

Appendix E

Preliminary Agricultural Impact Mitigation Plan

AGRICULTURAL IMPACT MITIGATION PLAN

Northern Crescent Solar and Storage Project

Faribault County, Minnesota

FEBRUARY 21, 2024

PREPARED FOR:



PREPARED BY:

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Agricultural Impact Mitigation Plan

Northern Crescent Solar and Storage Project

Faribault County, Minnesota

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Project Number: 0044069.00

Date: February 21, 2024

Abbreviations and Definitions

AC	Alternating Current
AIMP or Plan	Agricultural Impact Mitigation Plan
BESS	Battery Energy Storage System
BMPs	Best Management Practices
BMS	Battery Management System
BWSR	Minnesota Board of Water & Soil Resources
CAB System	Cabling underhung beneath the PV panels and racking
CO ₂	Carbon Dioxide
Commission or PUC	Minnesota Public Utilities Commission
Construction Manager	Person responsible for coordination and supervision of construction of the Project
Contractor	Construction Contractor
DC	Direct current
Decompaction	Treatment which relieves soil compaction by introducing air space into the soil.
DOC	Minnesota Department of Commerce
Drain tile	System that removes excess water from the soil; typically, belowground.
Faribault SWCD	Faribault County Soil and Water Conservation District
GPS	Global positioning system
HVTL	High Voltage Transmission Line
kV	Kilovolt
kVA/kW	Kilovolt-amperes
LCC	Land Capability Class
MDA	Minnesota Department of Agriculture
MISO	Midcontinent Independent Transmission System Operator Standards
MNDNR	Minnesota Department of Natural Resources
Monitor	Environmental monitor
MPCA	Minnesota Pollution Control Agency
MV	Medium Voltage
MW	Megawatts
Northern Crescent Solar or Applicant	Northern Crescent Solar LLC
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
O&M Facility	Operations and maintenance building
Owner	The Project owner at time of decommissioning
PCS	Power Conversion System

Preliminary Development Area	Approximate 929-acre area where Northern Crescent Solar proposes to build the Northern Crescent Solar and Storage Project facilities
Primergy	Primergy Solar Acquisitions, LLC
Project	Northern Crescent Solar and Storage Project (a photovoltaic solar energy conversion project and battery storage project)
Project Area	Approximate 1,179-acre land area within which the Project will be developed
Project Gen-Tie	A less than 250-foot long 161 kV transmission line
Project Plant Manager	Manager of the Project while the Project is in use
Project Substation	A 34.5/161 kV step-up substation
PV	Photovoltaic
ROW	Right-of-Way
SCADA	Supervisory Control and Data Acquisition
SPA	Site Permit Application
SSURGO	Soil Survey Geographic Database
SWPPP	Stormwater Pollution Prevention Plan
Tile Contractor	Agricultural drain tile contractor
VSMP	Vegetation and Soil Management Plan
Xcel Switchyard	A new switchyard connecting the Project to the grid
Xcel Line Tap	A new line tap connecting the Xcel Switchyard to the grid

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1.0 Purpose and Applicability of Plan

The objective of this Agricultural Impact Mitigation (Plan or AIMP) and the associated Vegetation and Soil Management Plan (VSMP) is to identify measures that Northern Crescent Solar LLC (Northern Crescent Solar or Applicant) and its contractors will take to avoid, minimize, mitigate, and/or repair potential negative agricultural impacts that may result from the construction, operation, and eventual decommissioning of the Northern Crescent Solar and Storage Project (Project)¹. The Project is a proposed up to 150 megawatt (MW) alternating current (ac) photovoltaic (PV) solar energy generating facility and associated 50 MWac battery energy storage system (BESS), and other associated facilities. The Project is planned to be sited on approximately 1,179 acres of farmland located in Verona Township (Sections 11, 12, and 13, Township 103, Range 28) and Sections 7 and 18, Township 103, Range 27 of Prescott Township (Project Area) in Faribault County, MN (**Exhibit 1**). The Plan is also being prepared in support of the Site Permit Application (SPA) that will be submitted to the Minnesota Public Utilities Commission (Commission or PUC) for approval of the Project in the second quarter of 2024 and anticipates the SPA will be issued in the first quarter of 2025.

Northern Crescent Solar will lease the property on which the Project is constructed and operated, and agricultural land use/production of the areas developed for the Project will temporarily cease during the 30-year life of the Project. This Plan outlines measures to ensure the Project Area land may be returned to future agricultural use following the closure and decommissioning of the Project, including descriptions of best management practices (BMPs) that will be used during construction to minimize long-term impacts to soil. It is important to note that while Northern Crescent Solar and the construction contractor (Contractor) hired to build the facility fully intend to adhere to the specifics of this Plan, certain practices may vary as the Contractor identifies methods that work more efficiently in this specific location and provide the highest degree of safety while constructing the facility.

The Plan includes establishing a beneficial plant species within the Project perimeter fence which will be installed around the planned Project PV solar arrays. Locally established perennial plant species will be selected to be low-growing, thrive in shade conditions, and not interfere with the operation of the solar panels yet provide benefits to the soil. Typically, a solar site has a shorter prairie seed mix within the solar arrays, a taller prairie seed mix in the open space between the fence and arrays, and a wetland seed mix for wetlands or areas anticipated to retain water. The seed mixes are developed with recommendations from plant specialists in coordination with the MDA, Minnesota Department of Natural Resources (MNDNR), Minnesota Board of Water & Soil Resources (BWSR) and Faribault County Soil and Water Conservation District (Faribault SWCD), as applicable, as described in the VSMP concurrently being implemented with this Plan for the Project.

The purpose of the Plan is to determine a seed mix design that will achieve the goals Northern Crescent Solar has for efficiently operating the Project, promote beneficial habitat, establish stable

¹ Note the VSMP is a standalone document that works in conjunction with the AIMP, the NPDES construction stormwater permit/Stormwater Pollution Prevention Plan (SWPPP) and related construction-related approvals/permits and design plans.

perennial ground cover, suppress weeds, reduce soil erosion and runoff, improve water infiltration, and work in conjunction with the VSMP, National Pollution Discharge Elimination System (NPDES) construction stormwater permit, Stormwater Pollution Prevention Plan (SWPPP), and related construction plans.

Northern Crescent Solar will utilize an adaptive management approach² for vegetation management as further detailed in the VSMP and described in the *Guidance for Developing a Vegetation Establishment and Management Plan for Solar Facilities*; the VSMP was prepared in consultation with Stantec, an experienced vegetation and restoration company, with input from the Minnesota Department of Agriculture (MDA), MNDNR, and the Minnesota Department of Commerce (DOC). Stantec worked with Northern Crescent Solar to develop plans in the VSMP for maintenance of the Project site's plantings throughout the life of the Project. More information on maintenance of the plantings is outlined in the VSMP.

