habitat; for NGOs; or other local, state, regional, federal, tribal, or international categorizations.

Two SOBS, of moderate and below biodiversity significance, are present within the Project boundary. One NPC overlaps with a SOBS (see Figure 5). Development is not precluded in these areas; however, CED has sited the turbines and infrastructure to avoid these sites.

3.) Are there plant communities of concern present or likely to be present at the site(s)?

Two SOBS are located within the Project boundary: Adams 35, a site of moderate biodiversity significance, and Lodi 32, a site of below biodiversity significance and they may provide suitable habitat for sensitive plant species. There are no sites of high or outstanding biodiversity significance within the Project boundary. The Adams 35 SOBS overlaps with a NPC, which may provide suitable habitat for sensitive plant species. The NHIS did not identify any plant communities within one mile of the Project boundary.

CED is in the process of developing a NPP and if native prairie is identified, Project infrastructure, including access roads, collector lines, and turbines will avoid native prairies. In addition, proper siting of turbines and infrastructure, which avoids impacts on streams, jurisdictional wetlands, and native plant communities should

avoid or minimize disturbance to listed plants and the sensitive aquatic habitats required by these species.

- 4.) Are there known critical areas of congregation of species of concern, including, but not limited to: maternity roosts, hibernacula, staging areas, winter ranges, nesting sites, migration stopovers or corridors, leks, or other areas of seasonal importance?**

There is a low potential for species of wildlife to congregate within the Project boundary. There are no known maternity roost trees, hibernacula, or avian nesting sites within the Project site. Suitable nesting habitat for bald eagles is present within 5 miles of the Project boundary and one eagle nest has been documented within 1 mile of the Project boundary according to data provided by the USFWS.

- 5.) Using best available scientific information has the developer or relevant federal, state, tribal, and/or local agency identified the potential presence of a population of a species of habitat fragmentation concern?**

No, the Project is comprised of agricultural land and additional development would not cause habitat fragmentation. Two SOBS are present within the Project boundary; however, proper siting of turbines and infrastructure will avoid impacts to the SOBS and avoid habitat fragmentation.

- 6.) Which species of birds and bats, especially those known to be at risk by wind energy facilities, are likely to use the proposed site based on an assessment of site attributes?**

The Project is highly fragmented and consists mostly of cultivated crops, which provides limited habitat for avian species. The Project occurs within the known range of the northern long-eared bat, and occurrence is possible within the forested areas of the Project during the summer months as well as more generally during early fall migration throughout the area. The NLEB was listed as a federally threatened species in May 2015, with an interim 4(d) rule; effective February 16, 2016, the USFWS finalized the 4(d) rule. The Project will comply with the current 4(d) rule.

Bald eagles may also occur within the Project area. Desktop data indicate that there are bald eagle nests outside of, but within 1 mile of, the Project, and bald eagles may occur as nesting pairs or as passing migrants within the Project boundary.

It is unlikely that sensitive avian and bat species are more likely to nest within the Project boundary compared to the surrounding area. Overall, few protected or sensitive avian or bat species are expected to nest within the Project boundary given the largely agricultural land use.

- 7.) Is there a potential for significant adverse impacts to species of concern based on the answers to the questions above, and considering the design of the proposed project?**

Based on available data, the potential for significant adverse impacts on species of concern is relatively low. However, bald eagles are known to nest within 5 miles of the Project. Potentially suitable NLEB roosting and foraging habitat is minimal

within the Project area (30.4 acres), though additional suitable habitat (2,094.5 acres) is available within 2.5 miles of the Project boundary. Based on these findings, and avian and bat species may be present within the Project boundary; therefore, we recommend that Tier 3 studies be completed for the Project, in coordination with the USFWS.

Tier 3 studies are likely to include, but may not be limited to the following:

- Avian Use Surveys
- Raptor Nest Surveys
- General Bat Acoustic Surveys
- Native Prairie Surveys

