Environmental Assessment:

Crane and Sandhill Energy Storage Projects

Human and Environmental Impacts of Constructing and Operating the

200 MW Crane and Sandhill Energy Storage Projects

November 2025

PUC Docket Nos. IP-7148/ESS-24-406, IP-1749/ESS-24-407

OAH Docket No. CAH-25-2500-40988

MINNESOTA
PUBLIC UTILITIES COMMISSION

Project Contacts

Responsible Government Unit

Minnesota Public Utilities Commission
121 Seventh Place East, Suite 350
Saint Paul, MN 55101-2147

Commission Representative

Jacques Harvieux
(651) 201-2233
jacques.harvieux@state.mn.us

Preparer

Minnesota Public Utilities Commission
121 Seventh Place East, Suite 350
Saint Paul, MN 55101-2147

Commission Representative

Tessa Kothlow
(651) 539-1069
tessa.kothlow@state.mn.us

Project Proposer

Crane Energy Storage, LLC
200 S. Wacker Drive, Suite 1600
Chicago, IL 60606

Crane BESS Representative

Onur Usmen
646-656-8044
ousm@cisc.dk

Project Proposer

Sandhill Energy Storage, LLC
200 S. Wacker Drive, Suite 1600
Chicago, IL 60606

Sandhill BESS Representative

Onur Usmen
646-656-8044
ousm@cisc.dk

Crane Energy Storage, LLC (Crane Storage), and Sandhill Energy Storage, LLC (Sandhill Storage), wholly owned subsidiaries of Copenhagen Infrastructure Service (CIP), propose to construct and operate their respective energy storage projects each with a nominal power rating of up to 200 megawatts (MW) alternating current (AC) with approximately 800 megawatt-hours (MWh) of energy capacity.

The two projects will be located on adjacent parcels in Kalmar Township, Olmsted County, Minnesota. The Crane Energy Storage Project (Crane project) will be on a site of approximately 36.3 acres and the Sandhill Energy Storage Project (Sandhill project) will be on a site of approximately 42.7 acres. Crane Storage and Sandhill Storage must obtain site permits from the Minnesota Public Utilities Commission before they can construct the proposed Crane project and Sandhill project.

Sources

Much of the information used to prepare this environmental assessment comes from the site permit application. Additional sources include information from relevant federal and state environmental review documents for similar projects, spatial data and site visits.

Project Mailing List

To place your name on the project mailing list contact docketing.puc@state.mn.us or (651) 201-2204 and provide the docket numbers (24-406, 24-407), your name, email address, and mailing address. Please indicate whether you would like to receive notices by email or U.S. mail.

Alternative Formats

This document can be made available in alternative formats, that is, large print or audio, by calling (651) 296-0406 (voice)

Contents

Appendices

Figures

Tables

Acronyms and Abbreviations

Acronym/Abbreviation	Description
AC	alternating current
AIMP	Agricultural Impact Mitigation Plan
ALJ	administrative law judge
applicants	Crane Energy Storage, LLC, and Sandhill Energy Storage, LLC
BESS	Battery Energy Storage System
BMP	best management practice
Commission	Public Utilities Commission
CSW Permit	Construction Stormwater Permit
dBA	A-weighted sound level recorded in units of decibels
DC	direct current
DNR	Minnesota Department of Natural Resources
DSP	draft site permit
DWSMA	Drinking Water Supply Management Area
EA	environmental assessment
EMF	electromagnetic fields
ESS	Energy Storage System
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
kV	kilovolt
LFP	lithium iron phosphate battery technology
MBS	Minnesota Biological Survey
MDA	Minnesota Department of Agriculture
MDH	Minnesota Department of Health
MW	megawatt
MWh	megawatt hour
mG	milligauss
MnDOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency
NAC	noise area classification

NMC	nickel manganese cobalt battery technology
NHIS	Natural Heritage Information System
NLEB	Northern Long Eared Bat
project	Crane BESS and Sandhill BESS
ROI	region of influence
ROW	right-of-way
SHPO	State Historic Preservation Office
SMMPA	Southern Minnesota Municipal Power Agency
SWPPP	Stormwater Pollution Prevention Plan
USFWS	United States Fish and Wildlife Service
VMP	Vegetation Management Plan
WCA	Wetland Conservation Act
WHPA	Wellhead Protection Area

DEFINITIONS

Several terms used in this document have specific meaning in Minnesota law or regulation. Other terms are defined for clarity.

associated facilities means buildings, equipment, and other physical structures that are necessary to the operation of a large electric power generating plant or high voltage transmission line (Minnesota Rule 7850.1000, subpart 3).

construction means any clearing of land, excavation, or other action that would adversely affect the natural environment of the site or route but does not include changes needed for temporary use of sites or routes for nonutility purposes, or uses in securing survey or geological data, including necessary borings to ascertain foundation conditions (Minnesota Statute 216E.01, subdivision 3).

distribution line means power lines that operate below 69 kilovolts.

easement means a grant of one or more of the property rights by the property owner to and /or for the use by the public, a corporation, or another person or entity.

energy storage system means equipment and associated facilities designed with a nameplate capacity of 10,000 kilowatts or more that is capable of storing generated electricity for a period of time and delivering the electricity for use after storage. (Minnesota Statute 216E.01, subdivision 3a).

high voltage transmission line means a conductor of electric energy and associated facilities designed for and capable of operation at a nominal voltage of 100 kilovolts or more and is greater than 1,500 feet in length (Minnesota Statute 216E.01, subdivision 4).

Crane land control area means the 36.3 acres for which Crane Storage has site control through purchase parcels and easements. The site permit application refers to this land as the "Crane Land Control Area"; however, preliminary design of the Crane project—the area required for construction and operation of the project—would affect approximately 35.6 acres within the land control area and this area is referred to as the **Crane preliminary development area**.

Sandhill land control area means the 42.7 acres for which Sandhill Storage has site control through purchase parcels and easements. The site permit application refers to this land as the "Sandhill Land Control Area"; however, preliminary design of the Sandhill project—the area required for construction and operation of the project—would affect approximately 39.9 acres within the land control area and this area is referred to as the **Sandhill preliminary development area**.

local vicinity means 1,600 feet from the land control area and collection line corridor.

mitigation means to avoid, minimize, correct, or compensate for a potential impact.

power line means a distribution, transmission, or high voltage transmission line.

project area means one mile from the land control area and collection line corridor.

transmission line means power lines that operate at 69 kilovolts and above.

1 Introduction

Crane Energy Storage, LLC (Crane Storage), and Sandhill Energy Storage, LLC (Sandhill Storage), wholly owned subsidiaries of Copenhagen Infrastructure Service (CIP), propose to construct and operate their respective battery energy storage projects each with a nominal power rating of up to 200 megawatts (MW) alternating current (AC) with approximately 800 megawatt-hours (MWh) of energy capacity. The two projects will be located on adjacent parcels in Kalmar Township, Olmsted County, Minnesota. The Crane Energy Storage Project (Crane project) will be on a site of approximately 36.3 acres and the Sandhill Energy Storage Project (Sandhill project) will be on a site of approximately 42.7 acres.

As proposed, the facilities will be connected to the electric grid through a 161 kilovolt (kV) gen-tie line of approximately 700 feet between the shared project substation and the Bryon Substation owned and operated by the Southern Minnesota Municipal Power Agency (SMMPA). Crane Storage anticipates that construction of the Crane project will begin first quarter 2027 and that operation will commence in mid-2028. Sandhill Storage anticipates that construction of the Sandhill project will begin third quarter 2027 and that operation will commence in late 2028.

Crane Storage and Sandhill Storage (applicants) must obtain site permits from the Minnesota Public Utilities Commission (Commission) before they can construct their proposed Crane and Sandhill Energy Storage projects.

The applicants filed a joint site permit application (SPA or application) on March 5, 2025, and the Commission found the application to be substantially complete on April 29, 2025.

Minnesota Public Utilities Commission Energy Infrastructure Permitting (EIP) staff has prepared this environmental assessment (EA) for the proposed project.[1] The EA describes the project, highlights resources affected by the project, and discusses potential human and environmental impacts to these resources. It also discusses ways to mitigate potential impacts. These mitigation strategies can become enforceable conditions of the Commission's site permit(s).

An EA is not a decision-making document, but rather an information document. The EA is intended to facilitate informed decisions by state agencies, particularly with respect to the goals of the Minnesota Power Plant Siting Act to "minimize adverse human and environmental impacts while insuring continuing electric power system reliability and integrity and ensuring that electric energy needs are met and fulfilled in an orderly and timely fashion".[2]

[1] On July 1, 2025, Department of Commerce Energy Environmental Review and Analysis (DOC EERA) unit staff moved to the Minnesota Public Utilities Commission Energy Infrastructure Permitting (PUC EIP) unit as directed by state law (Laws of Minn. 2024, ch.126, art. 7). While DOC EERA staff initiated environmental review of this proposal prior to July 1, 2025, the environmental review is now being completed by PUC EIP staff. For accuracy related to procedural history, references to previous filings by EERA will be identified as such, and "EIP" will be referenced throughout the remainder of this document.

[2] Minnesota Statutes 216E.02, subd. 1.

Chapter 1
Introduction

1.1 How is this document organized?

The EA addresses the matters identified in the scoping decision.

This EA is based on the applicant's site permit application and public scoping comments. It addresses the matters identified in the August 15, 2025, scoping decision (**Appendix A**)

- **Chapter 1** briefly describes the state of Minnesota's role; discusses how this EA is organized; and provides a summary of potential impacts and mitigation.
- **Chapter 2** describes the project—design, construction, operation, and decommissioning.
- **Chapter 3** summarizes the regulatory framework, including the site permit process, the environmental review process, other approvals that might be required for the project, and the criteria the Commission uses to make its decisions.
- **Chapter 4** describes the environmental setting; details potential human and environmental impacts from the project; and identifies measures to mitigate adverse impacts. It summarizes the cumulative potential effects of the project and other projects and lists unavoidable impacts and irreversible and irretrievable commitments of resources.
- **Chapter 5** identifies the sources used to prepare the document.

1.2 What does the applicant propose to construct?

Crane Storage and Sandhill Storage propose to each construct a 200 MW battery energy storage system (BESS) and associated facilities on sites of approximately 36.3 acres (Crane project) and 42.7 acres (Sandhill project) in Kalmar Township in Olmsted County, Minnesota.

Crane Storage and Sandhill Storage propose to construct and operate the Crane and Sandhill projects, two independent BESS's, each with a maximum capacity of up to 200 MW alternating current (AC) and a storage capacity of approximately 800 megawatt-hours (MWh) of electricity. The two projects will be located on adjacent parcels in Kalmar Township, Olmsted County, Minnesota. The Crane project will be on a site of approximately 36.3 acres and the Sandhill project will be on a site of approximately 42.7 acres.[3] Because the two projects will share the primary access road, collector substation, and gen-tie line, there is about 19.2 acres of overlap between the two sites and this area is accounted for in each project description.[4]

In addition to the battery energy storage enclosures, the facilities will also include their respective inverters, transformers, stormwater drainage basins, storage and parking areas, perimeter fencing, emergency management system, battery management system, a collector substation, underground electrical collection and communication lines, and a gen-tie line.[5] These facilities will be connected to the electric grid through a 161 kilovolt (kV) gen-tie line of approximately 700 feet between the shared project substation and the Bryon Substation.

[3] SPA, p. 13 & p. 17
[4] SPA, p. 17 & p. 66
[5] SPA, p. 23

The applicants indicate that the projects will assist Minnesota in reaching its Renewable Energy Objectives such as the "100 Percent by 2040" legislation, by helping bring emission-free firm energy to the electric grid and allowing wind and solar resources to continue producing energy during unserviceable weather conditions.

According to the American Clean Power Association, general key benefits associated with battery energy storage systems include enhancing grid stability and reliability, decreasing grid interruptions during influx power demands, reducing costs for consumers, and supporting the shift to renewable energy generation. Locally, the applicants indicate that the projects will aid the region's ongoing transition to renewables, ensure reliable electric service in the area, and provide significant economic benefits to residents.[6]

The applicants filed a generator interconnection agreement (GIA) application for the project with the Midcontinent Independent System Operator (MISO) in 2022 and anticipate signing a GIA in the first quarter of 2026.[7] The applicants anticipate that construction for the Crane project will begin first quarter 2027 and construction for the Sandhill project will begin third quarter 2027.[8] The Crane project and the Sandhill project are being marketed separately to potential off-takers and may/or may not be constructed within the same twelve-month period.[9] Estimated cost for development and construction of the Crane project is $340-440 million with estimated annual operating costs of $2-3 million.[10] Estimated costs for development and construction of the Sandhill project is $340-440 million with estimated annual operating costs $2-3 million.[11]

[6] SPA, p. 1
[7] SPA, p. 16
[8] SPA, p. 6
[9] SPA, p. 1
[10] SPA, p. 16
[11] SPA, pp. 20-21

Figure 1. Proposed Crane Energy Storage Project

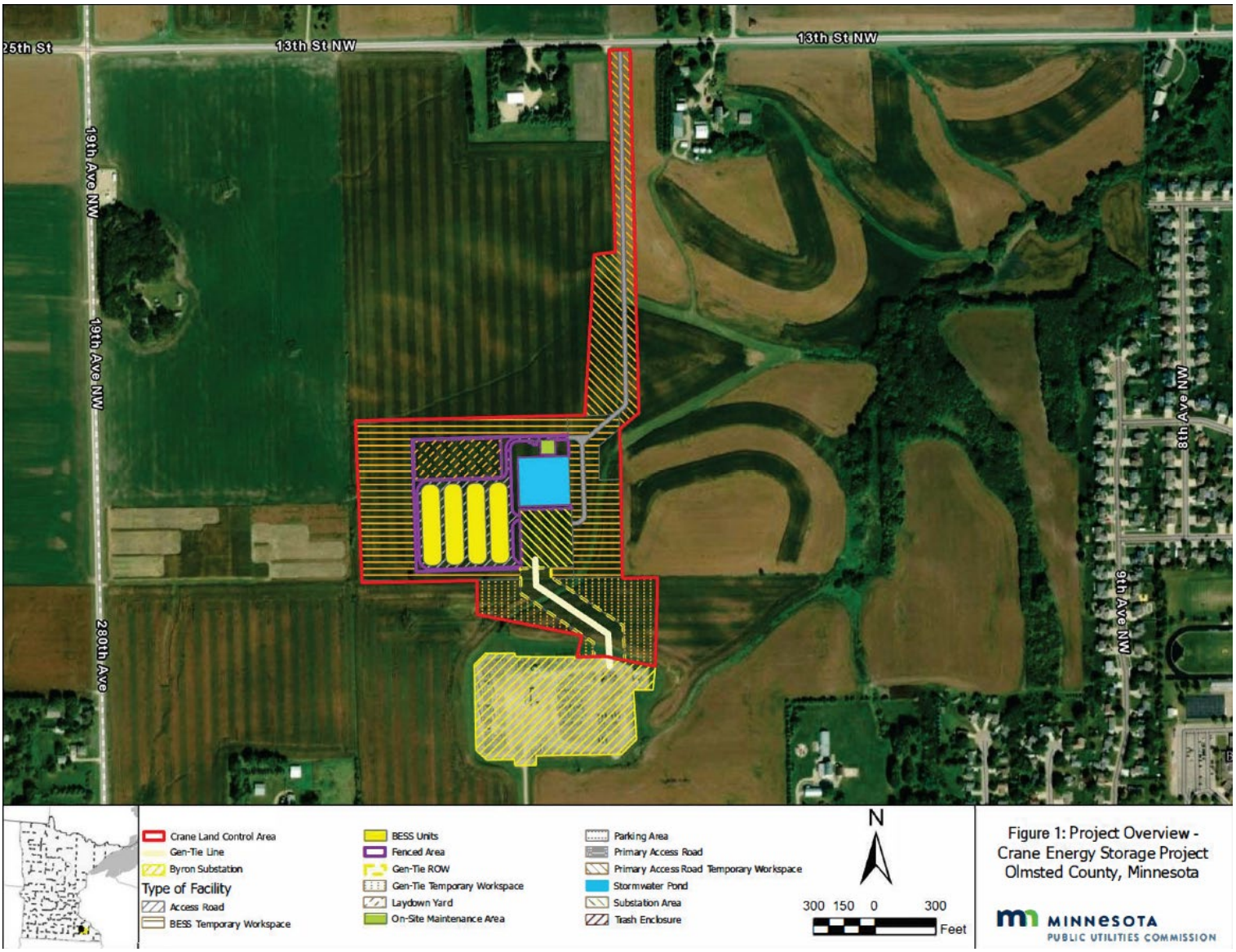
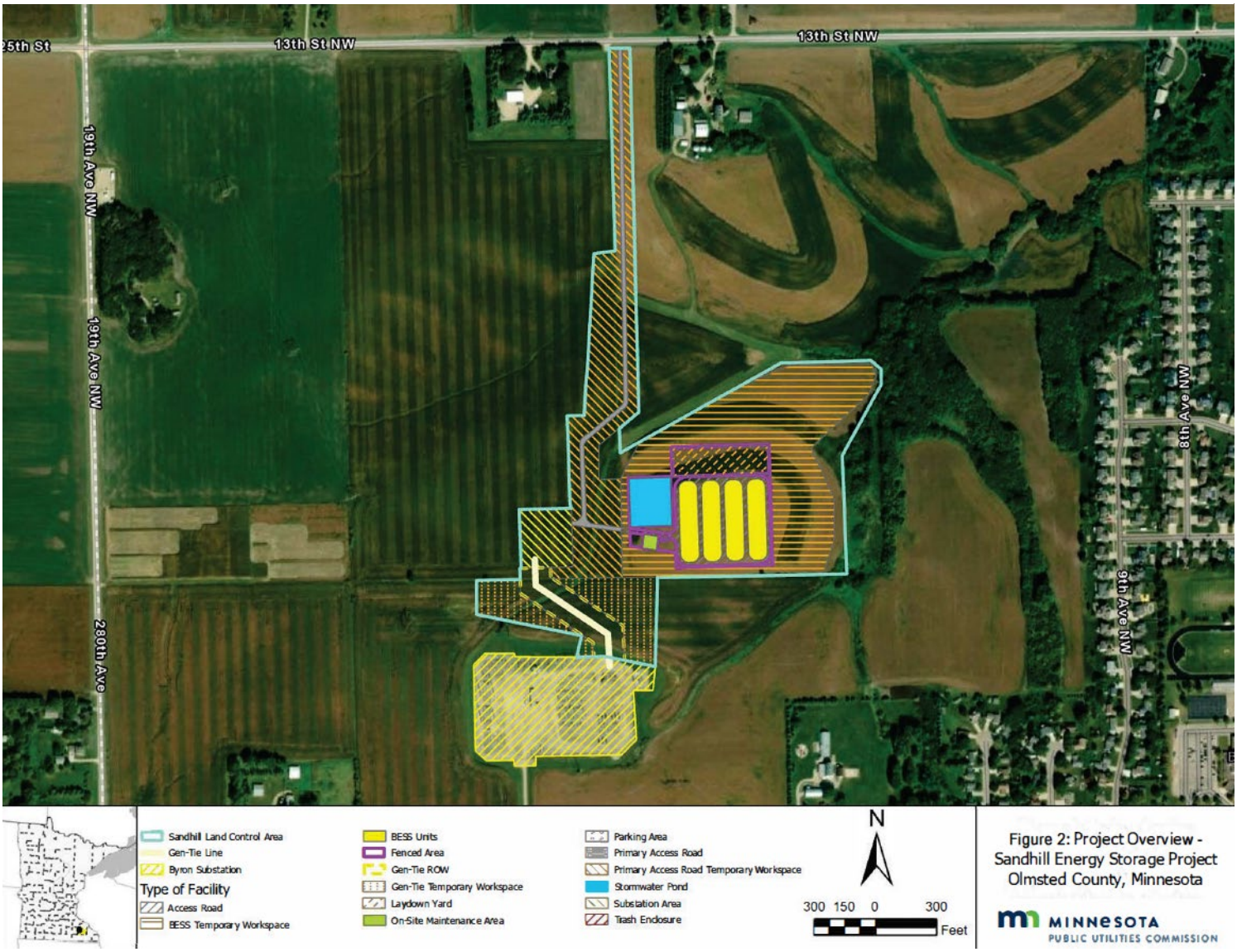


Figure 2. Proposed Sandhill Energy Storage Project



1.3 What is the state of Minnesota's role?

The applicants need site permits from the Commission to construct the project. Commission EIP staff prepared this Environmental Assessment. An administrative law judge will oversee a public hearing.

To build the project, the applicants need site permits from the Commission. The project may also require additional approvals from other federal and state agencies and local governments, for example, a driveway permit from Olmsted County or a Construction Stormwater Permit from the Minnesota Pollution Control Agency (MPCA). A site permit supersedes local zoning, building, and

land use rules.[12] The Commission's site permit decision must be guided, in part, however, by consideration of impacts to local zoning and land use in accordance with the legislative goal to "minimize human settlement and other land use conflicts".[13]

Crane Storage and Sandhill Storage applied to the Commission for site permits for the projects on March 5, 2025.[14] The Commission must consider whether the record supports issuing site permits, and what conditions should be placed on the site permits.[15]

To ensure a fair and robust airing of the issues, the Minnesota Legislature set out a process for the Commission to follow when considering site permit applications.[16] In this instance, an EA was prepared, and a public hearing will be held. The goal of the EA is to describe potential human and environmental impacts of the projects (*the facts*), whereas the intent of the public hearing is to allow interested persons the opportunity to advocate, question, and debate what the Commission should decide about the project (*what the facts mean*). The record developed during this process—including all public input—will be considered by the Commission when it makes its decisions on the applicants' site permit application.

1.4 What is the public's role?

Minnesota needs your help to make informed decisions.

During scoping, you told us your concerns about the projects so that we could collect the right facts. At the public hearing, which comes next, you can tell us what those facts mean, and if you think we have represented them correctly in this EA. Your help in pulling together the facts and determining what they mean will help the Commission make informed decisions regarding the projects.

1.5 What is an Environmental Assessment?

This document is an Environmental Assessment. The Commission will use the information in this document to inform their decisions about issuing site permits for the projects.

This EA contains an overview of affected resources and discusses potential human and environmental impacts and mitigation measures. Commission Energy Infrastructure Permitting (EIP) staff prepared this document as part of the environmental review process.

1.6 Where do I get more information?

For additional information don't hesitate to contact Commission staff.

---

[12] Minnesota Statutes 216E.10, subd. 1.
[13] Minnesota Statutes 216E.03, subd. 7.
[14] Crane Energy Storage, LLC and Sandhill Energy Storage, LLC, Joint Site Permits Application to the Minnesota Public Utilities Commission, March 5, 2025, eDocket ID: 20253-216062-02 20253-216062-01 (through -10), [herein after Site Permit Application or SPA]
[15] If the Commission grants a site or route permit, it chooses which of the studied locations is most appropriate. In this matter only one site location is studied
[16] *See generally* Minnesota Statute 216E.

If you would like more information or if you have questions, please contact Commission EIP Staff: Tessa Kothlow, tessa.kothlow@state.mn.us, 651-539-1069 or Jacques Harvieux, jacques.harvieux@state.mn.us, 651-201-2233.

Information about the project, including the site permit application, notices, and public comments, can be found on eDockets: https://www.edockets.state.mn.us/documents by entering "24-406" or "24-407" in the Docket number field and selecting the search button. Information is also available on the Commission's webpage for the project: https://puc.eip.mn.gov/web/project/16148

1.7 What permits are needed?

A site permit, from the Commission is required for each project. Federal, state, and local permits may also be necessary to construct the project(s).

The Crane and Sandhill projects require site permits from the Commission because they meet the statutory definition of an *energy storage system*, which is equipment and associated facilities designed with a nameplate capacity of 10 MW or more and is capable of storing generated electricity for a period of time and delivering the electricity for use after storage.[17]

Various federal, state, and local approvals will be required for activities related to the construction and operation of the project(s). These permits are referred to as "downstream permits" and must be obtained by the applicant prior to constructing the project.

1.8 What are the potential impacts of the projects?

The projects will impact human and environmental resources. Impacts will occur during construction and operation.

A potential impact is the anticipated change to an existing condition caused directly or indirectly by the projects. Potential impacts can be positive or negative, short- or long-term, and can accumulate incrementally. Impacts vary in duration and size, by resource, and across locations. The impacts of constructing and operating a project can be mitigated by avoiding, minimizing, or compensating for the adverse effects and environmental impacts of a project.

The context of an impact—in combination with its anticipated on-the-ground effect and mitigation measures—is used to determine an impact intensity level, which can range from highly beneficial to highly harmful. Impacts are grouped: human settlement, human health and safety, land-based economies, archeological and historic resources, and natural resources.

Select resource topics received abbreviated study because they were deemed to be of minor importance to the Commission's site permit decision. Potential impacts are anticipated to be negligible for displacement, communication, forestry, and mining.

[17] Minn. Stat. 216E.01, subd. 3a

1.8.1 Human Settlement

Large energy projects can impact human settlement. Impacts range from short-term, such as increased local expenditures during construction, to long-term, such as changes to viewsheds.

Aesthetics: The impact intensity level is expected to be minimal to moderate and long-term. Impacts are anticipated to be minimal for travelers along public roadways, while the facility will be more noticeable to nearby residences.

Cultural Values: The impact intensity level is anticipated to be minimal. The project is not anticipated to impact or alter the work and leisure pursuits of residents in such a way as to impact the underlying culture of the area. Differences between cultural values related to renewable energy and rural character has the potential to create tradeoffs that cannot be addressed in the site permits.

Land Use and Zoning: The impact intensity level is anticipated to be minimal. Land use impacts are anticipated to be long-term and localized. Although energy storage systems are not specifically addressed in local planning documents or zoning codes, the proposed facility is generally consistent with local land use ordinances and the Olmsted County's Comprehensive Plan. Constructing the project will change land use at the site from agricultural to energy storage production for the expected 30 year life of the project. After the project's useful life, the land control area could be restored to agricultural or other planned land uses by implementing appropriate restoration measures. Impacts can be minimized.

Noise: The impact intensity level during construction will range from negligible to significant depending on the activity, potential construction impacts are anticipated to be intermittent and short-term. Impacts are unavoidable but can be minimized. These localized impacts may affect nearby residences and might exceed state noise standards. Once operational, noise impacts are anticipated to range from negligible to moderate at nearby residences. Noise impacts from operation of the facilities can be minimized mitigated.

Property Values. Impacts to property values within the local vicinity could occur; however, changes to a specific property's value are difficult to determine. Because of this uncertainty, impacts to specific properties in the project vicinity could be minimal to moderate and decrease with distance and over time.

Transportation and Public Services: Potential impacts to the electrical grid, roads and other utilities are anticipated to be short-term, intermittent, and localized during construction. Impacts to existing wells and septic systems are not expected to occur. Impacts to railroads and pipelines are not expected to occur. Overall, construction-related impacts are expected to be minimal, and are associated with possible traffic delays. During operation, negligible traffic increases would occur for maintenance. Impacts are unavoidable but can be minimized.

Socioeconomics: The impact intensity level is anticipated to be minimal and positive. Effects associated with construction will, overall, be short-term and minimal. Impacts from operation will be negligeable. Significant positive effects may occur for individuals. Adverse impacts are not anticipated.

Economic Justice: The project will not have disproportionately high and adverse human health or environmental effects on low-income, minority, or tribal populations.

1.8.2 Human Health and Safety

Large energy projects have potential to impact human health and safety. Most concerns are related to the construction phase, although BESS facilities do create additional operational risks.

Electronic and Magnetic Fields (EMF): Impacts to human health from possible exposure to EMFs are not anticipated. Potential impacts will be long-term and localized. These unavoidable impacts will be of a small size. Impacts can be mitigated.

Public Safety and Emergency Services: Like any construction project, there are risks for injuries from falls, equipment and vehicle use, electrical accidents, etc. Public risks involve electrocution. Electrocution risks could also result from unauthorized entry into the fenced area. The main safety hazard of a BESS is battery failure leading to thermal runaway which has the potential to spread to nearby batteries and containers, quickly presenting an emergency. Emergency response to fires or thermal runaway events at BESS facilities require specialized response. Potential impacts from construction are anticipated to be minimal. Potential impacts during operation are anticipated to be moderate to significant. Impacts would be short- and long-term and can be minimized.

1.8.3 Land-based Economies

Large energy projects can impact land-based economies by limiting land use for other purposes.

Agriculture: Potential impacts to agricultural producers are anticipated to be minimal—lost farming revenues will be offset by easement agreements. A negligible loss of farmland in Olmsted County would occur for the life of the projects. Potential impacts are localized and unavoidable but can be minimized.

Tourism and Recreation: Because the sites are not close to major recreational or tourism resources, potential impacts to recreational opportunities and tourism are anticipated to be negligeable.

1.8.4 Archeological and Historic Resources

The impact intensity level is anticipated to be negligible to minimal. Impacts would be localized. Impacts can be mitigated through siting and an unanticipated discoveries plan.

1.8.5 Natural Resources

Large energy projects can impact the natural environment. Impacts are dependent upon many factors, such as how the project is designed, constructed, maintained, and decommissioned. Other factors, such as the environmental setting, influence potential impacts. Impacts vary significantly within and across projects.

Air Quality: Potential impacts to air quality during construction would be intermittent, localized, short-term, and minimal. Impacts are associated with fugitive dust and exhaust. Impacts can be mitigated. Once operational, the BESS facilities will not generate criteria pollutants or carbon dioxide. Negligible fugitive dust and exhaust emissions would occur as part of routine maintenance activities. Impacts are unavoidable and do not affect a unique resource. Impacts can be minimized.

Geology and Groundwater: Impacts to geology and domestic water supplies are not expected. Localized impacts to groundwater resources, should they occur, would be intermittent, but have the potential to occur over the long-term. Indirect impacts from surface waters might occur during construction. Impacts can be mitigated through use of Best Management Practices (BMPs) for stormwater management.

Soils: Impacts to soils will occur during construction and decommissioning of the projects. The impact intensity level is expected to be minimal. Potential negative impacts will occur over both the short- and long-term. Isolated moderate to significant negative impacts associated with high rainfall events could occur. Impacts can be mitigated through use of BMPs for stormwater management.

Surface Water: The impact intensity level is anticipated to be minimal. Direct impacts to surface waters are not expected. Indirect impacts to surface waters might occur. These impacts will be short-term, of a small size, and localized. Impact can be mitigated.

Wetlands: There are no wetlands within the development areas, so no direct impacts to wetlands are anticipated from the project. With proper construction management practices, indirect impacts to offsite wetlands can be avoided.

Vegetation: The facilities will convert row crop farmland to a mixture of impermeable surface and perennial vegetation for the life of the projects. Potential impacts of the facilities can be mitigated through development of a vegetation management plan (VMP).

Wildlife and Habitat: Long-term, minimal positive impacts to small mammals, insects, snakes, etc. would occur. Impacts to large wildlife species, for example, deer, will be negligible. Significant negative impacts could occur to individuals during construction and operation of the project. While most of the sites will be covered by crushed rock, a portion of the land control areas will provide native habitat for the life of the project. The projects do not contribute to significant habitat loss or degradation or create new habitat edge effects. Potential impacts can be mitigated in part through design and BMPs. The impact intensity level is expected to be minimal.

Rare and Unique Resources: The impact intensity level is anticipated to be minimal, as the projects avoid identified areas of species occurrence and preferred habitat. No additional mitigation measures are proposed. Impacts can be mitigated.

1.9 What factors guide the Commission's decision?

Minnesota statute and rule identify the factors the Commission must consider when determining whether to issue a site permit.

After reviewing the projects records—including public comments—the Commission will determine whether to issue site permits and, if site permits are issued, where the BESS facilities will be located and what permit conditions are appropriate.

Minnesota Statutes 216E.03 lists considerations that guide the study, evaluation, and designation of site permits. Minnesota Rule 7850.4100 lists the factors the Commission must consider when making a site permit decision.

A. Effects on human settlement, including, but not limited to, displacement, noise, aesthetics, cultural values, recreation, and public services.

B. Effects on public health and safety.

C. Effects on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining.

D. Effects on archaeological and historic resources.

E. Effects on the natural environment, including effects on air and water quality resources and flora and fauna.

F. Effects on rare and unique natural resources.

G. Application of design options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity.

H. Use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries.

I. Use of existing large electric power generating plant sites.

J. Use of existing transportation, pipeline, and electrical transmission systems or rights-of-way.

K. Electrical system reliability.

L. Costs of constructing, operating, and maintaining the facility which are dependent on design and route.

M. Adverse human and natural environmental effects which cannot be avoided.

N. Irreversible and irretrievable commitments of resources.

The Commission is also guided by the "state's goals to conserve resources, minimize environmental impacts, minimize human settlement and other land use conflicts, and ensure the state's electric energy security through efficient, cost-effective power supply and electric transmission infrastructure."[18]

Draft site permits (DSP) for the project are included in **Appendix C (Crane) and Appendix D (Sandhill)**.

1.10 Siting Factors – Analysis and Discussion

This analysis applies the siting factors to the projects. Some factors are described in just a few words. Other factors are more descriptive and include a list of elements that, when grouped, make up the factor. Finally, certain factors are relatively succinct, but the scoping process identified elements to be analyzed in this EA. For example, the public health and safety factor includes an EMF element.

[18] Minnesota Statutes 216E.03, subd. 7(a).

Factor M (unavoidable impacts) and **Factor N** (irreversible and irretrievable resource commitments) are discussed in Section 4.8 and Section 4.9, respectively, of this EA. **Factor G** (application of design options) and **Factor L** (costs dependent on design) do not apply as the design of the proposed project is the only design under consideration.

Other factors are ranked as follows:

●	Impacts are anticipated to be negligible to minimal and able to be mitigated or consistent with factor
○	Impacts are anticipated to be minimal to moderate and able to be mitigated in part or less consistent with factor, but nonetheless consistent
⊘	Impacts are anticipated to be moderate to significant and unable to be mitigated fully or consistent in part or not consistent with factor

Table 1 Application of Siting Factors

Factor A: Human Settlement		
Element	Construction	Operation
Aesthetics	○	○
Displacement	●	●
Cultural Values	●	●
Electric Interference	●	●
Floodplains	●	●
Land Use and Zoning	●	●
Noise	⊘	○
Property Values*	●	●
Recreation	●	●
Socioeconomics	●	●
Factor A: Public Services		
Element	Construction	Operation
Airports	●	●
Roads	●	●
Utilities	●	●
Factor B: Public Safety		
Element	Construction	Operation

EMF	●	●
Emergency Services	○	○
Medical Devices	●	●
Public Safety	○	○
Stray Voltage	●	●
Worker Safety	●	●

Factor C: Land-based Economies

Element	Construction	Operation
Agriculture	●	●
Forestry	●	●
Mining	●	●
Tourism	●	●

Factor D: Archaeological and Historic Resources

Element	Construction	Operation
Archeological	●	●
Historic	●	●

Factor E: Natural Resources

Element	Construction	Operation
Air Quality	●	●
Geology and Groundwater	●	●
Soils	○	○
Surface Water	●	●
Topography	●	●
Vegetation	●	●
Wetlands	●	●
Wildlife	○	●
Wildlife Habitat	●	●

Factor F: Rare and Unique Resources

Element	Construction	Operation
Fauna	○	●
Flora	●	●

Factor I: Use of Existing Generating Plants		
Element	Construction	Operation
Existing Plants	⊘	⊘

1.10.1 Discussion

The following discussion highlights potential impacts to factor elements that are anticipated to be moderate to significant, and factors determined less consistent, consistent in part, or not consistent.

FACTOR A: HUMAN SETTLEMENT

Aesthetics Visual impacts are subjective. Thus, potential impacts are unique to the individual and can vary widely. Although there are no other BESS facilities in the project vicinity, the proposed BESS's are similar in appearance to a transmission substation and the projects are sited adjacent to current energy infrastructure (Byron Substation). For those with high viewer sensitivity, for example, neighboring landowners, visual impacts are anticipated to be moderate to significant, while for those that travel through the project area, visual impacts are likely to be minimal, although noticeable.

Noise Noise impacts from construction of the facilities will be temporary and intermittent and range from negligible to significant depending on the construction equipment used and the location of the listener. Once operational, noise impacts are anticipated to range from negligible to moderate at nearby residences. Noise impacts can be mitigated.

FACTOR B: PUBLIC SAFETY

Public Safety and Emergency Services In addition to construction-related risks, BESS facilities have unique public safety risks related to operation. The main safety hazard for BESS facilities is battery failure leading to thermal runaway which has the potential to spread to nearby batteries and containers, quickly presenting an emergency. Emergency response to fires or thermal runaway events at BESS facilities require specialized response. Potential impacts from construction are anticipated to be minimal. Potential impacts during operation are anticipated to be moderate to significant. Employing best practices in facility design and operation, including identifying hazards and developing training for emergency responders can mitigate potential impacts.

FACTOR I: POWER PLANTS

Because the BESS facilities are not constructed at an existing power plant, the facilities are inconsistent with this siting factor.

1.11 What's next?

A public hearing will be held near the proposed projects; you can provide comments at the hearing. The Commission will then review the record and decide whether to grant a site permit(s).

An administrative law judge (ALJ) from the Office of Administrative Hearings will hold a public hearing after the EA is complete and available. At the hearing you may ask questions and submit comments about the project. After the close of the comment period, the ALJ will provide a written report to the Commission summarizing the public hearing and any comments received.

The Commission reviews all the information in the project's records in determining whether to issue site permits. Site permits define the location of the project and include conditions specifying mitigation measures. The Commission is expected to make its decisions in early-2026.

2 Proposed Project

Crane Storage and Sandhill Storage propose to construct and operate two independent BESS facilities each with a nominal power rating of up to 200 MW AC with approximately 800 MWh of energy capacity. The two projects will be located on adjacent parcels in Kalmar Township, Olmsted County, Minnesota. The Crane project will be on a site of approximately 36.3 acres and the Sandhill project will be on a site of approximately 42.7 acres. Because the two projects will share the primary access road, collector substation, and gen-tie line, there is about 19.2 acres of overlap between the two sites and this area is accounted for in each project description.

The facilities will be connected to the electric grid through a 161 kV gen-tie line of approximately 700 feet between the shared collector substation and the Bryon Substation owned and operated by SMMPA. This chapter describes the projects and how they would be constructed, operated, and decommissioned.

2.1 BESS Facility

2.1.1 How do BESS facilities work?

A BESS connects to the electric grid and transfers electric energy from the grid to store in batteries when demand is low and then transfers energy back to the grid during outages or when demand is high.

A BESS consists of a series of electrochemical devices (batteries) that charges by collecting energy from a source (the electric grid or a power plant) and discharges the energy at a later time when needed. Battery storage can enhance the flexibility of a power system and can help integrate renewable generation technologies like wind and solar into the grid by storing energy when demand is low and discharging the energy when demand is high.[19]

2.1.2 Where are the Projects located?

The Projects are in Kalmar Township in Olmsted County, Minnesota (Figures 1 & 2).

The Crane and Sandhill facilities are located on a site of approximately 36.3 acres (Crane project) and 42.7 acres (Sandhill project) in sections 30 and 31 of Kalmar Township (Township 107N, Range 15W) in Olmsted County. The facilities sites are west of the city of Byron and are bounded by US Highway 14 to the south.

The applicants selected the site based on proximity to the electrical grid and existing Bryon Substation, available capacity on the electrical grid, environmental impacts, and willing landowner participation.[20] The applicants have entered option agreements to purchase parcels for development of BESS portion of the projects and Crane has established easement agreements for

[19] National Renewable Energy Laboratories, *Grid-Scale Battery Storage: Frequently Asked Questions*. September 2019, https://www.nrel.gov/docs/fy19osti/74426.pdf
[20] SPA, p. 39

construction and operation of the primary access road to BESS facility with the current landowners.[21]

2.1.3 How is the facility designed?

As shown in Figure 1 and Figure 2, in addition to battery energy storage enclosures, the facility will also include their respective inverters, transformers, stormwater drainage basins, storage and parking areas, perimeter fencing, emergency management system, battery management system, a collection substation, underground electrical collection and communication lines, and a gen-tie line.[22]

The applicants will have O&M storage containers on site to house some operation and maintenance materials.[23] The facilities will be connected to the electric grid through a 161 kV gen-tie line of approximately 700 feet between the shared project substation and the Bryon Substation owned and operated by the Southern Minnesota Municipal Power Agency (SMMPA). The applicants indicate that specific project design components such as final battery technology and batter container/ enclosure design may vary depending on the technology selected during final engineering design.[24]

2.1.3.1 Batteries and BESS Enclosures

The BESS industry currently uses two main types of lithium-ion batteries:[25]

- **Nickel Manganese Cobalt (NMC)**: Nickel is the primary source of energy in NMC batteries; manganese and cobalt are required to stabilize and provide the desired power output. Because cobalt is expensive, these batteries typically use eight parts nickel to one part each of manganese and cobalt (8:1:1). NMC have a high energy density, which means that they can store energy in a smaller package, making them suitable for electric vehicles and consumer electronics such as smartphones and laptops.
- **Lithium Iron Phosphate (LFP)**: LFP batteries are comprised of roughly equal parts of iron and phosphate. Relative to NMC technology, LFP batteries are more chemically stable and less prone to thermal runaway events and combustion, and the components of LFP batteries are cheaper and generally considered to be less toxic. LFP batteries are commonly used in energy storage facilities.

Battery storage technology is developing rapidly, and the applicants indicate that LFP technology is the current battery technology under consideration and will be designed for the life of the two projects.

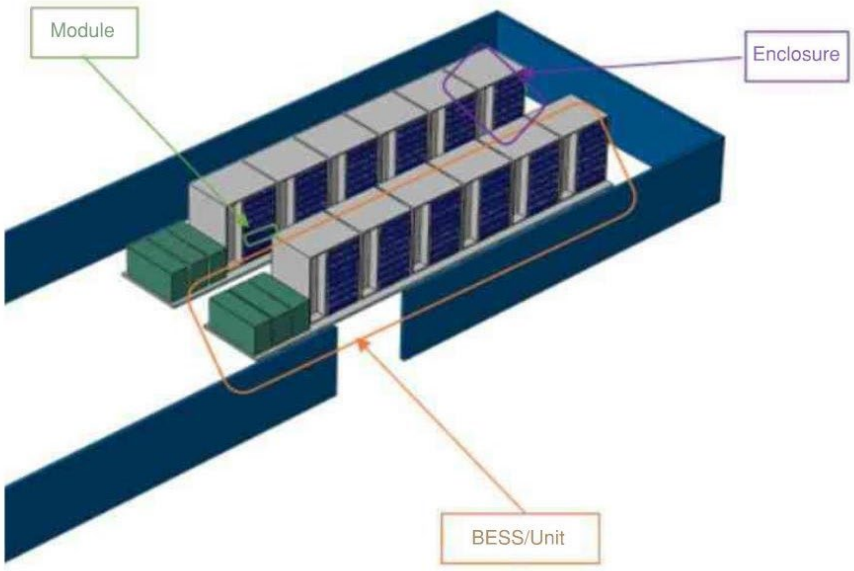
The batteries are housed in enclosures (Figure 3). Under the Crane Project preliminary design, BESS units will occupy approximately 3.2 acres of the approximately 14.8 acre parcel that will host all

[21] SPA, p. 13 (Crane) & p. 17 (Sandhill)
[22] SPA, p. 23
[23] SPA, p. 33
[24] SPA, pp. 23-24
[25] Mayfield Renewables, October 2023, *Comparing NMC and LFP Lithium-Ion Batteries for C&I Applications,* https://www.mayfield.energy/technical-articles/comparing-nmc-and-lfp-lithium-ion-batteries-for-ci-applications/#:%7E:text=Nickel%20Manganese%20Cobalt%20(NMC)%20and%20Lithium%20Iron%20Phosphate%20(LFP,long%2Dterm%20reliability%20are%20paramount) (Accessed March 6, 2025)

BESS facility components for operation of the facility. Under the Sandhill Project preliminary design, BESS units will occupy approximately 3.2 acres of the approximately 13.3 acre parcel that will host all BESS facility components for operation of the facility.[26] Each BESS enclosure will connect to inverters, transformers, and an underground electric distribution system of 34.5 kV cables.[27] The applicants anticipate that the dimensions of the BESS enclosures will be approximately 20 feet in length, 8 feet in width, and 9.5 feet in height.[28]

The applicants are contemplating a preliminary design modeled on the Sungrow PowerTitan 2.0 for the BESS enclosures; however, the applicants are considering multiple battery technology enclosures and the type of enclosure is subject to change upon final selection.[29]

Figure 3. Representative BESS Enclosures [30]



2.1.3.2 Project Tap Line and Substation

The Crane and Sandhill projects will share a collector substation which will include high voltage electrical structures, breakers, a 161 kV transformer, metering and related equipment, lightning protection, telecommunications equipment, and Supervisory Control and Data Acquisition (SCADA) equipment. Electricity will flow to and from the Bryon Substation via a shared 161 kV gen-tie line of approximately 700 feet. Depending on final design, the gen-tie line will have a single dead-end structure within the collector substation and likely two or three additional structures to carry the gen-tie line to the Bryon Substation.[31]

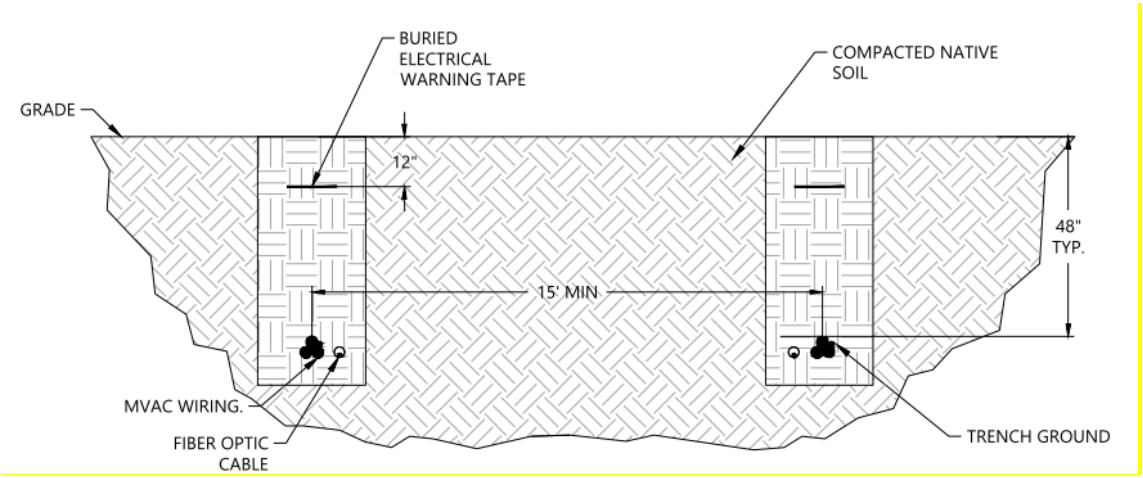
---

[26] SPA, p. 15 & p. 18-20
[27] Id.
[28] SPA, p. 24
[29] SPA, p. 53
[30] Snowshoe SPA, p. 22, Image 2, October 7, 2024, Docket No. 202410-210785-02
[31] SPA, p. 25

2.1.3.3 Power Conversion System

Electrical energy will flow between the respective project substation and the BESS enclosures through underground 34.5 kV AC feeder lines (Figure 4). The power will pass through medium voltage transformers and inverters to the battery modules. The inverters convert AC to DC for storage in the battery modules and from DC to AC for delivery back to the grid. Inverters and transformers will be installed on skids adjacent to the BESS units.[32] Depending on the final technology, inverters may be included within the enclosure or outside on skids adjacent to the enclosure.[33]

Figure 4. Underground Cabling



2.1.3.4 Fencing

Crane Storage and Sandhill Storage will install security fencing around the perimeter of their respective project facilities, with separate fencing for the collector substation. Fencing will be secured to posts which will be directly embedded in the soil or set in concrete foundations as required for structural integrity. The applicants propose to install a 7 foot high chain link fence with three strands making up one foot of barbed wire across the top for a total fence height of 8 feet.[34] Gates will be installed at the entrance of the facilities and between the BESS and the collector substation.[35]

2.1.3.5 Access Roads and Drive Area

The Crane and Sandhill projects will share a primary access road connecting both projects to 13th Street NW. The access road will be approximately 2500 feet in length to reach the Crane project and an additional 460 feet of length will be added to reach the Sandhill project.