This Plan is separated into the following sections: Section 2 provides an overview of the proposed Project and its components; Section 3 addresses limitations and suitability of the soils within the Project Area; Section 4 discusses the BMPs that will be used during construction and operation of the Project; and Section 5 outlines Project decommissioning.

2.0 Project Overview

2.1 Background

Northern Crescent Solar LLC, a wholly owned subsidiary of Primergy Solar Acquisitions, LLC (Primergy), proposes to construct and operate the Northern Crescent Solar and Storage Project on approximately 1,179 acres (Project Area) of land in Sections 11, 12, and 13, Township 103, Range 28, Verona Township, and Sections 7 and 18, Township 103, Range 27 of Prescott Township Faribault County, Minnesota (**Exhibit 1**). Northern Crescent Solar anticipates that approximately 929 acres (Preliminary Development Area) will be affected by Project facilities (**Exhibit 2**). The Project lies east of US Highway 169 and is bordered by 380th Avenue on the East and 180th Street to the North. It is approximately 1 mile south of the City of Winnebago, Minnesota. The Project will provide up to 150 MWac of renewable power capacity and 50 MW of battery storage. This is enough energy to provide electricity for approximately 35,249 households based on the average annual electricity consumption, as well as prevent emissions of approximately 266 metric tons of carbon dioxide (CO₂) equivalent annually.

The SPA will be submitted to the Commission during the second quarter of 2024. The Site Permit is expected to be issued by the PUC in the first quarter of 2025. Construction of the Project would occur in 2025-2026. The Project is planned to be placed in service late 2026.

² As defined by the U.S. Department of the Interior (DOI), adaptive management (also known as adaptive resource management or adaptive environmental assessment and management) is a systematic approach for improving resource management by learning from management outcomes. It is a structured, iterative process of robust decision making in light of uncertainty, with an aim to reducing uncertainty over time via system monitoring. See [Technical Guide \(doi.gov\)](#).

The Project will interconnect to the existing Xcel Huntley-Blue Earth 161 kilovolt (kV) high voltage transmission line (HVTL) via a line tap (Xcel Line Tap) at a new Switchyard (Xcel Switchyard) to be located within the northwestern portion of the Project Area near Highway 169. Northern Crescent Solar selected this site due to its close proximity to existing and planned transmission facilities, available transmission capacity, existing road infrastructure, willing landowners, and the relatively flat, unobstructed terrain on the Project site. Importantly, in selecting the Project Area site, Northern Crescent also concluded that its development will not result in significant human settlement or environmental impacts.

The Project Area site is on a near level to gently rolling landscape with elevations generally ranging from 1,090 to 1,110 feet above sea mean level. This nearly-level topography combined with highly fertile soils, favorable moisture holding characteristics, and usually adequate supplies of moisture from precipitation are well suited to agriculture and row crop production, which is currently the dominant land use for the Project Area.

Northern Crescent has entered into lease option agreements and purchase options with landowners for all of the parcels on which the Project PV arrays, inverters, collection lines, access roads and fencing would be constructed and operated and has 100% land control for these Project areas (**Exhibit 2**). All Project facilities shown in the preliminary site layout (**Exhibit 3**) were sited on land for which Northern Crescent Solar has secured under lease and purchase option agreements. Northern Crescent Solar has entered into a purchase option agreement for the new Xcel Switchyard site which will be turned over to Xcel Energy who will construct, permit, own, and maintain the Xcel Switchyard. The Preliminary Development Area is approximately 929 acres in size and is located within the overall Project Area. The current land interests under lease are sufficient to accommodate the Project's facilities and setback requirements.

2.2 Project Components

The Project will include the following major components, systems, and associated facilities:

- Solar modules (also referred to as panels or arrays);
- Inverters;
- Step-up transformers (connecting inverters to collection lines/Project Substation);
- Electrical wiring (connecting solar modules to inverters);
- Tracking rack structures;
- Collection lines (connecting inverters to Project Substation);
- Security fencing and gates;
- Access roads;
- Stormwater collection basins (associated with the Project);
- O&M Facility;
- Supervisory Control and Data Acquisition (SCADA) system;
- Project Substation and power transformer;
- Overhead 161 kV Project Gen-Tie Line;
- Xcel Switchyard/Switchgear/Line Tap ;
- Metering equipment;
- BESS and associated equipment; and
- Ancillary equipment or buildings as necessary.

The Project Gen-Tie Line will connect the Project Substation to the Xcel Switchyard. A less than 250-foot Line Tap will connect the Xcel Switchyard to the existing Xcel Huntley-Blue Earth 161 kV HVTL (**Exhibit 3**).

Each of these components is described in more detail below.

2.2.1 Configuration of Solar Panels, Arrays, and Racking

The Project will convert sunlight into direct current (DC) electrical energy within the PV panels. The proposed 43 inverter skids located throughout the Project with 1 at each location (roughly 1 for every 3 MW) convert DC into a utility frequency AC to be fed into the Project Substation. For purposes of describing construction, the Project can be considered an aggregate of individual PV panel components interconnected by cabling and infrastructure at increasing scales to ultimately deliver up to 150 MWac of nameplate electricity to the existing Xcel Huntley-Blue Earth 161 kV HVTL via a new Xcel Switchyard and Xcel Line Tap (**Exhibit 3**).

Project components are described below from smallest to largest scales and presented on **Exhibits 3 and 4**:

1. Individual PV panels are approximately 7.5 feet long by 3.7 feet wide by 1.382 inches thick and are installed on metal foundations that are driven or screwed into the ground.
2. Lines of interconnected PV panels consist of a line of short-edge butted panels approximately 295-feet long, with each line oriented to and rotating along a north-south axis to track the east-west movement of the sun and maximize the interception of solar energy. These lines represent the racking upon which the individual panels are mounted upon.
3. Arrays of north/south lines of PV panels organized in a collection of lines associated with an east/west oriented access road.
4. Inverters convert the direct current collected from the arrays into alternating current and feed into the electrical collection system.
5. Groups of arrays typically consist of one or two arrays north, and one or two arrays south of a permanent access and maintenance road (**Exhibit 4**). Depending on site constraints, there may be fewer arrays associated with a specific group. Perimeter access roads are typically present on the east and west sides of individual groups.
6. Construction Units consist of groups of PV panels delineated by their connectivity and relationship to main roads (**Exhibit 3**). The Project consists of:
 - 1 a 257-acre (approximate) West Unit bounded Highway 169 to the West, 180th Street to the north, and 170th Street to the South (Groups A and B)
 - 2 a 392-acre (approximate) Central Unit bounded by Highway 169 to the West and bisected by 170th Street (Groups C and E)

- 3 a 281-acre (approximate) East Unit bounded by 38th Ave to the East and 180th Street to the North (Groups D and F)
7. Approximately 96,000 feet of electrical collection lines will be installed throughout the Project and underneath 170th Street, connecting all inverters to the Project Substation.