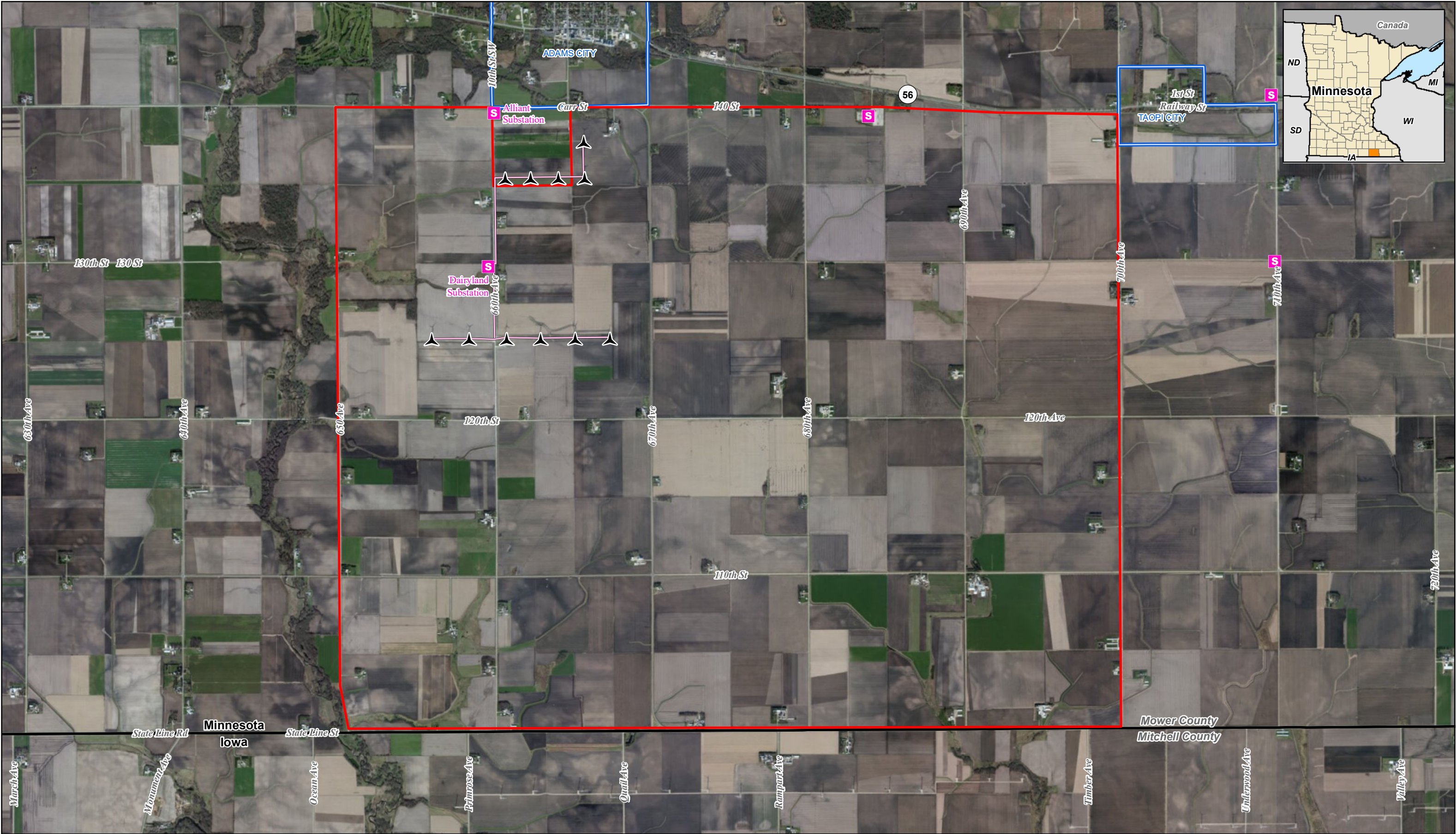
SOURCES

- Cornell Lab of Ornithology. 2020. EBird. Available online at: <https://ebird.org/home>. Accessed February 2021.
- Minnesota County Biological Survey. 2021. MCBS Railroad Rights-of-Way Prairies. Available online at: <https://gisdata.mn.gov/dataset/biota-mcbs-railroad-prairies>. Accessed February 2021.
- Minnesota Department of Natural Resources (MNDNR). 2020a. Protected Waters and Wetlands, Mower County, Minnesota. Available online at: https://files.dnr.state.mn.us/waters/watermgmt_section/pwi/MOWE1OF1.pdf Accessed January 2021.
- MNDNR. 2020b. Floodplain Maps and Technical Resources. Available online at: https://www.dnr.state.mn.us/waters/watermgmt_section/floodplain/fema_firms.html. Accessed January 2021.
- MNDNR. 2021a. *Eryngium yuccifolium*. 2021. Available online at: https://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=PD_API0Z0V0. Accessed January 2021.
- MNDNR. 2021b. *Lythrus umbratilis*. 2021. Available online at: https://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=AF_CJB52080. Accessed January. 2021.
- MNDNR. 2021c. *Phenacobius mirabilis*. 2021. Available online at: https://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=AF_CJB30030. Accessed January 2021.
- MNDNR. 2021d. *Lasmigona compressa*. 2021. Available online at: https://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=IM_BIV22020. Accessed January 2021.
- MNDNR. 2021e. *Parthenium integrifolium*. Available online at: https://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=PD_AST6V060. Accessed November 2020.
- MNDNR. 2021f. *Asclepias sullivantii*. Available online at: https://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=PD_ASC021X0. Accessed January 20201.
- MNDNR. 2021g. Minnesota Biological Survey Site Biodiversity Significant Ranks. Available online at: https://www.dnr.state.mn.us/eco/mcbs/biodiversity_guidelines.html. Accessed February 20201.
- MNDNR. 2021h. Minnesota Native Plant Communities. Available online at: <https://www.dnr.state.mn.us/npc/index.html>. Accessed February 2021.
- MNDNR. 2021i. *Rudbeckia triloba* var. *triloba*. Available online at: <https://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=PD>