During construction the entry road will generally be 100 feet wide with the southernmost portion of the road expanded to 265 feet wide to provide adequate space for construction vehicles and heavy

[32] SPA, p. 31
[33] SPA, p. 24
[34] SPA. P. 26
[35] SPA, p. 13 & p. 17

equipment. The width of the primary access road will be narrowed to about 20 feet wide after construction. The primary access road will be graveled and maintained for operation of the projects. Within the Crane and Sandhill facilities there will be interior access roads between the BESS units that are wide enough to allow standard maintenance vehicles to travel between the enclosures.[36]

2.1.3.6 Operations and Maintenance Building

Within the preliminary designs of the projects, the applicants do not indicate intent to construct an operations and maintenance (O&M) building. Alternatively, they will have O&M storage containers on site to house materials such as ethylene glycol, refrigerant, and lubricating oils.[37]

2.1.4 How would the BESS facilities be constructed?

At the time of the application, Crane Storage anticipated that construction of the Crane facility would begin in the 1st quarter of 2027 with an in-service date in the 2nd quarter of 2028. Sandhill Storage anticipated that construction of the Sandhill facility would begin in the 3rd quarter of 2027 with an in-service date in the 4th quarter of 2028. This section summarizes construction activities. Unless otherwise noted, this summary has been adapted from Section 4.4 of the SPA.

Construction will begin after all necessary permits are obtained and the interconnection process is finalized. Construction activities for both projects will include transport and delivery of equipment and materials, site preparation, equipment installation and revegetation and landscaping. Construction of the Crane project and Sandhill project is estimated to take approximately 9 to 15 months.

Depending on offtake of the projects, should the Sandhill project be constructed before the Crane project, Sandhill Storage would negotiate an agreement with Crane Storage for permission to construct the shared facilities: the primary access road, collector substation, and gen-tie line.

Construction is defined in Minn. Stat. 216E.01, subd. 3 as clearing of land, excavation, or other action that would adversely affect the natural environment of the site but does not include temporary disturbances needed for surveying or geotechnical investigation. The applicants pre-construction activities include geotechnical investigation, identification of underground utilities, final project design, and component procurement (e.g., batteries, racking, inverters, BESS containers, transformers, etc.).

Initial site preparation will involve installing erosion control devices and temporary soil stabilization will be established as needed. Further, grubbing and grading will take place to create level workspaces for installation of the facilities and safe operation of construction equipment. During grading the applicants intend to export soils excavated from one area and import fill for other areas. Grading quantities will be finalized following advanced engineering designs.

Temporary construction workspaces and laydown areas will be established for both projects for storage of construction materials, receiving construction deliveries, setting up temporary construction offices, and temporary parking. The Crane project anticipates laydown areas will occupy approximately 1.9 acres north of the BESS units in the preliminary development area. The

[36] SPA, p. 26
[37] SPA, p. 33

Sandhill project anticipates laydown areas will occupy approximately 1.5 acres north of the BESS units in the preliminary development area. Stormwater basins will also be constructed in both project areas.

Typical construction equipment will be used for the project – scrapers, bulldozers, dump trucks, watering trucks, pickup trucks, and backhoes. Additional specialty equipment could include a skid steer loader, pile driver, cranes, concrete truck and boom truck, a high reach bucket truck, and a truck-mounted auger or drill rig.

During a 3-month peak construction for each project, construction personnel are estimated to account for a maximum of 75 roundtrip vehicles per day and deliveries of equipment and materials are estimated to account for a maximum of five daily roundtrips for a total of up to 81 daily roundtrips utilizing local public roads. If the projects are constructed at the same time, applicants may seek to coordinate combined deliveries and construction personnel.

Crane Storage estimates that the project will create approximately 75 temporary construction jobs and up to four full-time jobs to operate and maintain the facility.[38] Sandhill Storage estimates that the project will create approximately 75 temporary construction jobs, and one to two full-time jobs to operate and maintain the facility.[39]

Access Roads and Drive Areas

The Crane and Sandhill projects will share a primary access road connecting the projects to 13th Street NW. The entity that constructs their project first will be responsible for constructing the primary access road. The access road will be approximately 2,500 feet in length to reach the fence line of the Crane Project and the collection substation and an additional 460 feet of length will be added to reach the fence line of Sandhill project (2,960 feet). Interior access roads will be installed between the BESS units that are wide enough to allow standard maintenance vehicles to travel between enclosures.

During construction, the primary access road will be 100 feet wide with the southernmost portion expanded to 265 feet to provide adequate space for construction vehicles and heavy equipment. The width of the primary access road will be narrowed to about 20 feet wide after construction is complete and the road will be graveled and maintained for operation of the projects. To develop the primary access road, topsoil will be stripped and segregated for later use during construction. Subsoils will be compacted as specified by the civil and geotechnical engineer and 4 to 12 inches of gravel will be installed to level with existing grade to facilitate drainage and minimize ponding. Gravel will be installed with or without geo-fabric depending on the soil type and geotechnical study.

BESS Enclosures

Foundations of BESS units will be concrete, pier, or other foundation type deemed appropriate based on the results of the geotechnical study. Preassembled BESS units will be offloaded onto

[38] SPA, p. 64
[39] SPA, p. 65

foundations and the electrical collection and communication systems, inverters, and transformers will be installed. Aggregate fill will be placed between and around the BESS equipment and lighting will be installed around the BESS site.

Power Conversion System

The inverters and transformers may be included within BESS enclosures or on skids adjacent to the BESS units. From the transformers, below-ground buried medium voltage (34.5 kV) electrical cables will transfer power to and from the collector substation. Cabling will be buried in a trench or ploughed into place to a depth of at least three feet and wide enough to ensure proper spacing between each cable run. The depth to cables may be deeper when crossing under existing utilities or other features that require avoidance. The final engineering design and procurement may impact the method used for installation of the electrical collection system[40]

Collector Substation

The Crane and Sandhill projects will have one shared collector substation. The entity that constructs their project first will be responsible for constructing the collector substation. The substation will have a grounding grid installed that will be covered with 18 inches of soil or aggregate surfacing for safe operation. The final depth will be confirmed by the results of the facility grounding study. Construction within the substation includes installation of substructures and electrical equipment. Trenching machines, concrete trucks and pumpers, vibrators, forklifts, boom trucks and large cranes will be used to install concrete foundations and embedments for equipment. One of two methods will be used to install the substation foundations. Option 1 would be to use a small backhoe to dig out major foundations prior to pouring the concrete slabs. Option 2 would use an auger/drill type machine for minor foundations.

Above and belowground conduits for this equipment will run to a control enclosure that will house the projection, control, and automation relay panels. A substation service transformer will be installed for primary AC power requirements. Batteries and battery chargers will be installed inside the enclosure for auxiliary power to the switchyard's control system. Down-lit lighting will be installed around the substation for worker safety during construction and operation.

After the foundations are installed, collector substation equipment will be delivered to the site and installed on the prepared foundations. Secondary containment areas for the transformer will be constructed as required by applicable federal, state and/or local oil pollution prevention regulations, and final grading will occur around the collector substation site. Finally, electrical wires will be strung, perimeter fencing will be installed, and aggregate will be placed within the fenced area of the collector substation site.

Gen-Tie Line and Interconnection

Both the Crane and Sandhill projects will interconnect to the existing Byron Substation via a 161 kV gen-tie line of approximately 700 feet between the shared collector substation and the Byron Substation. Given that the projects will be sharing this line, whichever entity beings construction

[40] SPA, p. 24

first will be responsible for constructing the gen-tie line. The 161 kV gen-tie will be installed above ground and minimal grading is anticipated. There will be a single dead-end structure within the collection substation and likely two or three wood or steel monopoles will be required to carry the gen-tie line to the Bryon Substation.[41] Pending the results of the geotechnical study, the applicants anticipate foundations for these monopoles will be drilled pier foundation type installed below ground at a depth of around 10 to 15 feet. Temporary construction workspaces of approximately 150-foot diameter would be required for installation

Stormwater Drainage

The preliminary design of the Crane project anticipates one stormwater basin of 1.3 acres located within the fence line of the BESS facility. The preliminary design of the Sandhill project anticipates one stormwater basin of 1.1 acres located within the fence line of the BESS facility. To establish the basins, they will be excavated to provide compensatory flood storage to offset fill placement. The basins will be seeded with a wetland seed mix.[42] Crane Storage and Sandhill Storage will develop project-specific Stormwater Pollution Prevention Plans (SWPPPs) and will comply with all protocols of these plans during construction and operation of the projects.[43]

Fencing

The applicants will install security fencing around the perimeter of their respective project facilities, with separate fencing for the collector substation. Fencing will be secured to posts which will be directly embedded in the soil or set in concrete foundations as required for structural integrity. The applicants propose to install a 7 foot high chain link fence with three strands, making up one foot, of barbed wire across the top for a total fence height of 8 feet. Security cameras and security lighting will be installed, where appropriate, and will be down-lit.[44] Gates will be installed at the entrance of the facilities and between the BESS and the collector substation.[45]

Restoration

Temporary disturbed areas where aggregate has not been installed will be revegetated with perennial vegetation for soil stabilization and erosion control purposes. Additionally, permanent erosion control measure will be installed in these areas in accordance with the project SWPPP's to address long-term stormwater requirements.

The applicants also state that temporary workspaces along the primary access road will be decompacted and restored to pre-construction contours and characteristics to the extent practicable. This will allow for agricultural production to continue as it was before project construction and operation. The applicants will also repair any damage that may potentially occur to drain tile or private ditches that resulted from construction and operation of the projects.

---

[41] SPA, p. 25
[42] Draft Vegetation Management Plan, p. 23, May 13, 2025, eDockets No. 20255-218875-02
[43] SPA, p. 27
[44] SPA. P. 26
[45] SPA, p. 13 & p. 17

The applicants have jointly prepared a draft VMP outlining how the sites will be revegetated, maintained, and monitored over the life of the project to ensure restoration goals and objectives are met. [46] Once vegetation at the site has been established, mechanical vegetation control such as mowing, trimming, and pruning will be the primary means for vegetation management. Herbicides may be utilized for vegetation control; however, an effort will be made to minimize use and only apply bio-degradable, U.S. Environmental Protection Agency-(EPA) registered, organic solutions that are non-toxic to wildlife and used in a manner that fully complies with all applicable laws and regulations.

2.1.5 How would the facilities be operated and maintained?

The applicants estimate the service life of their respective projects to be 30 years.[47] Typical BESS facility maintenance activities will include basic monthly inspections, preventative quarterly inspections, and an in-depth annual maintenance program (Table 2) for each project. Up to four full-time, locally based personnel will be on staff during operation for the Crane project and up to two full-time, locally based personnel will be on staff during operation for the Sandhill project. On average, two vehicle trips to the site per month are anticipated during operations. Approved technicians will service the BESS units and associate equipment once per month. A performance audit and inspection to assess the quality of equipment will be conducted annually. Additional periodic maintenance of the facilities will include access road maintenance, snow removal, vegetation maintenance, fence and gate inspection, and lighting system checks, as needed.

2.1.5.1 Battery Augmentation

Along with the normal physical degradation of manmade structures as they age, the batteries used in the facility will lose the ability to store and deliver energy over time. This process, sometimes referred to as “derating” or “degradation,” results in diminished capacity and efficiency, shorter operational life, and a decline in performance over time. Battery degradation is caused by chemical wear and tear that occurs over multiple charging and discharging cycles, aging (regardless of how the battery is used), and environmental factors such as temperature fluctuation, humidity, and dust in the operating environment. The normal degradation can also be impacted by, temperature extremes, humidity, and other factors.[48]

To maintain the facility’s capacity and accreditation, BESS facilities anticipate replacing degraded batteries with new batteries periodically over the course of the facility’s operating life. This periodic replacement is referred to as “augmentation.” Battery augmentation may involve either the addition of battery modules within the existing enclosures (Scenario 1) or the installation of new enclosures and new batteries (Scenario 2).[49]

The applicants indicate that the augmentation schedule to maintain overall functionality of the two projects will be determined during the design process after final equipment selection and will be based on the projected degradation of the batteries. The applicants further provide an example

[46] Draft Vegetation Management Plan, p. 23, May 13, 2025, eDockets No. 20255-218875-02
[47] SPA, p. 50
[48] GridX. *What is Battery Degradation and How to Prevent It*. February 6, 2025, https://www.gridx.ai/knowledge/what-is-battery-degradation-and-how-to-prevent-it NREL, Grid-Scale Battery Storage: Frequently Asked Questions
[49] SPA, p. 23

augmentation schedule over the 30-year life of a generic BESS project, which would be battery augmentation in years 6, 11, and 16. Notably, the applicants have designed their respective preliminary project facilities to accommodate future augmentation units within the fenced area.

Table 2. Operations and Maintenance Tasks and Frequency[50]

Project Component	Task	Anticipated Frequency
BESS	System visual check	Monthly
	Battery condition check	Every 2 Years
	Cooling system check	Annually
Electric Boards	Case visual check	Annually
	Fuses check	Annually
	Surge arresters check	Annually
	Torque check	Annually
	Grounding check	Annually
Inverter	Case visual inspection	Monthly
	Data Logger Memory Download	Monthly
	Fuses check	Annually
	Ground Check	Annually
	Torque Check	Annually
Support Structures	Visual check	Monthly
Transformers	Visual Check	Every 6 Months
Fire Alarming and Detectors		

2.1.6 What happens at the end of the facility's useful life?

As a project progresses through its service life, the applicant may seek to repower the project. The applicant's decision on whether to pursue repowering will consider the equipment performance, maintenance costs, extending the useful life of the project, or a desire to increase storage capacity with newer or more efficient batteries and other equipment. Any site permit issued by the Commission will specify the maximum capacity, so if Crane Storage and/or Sandhill Storage wishes to increase the capacity, they must seek an amendment to the site permit. At the end of the project's useful life, Crane Storage and Sandhill Storage will either take the necessary steps to continue operation of the projects (re-permitting and retrofitting) or will decommission the projects.

Commission issued site permits require that the permittee be responsible for removing all project components and restore the site to pre-construction conditions at the end of a project's useful life and that the permittee is responsible for all costs associated with decommissioning the project. The applicants provided a draft decommissioning plan as Appendix D of their site permit application.

[50] SPA, p. 34, Table 4.5.1-1 - Operations and Maintenance Tasks and Frequency

If either or both of the projects is not repowered, Crane Storage and/or Sandhill Storage will decommission the project(s) and remove the project facilities. Decommissioning would include removal of the BESS enclosures (cabinets, batteries, racking, and other auxiliary equipment), foundations, transformers and pad-mounted inverters, fencing, project substation, project tap line structures and conductors, gravel and crushed rock, and the access road. Below-ground electric and communications cabling would be removed to a depth of 48 inches. Both applicants anticipate that should their respective project need decommissioning of its facilities; it will take approximately six months to complete.[51]

Commission permits require that permittees are responsible for all decommissioning costs. Decommissioning of the Crane project is expected to cost approximately $15,000,000 with an estimated scrap/salvage value of $1,200,000, for a net decommissioning cost of approximately $13,800,000. Decommissioning of the Sandhill project is expected to cost approximately $15,000,000 with an estimated scrap/salvage value of $1,200,000, for a net decommissioning cost of approximately $13,800,000.

The applicants anticipate establishing either an escrow account or surety bond equal to the costs necessary to ensure proper decommissioning, less the estimated scrap/salvage value, with a local government unit, such as Olmsted County, listed as the beneficiary.[52]

2.2 Project Schedules

Crane Storage anticipates the project will begin commercial operation by the second quarter of 2028. Table 3 shows Crane's estimated development and construction milestones.

Table 3. Crane Anticipated Project Schedule[53]

Activity	Anticipated Timeframe
Land Acquisition	Completed (2023)
Site Permit	Q1 2026
Downstream Permits	Q1, 2027
Construction	Q1 – Q4 2027
Testing and Commissioning	Q1 2028
Commercial Operation Date	Q2 2028

Sandhill Storage anticipates the project will begin commercial operation by the fourth quarter of 2028. Table 4 shows Sandhill's estimated development and construction milestones.

[51] Site Permit Application Appendix D – Decommissioning Plan
[52] SPA, p. 35
[53] Adapted from SPA, Table 1.3.1-1 – Anticipated Schedule for the Crane Project

Table 4. Sandhill Anticipated Project Schedule[54]

Activity	Anticipated Timeframe
Land Acquisition	Completed (2023)
Site Permit	Q1 2026
Downstream Permits	Q1 2027
Construction	Q3 2027 – Q2 2028
Testing and Commissioning	Q3 2028
Commercial Operation Date	Q4 2028

2.3 Project Costs

Crane Storage estimates the total installed capital cost to construct the project to be approximately $340 to $440 million (Table 5). Actual costs will depend on a variety of factors including construction labor, equipment and materials, electrical and communication systems, taxes/tariffs, and final design considerations.[55]

Crane Storage estimates annual operations and maintenance costs of approximately $2 to $3 million. Operations and maintenance costs include taxes, insurance, labor, and materials.[56]

Table 5. Crane Estimated Project Costs[57]

	Project Component	Estimated Cost ($ millions)
BESS	Engineering, Procurement, Construction Contractor	$255-$336
	Development Expense	$25-$30
	Interconnection	$30-$38
	Financing	$13-$16
Substation	Project Substation	$17-$20
	Total Project Cost	$340-$440

[54] SPA, Table 1.3.2-1 – Anticipated Schedule for the Sandhill Project

[55] SPA, p. 16

[56] Id.

[57] SPA, Table 2.1.3-1 – Estimated project Development and Construction Costs – Crane Project

Sandhill Storage estimates the total installed capital cost to construct the project to be approximately $340 to $440 million (Table 6). Actual costs will depend on a variety of factors including construction labor, equipment and materials, electrical and communication systems, taxes/tariffs, and final design considerations.[58]

Sandhill Storage estimates annual operations and maintenance costs of approximately $2 to $3 million. Operations and maintenance costs include taxes, insurance, labor, and materials.[59]

Table 6. Sandhill Estimated Project Costs [60]

	Project Component	Estimated Cost ($ millions)
BESS	Engineering, Procurement, Construction Contractor	$255-$336
	Development Expense	$25-$30
	Interconnection	$30-$38
	Financing	$13-$16
Substation	Project Substation	$17-$20
	Total Project Cost	$340-$440

[58] SPA, p. 16
[59] Id.
[60] SPA, Table 2.2.3-1 – Estimated Development and Operation Costs – Sandhill Project

3 Regulatory Framework

Chapter 3 discusses the site permit approval required from the Commission. It describes the environmental review process and lists the factors the Commission considers when making its decision. This chapter also discusses required approvals from federal and state agencies and local units of government with permitting authority for actions related to the project. Lastly, it lists topics outside the scope of this EA.

3.1 What Commission approvals are required?

The projects require a site permit from the Commission before it can be constructed.

The projects require site permits from the Commission because they meet the definition of an *energy storage system* which means electric equipment with a capacity of 10 MW or more that is capable of storing electricity for a period of time and delivering the electricity for use after storage.[61]

3.2 What is environmental review?

Environmental review informs interested persons about potential impacts and possible mitigation measures associated with the project; environmental review informs Commission decisions.

Minnesota law requires that potential human and environmental impacts be analyzed before the Commission decides whether to grant a site permit. This analysis is called environmental review.

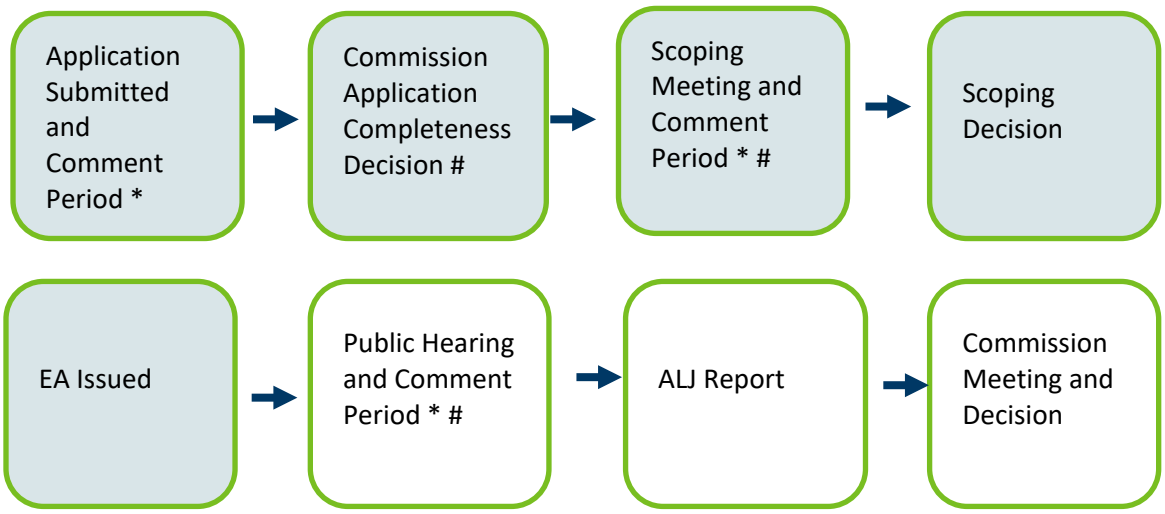
3.3 What does the review and permitting process look like?

The Commission accepted the joint site permit application as substantially complete on April 29, 2025. Public information and scoping meetings were held in Byron, Minnesota on June 25, 2025, and online on June 26, 2025.

Figure 5. below outlines the environmental review and permitting process for this project.

[61] 2023 Minn. Stat., 216E.01, subd. 3a

Figure 5. Permitting Process Summary[62]



Application Filing and Acceptance

Crane Storage and Sandhill Storage provided the required written notice of its intent to file a joint site permit under the alternative process on February 21, 2025.[63] Crane Storage and Sandhill Storage filed a joint application for site permits on March 5, 2025.[64]

The Commission accepted the application as substantially complete in its order dated April 29, 2025.[65] The order also referred the matter to the Court of Administrative Hearings for appointment of an ALJ to conduct a public hearing for the project. Commission staff provided a *Sample Site Permit for an Energy Storage System* on June 24, 2025.[66]

Scoping Process

Scoping is the first step in the environmental review process. It helps focus the EA on the most relevant information needed by the Commission to make informed decisions. Scoping comments have been compiled and are available to review or download.

Scoping includes a public meeting and comment period that provide opportunities for interested persons to help develop the scope (or contents) of the EA.[67] The purpose of the public information and scoping meetings is to provide information and answer questions about a proposed project and

[62] Read from left to right; shaded steps are complete; "*" means public comment opportunity and "#" means public meeting opportunity.
[63] Crane Energy Storage, LLC, and Sandhill Energy Storage, LLC, *Notice of Intent to Submit a Joint Site Permit Application Under the Alternative Permitting Process.* February 21, 2025, eDocket No: 20252-215676-01
[64] Crane Energy Storage, LLC, and Sandhill Energy Storage, LLC, *Joint Site Permits Application to the Minnesota Public Utilities Commission for Crane and Sandhill Energy Storage Projects,* March 5, 2025, eDocket Nos: 20253-216062-02, 20253-216062-03, 20253-216062-04, 20253-216062-05, 20256-216062-06, 20256-216062-07, 20256-216062-08, 20253-216062-09,
[65] Commission, Order, April 29, 2025, eDocket No: 20254-218258-01
[66] Commission, Sample Energy Storage System Site Permit, June 24, 2025, eDockets No. 20256-220193-01
[67] Minn. R. 7850.3700, subp. 2.

the permitting process. The meeting and associated comment period also provides an opportunity to gather input regarding potential impacts and mitigative measures that should be studied in the EA.

On June 9, 2025, the Commission and Commerce issued a joint *Notice of Public Information and Environmental Assessment Scoping Meetings* and associated public comment period.[68] The notice was sent to those individuals on the project contact list, representatives from state agencies, tribal governments, tribal historic preservation officers, and to potentially affected landowners.

Commission and Commerce staff held a public information and scoping meeting in Byron, Minnesota on June 25, 2025, and an online meeting on June 26, 2025. The comment period closed on July 10, 2025. Three individuals attended the Byron meeting, and one attendee provided public comments. Three individuals attended the online meeting, and one attendee provided public comments.[69] In addition to the comments received at the Byron and online public meetings, written comments were received from the Minnesota Department of Natural Resources (DNR), Local Union #6, the International Union of Operating Engineers (IUOE) Local 49, and the North Central States Regional Council (NCSRC) of Carpenters.

The DNR provided comments on the potential impacts of the proposed fencing, lighting impacts, dust control, erosion control measures, and the Vegetation Management Plan (VMP).[70] The DNR recommended increasing the fence height to 10 feet and advised against barbed wire. The DNR also recommended the use of downlit lighting that minimizes blue hues, backlight, and glare, avoidance of dust control methods containing chlorides, and the use of wildlife-friendly erosion control as mitigation measures to minimize impacts to wildlife and the environment. Lastly, the DNR recommended the VMP for the project be consistent with the DNR's Prairie Establishment and Maintenance Technical Guidance for Solar Projects, which is applicable guidance for vegetation establishment and management for the surrounding Crane and Sandhill project boundary.

Local Union #6,[71] IUOE Local 49, and the North Central States Regional Council (NCSRC) of Carpenters[72] all expressed support for the project and recommended the EA examine local economic impacts.

SCOPING DECISION

The scoping decision identifies the issues studied in this EA.

[68] Commission and Commerce *Notice of Public Information and Environmental Assessment Scoping Meeting- Revised,* June 9, 2025. eDocket No: 20256-219710-01
[69] Oral Comments, Public Scoping and Information Meetings, Bryon, Minnesota, July 17, 2025, eDocket No: 20257-221121-01
[70] DNR, *Comment*, July 10, 2025, eDocket No: 20257-220849-01
[71] Local Union #6, *Comment – Jeremy Andrist,* March 25, 2025, eDocket No: 20253-216794-01
[72] IUOE Local 49 and NCSRC of Carpenters, *Joint Comment,* July 10, 2025, eDockets No. 20257-220850-01

After considering public comments and recommendations by staff, Commission Energy Infrastructure Permitting (EIP) staff issued a scoping decision on August 15, 2025 (**Appendix A**). The scoping decision identifies the issues to be evaluated in this EA.

On July 1, 2025, Department of Commerce Energy Environmental Review and Analysis (DOC EERA) unit staff moved to the Minnesota Public Utilities Commission Energy Infrastructure Permitting (PUC EIP) unit as directed by state law (Laws of Minn. 2024, ch.126, art. 7) and in response to permitting reform under Minnesota Statute 216I (2024).

The review of this application began under and will continue under Minnesota Statute 216E (2023). DOC EERA staff initiated environmental review of this proposal prior to July 1, 2025, and will continue to exclusively perform environmental review duties for this application under 216E (2023) as EIP staff. Likewise, analyst staff at the PUC will continue to exclusively perform analyst duties on this application as PUC staff.

3.4 Are other permits or approvals required?

Yes, other permits and approvals are required for the project.

A site permit from the Commission is the only state permit required for siting a project. However, various federal, state, and local approvals might be required for activities related to construction and operation of the project. These subsequent permits are referred to as "downstream" permits and must be obtained by the permittee prior to construction.[73] Table 7 lists potential downstream permits that might be required for the Crane and Sandhill projects, several of which are discussed below.

Table 7. Potential Downstream Permits[74]

Unit of Government	Type of Application	Purpose	Anticipated for the Crane and Sandhill project's
Federal			
U.S. Environmental Protection Agency	Spill Prevention, Control and Countermeasures Plan (SPCCP)	Prevent oil spills and minimize impacts from any spills that do occur.	Possible
U.S. Fish and Wildlife Service	Section 7 of the Endangered Species Act – Incidental Take Permit	Consultation to mitigate impacts to federally listed endangered or threatened species as well as critical habitat	Possible
State			

[73] DSP (Appendix C & D), Section 4.5.2 (stating the permittee "shall obtain all required permits for the project and comply with the conditions of those permits").

[74] Adapted from SPA, pp. 7-12, Table 1.4.4-1 – Potential Permits of Approvals for the Crane and Sandhill Projects

Unit of Government	Type of Application	Purpose	Anticipated for the Crane and Sandhill project's
Department of Natural Resources	License to Cross Public Lands and Waters	Prevent impacts associated with crossing public lands and waters	No
	State Threatened and Endangered Species Consultation	Consultation to mitigate impacts to state-listed species	Yes
	Water Appropriation Permit	Balances competing management objectives; may be required for construction dewatering	Possible
Minnesota Pollution Control Agency	Construction Stormwater Permit	Minimizes temporary and permanent impacts from stormwater	Yes
	Section 401 Clean Water Act – Water Quality Certification	Ensures project will comply with state water quality standards	Possible
State Historic Preservation Office	Cultural and Historic Resources Review	Ensures adequate consideration of impacts to significant cultural resources	Yes
Department of Agriculture	Agricultural Impact Mitigation Plan	Establishes measures for protection of agricultural resources	Yes
Department of Labor and Industry	Electrical Inspection	Necessary to comply with electric code.	Yes
Department of Transportation	Utility Accommodation on Trunk Highway ROW Permit	Controls utilities being placed along or across highway rights-of-way (ROW)	No
	Oversize/Overweight Permit	Controls use of roads for oversize or overweight vehicles	No
	Access (Driveway) Permit	Needed for construction of access road utilizing MnDOT rights-of-way	No
Board of Water and Soil Resources	Wetland Conservation Act	Ensures conservation of wetlands	No
Department of Health	Well construction Permit	Needed for installation of a well	No
Local			
Olmsted County	Right-of-Way/Utility Permit	Needed to construct or maintain electrical lines along or across county highway ROW	Yes

Unit of Government	Type of Application	Purpose	Anticipated for the Crane and Sandhill project's
	Access Permit	Needed to move, widen, or create a new driveway access to county roads	Possible
	Wetland Conservation Act Permit	Ensures conservation of wetlands	No
	Well Permit	Needed for construction or reconstruction of a well	No
	Moving Permit/ Oversize/Overweight Vehicle Permit	Needed to transport oversized and overweight loads on county roads	Yes
Kalmart Township	Access Permit	Needed for construction, reconstruction, relocation, or alteration of an access connection within the right-of-way of any township road	Yes
	Building Permits	Might be required for some portions of the project	Possible

3.4.1 Federal

The U.S. Environmental Protection Agency requires certain facilities to develop, maintain, and implement a Spill Prevention, Control and Countermeasures Plan (SPCCP) to prevent oil spills and control any spills that do occur. An SPCCP may be required for power transformers within the project substation.

A permit is required from the United States Fish and Wildlife Service (USFWS) for the incidental taking[75] of any threatened or endangered species. The project is not anticipated to impact federally listed threatened or endangered species, and no permit from the USFWS is anticipated to be necessary.

3.4.2 State

Potential impacts to state lands and waters, as well as fish and wildlife resources, are regulated by the DNR. Licenses are required to cross state lands or waters.[76] Projects affecting the course, current, or cross-section of lakes, wetlands, and streams that are public waters may require a *Public Waters Work Permit*.[77] Not unlike the USFWS, DNR encourages project proposers to consult with the agency to determine if a project has the potential to impact state-listed threatened or endangered

[75] 16 U.S. § 1532(19) (defining "take" to mean to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in such conduct).
[76] Minnesota Statutes 84.415.
[77] DNR (n.d.) *Requirements for Projects Involving Public Waters Work Permits*, http://www.dnr.state.mn.us/waters/watermgmt_section/pwpermits/requirements.html.

species. Additionally, consultation can lead to the identification of measures to mitigate potential impacts associated with the project.

Construction projects that disturb one or more acres of land require a general *National Pollutant Discharge Elimination System / State Disposal System Construction Stormwater Permit* (CSW Permit) from the MPCA. This permit is issued to "construction site owners and their operators to prevent stormwater pollution during and after construction."[78] The CSW Permit requires use of best management practices; development of a Stormwater Pollution Prevention Plan; and adequate stormwater treatment capacity once the project is complete. Projects must be designed so that stormwater discharged after construction does not violate state water quality standards. Specifically, projects with net increases of one acre or more to impervious surface must be designed to treat water volumes of one-inch times the net increase in impervious surface.[79]

A Clean Water Act Section 401 *Water Quality Certification* from MPCA might also be required. "Section 401 of the Clean Water Act requires any applicant for a federal license or permit to conduct an activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification from the State in which the discharge originates that the discharge complies the applicable water quality standards."[80] The certification becomes a condition of the federal permit.

Additionally, MPCA regulates generation, handling, and storage of hazardous wastes.

A permit from MnDOT is required for construction, placement, or maintenance of utility lines adjacent or across trunk highway rights-of-way. Coordination would be required to construct access roads or driveways from trunk highways. These permits are required to ensure that use of the right-of-way does not interfere with free and safe flow of traffic, among other reasons.[81]

The State Historic Preservation Office (SHPO) is charged with preserving and protecting the state's historic resources. SHPO consults with project proposers and state agencies to identify historic resources to avoid and minimize impacts to these resources.

The MDA ensures the integrity of Minnesota's food supply while protecting the health of its environment and the resources required for food production. MDA assists in the development of agricultural impact mitigation plans that outline necessary steps to avoid and mitigate impacts to agricultural lands.

The Board of Water and Soil Resources oversees implementation of Minnesota's *Wetland Conservation Act* (WCA). The WCA is implemented by local units of government.

The MDH requires a well construction permit for installation of a well. Neither the Crane nor Sandhill project's currently plan on constructing a well.

---

78 MPCA. *Construction Stormwater*. (2022). https://www.pca.state.mn.us/business-with-us/construction-stormwater
79 MPCA. *Minnesota Stormwater Manual*. (2022). https://www.pca.state.mn.us/water/minnesotas-stormwater-manual.
80 MPCA. (n.d.) *Clean Water Act Section 401 Water Quality Certifications*, https://www.pca.state.mn.us/water/clean-water-act-section-401-water-quality-certifications.
81 MnDOT. *Utility Accommodation on Highway Right of Way:* (2023). https://www.dot.state.mn.us/policy/operations/oe002.html

3.4.3 Local

Olmsted County oversees local implementation of the WCA in the project area. The WCA requires that any person "proposing to impact a wetland to first, attempt to avoid the impact; second, attempt to minimize the impact; and finally, replace any impacted area with another wetland of at least equal function and value."[82]

Commission site permits preempt local zoning, building, and land use rules, regulations, or ordinances promulgated by regional, county, local, and special purpose government; however, coordination with local governments may be required for the issues listed below.

- **Access/Driveway** Coordination may be required to construct access roads or driveways from county or township roads.
- **Oversized Load** Coordination may be required to move over-width or heavy loads on county or township roads.
- **Road Crossing and Right-of-Way** Coordination may be required to cross or occupy county or township road rights-of-way.

3.5 Do electrical codes apply?

Yes, if constructed the projects must meet electrical safety code requirements.

The projects must meet requirements of the National Electrical Safety Code.[83] These standards are designed to safeguard human health "from hazards arising from the installation, operation, or maintenance of conductors and equipment in electric supply stations and overhead and underground electric supply lines."[84] They also ensure that facilities and all associated structures are built from materials that will withstand the operational stresses placed upon them over the expected lifespan of the equipment, provided operational maintenance is performed.

3.6 Are any issues outside the scope of this EA?

Yes, the scoping decision identified several issues that will not be studied.

This EA does not address the following:

- The need for the project, including questions of size, type, timing, and alternative system configurations.
- Any impacts related to the manufacture of the elements of the project including batteries, battery storage units, concrete, fuel used for construction vehicles, etc.
- The manner in which landowners are compensated for the project.

---

[82] Minnesota. Rule. 8420.0100, subp. 2.

[83] *See* Minnesota. Statute. 326B.35; Minn. R. 7826.0300, subp. 1 (requiring utilities to comply with the most recent edition of the National Electric Safety Code when constructing new facilities or reinvesting capital in existing facilities)

[84] IEEE Standards Association (n.d.) *2017 – National Electrical Safety Code Brochure*, retrieved from: https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/nesc_2017_brochure.pdf.

4 Project Impacts and Mitigation

Chapter 4 describes the environmental setting, affected resources, and potential impacts from the projects. It also discusses mitigation of potential impacts.

4.1 How are potential impacts measured?

Potential impacts are measured on a qualitative scale based on an expected impact intensity level; the impact intensity level takes mitigation into account.

A potential impact is the anticipated change to an existing condition caused either directly or indirectly by the construction and operation of a proposed project. Potential impacts can be positive or negative, short- or long-term, and, in certain circumstances, can accumulate incrementally. Impacts vary in duration and size, by resource, and across locations.

Direct impacts are caused by the proposed action and occur at the same time and place. An indirect impact is caused by the proposed action but is further removed in distance or occurs later in time. This EA considers direct and indirect impacts that are reasonably foreseeable, which means a reasonable person would anticipate or predict the impact. Cumulative potential effects are the result of the incremental impacts of the proposed action in addition to other projects in the environmentally relevant area.

4.1.1 Potential Impacts and Mitigation

The following terms and concepts are used to describe and analyze potential impacts:

- **Duration** Impacts vary in length. Short-term impacts are generally associated with construction. Long-term impacts are associated with the operation and usually end with decommissioning and reclamation. Permanent impacts extend beyond the decommissioning stage.
- **Size** Impacts vary in size. To the extent possible, potential impacts are described quantitatively, for example, the number of impacted acres or the percentage of affected individuals in a population.
- **Uniqueness** Resources are different. Common resources occur frequently, while uncommon resources are not ordinarily encountered.
- **Location** Impacts are location dependent. For example, common resources in one location might be uncommon in another.

The context of an impact—in combination with its anticipated on-the-ground effect—is used to determine an impact intensity level, which can range from beneficial to harmful. Impact intensity levels are described using a qualitative scale, which is explained below. These terms are not intended as value judgments, but rather a means to ensure common understanding among readers and to compare potential impacts between alternatives.

- **Negligible** impacts do not alter an existing resource condition or function and are generally not noticeable to an average observer. These short-term impacts affect common resources.
- **Minimal** impacts do not considerably alter an existing resource condition or function. Minimal impacts might, for some resources and at some locations, be noticeable to an average observer. These impacts generally affect common resources over the short- or long-term.
- **Moderate** impacts alter an existing resource condition or function and are generally noticeable to the average observer. Impacts might be spread out over a large area making them difficult to observe but can be estimated by modeling. Moderate impacts might be long-term or permanent to common resources, but generally short- to long-term to uncommon resources.
- **Significant** impacts alter an existing resource condition or function to the extent that the resource is impaired or cannot function. Significant impacts are likely noticeable or predictable to the average observer. Impacts might be spread out over a large area making them difficult to observe but can be estimated by modeling. Significant impacts can be of any duration and affect common or uncommon resources.

Also discussed are opportunities to avoid, minimize, or compensate for potential impacts. Collectively, these actions are referred to as mitigation.

- To **avoid** an impact means to eliminate it altogether, for example, by not undertaking parts or all of a project, or relocating the project.
- To **minimize** an impact means to limit its intensity, for example, by reducing project size or moving a portion of the project.
- To **correct** an impact means to repair, rehabilitate, or restore the affected resource.
- To **compensate** for an impact means replacing it or providing a substitute resource elsewhere, or by fixing it by repairing, rehabilitating, or restoring the affected resource. Compensating an impact can be used when an impact cannot be avoided or further minimized.

Some impacts can be avoided or minimized; some might be unavoidable but can be minimized; others might be unavoidable and unable to be minimized, but compensation can be applied. The level at which an impact can be mitigated might change the impact intensity level.

4.1.2 Regions of Influence

Potential impacts to human and environmental resources are analyzed within specific geographic areas called regions of influence ("ROI"). This EA uses the following ROIs:

- Land control area (land control of the BESS and gen-tie line)
- Local vicinity (1,600 feet from the boundary of the BESS)
- Project area (one mile from the boundary of the facility)
- Region (Olmsted County)

Impacts to resources may extend beyond these distances but are expected to diminish quickly. ROIs vary between resources. Table 8 summarizes the ROIs used in this EA.

Table 8. Regions of Influence for Human and Environmental Resources

Resource Type	Resource Element	Region of Influence
Human Settlement	Displacement, Electrical Interference, Land Use and Zoning	Land control area
	Noise, Property Values	Local vicinity
	Aesthetics, Cultural Values, Recreation	Project area
	Socioeconomics	Region
Public Services	Airports, Roads, Emergency Services, Public Utilities	Project area
Public Health and Safety	Electric and Magnetic Fields, Implantable Medical Devices, Stray Voltage, Worker and Public Safety	Land control area
Land-based Economies	Agriculture, Forestry, Mining	Land control area
	Tourism	Project area
Archaeological and Historic Resources		Project area
Natural Environment	Geology and Groundwater, Soils, Vegetation, Water Resources, Wetlands, Wildlife (except birds), Wildlife Habitat	Land control area
	Wildlife (birds), Rare and Unique Resources	Local vicinity
	Air Quality	Region

4.2 Project Setting

The projects are in a rural area north of US Highway 14 in the city of Byron in Olmsted County. Olmsted County is a rapidly growing area of Minnesota. The project areas are dominated by agricultural and rural residential land uses and scattered farmsteads.

The proposed facilities are located on adjacent agricultural sites in the city of Bryon in Kalmar Township in Olmsted County, Minnesota. The topography at the sites is relatively flat to gently

rolling.[85] There is one intermittent stream located within the norther portion of the Crane and Sandhill land control areas. Beyond the stream the nearest surface water body is Cascade Creek located 3,370 feet to the south of the Crane land control area and 3,800 feet to the south of the Sandhill land control area.[86] Woody wetland areas are located along the eastern margin of the Sandhill land control area; no woody wetlands areas are within the Crane land control area.

Both projects are within the Oak Savanna ecological (222Me) subsection of the Eastern Broadleaf Forest Province.[87] Prior to European settlement vegetation in the project area was primarily oak savanna, with smaller areas of tallgrass prairie and maple-basswood forest. The project's sites are located approximately 0.3 and 0.1 miles west of the city of Byron, and nine miles west of Rochester. The current land-use in the local vicinity is a mixture of agricultural and residential.

Land use within the sites is dominated by agriculture; approximately 99 percent or 35.5 acres within the Crane land control area and approximately 99 percent or 41.6 acres of the Sandhill land control area is currently used for cultivated agriculture (primarily corn and soybeans). Developed land in the Crane and Sandhill project areas is located where the gen-tie line overlaps with the existing footprint of the Byron Substation, which borders the sites to the south.[88] Built features common to the area include residences and buildings, paved and gravel roads, the Dakota, Minnesota, and Eastern railroad, and electric power infrastructure including substations, transmission lines, and distribution lines.

4.3 Human Settlement

Large energy projects can impact human settlement. Impacts might be short-term, such as increased local expenditures during construction, or long-term, such as changes to viewshed.

4.3.1 Aesthetics

The ROI for aesthetics is the project areas. The projects will introduce new manmade structures into the existing landscape. Portions of the project may be visible from local roads and nearby residences. For most people who pass through the project areas on local roads the impact intensity level is expected to be minimal. For individuals with greater viewer sensitivity, such as people who live in the project vicinity, the impact intensity level is anticipated to be moderate. Impacts will be short- and long-term and localized. Potential impacts are unavoidable but can be mitigated in part.

Aesthetics refers to the visual quality of an area as perceived by the viewer and forms the impression a viewer has of an area. Aesthetics are subjective, meaning their relative value depends upon the perception and philosophical or psychological responses unique to individuals. Impacts to

[85] Crane and Sandhill, Draft Vegetation Management Plan, p.11
[86] SPA, p. 82
[87] SPA, p.42
[88] SPA, p. 58

aesthetics are equally subjective and depend upon the sensitivity and exposure of an individual. How an individual values aesthetics, as well as perceived impacts to a viewshed, can vary greatly.

A viewshed includes the natural landscape and built features visible from a specific location. Natural landscapes can include wetlands, surface waters, distinctive landforms, and vegetation patterns. Buildings, roads, bridges, and power lines are examples of built features.