Northern Crescent Solar will use a single axis tracking system where the panels within a line are rotated by small motors to track with the sun throughout the day. The panels aligned in north – south rows face east in the morning, parallel to the ground during mid-day (i.e., horizontal position), and then west in the afternoon. Panels can be manually oriented to the east or west at maximum tilt angle to facilitate maintenance access and vegetation management, if necessary. The current design has typical spacing between the panel edges when at a horizontal position of 15.9 feet, which is sufficient for maintenance vehicles. Separation of PV panel lines will typically be 23.4-feet from turning axis to turning axis (**Exhibit 3**).

2.2.2 Inverters, Transformers, and Electrical Collection System

Electrical wiring will connect the PV panels to inverters which will convert solar energy generated power from DC to AC. Power inverters convert approximately 1.5 kilovolts (kV) of DC power output from the PV solar panels to between 3,900 to 4,200 kilovolt-amperes (kVA/kW) of AC power based on the FS4200M inverter used in the preliminary design. A step-up transformer then converts the inverter AC voltage to an intermediate voltage of 34.5 kV and brought via collection cables to the Project Substation. Step-up transformers are located with each of the inverters. The DC electrical collection system from the PV panels to the inverters will be installed either buried (below-ground electrical collection system) or underhung below the panels and racking (above ground electrical collection system), which in most instances will also have some segments buried below-ground (combined above and below-ground electrical collection system). The AC electrical collection system from the inverters/step-up transformer to the Project Substation will be buried 2 to 5 feet below ground. The final type of electrical system will be determined prior to construction based on technology, availability of materials, and costs.

2.2.3 Inverters and Step-Up Transformers

For the AC electrical collection cabling, it will be installed 2 to 5 feet below-ground. Inverter skids will be utilized at locations throughout the Preliminary Development Area and include a step-up transformer to which the inverters will feed electricity. The final number of inverters for the Project will depend on the inverter size, as well as inverter and panel availability. The Project's preliminary design assumes below-ground cabling to represent the maximum potential impacts and has proposed 43 central inverter skids.

Skids provide the steel foundation for the enclosed inverter, step-up transformer, and Supervisory Control and Data Acquisition (SCADA) systems. The height of a skid is approximately 8 to 12 feet above grade. The skids will be placed atop a poured reinforced concrete slab or pier foundations and will typically measure 10 feet wide by 25 feet long. Concrete foundations will be poured onsite or precast and assembled off-site. The inverters skids are located within the interior fenced portion of the Project along access roads.

The Project has been designed with Power Electronics FS4200M inverters; however, other inverters may be used when final equipment selections are made prior to construction. Northern Crescent Solar will consider the costs and performance of each option as well as environmental and safety standards when making its final selection. For the purposes of generation estimates, Northern Crescent Solar has modeled the Power Electronics FS4200M.

2.2.4 Below-ground Electrical Collection System

As indicated above, the solar panels deliver DC power to the inverters/step-up transformers through cabling that will be located either in a below-ground trench (measuring approximately 2 to 5 feet deep and one to two feet wide), underhung beneath the PV panels and racking (CAB system³) or installed on piles above ground (without racking – CAB system). The selected contractor will choose which installation system to use for the Project. Below-ground AC electric conductor collection lines will transfer the converted 34.5 kV AC electricity from the inverter equipment (which is assembled on skids and delivered to the Project as a package) to the Project Substation.

During trench excavations, the topsoil and subsoil will be removed and stockpiled separately in accordance with Section 4.7 of this Plan. Once the electric conductor collection lines are laid in the trench, the trench will be backfilled with subsoil followed by segregated topsoil. Electrical collection technology is changing and will be site-specific depending on geotechnical analysis, constructability, and availability of materials. Final engineering and procurement recommendations will help determine the construction method for the electrical collection system.

2.2.5 Combined Above and Below-ground Electrical Collection System

A combined above and below-ground electrical system is being considered for the Project for several reasons, including ease of access for operations and maintenance, reduced ground disturbance, and cost considerations. DC collection cables will be strung under each row of panels and/or suspended above ground via the CAB system and as described above, AC collection will be buried belowground from the inverter/transformer skid to the Project Substation.

2.2.6 Project Substation, Xcel Switchyard, Battery Energy Storage System, and Operations and Maintenance Building

The Project will include an on-site Project Substation that combines all the AC power from the above-described 34.5 kV collection circuits where it will convert the power through a step-up power transformer from 34.5 kV to 161 kV. The Project Substation will be located within the northwestern portion of the Project Area and in proximity to the planned new Xcel Switchyard and existing Xcel Huntley-Blue Earth 161 kV HVTL as depicted in **Exhibits 3 and 4**.

As discussed above, the Project will interconnect to the existing Xcel Huntley-Blue Earth 161 kV HVTL that crosses through the north end of the Project Area. A less than 250-foot long 161 kV

³ In this option some Project construction locations may install the CAB system on pile foundations (without racking on it) to connect the DC cables to the inverter/equipment pad.

transmission line (Project Gen-Tie) will provide the physical interconnection between the Project Substation (a 34.5/161 kV step-up substation) and the planned new 161 kV Xcel Switchyard/Xcel Line Tap connected at the Xcel Huntley-Blue Earth 161 kV HVTL.

The Project Substation will be designed according to Midcontinent Independent Transmission System Operator (MISO) Standards, Generator Interconnection Agreement standards, and Xcel standards, as applicable. As indicated above, Xcel will modify the existing Xcel Huntley-Blue Earth 161 kV HVTL, installing new dead-end structures within the Project Area and Xcel Energy right-of-way property to re-direct the circuit in/out of the new Xcel Switchyard. Xcel will also design, engineer, and construct the new Xcel Switchyard.

Northern Crescent Solar will convey the real property for this facility to Xcel Energy. These facilities will be network facilities, permitted, constructed, owned and operated by Xcel Energy.

The Project Substation will occupy approximately 1.3 acres that will be fenced with a controlled access gate (**Exhibit 3**). Fencing is described below. The ground surface area within the fenced Project Substation site will be graveled to minimize vegetation growth and reduce fire risk. The substation's footprint within the 1.3-acre area will be approximately 300 feet by 220 feet once construction is complete. Final dimensions will depend on equipment selection, engineering, and design specifications.