- [AST850H3#:~:text=Basis%20for%20Listing-,Rudbeckia%20triloba%20var.,and%20all%20were%20pre%2D1961..](#) Accessed February 2021.
- MNDNR. 2021j. *Valeriana edulis* var. *ciliate*. Available online at: <https://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=PDVAL03073>. Accessed February 2021.
- National Audubon Society. 2021. Important Bird Areas. Available online at: <https://www.audubon.org/important-bird-areas>. Accessed January 2021.
- National Conservation Easement Database. 2018. National Conservation Easement Database. Ducks Unlimited, and The Trust for Public Land. Available online at: <http://www.conservationeasement.us/>. Accessed March 2021.
- National Land Cover Database. 2016. National Land Cover Map. Available online at: <https://www.mrlc.gov/data?f%5B0%5D=category%3Aland%20cover>. Accessed January 2021.
- North American Bird Conservation Initiative. 2020. Bird Conservation Regions. Available at: <https://nabci-us.org/resources/bird-conservation-regions-map/#bcr22>. Accessed December 2020.
- U.S. Environmental Protection Agency 2021. Level III and IV Ecoregions of the Continental United States. Available online at: <https://www.epa.gov/eco-research/level-iii-and-iv-ecoregions-continental-united-states>. Accessed February 2021.
- U.S. Fish and Wildlife Service (USFWS). 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp.
- USFWS. 2012. Land-Based Wind Energy Guidelines. March 23, 2012. 82 pp. Available online: http://www.fws.gov/cno/pdf/Energy/2012_Wind_Energy_Guidelines_final.pdf. Accessed January 2021.
- USFWS. 2013. Eagle Conservation Plan Guidance. April 2013. Available online: <https://www.fws.gov/migratorybirds/pdf/management/eagleconservationplanguidance.pdf>. Accessed January 2021.
- USFWS. 2020a. Range-Wide Indiana Bat Survey Guidelines. March 2020. Available online: <https://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html>
- USFWS. 2020b. National Wetlands Inventory website. Available online at <https://www.fws.gov/wetlands/index.html>. Accessed January 2021.
- USFWS. 2020c. Known NLEB Hibernacula and Roost Trees. Available at http://files.dnr.state.mn.us/eco/ereview/minnesota_nleb_township_list_and_map.pdf. Accessed January 2021.

- USFWS. 2020d. Prairie Bush Clover. Available online at:
<https://www.fws.gov/midwest/endangered/plants/prairiebushclover/prairieb.html>.
Accessed December 2020.
- USFWS. 2021a. Information for Planning and Conservation. Available at
<https://ecos.fws.gov/ipac/>. Accessed January 2021.
- USFWS. 2021b. Northern Long-Eared Bat *Myotis septentrionalis*. Available online at:
<https://www.fws.gov/Midwest/Endangered/mammals/nleb/nlebFactSheet.html>.
Accessed January 2021.
- U.S. Geological Survey. 2020. National Hydrography Dataset. Available online at:
<https://www.usgs.gov/core-science-systems/ngp/national-hydrography>. Accessed
January 2021.
- U.S. Geological Survey. 2019. Breeding Bird Survey Routes Dataset. Available at
<https://www.pwrc.usgs.gov/BBS/RouteMap/SpeciesInfo.cfm?CountryNum=840&StateNum=50&RouteNum=054&ReportType=4&StartYear=1993&EndYear=2019>. January 2021
- Western EcoSystems Technology, Inc. 2019. Regional Summaries of Wildlife Fatalities at Wind Facilities in the United States. 2019 Report from the Renew Database. Published by WEST, Inc., Cheyenne, Wyoming. December 31, 2019.
- Western EcoSystems Technology, Inc. 2021. Rose Creek Wind Project Northern Long-eared Bat Habitat Assessment. Prepared for Rose Creek Wind, LLC and ConEdison Development. Prepared by WEST, Golden Valley, Minnesota. Submitted to the Minnesota Department of Natural Resources and Energy Environmental Review Analysis. May 2021.