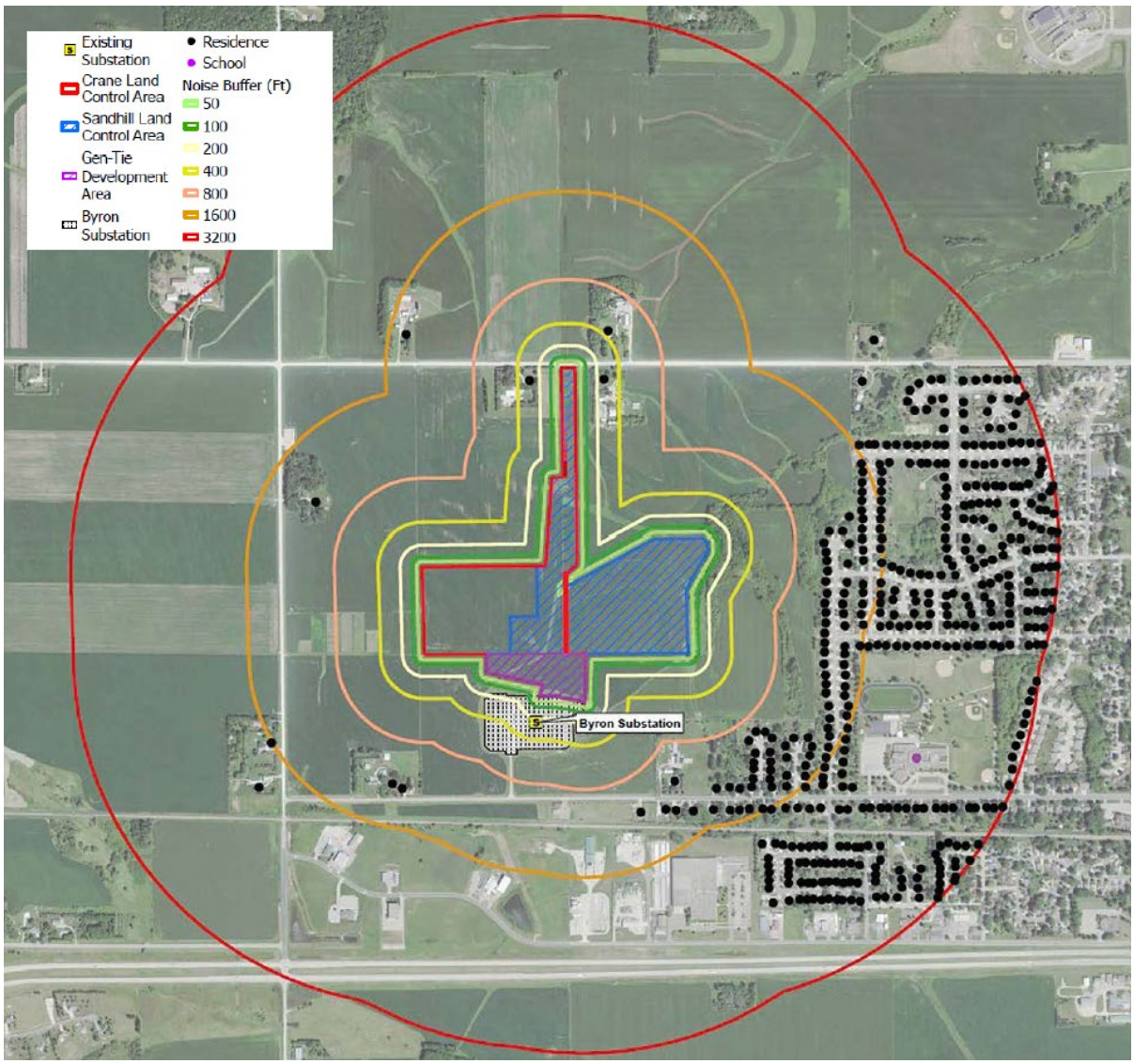
Viewer exposure refers to variables associated with observing a viewshed, and can include the number of viewers, frequency and duration of views, and view location. For example, a high exposure viewshed would be observed frequently by large numbers of people. These variables, as well as other factors such as viewing angle or time of day, affect the aesthetic impact.

The existing landscape in the project is areas is rural and agricultural consisting of gently rolling terrain, dominated by row crop fields of corn and soybeans, and rural residences. The built environment in the project areas includes the city of Byron, roads, a railroad, and electric and infrastructure including the Bryon Substation (325 feet south of the Crane and Sandhill land control areas) as well as transmission and distribution lines entering the substation from the southeast, south, northwest, and north.

There are no residences, business, or structures present within the Crane and Sandhill land control areas. Two residences are within 250 feet of the shared project's primary access road. The nearest residence to the Crane project BESS is 1,402 feet away. The nearest residence to the Sandhill project BESS is 1,274 feet away. The nearest residence to the shared facilities is 1,230 feet from the gen-tie line, and 1,615 feet from the collector substation. There are approximately 104 residences within the project vicinity (1,600 feet). The residences are primarily concentrated in a neighborhood southeast of the projects (Figure 6).[89]

[89] SPA, Appendix_Maps, Map 8, eDockets No. 20253-216062-03

Figure 6. Surrounding Residences - Crane and Sandhill BESS Projects[90]



POTENTIAL IMPACTS

Construction and operation of the Crane and Sandhill projects would result in new vertical and horizontal elements that would be visible from local residences and public roadways. The visible elements of the Crane facility will consist of approximately 236 BESS units, a fenced area of approximately 14.8 acres, a new 7 foot chain link fence topped with 1 foot barbed wire surrounding

[90] SPA, Appendix_Maps, Map 8 – Noise Receptors Crane & Sandhill BESS Projects

the facility, and a stormwater pond. The visible elements of the Sandhill facility will consist of approximately 236 BESS units, a fenced area of approximately 13.3 acres, a new 7 foot chain link fenced topped with 1 foot of barbed wire surrounding the facility, and a stormwater pond. Shared components of the two projects include a collector substation, gen-tie line, and a primary access road.

The Crane project will convert approximately 14.8 acres of agricultural land use into a BESS facility. The Sandhill project will convert approximately 13.3 acres of agricultural land use into a BESS facility. Although the change will be noticeable, there are several other industrial and commercial developments surrounding the projects such as the Bryon Substation with numerous transmission line interconnects. The presence of the Crane and Sandhill projects would be similar to the existing infrastructure and developed landscape.

For residents outside the project vicinity and for others with low viewer sensitivity, such as travelers along public roadways, aesthetic impacts are anticipated to be minimal. For these viewers, BESS enclosures may be relatively difficult to see due to elements such as the surrounding rolling topography, screening vegetation, and other existing facilities—the substation and transmission structures would be indiscernible from those of the adjoining Bryon Substation. Residents in the project vicinity and areas residents traveling local roads are likely to be more sensitive to aesthetic impacts, but the topography of the site and existing screening around nearby residences will tend to screen the 10-foot enclosures and surrounding fence.

Exterior security lighting will be installed at the project's shared collector substation. Additional down-lit security lighting and cameras will be installed where appropriate around the BESS site for worker safety during operation.[91] Gates will be installed at the entrance of the facility and between the BESS and collector substation. Impacts to light-sensitive land uses are not anticipated given the rural project location and the minimal required lighting for operations.

MITIGATION

Minimizing aesthetic impacts from energy storage facilities is primarily accomplished by locating the facilities so that they are not immediately adjacent to homes, ensuring that damage to natural landscapes during construction is minimized, and shielding the facilities from view by terrain or vegetation. Impacts from facility lighting can be minimized by using shielded and downward facing light fixtures and using lights that minimizes blue hue.

Section 4.3.8 of the DSP requires the permittee to consider landowner input with respect to visual impacts and to use care to preserve the natural landscape.

Section 5.1 of the DSP is a special condition requiring the permittee to minimize lighting impacts by using shielded and downward facing light fixtures and using lights that minimizes blue hue

[91] SPA, p. 31

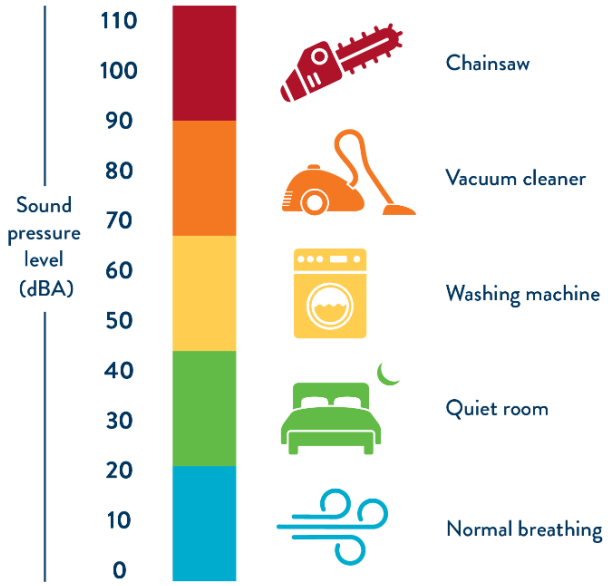
Aesthetic impacts can also be mitigated through individual agreements with neighboring landowners (sometimes referred to as good neighbor agreements). Such agreements are not within the scope of this EA.

4.3.2 Noise

The ROI for noise is the local vicinity. The impact intensity level during construction will range from negligible to significant depending on the activity, potential construction impacts are anticipated to be intermittent and short-term. Impacts are unavoidable but can be minimized. These localized impacts may affect nearby residences and might exceed state noise standards. Once operational, noise impacts are anticipated to range from negligible to minimal/moderate at nearby residences. Noise impacts from operation of the facility can be mitigated.

Noise can be defined as any undesired sound. It is measured in units of decibels on a logarithmic scale. The A-weighted scale ("dBA") is used to duplicate the sensitivity of the human ear.[92] A three dBA change in sound is barely detectable to average human hearing, whereas a five dBA change is clearly noticeable. A 10 dBA change is perceived as a sound doubling in loudness. Noise perception is dependent on a number of factors, including wind speed, wind direction, humidity, and natural and built features between the noise source and the receptor. Figure 7. provides decibel levels for common indoor and outdoor activities.[93]

Figure 7. Common Noise Levels



In Minnesota, noise standards are based on *noise area classifications* (NAC) corresponding to the location of the listener, referred to as a receptor. NACs are assigned to areas based on the type of land use activity occurring at that location. Household units, designated camping and picnicking areas, resorts and group camps are assigned to NAC 1; recreational activities

[92] MPCA. *A Guide to Noise Control in Minnesota.* (2015). https://www.pca.state.mn.us/sites/default/files/p-gen6-01.pdf.
[93] Federal Aviation Administration (February 9, 2018) *Fundamentals of Noise and Sound*, retrieved from: https://www.faa.gov/regulations_policies/policy_guidance/noise/basics/.

(except designated camping and picnicking areas) and parks are assigned to NAC 2; agricultural and related activities are assigned to NAC 3. A complete list is available at Minnesota Rule 7030.0050.

Noise standards are expressed as a range of permissible dBA over a one-hour period. L_{10} may be exceeded 10 percent of the time, or six minutes per hour, while L_{50} may be exceeded 50 percent of the time, or 30 minutes per hour. Standards vary between daytime and nighttime hours. There is no limit to the maximum loudness of a noise. Table 9 provides current Minnesota noise standards.

Table 9. Noise Area Classification (dBA)

Noise Area Classification	Daytime (7:00 a.m. to 10:00 p.m.)		Nighttime (10:00 p.m. to 7:00 a.m.)	
	L_{10}	L_{50}	L_{10}	L_{50}
1	65	60	55	50
2	70	65	70	65
3	80	75	80	75

The MPCA noise standards are public health standards. That is, they protect people from noise generated by all sources at a specific time and place. The total sum of noise at a specific time and location cannot exceed the standards. The MPCA evaluates whether a specific noise source is in violation by determining if the source causes or significantly contributes to a violation of the standards.

Potential Impacts

The primary noise receptors are the local residences. Although there are no residences within the site, there are approximately 17 residences within the local vicinity (1,600 feet) of the Crane project and 105 residences within the local vicinity of the Sandhill project. There are an additional 226 residences located between 1,600 and 3,200 feet from the Crane site and an additional 346 residences located between 1,600 and 3,200 feet from the Sandhill site (Figure 6).[94] The proposed project is in a rural, agriculturally dominated area and is within half a mile from of a railroad and US Highway 14. Residences are in NAC 1. Noise receptors could also include individuals working outside in the project vicinity. Potential noise impacts from the project are associated with construction noise and operational noise.

Construction Noise from construction will be temporary in duration, limited to daytime hours and potentially moderate to significant depending on location. Crane Storage and Sandhill Storage indicate their intent to limit construction noise to daytime hours. Construction noise will vary depending upon the phase of construction and the equipment being used. Sound levels from grading equipment are not dissimilar from the typical tractors and larger trucks used in agricultural

[94] SPA, p. 52, Table 6.2.7.-3

communities during harvest. If pier foundation type is selected for the BESS units, pile driving of the piers for BESS enclosures will also contribute to construction noise. The noise from construction activities would dissipate with distance and be audible at varying decibels, depending on the locations of the equipment and receptor. Crane Storage and Sandhill Storage estimate the equipment noise levels will typically be less than 85 dBA at 50 feet when equipment is in operation.[95]

Thus, construction noise could exceed state noise standards at select times and locations. Exceedances would be short-term and confined to daytime hours. Even without an exceedance, noise impacts will occur.

Operation The primary noise sources during facility operation are the BESS containers equipped with integrated inverters and heating, ventilation, and air conditions ("HVAC") equipment, and electrical transformers.[96] Unlike solar facilities, which do not operate during the night, BESS facilities can be expected to operate during the day and night, resulting in noise levels that may vary throughout the day and night.

The applicants modeled noise levels for the two energy storage projects. A noise study was completed assuming both projects operate all of their equipment at full capacity at the same time. The noise report modeled noise levels from the facilities using manufactures information of 472 PowerTitan 2.0 BESS enclosures, 118 MV transformers, and 2 project substation transformers. The applicants indicate that if battery technology is changed before construction, noise study analysis will be updated.

The proposed equipment sound levels were modeled using industry-accepted sound modeling software to predict future sound levels. A total of 453 noise receptors (residences) were modeled within 3,200 feet of the projects (Figure 6). The applicants state that the noise report indicate that noise levels are predicted to not exceed the 50 dBA residential limit at all adjacent residential properties.[97] Noise from routine maintenance activities is anticipated to be negligible to minimal. Noise from the electrical collection system is not expected to be perceptible.

4.3.2.1 MITIGATION

Sound control devices on vehicles and equipment (e.g., mufflers), conducting construction activities during daylight hours, and running vehicles and equipment only when necessary are common ways to mitigate noise impacts during construction. The applicants indicate that they will mitigate construction noise impacts by limiting construction to daytime hours and using construction equipment and vehicles with properly function mufflers and noise-control devices.[98]

The applicants have not proposed noise mitigation measures once the facility is operational. Additional mitigation measures to minimize noise during operation include selecting individual BESS

[95] SPA p. 53
[96] Id., Appendix E – Noise Study, p. 3-1
[97] Appendix E – Noise Study, p. 4-1
[98] SPA, p. 53

units with lower noise levels, installing equipment silencers on BESS enclosures, installation of noise barriers (such as fences or berms), and operational limits.

The DSP includes permit conditions to minimize and mitigate noise impacts.

- Section 4.3.7 is a standard condition that requires the permittee to comply with noise standards established under Minnesota noise standards as defined under Minnesota Rule, part 7030.010 to 7030.0080, and to limit construction and maintenance activities to daytime hours to the extent practicable.
- Section 5.2 is a special condition that requires the permittee to file a pre-construction noise modeling and impact assessment summarizing results from noise propagation modeling using the selected equipment and final layout prior to construction of the facility. This condition also requires the permittee to file an updated noise impact assessment prior to modifying the permitted facility.
- Section 5.3 is a special condition that requires the permittee to file a proposed methodology for conduct of a post-construction noise study prior to construction of the project and to file the noise study within 18 months of operation. This section also clarifies that the project must be operated to comply with MPCA noise standards at all times and that the Permittee may be required to modify design or operation of the facility to comply with MPCA noise standards.
- Section 5.11 is a special condition that requires the permittee to demonstrate continual compliance with the noise impact assessment shall the permittee implement battery augmentation activities later in the projects life.

4.3.3 Cultural Values

The ROI for cultural values is the project areas. The impact intensity is expected to be minimal and long-term. Development of the projects will change the character of the area, potentially changing residents' sense of place. There are tradeoffs for rural communities between renewable energy projects and retaining the rural character of an area. Construction and operation of the project is not anticipated to impact or alter the work and leisure pursuits of residents in the project area in such a way as to impact the underlying culture of the area.

Cultural values can be defined as shared community beliefs or attitudes that define what is collectively important to the group. These values provide a framework for individuals and community thought and action. Infrastructure projects believed inconsistent with these values can deteriorate community character. Those found consistent with these values can strengthen it. Projects often invoke varying reactions and can, at times, weaken community unity.

Individual and community-based renewable energy is becoming more valued across the nation. Utility scale renewable projects—generally located far from load centers in rural areas—are also valued, but, at times, opposed by residents. The highly visible, industrial look and feel of these projects can erode the rural feeling that is part of a residents' sense of place.

Cultural values can be informed by ethnic heritage. Residents of in the project areas derive primarily from European ancestry. Cultural values are also informed by work and leisure pursuits, for example, farming and snowmobiling, as well as land use, such as agricultural cropland. Community events in the project area are usually tied to geographic features (ex. Oxbow Park and Zollman Zoo), seasonal/municipal events, and national holidays.[99]

The Olmsted County General Land Use Plan strives to balance the growth in the area with preservation of natural and scenic resources by concentrating urban and suburban development, maximizing efficiency of resource use, preserving the natural and cultural resources that provide a sense of place of the county, ensuring that growth. The comprehensive plan seeks to locate utilities to minimize potential aesthetic, public health or welfare impacts, including those to property.[100]

Potential Impacts

Construction and operation of the projects is not anticipated to impact or alter the work life and leisure pursuits of residents or visitors in the project areas or affect land use in such a way as to impact the underlying culture or community unity of the area.

At the same time, development of the projects may change the character of the area, at least where it is visible. In addition, the projects represent a shift in energy infrastructure by introducing storage facilities to the landscape. The value residents put on the character of the landscape within which they live is subjective, meaning its relative value depends upon the perception and philosophical or psychological responses unique to individuals. Because of this, construction of the projects might—for some residents—change their perception of the area's character thus potentially eroding their sense of place. This tension between infrastructure projects and rural character creates real tradeoffs.

Because of the two project's compact size, close proximately to existing energy infrastructure, and distance from valued geographic features, businesses, and recreational resource, impacts to cultural resources from the project are anticipated to be minimal.

Mitigation

There are no conditions included in the DSP that directly address mitigation for impacts to cultural values. No mitigation is proposed.

4.3.4 Land Use and Zoning

The ROI for land use and zoning is the land control areas. The impact intensity level is anticipated to be minimal. Land use impacts are anticipated to be long-term and localized. Although energy storage systems are not specifically addressed in local planning documents or zoning codes, the proposed facilities is generally consistent with local land use ordinances and the Olmsted County's Comprehensive Plan. Constructing the projects will change land use at the site from agricultural to

[99] SPA, p. 44
[100] Olmsted County, Olmsted County General Land Use Plan. (2022) https://www.olmstedcounty.gov/sites/default/files/2020-10/Olmsted%20County%20Land%20Use%20Plan.pdf

energy storage production for the expected 30 year life of each of the projects. After the project's useful life, the land control areas could be restored to agricultural or other planned land uses by implementing appropriate restoration measures. Impacts can be minimized.

Land use is the characterization of land based on what can be built on it and how the land is used. Zoning is a regulatory tool used by local governments (cities, counties, and some townships) to guide specific land uses within specific geographic areas. Land cover documents show how much of a region is covered by forests, wetlands, impervious surfaces, agriculture, and other land and water types, including wetlands. Construction of the BESS facilities will alter current and future land use and land cover in the land control area. Current land use for the Crane and Sandhill projects is depicted in Map 3.

The National Land Cover Database provides "spatial reference and descriptive data for characteristics of the land surface" nationwide.[101] Current land use at both sites is agricultural; approximately 99.3 percent of the Crane site and approximately 99.4 percent of the Sandhill site is used for cultivated crops while the remainder for both sites is developed land.

A site permit from the Commission supersedes local zoning, building, and land use rules.[102] Though zoning and land use rules are superseded, the Commission's site permit decision must be guided, in part, by consideration of impacts to local zoning and land use in accordance with the legislative goal to "minimize human settlement and other land use conflicts."[103]

The sites are located in the Olmsted County's A-2 Agricultural Protection District. Under Article V, Section 5.02 of the Olmsted County Zoning Ordinance…,

> *"The purpose of this district is to maintain, conserve and enhance agricultural land, and natural habitat for plant and animal life. This district is intended to encourage long term agricultural uses and preserve prime agricultural farmland by restricting the location and density of non-farm dwellings and other non-farm land uses. The A-2 District does provide a slightly higher density of non-farm dwellings than the A-1 District and is intended to apply to those areas within the Comprehensive Plan's "Resource Protection Area" where major agricultural investments, large farms, and feedlots are more scattered and greater numbers on non-farm uses or small parcels are present."*[104]

The sites are located within the Urban Service Area of the Olmsted County General Land Use Plan. This Urban Service Area includes cities and the land around them planned for municipal service extension within the next 25-50 years. Urban development, interim development, and resource uses consistent with long term urban density development, such as limited non-farm residences,

---

[101] U.S. Geological Survey. *The National Land Cover Database*. (February 2012), retrieved from: http://pubs.usgs.gov/fs/2012/3020/fs2012-3020.pdf.

[102] Minn. Stat. 216I.19, subd. 1, Minnesota Statutes 216E.10, subd. 1.

[103] Minn. Stat. 216I.05, subd. 11((a)(2); Minnesota Statutes 216E.03, subd. 7.

[104] Olmsted County, *Olmsted County Zoning Ordinance, Code of Ordinance Chapter 1400, Article V, Section 5.02, https://www.olmstedcounty.gov/sites/default/files/2024-05/Chapter%201400%20Zoning%20Ordinance_2023_0.pdf*

continuing farming activities, parks, mining activities, and wildlife and forest management are accommodated in this area.[105]

The sites are also in Byron's 25-year growth boundary,[106] meaning that projects are within an area identified by the city of Byron within which additional commercial and industrial development is anticipated.

Potential Impacts

Neither Kalmar Township nor Olmsted County have land use regulations that specifically address BESS facilities. However, review of the Kalmar Township Zoning Ordinance, indicates that public utility buildings (e.g., substations, transformer stations) are conditionally permitted in the Agricultural Protection District (A-2).[107] The Crane and Sandhill BESS facilities and collector substation would be similar in nature to other substations or transformer stations. The applicants indicated that they have designed the two projects to be consistent with the stated setback distance in the Agricultural Protection District.[108]

Because the Crane and Sandhill projects are within the Bryon 25-year growth boundary, development of the projects are consistent with future land use planning and development in the city of Byron.[109] Additionally, development of the projects in an Urban Service Area are compatible with the Olmsted County General Land Use Plan as that area classification is planned for municipal service extension within the next 25 to 50 years and development of the projects would support operating and future renewable energy generation projects in Olmsted County.

Mitigation

The Crane project will convert 23.5 acres of agricultural land to industrial use (an additional 12.1 acres of agricultural land will be temporarily used for the construction phase of the project only) and the Sandhill project will convert 24.1 acres of agricultural land to industrial use (an additional 15.8 acres of agricultural land will be temporarily used for the construction phase of the project only).[110] The DSP has several permit conditions related to the preservation and restoration of agricultural land:

- Section 4.3.22 requires the permittee to avoid damage to drain tile and to repair or replace drain tile if damaged over the project's life.

---

[105] Olmsted County, 2022, *Olmsted County General Land Use Plan*, https://www.olmstedcounty.gov/sites/default/files/2023-01/GLUP2045Final.pdf , Section 10 and Figure 11-1

[106] Byron, 2022, *Byron Comprehensive Plan* https://www.byronmn.com/vertical/sites/%7BAB4DA627-110F-4DDB-A83D-A27638C29D9A%7D/uploads/22.01__FINAL_FINAL_FINAL_-_Comp_Plan_December_2022.pdf , Figure 1.3 Growth Areas Map

[107] Kalmar, 2018, *Kalmar Zoning Ordiances,* *https://static1.squarespace.com/static/65c59372531c377505e93070/t/65c5ab9ed505ea71375f6707/1707453344917/Kalmar_Update_2016_FINAL.pd,* Article V – Section 5.02

[108] SPA, pp. 21-21

[109] SPA, p. 6

[110] SPA, pp. 60-61

- Section 5.6 is a special condition that requires the applicant to prepare a VMP to prevent soil erosion and invests in soil health by establishing a plan to protect soil resources by ensuring perennial cover. The applicant's draft VMP is found in Appendix C of the site permit application.
- Section 9.2 requires removal of all project-related infrastructure and restore the site to restore and reclaim the site to pre-project conditions to the extent feasible. The applicant's draft decommissioning plan is found in Appendix D of the site permit application.

Impacts to local zoning can be mitigated by ensuring the project is consistent, to the greatest extent practicable, with Olmsted County's conditional use permitting criteria for A-2 districts.

4.3.5 Property Values

The ROI for property values is the local vicinity. Impacts to property values within the local vicinity could occur; however, changes to a specific property's value are difficult to determine. Because of this uncertainty, impacts to specific properties in the project vicinity could be minimal to moderate and decrease with distance and over time.

Impacts to property values can be measured in three ways: sale price, sales volume, and marketing time. These measures are influenced by a complex interaction of factors. Many of these factors are parcel specific, and can include condition, size, acreage, improvements, and neighborhood characteristics; the proximity to schools, parks, and other amenities; and the presence of existing infrastructure, for example, highways or transmission lines. In addition to property-specific factors, local and national market trends, as well as interest rates, can affect all three measures. The presence of an energy storage facility becomes one of many interacting factors that could affect a specific property's value.

Because each landowner has a unique relationship and sense of value associated with their property a landowner's assessment of potential impacts to their property's value is often a deeply personal comparison of the property "before" and "after" a proposed project is constructed. The landowner's judgments, however, do not necessarily influence the market value of a property. Professional property appraisers assess a property's value by looking at the property "after" a project is constructed. Moreover, potential market participants are likely to see the property independent of the changes brought about by a project; therefore, they do not take the "before" and "after" into account the same way a current landowner might. Staff acknowledges this section does not and cannot consider or address the fear and anxiety felt by landowners when facing the potential for negative impacts to their property's value.

Potential Impacts

Electrical generating facilities can impact property values. Often, negative effects result from impacts that extend beyond the project location. Examples include emissions, noise, and visual impacts. Unlike fossil-fueled electric generating facilities, the project would not generate emissions. Potential impacts from operational noise are possible. Aesthetic impacts will occur, but because the projects are relatively low in height – as compared to a wind turbine or a smokestack – impacts would be localized.

Commission staff was unable to locate peer reviewed literature that addressed potential impacts to property values from stand-alone BESS.

Impacts to the value of specific properties within the project vicinity are difficult to determine but could occur. Considerations such as setbacks, benefits to the community, economic impact, noise, and screening could have an unpredictable range of influence over property value. The projects are screened to some extent from nearby residences by the topography and existing windbreaks around homes.

To the extent that negative impacts do occur they are expected to decrease with distance from the project. Aesthetic and noise impacts that might affect property values would be limited to residences and parcels in the project vicinity where the facility may be visible and where noise impacts from operation may occur.

MITIGATION

Impacts to property values can be mitigated by reducing aesthetic impacts and encumbrances to future land use. Impacts can also be mitigated through individual agreements with neighboring landowners. Such agreements are not within the scope of this EA.

4.3.6 Transportation and Public Services

The ROI for transportation and public services is the project areas. Potential impacts to the electrical grid, roads and other utilities are anticipated to be short-term, intermittent, and localized during construction. Impacts to railroads and pipelines are not expected to occur. Overall, construction-related impacts are expected to be minimal, and are associated with possible traffic delays. During operation, negligible traffic increases would occur for maintenance. Impacts are unavoidable but can be minimized.

Public services are services provided by a governmental entity or by a regulated private entity to provide for public health, safety, and welfare.

Water and Wastewater: Most rural residences in Olmsted County are supplied water by wells or by water towers. The city of Bryon is supplied with water by two wells and two water towers. Sewage is serviced by a municipal wastewater treatment plant. There are no active well within the Crane and Sandhill land control areas according to the Minnesota Department of Health (MDH) records.[111]

Electric Utilities: Xcel Energy serves most of the city of Bryon west of 10th Avenue Northeast. The primary electric provider in the project areas is Xcel Energy (Peoples Energy Cooperative serves all of Somerby and East of 10th Avenue NE).[112] Six transmission lines connect to the SMMPA 161kV Bryon Substation from the southeast, south, northwest, and north. Two of these existing transmission lines intersect the Crane and Sandhill land control areas. [113]

---

[111] SPA, p. 55
[112] City of Byron, Utilities and Services, https://www.byronmn.com/newresidentinfo
[113] SPA, p. 55

Pipelines: Minnesota Energy Resources provides natural gas service in the project area. There is one gas transmission pipeline that intersects the primary access road that will be shared by the Crane and Sandhill projects and generally runs east to west. This gas transmission pipeline is owned by Northern Natural Gas Company. There is one hazardous liquid pipelines mapped approximately 3.6 miles east of the project that generally runs north to south.[114]

Railroads: The Dakota Minnesota and Eastern Railroad is south of the Bryon substation between the site and US Highway 14. The project will avoid railroad property and railroad right of way (ROW).[115]

Roads: The major roadway accessing the project areas is U.S. Highway 14, located 0.5 miles south of the site. Other roads in the project vicinity are county and township roads. The primary access road for the projects will be off 13th Street NW.

Airports: The Rochester International Airport is the only registered airport in Olmsted County; it is located approximately 12 miles southeast of the projects. The Dodge Center Airport is located approximately 8 miles west of the site. In order to assure safety, both the Federal Aviation Authority (FAA) and MnDOT office of Aeronautics have established guidelines for the location of structures near airports. The FAA has height restrictions for development near public airports and guidelines for placement of buildings and other structures near high frequency omnidirectional range navigation systems. MnDOT has zoning areas around public airports that restrict the area where buildings and other structures can be placed.

POTENTIAL IMPACTS

Large energy projects can impact public services, such as buried utilities or roads. These impacts are usually temporary, for example, road congestion associated with material deliveries. Impacts can be long-term if they change the area in a way that precludes or limits public services.

Water and Wastewater: No wells or septic fields are present within the Crane and Sandhill land control areas.[116] The preliminary project layouts do not indicate intent to install any facilities where a well for drinking water or onsite-septic system for sanitary services is need.

Electric Utilities: No long-term impacts to utilities will occur because of the project. The applicants will coordinate with the owners of existing transmission lines to avoid impacting these facilities and ensure interruptions in service are minimized or avoided to the extent possible. During interconnection of the projects, customers may experience short outages when the Byron Substation is shut down. The timing and duration of any service interruptions would be determined and communicated by the interconnecting utility.[117]

---

[114] Id. and US Department of Transportation, National Pipeline Mapping System Public Viewer, https://pvnpms.phmsa.dot.gov/PublicViewer/
[115] SPA, p. 91
[116] County Well Index (CWI)
[117] SPA, p. 57

Pipelines: The shared project's access road crosses an existing gas transmission pipeline, owned by Northern Natural Gas Company, that generally runs east to west. Damage to utility pipeline is not expected to occur during ground disturbing activities.

Railroads: No impacts to railroads are anticipated. The project will avoid railroad property and railroad ROW. [118]

Roads: During construction workers and trucks delivering construction material and equipment will use the existing state, county, and township road system to access the project, primarily 13th Street NW. Traffic during construction is estimated to be approximately 31 to 70 pickup trucks, cars, and/or other types of employee vehicles onsite for the majority of construction. It is estimated that approximately eight semi-trucks per day will be used for delivery of facility components. Semi-truck delivery will vary per day depending on time of construction and delivery timeline of equipment. Overweight or oversized loads are unlikely.[119] Traffic impacts during construction are anticipated on some public roads due to additional traffic and slow-moving construction vehicles. The increased traffic may be perceptible to area residents, but the increase in traffic volume is not expected to affect traffic function. The applicant's states that overweight or oversized loads are "unlikely," but will obtain appropriate approvals for these loads prior to construction. No impacts to roads are anticipated during the operations phase of the project's; negligible traffic increases would occur for maintenance.[120]

Airports/Air Safety: The applicants used the FAA's Notice Criteria to determine if further aeronautical study or FAA filing is needed. The applicants indicate that no further studies are necessary. [121] Impacts to local airports are not anticipated.

MITIGATION

Water and Wastewater: A well construction permit from the MDH would be required if designs change and well is installed for either project.

Utilities: Section 4.3.5 of the DSP is a standard permit condition that requires the permittee to minimize disruptions to public utilities.

The location of underground utilities can be identified using the Gopher State One Call system during engineering surveys and marking the underground utility locations prior to construction. If a utility is identified, the project component or the utility itself might need to be relocated if it cannot be successfully crossed. Relocation, as well as any necessary crossing, would need to be coordinated with the affected utility.

Pipelines: Although impacts to the Northern Natural Gas Company's gas transmission pipeline is are not anticipated, section 5.5 of the DSP is a special condition that requires the permittee to confer

[118] SPA, p. 91
[119] SPA, p. 56
[120] Id.
[121] SPA, p. 98

with the Northern natural Gas Company to avoid impacts to the pipeline and further develop mitigation measures as needed.

Railroads: As no impacts to existing railroads are anticipated, no mitigation is proposed.

Roads: New driveways, such as the access road off 13th Street or changes to existing driveways from county roads will require permits from the county.

Section 4.3.19 of the DSP requires permittees to inform road authorities of roads that will be used during construction and acquire necessary permits and approvals for oversize and overweight loads. Permitted fencing and vegetative screening cannot interfere with road maintenance activities, and the least number of access roads shall be constructed.

In addition to permit requirements for driveway access and the conditions of the draft site permit, the following practices can mitigate potential impacts:

- Pilot vehicles can accompany movement of heavy equipment.
- Deliveries can be timed to avoid traffic congestion and dangerous situations on the roadway.
- Traffic control barriers and warning devices can be used as necessary.
- Photographs can be taken prior to construction to identify pre-existing conditions.

4.3.7 Socioeconomics

The ROI for socioeconomics is the region. The impact intensity level is anticipated to be minimal and positive. Effects associated with construction will, overall, be short-term and minimal. Significant positive effects may occur for individuals. Impacts from operation will be long-term and minimal. Adverse impacts are not anticipated.

The projects are in an area that is growing faster than the state of Minnesota as a whole. Between 2000 and 2020, the population in Olmsted County grew by nearly 31 percent, compared to 15.9 percent for Minnesota as a whole. The population of Byron has increased by 81 percent over the same time, while the population of Kalmar Township has declined by approximately nine percent over the same period.

While the median household incomes and the percentage of minority population in Olmsted County is similar to that in Minnesota, the household incomes in Kalmar Township and the neighboring city of Byron are substantially higher than the county or the state and the and percentage of minority population is lower than for Olmsted County or Minnesota. (Table 10).

In 2023 the sectors with the largest employment in Olmsted County were educational services, health care, and social assistance sector (50.6 percent), manufacturing (eight percent) and retail trade (7.7 percent).[122] Olmsted County is part of the Minnesota Department of Employment and

[122] US Census, https://data.census.gov/profile/Olmsted_County,_Minnesota?g=050XX00US27109#employment

Economic Development Region 10, which is the Southeast Economic Development Region. Unemployment rates fluctuate with the economy, but the unemployment rate for Region 10 has been consistently similar to the state, typically 0.5 to one percent below of Minnesota's unemployment rate.[123] In 2023, Olmsted County had a slightly lower unemployment rate (3.6 percent) than the state average (3.9 percent). The county also had a higher labor force participation rate (70.4 percent) than Minnesota as a whole (68.5 percent).[124]

Table 10. Population Characteristics

Area	Total Population				Population Characteristics***		
	2000 Census*	2020 Census*	% Change 2000 - 2020	2023 Estimate **	% Minority‡	Median Household Income ($)	% Below Poverty Level
Minnesota	4,919,479	5,706,494	15.9	5,800,386	22.3	84,313	9.3
Olmsted County	124,277	162,847	31.0	164,055	22.2	87,856	7.9
Byron	3,487	6,312	81.0	6,688	8.1	121,681	6.2
Kalmar Township	1,226	1,117	-8.9	1,146	3.1	152,813	6.0

* U.S. Census Bureau, https://data.census.gov/
** 2022, Minnesota State Demographic Center, Population Data, Our Estimates, https://mn.gov/admin/demography/data-by-topic/population-data/our-estimates/
*** 2022 American Community Survey 5-year estimates
‡ Minority population includes all persons who do not self-identify as white alone.

Potential Impacts

Potential impacts associated with construction will be positive, but minimal and short-term. Significant positive effects might occur for individuals. Impacts from operation will be long-term, positive, and minimal. The projects will not disrupt local communities or businesses and does not disproportionately impact low-income or minority populations (see discussion of environmental justice in Section 4.3.8). Adverse impacts are not anticipated.

Crane Storage anticipates that the Crane project will require approximately 75 jobs during the construction phase, and up to four long-term personnel during the operations phase. Sandhill Storage anticipates that the Sandhill project will require approximately 75 jobs during the construction phase, and one to two long-term personnel during the operations phase. Indirect

[123] Minnesota Department of Economic Employment and Development (DEED). *Economic Development Region 10: Central, 2024 Regional Profile*. (2024), https://mn.gov/deed/assets/2024_Region10_tcm1045-133257.pdf

[124] DEED. County Profile: Olmsted County. (2024) https://mn.gov/deed/assets/012725_olmsted_tcm1045-407643.pdf

benefits will occur from additional local spending on lodging, goods, and services and local sales tax.[125]

Construction of the project is likely to result in increased expenditures for lodging, food and fuel, transportation, and general supplies at local businesses during construction. The applicants will solicit bids for an EPC contractor to construct the projects and will prioritize EPC contractor bids that utilize local, union construction personnel to the greatest extent feasible.[126]

Unlike solar and wind facilities that pay a production tax based on energy generated, Crane Storage and Sandhill Storage will not pay a production tax because the facility does not generate power, it stores power. Thus, neither the Crane nor Sandhill project will generate tax revenue through a production tax. This said, both projects will generate tax revenue through property tax payments. Crane and Sandhill, for each project separately, are estimated to provide property tax payments to Olmsted County of approximately $4,000 annually ($8,000 total) over the 30-year life of the projects for a cumulative total of approximately $120,000 ($240,000 total). Additionally, Kalmar Township, for each project is estimated to receive approximately $760 ($1,520 total) annually over the 30-year term for a cumulative total of approximately $22,800 ($45,600 total).

Construction of the projects is estimated to result in payment of sales and use taxes, with the State of Minnesota expected to receive $17 million ($34 million cumulatively) and Olmsted County to receive $1 million ($2 million cumulatively). The sales and taxes are primarily a result of the purchase of equipment and construction materials needed to complete the projects. In addition, purchase payments paid to the landowners will offset potential financial losses associated with removing a portion of their land from agricultural production.[127]

MITIGATION

Section 8.5 of the DSP requires quarterly reports concerning efforts to hire Minnesota workers.

Section 8.6 of the DSP requires the permittee, as well as its construction contractors and subcontractors, to pay no less than the prevailing wage rate.

Socioeconomic impacts are anticipated to be positive in the short term and over the long-term operation of the project. No additional mitigation is proposed.

4.3.8 Environmental Justice

The ROI for environmental justice analysis is the region. The project will not have disproportionately high and adverse human health or environmental effects on low-income, minority, or tribal populations.

[125] SPA, p. 64-65
[126] Id.
[127] Id.

The State of Minnesota defines an environmental justice area as meeting one or more of the following criteria:[128]

(1) 40 percent or more of the area's total population is nonwhite;

(2) 35 percent or more of households in the area have an income that is at or below 200 percent of the federal poverty level;

(3) 40 percent or more of the area's residents over the age of five have limited English proficiency; or

(4) the area is located within Indian country, as defined in United State Code, title 18, section 1151.

Environmental justice means the "fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income in the development, implementation, and enforcement of environmental laws, regulations, and policies."[129] The purpose of considering impact to environmental justice communities is to ensure that all people benefit from equitable levels of environmental protection and have the same opportunities to participate in decisions that might affect their environment or health.

Potential Impacts

Utility infrastructure can adversely impact low-income, minority or tribal populations. To identify potential environmental justice concerns in the project area, staff used the MPCA's Environmental Justice Mapping Tool to identify environmental justice populations.[130] The project is not located within an identified environmental justice area according to the MPCA mapping tool.

Figure 8 shows the project within the U.S. census tract used to evaluate environmental justice criteria and Table 11 provides environmental justice parameter data within the U.S. census tract.

[128] Minn. Stat. 216B.1691, subd. 1(e)
[129] MPCA, Environmental Justice Website, https://www.pca.state.mn.us/about-mpca/environmental-justice
[130] MPCA, Understanding Environmental Justice in Minnesota, https://experience.arcgis.com/experience/bff19459422443d0816b632be0c25228/page/Page/?views=EJ-areas

Figure 8. Crane and Sandhill Census Tracts

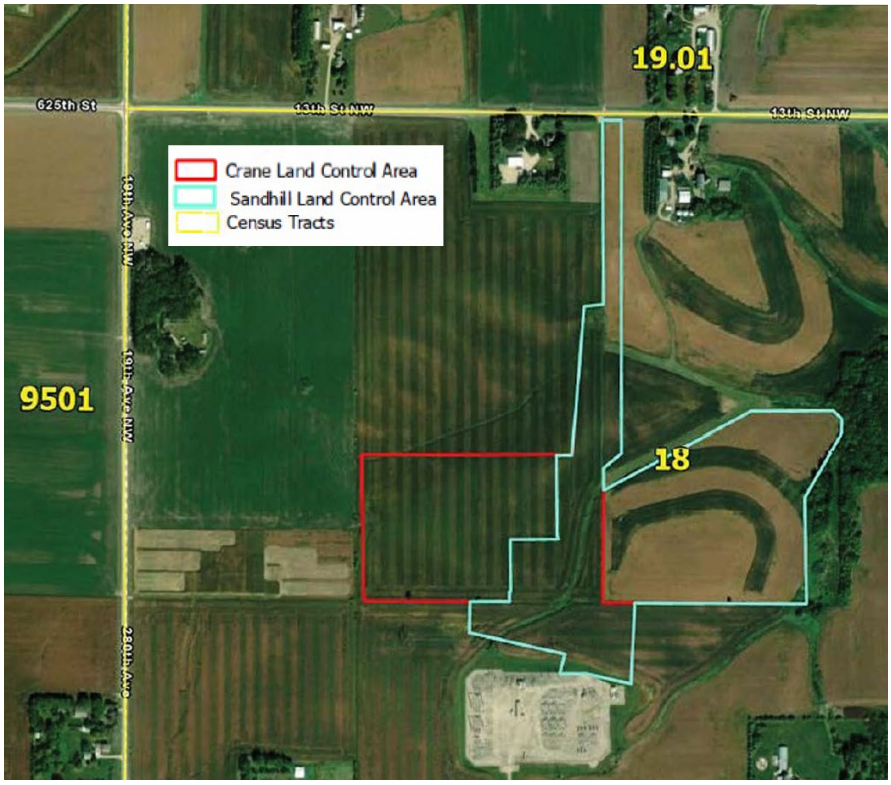


Table 11. Low-Income and Minority Population Characteristics[131]

County / Census Tract	% Minority Population‡	Percent of Households with Income Equal or Below 200 Percent of the Poverty Level	Percent of Residents with Limited English Proficiency	Within Indian County?
Olmsted County				
Census Tract 18	10.3%	11.4%	0.6%	No

Source: MPCA, 2024a (U.S. Census Bureau, 2018-2022 American Community Survey 5-year Estimate)

‡ Minority population includes all persons who do not self-identify as white alone.

Mitigation

The projects are not within a census tract which Minnesota deems an environmental justice area; therefore, disproportionate and adverse impacts to these populations are not expected, and mitigation is not proposed.

[131] SPA, p. 47, Table 6.2.4-1

4.4 Human Health and Safety

Construction and operation of a BESS facility has the potential to impact human health and safety.

4.4.1 Electric and Magnetic Fields

The ROI for EMF is the land control areas. Impacts to human health from possible exposure to EMFs are not anticipated.

Electric and magnetic fields (EMFs) are invisible forces that result from the presence of electricity. They occur naturally and are caused by weather or the geomagnetic field. They are also caused by all electrical devices and found wherever people use electricity. EMFs are characterized and distinguished by their frequency, that is, the rate at which the field changes direction each second. Electrical lines in the United States have a frequency of 60 cycles per second or 60 hertz, which is extremely low frequency EMF ("ELF-EMF"). The strength of an electric field decreases rapidly as it travels from the conductor and is easily shielded or weakened by most objects and materials.

Voltage on a conductor creates an electric field that surrounds and extends from the wire. Using water moving through a pipe as an analogy, voltage is equivalent to the pressure of the water moving through the pipe. The strength of the electric field is measured in kilovolts per meter (kV/m). Electric fields decrease rapidly as they travel from the conductor and are easily shielded or weakened by most objects and materials.

Current moving through a conductor creates a magnetic field that surrounds and extends from the wire. Using the same analogy, current is equivalent to the amount of water moving through the pipe. The strength of a magnetic field is measured in milliGauss (mG). Like electric fields, the strength of a magnetic field decreases rapidly as the distance from the source increases; however, unlike electric fields, magnetic fields are not easily shielded or weakened.

Table 12 provides examples of electric and magnetic fields associated with common household items. "The strongest electric fields that are ordinarily encountered in the environment exist beneath high voltage transmission lines. In contrast, the strongest magnetic fields are normally found very close to motors and other electrical appliances, as well as in specialized equipment such as magnetic resonance scanners used for medical imaging."[132]

Table 12. Electric and Magnetic Field Strength of Common Household Objects[133]

Electric Field*		Magnetic Field**			
Appliance	kV/m	Appliance	mG		
	1 foot		1 inch	1 foot	3 feet

[132] World Health Organization. *Radiation: Electromagnetic Fields, What are typical exposure levels at home and in the environment?* (2016). https://www.who.int/news-room/questions-and-answers/item/radiation-electromagnetic-fields
[133] Id.

Stereo	0.18	Circular saw	2,100 to 10,000	9 to 210	0.2 to 10
Iron	0.12	Drill	4,000 to 8,000	22 to 31	0.8 to 2
Refrigerator	0.12	Microwave	750 to 2,000	40 to 80	3 to 8
Mixer	0.10	Blender	200 to 1,200	5.2 to 17	0.3 to 1.1
Toaster	0.08	Toaster	70 to 150	0.6 to 7	< 0.1 to 0.11
Hair Dryer	0.08	Hair dryer	60 to 200	< 0.1 to 1.5	< 0.1
Television	0.06	Television	25 to 500	0.4 to 20	< 0.1 to 1.5
Vacuum	0.05	Coffee maker	15 to 250	0.9 to 1.2	< 0.1

* German Federal Office for Radiation Safety
** Long Island Power Institute

Health Studies In the late-1970s, epidemiological studies indicated a weak association between childhood leukemia and ELF-EMF levels. "Epidemiologists observe and compare groups of people who have had or have not had certain diseases and exposures to see if the risk of disease is different between the exposed and unexposed groups but does not control the exposure and cannot experimentally control all the factors that might affect the risk of disease."[134]

Ever since, researchers have examined possible links between ELF-EMF exposure and health effects through epidemiological, animal, clinical, and cellular studies. To date, "no mechanism by which ELF-EMFs or radiofrequency radiation could cause cancer has been identified. Unlike high-energy (ionizing) radiation, EMFs in the non-ionizing part of the electromagnetic spectrum cannot damage DNA or cells directly," that is, the ELF-EMF that is emitted from HVTLs does not have the energy to ionize molecules or to heat them.[135] Nevertheless, they are fields of energy and thus have the potential to produce effects.