The BESS will occupy approximately 3.2 acres that will be fenced with a controlled access gate (**Exhibit 3**). Fencing is described below. The ground surface area within the fenced Project Substation site will be graveled to minimize vegetation growth and reduce fire risk. The BESS's footprint within the 3.2-acre area will be approximately 309 feet by 450 feet once construction is complete. Final dimensions will depend on equipment selection, engineering, and design specifications.

The proposed new Xcel Switchyard will be constructed, owned, permitted, and maintained by Xcel Energy according to applicable Xcel, MISO and other HVTL standards; the site is approximately 1.5 acres in size (**Exhibit 3**) and will be fenced with a lockable gate (fencing is described below). Northern Crescent Solar will acquire the land underlying the new Xcel Switchyard (via a purchase option agreement) and secure any other land rights that are necessary to facilitate the loop-in of the Xcel Huntley-Blue Earth 161 kV HVTL to the new Xcel Switchyard. Xcel will modify the existing Xcel Huntley-Blue Earth 161 kV HVTL, installing new dead-end structures within the right-of-way to re-direct the circuit in/out of the new Xcel Switchyard. Xcel will also design, engineer, permit and construct the new Xcel Switchyard. Northern Crescent Solar will convey the real property for this facility to Xcel. These facilities will be network facilities owned and operated by Xcel.

The Project Substation will also route power to the proposed Project BESS, which will absorb power generated by the Project and from the grid to augment the energy output from the Project to provide power to the grid in a manner that reduces the inherent variability of solar generation. The BESS will be configured of storage cells (batteries) arranged in modules for efficient operations. The batteries will be housed in racks within a series of steel shipping containers or similar enclosures. The BESS will be comprised of lithium-ion battery modules lined up, side by

side in standalone containers. The BESS will include inverters and medium voltage transformers to transfer the energy to and from the batteries. From the BESS container, low voltage cables will connect to pad mounted switchgear, step up transformer(s) and a power distribution system. Containers will be approximately 20' long by 8' wide and 9.5' high. Depending on the BESS manufacturer(s) selected for the project, the number, size and overall configuration of the battery modules could change. Containers will be supported on slabs/spread footings or piles/piers, with the ultimate choice based on final design. Each container will have an exterior heating, ventilation, and air conditioning (HVAC) system. From the BESS container, low voltage cables will connect to pad mounted switchgear, step up transformer(s) and a power distribution system. Overflow AC current will be sent to the BESS from the Project Substation, where it will remain until the solar farm underperforms, or more energy is needed. From there, it will be returned to the Project Substation. Additionally, stabilized gravel access roads and perimeter fencing will be provided.

The Project will be equipped with a state-of-art Battery Management System (BMS) which will monitor cell level, module level, rack level, and system level. If any of the monitored parameters are above or below pre-determined limits, BMS would shut down and electrically isolate the battery rack from the system, preventing any potential for overheating and risk of thermal runaway.

An O&M Facility will provide a facility for Project maintenance and operations as well as storage of equipment, tools, materials, etc. The O&M Facility will be located adjacent to the Project Substation (**Exhibit 3**). The facility will measure approximately 0.4 acres and constructed of metal. It will contain an office for an onsite Project Plant Manager, a technician room, restroom, and storage area/maintenance shop for equipment to operate and maintain the Project. The building will be used to conduct maintenance and repair of Project equipment and solar module components, store parts and other equipment, store other operation and maintenance supplies (e.g., materials for cleaning modules, etc.), as well as safety equipment for working with live electricity and materials/supplies necessary for vegetation management. The O&M building will be locked when not in use by Project staff and it will also house the SCADA system that will remotely monitor Project facilities. A domestic water well and septic system will be constructed to provide water and sanitary service to the O&M building.

Parking will be made available to employees but is not currently designed. The final size will be determined in accordance with the Faribault County Ordinance and Site Permit. The parking lot will have no less than one parking space for every 2 employees to comply with the parking and loading regulations detailed in Section 15 of the Faribault County Zoning Ordinances (Faribault County Zoning Ordinance, Section 15.A 1994).

2.2.7 Access Roads

The Project will include approximately 12.1 miles of graveled access roads that lead to the inverters, Xcel Switchyard/Xcel Line Tap, Project Substation, BESS, and O&M Facility (**Exhibit 3**). The final length of the access roads will depend on the equipment selected and final engineering/design. The internal roads will be 24 feet wide during construction and 20 to 24 wide feet during operations. The entry road from U.S. Highway 169 will be about 32 feet wide during construction and 24 feet wide for operations. Some of the roads will be wider along curves at internal road intersections (approximately 45 feet). There are nine access points to the Project from

existing roads **Exhibit 3**). The entrances into fenced areas of the Project and the Project Substation will have controlled and lockable gates for site security and safety.

Northern Crescent Solar is including access roads at strategic locations throughout the Project Area for effective and efficient access for operations and maintenance activities and for safe ingress and egress of employees, visitors, and emergency responders. Northern Crescent Solar has minimized the amount of access roads within the Preliminary Development Area and has avoided existing infrastructure to prevent interference with other land use.

Upgrades or other modifications to the existing public roads may be required for construction entrances or operation of the Project. Northern Crescent Solar will work with Faribault County, Verona and Prescott Townships and other local road authorities, as applicable, to facilitate public road upgrades that meet the required standards. Northern Crescent Solar will continue to coordinate with Local, County and State agencies as the Project develops. Driveway changes utilizing County roadways will require an entrance permit from Faribault County, which will be obtained prior to construction. Northern Crescent Solar will also work with Faribault County in the event a road use agreement or similar approval is deemed necessary for the Project.

2.2.8 Permanent Fencing

Permanent security fencing will be installed along the perimeter of each grouping of the solar modules (**Exhibit 3**). Fencing will consist of a lightweight agricultural woven wire (containing wire “knots” wrapped around each intersecting wire) secured to wooden posts which will be directly embedded in the soil or set in concrete foundations as required for structural integrity. The fencing will extend a maximum total height of approximately 8 feet above grade. Barbed wire will not be used at the top of the fence around the solar modules; instead one to two feet of 3 to 4 strands of smooth wire will be used. Additionally, “High Voltage Keep Out” signs and lockable gates will be placed along the fence line, warning the public of the potential hazards within the fenced areas. This fencing will be designed to prevent the public and larger wildlife from gaining access to electrical equipment which could cause harm or injury.