FIGURES



01,5003,000

Feet

1 inch = 3,000 feet

N

E

S

W

merjent.

conEdison
Development

For Environmental Review Purposes Only

Figure 1

Rose Creek Wind Project

Rose Creek Wind, LLC

Project Location - Aerial

Mower County, Minnesota

▲ Existing Turbine

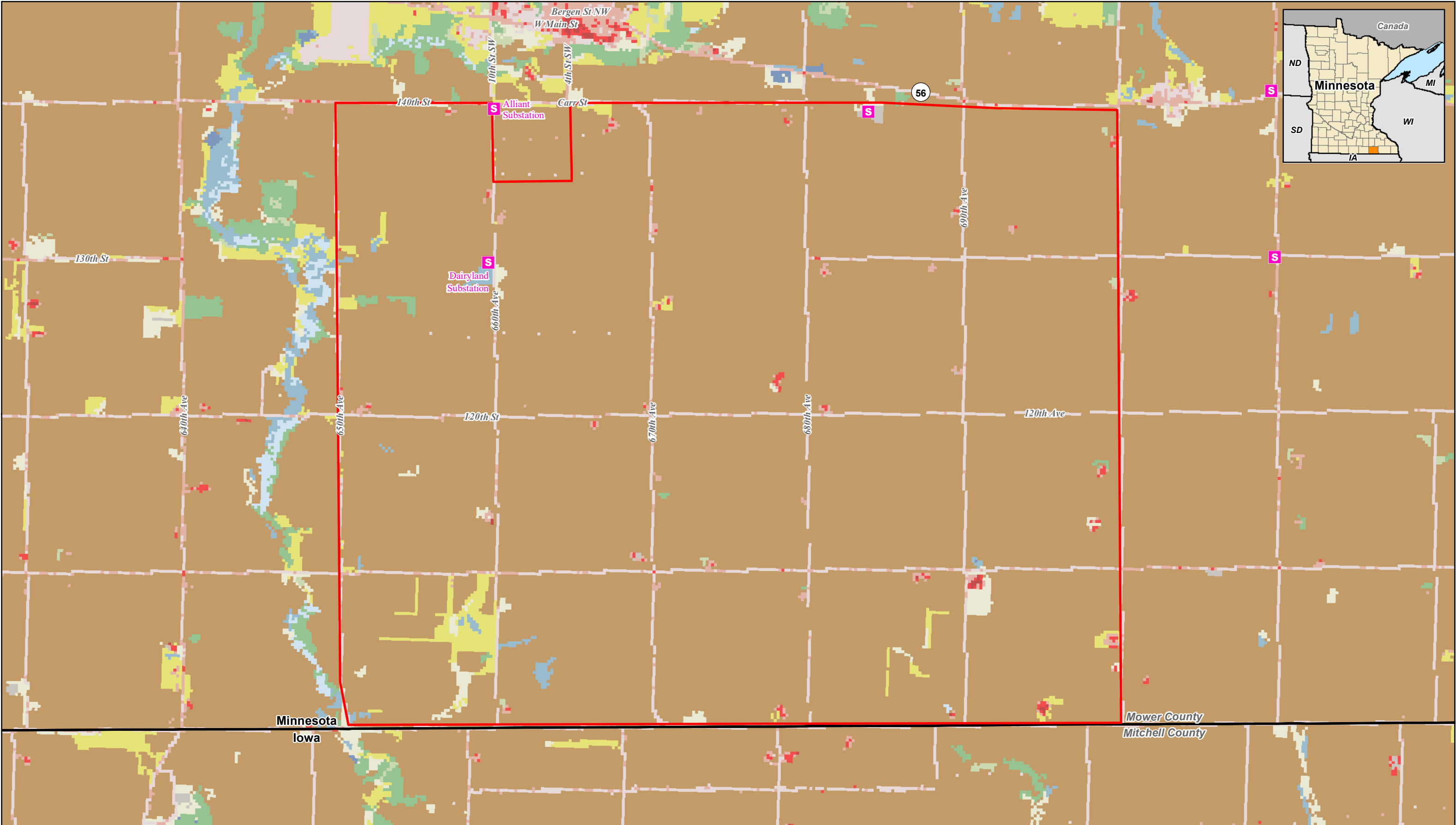
■ Existing Substation

— Existing Collector Line

□ Project

□ City Limits

Source: Z:\Clients\A_D\ConEdison\Rose_Creek_Wind\Permitting\State\Tier1\Tier2\Figures\Fig1_Rose_Creek_Wind_11_12_Project_Location.mxd
Date: (5/25/2021)