> "The few studies that have been conducted on adults show no evidence of a link between EMF exposure and adult cancers, such as leukemia, brain cancer, and breast cancer."[136]
> "Overall there is no evidence that exposure to ELF magnetic fields alone causes tumors. The

[134] National Institute of Environmental Health Sciences. *EMF: Electric and Magnetic Fields Associated with the Use of Electric Power.* (2002). https://www.niehs.nih.gov/health/materials/electric_and_magnetic_fields_associated_with_the_use_of_electric_power_questions_and_answers_english_508.pdf

[135] National Cancer Institute. *Magnetic Field Exposure and Cancer*. (2022). http://www.cancer.gov/about-cancer/causes-prevention/risk/radiation/magnetic-fields-fact-sheet .

[136] National Institute of Environmental Health Sciences. *Electric and Magnetic Fields*, (2024). http://www.niehs.nih.gov/health/topics/agents/emf/index.cfm.

> evidence that ELF magnetic field exposure can enhance tumor development in combination with carcinogens is inadequate."[137]
>
> "A number of scientific panels convened by national and international health agencies and the U.S. Congress have reviewed the research carried out to date. Most concluded that there is insufficient evidence to prove an association between EMF and health effects; however, many of them also concluded that there is insufficient evidence to prove that EMF exposure is safe."[138]

The Minnesota State Interagency Working Group on EMF Issues, comprised of staff from state agencies, boards, and Commission, was tasked to study issues related to EMF. In 2002, the group published *A White Paper on Electric and Magnetic Field Policy and Mitigation Options*, and concluded the following:[139]

Some epidemiological results do show a weak but consistent association between childhood leukemia and increasing exposure to EMF…. However, epidemiological studies alone are considered insufficient for concluding that a cause-and-effect relationship exists, and the association must be supported by data from laboratory studies. Existing laboratory studies have not substantiated this relationship…, nor have scientists been able to understand the biological mechanism of how EMF could cause adverse effects. In addition, epidemiological studies of various other diseases, in both children and adults, have failed to show any consistent pattern of harm from EMF.

The Working Group concluded that the current body of evidence is insufficient to establish a cause-and-effect relationship between EMF and adverse health effects. However, as with many other environmental health issues, the possibility of a health risk cannot be dismissed.[140]

Regulations and Guidelines Currently, there are no federal regulations regarding allowable ELF-EMF produced by power lines in the United States; however, state governments have developed state-specific regulations. For example, Florida limits electric fields to 2.0 kV/m and magnetic fields to 150 mG at the edge of the ROW for 161 kV transmission lines.[141] Additionally, international organizations have adopted standards for exposure to electric and magnetic fields (Table 13)

---

[137] World Health Organization. *Extremely Low Frequency Fields*. (2007). http://www.who.int/peh-emf/publications/Complet_DEC_2007.pdf?ua=1, page 10.

[138] State of Minnesota, State Interagency Working Group on EMF Issues (2002) *A White Paper on Electric and Magnetic Field (EMF) Policy and Mitigation Options*, https://apps.commerce.state.mn.us/eera/web/project-file?legacyPath=/opt/documents/EMF%20White%20Paper%20-%20MN%20Workgroup%20Sep%202002.pdf: page 1.

[139] Id.

[140] Id., page 36.

[141] Florida Department of State. *Rule 62-814.450 Electric and Magnetic Field Standards*. (2008). https://www.flrules.org/gateway/ruleNo.asp?id=62-814.450.

Table 13. International Electric and Magnetic Field Guidelines

Organization	Electric Field (kV/m)		Magnetic Field (mG)	
	Public	Occupational	Public	Occupational
Institute of Electrical and Electronics Engineers	5.0	20.0	9,040	27,100
International Commission on Non-Ionizing Radiation Protection	4.2	8.3	2,000	4,200
American Conference of Industrial Hygienists	—	25.0	—	10,000/1,000[a]
National Radiological Protection Board	4.2	—	830	4,200

[a] For persons with cardiac pacemakers or other medical electronic devices

POTENTIAL IMPACTS

Potential impacts are anticipated to be negligible and are not expected to negatively affect human health. Impacts will be long-term and localized but can be minimized. The primary sources of EMF from the facility will be from the buried electrical collection lines, the transformers installed at each inverter, and the project tap line between the shared collector substation and the Byron substation. Because the electrical components, such as the transformers, will be enclosed in a grounded metal case and distant from residences, EMF levels are anticipated to be minimal.[142]

4.4.1.1 MITIGATION

No health impacts from EMF are anticipated. EMF diminishes with distance from a conductor or inverter. The nearest residences are more than 1,000 feet from the BESS units, collector substation and gen-tie line. At these distances both electric and magnetic fields will dissipate to background levels. No additional mitigation is proposed.

4.4.2 Public Safety and Emergency Services

The ROI for public and work safety is the project areas. Like any construction project, there are risks for injuries from falls, equipment and vehicle use, electrical accidents, etc. Public risks involve electrocution. Electrocution risks could also result from unauthorized entry into the fenced area. The main safety hazard of a BESS is battery failure leading to thermal runaway which has the potential to spread to nearby batteries and containers, quickly presenting an emergency. Emergency response to fires or thermal runaway events at BESS facilities require specialized response. Potential impacts from construction are anticipated to be minimal. Potential impacts during operation are anticipated to be moderate to significant. Impacts would be short- and long-term and can be minimized.

Like any construction project, there are safety risks. These include potential injury from falls, equipment and vehicle use, electrical accidents, etc. Construction might disturb existing

[142] SPA, p. 50

environmental hazards on-site, for example, contaminated soils. In addition to the typical operational risks associated with an electric facility (falls, electrical accidents, etc..) battery storage facilities include a heightened risk of thermal runaway events and fires. During operation there are occupational risks similar to those associated with construction. Public risks would result from unauthorized entry into the facility.

Emergency services in the project area are provided by local law enforcement and emergency response agencies located in nearby communities. Law enforcement in the project areas is provided by Olmsted County Sheriff. Fire service is provided by the Bryon Fire Department. Ambulance responses are provided by Mayo Clinic Ambulances. The nearest hospital to the projects would be the Olmsted Medical Center. All these emergency personnel are approximately 2 to 12 miles southeast of the Crane and Sandhill project areas.[143]

POTENTIAL IMPACTS

The inflow of temporary construction personnel could increase demand for emergency and public health services. On the job injuries of construction workers requiring assistance due to slips, trips or falls, equipment use, or electrocution can create a demand for emergency, public health, or safety services that would not exist if the projects were not to be built. Although no road closures are anticipated during construction,[144] any temporary closures could impede police, fire, and other rescue vehicles access to the site of an emergency.

As with other industrial facilities, there is the potential for falls, fire or other industrial accidents once operational. The main safety hazard of a BESS is battery failure leading to thermal runaway which has the potential to spread to nearby batteries and containers, quickly presenting an emergency. The movement of electrons and lithium ions within the battery cell produces electricity as well as heat. Lithium-ion batteries are designed to allow heat to dissipate from the cell to maintain a controlled reaction. Thermal runaway is a phenomenon when a battery cell generates heat at a greater rate than the heat can dissipate from the cell, resulting in a cascading chemical reaction which produces additional heat.

Thermal runaway events can result in extremely high temperatures, smoke, fire, and potentially ejection of gas, shrapnel, and particulates.[145] Although BESS are a relatively new technology, there is a growing body of research that informs industry standards to minimize the potential for these types of incidents and mitigate potential safety concerns in the event of such incidents.

As discussed in Section 2.1.3, There are two major types of lithium-ion battery technology used in BESS facilities. The chemistry of NMC batteries allows them to charge and discharge at higher rates (referred to as “energy density”) than LMC batteries. The ability to charge and discharge at high rates made them a popular choice in early BESS projects. However, compared to LFP batteries, the

[143] SPA, p. 55
[144] SPA, p. 69
[145] UL Research Institutes (2021). *What is Thermal Runaway*, https://ul.org/research/electrochemical-safety/getting-started-electrochemical-safety/what-thermal-runaway

NMC batteries have a lower thermal runaway temperature, creating increased risks and requiring enhanced monitoring. In comparison, LFP batteries have a higher thermal runaway temperature, making them more stable and less prone to fire. As a result of the relative thermal stability compared to NMC technology as well as decreased costs as the LFP technology matured, the energy storage industry has recently pivoted to LFP technology.

Emergency response to fires or thermal runaway events at BESS facilities require specialized response. Fires at BESS facilities present unique challenges to firefighters. Unlike other utilities or industrial sites, BESS facilities do not have a single point of disconnect and, although separate parts of the system can be disconnected, the batteries will remain energized.[146] Because of the gases that accumulate within containers during a thermal runaway event or fire, first responders should not approach or enter the containers. Because of the difficulty in extinguishing fires, the risk that some batteries will remain energized, and the potential exposure to toxic gas, the industry recommends that first responders monitor the event and allow fires to burn themselves out as the energy is depleted from the batteries.

MITIGATION

The projects will be designed and constructed in compliance with applicable electric codes. Electrical inspections will ensure proper installation of all components, and the project will undergo routine inspection. Electrical work will be completed by trained technicians.

Construction is bound by federal and state Occupational Safety and Health Administration (OSHA) requirements for worker safety, and must comply with local, state, and federal regulations regarding installation of the facilities and qualifications of workers. Established industry safety procedures will be followed during and after construction of the project. Crews will be trained and briefed on safety issues, reducing the risk of injury. The projects will be fenced to prevent unauthorized access.

Construction crews must comply with local, state, and federal regulations when installing the BESS components and associated facilities. This includes standard construction-related health and safety practices. This generally includes safety orientation and training, as well as daily/weekly safety meetings.

In addition to the use of the more stable LFP technology, Crane and Sandhill's facility designs use modular containers that are tested by the manufacturer to ensure fire resistance. Modern BESS containers include explosion prevention systems to remove flammable gases during a thermal runaway event and relieve pressure to limit gas levels within the containers from reaching levels that can be flammable or explosive. The containers are spaced to minimize the potential for fire to spread to other containers. The BESS equipment is monitored remotely, tracking cell voltage and temperature to identify and isolate potential issues before they occur. The facility will also install fire detection systems at the containers to recognize incidents and disconnect and isolate failed equipment.

---

[146] American Clean Power, *Energy Storage Emergency Response Plan Template*, https://cleanpower.org/wp-content/uploads/gateway/2022/11/ACP_Energy_Storage_Emergency_Response_Plan_Template.pdf , pp.14-17

The National Fire Protection Association issued updated *NFPA 855 Standard for the Installation of Stationary Energy Storage Systems* in 2023. The standard includes requirement for fire detection and suppression, explosion control, exhaust ventilation, gas detection, and thermal runaway.[147]

NFPA standards require BESS facilities to prepare a hazard mitigation analysis (HMA) detailing the results of the equipment testing and the risks associated with the technology prior to installation of the BESS

Public safety is addressed in several sections of the DSP:

- Section 4.3.27 requires the permittee to take several public safety measures, including landowner educational materials, appropriate signs and gates, etc.
- Section 5.4 is a special condition that requires the permittee to file an HMA detailing the testing results for the selected equipment and the risks associated with the technology at least 30 days prior to the pre-construction meeting.
- Section 8.11 of the DSP is a standard condition that requires permittees file an *Emergency Response Plan* with the Commission and local first responders prior to operation. As discussed above, the fire hazards associated with BESS facilities require additional training for first responders. Emergency response plans for BESS facilities require project-specific details on emergency response to incidents at the BESS. This includes BESS-specific training. The American Clean Power Association has developed an Emergency Response Plan template for BESS Facilities.[148]
- Section 8.12 requires disclosure of extraordinary events, such as fires, etc.
- Section 9.1 requires a decommissioning plan prior to construction and updated every five years. Periodic updates of the plan will address the developing information on end-of-life issues related to batteries.

4.5 Land-based Economies

BESS facilities can impact land-based economies by precluding or limiting land use for other purposes. Impacts to agriculture, tourism and recreation are discussed in this section. Impacts to forestry and mining are not anticipated, and those resources are discussed in Section 4.10.

4.5.1 Agriculture

The ROI for agriculture is the site. Potential impacts to agricultural producers are anticipated to be minimal. The Crane project will convert 23.5 acres of agricultural land to industrial use and the

[147] National Fire Protection Association, NFPA 85: Standard for the Installation of Stationary Energy Storage Systems, https://www.nfpa.org/product/nfpa-855-standard/p0855code#2023-edition-details The standard is available for purchase, the website highlights details of the updated edition.
[148] American Clean Power Association, , Energy Storage Emergency Response Plan Template

Sandhill project will convert 24.1 acres of agricultural land to industrial use for the life of the project, in Olmsted County. Potential impacts are localized and unavoidable but can be minimized.

Agricultural use dominates the areas of land control, with approximately 99 percent of each of the project areas used for cultivated row crops (primarily corn and soybeans).

In 2022, there were approximately 308,404 acres of farmland in Olmsted County, comprising approximately 74 percent of all land in the county. This represents an increase of approximately eight percent in total agricultural acreage since 2017. By acreage, the largest crops are corn and soybeans. Dairy cows and cattle are the largest livestock category.[149] Prime farmland is defined by Federal regulation at 7 C.F.R.657.5(a)(1) "is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses."

The Crane site contains 21.7 acres classified as "Prime Farmland" and 12.5 areas classified as "Farmland of Statewide Importance."[150] Within the Crane project, active agricultural fields account for approximately 35.3 acres. Of the 35.3 acres, 11.3 will be converted to impervious surfaces, 12.2 acres will be converted to perennial vegetation (grasses), and 11.8 acres will be restored for agricultural used upon completion of the Crane project construction activities. Resulting in 23.5 acres of agricultural land being converted to industrial use for the life of the project.

The Sandhill site contains 19.2 acres classified as "Prime Farmland" and 19.9 acres classified as "Farmland Statewide Importance."[151] Within the Sandhill project, active agricultural fields account for approximately 39.7 acres. Of the 39.7 acres, 10.1 will be converted to impervious surfaces, 14.0 acres will be converted to perennial vegetation (grasses), and 15.6 acres will be restored for agricultural used upon completion of the Sandhill project construction activities. Resulting in 24.1 acres of agricultural land being converted to industrial use for the life of the project.

Potential Impacts

The impact intensity level is expected to be minimal and very localized. The intensity of the impact is likely to be subjective. For example, conversion of farmland to energy uses can be viewed as a conversion from one type of industrial use to another. Conversely, the conversion of farmland to energy uses can be viewed as a negative impact to agricultural production.

The Crane project would result in the conversion of 14.8 acres of agricultural land to impervious surfaces for the life of the project, removing this plot from agricultural production. Of this plot, 14.6 acres is considered "prime farmland" or "farmland of statewide importance" and will be permanently impacted. The Sandhill project would convert 13.4 acres of farmland to impervious surfaces for the life of the project, removing this plot from agricultural production. Of this plot, 13.2

[149] United States Department of Agriculture, 2022 Census of Agriculture, County Profile: Olmsted County, Minnesota, https://www.nass.usda.gov/Publications/AgCensus/2022/Online_Resources/County_Profiles/Minnesota/cp27109.pdf

[150] SPA, p. 66

[151] SPA, p. 66

acres is considered “prime farmland” or “farmland of statewide importance” and will be permanently impacted.

Although this change in land use would take productive farmland out of production for the life of the project, the removal of less than 0.01 percent of 308,404 acres of farmland in the county is insignificant. The applicant indicates that the land could be returned to agricultural uses after the project is decommissioned and the site is restored.[152]

Construction of the project has the potential to damage agricultural soils through compaction or erosion if BMPs are not implemented to minimize damage.

MITIGATION

Several sections of the DSP address agricultural mitigation and soil-related impacts:

- Section 4.3.9 requires protection and segregation of topsoil.
- Section 4.3.10 requires measures to minimize soil compaction.
- Section 4.3.11 requires the permittee to implement erosion prevention and sediment control practices recommended by the MPCA and to obtain a CSW Permit.
- Section 4.3.17 requires the permittee to develop an Invasive Species Management Plan to prevent introduction and spread of invasive species during construction of the project.
- Section 4.3.18 requires the permittee to take reasonable precautions against the spread of noxious weeds.
- Section 4.3.26 requires the permittee to fairly restore or compensate landowners for damages to crops, fences, drain tile, etc. during construction.
- Section 5.6 is a special condition that requires the permittee to develop a VMP that defines how the land control area will be revegetated and monitored over the life of the project. Appropriate seeding rates and timing of revegetation will stabilize soils and improve overall soil health.

Reduced or lost farming revenues may be offset by lease agreements, which are outside the scope of this document.

4.5.2 Tourism and Recreation

The ROI for recreation is the local vicinity and the ROI for tourism is the project areas. Because of site is not close to major recreational or tourism resources, potential impacts to recreational opportunities and tourism are anticipated to be negligeable.

[152] SPA, Appendix D, Decommissioning Plan

In 2023 the leisure and hospitality industry in Olmsted County accounted for about $627.7 million in gross sales and employed an estimated 9,412 people.[153] The Rochester metropolitan area is approximately nine miles east of the projects, and there are multiple tourist destinations in Rochester, including the Rochester Art Center, the Charles E. Gagnon Museum and Sculpture Garden, and the History Center of Olmsted County.

The nearest public recreation area to the projects is Brook Lawn 10th Park, located within the city of Byron and approximately 0.5 northeast of the projects. Primary tourism and recreation activities in the project area are associated with local community festivals and other events.

Impacts to recreation can be direct or indirect. Direct impacts are impacts that directly impede the use of a recreational resource, for example, closing of a trail to facilitate project construction. Indirect impacts reduce the enjoyment of a recreational resources but do not prevent use, for example, aesthetic impacts visible from a scenic overlook.

There are no wildlife management areas, Scientific and Natural Areas or state parks within one mile of the site. The closest Wildlife Management Area is the Moon Valley Wildlife Management Area, located approximately 8 miles northeast of the site. Although there are a number of parks in and near the cities of Byron and Rochester, the nearest park is to the projects is Oxbow Park and Zollman Zoo approximately three miles northwest from the sites.[154]

Potential Impacts

Impacts to recreation are anticipated to be nominal and the construction and operation of the project is not anticipated to impact recreation or tourism in the project area.

Mitigation

Because no impacts are anticipated, no mitigation is proposed.

4.6 Archeological, Cultural, and Historic Resources

The ROI for archeological and historic resources is the project areas. The impact intensity level is anticipated to be negligible to minimal. Impacts would be localized. Impacts can be mitigated through siting.

Archeological resources are locations where objects or other evidence of archaeological interest exist, and can include aboriginal mounds and earthworks, ancient burial grounds, prehistoric ruins, or historical remains.[155] Historic resources are sites, buildings, structures, or other antiquities of state or national significance.[156]

---

[153] Explore Minnesota (n.d.) *20232 Leisure & Hospitality Industry Data*, retrieved from: https://mn.gov/tourism-industry/assets/2023%20MN%20L%26H%20Data_tcm1135-665060.pdf

[154] SPA, p. 44

[155] Minnesota Statutes, Section. 138.31, subd. 14.

[156] Minnesota. Statutes, Section 138.51.

Construction and operation of projects have the potential to impact resources that have importance to American Indian Tribes with ties to the region. Siting of large energy facilities in a manner that respects historic and cultural ties to the land requires coordination with tribes.

Potential Impacts

The applicants report contacting the eleven federally recognized tribal nations in Minnesota and the Minnesota Indian Affairs Council for additional information or comment on the project.[157]

The applicants engaged TRC Companies, Inc (TRC) to conduct a background literature review to identify previously record cultural resources that could be affected by the Crane and Sandhill projects. Information from the Minnesota Office of the State Archaeologist's (OSA) online database (OSA Viewer), the Minnesota State Historic Preservation Office's (SHPO) Minnesota Statewide Historic Inventory Portal (MNSHIP), the National Register of Historic Places (NRHP) database, USGS 15-Minute and 7.5-Minute topographic quadrangle maps, historic atlases, and historic aerial maps were reviewed. The review considered a 47 acre Cultural Resource Study Area around the Crane and Sandhill land control areas, and a one-mile radius around the Cultural Resources Study Area to identify previously recorded cultural resources.

The literature review identified two previously recorded archaeological sites and thirteen historic structures within one mile of the Crane and Sandhill land control areas. Neither of the two archaeological sites have been evaluated for listing in the National Register of Historic Places (NRHP). Six of the 13 historic structures have been determined not eligible for listing in the NRHP, including the two historic structures nearest the Crane and Sandhill land control areas. The remaining seven historic structures have not been evaluated for NRHP listing.

TRC also conduct a Phase I field inventory for the Crane and Sandhill land control areas in November 2024. The phase I field inventory checked for previously undocumented archaeological sites that could affect the projects. No cultural resources were documented during the field review.

The results of TRC's background literature review and Phase I field inventory was submitted to SHPO for review in September and December of 2024. SHPO agreed with the findings and recommendations in the Phase I field inventory report and commented that the projects would not affect properties listed in the National or State Registers of Historic Places or within the Historic Sites Network.[158]

Mitigation

Prudent siting to avoid impacts to archaeological and historic resources is the preferred mitigation. The DSP contains several permit conditions intended to minimize impacts to archaeological and cultural resources:

---

[157] SPA, p. 96 and Appendix B – Agency Correspondence
[158] SPA, p. 70-71

- Section 4.3.20 is a standard permit condition that requires the permittee to avoid impacts to archaeological and historic resources where possible and to mitigate impacts where avoidance is not possible. If previously unidentified archaeological sites are found during construction, the permit requires the permittee to stop construction and contact SHPO to determine how best to proceed. Ground disturbing activity will stop, and local law enforcement will be notified should human remains be discovered.

- Section 5.7 requires the permittee to prepare an Unanticipated Discoveries Plan outlining steps to be taken if previously unrecorded cultural resources or human remains are encountered during construction.

4.7 Natural Resources

The facility's impacts on natural resources are dependent upon many factors, such as how the projects are designed, constructed, maintained, and decommissioned. Other factors, for example, the environmental setting, influence potential impacts. Impacts can and do vary significantly both within, and across, various projects.

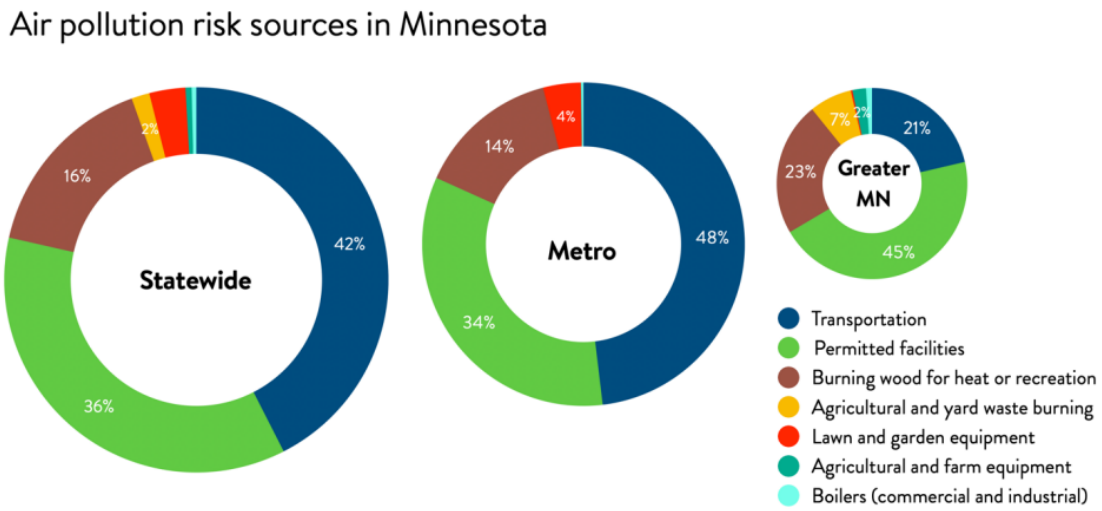
4.7.1 Air Quality

The ROI for air quality is the region. Potential impacts to air quality during construction would be intermittent, localized, short-term, and minimal. Impacts are associated with fugitive dust and exhaust. Impacts can be mitigated. Once operational, the BESS facility will not generate criteria pollutants or carbon dioxide. Negligible fugitive dust and exhaust emissions would occur as part of routine maintenance activities. Impacts are unavoidable and do not affect a unique resource. Impacts can be minimized.

Air quality is a measure of how pollution-free the ambient air is and how healthy it is for humans, other animals, and plants. Emissions of air pollutants will occur during construction and operation of new infrastructure for the project. Overall air quality in Minnesota has improved over the last 20 years, but current levels of air pollution still contribute to health impacts. As illustrated in Figure 9, today, most of our air pollution that can lead to health effects are transportation, permitted facilities, and wood burning for heat or recreation. Transportation has a much greater contribution to air pollution in the metro area than in greater Minnesota [159]

[159] MPCA 2025. *The Air We Breathe: The State of Minnesota's Air Quality, January 2025 Report to the Legislature,* https://www.pca.state.mn.us/sites/default/files/lraq-1sy25.pdf

Figure 9. Air Pollution Sources by Type[160]



The nearest air quality monitor to the project is in Rochester, Minnesota. Between 2013 and 2023, air quality in the area has been considered "good" between 190 and 293 days of the year and moderate between 70 and 160 days. During this interval air quality was considered unhealthy for sensitive groups for one or two days in six years, with a notable increase in 2023, when air quality was considered unhealthy for sensitive groups on 14 days and unhealthy on one day. [161] The increase in the number of days of moderate or worse air quality in 2021 and 2023 was statewide and largely attributable to drought conditions and wildfire smoke in the upper Midwest. [162]

Potential Impacts

Minimal intermittent air emissions are expected during construction of the projects. Air emissions associated with construction are highly dependent upon weather conditions and the specific activity occurring. For example, traveling to a construction site on a dry gravel road will result in more fugitive dust than traveling the same road when wet. Once operational, neither the generating facility nor the transmission line will generate criteria pollutants or carbon dioxide.

[160] The State of Minnesota's Air Quality, January 2025 Report to the Legislature, https://www.pca.state.mn.us/sites/default/files/lraq-1sy25.pdf

[161] MPCA. *Annual AQI Days by Reporting Region*, https://data.pca.state.mn.us/views/Minnesotaairqualityindex/AQIExternal?%3Aembed=y&%3AisGuestRedirectFromVizportal=y (accessed March 12, 2025)

[162] MPCA. 2025. *The Air We Breathe: The State of Minnesota's Air Quality, January 2025 Report to the Legislature,* https://www.pca.state.mn.us/sites/default/files/lraq-1sy25.pdf pp. 12-13

Motorized equipment will emit exhaust. This includes construction equipment and vehicles travelling to and from the project. Exhaust emissions, primarily from diesel equipment, would vary according to the phase of construction.

All projects that involve movement of soil, or exposure of erodible surfaces, generate some type of fugitive dust emissions. The project will generate fugitive dust from travel on unpaved roads, grading, and excavation.

MITIGATION

Exhaust emissions can be minimized by keeping vehicles and equipment in good working order and not running equipment unless necessary.

Applicable BMPs will be used during construction and operation of the Project to minimize dust emissions if wind erosion becomes an issue. These practices include the application of water or other dust control agents on unpaved roads, reducing vehicle speeds on unpaved roads, covering open-bodied haul trucks, containment of excavated materials, protection of exposed soil, soil stabilization, rand treating stockpiles to control fugitive dust. A SWPPP will be developed prior to construction that will include BMPs to minimize the potential for fugitive dust.

Several sections of the draft site permit indirectly mitigate impacts to air quality, including sections related to soils, vegetation removal, restoration, and pollution and hazardous wastes.

4.7.2 Geology and Groundwater

The ROI for geology and groundwater is the land control areas. Impacts to domestic water supplies are not expected. Impacts to geology are not anticipated. Localized impacts to groundwater resources, should they occur, would be intermittent, but have the potential to occur over the long-term. Indirect impacts from surface waters might occur during construction. Impacts can be mitigated through use of BMPs for stormwater management.

Groundwater in Minnesota is largely a function of local geologic conditions that determine the type and properties of aquifers. The projects are located in the Oak Savanna subsection of the Minnesota and Northeast Iowa Morainal Section. This subsection consists of loess plains over bedrock or till. Topography is gently rolling with steep slopes that are associated with Stagnation moraines.

Minnesota is divided into six groundwater provinces based on bedrock and glacial geology. The project's sites are within Groundwater Province 3, the Karst province, which can be characterized as having thin glacial sediments overlying thick and extensive bedrock prone to karst features such as sinkholes, and caves. Karst landscapes can develop where limestone and dolostone are at or near the surface. Overtime, the carbonate minerals in these rocks are dissolved by rain and groundwater, creating karst. Current groundwater resource in the Crane and Sandhill BESS projects is depicted in Map 5.

In this province, groundwater is typically derived from bedrock aquifers below the glacial sediment cover. Groundwater is generally readily available, but water quality is susceptible to pollution from surface activity because fractures and sinkholes can form passageways that funnel water and

contaminants quickly from the surface to groundwater.[163] The applicants screened for EPA-designated sole source aquifers (SSA). The EPA defines a SSA or principal source aquifer area as one that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer, where contamination would be a significant hazard. There are no SSAs within the project control areas.[164]

The MDH maintains the Minnesota Well Index, which provides basic information (e.g., location, depth, geology, construction, and static water level) for wells and borings drilled in Minnesota.[165] The index did not identify any wells within the site. The closest documented well is approximately 410 feet to the northeast of the Crane and Sandhill land control areas that overlap to form the primary access road. The well is listed as "domestic use."

Under the Safe Drinking Water Act, each state is required to develop and implement a Wellhead Protection Program to identify the land and recharge areas contributing to public supply wells and prevent the contamination of drinking water supplies. Public and non-public community water supply source-water protection in Minnesota is administered by the MDH. A wellhead protection area (WHPA) encompasses the area around a drinking water well where contaminants could enter and pollute the well. The site is located outside of any WHPA.

A Drinking Water Supply Management Areas (DWSMA) is a clearly defined geographic area around a WHPA outlined by clear boundaries like roads. The DWSMA is managed by a wellhead protection plan, typically by the city. The MDH assigned vulnerability ratings to each DWSMA based on factors including geologic sensitivity, well construction, maintenance and use. The Byron DWSMA is classified as low vulnerability, while the Rochester Central DWSMA has a mixture of vulnerability classifications ranging from low to high. The closest DWSMA is the Byron DWSMA which is located less than a mile southeast of the project. [166]

Potential Impacts

Potential impacts to geology and groundwater can occur directly or indirectly. Impacts to geological resources are likely to be minimal, due to the thickness of surficial materials (100 to 200 feet) and the absence of karst features.[167] Other direct impacts to groundwater associated with construction, for example, structure foundations that could penetrate shallow water tables or groundwater usage are not anticipated.

Direct impacts to groundwater, including aquifers are not anticipated as water supply needs will be quite limited. The closest document well is 410 feet from the portion of the Crane and Sandhill land

[163] DNR, Minnesota Groundwater Provinces (2021) https://www.dnr.state.mn.us/waters/groundwater_section/mapping/provinces.html
[164] SPA, p. 76
[165] MDH (2024.) *Minnesota Well Index* https://www.health.state.mn.us/communities/environment/water/mwi/index.html .
[166] SPA, p. 77
[167] Id.

control areas that overlaps to form the access road which minimizes the risk of impacts on private wells in the area.

Indirect impacts could occur through spills or leaks of petroleum fluids or other contaminants that contaminate surface waters which could ultimately contaminate groundwater. The disturbance of soil and vegetative cover could affect water quality in groundwater resources. Once constructed, the impervious surface areas will be approximately 14.8 acres for the Crane project and 13.4 acres for the Sandhill project.[168] For each project, these acres converted to impervious surfaces separately include acreage for shared facilities such as the access road and collector substation.

Geotechnical and pull testing studies will be performed to determine the topsoil and subsoil types, and the mechanical properties of the soils. These variables will be used to engineer the foundations for the BESS containers, substation, and transformers. The BESS foundations design has not yet been selected for the projects; however, if pile foundations were selected the piles are embedded at depths of 8 to 14 feet below grade depending on soil conditions. The BESS foundation design may also be flat concrete foundations.[169]

The electrical collection system is anticipated to be installed below-ground at a depth of at least three feet.

Mitigation

Stormwater management is important to ensure that BESS components maintain their integrity and that rainwater and surface runoff drain away from the project components in a way that does not adversely affect existing drainage systems, roads, or nearby properties. Appropriate permanent stormwater management measures, including minimizing the area of impervious surfaces at the site to reduce the volume and velocity of the stormwater runoff and the establishment of multiple stormwater ponds, will address drainage from the newly established impervious areas.

Because the project will disturb more than one acre, Crane Storage and Sandhill Storage must obtain a Construction Stormwater Permit (CSW) from the MPCA. The CSW Permit will identify BMPs for erosion prevention and sediment control. As part of the CSW Permit, Crane Storage and Sandhill Storage will also develop a SWPPP that describes construction activity, temporary and permanent erosion and sediment controls, BMPs, permanent stormwater management that will be implemented during construction and through the life of the project. Implementation of the protocols outlined in the SWPPP will minimize the potential for soil erosion and detail stormwater management methods during construction and operation of the facility.

Crane Storage and Sandhill Storage propose to construct one stormwater basin per project (two total) to manage stormwater collection and filtration on-site. In accordance with the CWS permit, the stormwater basins will be constructed to prevent adverse impacts to groundwater resources.

---

[168] SPA, p. 80-81

[169] SPA, p. 29

Geotechnical soil testing will be performed to confirm the topsoil and subsoil types, and the mechanical properties of the soils. These variables will be used to determine final installation process for the foundation structures for the BESS foundation systems. Similarly, fencing may be set in concrete foundations as required for structural integrity.

Section 4.3.11 of DSP requires the permittee to obtain a MPCA CSW Permit and implement the BMPs for erosion prevention and sediment control. Impacts to groundwater can also be minimized by mitigating impacts to and soils and surface waters as discussed in Sections 4.7.3 and 4.7.4.

Any new wells require notification to MDH and would be constructed by a well borer licensed by MDH. If any previously unmapped wells are discovered, Crane Storage and Sandhill Storage will cap and abandon the well in place in accordance with MDH requirements.

The applicants state that construction of the two projects is "not likely" to require subsurface blasting; therefore, disturbances to groundwater flow from newly fractured bedrock are not anticipated.[170] Any dewatering required during construction will be discharged to the surrounding surface, thereby allowing it to infiltrate back into the ground to minimize potential impacts. If dewatering of more than 10,000 gallons per day or 1,000,000 gallons per year, a Water Appropriations Permit from DNR is required.[171]

4.7.3 Soils

The ROI for the soils is the land control areas. Impacts to soils will occur during construction and decommissioning of the project. The impact intensity level is expected to be minimal. Potential negative impacts will occur over both the short- and long-term. Isolated moderate to significant negative impacts associated with high rainfall events could occur.

Soil characteristics within the Crane and Sandhill land control areas were accessed using the Soil Survey Geographic database (SSURGO).[172] Table 14 lists the soil types located within the land control areas; soil map units and farmland classification are depicted in Map 6.

Table 14. Soil Types Within the Crane and Sandhill Land Control Areas[173]

Map Unit Symbol	Map Unit Name	Farmland Classification	Hydric Rating	Crane Project (acres)	Sandhill Project (acres)
176	Garwin silty clay loam	Prime farmland if drained	Hydric	5.3	5.6
1832C	Ostrander-Dowagiac loams, 6% - 12% slopes	Farmland of statewide importance	Non-hydric	1.7	6.4

[170] Id.
[171] SPA, p. 77
[172] Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at: http://websoilsurvey.sc.egov.usda.gov/, Accessed November 2024.
[173] SPA, p. 78-79, Table 6.5.4-1

1846	Kato silty clay loam, depressional	Prime farmland if drained	Hydric	--	3.1
203	Joy silt loam, 1% - 4% slopes	All areas are prime farmland	Non-hydric	3.6	1.5
322D2	Timula silt loam, 12% - 20% slopes, moderately eroded	Not prime farmland	Non-hydric	1.0	1.0
369B	Waubeek silt loam, 1% - 6% slopes	All areas are prime farmland	Non-hydric	1.0	1.0
468	Otter silt loam, channeled	Not prime farmland	Hydric	1.1	2.6
493C	Oronoco loam, 6% - 12% slopes	Farmland of statewide importance	Non-hydric	2.5	1.5
N501C2	Downs silt loam, 6% - 12% slopes, moderately eroded	Farmland of statewide importance	Non-hydric	6.4	1.5
N536B	Tama silt loam, driftless 2% - 6% slopes	All areas are prime farmland	Non-hydric	11.8	8.0
N536C2	Tama silt loam, driftless 6% - 12% slopes, moderately eroded	Farmland of statewide importance	Non-hydric	1.9	10.5
			Facility Total	**36.3**	**42.7**

Potential Impacts

The impact intensity level is expected to be low to moderate. Primary impacts to soils include compaction from construction equipment, soil profile mixing during grading and pole auguring, rutting from tire traffic, and soil erosion. Impacts to soils are likely to be greatest with the below-ground electrical collection system. Potentials impacts will be positive and negative, and short- and long-term. Isolated moderate to significant negative impacts associated with high rainfall events could occur.

Construction of the Crane facilities will disturb 35.6 acres and construction of the Sandhill facilities will disrupt 39.9 acres within their respective land control areas. As with any ground disturbance, there is potential for soil compaction and erosion. Heavy rainfall events during construction or prior to establishment of permanent vegetation, increase the risk that significant sedimentation and erosion could occur.

Soil cover and management at the facility will change from cultivated cropland to a mixture of impervious and pervious surfaces. The access road and the area within and surrounding the fenced area (14.8 acres for the Crane project and 13.3 acres for the Sandhill project) will be covered with asphalt or crushed rock, while the remainder of the site will be a mixture of native groundcover plantings and an area that would continue to be used for agriculture. Soil health will likely improve

for the portion of the site that is revegetated with native perennial vegetation for the operating life of the project.

MITIGATION

Several sections of the DSP address soil-related impacts

- Section 4.3.9 requires protection and segregation of topsoil.
- Section 4.3.11 requires the permittee to obtain a MPCA CSW Permit and implement the BMPs within for erosion prevention and sediment control.
- Section 5.6 is a special condition that requires the permittee to develop a VMP that defines how the land control area will be revegetated and monitored over the life of the project. Appropriate seeding rates and timing of revegetation will stabilize soils and improve overall soil health.

4.7.4 Surface Water and Floodplains

The ROI for surface water resources is the land control areas. The impact intensity level is anticipated to be minimal. Direct impacts to surface waters are not expected. Indirect impacts to surface waters might occur. These impacts will be short-term, of a small size, and localized. Impact can be mitigated.

BESS facilities have the potential to impact surface water resources and floodplains. These projects could directly impact water resources and floodplains if these features cannot be avoided through project design. Projects also have the potential to adversely impact surface waters and floodplains though construction activities which move, remove, or otherwise handle vegetative cover and soils. Changes in vegetative cover and soils can change runoff and water flow patterns.

The project is in the Zumbro River Watershed Basin (HUC8; 07040004).[174] The watershed contains over 900,000 acres of surface area and spans across six counties. Land use within the Zumbro River Watershed is dominated by row crops.[175]

No lakes or ponds were identified within the two projects land control areas based on the USFWS National Wetland inventory (NWI) data (Map 7).[176] DNR Hydrography Data and NWI identified one intermittent stream located within the northern portion of the Crane and Sandhill land control areas. It is located within the north central portion of the primary access road temporary workspace.

Floodplains are flat, or nearly flat, land adjacent to a river or stream that experiences occasional or periodic flooding. It includes the floodway, which consists of the stream channel and adjacent areas that carry flood flows, and the flood fringe, which includes areas covered by the flood, but which do

[174] Minnesota DNR, Minnesota's watershed basins. https://www.dnr.state.mn.us/watersheds/map.html
[175] SPA, p. 81
[176] U.S. Fish and Wildlife Service. *National Wetlands, Inventory,* https://www.fws.gov.program/nationial-wetlands-inventory U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.

not experience a strong current. Floodplains prevent flood damage by detaining debris, sediment, water, and ice.

The Federal Emergency Management Agency (FEMA) delineates floodplains and determines flood risks in areas susceptible to flooding. The base flood that FEMA uses, known as the 100-year flood, has a one percent chance of occurring during each year.

At the state level, the DNR oversees the administration of the state floodplain management program by promoting and ensuring sound land use development in floodplain areas in order to promote the health and safety of the public, minimize loss of life, and reduce economic losses caused by flood damages. The DNR also oversees the national flood insurance program for the state of Minnesota. Floodplains are also regulated at the local level.

According to the FEMA website, the project area is mapped as Zone X, which is an area of minimal flood hazard.[177] The nearest mapped 100-year floodplain is Zone A along Cascade Creek, located approximately 3,000 feet from the Crane and Sandhill land control areas.[178]

Under Section 303(d) of the Clean Water Act, states are required to assess all waters of the state to determine if they meet water quality standards, list waters that do not meet standards and update the list biannually and conduct total maximum daily load studies to set pollutant-reduction goals needed to restore waters to the extent that they meet water quality standards for designated uses. The list, known as the 303(d) list, is based on violations of water quality standards. The MPCA has jurisdiction over determining 303(d) waters in the State of Minnesota. There are no waters listed by the MPCA as impaired waters within one mile of the project. The nearest impaired water to the site is 9,550 feet from the norther edge of the Crane and Sandhill land control areas.[179]

Potential Impacts

The project is designed to avoid direct impacts to surface waters by siting away from surface waters.

Construction of the project creates a potential for indirect impacts if sediment or fugitive dust created by excavation, grading, vegetation removal, and construction traffic reaching nearby surface waters.

Mitigation

Standard construction management practices, including but not limited to containment of excavated soils, protection of exposed soils, stabilization of restored soils, and controlling fugitive dust, would minimize the potential for eroded soils to reach surface waters.

---

[177] FEMA, FEMA Flood Map Service Center, https://msc.fema.gov/protal/home
[178] SPA, p. 82
[179] Id.

Best management practices to minimize the impact on surface waters will be utilized as a part of the SWPPP, including but not limited to sediment control, revegetation plans, and management of exposed soils to prevent sediment from entering waterbodies. Preliminary design for the projects also anticipates a stormwater basin for each project to control runoff from the project. There are no waterbodies or watercourses listed on the DNR public Waters Inventory (PWI) in the Crane and Sandhill land control areas. The closest PWI watercourse is Cascade Creek which is located approximately 3,500 feet south of the project's land control areas.

Section 4.3.11 of the DSP requires the permittee to "implement erosion prevention and sediment control practices recommended by the MPCA" and to obtain a CSW Permit. This section also requires the permittee to implement erosion and sediment control measures, grade contours to provide for proper drainage, and restore all disturbed areas to pre-construction conditions. Crane Storage and Sandhill Storage will also develop a SWPPP that complies with MPCA rules and guidelines. The SWPPP describes construction activity, temporary and permanent erosion and sediment controls, BMPs, permanent stormwater management that will be implemented during construction and through the life of the project. Implementation of the protocols outlined in the SWPPP will minimize the potential for soil erosion during construction.

4.7.5 Wetlands

The ROI for wetlands is the land control areas. There are minimal wetlands within the land control area, so impacts to wetlands are anticipated to be minimal. With proper construction management practices, indirect impacts to offsite wetlands can be avoided.

Wetlands are areas with hydric (wetland) soils, hydrophilic (water-loving) vegetation, and wetland hydrology (inundated or saturated during much of the growing season). Wetland types include marshes, swamps, bogs, and fens. Wetlands vary widely due to differences in soils, topography, climate, hydrology, water chemistry, vegetation, and other factors.[180]

Wetlands are important to the health of waterways and communities that are downstream. Wetlands can be one source of hydrology in downstream watercourses and water bodies, detain floodwaters, recharge groundwater supplies, remove pollution, and provide fish and wildlife habitat. Wetland health also has economic impacts because of their key role in fishing, hunting, agriculture, and recreation. During construction, temporary disturbance of soils and vegetative cover could cause sediment to reach wetlands which could in turn affect wetland functionality. The proposed project could temporarily or permanently impact wetlands if these features cannot be avoided through project design.

The applicants assessed the potential for wetlands within the land control areas through the USFWS National Wetland Inventory (NWI). The NWI identified a Palustrine Emergent (PEM) wetland associated with a small stream valley located within the north central portion of the primary access road that will be shared by the Crane and Sandhill projects.[181]

---

[180] USEPA. 2022. *What is a Wetland* https://www.epa.gov/wetlands/what-wetland
[181] SPA, p. 83

A wetland and water way delineation was conducted from July 20 to July 23, 2024, to identify and characterize wetlands and waterways per USACE methodology. The wetland delineation identified seven total wetlands for a total of 4.5 acres. This included six PEM wetlands totaling to 1.7 acres and one 2.5 acre palustrine forested (PFO) / 0.4 acre PEM wetland complex. PEM wetlands identified by the delineation are likely non-jurisdictional, meaning they are not regulated by the WCA or Section of the CWA. PFO wetlands are likely regulated by the WCA and will require coordination with the responsible Local Government Unit (Olmsted County) if necessary.

The Crane project land control area does not intersect delineated wetlands. The northeast boundary of the Sandhill land control intersects one PEM wetland; however, the Sandhill preliminary development area is located approximately 25 feet south of the wetland (Map 7).

Potential Impacts

The Crane and Sandhill project components are not sited within surface waters and all wetlands are avoided.[182] Approximately 14 feet of an ephemeral stream is located within the eastern edge of the primary access road temporary construction workplace. A SWPPP will be developed prior to construction to prevent sediment from enter into adjacent surface waters. There may be potential for temporary, short-term impacts to wetlands outside the site if there is erosion resulting from construction.

Mitigation

The Crane and Sandhill projects have been designed to minimize all impacts to surface waters to the extent practicable. The project components are not sited within surface waters and all wetlands are avoided.

BMPs identified in the SWPPP will minimize potential for sediment to reach offsite wetlands during construction such as, silt fencing (or other erosion control devices), revegetation plans, and management of exposed soils to prevent sediment from entering adjacent surface waters. Stormwater basin's will be constructed to help control runoff during rain events. The applicants will submit an SWPPP to the MPCA for review and approval prior to construction and obtaining coverage under the General Construction Stormwater Permit.

The DSP has two standard conditions that address potential impacts to surface waters:

- Section 4.3.11 of both DSPs require the permittee to "implement erosion prevention and sediment control practices recommended by the [MPCA]" and to "obtain a [CSW Permit]." A CSW Permit requires both temporary and permanent stormwater controls. This section also requires implementation of erosion and sediment control measures, contours graded to provide for proper drainage, and all disturbed areas be returned to pre-construction conditions. North Star Storage will also develop a SWPPP that complies with MPCA rules and guidelines. The SWPPP describes construction activity, temporary and permanent erosion and sediment controls, BMPs, permanent stormwater management that will be

[182] SPA, p. 83

implemented during construction and through the life of the project. Implementation of the protocols outlined in the SWPPP will minimize the potential for soil erosion during construction.