Permanent 6-foot-tall chain-link security fencing, with one to two feet of barbed wire at the top, will also be installed along the perimeter of the Project Substation, O&M Facility, and BESS to comply with applicable electrical codes. High voltage warning signs and lockable gates will also be installed on the fencing.

2.2.9 Stormwater Drainage Basins

Northern Crescent Solar has preliminarily designed 15 drainage basins throughout the Preliminary Development Area that range in size from approximately 0.5 acre to 3.75 acres that will manage stormwater runoff from the Project during operation (**Exhibit 3**). These basins are located in existing low areas that also contain hydric soils and for which the preliminary design for solar facilities has avoided. These areas will be vegetated with a wet seed mix that will help stabilize soils after rain events.

2.2.10 Transmission System

The Gen-Tie Line will connect the Project Substation to the Xcel Switchyard. A less than 250-foot Line Tap will connect the Xcel Switchyard to the existing Xcel Huntley-Blue Earth 161 kV HVTL (**Exhibit 3**). Xcel will install new deadend structures and remove one existing deadend structure to facilitate the interconnection. As discussed above, Northern Crescent Solar will acquire land rights for these facilities, and Xcel will design, permit, construct, own and operate the Xcel Switchyard facility. Per Minn. Stat. 216E.01 subd. 4, no transmission infrastructure meets the definition of a high voltage transmission line and, therefore, a separate Route Permit from the Commission is not required.

2.2.11 Temporary Construction Facilities

During construction of the Project, Northern Crescent Solar will utilize nine temporary construction laydown areas within the Project Area. Laydown areas have not been set yet but will be determined as the final design is completed. These areas will serve both as a parking area for construction personnel and staging areas for Project components and office trailers during construction. Topsoil will be stripped and cut down approximately 4-8 inches. Silt fencing will be used downstream of all disturbed areas throughout the site which should be considered such as the fence line plus a buffer, access road entrances, laydown yards, as well as the Project Substation, interconnection, and O&M Facility. These laydown areas have been sited to avoid any tree clearing. After construction, the laydown areas will be restored to pre-construction elevation and conditions and reseeded as described in the Project VSMP.

2.3 Construction

2.3.1 Site Clearing & Vegetation Removal

The start of construction is planned to begin in the second quarter of 2025 subject to permitting and other factors. A majority of the Project Area and area to be developed with Project facilities are agricultural fields and contain little other vegetation or other natural features (**Exhibit 1**). Depending on timing of the start of construction, the Project may require the clearing of residual row-crop debris from farm fields. Alternatively, and depending on construction timing, Northern Crescent Solar may plant a cover crop in Spring 2025 that is compatible with the Project VSMP. This cover crop would stabilize soils if row crops were not planted that year.

2.3.2 Earthwork

Mass grading on the site is not planned or needed based upon site topography, design, and engineering factors. Areas to be graded as well are shown in **Exhibit 5** and total approximately 91 acres and 64,700 cubic yards of cut and fill. The majority of soil disturbances will occur during the first phase of Project construction when grading (generally limited to building internal access roads, substation construction, and preparation for inverter skid locations) takes place. The Contractor may need to move soils in some areas to “flatten” parts of the Project site or to complete minor grading of topsoil to lessen further disruption and avoid erosion. The earthwork activities will be completed using typical earthmoving construction equipment – scrapers, bulldozers, front-

end loaders, excavators, and skid-steers. BMPs that will be used during these earthmoving activities are described in detail in Section 2.3.3.

Topsoil handling will first include stripping topsoil that sits higher than other areas that need to be leveled. Topsoil will be pushed outside of the cut/fill areas and collected into designated spots for later use. Once topsoil is removed from the cut/fill areas, the subgrade materials will be removed as required from on-site hills and relocated to on-site low spots. Prior to relocating subgrade materials to the low spots, topsoil in the low areas will be stripped and set aside before the fill is added, then re-spreads over the new fill. The subgrade materials would be compacted in place. When compaction is complete, the topsoil spoil piles will be re-spread over the reconditioned subgrade areas.

Subsoil handling will be similar to the handling of topsoil as described in the above sections. Excess subsoil that comes from site grading will be segregated and relocated to low spots (see Section 3.2.4.3 below). Low spots will be filled after topsoil is stripped and set aside and then re-spread over the new fill.

2.3.3 Access Road Construction

As a component of earthwork, permanent Project entrances, access roads and turnouts will be constructed to support the Project as indicated in **Exhibit 3**. This work would start with the stripping and segregating of topsoil materials from the proposed roads. The Contractor will then compact the subgrade materials typically 16-feet wide to the specified compaction requirements as laid out by the civil and geotechnical engineer. After suitable compaction levels are reached and verified, the Contractor will then install the road as designed, typically done with or without geofabric depending on the soil type and then a surface of 4 to 12 inches of gravel. The gravel will be placed level with the existing grade to facilitate drainage and minimize ponding. After the road surface is compacted, the Contractor will shape Project drainage ditches as designed on the grading plan.

Northern Crescent Solar has chosen flatter areas within the Project Area to support Project infrastructure thus minimizing the amount of topsoil that will need to be removed due to grading. Topsoil removed from permanent access roads will be removed to suitable locations near the site of removal and graded for storage (**Exhibit 5**). Storage locations will be identified (global positioning system [GPS] boundary and depth) and recorded on site maps to facilitate final reclamation as part of decommissioning.

2.3.4 Solar Array Construction

After grading activities are complete, the racking system supports will be constructed using steel piles driven into the ground. In some situations where soils are low strength or consist of loose, non-cohesive sand, helical screw or auger-type foundation posts may be used. Foundations are typically galvanized steel and used where high load bearing capacities are required. The pile is driven using a hydraulic ram or screw installer that moves along tracks, which requires two workers. Soil disturbance for this task would be negligible since the solar pile driver equipment does not excavate soil. The pile driving equipment is about the size of a small tractor. It is equipped

with tracks to disperse its weight over a larger ground surface and reduce soil disturbance, rutting and compaction.

The remainder of the racking system will be installed by construction crews using hand tools and all-terrain tracked equipment to distribute materials. Array racking will be bolted on top of the foundation piling to create a “rack” to which the solar panels can be fastened.

During array and racking assembly, multiple crews and various types of vehicles will be working within the Project Area. To the extent practicable, vehicular traffic will be limited to permanent and temporary access roads to minimize soil disturbance, mixing, and compaction. These vehicles include flatbed trucks for transporting array components, small all-terrain vehicles, and pick-up trucks used to transport equipment and workers throughout the Project Area. Panels will be staged in advance throughout the Project Area and be brought to specific work areas for installation by wagon-type trailers pulled by small tractors or by all-terrain tracked equipment. The solar panels will be installed by multiple crews using hand tools. Installation crews will proceed in a winding path along staked temporary access roads in a pre-established route to minimize off-road traffic.