01,5003,000

Feet

1 inch = 3,000 feet

merjent.

conEdison Development

For Environmental Review Purposes Only

Figure 2

Rose Creek Wind Project

Rose Creek Wind, LLC

NLCD (2016)

Mower County, Minnesota

S

Existing Substation

Project

NLCD (2016)

Open Water

Developed, Open Space

Developed, Low Intensity

Developed, Medium Intensity

Developed, High Intensity

Barren Land

Deciduous Forest

Mixed Forest

Herbaceous

Hay/Pasture

Cultivated Crops

Woody Wetlands

Emergent Herbaceous Wetlands

Date: 6/25/2021

Source: Z:\Client\A_D\ContEdisonRose_Creek_Wind\Permitting\State\Tier1\Figures\Fig2_Rose_Creek_Wind_T12_NLCD.mxd

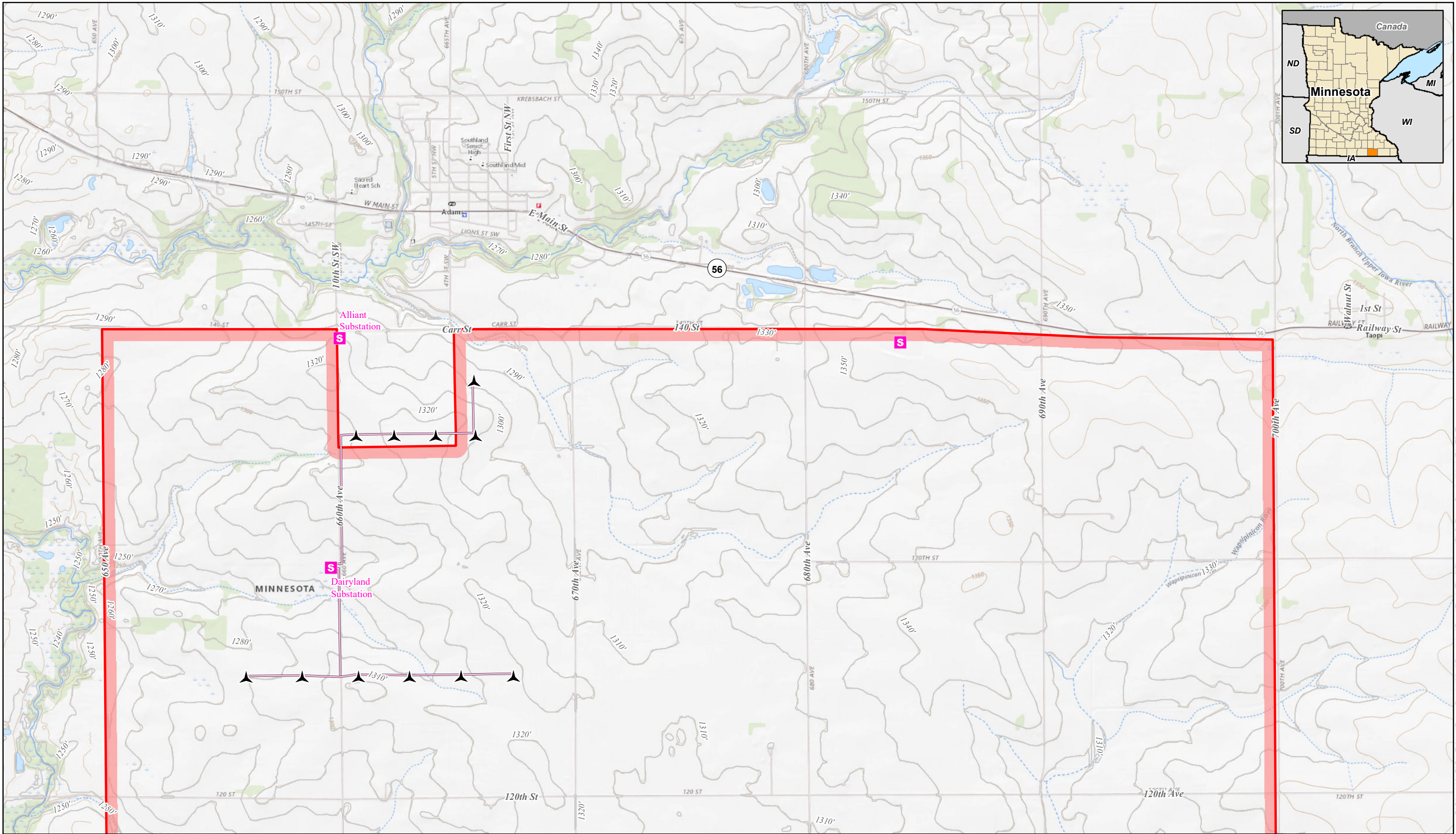
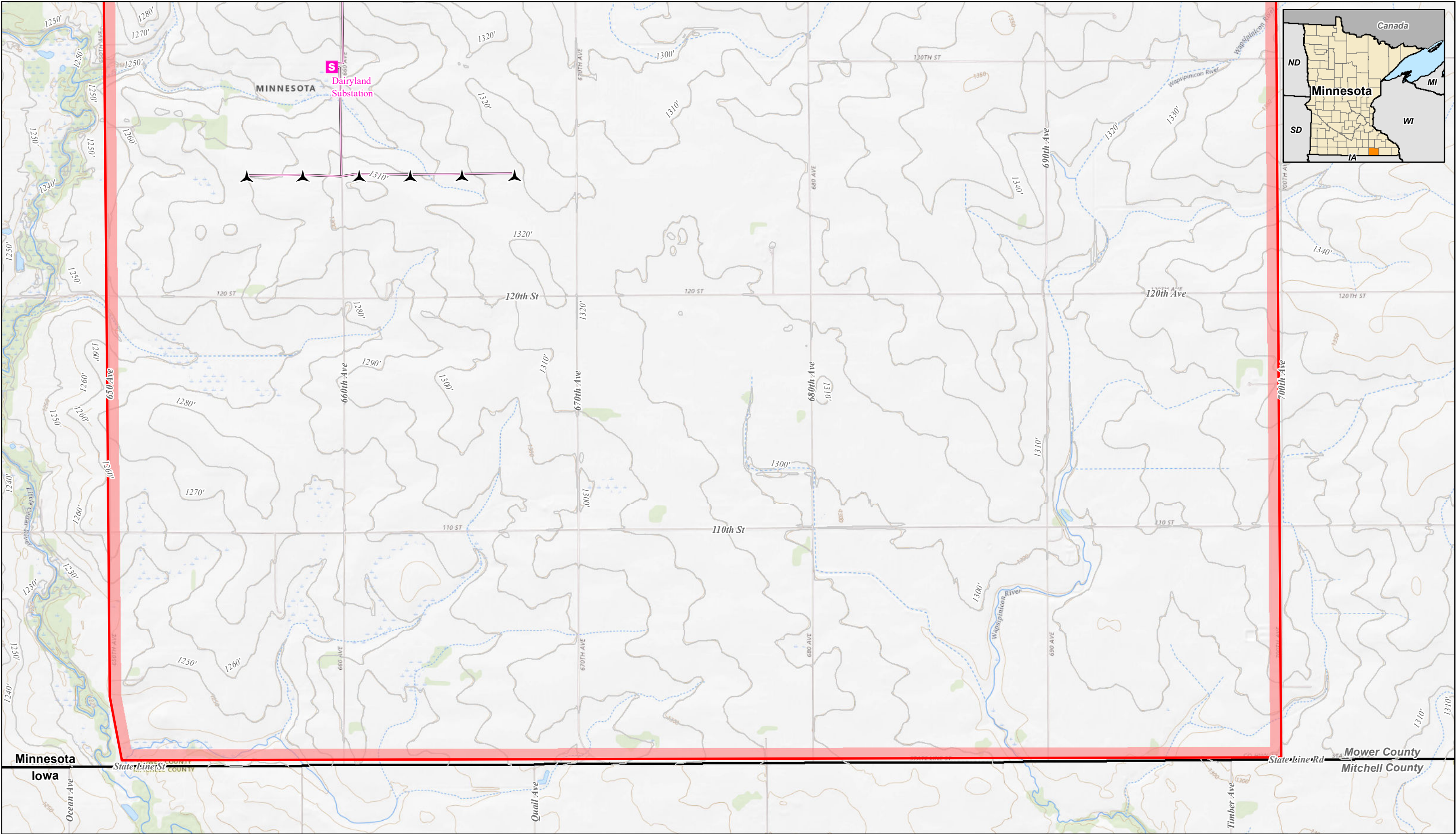


Figure 3
Rose Creek Wind Project
Rose Creek Wind, LLC
Topographic Map
Mower County, Minnesota