- Section 4.3.13 generally prohibits placement of the BESS or associated facilities in public waters and public waters wetlands. The permit condition does allow for electric collector or feeder lines to cross or be placed in public waters or public waters wetlands subject to permits and approvals by the DNR and the United States Army Corps of Engineers, and local units of government as implementers of the WCA.

4.7.6 Vegetation

The ROI for vegetation is the land control areas. The facility will convert row crop farmland to a mixture of impermeable surface and perennial vegetation for the life of the project. Potential impacts of the facility can be mitigated through development of a VMP.

Both projects are within the Eastern Broadleaf Forest Province (222), the Minnesota and NE Iowa Morainal Section (222M), and the Oak Savanna ecological subsection (222Me).[183] Pre-settlement vegetation was dominated by oak savanna, with smaller areas of tallgrass prairie and maple-basswood forest located on the level to gently rolling areas of the landscape near the center of this ecological subsection. Most of the subsection is heavily farmed, although the pace of urban development has accelerated in the northern portion of this ecological subsection.

Current land-use in the project area's is predominately cultivated agricultural consisting of corn and soybean. Additionally, there are several herbaceous agriculture conservation buffers that divide the crop fields consisting of orchard grass (Dactylus glomerata), timothy (Phleum pratense), smooth brome (Bromus inermis), clovers (Trifolium spp.), and scattered individuals of common milkweed (Asclepias syriaca).[184]

Within the Crane project, active agricultural fields account for 35.3 acres of a 36.3-acre land control area. Of the 35.3 acres, 11.3 will be converted to impervious surfaces, 12.2 acres will be converted to perennial vegetation (grasses), and 11.8 acres will be restored for agricultural used upon completion of the Crane project construction activities.

Within the Sandhill project, active agricultural fields account for 39.7 acres of a 42.7-acre land control area. Of the 39.7 acres, 10.1 will be converted to impervious surfaces, 14.0 acres will be converted to perennial vegetation (grasses), and 15.5 acres will be restored for agricultural used upon completion of the Sandhill project construction activities.

Potential Impacts

Crane Storage estimates that approximately 23.5 acres (including facility components and a re-vegetated area outside the fence line) will be converted from cropland for the life of the facility.

---

[183] DNR – Ecological Classification System- https://www.dnr.state.mn.us/ecs/222Me/index.html

[184] SPA, p. 84

Sandhill Storage estimates that approximately 24.1 acres (including facility components and a re-vegetated area outside the fence line) will be converted from cropland for the life of the facility.

Removal of vegetative cover exposes soils and could result in soil erosion. Temporary or permanent removal of vegetation also has the potential to affect wildlife habitat.

Construction activities could introduce or spread invasive species and noxious weeds and the early phases of site restoration and seeding of native species can result in populations of non-native and invasives species on site.

MITIGATION

Crane Storage and Sandhill Storage will implement the procedures in the projects SWPPP and BMPs to control erosion, prevent sedimentation, and promote soil stabilization in disturbed areas. The planting of perennial vegetation and restoration activities will help prevent erosion and sedimentation and promote soil stabilization long term.

Several sections of the DSP address impacts to vegetation:

- Section 4.3.15 requires the permittee to minimize the number of trees removed.
- Section 4.3.17 requires the permittee to employ BMPs to avoid potential introduction and spread of invasive species and to file an Invasive Species Management Plan prior to construction.
- Section 4.3.18 requires the permittee to take all reasonable precautions to prevent the spread of noxious weeds during construction.
- Section 5.6 is a special condition that requires the permittee to develop a VMP that defines how the land control area will be revegetated and monitored over the life of the project. Appropriate seeding rates and timing of revegetation will stabilize soils and improve overall soil health.

4.7.7 Wildlife and Habitat

The ROI for non-avian wildlife and their habitats is the land control areas, the ROI for birds is the local vicinity. Long-term, minimal positive impacts to small mammals, insects, snakes, etc. would occur. Impacts to large wildlife species, for example, deer, will be negligible. Significant negative impacts could occur to individuals during construction and operation of the project. While most of the site will be covered by crushed rock or asphalt, a portion of the land control areas will provide native habitat for the life of the project. The project does not contribute to significant habitat loss or degradation or create new habitat edge effects. Potential impacts can be mitigated in part through design and BMPs. The impact intensity level is expected to be minimal.

The project landscape is dominated by agriculture and developed areas (roads, railroads, homes, and farmsteads) with the greater surrounding area consisting of agricultural buffer strips and forested areas, creating edge habitats. Wildlife present in this area is likely white-tailed deer, raccoon, coyote, red fox, gray fox, skunk, American toad, garter snake, and a variety of insects including native bees, butterflies, and moths.

Avian species common to the site include red-tailed Hawk, wild turkey, American crow, eastern bluebird, mourning dove, ring-necked pheasant. Common waterfowl like Canada geese and mallards may use the site for short-term foraging after harvest.

The project is located within the Mississippi Flyway, which is a major north-south migration route, and within Eastern Tallgrass Prairie Bird Conservation Region. The USFWS has established Waterfowl Production Areas (WPAs) to protect habitat determined essential to the breeding, resting, and nesting habitat for countless avian and other wildlife species (MDNR, 2023). The Crane and Sandhill projects are not located within or near any WPAs. The National Audubon Society has established Important Bird Areas (IBAs). IBAs are discrete sites that provide essential habitat for one or more bird species and include habitat for breeding, wintering, and/or migrating birds (National Audubon Society, 2022). The Crane and Sandhill projects are not located within or near any IBAs.

POTENTIAL IMPACTS

The impact intensity level is expected to be minimal. Potential impacts will be short- and long-term and can be mitigated.

Non-Avian Wildlife Individuals will be displaced to adjacent habitats during construction. Because the land control area does not provide critical habitat, this should not impact life cycle functions, such as nesting. Direct significant impacts to individuals might occur, that is, small species might be crushed or otherwise killed during construction. Population level impacts are not anticipated.

The project's fencing does create the potential for wildlife impacts. Although deer can jump fences, they can become tangled in both smooth and barbed-wire fences, especially if the wires are loose or installed too closely together.[185] Predators can use fences to corner and kill prey species.[186] Because the two projects have small fenced-in area footprints the overall impact is anticipated to be minimal.

Plastic erosion control netting is frequently used for erosion control during construction and landscape projects and can negatively impact wildlife populations. Wildlife entanglement and death from plastic netting and other plastic materials has been documented in birds, fish, mammals, and reptiles.[187]

Birds: Bird injuries or mortality may occur due to lack of fencing visibility. Local avian species, particularly raptors may be vulnerable to fence collisions.

Habitat There are no DNR wildlife management areas, scientific and natural areas, migratory waterfowl feeding and resting areas, or USFWS Waterfowl Production areas within one mile of the site. The dominant row crop habitat at the site is not crucial to wildlife populations, although the

---

[185] Colorado Division of Wildlife. *Fencing with Wildlife in Mind.* (2009). https://cpw.state.co.us/Documents/LandWater/PrivateLandPrograms/FencingWithWildlifeInMind.pdf, p.. 3.

[186] Marcel Huijser, et al. *Construction Guidelines for Wildlife Fencing and Associated Escape and Lateral Access Control Measures.* (April 2015). http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP25-25%2884%29_FR.pdf, page 27.

[187] DNR. *Wildlife-friendly Erosion Control*. (2013).http://files.dnr.state.mn.us/eco/nongame/wildlife-friendly-erosion-control.pdf.

land control areas may be used as a travel corridor or, occasionally, as a food source (e.g., standing corn).

Following construction, outside of permanent project infrastructure and the converted perennial vegetation area, the land will continue to be used for agricultural purposes. Overall, the project does not contribute to significant habitat loss or degradation or create new habitat edge effects.

MITIGATION

Several sections of the DSP specify measures that will minimize impacts to wildlife:

- Section 5.8 is a special condition that requires the permittee to coordinate with the DNR to ensure that the fence used in the project minimizes impacts to wildlife.
- Section 5.9 is a special condition that requires use of wildlife-friendly erosion control.
- Section 8.13 requires permittees to report "any wildlife injuries and fatalities" to the Commission on a quarterly basis.

Other potential mitigation measures include:

- Checking open trenches and removing any wildlife caught in trenches before backfilling mitigates impacts.
- Once permanent vegetation is established, restricting mowing from April 15 to August 15 will improve the potential for ground nesting habitat.

4.7.8 Rare and Unique Resources

The ROI for rare and unique resources is the local vicinity. The impact intensity level is anticipated to be minimal, as the project avoids identified areas of species occurrence and preferred habitat. No additional mitigation measures are proposed, and impacts can be mitigated.

Construction and operation of large energy facilities may adversely impact rare and unique resources through the taking or displacement of individual plants or animals, invasive species introduction, and habitat loss. Conversely, for some types of projects, sites can be managed to provide habitat. For example, the introduction of native vegetation into a landscape otherwise dominated by cultivated row crops could create habitat for pollinators.

POTENTIAL IMPACTS

Federally-listed Species

The USFWS maintains the Information for Planning and Consultation (IPaC) system to determine whether federally protected species may occur within or adjacent to a given area. The applicant queried the IPaC system to determine whether federally listed species may occur within or adjacent projects land control areas. One threatened species, the Prairie bush-clover (*Lespedeza leptostachya),* one proposed threatened species, the Monarch butterfly (*Danaus Plexippus),* and one experimental population, non-essential species, the whooping crane (*Grus americana),* (Table 15). Each of these species is discussed in detail below.

Table 15. Federally listed, Proposed, and Candidate Species Potentially Present in the Crane and Sandhill Land Control Areas

Common Name	Scientific Name	Listing Status
Prairie Bush-clover	*Lespedeza leptostachya*	Threatened
Monarch Butterfly	*Danaus Plexippus*	Proposed Threatened
Whooping Crane	*Grus americana*	Experimental population, non-essential

Prairie Bush Clover (Lespedeza leptostachya)

Prairie bush clover is a federally and state listed threatened species endemic to tall grass prairies of the upper Mississippi River Valley. Remaining occurrences of the species are generally restricted to remnant prairies. The primary threat to the species is habitat loss, land conversion, and encroachment of non-native and invasive species.[188] There are no records of prairie bush clover or the required habitat within the project area and the probability of species occurrence within the project area is low due to the heavy agricultural use. There are no critical habitats for the prairie bush clover in the site. The project will have no effect on the prairie bush clover.[189]

Monarch Butterfly (*Danaus plexippus*)

The monarch butterfly is a federal candidate species. The species is common throughout Minnesota during summer months and is most frequently found in habitats where milkweed and native plants are common, including roadside ditches, open areas, wet areas, and urban gardens.[190] The project will have no effect on the monarch butterfly.[191]

Whooping Crane (*Grus americana*)

Whooping cranes are designated as a non-essential experimental population in Wisconsin and consultation is not necessary for individual that occur outside a National Wildlife Refuge or a National Park. Suitable habitat for the whooping crane is not present in the projects' land control areas. The project will have no effect on the whooping crane.[192]

Bald Eagles and Golden Eagles

In Minnesota, the bald eagle nesting season is generally January through early July. Bald eagles are primarily found near rivers, lakes, and other waterbodies.[193]

Bald eagles are afforded additional protections under the Bald and Golden Eagle Protection Act, which is administered by the USFWS. Bald eagle incidental take permits and nest removal permits

[188] DNR, Prairie Bush Clover, n.d. https://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=PDFAB27090
[189] SPA, p. 92
[190] DNR, Monarch Butterfly, n.d., https://www.dnr.state.mn.us/insects/monarchbutterfly.html
[191] SPA, p. 92
[192] Id.
[193] DNR, *Bald Eagles in Summer*. https://www.dnr.state.mn.us/birds/eagles/summer.html

are voluntary permits, meaning a project proposer must make the determination to pursue a permit based on the respective risk of their project's potential to take a bald eagle.

Bald eagles typically nest in mature trees near large lakes or streams. There is one wooded area located along the west side of the Crane project and additional narrow bands of forested swales along the eastern edge of the Sandhill project, but preliminary designs avoid these trees. If eagles are found to be nesting in these trees, mitigation measure may include setbacks from nests, timing restriction for construction activities, and possibly seeking a USFWS permit for removal of a nest. The project will not remove any trees or nests, impacts to the bald eagle are not anticipated.

State-listed Resources

Natural Communities

The Minnesota DNR classifies rare plant or animal communities across the state. These include Scientific and Natural Areas, High Conservation Value Forest, Minnesota Biological Survey (MBS) Native Plant Communities, and MBS Sites of Biodiversity Significance.

MBS systematically collects, interprets, and provides baseline data on the distribution and ecology of rare plants, rare animals and native plant communities.[194] There is a site housing DNR Native Plant Communities (Mesic Hardwood Forest System) and is a Minnesota Biological Survey (MBS) site of biodiversity significance (Mantorville 24 SE) about 0.7 miles northwest from the Crane and Sandhill land control areas (Map 8).

State-listed Species

The Division of Ecological and Water Resources within DNR manages the Natural Heritage Information System (NHIS). NHIS data includes federally endangered, threatened, or candidate plant species, and endangered or threatened animal species. The system also includes records of state endangered, threatened, or special concern species. The NHIS database provides a useful source of information, but not the sole source for identifying these resources, as some areas have not been extensively surveyed.

Crane Storage and Sandhill Storage reviewed DNR's NHIS system for potential impacts to state-listed species within one mile of the projects. One endangered species was identified, the Loggerhead Shrike (*Lanius ludovicianus),* (Table 16).

Table 16. State Listed Species Potentially Present Within One Mile of the Crane and Sandhill Land Control Areas

Common Name	Scientific Name	Listing Status
Loggerhead Shrike	*Lanius ludovicianus*	Endangered

[194] DNR. *Minnesota County Biological Surveys*, http://www.dnr.state.mn.us/eco/mcbs/index.html

Loggerhead Shrike (*Lanius ludovicianus)*

The loggerhead shrike is a state-listed endangered species. The species has historically occurred across a large geographic area, throughout most of the continental United States and the southern part of Canada's Prairie Provinces. This species is a summer resident of Minnesota, where it lives in areas of upland grasslands, but it can also be found in agricultural areas with short grass vegetation and perching sites such as hedgerows, shrubs, and small trees. Loggerhead shrikes are found in both native and non-native grasslands, including native prairie, pastures, old fields, shelterbelts, farmyards, and cemeteries. Loggerhead Shrikes are solitary migrants who nest in pairs. Nests are well hidden in trees or brush and are low to the ground, usually less than two meters above the surface. The loggerhead shrike exhibits a unique behavior, individuals impale prey on thorns and barbed wire – an adaptation that allows the species, roughly the size of a robin, to eat large prey even though they lack strong feet and talons.

Some regions within the Loggerhead Shrike's range have experience population declines from factors such as tree encroachment on grassland and increasingly intensive row-cropping practices. The loggerhead shrike population has declined sharply in Minnesota. Dakota County and Clay County are the only counties where loggerhead shrikes have been consistently found over the last 25 years. The factors responsible for this species' decline in Minnesota include habitat destruction and ingestion of contaminated prey, such as grasshoppers treated with an insecticide. However, the reproductive rate and success of this species is high, so if the factors responsible for decline are fully identified and eliminated, the overall population should increase.[195] No harm to the reproduction cycle of the loggerhead shrike is anticipated during construction or operation of the project due to the lack of habitat (trees and shrubs) that the species hides their offspring in within the project areas. Further, the DNR states that loggerhead shrike in the Crane and Sandhill land control areas is unlikely and thus, impacts are not anticipated.[196] Loggerhead shrikes have not been documented in the vicinity of the project so not mitigation measures are needed.

MITIGATION

Techniques for minimizing impacts to wildlife and vegetation also minimize impacts to rare species. Avoiding identified areas of species occurrence or preferred habitat is the preferred mitigation measure. No additional mitigation measures are proposed.

4.7.9 Climate Change

The project has the potential to support the shift of energy production in Minnesota and the Upper Midwest toward carbon-free sources. Construction emissions will have a short- term negligible increase in greenhouse gases that contribute to climate change. The project's design incorporates design elements that minimize impacts from the increase in extreme weather events

[195] DNR, *Loggerhead Shrike,* https://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=ABPBR01030

[196] SPA, p. 92

such as increase flooding, storms, and heat wave events that are expected to accompany a warming climate.

Climate change refers to any significant change in measures of climate lasting for an extended period. Greenhouse gases (GHG) are gaseous emissions that trap heat in the atmosphere and contribute to climate change. These emissions occur from natural processes and human activities. The most common GHGs emitted from human activities include carbon dioxide, methane, and nitrous oxide.

4.7.9.1 POTENTIAL IMPACTS

Construction activities will result in short-term increases in GHG emissions from the combustion of fossil fuels in construction equipment and vehicles.

Table 17 provides an estimate of GHG emissions for the construction of the Project. [197] The estimate is based on the type of equipment used, duration of the project and the estimated fuel consumption to determine the total amount of gas and diesel fuel used during construction of the Project. Energy Storage systems, such as BESS, produce almost no GHGs during operations. While there are potential annual emissions from sources including on-site vehicle traffic and staff commuter traffic, emissions during project operation will be minimal and are not presented in Table 17.

Table 17. Crane and Sandhill Construction Related Greenhouse Gas Emissions (in tons) [198]

Construction Activity	CO_2	CH_4	N_2O	CO_2e
Crane Project				
Off-road engine emissions	479.96	0.02	0.00	481.53
Commenters and delivery vehicles	1,144.43	0.00	0.00	1,144.3
Sandhill Project				
Off-road engine emissions	479.96	0.02	0.00	481.53
Commenters and Delivery Vehicles	1,144.43	0.00	0.00	1,144.43
Shared Facilities: Substation, Gen-Tie Line, Primary Access Road				
Off-Road Engine Emissions	162.16	0.01	0.00	162.70
Commuters and Delivery Vehicles	-	-	-	-
Total – Crane Project	1,786.55	0.03	0.00	1,788.66
Total – Sandhill Project	1,786.55	0.03	0.00	1,788.66

Note: CO_2 = carbon dioxide; CH_4 = methane; 1 short ton CH_4 = 28 short tons CO_2e; N2O = nitrous oxide; 1 short ton N_2O = 265 short tons CO_2e; CO_2e = carbon dioxide equivalent

[197] SPA, Appendix F – Emissions Calculations

[198] SPA, p. 75, Table 6.5.2-1

Total GHG emissions for project construction are estimated to be approximately 1,786.55 tons of carbon dioxide (CO_2) for the Crane project and approximately 1,786.55 tons of CO_2 for the Sandhill project. The project's construction emissions are an insignificant amount relative to Minnesota's overall emissions of approximately 126 million tons in 2022.[199] Potential impacts due to construction GHG emissions are anticipated to be negligible.

Once operational, the project will generate minimal GHG emissions. Emissions that do occur would result from vehicle usage to and from the facility for maintenance and operation.

To the extent that the storage provided by the project reduces curtailment of generation from renewable resources such as wind and solar, it could reduce the use carbon-fueled power plants (e.g., coal, natural gas) that might step in to meet demand and reduce GHG from those sources.

A warming climate is expected to cause increased flooding, storms, and heat wave events. These events, especially an increased number and intensity of storms, could increase risks to the project. More extreme storms also mean more frequent heavy rainfall events. Climate and weather impacts are considered in the design of the facility and include impacts from extreme storms such as stormwater runoff, strong winds and hail. The FEMA National Risk Index[200] rates Olmsted County as having "relatively low" hazard risk overall, with higher risk for losses due to winter weather and tornados.

When widely deployed, BESS systems can enable greater integration of renewable energy and maintain grid stability and provide backup power during extreme weather events.

MITIGATION

Mitigation to reduce emissions during construction is discussed in the Air Quality section of this EA. Strategies to reduce emissions include keeping vehicles in good working order, which will reduce the amount GHG emissions from diesel or gasoline.

Project developers can employ location, design, and construction strategies to mitigate impacts resulting from a warmer, wetter, and more energetic climate by:

- Avoiding sites with high probability for extreme weather events to the extent possible.
- Designing facility components to withstand snow loads as well as stronger storms and winds.
- Designing the project's stormwater system to prevent flooding during heavy rainfall events.
- Designing the project's electrical collection system to be resistant to flooding damage.

---

[199] MPCA, n.d., Minnesota Greenhouse Gas Inventory, https://data.pca.state.mn.us/views/Greenhousegasemissionsdata/TotalGHGemissionsgoals?%3Aembed=y&%3AisGuestRedirectFromVizportal=y (accessed March 28, 2025)

[200] FEMA National Risk Index. https://hazards.fema.gov/nri/

The Crane and Sandhill projects have been designed with resiliency in mind as the climate continues to change in Minnesota. Crane and Sandhill Project equipment will be carefully engineered and selected to withstand the potential for an increase in the frequency of severe weather events. Similarly, the stormwater management system has been designed using National Oceanic and Atmospheric Administration Atlas-14, a modeling tool that provides precipitation frequency estimates for many of the Midwestern states, including Minnesota.[201]

4.8 Unavoidable Impacts

Resource impacts are unavoidable when an impact cannot be avoided even with mitigation strategies.

Potential impacts and the possible ways to mitigate against them were discussed earlier in this chapter. However, even with mitigation strategies, certain impacts cannot be avoided. Most adverse unavoidable impacts are associated with construction; therefore, they would be temporary.

Unavoidable adverse effects associated with construction of the project (in some instances a specific phase of construction) would last through construction and include:

- Fugitive dust.
- Noise disturbance to nearby residents and recreationalists.
- Visual disturbance to nearby residents and recreationalists.
- Soil compaction and erosion.
- Vegetative clearing.
- Disturbance and temporary displacement of wildlife, as well as direct impacts to wildlife inadvertently struck or crushed.
- Minor amounts of marginal habitat loss.
- Possible traffic delays.

Unavoidable adverse impacts associated with the operation would last as long as the life of the project, and include:

- Visual impacts of the project.
- Noise disturbance to nearby residents.
- Cultural impacts due to a change in the sense of place for local residents.
- Loss of land for agricultural purposes.
- Injury or death of birds and mammals from fencing.

[201] SPA, p. 74

4.9 Irretrievable or Irreversible Impacts

Resource commitments are irreversible when it is impossible or very difficult to redirect that resource to a different future use; an irretrievable commitment of resources means the resource is not recoverable for later use by future generations.

Irreversible and irretrievable resource commitments are primarily related to project construction, including the use of water, aggregate, hydrocarbons, steel, concrete, wood, and other consumable resources. Some, like fossil fuel use, are irretrievable. Others, like water use, are irreversible. Still others might be recyclable in part, for example, the raw materials used to construct batteries and enclosures would be an irretrievable commitment of resources, excluding those materials that may be recycled at the end of useful life. The commitment of labor and fiscal resources to develop, construct, and operate the project is considered irretrievable.

4.10 Resource Topics Receiving Abbreviated Analysis

Resource topics that will have negligible impacts from the project and that do not impact the Commission's site permit decision receive less study and analysis.

Many environmental factors and associated impacts from a project are analyzed during the environmental review process. However, if impacts are negligible and will not impact the permit decision, those resource impacts receive less study and analysis. The following resource topics meet this threshold, which is based on information provided by the applicant, field visits, scoping comments, environmental analysis, and staff experience with similar projects.

4.10.1 Displacement

Displacement can occur when residences or other buildings are located within a proposed site or right-of-way. If the buildings would potentially interfere with the safe operation of a project, they are typically removed from the site or ROW and relocated. Displacements from large energy facilities are rare and are more likely to occur in heavily populated areas where avoiding all residences and businesses is not always feasible than in rural areas where there is more room to adjust site boundaries or ROWs to accommodate the proposed energy facility.

There are no residences, business, or structures such as barns or sheds located within the site, and none will be displaced by the project. No mitigation is proposed.

4.10.2 Communications

Electronic interference from the proposed project is not anticipated. The project area is served by several AM and FM radio stations and digital television channels. There are no radio, microwave, or television towers are located within the site. Landline telephone service to the project area is provided by Citizens Communications Company, Frontier Communications and Qwest Corporation. Mobile service Cellular phone service in the service area is provided by national carriers.

Because the BESS facilities are relatively low (less than 20 feet), they are well below the line of site used in many communication system signals. Electronic interference associated with

communications infrastructure and devices including agricultural navigation systems is not anticipated.

Section 4.3.21 of the DSP requires the permittee to take whatever action is feasible to restore or provide equivalent reception should interference occur to "radio or television, satellite, wireless internet, GPS-based agriculture navigation systems or other communication devices" as a result of the project. Additional mitigation is not proposed.

4.10.3 Forestry

Active forestry operations, including commercial timber harvest, woodlots, or other forestry resources do not occur within the land control area. Impacts to forestry operations will not occur and no mitigation is proposed.

4.10.4 Mining

Construction of the project will require the use of sand and aggregate for backfill and access roads. The demand for sand and gravel will be temporary and is not expected to require new or expanded sand or aggregate operations.

There are no quarries or gravel pits within or adjacent to the site.[202] Through sale of lease of the land used for the facility, the current landowners choose energy production as the higher and greater economic use. Impacts to mining will not occur and no mitigation is proposed.

4.11 Cumulative Potential Effects

Cumulative potential effects result from the incremental effects of a project in addition to other projects in the environmentally relevant area.

Minnesota Rule 4410.0200, subpart 11a, defines "cumulative potential effects," in part, as the "effect on the environment that results from the incremental effects of a project in addition to other projects in the environmentally relevant area that might reasonably be expected to affect the same environmental resources, including future projects ... regardless of what person undertakes the other projects or what jurisdictions have authority over the project."

The "environmentally relevant area" includes locations where the potential effects of the project coincide with the potential effects of other projects to impact the elements studied in this EA.

Consideration of cumulative potential effects is intended to aid decision-makers so that they do not make decisions about a specific project in a vacuum. Effects that may be minimal in the context of a single project may accumulate and become significant when all projects are considered.

[202] MDO, Aggregate Source Information System Map, 2023, https://www.dot.state.mn.us/materials/asis_GE.html (accessed March 6, 2025)

4.11.1 Analysis Background

The ROI for cumulative potential effects varies across elements and is consistent with the ROI identified in Potential Impacts and Mitigation throughout this document. Cumulative potential effects—where they coincide—increase or decrease the breadth of the impact to the resources and elements studied in Potential Impacts and Mitigation. This may or may not change the impact intensity level assigned to the resource or element.

Cumulative potential effects are impacts to the environment that results from "the incremental effects of a project in addition to other projects in the environmentally relevant area that might reasonably be expected to affect the same environmental resources, including future projects actually planned or for which a basis of expectation has been laid, regardless of what person undertakes the other projects or what jurisdictions have authority over the projects."[203]

The "environmentally relevant area" includes locations where the potential effects of the project coincide with the potential effects of other projects to impact the elements studied in this EA. Generally, this area includes the ROI for the different resource elements.

Commission staff contacted local governments, MnDOT, the Environmental Quality Board's interactive project database, and Olmsted County to identify foreseeable projects. Reasonably foreseeable projects are identified in Table 18.

Cumulative effects are discussed here for projects that are reasonably foreseeable in the next five years in the project area. It is assumed that the construction-related impacts of these projects are short-term, for example, construction impacts will cause local disturbances, such as increased noise levels, and traffic delays/and reroutes. Thus, the discussion here is focused on the potential long-term impacts of these projects.

Table 18. Current and Reasonably Foreseeable Future Projects

Project	Location	Anticipated Timeframe	Description
Byron Solar Project	Mantorville and Canisteo townships in Dodge County and Kalmar Township, Olmsted County (transmission line only)	2027	A 200 MW solar facility located on approximately 1,800 acres, and interconnecting at the Byron Substation through approximately three miles of 345 kV transmission line The Commission issued site and route permits in 2023. The project has not yet been built.

[203] Minn. R. 4410.0200, subp. 11a

Snowshoe BESS	Kalmar Township, Olmsted County	2027	A 150 megawatts (MW) alternating current (AC) BESS with approximately 600 megawatt-hours (MWh) of energy capacity on a site of approximately 28 acres in Kalmar Township, Olmsted County, Minnesota. The Commission issued a site permit for the project in September 2025.

Where cumulative effects are anticipated, a written description is provided. Where cumulative potential effects are not anticipated no further analysis is provided. For the purposes of this EA, actions that have occurred in the past and their associated impacts are considered part of the existing environmental and were analyzed in this section.

4.11.2 Human Settlement

Cumulative potential effects on human settlements are anticipated to be moderate. Some projects would have positive effects on human settlements by improving transportation and safety. Future energy projects will result in aesthetic impacts.

The increase in renewable energy projects and energy storage projects in the area may increase tension in the project area between renewable energy and rural character.

4.11.3 Public Health and Safety

Cumulative potential effects on public health and safety are anticipated to be minimal to moderate. Impacts on public health and safety as a result of the Crane BESS and Sandhill BESS are anticipated to be moderate to significant (Section 4.4.2). The addition of battery storage facilities introduces potential public safety hazards from thermal runaway events. Response to thermal runaway events and fires at BESS facilities requires specialized training. Employing best practices in facility design and operation, including identifying hazards and developing training for emergency responders can mitigate potential impacts

4.11.4 Land-based Economies

Cumulative potential effects on land-based economies are anticipated to be minimal. Additional energy infrastructure will result in conversion of agricultural land from production to power generation and storage, but the loss of agricultural land is anticipated to be minimal overall.

4.11.5 Archaeological and Historical Resources

Because archaeological resources are unidentified, cumulative potential effects are unknown. With proper mitigation measures, impacts to these resources can be minimized.

4.11.6 Natural Resources

Cumulative potential effects on the natural environment are anticipated to be minimal to moderate. Most of the foreseeable projects are in cultivated agricultural areas resulting in minimal loss of high-

quality habitat. Wildlife might be inadvertently harmed or killed during construction. The overall impact intensity level is expected to remain minimal.

4.11.7 Rare and Unique Resources

Cumulative potential effects on rare and unique natural resources are expected to be minimal since there are relatively few rare and unique species in the project area, and there are no direct impacts to high quality habitat

5 Sources

All links were valid as of April 4, 2025.

American Clean Power, *Energy Storage Emergency Response Plan Template* (2022) https://cleanpower.org/wp-content/uploads/gateway/2022/11/ACP_Energy_Storage_Emergency_Response_Plan_Template.pdf

City of Byron

- *Byron Comprehensive Plan.* (2022). https://www.byronmn.com/vertical/sites/%7BAB4DA627-110F-4DDB-A83D-A27638C29D9A%7D/uploads/22.01__FINAL_FINAL_FINAL_-_Comp_Plan_December_2022.pdf

- *City of Byron, Utilities and Services*, https://www.byronmn.com/newresidentinfo

Colorado Division of Wildlife. *Fencing with Wildlife in Mind.* (2009). https://cpw.state.co.us/Documents/LandWater/PrivateLandPrograms/FencingWithWildlifeInMind.pdf

Explore Minnesota

- *2023 Leisure & Hospitality Industry Data.* (n.d.) https://mn.gov/tourism-industry/assets/2023%20MN%20L%26H%20Data_tcm1135-665060.pdf

- 2024. *Visitor Trends & County-Level Reports,* https://mn.gov/tourism-industry/assets/2023%20Minnesota%20Visitr%20Trends%20-%20Final_tcm1135-615178.pdf

Federal Aviation Administration, *Fundamentals of Noise and Sound* (2022), retrieved from: https://www.faa.gov/regulations_policies/policy_guidance/noise/basics/.

Florida Department of State. *Rule 62-814.450 Electric and Magnetic Field Standards*. (2008). https://www.flrules.org/gateway/ruleNo.asp?id=62-814.450.

Huijser,Marcel Huijser, et al. *Construction Guidelines for Wildlife Fencing and Associated Escape and Lateral Access Control Measures.* (2015). http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP25-25%2884%29_FR.pdf, page 27.

Kalmar, 2018, *Kalmar Zoning Ordiances, https://static1.squarespace.com/static/65c59372531c377505e93070/t/65c5ab9ed505ea71375f6707/1707453344917/Kalmar_Update_2016_FINAL.pd*

Minnesota Department of Commerce, *Rights-of-way and Easements for Energy Facility Construction and Operation* (2022), https://apps.commerce.state.mn.us/eera/web/project-file/12227 .

Minnesota Department of Economic Employment and Development (DEED).

- Economic Development Region 10: Central, 2024 Regional Profile. (2024), https://mn.gov/deed/assets/2024_Region10_tcm1045-133257.pdf
- County Profile: Olmsted County. (2024) https://mn.gov/deed/assets/012725_olmsted_tcm1045-407643.pdf

Minnesota Department of Health

- MDH (2024.) Minnesota Well Index https://www.health.state.mn.us/communities/environment/water/mwi/index.html
- MDH. 2024. Source Water Protection Web Map Viewer, https://www.health.state.mn.us/communities/environment/water/swp/mapviewer.html , map viewer available at https://mdh.maps.arcgis.com/apps/View/index.html?appid=8b0db73d3c95452fb45231900e977be4

Minnesota Department of Natural Resources

- Ecological Classification System: Ecological Land Classification Hierarchy. (n.d.) https://www.dnr.state.mn.us/ecs/index.html
- *Loggerhead Shrike*. (n.d.) https://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=ABPBR01030.
- Minnesota County Biological Survey,(n.d.) http://www.dnr.state.mn.us/eco/mcbs/index.html
- Minnesota Groundwater Provinces (2021) https://www.dnr.state.mn.us/waters/groundwater_section/mapping/provinces.html
- Rochester Plateau Subsection, https://www.dnr.state.mn.us/ecs/222Lf/index.html
- Wildlife-friendly Erosion Control. (2013). http://files.dnr.state.mn.us/eco/nongame/wildlife-friendly-erosion-control.pdf.
- Natural Heritage Information System, (n.d.) http://www.dnr.state.mn.us/nhnrp/nhis.html
- Minnesota's watershed basins. https://www.dnr.state.mn.us/watersheds/map.html

Minnesota Department of Revenue, *Battery energy Storage Systems: Property Tax Treatment* (2023), https://www.revenue.state.mn.us/battery-energy-storage-systems

Minnesota Department of Transportation, *Utility Accommodation on Highway Right of Way:* (2023). https://www.dot.state.mn.us/policy/operations/oe002.html

Minnesota Pollution Control Agency

- *The Air We Breathe: The State of Minnesota's Air Quality, January 2025 Report to the Legislature* (2025), https://www.pca.state.mn.us/sites/default/files/lraq-1sy25.pdf
- Annual AQI Days by Reporting Region, https://data.pca.state.mn.us/views/Minnesotaairqualityindex/AQIExternal?%3Aembed=y&%3AisGuestRedirectFromVizportal=y
- Environmental Justice Website, https://www.pca.state.mn.us/about-mpca/environmental-justice#:~:text=The%20MPCA%20is%20committed%20to,laws%2C%20regulations%2C%20and%20policies
- A Guide to Noise Control in Minnesota. (2015). https://www.pca.state.mn.us/sites/default/files/p-gen6-01.pdf
- *Understanding Environmental Justice in Minnesota* (n.d.), https://experience.arcgis.com/experience/bff19459422443d0816b632be0c25228/page/Page/?views=EJ-areas

Olmsted County

- Olmsted County Future Land Use Map *(2022)*, https://www.olmstedcounty.gov/sites/default/files/2020-10/Land%20Use%20Plan%20Map.pdf
- Olmsted County General Land Use Plan *(2022)*, https://www.olmstedcounty.gov/sites/default/files/2023-01/GLUP2045Final.pdf
- Olmsted County Zoning Ordinance, Code of Ordinance Chapter 1400, Article V, Section5.0, https://www.olmstedcounty.gov/sites/default/files/2024-05/Chapter%201400%20Zoning%20Ordinance_2023_0.pdf

National Cancer Institute. *Magnetic Field Exposure and Cancer*. (2022). http://www.cancer.gov/about-cancer/causes-prevention/risk/radiation/magnetic-fields-fact-sheet .

National Fire Protection Association, NFPA 85: Standard for the Installation of Stationary Energy Storage Systems, https://www.nfpa.org/product/nfpa-855-standard/p0855code#2023-edition-details

National Institute of Environmental Health Sciences.

- Electric and Magnetic Fields, (2024). http://www.niehs.nih.gov/health/topics/agents/emf/index.cfm.

- EMF: Electric and Magnetic Fields Associated with the Use of Electric Power. (2002). https://www.niehs.nih.gov/health/materials/electric_and_magnetic_fields_associated_with_the_use_of_electric_power_questions_and_answers_english_508.pdf

Rochester, *Planning 3 Succeed: Rochester Comprehensive Plan 2040 (2018)*, https://www.rochestermn.gov/home/showpublisheddocument/24222/636903969909230000 ,

State of Minnesota, State Interagency Working Group on EMF Issues *A White Paper on Electric and Magnetic Field (EMF) Policy and Mitigation Options* (2002), https://apps.commerce.state.mn.us/eera/web/project-file?legacyPath=/opt/documents/EMF%20White%20Paper%20-%20MN%20Workgroup%20Sep%202002.pdf

UL Research Institutes. *What is Thermal Runaway* (2021), https://ul.org/research/electrochemical-safety/getting-started-electrochemical-safety/what-thermal-runaway

US Census, https://data.census.gov/profile/Olmsted_County,_Minnesota?g=050XX00US27109#employment

U.S. Geological Survey. *The National Land Cover Database*. (2012), http://pubs.usgs.gov/fs/2012/3020/fs2012-3020.pdf.

US Department of Transportation, National Pipeline Mapping System Public Viewer, https://pvnpms.phmsa.dot.gov/PublicViewer/

United States Department of Agriculture, *2022 Census of Agriculture, County Profile: Olmsted County, Minnesota* (n.d), https://www.nass.usda.gov/Publications/AgCensus/2022/Online_Resources/County_Profiles/Minnesota/cp27109.pdf

US Environmental Protection Agency, *What is a Wetland (*2022) https://www.epa.gov/wetlands/what-wetland

World Health Organization,

- Extremely Low Frequency Fields. (2007). https://www.who.int/publications/i/item/9789241572385

- *Radiation: Electromagnetic Fields, What are typical exposure levels at home and in the environment?* (2016). https://www.who.int/news-room/questions-and-answers/item/radiation-electromagnetic-fields

GEOSPATIAL SOURCES:

Minnesota Department of Natural Resources.

- *Minnesota County Boundaries*. Available from https://gisdata.mn.gov/.
- Minnesota Land Cover Classification System (2022). Available from https://gisdata.mn.gov/
- *Public Waters Inventory (PWI) Basin and Watercourse Delineations*. Available from https://gisdata.mn.gov/
- *National Wetland Inventory of Minnesota*. (2015). https://resources.gisdata.mn.gov/pub/gdrs/data/pub/us_mn_state_dnr/water_nat_wetlands_inv_2009_2014/metadata/metadata.html#Distribution_Information

Minnesota Department of Transportation.

- *Roads, Minnesota, 2012*. Available from https://gisdata.mn.gov/.
- *County Boundaries in Minnesota*. Available from https://gisdata.mn.gov/.

Minnesota Pollution Control Agency.

- *Impaired Waterbodies*, Minnesota, 2024. Available from https://gisdata.mn.gov/
- *Impaired Streams*. 2024. Available from https://gisdata.mn.gov/

Olmsted County Zoning Boundaries (2025). Available from https://webapp.co.olmsted.mn.us/shoppingcart/site/Planning/GIS/default.aspx

U.S. Geological Survey, *NLCD 2019 Land Cover Conterminous United States*. Available from https://www.mrlc.gov/data

U.S. Census, 2020 Census Tracts and Counties (2020). Available from https://gisdata.mn.gov/dataset/us-mn-state-metc-society-census2020tiger

Appendix A

Scoping Decision

Page intentionally left blank

MINNESOTA
PUBLIC UTILITIES COMMISSION

In the Matter of the Joint Application of Crane Energy Storage LLC and Sandhill Energy Storage LLC for their respective Site Permits for an up to 200 MW Battery Energy Storage System each in Olmsted County, Minnesota.

ENVIRONMENTAL ASSESSMENT SCOPING DECISION

DOCKET NOS. IP-7148/ESS-24-406, IP-7149/ESS-24-407

The above matter has come before the Executive Secretary of the Minnesota Public Utilities Commission (Commission) for a decision on the scope of the environmental assessment (EA) to be prepared for the Crane battery energy storage system (BESS) project (Crane project) and the Sandhill BESS project (Sandhill project) in Olmsted County, Minnesota. The Commission is reviewing this application under Minnesota Statute 216E (2023).

Project Description

On March 5, 2025, Crane Energy Storage, LLC, and Sandhill Energy Storage, LLC, (applicants) submitted a joint site permit application to the Commission to construct the Crane project and the Sandhill project – independent BESSs, each with a maximum capacity of up to 200 megawatts (MW) alternating current (AC) and a storage capacity of approximately 800 megawatt-hours (MWh) of electricity.[1] The application was accepted by the Commission as substantially complete on April 29, 2025.[2]

The two projects will be located on adjacent parcels in Kalmart Township, Olmsted County, Minnesota. The Crane project will be on a site of approximately 36.3 acres and the Sandhill project will be on a site of approximately 42.7 acres.[3] Because the two projects will share the primary access road, collector substation, and gen-tie line, there is about 19.2 acres of overlap between the two sites and this area is accounted for in each project description.[4]

In addition to the battery energy storage enclosures, the facilities will also include their respective inverters, transformers, stormwater drainage basins, storage and parking areas, perimeter fencing, emergency management system, battery management system, a collector substation, underground electrical collection and communication lines, and a gen-tie line.[5] These facilities will be connected to the electric grid through a 161 kilovolt (kV) gen-tie line of approximately 700 feet between the shared project substation and the Bryon Substation owned and operated by the Southern Minnesota Municipal Power Agency (SMMPA).

The applicants filed a generator interconnection agreement (GIA) application for the project with the Midcontinent Independent System Operator (MISO) in 2022 and anticipate signing a GIA in the first

[1] Crane Energy Storage, LLC, and Sandhill Energy Storage, LLC, *Joint Site Permits Application*, March 5, 2025, herein (SPA), eDockets No. 20253-216062-02.
[2] Public Utilities Commission, *Order accepting Crane Energy Storage, LLC, and Sandhill Energy Storage LLC, Joint Site Permits Application as Substantially Complete,* April 29, 2025, eDockets No. 20254-218258-01.
[3] SPA, p. 13 & p. 17
[4] SPA p. 17 & p. 66
[5] SPA, p.23

quarter of 2026.[6] The applicants anticipate that construction for the Crane project will begin first quarter 2027 and construction for the Sandhill project will begin third quarter 2027.[7] The Crane project and the Sandhill Project are being marketed separately to potential off-takers and may/or may not be constructed within the same twelve-month period.[8] Estimated cost for development and construction of the Crane project is $340-440 million with estimated annual operating costs of $2-3 million.[9] Estimated cost for development and construction of the Sandhill project is $340-440 million with estimated annual operating costs $2-3 million.[10]

Project Purpose

The applicants indicate that the Crane and Sandhill projects will assist Minnesota in reaching its renewable energy objectives by bringing emission-free firm energy to the electric grid and allowing wind and solar resources to continue producing energy during unserviceable weather conditions.

According to the American Clean Power Association, general key benefits associated with battery energy storage systems (BESS) include enhancing grid stability and reliability, decreasing grid interruptions during influx power demands, reducing costs for consumers, and supporting the shift to renewable energy generation.[11] Locally, the applicants indicate that the projects will aid the region's ongoing transition to renewables, ensure reliable electric service in the area, and provide significant economic benefits to residents.[12]

Regulatory Background

In Minnesota, no person may construct an energy storage system (ESS), defined as a facility capable of operating at a capacity of 10 MW or more,[13] without a site permit from the Commission.[14] The Crane and Sandhill projects will be capable of producing up to 200 MW AC each and therefore require a site permit from the Commission. The joint site permit application qualifies for Commission review under the alternative permitting process described in Minnesota Statue 216E.04.[15] The project does not require a certification of need from the Commission because the project is exempt under Minnesota Statue 216B.243, subd.8(9).

Commission Energy Infrastructure Permitting (EIP) staff will prepare an environmental assessment (EA) for the project. An EA contains an overview of the resources affected by the project. It also discusses potential human and environmental impacts and possible mitigation measures.[16] Under the alternative permitting process, an EA is the only required state environmental review document.

[6] SPA, p. 16
[7] SPA, p. 6
[8] SPA, p. 1
[9] SPA, p.16
[10] SPA, pp.20-21
[11] SPA p. 5
[12] SPA, p. 1
[13] Minnesota Statue 216.01, subd. 3a., Edition Year 2023
[14] Minnesota Statue 216.03, subd. 1., Edition Year 2023
[15] Minnesota Statue 216E.04, subd. 2., Edition Year 2023 (noting those projects that are eligible to proceed under an alternative permitting process). The review of site permit applications for energy storage systems submitted after July 1, 2025, will be conducted by the Commission in accordance with Minnesota Statute 216I (2024). The Crane and Sandhill joint site permit application was received prior to July 1, 2025, and thus is being reviewed in accordance with Minnesota Statute 216E (2023).
[16] Minnesota Statute 216E.04, subd. 5, Edition Year 2023; Minn. Rule 7850.3700, subp. 4, Published 2024.

Scoping Process

Scoping is the first step in the environmental review process. The scoping process has two primary purposes: (1) to gather public input as to the impacts and mitigation measures to study in the EA and (2) to focus the EA on those impacts and mitigation measures that will aid in the Commission's decision on the site permit application.

Staff use the information gathered during scoping to inform the content of the EA. EIP staff gathered input on the scope of the EA through public meetings and an associated comment period. This scoping decision identifies the impacts and mitigation measures that will be analyzed in the EA.

Oral Public Comments

On June 25, 2025, staff held a public meeting in Bryon, Minnesota. Three individuals from the public attended this meeting and one attendee provided comments. Potential impacts and concerns that were raised included fire safety compliance, water contamination, and run off associated with the project. The following evening, June 26, 2025, staff held a remote-access public meeting. Three people attended this meeting, and one attendee provided comments in support of the project; no concerns with the project were raised.[17]

Written Public Comments

A comment period ending on July 10, 2025, provided the public with an opportunity to provide input on the scope of the EA. Four written comments received from the public – three comments from labor unions and one comment from a state agency.[18]

Labor Unions

Local Union #6,[19] IUOE Local 49, and the North Central States Regional Council (NCSRC) of Carpenters[20] all expressed support for the project and recommended the EA examine local economic impacts.

Minnesota Department of Natural Resources

The Minnesota Department of Natural Resources (DNR) provided comments on the potential impacts of the proposed fencing, lighting impacts, dust control, erosion control measures, and the Vegetation Management Plan (VMP).[21] The DNR recommended increasing the fence height to 10 feet and advises against barbed wire. The DNR also recommended the use of downlit lighting that minimizes blue hues, backlight, and glare, avoidance of dust control methods containing chlorides, and the use of wildlife-friendly erosion control as mitigation measures to minimize impacts to wildlife and the environment. Lastly, the DNR recommended the VMP for the project be consistent with the DNR's Prairie Establishment and Maintenance Technical Guidance for Solar Projects, which is applicable guidance for vegetation establishment and management for the surrounding Crane and Sandhill project boundary.