2.3.5 Electrical Collection System

The collection system will either be buried in a trench or conduit or will be both above and below-ground in which case the DC collection cables will be strung under each row of panels or suspended above ground via the CAB system with AC collection being buried belowground from the inverter/transformer skid to the substation. Part of the underground collection system will be horizontally directionally drilled under 170th Street. Final engineering and procurement will help determine the construction method for the electrical collection system. For the purposes of this Plan, Northern Crescent Solar provides construction methods and BMPs for trenching. Measures to mitigate potential activities and conditions that could cause water pollution, such as trenching, will be outlined in the construction stormwater permit and associated SWPPP to be prepared and implemented during the construction of the Project.

The electrical collection system cabling will be installed using a trenching machine or excavator. The trencher will cut an exposed trench. Cabling will be installed to a depth of 2-5 feet. Prior to trenching, the upper 12 inches of topsoil will be stripped from the trench and temporarily stockpiled using a small backhoe. After cables are installed, the trenches would be backfilled, first with subsoil removed. Stockpiled topsoil would be replaced over the subsoil in sufficient quantities to ensure restoring the trench to the original grade after settling. BMPs that will be used during these earthmoving activities are described in detail in Section 4.7.

2.3.6 Inverter Installation

Inverter installation will begin with topsoil removal; topsoil will be scraped and stockpiled at designated locations and graded to facilitate revegetation. Underground conduit and junction boxes will be installed throughout the Project to facilitate required cabling connecting equipment. The inverter units will then be placed on frost-footing supported concrete pads or on driven/helical screw pier foundations that will be designed to specifications necessary to meet the local geotechnical conditions. A truck with a flatbed trailer will deliver the premanufactured skids with

an inverter, step-up transformer, and SCADA equipment to each inverter foundation. They will typically be set in place using a rough-terrain type hydraulic crane.

2.3.7 Project Substation Construction

Construction work within the proposed Project Substation will begin by scraping and segregating topsoil and placing it in a designated location. Refer to Section 4.2 for notes on soil segregation. Additional site preparation will include installation of substructures and electrical equipment. Installation of concrete foundations and embedments for equipment will require the use of trenching machines, concrete trucks, pumps and vibrators, forklifts, boom trucks, and cranes. Above-ground and below-ground conduits from this equipment will run to a control enclosure that will house the protection, control, and automation relay equipment. A station service transformer will be installed for primary AC power requirements. Batteries and battery chargers will be installed inside the enclosure providing power to the switch stations control system. Crushed rock will be placed between and among installed substation equipment and adequate lighting will be installed around the Project Substation site for worker safety during construction and operation.

Project Substation foundations will typically be installed using one of two methods as follows: Method 1 would be to use a small rubber tire backhoe to excavate major foundations prior to pouring the concrete slabs; and Method 2 would use an auger/drill type machine for minor foundations.

Using either method, the disturbance limit will be within the footprint of the Project Substation for both the foundation equipment and the concrete delivery trucks. BMPs that will be used during these earthmoving activities are described in Section 4. Topsoil removed from the Project Substation will be segregated from the subsoil and preserved in a designated location for later restoration during Project decommissioning. The topsoil stockpile area(s) would be near the location where it was removed, accurately located (GPS boundary, soil depth) and graded to facilitate long term preservation and revegetation. Subsoil would be removed and re-used as needed or to an acceptable pre-established and approved area for storage. As part of later decommissioning, subsoil would be replaced first (as needed), followed by topsoil placement. The soil would be replaced and brought back to pre-construction contours to allow for farming.

2.3.8 Xcel Line Tap Construction

The Xcel Line Tap will be less than 250 feet in length and connect the new Xcel Switchyard and is required to connect the Project to the grid. Current design includes removal of one existing deadend structure and construction of three self-supporting vertical deadend steel structures on drilled pier foundations (70 to 75 feet tall), one steel H-frame deadend structure on drilled pier foundation (70 feet tall), conductor, and shield wire to accommodate the new 161 kV line terminations. The type of conductor will be determined following the completion of detailed electrical design. As discussed above, Northern Crescent Solar will acquire land rights for these facilities, and Xcel will design, permit, construct, own and operate the Xcel Switchyard facility.

2.3.9 Xcel Switchyard Construction

Soil corrections will be made as part of site clearing and preparation prior to construction of Xcel Switchyard facilities. Foundations will then be installed, and the new Xcel Switchyard area will be graded with the ground surface dressed with crushed rock. The new Xcel Switchyard will be fenced with a 6-foot chain-link fence topped with one to two feet of barbed wire in accordance with applicable electrical code requirements for security and safety purposes.

The Xcel Line Tap will be comprised of in/out loop transmission lines, which will be installed in a new easement area from existing Xcel Huntley-Blue Earth 161 kV HVTL to the new Xcel Switchyard to interconnect the Project to the grid. The length of this new line is less than 250 feet.

The current design includes three self-supporting vertical dead-end steel structures on drilled pier foundations (70 to 75 feet tall), one steel H-frame dead end structure on drilled pier foundation (70 feet tall), conductor, and shield wire to accommodate the new 161 kV line terminations. One existing 65-foot-tall wood tangent H-frame structure would be removed. One self-supporting steel vertical dead-end structure on a drilled pier foundation will be constructed for the Switchyard to connect (via the Gen-Tie Line) to the Project Substation. This structure will serve as the point of ownership change between Xcel Energy and Northern Crescent Solar. All construction will occur within the Project Area and Xcel Energy right-of-way property.

2.3.10 BESS

Construction work within the proposed BESS will begin by scraping and segregating topsoil and placing it in a designated location. Refer to Section 4.2 for notes on soil segregation. Additional site preparation will include installation of substructures and electrical equipment. Installation of concrete foundations and embedments for equipment will require the use of trenching machines, concrete trucks, pumpers and vibrators, forklifts, boom trucks, and cranes. Below-ground medium voltage cables from this equipment will run from the power conversion systems (PCSs) to the substation. The BESS will include individual BESS containers, inverters (or PCSs), switchboards, medium voltage (MV) cabling, MV switchgear, a junction box, and medium voltage transformers. Crushed rock will be placed between and among installed BESS equipment and adequate lighting will be installed around the BESS site for worker safety during construction and operation.

BESS foundations will typically be installed using one of the two methods described in Section 2.3.7.