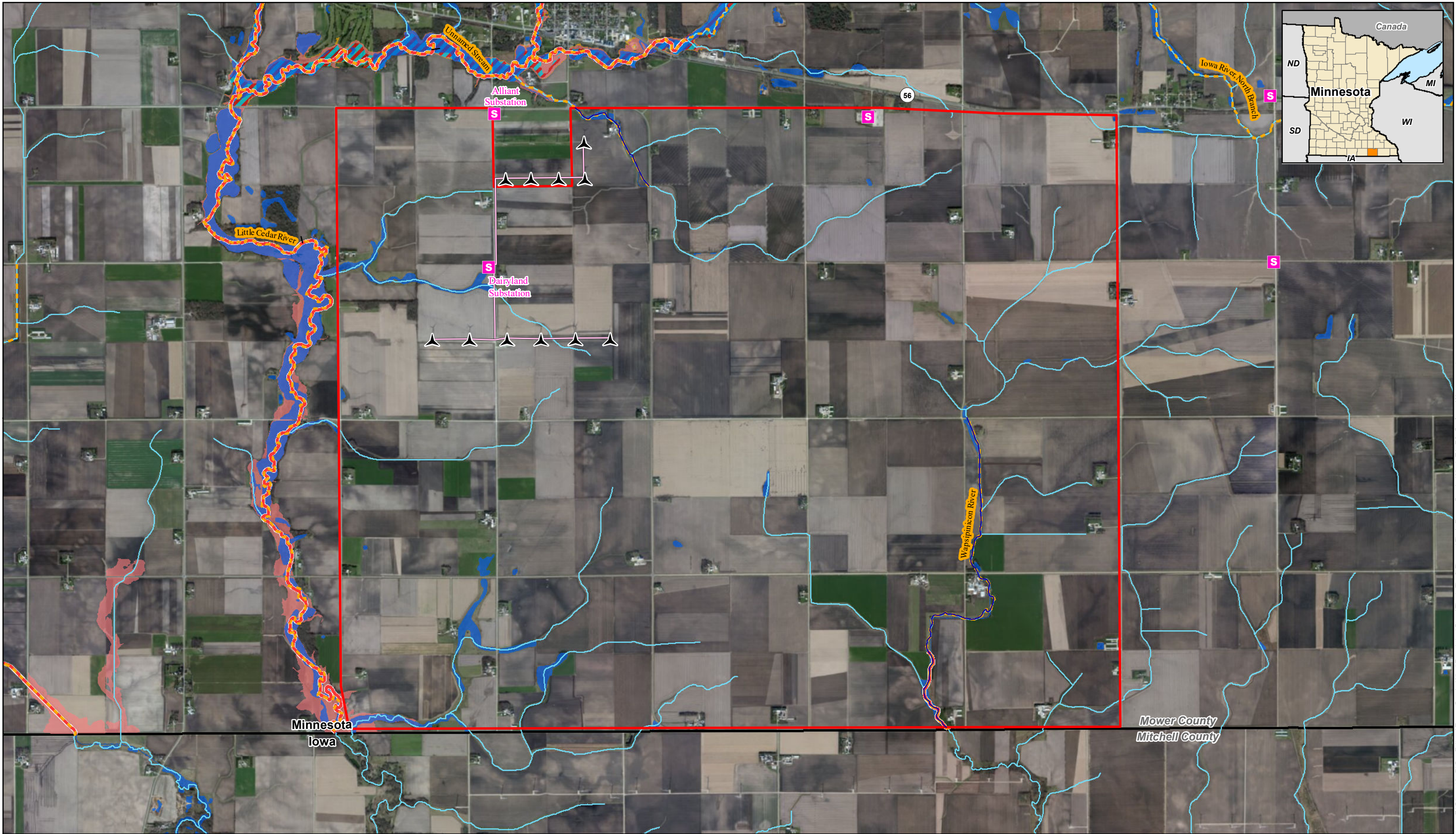
0 1,000 2,000 Feet
1 inch = 2,000 feet

merjent. **conEdison** Development

For Environmental Review Purposes Only

Figure 3
Rose Creek Wind Project
Rose Creek Wind, LLC
Topographic Map
Mower County, Minnesota

▲ Existing Turbine
■ Existing Substation
— Existing Collector Line
— 10' Contour
□ Project