[17] Crane and Sandhill BESS Projects, *Oral Comments on the Scope of Environmental Assessment*, eDockets No. 20257-221121-01
[18] Crane and Sandhill BESS Projects, *Written Comments on the Scope of Environmental Assessment*, eDockets No. 20257-221374-01
[19] Local Union #6, *Comment -- Jeremy Andrist*, March 25, 2025, eDockets No. 20253-216794-01
[20] IUOE Local 49 and NCSRC of Carpenters, *Joint Comment*, July 10, 2025, eDockets No. 20257-220850-01
[21] DNR, *Comment*, July 10, 2025, eDockets No. 20257-220849-01

The DNR also provided a Natural Heritage Review Letter[22] for the project which determines if the proposed project has the potential to impact any rare species or other significant natural features. The letter identified one state-listed species, the loggerhead shrike. The review letter noted that the presence of this bird is unlikely in the project area; therefore, impacts are not anticipated.

HAVING REVIEWED THE MATTER, consulted with EIP staff, and in accordance with Minnesota Rule 7850.3700, I hereby make the following scoping decision:

MATTERS TO BE ADDRESSED

The EA will describe the project and the human and environmental resources of the project area. It will provide information on the potential impacts of the project as they relate to the topics outlined in this scoping decision and possible mitigation measures. It will identify impacts that cannot be avoided and irretrievable commitments of resources, as well as permits from other government entities that may be required for the project. The EA will discuss the relative merits of the proposed project site with respect to the siting factors in Minnesota Rule 7850.4100.

The issues outlined below will be analyzed in the EA for the project. This outline is not intended to serve as a table of contents for the document itself.

I. GENERAL DESCRIPTION OF THE PROJECT

A. Project description
B. Project purpose
C. Project schedule
D. Project costs

II. REGULATORY FRAMEWORK

A. Site permit
B. Environmental review
C. Public hearing
D. Site permit decision
E. Other permits and approvals

III. PROJECT DESIGN, CONSTURCTION, AND OPERATION

A. Project description (batteries, enclosures, inverters, transformers, substation and transmission intertie, electrical collector system, other associated facilities)
B. Site acquisition
C. Construction
D. Restoration
E. Operation and maintenance
F. Vegetation management
G. Decommissioning

[22] DNR, *Comment -- Natural Heritage Review Letter*, July 10, 2025, eDockets No. 20257-220849-02

IV. AFFECTED ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATIVE MEASURES

The EA will include a discussion of the human and environmental resources potentially impacted by the project. Potential impacts of the project will be described and characterized. Based on the impacts identified, the EA will describe mitigation measures that could reasonably be implemented to reduce or eliminate the identified impacts. The EA will describe any unavoidable impacts resulting from implementation of the project.

Data and analyses will be commensurate with the level of impact for a given resource and the relevance of the information to consider mitigation measures. EIP staff will consider the relationship between the cost of data and analyses and the relevance and importance of the information in determining the level of detail of information to be prepared for the EA. Less important material may be summarized, consolidated, or simply referenced.

If relevant information cannot be obtained within timelines prescribed by statute and rule, the costs of obtaining such information is excessive, or the means to obtain it is unknown, EIP staff will include in the EA a statement that such information is incomplete or unavailable and the relevance of the information in evaluating potential impacts or alternatives.

A. Environmental Setting

B. Impacts on Human Settlements
   1. Noise
   2. Aesthetics (lighting, appearance of project components, fencing)
   3. Displacement
   4. Socioeconomic impacts (local revenues, taxes, employment, environmental justice)
   5. Cultural values
   6. Zoning and land use compatibility
   7. Public services
   8. Communications and electronic interference

C. Public Health and Safety
   1. Electric and magnetic fields
   2. Worker and public safety

D. Impacts on Land Based Economies
   1. Agriculture
   2. Forestry
   3. Mining
   4. Recreation and tourism

E. Impacts to Archaeological and Historic Resources

F. Impacts to the Natural Environment
   1. Air quality
   2. Vegetation
   3. Wildlife

4. Geology and soils
5. Water resources (surface water, groundwater, wetlands)
6. Rare and unique natural resources

G. Greenhouse Gas Emissions

H. Climate Change and Climate Resilience

I. Electric System Reliability

J. Adverse impacts that Cannot be Avoided

K. Irreversible and Irretrievable Commitments of Resources

L. Cumulative Potential Impacts

ISSUES OUTSIDE THE SCOPE OF THE EA

The EA will not address following topics:

A. The need for the project, including questions of size, type, timing, and alternative system configurations.

B. Any impacts related to the manufacture of the elements of the project including batteries.

C. The manner in which landowners are compensated for the project.

SCHEDULE

The EA is anticipated to be completed and available in November 2025. Upon completion, it will be noticed and made available for review. Public hearings will be held after the EA has been issued. Comments on the EA may be submitted into the hearing record.

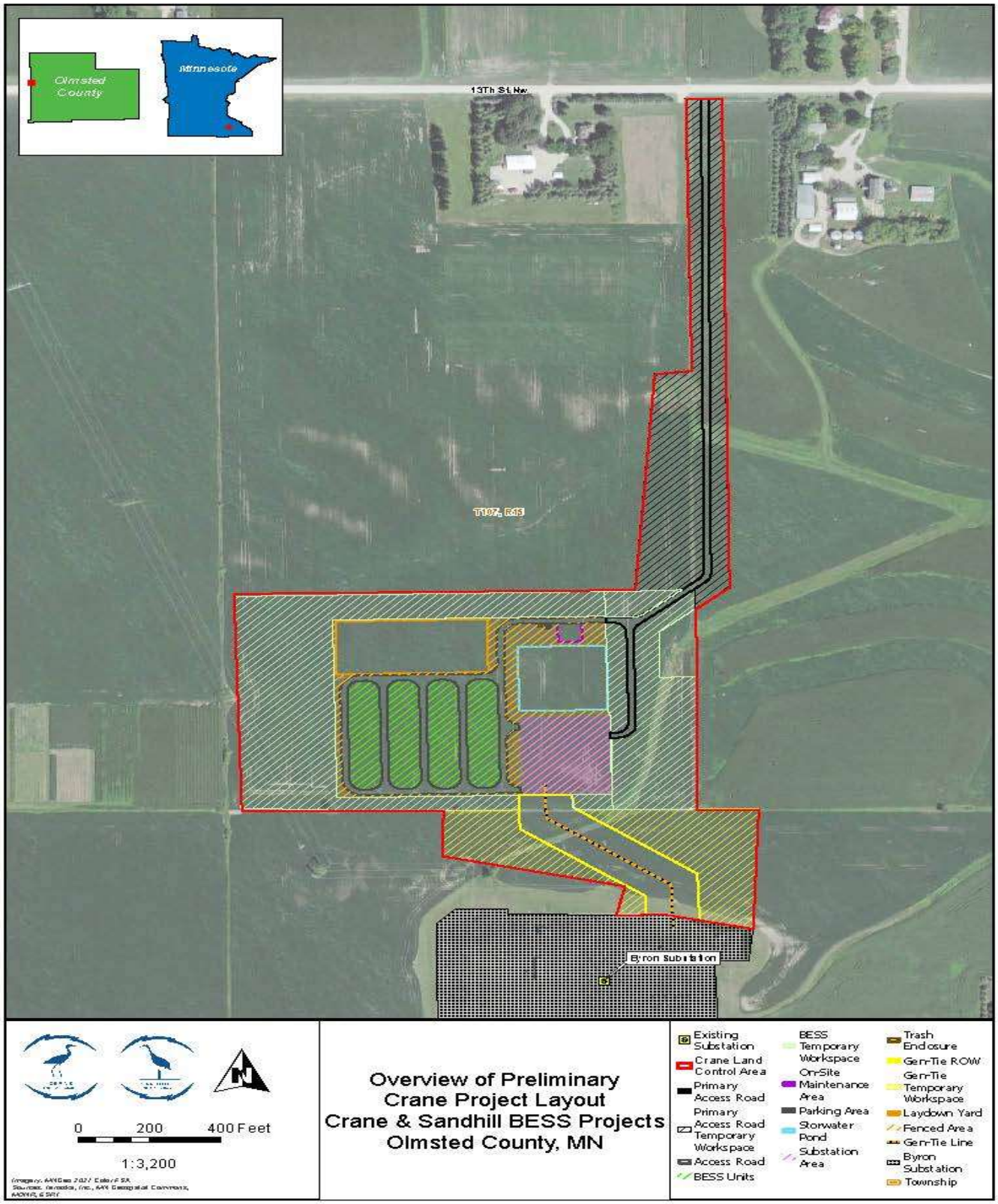
Signed this 14th day of August ,2025

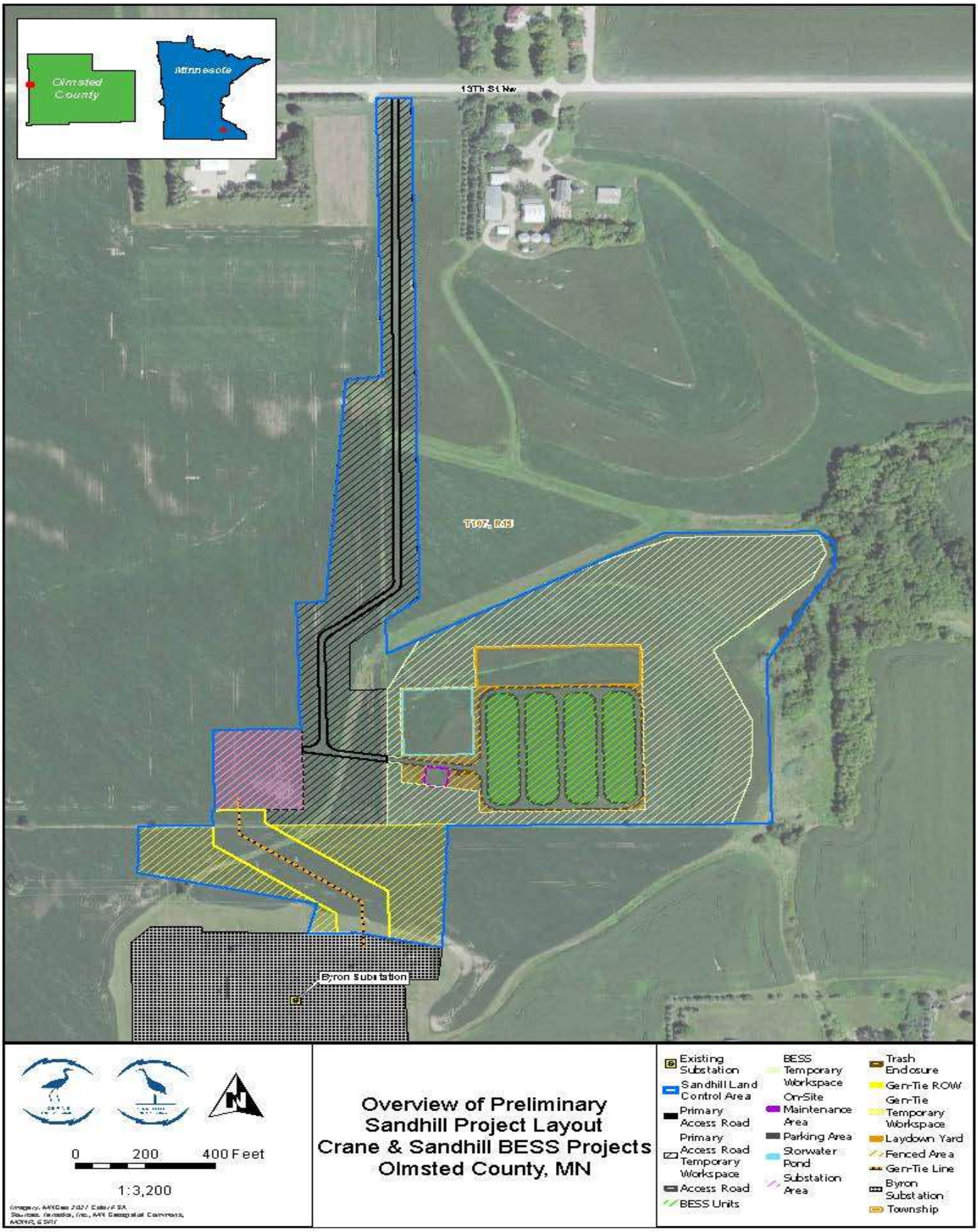
STATE OF MINNESOTA
MINNESOTA PUBLIC UTILTIES COMMISSION

_____

Mike Bull, Acting Executive Secretary

PROJECT MAPS

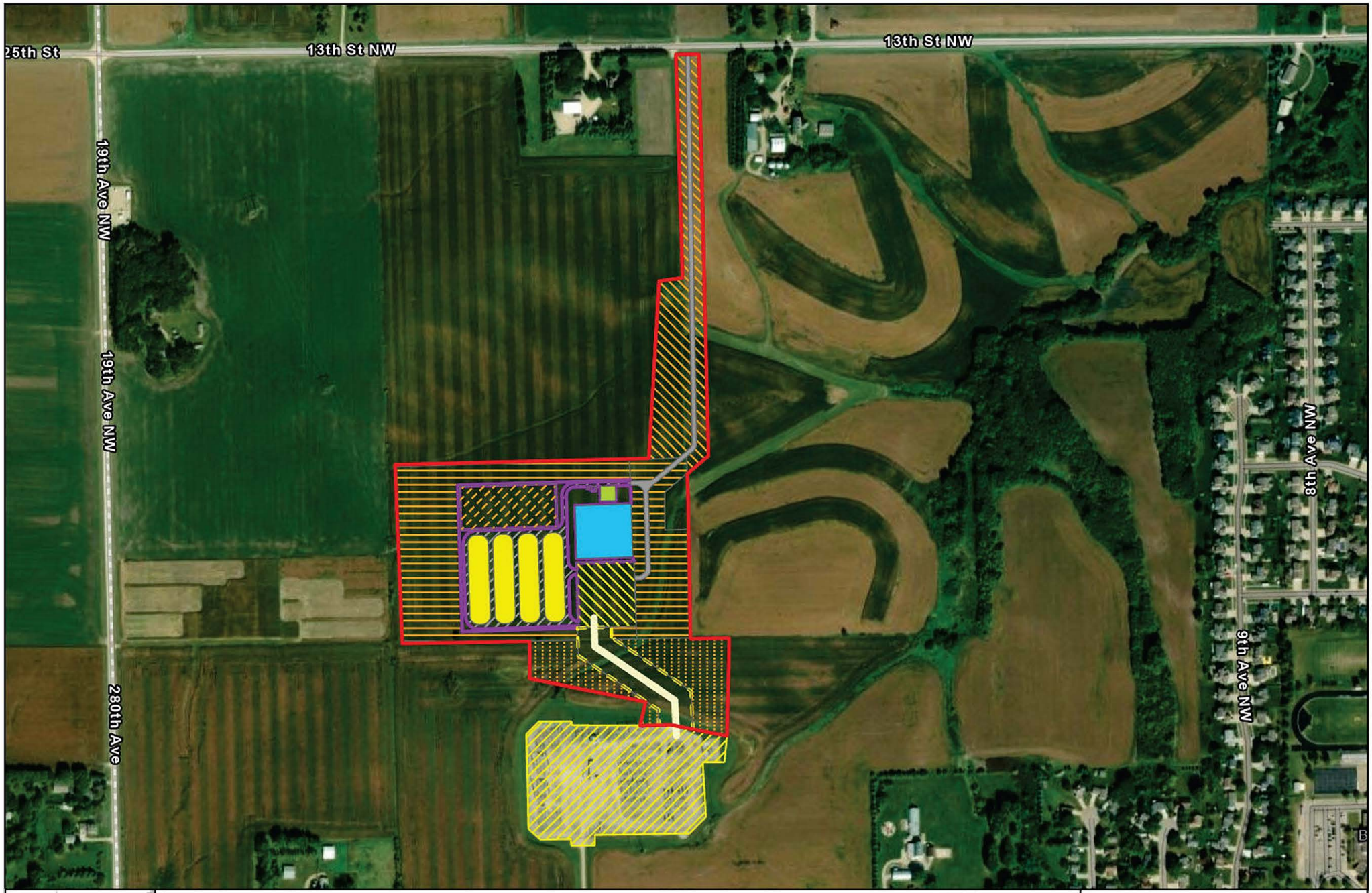



Olmsted County
Minnesota
13Th St Nw
T107, R15
Byron Substation
0
200
400 Feet
1:3,200
Overview of Preliminary Sandhill Project Layout
Crane & Sandhill BESS Projects
Olmsted County, MN
Existing Substation
Sandhill Land Control Area
Primary Access Road
Primary Access Road Temporary Workspace
Access Road
BESS Units
BESS Temporary Workspace
On-Site Maintenance Area
Parking Area
Stormwater Pond
Substation Area
Trash Enclosure
Gen-Tie ROW
Gen-Tie Temporary Workspace
Laydown Yard
Fenced Area
Gen-Tie Line
Byron Substation
Township

Appendix B

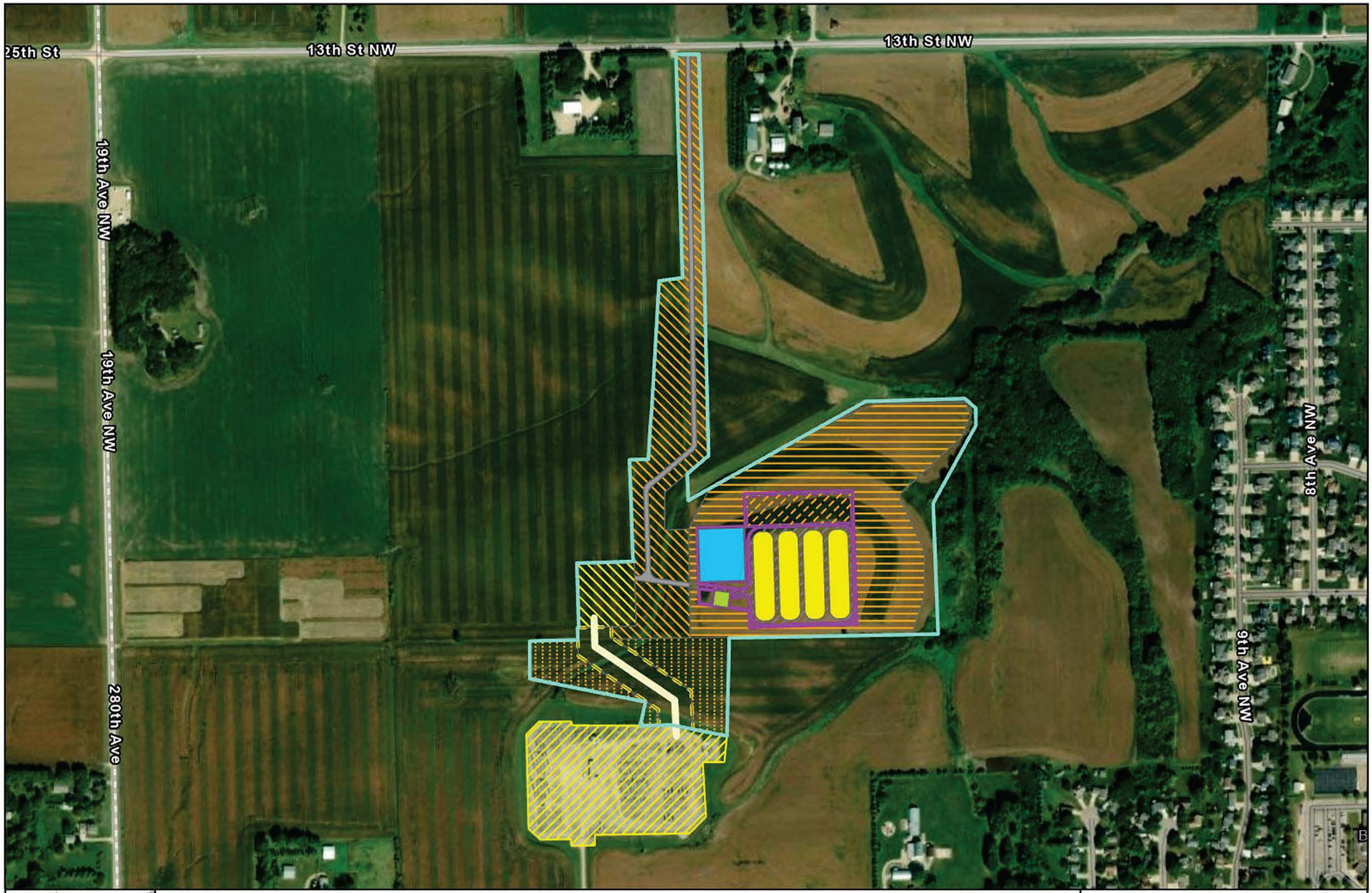
Maps

Page intentionally left blank



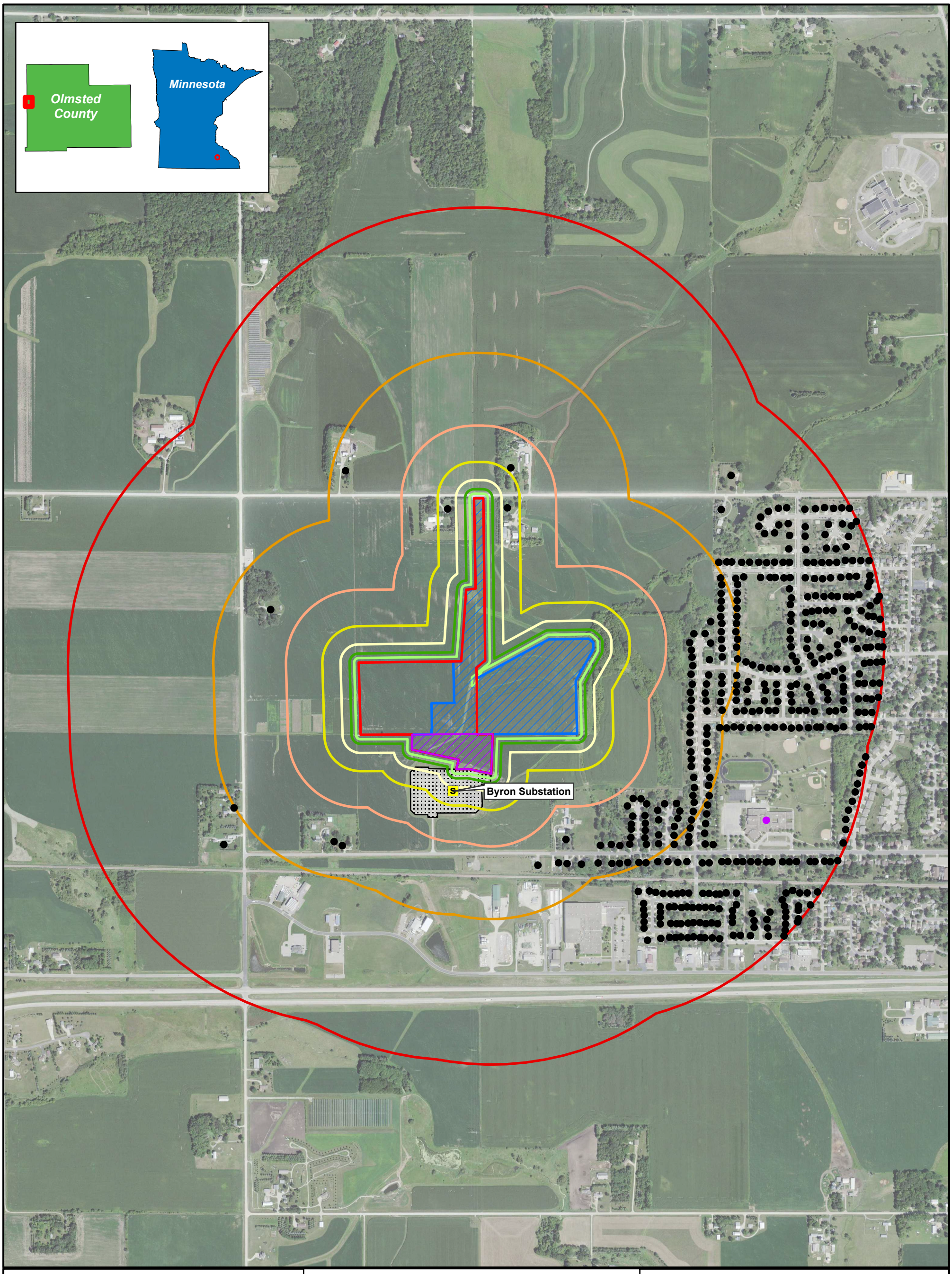
Map 1a: Project Overview - Crane Energy Storage Project Olmsted County, Minnesota

MINNESOTA PUBLIC UTILITIES COMMISSION



Map 1b: Project Overview - Sandhill Energy Storage Project Olmsted County, Minnesota

MINNESOTA PUBLIC UTILITIES COMMISSION



0 750 1,500 Feet

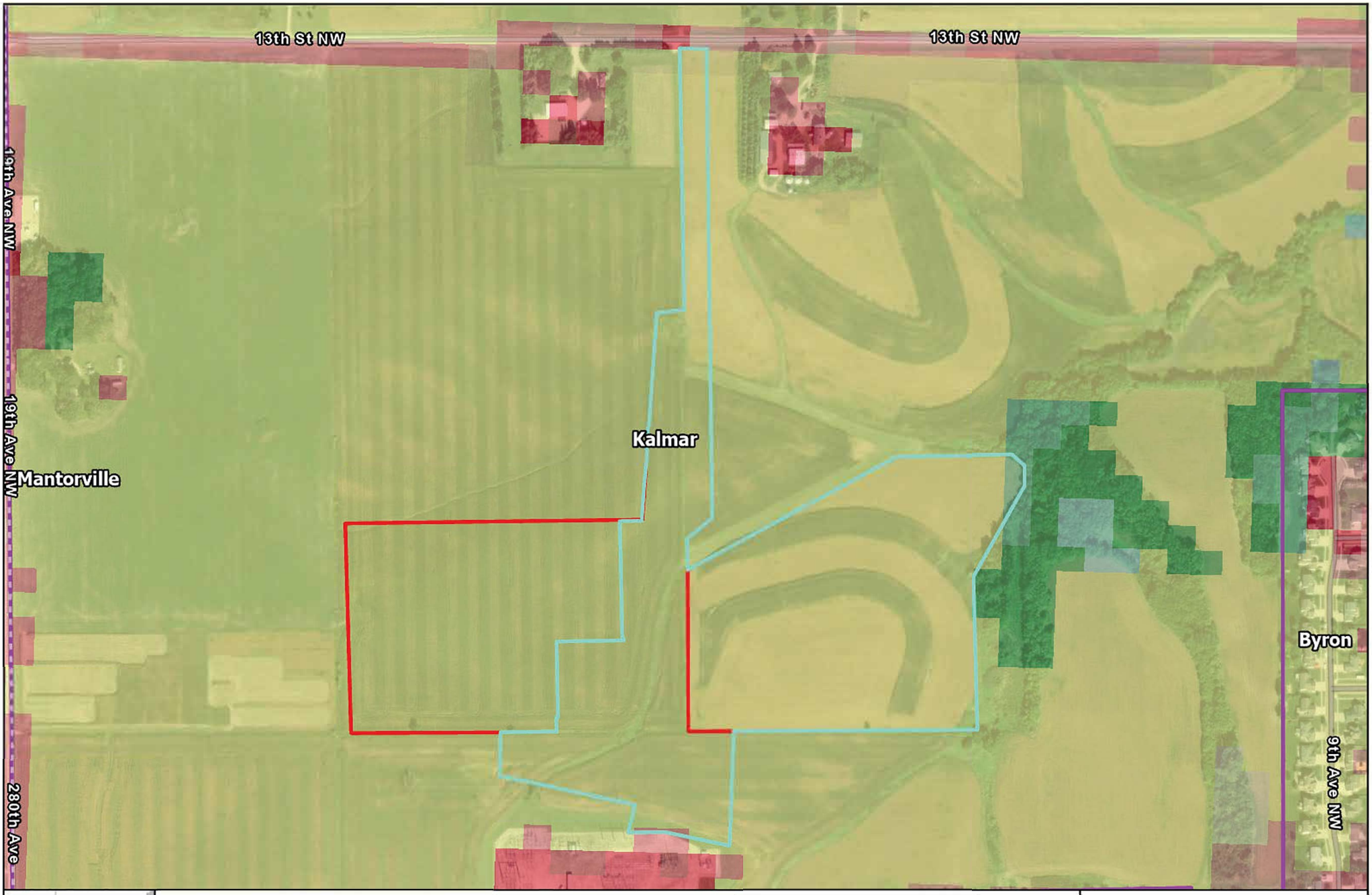
1:12,000

Imagery: MNGeo 2021 Color FSA
Sources: Tenaska, Inc., MN Geospatial Commons, MDNR, ESRI

Map 2:
Noise Sensitive Areas - Crane & Sandhill BESS Projects Olmsted County, MN

- Existing Substation
- Crane Land Control Area
- Sandhill Land Control Area
- Gen-Tie Development Area
- Byron Substation
- Residence
- School

Noise Buffer (Ft)
- 50
- 100
- 200
- 400
- 800
- 1600
- 3200



Crane Land Control Area
Sandhill Land Control Area
City and Township Boundaries
Developed Open Space
Developed Low Intensity
Developed Medium Intensity
Developed High Intensity
Deciduous Forest
Grassland/Herbaceous
Pasture/Hay
Cultivated Crops
Woody Wetlands
Emergent Herbaceous Wetlands

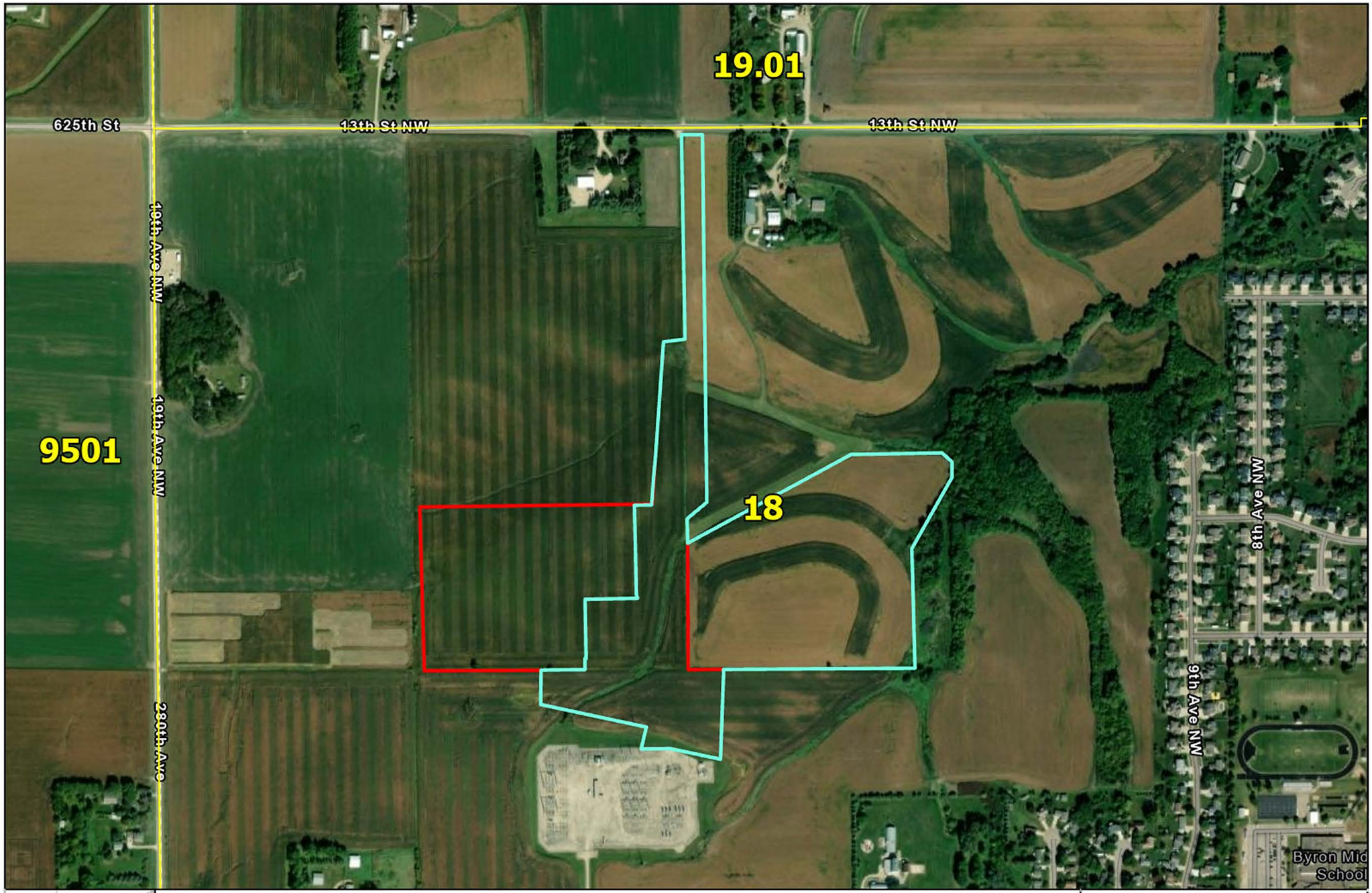
N

300 150 0 300

Feet

Map 3: Land Use - Crane and Sandhill BESS Projects
Olmsted County, Minnesota

MINNESOTA
PUBLIC UTILITIES COMMISSION



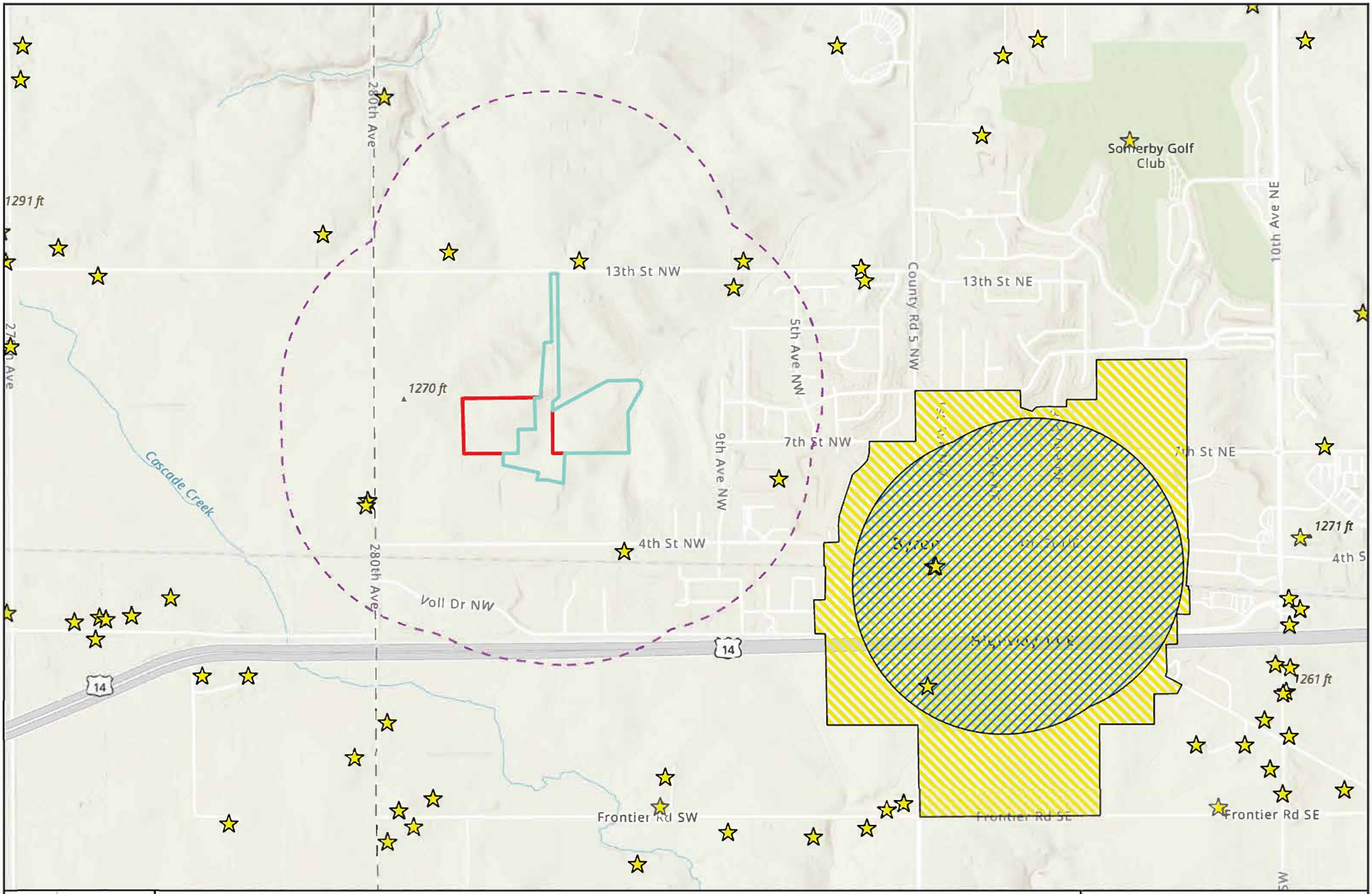
Crane Land Control Area
Sandhill Land Control Area
Census Tracts

N

500 250 0 500
Feet

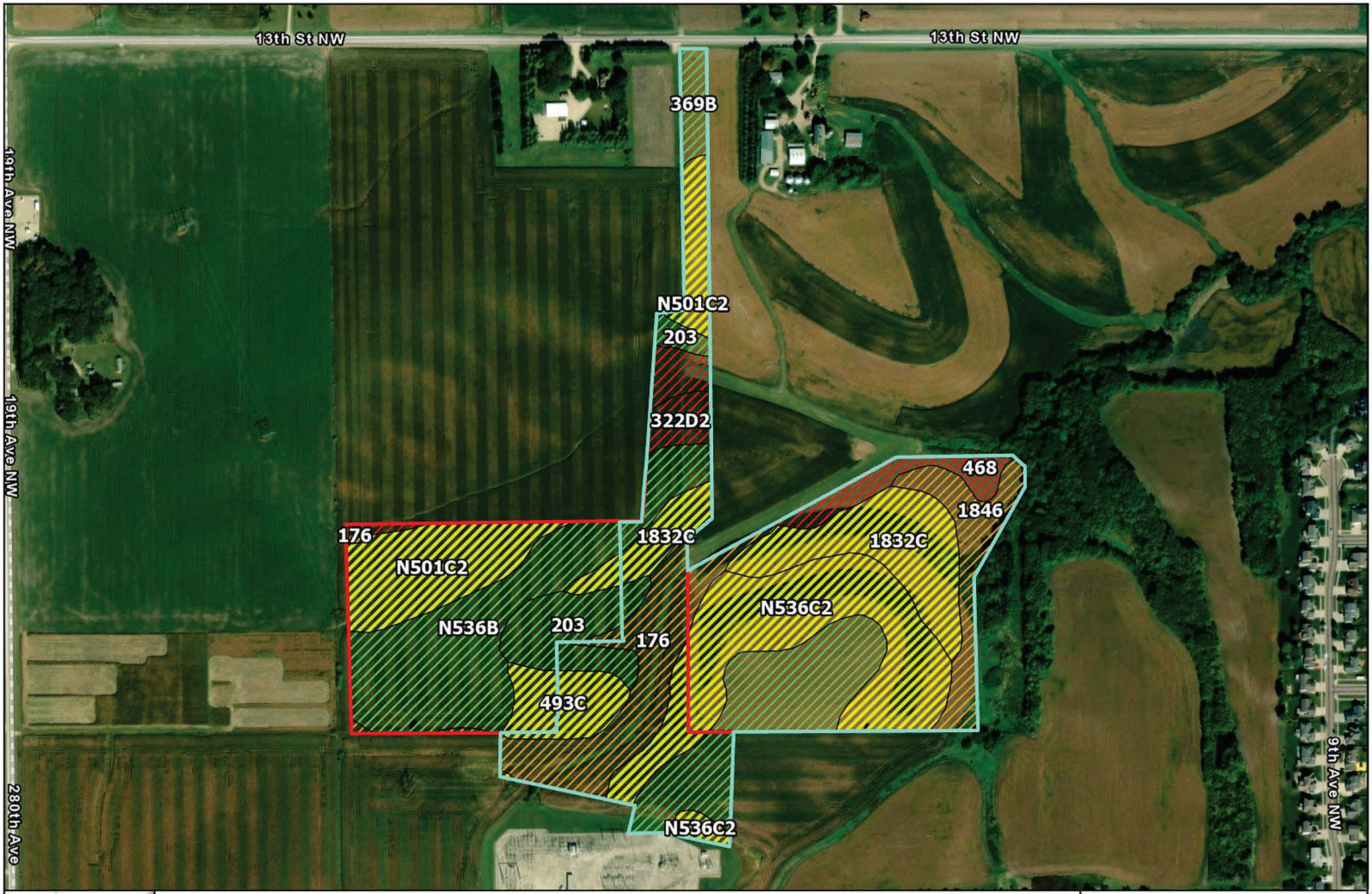
Map 4: USA Census Tracts - Crane and Sandhill BESS Projects
Olmsted County, Minnesota

MINNESOTA
PUBLIC UTILITIES COMMISSION



Map 5: Groundwater Resource - Crane and Sandhill BESS Projects
Olmsted, County Minnesota

MINNESOTA PUBLIC UTILITIES COMMISSION



Crane Land Control Area
Sandhill Land Control Area
Prime Farmland

Farmland of statewide importance
Not prime farmland
Prime farmland if drained

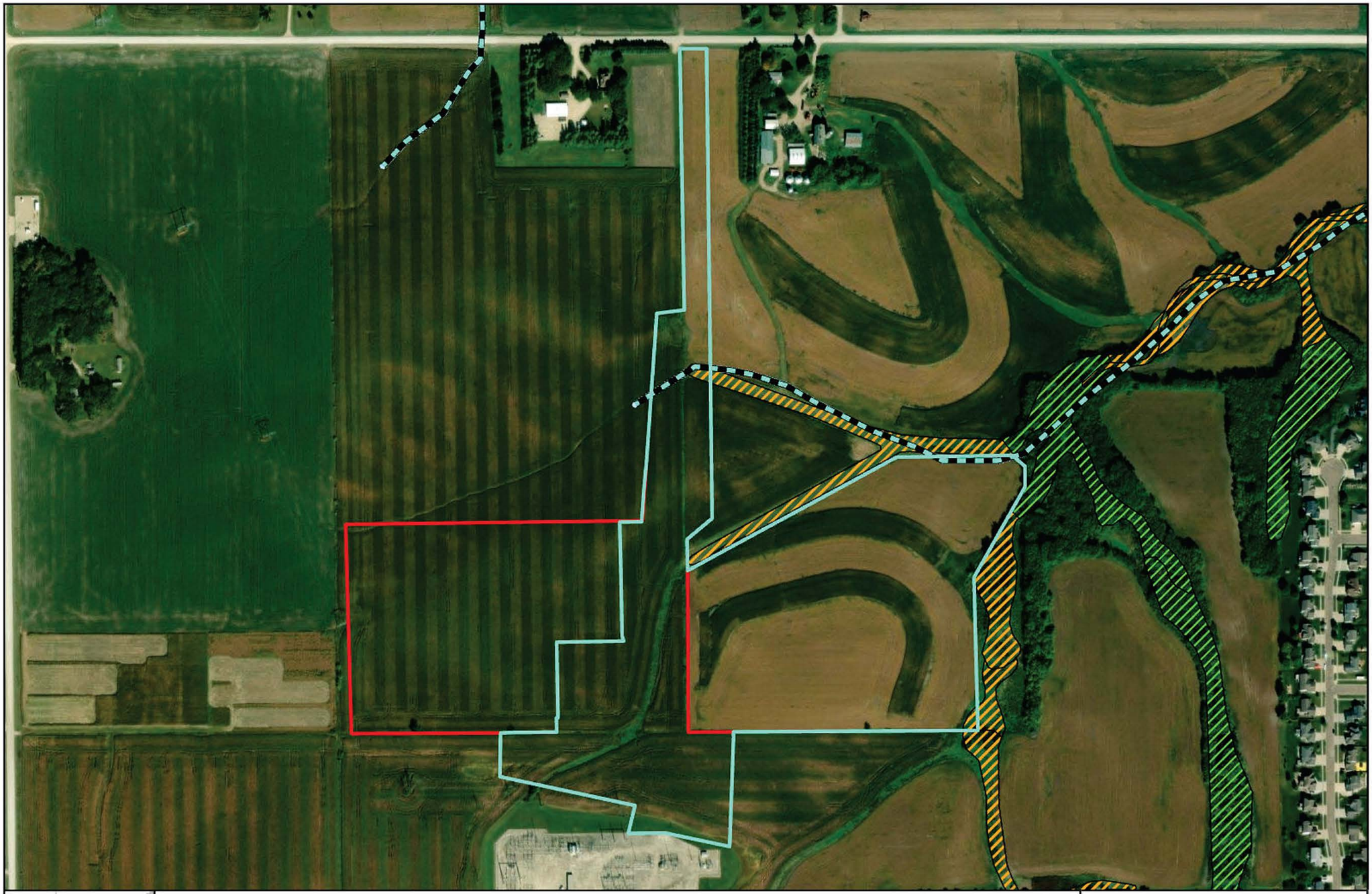
N

300 150 0 300

Feet

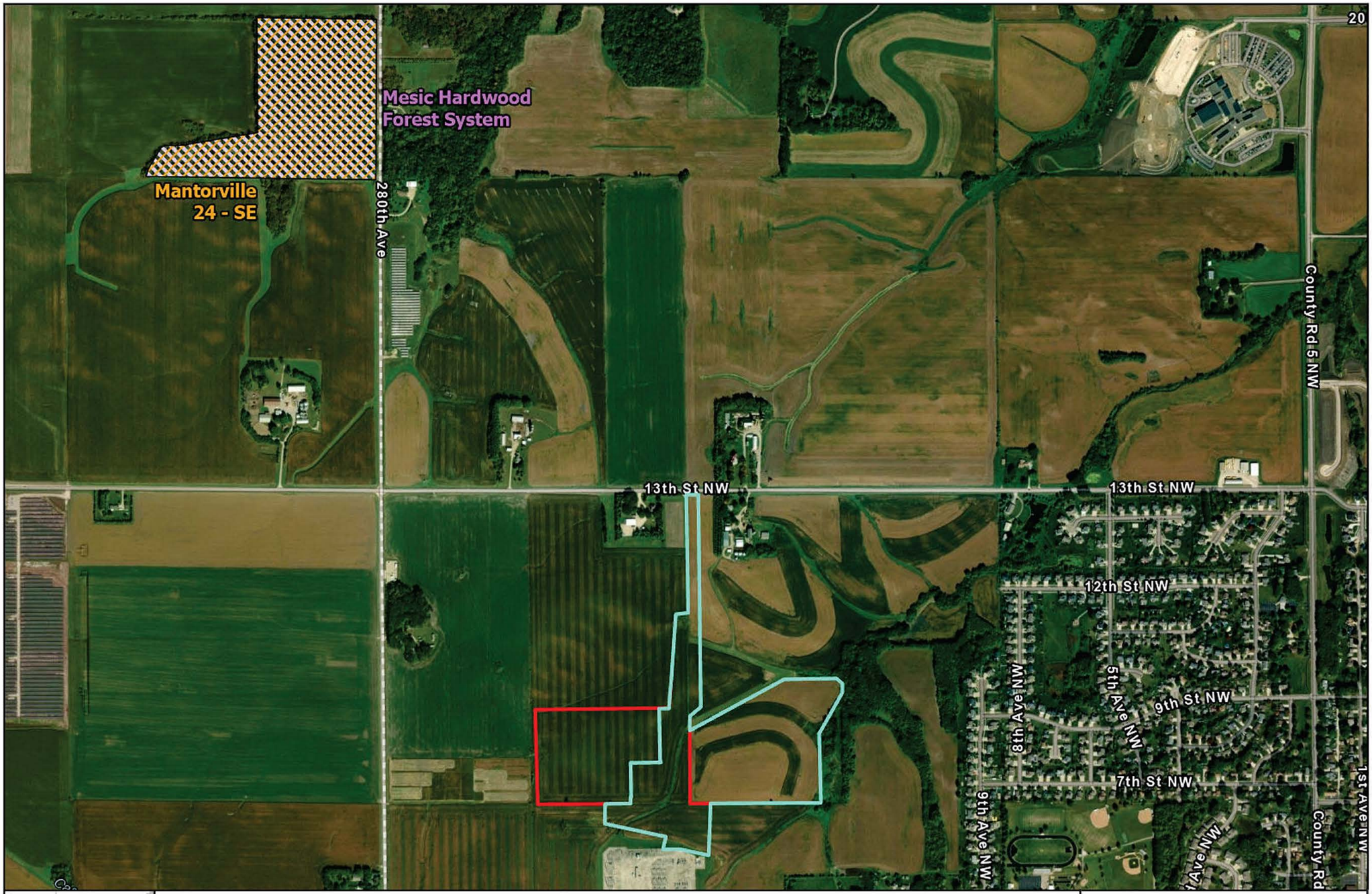
Map 6: SSURGO Soil Map Units - Crane and Sandhill BESS Projects
Olmsted County, Minnesota

MINNESOTA PUBLIC UTILITIES COMMISSION



Map 7: Surface Water Resource - Crane and Sandhill BESS Projects
Olmsted County, Minnesota

MINNESOTA PUBLIC UTILITIES COMMISSION



Crane Land Control Area
Sandhill Land Control Area
MBS Sites of Biodiversity Significance
DNR Native Plant Communities

N

800 400 0 800
Feet

Map 8: Wildlife Resource - Crane and Sandhill BESS Projects
Olmsted County, Minnesota

MINNESOTA
PUBLIC UTILITIES COMMISSION

Appendix C

Crane Energy Storage Project -

Proposed Draft Site Permit

Page intentionally left blank

STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

SITE PERMIT FOR
~~[PROJECT NAME]~~ CRANE ENERGY STORAGE PROJECT

AN ENERGY STORAGE SYSTEM

IN
~~[COUNTY]~~ OLMSTED COUNTY

ISSUED TO
~~[PERMITTEE]~~ CRANE ENERGY STORAGE, LLC

PUC DOCKET NO. ~~[Docket Number]~~ IP-7148/ESS-24-406

In accordance with the requirements of Minnesota Statutes Chapter 216E and Minnesota Rules Chapter 7850 this site permit is hereby issued to:

~~[Permittee]~~ CRANE ENERGY STORAGE, LLC

~~[Permittee]~~ Crane Energy Storage, LLC is authorized by this site permit to construct and operate ~~[Provide a description of the project authorized by the Minnesota Public Utilities Commission]~~ the Crane Energy Storage Project, a battery storage system (BESS) with a nominal power rating of up to 200 MW alternative current (AC) with approximately 800 megawatt-hours (MWh) of energy capacity on a site of approximately 36.3 acres in Kalmar Township, Olmsted County, Minnesota.