2.3.11 Stormwater Drainage Basins

Similar to Project Substation construction described above, drainage basins would have topsoil removed and temporarily stored in a pre-established suitable location. Subsoil would then be excavated to a depth of four to seven feet and the sides of the drainage basin sloped to design requirements (including inlet/outlet areas). Excavated subsoil would be distributed throughout the site as fill material in areas where grading is required. Topsoil would be replaced, and the basins vegetated with a wet seed mix. Current design plans include 15 stormwater drainage basins.

2.3.12 Project Fencing Installation

The Contractor or a subcontractor fencing company will be engaged to construct the perimeter security fencing around the Project construction units and the Project Substation as described above. The fencing around the PV solar arrays will consist of an agricultural woven wire fence topped with one to two feet of 3-4 strands of smooth wire, for a total of a maximum of 8 feet above grade.

Permanent 6-foot-tall chain-link security fencing, with one to two feet of barbed wire at the top, will also be installed along the perimeter of the Project Substation, O&M Facility, and BESS to comply with applicable electrical codes. High voltage warning signs and lockable gates will also be installed on the fencing. The Project site fencing will have lockable doors and gates installed, as needed to secure the Project and prevent unauthorized access to Project facilities and equipment.

3.0 Limitations and Suitability of Site Soils

In general, soil types can vary considerably in its physical and chemical characteristics that strongly influence the suitability and limitations that soil has for construction, reclamation, and restoration. Overall major soil properties include:

- Soil texture;
- Drainage and wetness;
- Presence of stones, rocks, and shallow bedrock;
- Fertility and topsoil characteristics; and
- Slope;

Interpretative limitations and hazards for construction and reclamation are based to a large degree on the dominant soil properties, and include:

- Prime farmland status;
- Hydric soil status;
- Susceptibility to wind and water erosion;
- Susceptibility to compaction;
- Fertility and Plant Nutrition; and
- Drought susceptibility and revegetation potential;

3.1 Land Use Considerations

Based on an aerial imagery and written history regarding the Project Area, nearly all of the Project Area and surrounding land has been in agricultural use for decades (University of Minnesota, 2015). Much of the Project Area was farmland in the early 1900s as shown in **Exhibit 6**. The Project Area was originally settled in the mid 1800's (Winnebago Area Museum, 2021). The Project Area is located within the Le Sueur River Watershed (LSRW) and the Blue Earth River Watershed (BERW), as shown in **Exhibit 7**. Most of the land in the watershed area is cropland.

The majority of Faribault County is made up of prime farmland (35.8%), prime farmland if drained (49.7%), prime farmland if protected from flooding (1.9%) and farmland of statewide importance (8%). Typically, high value crops such as corn and soybean rotations are grown in the area. Northern Crescent Solar is planning to maintain the existing subsurface and surface drainage systems during Project construction and operation, with modifications limited to the extent required to avoid conflict with planned Project features such as foundation piles and piers. The Project is designed to avoid County drain tiles and judicial ditches that traverse the Project Area (**Exhibit 9**). Upon decommissioning of the Project and expiration of leases related to the Project, the land will be restored for agriculture use by participating landowners. The subsurface drainage infrastructure within the Preliminary Development Area of the Project will not be removed, preserving the general drainage characteristics of the land similar to pre-construction conditions.

3.2 Important Soil Characteristics

The Soil Survey Geographic Database (SSURGO) is the digitized county soil survey and provides a GIS database relating soil map unit polygons to component soil characteristics and interpretations. Soil map unit polygons in the SSURGO database were clipped to the Project Area and internal infrastructure boundaries, including the major pieces of infrastructure:

- Access Roads
- O&M Facility;
- Project Substation;
- Xcel Switchyard
- BESS;
- Stormwater Basins;
- Laydown Yards; and
- Solar Array Area

The acreage of major Project features sharing physical properties, classifications, and limitation interpretations important for construction, use, revegetation, and reclamation were determined by spatial query of the GIS. Soils within the 1,179-acre Project Area (**Exhibit 1**) but not anticipated to be affected by construction or operations are indicated in **Tables 1-3** below. These areas are not included in the following analysis. The analysis includes the approximate 929-acre Preliminary Development Area that will be affected by construction (**Exhibit 2**).

A soil map of the Project Area is provided along with a table of selected characteristics of site soils including physical properties, classifications, and construction-related limitations in **Appendices A and B**. **Appendix A** includes a table of soil characteristics that denotes the map unit symbols which can then be used to see the locations of different soils on the accompanying soil map in **Appendix B**.

3.2.1 Selected Physical Characteristics: Texture, Slope, Drainage and Wetness, Topsoil Depth, Bedrock and Presence of Stones and Rocks

There are approximately 1,179 acres within the Project Area. Selected physical characteristics of site soils are broken down by acreage within the 929-acre Preliminary Development Area and the 250-acre area outside of the Preliminary Development Area in **Table 1**.

Soil texture affects water infiltration and percolation, drought tolerance, compaction, rutting, and revegetation among other things. Soil texture is described by the soil textural family which indicates the range of soil particle sizes averaged for the whole soil. Most of the soils within the Preliminary Development Area (929 acres) are in the Fine (56 acres, 6.1 percent), Fine-Loamy (280 acres, 30.2 percent), and Fine-Silty (576 acres, 62.0 percent) textural families, indicating medium-textured soils dominated by soil particles in the loam and silt fractions (between 0.002 and 3 mm) with fewer particles in the clay (<0.002 mm) and sand (>2 mm) fractions as shown in **Appendices A and B**. Medium-textured soils typically have good physical and available-water characteristics to support plant growth if not in excessively steep or wet conditions. They have high water-holding capacity, with most of the water being readily available for plant growth.

Slope affects constructability, water erosion, revegetation, compaction, and rutting, among other properties. Most of the soils (929 acres, 99.98 percent) within the Preliminary Development Area are nearly level soils with representative slopes falling within the 0-5 percent slope range.