01,5003,000

Feet

1 inch = 3,000 feet

N

W

E

S

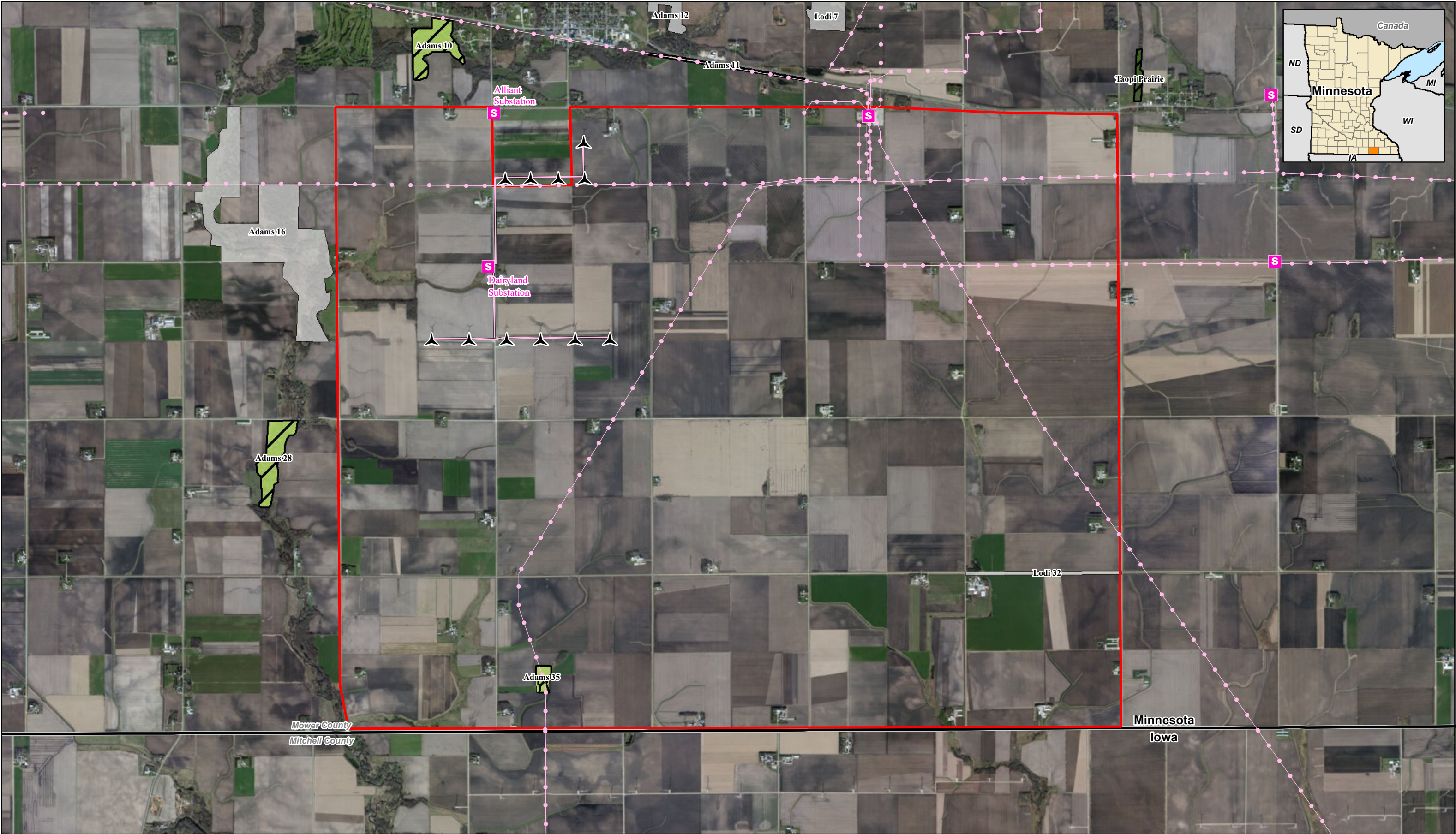
merjent.

conEdison
Development

For Environmental Review Purposes Only

Figure 4
Rose Creek Wind Project
Rose Creek Wind, LLC
Surface Water Features
Mower County, Minnesota

- | | | |
|------------------------------|------------------------------|---------------------|
| S Existing Substation | PWI Public Water | 100-year flood |
| Existing Turbine | Impaired Stream (2020 draft) | Regulatory Floodway |
| Existing Collector Line | NHD Waterbody | 500-year flood |
| Project | NWI Wetland | |



01,5003,000

Feet

1 inch = 3,000 feet

For Environmental Review Purposes Only

Figure 5
Rose Creek Wind Project
Rose Creek Wind, LLC
Public Lands
Mower County, Minnesota

Existing Turbine

Existing Substation

Existing Transmission Line

Existing Collector Line

Project

Sites of Biodiversity Significance

High

Moderate

Below

Native Prairie

Native Plant Community

Source: Z:\Clients\A_D\ConEdison\Rose_Creek_Wind\Permitting\State\Tier1\Figures\Fig5_Rose_Creek_Wind_11_12_Public_Lands.mxd

Date: (5/25/2021)