The energy storage system shall be constructed and operated within the site identified in this site permit and in compliance with the conditions specified in this site permit.

This site permit shall expire ~~[xx]~~ 30 years from the date of this approval.

Approved and adopted this ____ day of [Month, Year]

BY ORDER OF THE COMMISSION

_____

Sasha Bergman,
Executive Secretary

To request this document in another format such as large print or audio, call 651-296-0406 or 800-657-3782 (voice). Persons with a hearing or speech impairment may call using their preferred Telecommunications Relay Service or email consumer.puc@state.mn.us for assistance.

CONTENTS

ATTACHMENTS

~~SAMPLE~~ DRAFT SITE PERMIT [~~Project Name and PUC Docket No.~~ Crane Energy Storage Facility, Docket No. IP-7148/ESS-24-406]

1 SITE PERMIT

The Minnesota Public Utilities Commission (Commission) hereby issues this site permit to ~~[Permittee Name]~~ Crane Energy Storage, LLC (Permittee) pursuant to Minnesota Statutes Chapter 216E and Minnesota Rules Chapter 7850. This site permit authorizes the Permittee to construct and operate a ~~[Provide a description of the project as authorized by the Commission] ([Project Name, if applicable]~~ an up to 200 megawatt (MW) energy storage system in Olmsted County, Minnesota (Crane Energy Storage Project or Project). The energy storage system shall be constructed and operated within the site identified in this site permit and in compliance with the conditions specified in this site permit.

1.1 Pre-emption

Pursuant to Minn. Stat. § ~~216E.10~~ 2161.18, this site permit shall be the sole site approval required for the location, construction, and operation of the energy storage system and this site permit shall supersede and preempt all zoning, building, or land use rules, regulations, or ordinances promulgated by regional, county, local and special purpose governments.

2 PROJECT DESCRIPTION

~~[Provide a description of the Project as authorized by the Commission]~~The Crane Energy Storage Project is a battery energy storage system (BESS) with a nominal power rating of up to 200 MW alternative current (AC) with approximately 800 megawatt-hours (MWh) of energy capacity on a site of approximately 36.3 acres in Sections 30 and 31 of Kalmar Township in Olmsted County. In addition to batteries, racking, and enclosures, the facility will also include inverts and transformers, a stormwater drainage basin, storage and parkin areas, and fencing surrounding the perimeter of the facility.

The Project will also include three shared project facilities with an adjacent project (Sandhill Energy Storage Project) including the collector substation, gen-tie line, and primary access road. The facilities will be connected to the electrical grid through a 161 kilovolt (kV) gen-tie line of approximately 700 feet between the shared project substation and the adjacent Bryon Substation.

The Project is located in the following:

County	Township Name	Township	Range	Section
Olmsted	Kalmar	107N	15W	30, 31

2.1 Project Ownership

At least 14 days prior to the pre-construction meeting, the Permittee shall file a description of its ownership structure, identifying, as applicable:

(a) the owner(s) of the financial and governance interests of the Permittee;
(b) the owner(s) of the majority financial and governance interests of the Permittee's owners; and
(c) the Permittee's ultimate parent entity (meaning the entity which is not controlled by any other entity).

The Permittee shall notify the Commission of:

(a) a change in the owner(s) of the majority* financial or governance interests in the Permittee; or
(b) a change in the owner(s) of the majority* financial or governance interests of the Permittee's owners; or
(c) a sale which changes the ultimate parent entity of the Permittee

*When there are only co-equal 50/50 percent interests, any change shall be considered a change in majority interest.

In the event of an ownership change, the new Permittee must provide the Commission with a certification that it has read, understands, and is able to comply with the conditions of this permit.

3 DESIGNATED SITE

The site designated by the Commission for the Project is depicted on the site maps attached to this site permit (Designated Site). The site maps show the approximate location of the energy storage system and associated facilities within the Designated Site and identify a layout that seeks to minimize the overall potential human and environmental impacts of the Project, as they were evaluated in the permitting process.

The Designated Site serves to provide the Permittee with the flexibility to make minor adjustments to the layout to accommodate requests by landowners, local government units, federal and state agency requirements, and unforeseen conditions encountered during the detailed engineering and design process. Any modification to the location of a photovoltaic tracker row or associated facility shall be done in such a manner as to have human and environmental impacts that are comparable to those associated with the layouts on the maps

attached to this site permit. The Permittee shall identify any modifications in the Site Plan pursuant to Section 8.3.

4 GENERAL CONDITIONS

The Permittee shall comply with the following conditions during construction and operation of the energy storage system over the life of this site permit.

4.1 Site Permit Distribution

Within 30 days of issuance of this site permit, the Permittee shall provide all affected landowners with a copy of this site permit and the complaint procedures. An affected landowner is any landowner or designee that is within or adjacent to the permitted site. In no case shall a landowner receive this site permit and complaint procedures less than five days prior to the start of construction on their property. The Permittee shall also provide a copy of this site permit and the complaint procedures to the applicable regional development commissions, county environmental offices, and city and township clerks. The Permittee shall file with the Commission an affidavit of its site permit and complaint procedures distribution within 30 days of issuance of this site permit.

4.2 Access to Property

The Permittee shall notify landowners prior to entering or conducting maintenance within their property, unless otherwise negotiated with the landowner. The Permittee shall keep records of compliance with this section and provide them upon the request of ~~Minnesota Department of Commerce (Department of Commerce) staff or~~ Commission staff.

4.3 Construction and Operation Practices

The Permittee shall comply with the construction practices, operation and maintenance practices, and material specifications described in the permitting record for this Project unless this site permit establishes a different requirement in which case this site permit shall prevail.

4.3.1 Field Representative

The Permittee shall designate a field representative responsible for overseeing compliance with the conditions of this site permit during construction of the Project. This person shall be accessible by telephone or other means during normal business hours throughout site preparation, construction, cleanup, and restoration.

The Permittee shall file with the Commission the name, address, email, phone number, and emergency phone number of the field representative at least 14 days prior to the pre-construction meeting. The Permittee shall provide the field representative's contact information to affected landowners, local government units and other interested persons at least 14 days prior to the pre-construction meeting. The Permittee may change the field representative at any time upon notice to the Commission, affected landowners, local government units and other interested persons. The Permittee shall file with the Commission an affidavit of distribution of its field representative's contact information at least 14 days prior to the pre-construction meeting and upon changes to the field representative.

4.3.2 Site Manager

The Permittee shall designate a site manager responsible for overseeing compliance with the conditions of this site permit during the commercial operation and decommissioning phases of the Project. This person shall be accessible by telephone or other means during normal business hours for the life of this site permit.

The Permittee shall file the name, address, email, phone number, and emergency phone number of the site manager with the Commission within 14 days prior to the pre-operation meeting. The Permittee shall provide the site manager's contact information to landowners within or adjacent to the Project Boundary, local government units and other interested persons at least 14 days prior to the pre-operation meeting. The Permittee may change the site manager at any time upon notice to the Commission, landowners within or adjacent to the Project Boundary, local government units, and other interested persons. The Permittee shall file with the Commission an affidavit of distribution of its site manager's contact information at least 14 days prior to the pre-operation meeting and upon changes to the site manager.

4.3.3 Employee Training - Site Permit Terms and Conditions

The Permittee shall train and educate all employees, contractors, and other persons involved in the construction and ongoing operation of the energy storage system of the terms and conditions of this site permit. The Permittee shall keep records of compliance with this section and provide them upon the request of Department of Commerce staff or Commission staff.

4.3.4 Independent Third-Party Monitoring

Prior to any construction, the Permittee shall propose a scope of work and identify an independent third-party monitor to conduct Project construction monitoring on behalf of the ~~Department of Commerce~~ Commission. The scope of work shall be developed in consultation with and approved by the ~~Department of Commerce~~ Commission staff. This third-party monitor will report directly to and will be under the control of the ~~Department of Commerce~~

Commission with costs borne by the Permittee. ~~Department of Commerce~~ Commission staff shall keep records of compliance with this section and will ensure that status reports detailing the construction monitoring are filed with the Commission in accordance with the approved scope of work approved by the ~~Department of Commerce~~ Commission staff.

4.3.5 Public Services, Public Utilities, and Existing Easements

During Project construction, the Permittee shall minimize any disruption to public services or public utilities. To the extent disruptions to public services or public utilities occur these shall be temporary, and the Permittee shall restore service promptly. Where any impacts to utilities have the potential to occur the Permittee shall work with both landowners and local entities to determine the most appropriate mitigation measures if not already considered as part of this site permit.

The Permittee shall cooperate with county and city road authorities to develop appropriate signage and traffic management during construction. The Permittee shall keep records of compliance with this section and provide them upon the request of Department of Commerce staff or Commission staff.

4.3.6 Temporary Workspace

The Permittee shall select temporary workspace and equipment staging areas that limit the removal and impacts to vegetation. The Permittee shall not site temporary workspace in wetlands or native prairie as defined in sections 4.3.13 and 4.3.14. The Permittee shall site temporary workspace to comply with standards for development of the shorelands of public waters as defined in Section 4.3.13. The Permittee shall obtain temporary easements outside of the authorized Project Boundary from affected landowners through rental agreements. Temporary easements are not provided for in this site permit.

4.3.7 Noise

The Permittee shall comply with noise standards established under Minn. R. 7030.0010 to 7030.0080, at all times and at all appropriate locations during operation of the Project. The Permittee shall limit construction and maintenance activities to daytime working hours to the extent practicable.

4.3.8 Aesthetics

The Permittee shall consider input pertaining to visual impacts from landowners and the local unit of government having direct zoning authority over the area in which the Project is located. The Permittee shall use care to preserve the natural landscape, minimize tree removal and

prevent any unnecessary destruction of the natural surroundings in the vicinity of the Project during construction and operation.

4.3.9 Topsoil Protection

The Permittee shall implement measures to protect and segregate topsoil from subsoil on all lands utilized for Project construction unless otherwise negotiated with affected landowner.

4.3.10 Soil Compaction

The Permittee shall implement measures to minimize soil compaction of all lands during all phases of the Project's life and shall confine compaction to as small an area as feasible. The Permittee shall use soil decompaction measures on all lands utilized for Project construction and travelled on by heavy equipment (*e.g.*, cranes and heavy trucks), even when soil compaction minimization measures are used.

4.3.11 Soil Erosion and Sediment Control

The Permittee shall implement those erosion prevention and sediment control practices recommended by the Minnesota Pollution Control Agency (MPCA) Construction Stormwater Program. If construction of the Project disturbs more than one acre of land or is sited in an area designated by the MPCA as having potential for impacts to water resources, the Permittee shall obtain a National Pollutant Discharge Elimination System/State Disposal System Construction Stormwater Permit from the MPCA that provides for the development of a Stormwater Pollution Prevention Plan that describes methods to control erosion and runoff.

The Permittee shall implement reasonable measures to minimize erosion and sedimentation during construction and shall employ perimeter sediment controls, protect exposed soil by promptly planting, seeding, using erosion control blankets and turf reinforcement mats, stabilizing slopes, protecting storm drain inlets, protecting soil stockpiles, and controlling vehicle tracking. Contours shall be graded as required so that all surfaces provide for proper drainage, blend with the natural terrain, and are left in a condition that will facilitate re-vegetation and prevent erosion. All areas disturbed during construction of the Project shall be returned to pre-construction conditions.

4.3.12 Public Lands

In no case shall the energy storage system and associated facilities including foundations, access roads, underground cable, and transformers, be located in the public lands identified in Minn. R. 7850.4400, subp. 1, or in federal waterfowl production areas. Photovoltaic tracker

rows and associated facilities shall not be located in the public lands identified in Minn. R. 7850.4400, subp. 3, unless there is no feasible and prudent alternative.

4.3.13 Wetlands and Water Resources

The Permittee shall not place the energy storage system or associated facilities in public waters and public waters wetlands, as shown on the public water inventory maps prescribed by Minnesota Statutes Chapter 103G, except that electric collector or feeder lines may cross or be placed in public waters or public waters wetlands subject to permits and approvals by the Minnesota Department of Natural Resources (DNR) and the United States Army Corps of Engineers (USACE), and local units of government as implementers of the Minnesota Wetlands Conservation Act. The Permittee shall locate the energy storage system and associated facilities in compliance with the standards for development of the shorelands of public waters as identified in Minn. R. 6120.3300, and as adopted, Minn. R. 6120.2800, unless there is no feasible and prudent alternative.

The Permittee shall construct in wetland areas during frozen ground conditions, to the extent feasible, to minimize impacts. When construction during winter is not possible, wooden or composite mats shall be used to protect wetland vegetation. The Permittee shall contain and manage soil excavated from the wetlands and riparian areas in accordance with all applicable wetland permits. The Permittee shall access wetlands and riparian areas using the shortest route possible in order to minimize travel through wetland areas and prevent unnecessary impacts.

The Permittee shall restore wetland and water resource areas disturbed by construction activities to pre-construction conditions in accordance with the requirements of applicable state and federal permits or laws and landowner agreements. The Permittee shall meet the USACE, DNR, Minnesota Board of Water and Soil Resources, and local government wetland and water resource requirements.

4.3.14 Native Prairie

The Permittee shall not place the energy storage system or associated facilities in native prairie, as defined in Minn. Stat. § 84.02, subd. 5, unless addressed in a prairie protection and management plan and not located in areas enrolled in the Native Prairie Bank Program. The Permittee shall not impact native prairie during construction activities, as defined in Minn. Stat. § 216E.01, unless addressed in a prairie protection and management plan.

The Permittee shall prepare a prairie protection and management plan in consultation with the DNR if native prairie, as defined in Minn. Stat. § 84.02, subd. 5, is identified within the Project Boundary. The Permittee shall file the prairie protection and management plan with the

Commission at least 30 days prior to submitting the Site Plan required by Section 8.3 of this site permit. The prairie protection and management plan shall address steps that will be taken to avoid impacts to native prairie and mitigation to unavoidable impacts to native prairie by restoration or management of other native prairie areas that are in degraded condition, by conveyance of conservation easements, or by other means agreed to by the Permittee, the DNR, and the Commission.

4.3.15 Vegetation Management

The Permittee shall disturb or clear vegetation within the Designated Site only to the extent necessary to assure the safe construction, operation, and maintenance of the Project. The Permittee shall minimize the number of trees removed within the Designated Site specifically preserving to the maximum extent practicable windbreaks, shelterbelts, and living snow fences.

4.3.16 Application of Pesticides

The Permittee shall restrict pesticide use to those pesticides and methods of application approved by the MDA, DNR, and the U.S. Environmental Protection Agency (EPA). Selective foliage or basal application shall be used when practicable. All pesticides shall be applied in a safe and cautious manner so as not to damage adjacent properties including crops, orchards, tree farms, apiaries, or gardens. The Permittee shall contact the landowner at least 14 days prior to pesticide application on their property. The Permittee may not apply any pesticide if the landowner requests that there be no application of pesticides within the landowner's property. The Permittee shall provide notice of pesticide application to landowners and beekeepers operating known apiaries within three miles of the pesticide application area at least 14 days prior to such application. The Permittee shall keep pesticide communication and application records and provide them upon the request of ~~Department of Commerce staff or~~ Commission staff.

4.3.17 Invasive Species

The Permittee shall employ best management practices to avoid the potential introduction and spread of invasive species on lands disturbed by Project construction activities. The Permittee shall develop an Invasive Species Prevention Plan and file it with the Commission at least 14 days prior to the pre-construction meeting. The Permittee shall comply with the most recently filed Invasive Species Prevention Plan.

4.3.18 Noxious Weeds

The Permittee shall take all reasonable precautions against the spread of noxious weeds during all phases of construction. When utilizing seed to establish temporary and permanent

vegetative cover on exposed soil the Permittee shall select site-appropriate seed certified to be free of noxious weeds. To the extent possible, the Permittee shall use native seed mixes. The Permittee shall keep records of compliance with this section and provide them upon the request of ~~Department of Commerce staff or~~ Commission staff.

4.3.19 Roads

The Permittee shall advise the appropriate governing bodies having jurisdiction over all state, county, city, or township roads that will be used during the construction phase of the Project. Where practical, existing roadways shall be used for all activities associated with construction of the Project. Oversize or overweight loads associated with the Project shall not be hauled across public roads without required permits and approvals.

The Permittee shall locate all perimeter fencing and vegetative screening in a manner that does not interfere with routine road maintenance activities and allows for continued safe travel on public roads.

The Permittee shall construct the fewest number of site access roads required. Access roads shall not be constructed across streams and drainage ways without the required permits and approvals. Access roads shall be constructed in accordance with all necessary township, county or state road requirements and permits.

The Permittee shall promptly repair private roads or lanes damaged when moving equipment or when accessing construction workspace, unless otherwise negotiated with the affected landowner. The Permittee shall keep records of compliance with this section and provide them upon the request of ~~Department of Commerce staff or~~ Commission staff.

4.3.20 Archaeological and Historic Resources

The Permittee shall make every effort to avoid impacts to archaeological and historic resources when constructing the Project. In the event that a resource is encountered, the Permittee shall consult with the State Historic Preservation Office (SHPO) and the State Archaeologist. Where feasible, avoidance of the resource is required. Where not feasible, mitigation must include an effort to minimize Project impacts on the resource consistent with SHPO and State Archaeologist requirements.

Prior to construction, the Permittee shall train workers about the need to avoid cultural properties, how to identify cultural properties, and procedures to follow if undocumented cultural properties, including gravesites, are found during construction. If human remains are encountered during construction, the Permittee shall immediately halt construction and promptly notify local law enforcement and the State Archaeologist. The Permittee shall not

resume construction at such location until authorized by local law enforcement or the State Archaeologist. The Permittee shall keep records of compliance with this section and provide them upon the request of ~~Department of Commerce staff or~~ Commission staff.

4.3.21 Interference

If interference with radio or television, satellite, wireless internet, GPS-based agriculture navigation systems or other communication devices is caused by the presence or operation of the Project, the Permittee shall take whatever action is necessary to restore or provide reception equivalent to reception levels in the immediate area just prior to the construction of the Project. The Permittee shall keep records of compliance with this section and provide them upon the request of Department of Commerce staff or Commission staff.

4.3.22 Drainage Tiles

The Permittee shall avoid, promptly repair, or replace all drainage tiles broken or damaged during all phases of the Project's life unless otherwise negotiated with the affected landowner. The Permittee shall keep records of compliance with this section and provide them upon the request of ~~Department of Commerce staff or~~ Commission staff.

4.3.23 Restoration

The Permittee shall restore the areas affected by construction of the Project to the condition that existed immediately before construction began to the greatest extent possible. The time period to complete restoration may be no longer than 12 months after the completion of construction. Restoration shall be compatible with the safe operation, maintenance, and inspection of the Project. Within 60 days after completion of all restoration activities, the Permittee shall file with the Commission a Notice of Restoration Completion.

4.3.24 Cleanup

The Permittee shall remove and properly dispose of all construction waste and scrap from the right-of-way and all premises on which construction activities were conducted upon completion of each task. The Permittee shall remove and properly dispose of all personal litter, including bottles, cans, and paper from construction activities daily.

4.3.25 Pollution and Hazardous Wastes

The Permittee shall take all appropriate precautions to protect against pollution of the environment. The Permittee shall be responsible for compliance with all laws applicable to the

generation, storage, transportation, clean up and disposal of all waste generated during construction and restoration of the Project.

4.3.26 Damages

The Permittee shall fairly restore or compensate landowners for damage to crops, fences, private roads and lanes, landscaping, drain tile, or other damage sustained during construction. The Permittee shall keep records of compliance with this section and provide them upon the request of ~~Department of Commerce staff or~~ Commission staff.

4.3.27 Public Safety

The Permittee shall provide educational materials to landowners within and adjacent to the Designated Site and, upon request, to interested persons about the Project and any restrictions or dangers associated with the Project. The Permittee shall also implement any necessary safety measures such as placing warning signs and gates for traffic control or restricting public access. The Permittee shall file with the Commission an affidavit of its public safety notifications at least 14 days before the pre-construction meeting.

The Permittee shall submit the location of all underground facilities, as defined in Minn. Stat. § 216D.01, subd. 11, to Gopher State One Call following the completion of the construction of the Project.

4.3.28 Site Identification

The Permittee shall mark the energy storage system with a clearly visible identification number and/or street address.

4.4 Collector and Feeder Lines

The Permittee may use overhead or underground collector and feeder lines to carry power from an internal Project interconnection point to the energy storage system. The Permittee shall place overhead and underground collector and feeder lines that parallel public roads within the public right-of-way or on private land immediately adjacent to the road. The Permittee shall obtain approval from the landowner or government unit responsible for the affected right-of-way.

The Permittee shall locate collector and feeder lines in such a manner as to minimize interference with agricultural operations including but not limited to existing drainage patterns, drain tile, future tiling plans, and ditches. The Permittee shall place safety shields on all guy

wires associated with overhead collector and feeder lines. The Permittee shall submit the engineering drawings of all collector and feeder lines with the Site Plan pursuant to Section 8.3.

4.5 Other Requirements

4.5.1 Safety Codes and Design Requirements

The Permittee shall design the energy storage system and associated facilities to meet or exceed all relevant local and state codes, the National Electric Safety Code, and North American Electric Reliability Corporation requirements. This includes standards relating to clearances to ground, clearance to crossing utilities, clearance to buildings, strength of materials, clearances over roadways, right-of-way widths, and permit requirements. The Permittee shall keep records of compliance with these standards and provide them upon the request of ~~Department of Commerce staff or~~ Commission staff.

4.5.2 Other Permits and Regulations

The Permittee shall comply with all applicable state statutes and rules. The Permittee shall obtain all required permits for the Project and comply with the conditions of those permits unless those permits conflict with or are preempted by federal or state permits and regulations.

At least 14 days prior to the pre-construction meeting, the Permittee shall file with the Commission an Other Permits and Regulations Submittal that contains a detailed status of all permits, authorizations, and approvals that have been applied for specific to the Project. The Other Permits and Regulations Submittal shall also include the permitting agency name; the name of the permit, authorization, or approval being sought; contact person and contact information for the permitting agency or authority; brief description of why the permit, authorization, or approval is needed; application submittal date; and the date the permit, authorization, or approval was issued or is anticipated to be issued.

The Permittee shall demonstrate that it has obtained all necessary permits, authorizations, and approvals by filing an affidavit stating as such and an updated Other Permits and Regulations Submittal prior to commencing Project construction. The Permittee shall provide a copy of any such permits, authorizations, and approvals at the request of ~~Department of Commerce staff~~ or Commission staff.

5 SPECIAL CONDITIONS

The special conditions shall take precedence over other conditions of this permit should there be a conflict.

~~[Add Special Conditions in accordance with the record of the docket]~~

5.1 Lighting

Permittees must use shielded and downward facing lighting and LED lighting that minimizes blue hue at the gate locations, BESS enclosures, and along fence lines. Downward facing lighting must be clearly visible on the plan and profile submitted for the Project.

5.2 Pre-construction Noise Modeling and Impact Assessment

The Permittee shall file a noise impact assessment at least 14 days prior to the pre-construction meeting. The noise impact assessment shall summarize the results from noise propagation modeling that incorporates noise inputs from the selected equipment and the facility layout shown in the site plans required in Section 8.3 of this permit. The permittee shall file an updated noise impact assessment including any revisions to selected equipment or facility layout prior to any modifications to the facility over its operating life.

5.3 Noise Studies and noise Mitigation

The Permittee shall file a proposed methodology for the conduct of a post-construction noise study at least 14 days prior to the pre-construction meeting. The Permittee shall develop the post-construction noise study methodology in consultation with Commission staff. The Permittee must conduct the post-construction noise study and file with the Commission the completed post-construction noise study within 18 months of commencing commercial operation.

The BESS facilities and associated facilities shall be placed and operated such that the Permittee shall, at all times, comply with noise standards established by the MPCA. Operation of the facility shall be modified, or project components shall be removed from service if necessary to comply with these noise standards.

5.4 Hazard Mitigation Analysis

The Permittee shall file a Hazard Mitigation Analysis detailing the results of the equipment testing, and the risks associated with the technology at least 30 days prior to the pre-construction meeting.

5.5 Natural Gas Pipeline

The Permittee shall confer with the Northern Natural Gas Company to avoid impacts to the gas transmission pipeline that intersects the primary access road and further develop mitigation measures as needed.

5.6 Vegetation Management Plan

The amended VMP must include the following:

(a) management objectives addressing short term (year 0-5, seeding and establishment) and long term (year 5 through the life of the Project) goals;

(b) a description of planned restoration and vegetation management activities, including how the site will be prepared, timing of activities, how seeding will occur (e.g., broadcast, drilling, etc.), and the types of seed mixes to be used;

(c) a description of how the site will be monitored and evaluated to meet management goals;

(d) a description of the management tools used to maintain vegetation (e.g., mowing, spot spraying, hand removal, fire, grazing, etc.), including the timing and frequency of maintenance activities;

(e) identification of the third-party (e.g., consultant, contractor, site manager, etc.) contracted for restoration, monitoring, and long-term vegetation management of the site;

(f) identification of on-site noxious weeds and invasive species (native and non-native) and the monitoring and management practices to be utilized; and

(g) a marked-up copy of the Site Plan showing how the site will be revegetated and that identifies the corresponding seed mixes. Best management practices should be followed concerning seed mixes, seeding rates, and cover crops.

5.7 Unanticipated Discoveries Plan

Prior to construction, the Permittee shall survey areas of construction activity within undisturbed land that have not been surveyed.

The Permittee shall develop an Unanticipated Discoveries Plan (UDP) to identify guidelines to be used in the event previously unrecorded archeological or historic properties, or human

remains, are encountered during construction, or if unanticipated effects to previously identified archaeological or historic properties occur during construction. This is in addition to and not in lieu of any other obligations that may exist under law or regulation relating to these matters. The UDP shall describe how previously unrecorded, non-human burial, archaeological sites found during construction shall be marked and all construction work must stop at the discovery location. The Permittee shall file the UDP with the Commission at least 14 days prior to the preconstruction meeting.

5.8 Security Fencing

The Permittee shall design the security fence surrounding the energy storage system to minimize the visual impact of the Project while maintaining compliance with the National Electric Safety Code. The Permittee shall develop a final fence plan for the specific site in coordination with the DNR. The final fence plan shall be submitted to the Commission as part of the Site Plan pursuant to Section 8.3.

5.9 Wildlife-Friendly Erosion Control

The Permittee shall use only "bio-netting" or "natural netting" types of erosion control materials and mulch products without synthetic (plastic) fiber additives.

5.10 Dust Control

The Permittee shall minimize and avoid, if possible, the use or chloride-based dust control chemicals (i.e., calcium chloride, magnesium chloride).

5.11 Battery Augmentation

The Permittee shall notify the Commission of scheduled augmentation at least 30 days prior to commencing augmentation activities. In its filing, the Permittee shall describe the number and types of batteries included in the augmentation. The Permittee shall indicate the location of the augmentation on the project Site Plan. In its filing the Permittee shall demonstrate compliance with the noise impact assessment submitted to the Commission as required in Section 5.2 of this permit.

5.12 Offtake Agreement

In the event the Permittee does not have an offtake agreement, or some other enforceable mechanism for sale of energy capacity provided by the Project at the time this site permit is issued, the Permittee shall provide notice to the Commission when it obtains a commitment for the energy capacity. This site permit does not authorize construction of the Project until the

Permittee has obtained an offtake agreement, or some other enforceable mechanism for energy capacity provided by the Project. In the event the Permittee does not obtain an offtake agreement or some other enforceable mechanism for the energy capacity provided by the Project within four years of the issuance of this site permit, the Permittee must advise the Commission of the reason for not having such commitment. In such event, the Commission may determine whether this site permit should be amended or revoked. No amendment or revocation of this site permit may be undertaken except in accordance with Minn. Stat. § 216I.09 or Minn. Stat. § 216I.14.

5.13 Annual Report

The Permittee shall, by February 1st following each complete or partial year of Project operation, file a report with the Commission on the monthly availability of the facility including:

1. the installed nameplate capacity of the permitted facility;
2. the monthly and annual availability of the facility;
3. the operational status of the facility and any major outages, major repairs, incidents that required an emergency response, battery augmentation, or performance improvements occurring in the previous year; and
4. any other information reasonably requested by the Commission.

The Permittee shall file this information in a format recommended by the Commission. This information shall be considered public and must be filed electronically.

6 DELAY IN CONSTRUCTION

If the Permittee has not commenced construction or improvement of the site within four years after the date of issuance of this site permit the Permittee shall file a Failure to Construct Report and the Commission shall consider suspension of this site permit in accordance with Minn. R. 7850.4700.

7 COMPLAINT PROCEDURES

At least 14 days prior to the pre-construction meeting, the Permittee shall file with the Commission the complaint procedures that will be used to receive and respond to complaints. The complaint procedures shall be in accordance with the requirements of Minn. R. 7829.1500 or Minn. R. 7829.1700, and as set forth in the complaint procedures attached to this site permit.

Upon request, the Permittee shall assist ~~Department of Commerce staff or~~ Commission staff with the disposition of unresolved or longstanding complaints. This assistance shall include, but is not limited to, the submittal of complaint correspondence and complaint resolution efforts.

8 COMPLIANCE REQUIREMENTS

Failure to timely and properly make compliance filings required by this site permit is a failure to comply with the conditions of this site permit. Compliance filings must be electronically filed with the Commission.

8.1 Pre-Construction Meeting

Prior to the start of construction, the Permittee shall participate in a pre-construction meeting with ~~Department of Commerce staff and~~ Commission staff to review pre-construction filing requirements, scheduling, and to coordinate monitoring of construction and site restoration activities. Within 14 days following the pre-construction meeting, the Permittee shall file with the Commission a summary of the topics reviewed and discussed and a list of attendees. The Permittee shall indicate in the filing the anticipated construction start date.

8.2 Pre-Operation Meeting

At least 14 days prior to commercial operation of the Project, the Permittee shall participate in a pre-operation meeting with ~~Department of Commerce staff and~~ Commission staff to coordinate field monitoring of operation activities for the Project. Within 14 days following the pre-operation meeting, the Permittee shall file a summary of the topics reviewed and discussed and a list of attendees with the Commission.

8.3 Site Plan

At least 14 days prior to the pre-construction meeting, the Permittee shall file with the Commission, and provide ~~the Department of Commerce, and~~ the counties where the Project will be constructed with a Site Plan that includes specifications and drawings for site preparation and grading; specifications and locations of the energy storage system and associated facilities; and procedures for cleanup and restoration. The documentation shall include maps depicting the Designated Site, energy storage system, and associated facilities layout in relation to that approved by this site permit.

The Permittee may not commence construction until the earlier of (i) 30 days after the pre-construction meeting or (ii) or until the Commission staff has notified the Permittee in writing that it has completed its review of the documents and determined that the planned construction is consistent with this site permit.

If the Commission notifies the Permittee in writing within 30 days after the pre-construction meeting that it has completed its review of the documents and planned construction, and finds that the planned construction is not consistent with this site permit, the Permittee may submit additional and/or revised documentation and may not commence construction until the Commission has notified the Permittee in writing that it has determined that the planned construction is consistent with this site permit.

If the Permittee intends to make any significant changes in its Site Plan or the specifications and drawings after submission to the Commission, the Permittee shall notify the Commission~~, the Department of Commerce,~~ and county staff at least five days before implementing the changes. No changes shall be made that would be in violation of any of the terms of this site permit.

8.4 Status Reports

The Permittee shall file with the Commission monthly Construction Status Reports beginning with the pre-construction meeting and until completion of restoration. Construction Status Reports shall describe construction activities and progress, activities undertaken in compliance with this site permit, and shall include text and photographs.

If the Permittee does not commence construction of the Project within six months of this site permit issuance, the Permittee shall file with the Commission Pre-Construction Status Reports on the anticipated timing of construction every six months beginning with the issuance of this site permit until the pre-construction meeting. The status updates shall include information on the Project's Midcontinent Independent System Operator (MISO) interconnection process, if applicable.

8.5 Labor Statistic Reporting

The Permittee shall file quarterly Labor Statistic Reports with the Commission within 45 days of the end of the quarter regarding construction workers that participated in the construction of the Project. The Labor Statistic Reports shall:

(a) detail the Permittee's efforts and the site contractor's efforts to hire Minnesota workers; and
(b) provide an account of:
    i. the gross number of hours worked by or full-time equivalent workers who are Minnesota residents, as defined in Minn. Stat. § 290.01, subd. 7;
    ii. the gross number of hours worked by or full-time equivalent workers who are residents of other states, but maintain a permanent residence within 150 miles of the Project; and

iii. the total gross hours worked or total full-time equivalent workers.

The Permittee shall work with its contractor to determine the suitable reporting metric. The report may not include personally identifiable data.

8.6 Prevailing Wage

The Permittee, its contractors, and subcontractors shall pay no less than the prevailing wage rate as defined in Minn. Stat. § 177.42 and shall be subject to the requirements and enforcement provisions under Minn. Stat. §§ 177.27, 177.30, 177.32, 177.41 to 177.435, and 177.45. The Permittee shall keep records of contractor and subcontractor pay and provide them at the request of ~~Department of Commerce staff or~~ Commission staff.

8.7 In-Service Date

At least three days before the Project is to be placed into service, the Permittee shall notify the Commission of the date on which the Project will be placed into service and the date on which construction was completed.

8.8 As-Builts

Within 90 days after completion of construction, the Permittee shall submit to the Commission copies of all final as-built plans and specifications developed during the Project construction.

8.9 GPS Data

Within 90 days after completion of construction, the Permittee shall submit to the Commission, in the format requested by the Commission, geo-spatial information (*e.g.*, ArcGIS compatible map files, GPS coordinates, associated database of characteristics) for all structures associated with the Project.

8.10 Right of Entry

The Permittee shall allow Commission designated representatives to perform the following, upon reasonable notice, upon presentation of credentials and at all times in compliance with the Permittee's site safety standards:

(a) To enter upon the facilities easement of the property for the purpose of obtaining information, examining records, and conducting surveys or investigations.
(b) To bring such equipment upon the facilities easement of the property as is necessary to conduct such surveys and investigations.

(c) To sample and monitor upon the facilities easement of the property.
To examine and copy any documents pertaining to compliance with the conditions of this site permit.

8.11 Emergency Response

The Permittee shall prepare an Emergency Response Plan (ERP) in consultation with the emergency responders having jurisdiction over the Project prior to construction. The Permittee shall file the ERP, along with any comments from emergency responders to the Commission at least 14 days prior to the pre-construction meeting and a revised ERP, if any, at least 14 days prior to the pre-operation meeting. At least 14 days prior to the pre-operation meeting the Permittee shall file with the Commission an affidavit of the distribution of the ERP to emergency responders and Public Safety Answering Points (PSAP) with jurisdiction over the Project. The Permittee shall obtain and register the Project address or other location indicators acceptable to the emergency responders and PSAP having jurisdiction over the Project.

8.12 Extraordinary Events

Within 24 hours of discovery of an occurrence, the Permittee shall notify the Commission of any extraordinary event. Extraordinary events include but shall not be limited to fires, acts of sabotage, collector or feeder line failure, and injured worker or private person. The Permittee shall, within 30 days of the occurrence, file a report with the Commission describing the cause of the occurrence and the steps taken to avoid future occurrences.

8.13 Wildlife Injuries and Fatalities

The Permittee shall report any wildlife injuries and fatalities to the Commission quarterly.

9 DECOMMISSIONING AND RESTORATION

9.1 Decommissioning Plan

The Permittee shall comply with the provisions of the most recently filed and accepted Decommissioning Plan. The initial version of the Decommissioning Plan was submitted for this Project as ~~[Identify Decommissioning Plan, *e.g.*, Appendix XX to the Site Permit Application]~~ Appendix D of the Site Permit Application. The Permittee shall file an updated Decommissioning Plan incorporating comments and information from the permit application process and any updates associated with the final construction plans with the Commission at least fourteen 14 days prior to the pre-construction meeting. The Permittee shall update and file the Decommissioning Plan with the Commission every five years following the commercial operation date.

The Decommissioning Plan shall provide information identifying all surety and financial securities established for decommissioning and site restoration. The Decommissioning Plan shall provide an itemized breakdown of costs of decommissioning all Project components, which shall include labor and equipment.

The Permittee shall also submit the Decommissioning Plan to the local unit of government having direct zoning authority over the area in which the Project is located. The Permittee shall ensure that it carries out its obligations to provide for the resources necessary to fulfill its requirements to properly decommission the Project at the appropriate time. The Commission may at any time request the Permittee to file a report with the Commission describing how the Permittee is fulfilling this obligation.

9.2 Site Final Restoration

Upon expiration of this site permit or upon termination of operation of the Project, the Permittee shall have the obligation to dismantle and remove from the site all Project components in accordance with the most recently filed and accepted decommissioning plan. To the extent feasible, the Permittee shall restore and reclaim the site to pre-project conditions. Landowners may require the site be returned to agricultural production or may retain restored prairie vegetation, or other land uses as agreed to between the landowner and the Permittee. All access roads shall be removed unless written approval is given by the affected landowner requesting that one or more roads, or portions thereof, be retained. All such agreements between the Permittee and the affected landowner shall be filed with the Commission prior to commencing restoration activities. The Permittee shall restore the site in accordance with the requirements of this condition and file a Notification of Final Restoration Completion to the Commission within 18 months of termination of operation of the Project.

10 COMMISSION AUTHORITY AFTER SITE PERMIT ISSUANCE

10.1 Expansion of Designated Site Boundaries

No expansion of the site boundary described in this site permit shall be authorized without the approval of the Commission. The Permittee may submit to the Commission a request for a change in the boundary of the site for the Project. The Commission will respond to the requested change in accordance with applicable statutes and rules.

10.2 Periodic Review

The Commission shall initiate a review of this site permit and the applicable conditions at least once every five years. The purpose of the periodic review is to allow the Commission, the

Permittee, and other interested persons an opportunity to consider modifications in the conditions of this site permit. No modification may be made except in accordance with applicable statutes and rules.

10.3 Modification of Conditions

After notice and opportunity for hearing this site permit may be modified or amended for cause, including but not limited to the following:

(a) violation of any condition in this permit;
(b) endangerment of human health or the environment by operation of the Project; or
(c) existence of other grounds established by rule.

10.4 More Stringent Rules

The issuance of this site permit does not prevent the future adoption by the Commission of rules or orders more stringent than those now in existence and does not prevent the enforcement of these more stringent rules and orders against the Permittee.

11 SITE PERMIT AMENDMENT

This site permit may be amended at any time by the Commission. Any person may request an amendment of the conditions of this site permit by submitting a request to the Commission in writing describing the amendment sought and the reasons for the amendment. The Commission will mail notice of receipt of the request to the Permittee. The Commission may amend the conditions after affording the Permittee and interested persons such process as is required under Minn. R. 7850.4900.

12 TRANSFER OF SITE PERMIT

The Permittee may request at any time that the Commission transfer this site permit to another person or entity (transferee). In its request, the Permittee must provide the Commission with:

(a) the name and description of the transferee;
(b) the reasons for the transfer;
(c) a description of the facilities affected; and
(d) the proposed effective date of the transfer.

The transferee must provide the Commission with a certification that it has read, understands and is able to comply with the plans and procedures filed for the Project and all conditions of this site permit.

The transferee must provide the Commission with the name and contact information for the site manager, as described in Section 4.3.2, and either a current version with eDocket reference, or a revised version of the following:

(a) complaint procedures, as described in Section 7 and Attachment 1;
(b) ERP, as described in Section 8.12; and
(c) Decommissioning Plan, as described in Section 9.1.

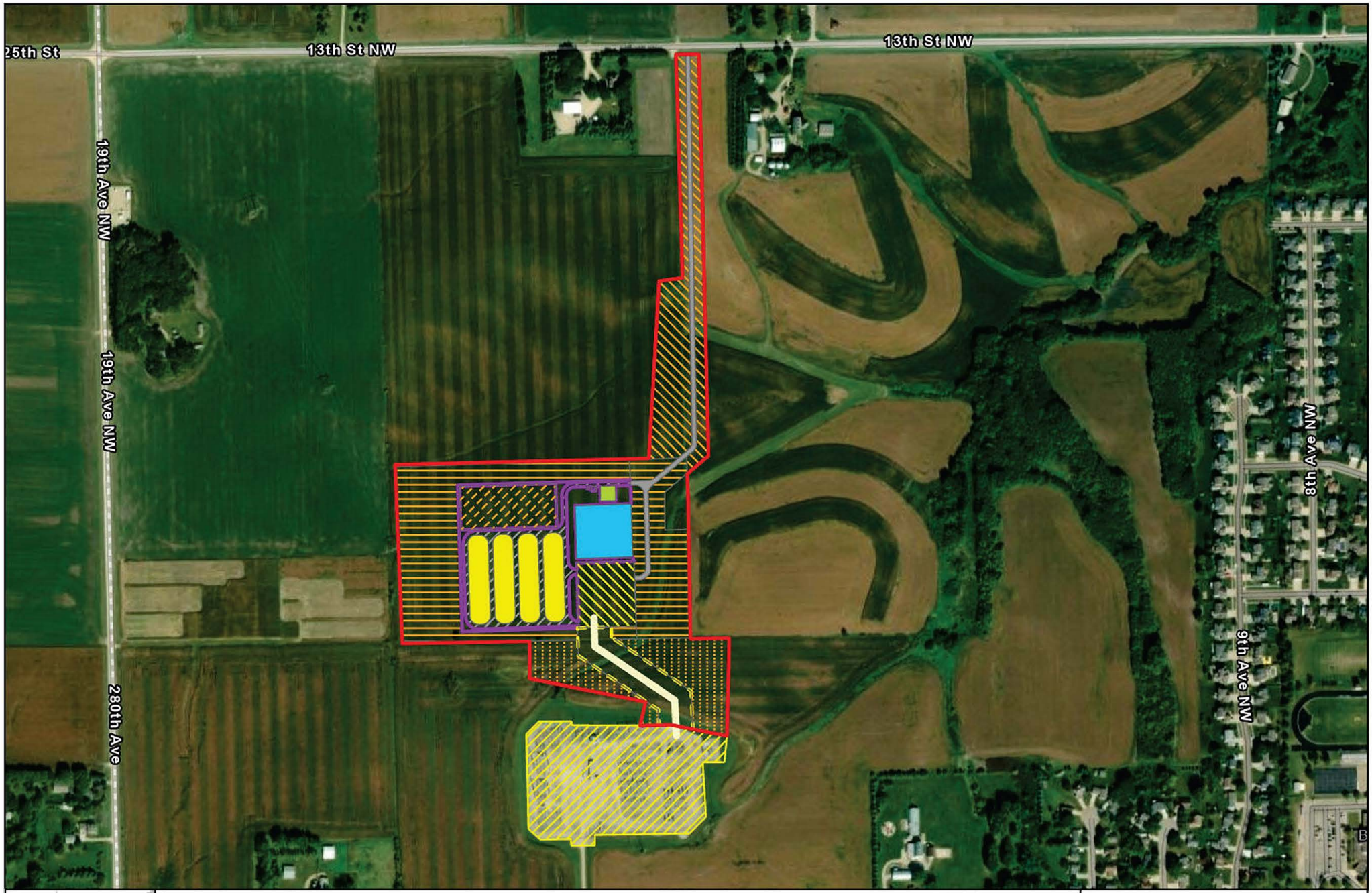
The Commission may authorize transfer of the site permit after affording the Permittee, the transferee, and interested persons such process as is required under Minn. R. 7850.5000.

13 REVOCATION OR SUSPENSION OF SITE PERMIT

The Commission may initiate action to revoke or suspend this site permit at any time. The Commission shall act in accordance with the requirements of Minn. R. 7850.5100, to revoke or suspend this site permit.

14 EXPIRATION DATE

This site permit shall expire ~~[xx]~~30 years after the date this site permit was approved and adopted.



Project Overview:
Crane Energy Storage Project
Olmsted County, Minnesota

MINNESOTA
PUBLIC UTILITIES COMMISSION

Appendix D

Sandhill Energy Storage Project -

Proposed Draft Site Permit

Page intentionally left blank

STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

SITE PERMIT FOR
~~[PROJECT NAME]~~ SANDHILL ENERGY STORAGE PROJECT

AN ENERGY STORAGE SYSTEM

IN
~~[COUNTY]~~ OLMSTED COUNTY

ISSUED TO
~~[PERMITTEE]~~ SANDHILL ENERGY STORAGE, LLC

PUC DOCKET NO. ~~[Docket Number]~~ IP-7149/ESS-24-407

In accordance with the requirements of Minnesota Statutes Chapter 216E and Minnesota Rules Chapter 7850 this site permit is hereby issued to:

~~[Permittee]~~ SANDHILL ENERGY STORAGE, LLC

~~[Permittee]~~ Sandhill Energy Storage, LLC is authorized by this site permit to construct and operate ~~[Provide a description of the project authorized by the Minnesota Public Utilities Commission]~~ the Sandhill Energy Storage Project, a battery storage system (BESS) with a nominal power rating of up to 200 MW alternative current (AC) with approximately 800 megawatt-hours (MWh) of energy capacity on a site of approximately 42.7 acres in Kalmar Township, Olmsted County, Minnesota.

The energy storage system shall be constructed and operated within the site identified in this site permit and in compliance with the conditions specified in this site permit.

This site permit shall expire ~~[xx]~~ 30 years from the date of this approval.

Approved and adopted this ____ day of [Month, Year]

BY ORDER OF THE COMMISSION

_____

Sasha Bergman,
Executive Secretary

To request this document in another format such as large print or audio, call 651-296-0406 or 800-657-3782 (voice). Persons with a hearing or speech impairment may call using their preferred Telecommunications Relay Service or email consumer.puc@state.mn.us for assistance.

CONTENTS

ATTACHMENTS

~~SAMPLE~~ DRAFT SITE PERMIT [~~Project Name and PUC Docket No.~~ Sandhill Energy Storage Facility, Docket No. IP-7149/ESS-24-407]

1 SITE PERMIT

The Minnesota Public Utilities Commission (Commission) hereby issues this site permit to ~~[Permittee Name]~~ Sandhill Energy Storage, LLC (Permittee) pursuant to Minnesota Statutes Chapter 216E and Minnesota Rules Chapter 7850. This site permit authorizes the Permittee to construct and operate a ~~[Provide a description of the project as authorized by the Commission] ([Project Name, if applicable]~~ an up to 200 megawatt (MW) energy storage system in Olmsted County, Minnesota (Sandhill Energy Storage Project or Project). The energy storage system shall be constructed and operated within the site identified in this site permit and in compliance with the conditions specified in this site permit.

1.1 Pre-emption

Pursuant to Minn. Stat. § ~~216E.10~~ 2161.18, this site permit shall be the sole site approval required for the location, construction, and operation of the energy storage system and this site permit shall supersede and preempt all zoning, building, or land use rules, regulations, or ordinances promulgated by regional, county, local and special purpose governments.

2 PROJECT DESCRIPTION

~~[Provide a description of the Project as authorized by the Commission]~~The Sandhill Energy Storage Project is a battery energy storage system (BESS) with a nominal power rating of up to 200 MW alternative current (AC) with approximately 800 megawatt-hours (MWh) of energy capacity on a site of approximately 42.7 acres in Sections 30 and 31 of Kalmar Township in Olmsted County. In addition to batteries, racking, and enclosures, the facility will also include inverts and transformers, a stormwater drainage basin, storage and parkin areas, and fencing surrounding the perimeter of the facility.

The Project will also include three shared project facilities with an adjacent project (Crane Energy Storage Project) including the collector substation, gen-tie line, and primary access road. The facilities will be connected to the electrical grid through a 161 kilovolt (kV) gen-tie line of approximately 700 feet between the shared project substation and the adjacent Bryon Substation.

The Project is located in the following:

County	Township Name	Township	Range	Section
Olmsted	Kalmar	107N	15W	30, 31

2.1 Project Ownership

At least 14 days prior to the pre-construction meeting, the Permittee shall file a description of its ownership structure, identifying, as applicable:

(a) the owner(s) of the financial and governance interests of the Permittee;
(b) the owner(s) of the majority financial and governance interests of the Permittee's owners; and
(c) the Permittee's ultimate parent entity (meaning the entity which is not controlled by any other entity).

The Permittee shall notify the Commission of:

(a) a change in the owner(s) of the majority* financial or governance interests in the Permittee; or
(b) a change in the owner(s) of the majority* financial or governance interests of the Permittee's owners; or
(c) a sale which changes the ultimate parent entity of the Permittee

*When there are only co-equal 50/50 percent interests, any change shall be considered a change in majority interest.

In the event of an ownership change, the new Permittee must provide the Commission with a certification that it has read, understands, and is able to comply with the conditions of this permit.

3 DESIGNATED SITE

The site designated by the Commission for the Project is depicted on the site maps attached to this site permit (Designated Site). The site maps show the approximate location of the energy storage system and associated facilities within the Designated Site and identify a layout that seeks to minimize the overall potential human and environmental impacts of the Project, as they were evaluated in the permitting process.

The Designated Site serves to provide the Permittee with the flexibility to make minor adjustments to the layout to accommodate requests by landowners, local government units, federal and state agency requirements, and unforeseen conditions encountered during the detailed engineering and design process. Any modification to the location of a photovoltaic tracker row or associated facility shall be done in such a manner as to have human and environmental impacts that are comparable to those associated with the layouts on the maps

attached to this site permit. The Permittee shall identify any modifications in the Site Plan pursuant to Section 8.3.

4 GENERAL CONDITIONS

The Permittee shall comply with the following conditions during construction and operation of the energy storage system over the life of this site permit.

4.1 Site Permit Distribution

Within 30 days of issuance of this site permit, the Permittee shall provide all affected landowners with a copy of this site permit and the complaint procedures. An affected landowner is any landowner or designee that is within or adjacent to the permitted site. In no case shall a landowner receive this site permit and complaint procedures less than five days prior to the start of construction on their property. The Permittee shall also provide a copy of this site permit and the complaint procedures to the applicable regional development commissions, county environmental offices, and city and township clerks. The Permittee shall file with the Commission an affidavit of its site permit and complaint procedures distribution within 30 days of issuance of this site permit.

4.2 Access to Property

The Permittee shall notify landowners prior to entering or conducting maintenance within their property, unless otherwise negotiated with the landowner. The Permittee shall keep records of compliance with this section and provide them upon the request of ~~Minnesota Department of Commerce (Department of Commerce) staff or~~ Commission staff.

4.3 Construction and Operation Practices

The Permittee shall comply with the construction practices, operation and maintenance practices, and material specifications described in the permitting record for this Project unless this site permit establishes a different requirement in which case this site permit shall prevail.

4.3.1 Field Representative

The Permittee shall designate a field representative responsible for overseeing compliance with the conditions of this site permit during construction of the Project. This person shall be accessible by telephone or other means during normal business hours throughout site preparation, construction, cleanup, and restoration.

The Permittee shall file with the Commission the name, address, email, phone number, and emergency phone number of the field representative at least 14 days prior to the pre-construction meeting. The Permittee shall provide the field representative's contact information to affected landowners, local government units and other interested persons at least 14 days prior to the pre-construction meeting. The Permittee may change the field representative at any time upon notice to the Commission, affected landowners, local government units and other interested persons. The Permittee shall file with the Commission an affidavit of distribution of its field representative's contact information at least 14 days prior to the pre-construction meeting and upon changes to the field representative.

4.3.2 Site Manager

The Permittee shall designate a site manager responsible for overseeing compliance with the conditions of this site permit during the commercial operation and decommissioning phases of the Project. This person shall be accessible by telephone or other means during normal business hours for the life of this site permit.

The Permittee shall file the name, address, email, phone number, and emergency phone number of the site manager with the Commission within 14 days prior to the pre-operation meeting. The Permittee shall provide the site manager's contact information to landowners within or adjacent to the Project Boundary, local government units and other interested persons at least 14 days prior to the pre-operation meeting. The Permittee may change the site manager at any time upon notice to the Commission, landowners within or adjacent to the Project Boundary, local government units, and other interested persons. The Permittee shall file with the Commission an affidavit of distribution of its site manager's contact information at least 14 days prior to the pre-operation meeting and upon changes to the site manager.

4.3.3 Employee Training - Site Permit Terms and Conditions

The Permittee shall train and educate all employees, contractors, and other persons involved in the construction and ongoing operation of the energy storage system of the terms and conditions of this site permit. The Permittee shall keep records of compliance with this section and provide them upon the request of Department of Commerce staff or Commission staff.

4.3.4 Independent Third-Party Monitoring

Prior to any construction, the Permittee shall propose a scope of work and identify an independent third-party monitor to conduct Project construction monitoring on behalf of the ~~Department of Commerce~~ Commission. The scope of work shall be developed in consultation with and approved by the ~~Department of Commerce~~ Commission staff. This third-party monitor will report directly to and will be under the control of the ~~Department of Commerce~~

Commission with costs borne by the Permittee. ~~Department of Commerce~~ Commission staff shall keep records of compliance with this section and will ensure that status reports detailing the construction monitoring are filed with the Commission in accordance with the approved scope of work approved by the ~~Department of Commerce~~ Commission staff.

4.3.5 Public Services, Public Utilities, and Existing Easements

During Project construction, the Permittee shall minimize any disruption to public services or public utilities. To the extent disruptions to public services or public utilities occur these shall be temporary, and the Permittee shall restore service promptly. Where any impacts to utilities have the potential to occur the Permittee shall work with both landowners and local entities to determine the most appropriate mitigation measures if not already considered as part of this site permit.

The Permittee shall cooperate with county and city road authorities to develop appropriate signage and traffic management during construction. The Permittee shall keep records of compliance with this section and provide them upon the request of Department of Commerce staff or Commission staff.

4.3.6 Temporary Workspace

The Permittee shall select temporary workspace and equipment staging areas that limit the removal and impacts to vegetation. The Permittee shall not site temporary workspace in wetlands or native prairie as defined in sections 4.3.13 and 4.3.14. The Permittee shall site temporary workspace to comply with standards for development of the shorelands of public waters as defined in Section 4.3.13. The Permittee shall obtain temporary easements outside of the authorized Project Boundary from affected landowners through rental agreements. Temporary easements are not provided for in this site permit.

4.3.7 Noise

The Permittee shall comply with noise standards established under Minn. R. 7030.0010 to 7030.0080, at all times and at all appropriate locations during operation of the Project. The Permittee shall limit construction and maintenance activities to daytime working hours to the extent practicable.

4.3.8 Aesthetics

The Permittee shall consider input pertaining to visual impacts from landowners and the local unit of government having direct zoning authority over the area in which the Project is located. The Permittee shall use care to preserve the natural landscape, minimize tree removal and

prevent any unnecessary destruction of the natural surroundings in the vicinity of the Project during construction and operation.

4.3.9 Topsoil Protection

The Permittee shall implement measures to protect and segregate topsoil from subsoil on all lands utilized for Project construction unless otherwise negotiated with affected landowner.

4.3.10 Soil Compaction

The Permittee shall implement measures to minimize soil compaction of all lands during all phases of the Project's life and shall confine compaction to as small an area as feasible. The Permittee shall use soil decompaction measures on all lands utilized for Project construction and travelled on by heavy equipment (*e.g.*, cranes and heavy trucks), even when soil compaction minimization measures are used.

4.3.11 Soil Erosion and Sediment Control

The Permittee shall implement those erosion prevention and sediment control practices recommended by the Minnesota Pollution Control Agency (MPCA) Construction Stormwater Program. If construction of the Project disturbs more than one acre of land or is sited in an area designated by the MPCA as having potential for impacts to water resources, the Permittee shall obtain a National Pollutant Discharge Elimination System/State Disposal System Construction Stormwater Permit from the MPCA that provides for the development of a Stormwater Pollution Prevention Plan that describes methods to control erosion and runoff.

The Permittee shall implement reasonable measures to minimize erosion and sedimentation during construction and shall employ perimeter sediment controls, protect exposed soil by promptly planting, seeding, using erosion control blankets and turf reinforcement mats, stabilizing slopes, protecting storm drain inlets, protecting soil stockpiles, and controlling vehicle tracking. Contours shall be graded as required so that all surfaces provide for proper drainage, blend with the natural terrain, and are left in a condition that will facilitate re-vegetation and prevent erosion. All areas disturbed during construction of the Project shall be returned to pre-construction conditions.

4.3.12 Public Lands

In no case shall the energy storage system and associated facilities including foundations, access roads, underground cable, and transformers, be located in the public lands identified in Minn. R. 7850.4400, subp. 1, or in federal waterfowl production areas. Photovoltaic tracker

rows and associated facilities shall not be located in the public lands identified in Minn. R. 7850.4400, subp. 3, unless there is no feasible and prudent alternative.

4.3.13 Wetlands and Water Resources

The Permittee shall not place the energy storage system or associated facilities in public waters and public waters wetlands, as shown on the public water inventory maps prescribed by Minnesota Statutes Chapter 103G, except that electric collector or feeder lines may cross or be placed in public waters or public waters wetlands subject to permits and approvals by the Minnesota Department of Natural Resources (DNR) and the United States Army Corps of Engineers (USACE), and local units of government as implementers of the Minnesota Wetlands Conservation Act. The Permittee shall locate the energy storage system and associated facilities in compliance with the standards for development of the shorelands of public waters as identified in Minn. R. 6120.3300, and as adopted, Minn. R. 6120.2800, unless there is no feasible and prudent alternative.

The Permittee shall construct in wetland areas during frozen ground conditions, to the extent feasible, to minimize impacts. When construction during winter is not possible, wooden or composite mats shall be used to protect wetland vegetation. The Permittee shall contain and manage soil excavated from the wetlands and riparian areas in accordance with all applicable wetland permits. The Permittee shall access wetlands and riparian areas using the shortest route possible in order to minimize travel through wetland areas and prevent unnecessary impacts.

The Permittee shall restore wetland and water resource areas disturbed by construction activities to pre-construction conditions in accordance with the requirements of applicable state and federal permits or laws and landowner agreements. The Permittee shall meet the USACE, DNR, Minnesota Board of Water and Soil Resources, and local government wetland and water resource requirements.

4.3.14 Native Prairie

The Permittee shall not place the energy storage system or associated facilities in native prairie, as defined in Minn. Stat. § 84.02, subd. 5, unless addressed in a prairie protection and management plan and not located in areas enrolled in the Native Prairie Bank Program. The Permittee shall not impact native prairie during construction activities, as defined in Minn. Stat. § 216E.01, unless addressed in a prairie protection and management plan.

The Permittee shall prepare a prairie protection and management plan in consultation with the DNR if native prairie, as defined in Minn. Stat. § 84.02, subd. 5, is identified within the Project Boundary. The Permittee shall file the prairie protection and management plan with the

Commission at least 30 days prior to submitting the Site Plan required by Section 8.3 of this site permit. The prairie protection and management plan shall address steps that will be taken to avoid impacts to native prairie and mitigation to unavoidable impacts to native prairie by restoration or management of other native prairie areas that are in degraded condition, by conveyance of conservation easements, or by other means agreed to by the Permittee, the DNR, and the Commission.

4.3.15 Vegetation Management

The Permittee shall disturb or clear vegetation within the Designated Site only to the extent necessary to assure the safe construction, operation, and maintenance of the Project. The Permittee shall minimize the number of trees removed within the Designated Site specifically preserving to the maximum extent practicable windbreaks, shelterbelts, and living snow fences.

4.3.16 Application of Pesticides

The Permittee shall restrict pesticide use to those pesticides and methods of application approved by the MDA, DNR, and the U.S. Environmental Protection Agency (EPA). Selective foliage or basal application shall be used when practicable. All pesticides shall be applied in a safe and cautious manner so as not to damage adjacent properties including crops, orchards, tree farms, apiaries, or gardens. The Permittee shall contact the landowner at least 14 days prior to pesticide application on their property. The Permittee may not apply any pesticide if the landowner requests that there be no application of pesticides within the landowner's property. The Permittee shall provide notice of pesticide application to landowners and beekeepers operating known apiaries within three miles of the pesticide application area at least 14 days prior to such application. The Permittee shall keep pesticide communication and application records and provide them upon the request of ~~Department of Commerce staff or~~ Commission staff.

4.3.17 Invasive Species

The Permittee shall employ best management practices to avoid the potential introduction and spread of invasive species on lands disturbed by Project construction activities. The Permittee shall develop an Invasive Species Prevention Plan and file it with the Commission at least 14 days prior to the pre-construction meeting. The Permittee shall comply with the most recently filed Invasive Species Prevention Plan.

4.3.18 Noxious Weeds

The Permittee shall take all reasonable precautions against the spread of noxious weeds during all phases of construction. When utilizing seed to establish temporary and permanent

vegetative cover on exposed soil the Permittee shall select site-appropriate seed certified to be free of noxious weeds. To the extent possible, the Permittee shall use native seed mixes. The Permittee shall keep records of compliance with this section and provide them upon the request of ~~Department of Commerce staff or~~ Commission staff.

4.3.19 Roads

The Permittee shall advise the appropriate governing bodies having jurisdiction over all state, county, city, or township roads that will be used during the construction phase of the Project. Where practical, existing roadways shall be used for all activities associated with construction of the Project. Oversize or overweight loads associated with the Project shall not be hauled across public roads without required permits and approvals.

The Permittee shall locate all perimeter fencing and vegetative screening in a manner that does not interfere with routine road maintenance activities and allows for continued safe travel on public roads.

The Permittee shall construct the fewest number of site access roads required. Access roads shall not be constructed across streams and drainage ways without the required permits and approvals. Access roads shall be constructed in accordance with all necessary township, county or state road requirements and permits.

The Permittee shall promptly repair private roads or lanes damaged when moving equipment or when accessing construction workspace, unless otherwise negotiated with the affected landowner. The Permittee shall keep records of compliance with this section and provide them upon the request of ~~Department of Commerce staff or~~ Commission staff.

4.3.20 Archaeological and Historic Resources

The Permittee shall make every effort to avoid impacts to archaeological and historic resources when constructing the Project. In the event that a resource is encountered, the Permittee shall consult with the State Historic Preservation Office (SHPO) and the State Archaeologist. Where feasible, avoidance of the resource is required. Where not feasible, mitigation must include an effort to minimize Project impacts on the resource consistent with SHPO and State Archaeologist requirements.

Prior to construction, the Permittee shall train workers about the need to avoid cultural properties, how to identify cultural properties, and procedures to follow if undocumented cultural properties, including gravesites, are found during construction. If human remains are encountered during construction, the Permittee shall immediately halt construction and promptly notify local law enforcement and the State Archaeologist. The Permittee shall not

resume construction at such location until authorized by local law enforcement or the State Archaeologist. The Permittee shall keep records of compliance with this section and provide them upon the request of ~~Department of Commerce staff or~~ Commission staff.

4.3.21 Interference

If interference with radio or television, satellite, wireless internet, GPS-based agriculture navigation systems or other communication devices is caused by the presence or operation of the Project, the Permittee shall take whatever action is necessary to restore or provide reception equivalent to reception levels in the immediate area just prior to the construction of the Project. The Permittee shall keep records of compliance with this section and provide them upon the request of Department of Commerce staff or Commission staff.

4.3.22 Drainage Tiles

The Permittee shall avoid, promptly repair, or replace all drainage tiles broken or damaged during all phases of the Project's life unless otherwise negotiated with the affected landowner. The Permittee shall keep records of compliance with this section and provide them upon the request of ~~Department of Commerce staff or~~ Commission staff.

4.3.23 Restoration

The Permittee shall restore the areas affected by construction of the Project to the condition that existed immediately before construction began to the greatest extent possible. The time period to complete restoration may be no longer than 12 months after the completion of construction. Restoration shall be compatible with the safe operation, maintenance, and inspection of the Project. Within 60 days after completion of all restoration activities, the Permittee shall file with the Commission a Notice of Restoration Completion.

4.3.24 Cleanup

The Permittee shall remove and properly dispose of all construction waste and scrap from the right-of-way and all premises on which construction activities were conducted upon completion of each task. The Permittee shall remove and properly dispose of all personal litter, including bottles, cans, and paper from construction activities daily.

4.3.25 Pollution and Hazardous Wastes

The Permittee shall take all appropriate precautions to protect against pollution of the environment. The Permittee shall be responsible for compliance with all laws applicable to the

generation, storage, transportation, clean up and disposal of all waste generated during construction and restoration of the Project.

4.3.26 Damages

The Permittee shall fairly restore or compensate landowners for damage to crops, fences, private roads and lanes, landscaping, drain tile, or other damage sustained during construction. The Permittee shall keep records of compliance with this section and provide them upon the request of ~~Department of Commerce staff or~~ Commission staff.

4.3.27 Public Safety

The Permittee shall provide educational materials to landowners within and adjacent to the Designated Site and, upon request, to interested persons about the Project and any restrictions or dangers associated with the Project. The Permittee shall also implement any necessary safety measures such as placing warning signs and gates for traffic control or restricting public access. The Permittee shall file with the Commission an affidavit of its public safety notifications at least 14 days before the pre-construction meeting.

The Permittee shall submit the location of all underground facilities, as defined in Minn. Stat. § 216D.01, subd. 11, to Gopher State One Call following the completion of the construction of the Project.

4.3.28 Site Identification

The Permittee shall mark the energy storage system with a clearly visible identification number and/or street address.

4.4 Collector and Feeder Lines

The Permittee may use overhead or underground collector and feeder lines to carry power from an internal Project interconnection point to the energy storage system. The Permittee shall place overhead and underground collector and feeder lines that parallel public roads within the public right-of-way or on private land immediately adjacent to the road. The Permittee shall obtain approval from the landowner or government unit responsible for the affected right-of-way.

The Permittee shall locate collector and feeder lines in such a manner as to minimize interference with agricultural operations including but not limited to existing drainage patterns, drain tile, future tiling plans, and ditches. The Permittee shall place safety shields on all guy

wires associated with overhead collector and feeder lines. The Permittee shall submit the engineering drawings of all collector and feeder lines with the Site Plan pursuant to Section 8.3.

4.5 Other Requirements

4.5.1 Safety Codes and Design Requirements

The Permittee shall design the energy storage system and associated facilities to meet or exceed all relevant local and state codes, the National Electric Safety Code, and North American Electric Reliability Corporation requirements. This includes standards relating to clearances to ground, clearance to crossing utilities, clearance to buildings, strength of materials, clearances over roadways, right-of-way widths, and permit requirements. The Permittee shall keep records of compliance with these standards and provide them upon the request of ~~Department of Commerce staff or~~ Commission staff.

4.5.2 Other Permits and Regulations

The Permittee shall comply with all applicable state statutes and rules. The Permittee shall obtain all required permits for the Project and comply with the conditions of those permits unless those permits conflict with or are preempted by federal or state permits and regulations.

At least 14 days prior to the pre-construction meeting, the Permittee shall file with the Commission an Other Permits and Regulations Submittal that contains a detailed status of all permits, authorizations, and approvals that have been applied for specific to the Project. The Other Permits and Regulations Submittal shall also include the permitting agency name; the name of the permit, authorization, or approval being sought; contact person and contact information for the permitting agency or authority; brief description of why the permit, authorization, or approval is needed; application submittal date; and the date the permit, authorization, or approval was issued or is anticipated to be issued.

The Permittee shall demonstrate that it has obtained all necessary permits, authorizations, and approvals by filing an affidavit stating as such and an updated Other Permits and Regulations Submittal prior to commencing Project construction. The Permittee shall provide a copy of any such permits, authorizations, and approvals at the request of ~~Department of Commerce staff~~ or Commission staff.

5 SPECIAL CONDITIONS

The special conditions shall take precedence over other conditions of this permit should there be a conflict.

~~[Add Special Conditions in accordance with the record of the docket]~~

5.1 Lighting

Permittees must use shielded and downward facing lighting and LED lighting that minimizes blue hue at the gate locations, BESS enclosures, and along fence lines. Downward facing lighting must be clearly visible on the plan and profile submitted for the Project.

5.2 Pre-construction Noise Modeling and Impact Assessment

The Permittee shall file a noise impact assessment at least 14 days prior to the pre-construction meeting. The noise impact assessment shall summarize the results from noise propagation modeling that incorporates noise inputs from the selected equipment and the facility layout shown in the site plans required in Section 8.3 of this permit. The permittee shall file an updated noise impact assessment including any revisions to selected equipment or facility layout prior to any modifications to the facility over its operating life.

5.3 Noise Studies and noise Mitigation

The Permittee shall file a proposed methodology for the conduct of a post-construction noise study at least 14 days prior to the pre-construction meeting. The Permittee shall develop the post-construction noise study methodology in consultation with Commission staff. The Permittee must conduct the post-construction noise study and file with the Commission the completed post-construction noise study within 18 months of commencing commercial operation.

The BESS facilities and associated facilities shall be placed and operated such that the Permittee shall, at all times, comply with noise standards established by the MPCA. Operation of the facility shall be modified, or project components shall be removed from service if necessary to comply with these noise standards.

5.4 Hazard Mitigation Analysis

The Permittee shall file a Hazard Mitigation Analysis detailing the results of the equipment testing, and the risks associated with the technology at least 30 days prior to the pre-construction meeting.

5.5 Natural Gas Pipeline

The Permittee shall confer with the Northern Natural Gas Company to avoid impacts to the gas transmission pipeline that intersects the primary access road and develop further mitigation measures as needed.

5.6 Vegetation Management Plan

The amended VMP must include the following:

(a) management objectives addressing short term (year 0-5, seeding and establishment) and long term (year 5 through the life of the Project) goals;

(b) a description of planned restoration and vegetation management activities, including how the site will be prepared, timing of activities, how seeding will occur (e.g., broadcast, drilling, etc.), and the types of seed mixes to be used;

(c) a description of how the site will be monitored and evaluated to meet management goals;

(d) a description of the management tools used to maintain vegetation (e.g., mowing, spot spraying, hand removal, fire, grazing, etc.), including the timing and frequency of maintenance activities;

(e) identification of the third-party (e.g., consultant, contractor, site manager, etc.) contracted for restoration, monitoring, and long-term vegetation management of the site;

(f) identification of on-site noxious weeds and invasive species (native and non-native) and the monitoring and management practices to be utilized; and

(g) a marked-up copy of the Site Plan showing how the site will be revegetated and that identifies the corresponding seed mixes. Best management practices should be followed concerning seed mixes, seeding rates, and cover crops.

5.7 Unanticipated Discoveries Plan

Prior to construction, the Permittee shall survey areas of construction activity within undisturbed land that have not been surveyed.

The Permittee shall develop an Unanticipated Discoveries Plan (UDP) to identify guidelines to be used in the event previously unrecorded archeological or historic properties, or human

remains, are encountered during construction, or if unanticipated effects to previously identified archaeological or historic properties occur during construction. This is in addition to and not in lieu of any other obligations that may exist under law or regulation relating to these matters. The UDP shall describe how previously unrecorded, non-human burial, archaeological sites found during construction shall be marked and all construction work must stop at the discovery location. The Permittee shall file the UDP with the Commission at least 14 days prior to the preconstruction meeting.

5.8 Security Fencing

The Permittee shall design the security fence surrounding the energy storage system to minimize the visual impact of the Project while maintaining compliance with the National Electric Safety Code. The Permittee shall develop a final fence plan for the specific site in coordination with the DNR. The final fence plan shall be submitted to the Commission as part of the Site Plan pursuant to Section 8.3.

5.9 Wildlife-Friendly Erosion Control

The Permittee shall use only "bio-netting" or "natural netting" types of erosion control materials and mulch products without synthetic (plastic) fiber additives.

5.10 Dust Control

The Permittee shall minimize and avoid, if possible, the use or chloride-based dust control chemicals (i.e., calcium chloride, magnesium chloride).

5.11 Battery Augmentation

The Permittee shall notify the Commission of scheduled augmentation at least 30 days prior to commencing augmentation activities. In its filing, the Permittee shall describe the number and types of batteries included in the augmentation. The Permittee shall indicate the location of the augmentation on the project Site Plan. In its filing the Permittee shall demonstrate compliance with the noise impact assessment submitted to the Commission as required in Section 5.2 of this permit.

5.12 Offtake Agreement

In the event the Permittee does not have an offtake agreement, or some other enforceable mechanism for sale of energy capacity provided by the Project at the time this site permit is issued, the Permittee shall provide notice to the Commission when it obtains a commitment for the energy capacity. This site permit does not authorize construction of the Project until the

Permittee has obtained an offtake agreement, or some other enforceable mechanism for energy capacity provided by the Project. In the event the Permittee does not obtain an offtake agreement or some other enforceable mechanism for the energy capacity provided by the Project within four years of the issuance of this site permit, the Permittee must advise the Commission of the reason for not having such commitment. In such event, the Commission may determine whether this site permit should be amended or revoked. No amendment or revocation of this site permit may be undertaken except in accordance with Minn. Stat. § 216I.09 or Minn. Stat. § 216I.14.

5.13 Annual Report

The Permittee shall, by February 1st following each complete or partial year of Project operation, file a report with the Commission on the monthly availability of the facility including:

1. the installed nameplate capacity of the permitted facility;
2. the monthly and annual availability of the facility;
3. the operational status of the facility and any major outages, major repairs, incidents that required an emergency response, battery augmentation, or performance improvements occurring in the previous year; and
4. any other information reasonably requested by the Commission.

The Permittee shall file this information in a format recommended by the Commission. This information shall be considered public and must be filed electronically.

6 DELAY IN CONSTRUCTION

If the Permittee has not commenced construction or improvement of the site within four years after the date of issuance of this site permit the Permittee shall file a Failure to Construct Report and the Commission shall consider suspension of this site permit in accordance with Minn. R. 7850.4700.

7 COMPLAINT PROCEDURES

At least 14 days prior to the pre-construction meeting, the Permittee shall file with the Commission the complaint procedures that will be used to receive and respond to complaints. The complaint procedures shall be in accordance with the requirements of Minn. R. 7829.1500 or Minn. R. 7829.1700, and as set forth in the complaint procedures attached to this site permit.

Upon request, the Permittee shall assist ~~Department of Commerce staff or~~ Commission staff with the disposition of unresolved or longstanding complaints. This assistance shall include, but is not limited to, the submittal of complaint correspondence and complaint resolution efforts.

8 COMPLIANCE REQUIREMENTS

Failure to timely and properly make compliance filings required by this site permit is a failure to comply with the conditions of this site permit. Compliance filings must be electronically filed with the Commission.

8.1 Pre-Construction Meeting

Prior to the start of construction, the Permittee shall participate in a pre-construction meeting with ~~Department of Commerce staff and~~ Commission staff to review pre-construction filing requirements, scheduling, and to coordinate monitoring of construction and site restoration activities. Within 14 days following the pre-construction meeting, the Permittee shall file with the Commission a summary of the topics reviewed and discussed and a list of attendees. The Permittee shall indicate in the filing the anticipated construction start date.

8.2 Pre-Operation Meeting

At least 14 days prior to commercial operation of the Project, the Permittee shall participate in a pre-operation meeting with ~~Department of Commerce staff and~~ Commission staff to coordinate field monitoring of operation activities for the Project. Within 14 days following the pre-operation meeting, the Permittee shall file a summary of the topics reviewed and discussed and a list of attendees with the Commission.

8.3 Site Plan

At least 14 days prior to the pre-construction meeting, the Permittee shall file with the Commission, and provide ~~the Department of Commerce, and~~ the counties where the Project will be constructed with a Site Plan that includes specifications and drawings for site preparation and grading; specifications and locations of the energy storage system and associated facilities; and procedures for cleanup and restoration. The documentation shall include maps depicting the Designated Site, energy storage system, and associated facilities layout in relation to that approved by this site permit.

The Permittee may not commence construction until the earlier of (i) 30 days after the pre-construction meeting or (ii) or until the Commission staff has notified the Permittee in writing that it has completed its review of the documents and determined that the planned construction is consistent with this site permit.

If the Commission notifies the Permittee in writing within 30 days after the pre-construction meeting that it has completed its review of the documents and planned construction, and finds that the planned construction is not consistent with this site permit, the Permittee may submit additional and/or revised documentation and may not commence construction until the Commission has notified the Permittee in writing that it has determined that the planned construction is consistent with this site permit.

If the Permittee intends to make any significant changes in its Site Plan or the specifications and drawings after submission to the Commission, the Permittee shall notify the Commission~~, the Department of Commerce,~~ and county staff at least five days before implementing the changes. No changes shall be made that would be in violation of any of the terms of this site permit.

8.4 Status Reports

The Permittee shall file with the Commission monthly Construction Status Reports beginning with the pre-construction meeting and until completion of restoration. Construction Status Reports shall describe construction activities and progress, activities undertaken in compliance with this site permit, and shall include text and photographs.

If the Permittee does not commence construction of the Project within six months of this site permit issuance, the Permittee shall file with the Commission Pre-Construction Status Reports on the anticipated timing of construction every six months beginning with the issuance of this site permit until the pre-construction meeting. The status updates shall include information on the Project's Midcontinent Independent System Operator (MISO) interconnection process, if applicable.

8.5 Labor Statistic Reporting

The Permittee shall file quarterly Labor Statistic Reports with the Commission within 45 days of the end of the quarter regarding construction workers that participated in the construction of the Project. The Labor Statistic Reports shall:

(a) detail the Permittee's efforts and the site contractor's efforts to hire Minnesota workers; and
(b) provide an account of:
    i. the gross number of hours worked by or full-time equivalent workers who are Minnesota residents, as defined in Minn. Stat. § 290.01, subd. 7;
    ii. the gross number of hours worked by or full-time equivalent workers who are residents of other states, but maintain a permanent residence within 150 miles of the Project; and

iii. the total gross hours worked or total full-time equivalent workers.

The Permittee shall work with its contractor to determine the suitable reporting metric. The report may not include personally identifiable data.

8.6 Prevailing Wage

The Permittee, its contractors, and subcontractors shall pay no less than the prevailing wage rate as defined in Minn. Stat. § 177.42 and shall be subject to the requirements and enforcement provisions under Minn. Stat. §§ 177.27, 177.30, 177.32, 177.41 to 177.435, and 177.45. The Permittee shall keep records of contractor and subcontractor pay and provide them at the request of ~~Department of Commerce staff or~~ Commission staff.

8.7 In-Service Date

At least three days before the Project is to be placed into service, the Permittee shall notify the Commission of the date on which the Project will be placed into service and the date on which construction was completed.

8.8 As-Builts

Within 90 days after completion of construction, the Permittee shall submit to the Commission copies of all final as-built plans and specifications developed during the Project construction.

8.9 GPS Data

Within 90 days after completion of construction, the Permittee shall submit to the Commission, in the format requested by the Commission, geo-spatial information (*e.g.*, ArcGIS compatible map files, GPS coordinates, associated database of characteristics) for all structures associated with the Project.

8.10 Right of Entry

The Permittee shall allow Commission designated representatives to perform the following, upon reasonable notice, upon presentation of credentials and at all times in compliance with the Permittee's site safety standards:

(a) To enter upon the facilities easement of the property for the purpose of obtaining information, examining records, and conducting surveys or investigations.
(b) To bring such equipment upon the facilities easement of the property as is necessary to conduct such surveys and investigations.

(c) To sample and monitor upon the facilities easement of the property.
To examine and copy any documents pertaining to compliance with the conditions of this site permit.

8.11 Emergency Response

The Permittee shall prepare an Emergency Response Plan (ERP) in consultation with the emergency responders having jurisdiction over the Project prior to construction. The Permittee shall file the ERP, along with any comments from emergency responders to the Commission at least 14 days prior to the pre-construction meeting and a revised ERP, if any, at least 14 days prior to the pre-operation meeting. At least 14 days prior to the pre-operation meeting the Permittee shall file with the Commission an affidavit of the distribution of the ERP to emergency responders and Public Safety Answering Points (PSAP) with jurisdiction over the Project. The Permittee shall obtain and register the Project address or other location indicators acceptable to the emergency responders and PSAP having jurisdiction over the Project.

8.12 Extraordinary Events

Within 24 hours of discovery of an occurrence, the Permittee shall notify the Commission of any extraordinary event. Extraordinary events include but shall not be limited to fires, acts of sabotage, collector or feeder line failure, and injured worker or private person. The Permittee shall, within 30 days of the occurrence, file a report with the Commission describing the cause of the occurrence and the steps taken to avoid future occurrences.

8.13 Wildlife Injuries and Fatalities

The Permittee shall report any wildlife injuries and fatalities to the Commission quarterly.

9 DECOMMISSIONING AND RESTORATION

9.1 Decommissioning Plan

The Permittee shall comply with the provisions of the most recently filed and accepted Decommissioning Plan. The initial version of the Decommissioning Plan was submitted for this Project as ~~[Identify Decommissioning Plan, *e.g.*, Appendix XX to the Site Permit Application]~~ Appendix D of the Site Permit Application. The Permittee shall file an updated Decommissioning Plan incorporating comments and information from the permit application process and any updates associated with the final construction plans with the Commission at least fourteen 14 days prior to the pre-construction meeting. The Permittee shall update and file the Decommissioning Plan with the Commission every five years following the commercial operation date.

The Decommissioning Plan shall provide information identifying all surety and financial securities established for decommissioning and site restoration. The Decommissioning Plan shall provide an itemized breakdown of costs of decommissioning all Project components, which shall include labor and equipment.

The Permittee shall also submit the Decommissioning Plan to the local unit of government having direct zoning authority over the area in which the Project is located. The Permittee shall ensure that it carries out its obligations to provide for the resources necessary to fulfill its requirements to properly decommission the Project at the appropriate time. The Commission may at any time request the Permittee to file a report with the Commission describing how the Permittee is fulfilling this obligation.

9.2 Site Final Restoration

Upon expiration of this site permit or upon termination of operation of the Project, the Permittee shall have the obligation to dismantle and remove from the site all Project components in accordance with the most recently filed and accepted decommissioning plan. To the extent feasible, the Permittee shall restore and reclaim the site to pre-project conditions. Landowners may require the site be returned to agricultural production or may retain restored prairie vegetation, or other land uses as agreed to between the landowner and the Permittee. All access roads shall be removed unless written approval is given by the affected landowner requesting that one or more roads, or portions thereof, be retained. All such agreements between the Permittee and the affected landowner shall be filed with the Commission prior to commencing restoration activities. The Permittee shall restore the site in accordance with the requirements of this condition and file a Notification of Final Restoration Completion to the Commission within 18 months of termination of operation of the Project.

10 COMMISSION AUTHORITY AFTER SITE PERMIT ISSUANCE

10.1 Expansion of Designated Site Boundaries

No expansion of the site boundary described in this site permit shall be authorized without the approval of the Commission. The Permittee may submit to the Commission a request for a change in the boundary of the site for the Project. The Commission will respond to the requested change in accordance with applicable statutes and rules.

10.2 Periodic Review

The Commission shall initiate a review of this site permit and the applicable conditions at least once every five years. The purpose of the periodic review is to allow the Commission, the

Permittee, and other interested persons an opportunity to consider modifications in the conditions of this site permit. No modification may be made except in accordance with applicable statutes and rules.

10.3 Modification of Conditions

After notice and opportunity for hearing this site permit may be modified or amended for cause, including but not limited to the following:

(a) violation of any condition in this permit;
(b) endangerment of human health or the environment by operation of the Project; or
(c) existence of other grounds established by rule.

10.4 More Stringent Rules

The issuance of this site permit does not prevent the future adoption by the Commission of rules or orders more stringent than those now in existence and does not prevent the enforcement of these more stringent rules and orders against the Permittee.

11 SITE PERMIT AMENDMENT

This site permit may be amended at any time by the Commission. Any person may request an amendment of the conditions of this site permit by submitting a request to the Commission in writing describing the amendment sought and the reasons for the amendment. The Commission will mail notice of receipt of the request to the Permittee. The Commission may amend the conditions after affording the Permittee and interested persons such process as is required under Minn. R. 7850.4900.

12 TRANSFER OF SITE PERMIT

The Permittee may request at any time that the Commission transfer this site permit to another person or entity (transferee). In its request, the Permittee must provide the Commission with:

(a) the name and description of the transferee;
(b) the reasons for the transfer;
(c) a description of the facilities affected; and
(d) the proposed effective date of the transfer.

The transferee must provide the Commission with a certification that it has read, understands and is able to comply with the plans and procedures filed for the Project and all conditions of this site permit.

The transferee must provide the Commission with the name and contact information for the site manager, as described in Section 4.3.2, and either a current version with eDocket reference, or a revised version of the following:

(a) complaint procedures, as described in Section 7 and Attachment 1;
(b) ERP, as described in Section 8.12; and
(c) Decommissioning Plan, as described in Section 9.1.

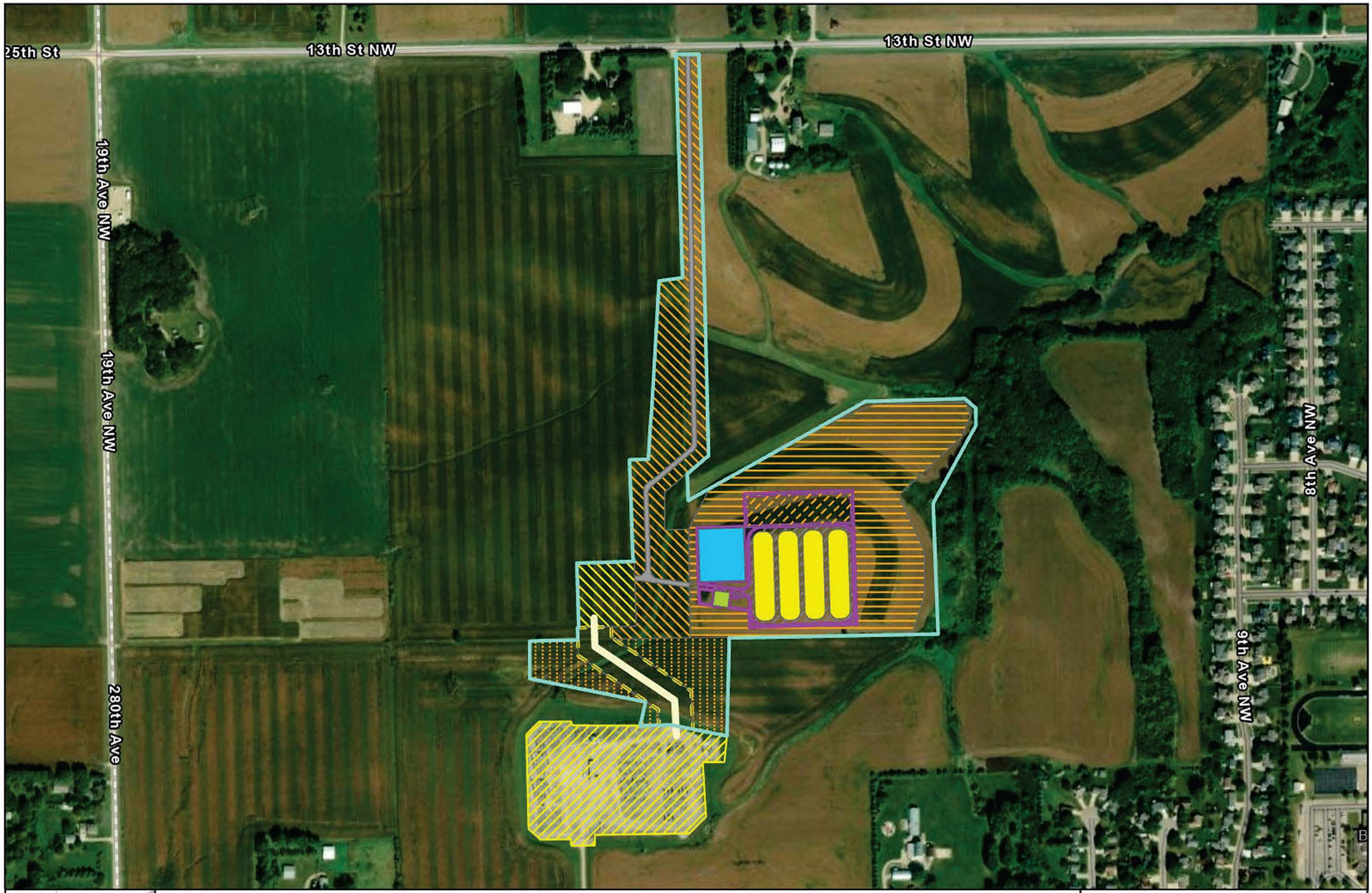
The Commission may authorize transfer of the site permit after affording the Permittee, the transferee, and interested persons such process as is required under Minn. R. 7850.5000.

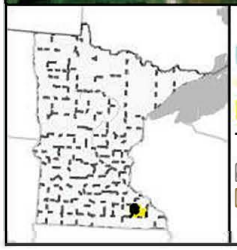
13 REVOCATION OR SUSPENSION OF SITE PERMIT

The Commission may initiate action to revoke or suspend this site permit at any time. The Commission shall act in accordance with the requirements of Minn. R. 7850.5100, to revoke or suspend this site permit.

14 EXPIRATION DATE

This site permit shall expire ~~[xx]~~30 years after the date this site permit was approved and adopted.





Sandhill Land Control Area
Gen-Tie Line
Byron Substation

Type of Facility

Access Road
BESS Temporary Workspace

BESS Units
Fenced Area
Gen-Tie ROW
Gen-Tie Temporary Workspace
Laydown Yard
On-Site Maintenance Area

Parking Area
Primary Access Road
Primary Access Road Temporary Workspace
Stormwater Pond
Substation Area
Trash Enclosure

N

300 150 0 300

Feet

Project Overview:
Sandhill Energy Storage Project
Olmsted County, Minnesota

MINNESOTA
PUBLIC UTILITIES COMMISSION