Table 1: Acreage of Soils with Selected Physical Characteristics

Project Feature	Total Acres	Textural Family								Slope Range		Drainage Class						Topsoil Thickness		
		Fine	Fine-Loamy	Fine-Silty	Loamy	Coarse-Loamy	Coarse-Silty	Fine-Loamy over Sandy or Sandy Skeletal	Sandy	Slope 0-5%	Slope >5-16%	E	W	MW	SWP	P	VP	0-12	12-18	>18
	Acres																	Inches		
Preliminary Development Area (fenced area)																				
Access Roads	32.9	2.6	9.6	20.0	0.0	0.3	0.3	0.0	0.0	32.8	0.1	0.0	4.3	3.4	9.4	15.4	0.4	5.2	15.0	12.6
O&M Facility	0.4	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Project Substation	1.3	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.1	0.0	1.3	0.0	0.0	0.0	1.3	0.0
Xcel Switchyard	1.5	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	1.5	0.0
BESS	3.2	0.4	0.0	2.7	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	1.2	0.4	1.5	0.0	0.0	0.4	2.7	0.0
Stormwater Basins (15)	24.9	2.9	3.1	18.1	0.7	0.0	0.0	0.0	0.0	24.9	0.0	0.0	2.0	1.6	0.8	17.3	3.2	0.4	7.4	17.0
Laydown Yards (9)	21.7	1.8	3.5	16.3	0.0	0.0	0.0	0.0	0.0	21.7	0.0	0.0	2.7	0.0	6.8	11.2	0.9	1.0	10.9	9.8
Fenced Area/Solar Array Area	843.5	48.5	263.9	515.5	0.2	4.2	11.1	0.0	0.0	843.4	0.1	0.0	106.1	75.7	223.8	432.4	5.5	113.6	381.4	348.6
Subtotal	929.3	56.3	280.2	576.0	0.9	4.5	11.5	0.0	0.0	929.1	0.2	0.0	116.7	81.2	245.1	476.4	9.9	120.6	420.6	388.1
Area Outside Preliminary Development Area	249.5	43.3	41.6	159.5	4.1	0.0	1.0	0.0	0.0	249.1	0.5	0.0	28.3	26.1	64.5	119.2	11.4	27.3	119.0	103.3
Total Project Area	1178.9	99.5	321.9	735.5	5.0	4.5	12.4	0.0	0.0	1178.2	0.7	0.0	145.0	107.3	309.6	595.6	21.3	147.9	539.6	491.4
¹ Total acres of Project features that are anticipated to be disturbed. Data was obtained by merging Project facility polygons with the SSURGO spatial data in ArcGIS. Summations were performed in ArcGIS Pro or Microsoft Excel.																				
² Data available directly from the Natural Resources Conservation Service (NRCS) SSURGO spatial or attribute database via geospatial query of the spatial or attribute data.																				
³ Representative slope values are taken directly from the SSURGO database. The SSURGO database provides representative slope values for all component soil series. Slope classes represent the slope class grouping in percent that contains the representative slope value for a major component soil series. For example, a soil mapped in the 2-6% slope class has an average slope of 4% which is within the 0-5% slope range.																				
⁴ Drainage class as taken directly from the SSURGO database. E- excessively drained, W- well drained, MW- moderately well drained, SWP- somewhat poorly drained, P- poorly drained, VP- very poorly drained																				
⁵ Topsoil thickness is the aggregate thickness of the A horizon described in the SSURGO database. See section 4.2 for notes on soil segregation.																				
⁶ The preliminary development area includes all of the fenced-in areas within the Project Area.																				
⁷ Access Road impacts were calculated using a 20 to 24-foot total road width.																				
⁸ The O&M facility includes the building, parking area, and other associated facilities that may be required such as a domestic drinking water well, aboveground water storage tanks, septic system, security gate, lighting, and signage.																				
⁹ The Fence Area/Solar Array Area represents the land hosting the solar modules, the areas in between the solar modules, electrical collection lines, and the inverters.																				
¹⁰ The Area Outside Preliminary Development Area includes all areas outside the fenced areas and associated Project facilities but within the overall 1,179-acre Project Area and consists of vegetative areas, wetlands, waterways, buffers, 0.87 acre of access road entrance improvements, and 4.38 acre of electrical collection lines (a temporary buffer width of 5 feet on either side of the collection line was to determine impacts).																				

The soil drainage class in **Table 1** above indicates the wetness in the soil profile along with the speed at which internal water moves through the soil. Soil drainage affects constructability, erosion by wind and water, and revegetation success. Almost all of the soils within the Preliminary Development Area are in the Well (W), Moderately Well (MW), Somewhat Poor (SWP), and Poor (P) drainage classes (117, 81, 245, and 476 acres, respectively, cumulatively 99 percent of the Preliminary Development Area acreage), with smaller areas mapped into Very Poor (VP) (10 acres, 1 percent) drainage classes. Soils in SWP, P, and VP drainage classes are highly productive when drained and are frequently converted to agriculture by the installation of subsurface drain tile. SWP drained soils typically are not droughty or wet and are typically well suited to intensive agriculture.

Topsoil thickness affects soil plant nutrition and surface soil structure. To maintain soil productivity, soils with thick topsoil will require larger areas for storage of larger volume of topsoil stripped from permanent infrastructure footprints. The majority of the soils within the Preliminary Development Area are generally fine and are characterized by the presence of relatively thick topsoil greater than 12 inches in depth (809 acres, 87.0 percent). About one-eighth of the soils in the Preliminary Development Area have 0-12 inches of topsoil.

3.2.2 Selected Classification Data: Prime Farmland, Land Capability Classification, Hydric Soils.

Selected classification information for site soils are broken down by acreage within the 929-acre Preliminary Development Area and the 250-acre area outside the Preliminary Development Area in **Table 2**.

Natural Resources Conservation Service (NRCS)-designated prime farmland soils have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and are also available for these uses⁴ (USDA NRCS, 2000). All of the soils, excluding 0.2 acre, in the Preliminary Development Area are classified into prime farmland, prime farmland if drained, or soils of statewide importance (443, 485, and 1 acre, respectively; cumulatively ~100 percent) (**Exhibit 8**).

Per Minnesota Rule 7850.4400, subpart 4, “no large electric power generating plant site may be permitted where the developed portion of the plant site... includes more than 0.5 acres of prime farmland per megawatt of net generating capacity.” Minnesota’s DOC issued guidance which provides information on how to assess projects which exceed the 0.5-acre prime farmland/MW threshold under the rule and determine if an exception applies.⁵ This includes describing why

⁴ According to the USDA’s NRCS, *prime farmland* has the combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods. In general, prime farmland has an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, an acceptable level of acidity or alkalinity, an acceptable content of salt or sodium, and few or no rocks. Its soils are permeable to water and air. Prime farmland is not excessively eroded or saturated with water for long periods of time, and it either does not flood frequently during the growing season or is protected from flooding.

⁵ *Solar Energy Production and Prime Farmland – Guidance for Evaluating Prudent and Feasible Alternatives* - (Minnesota EERA, May 19, 2020). See also <https://mn.gov/eera/web/doc/1esjj3929/>.

alternatives were not chosen, how avoidance of certain impacts influenced site selection, and showing a good faith consideration was given to nearby non-prime farmland areas. As part of the SPA prepared for the Project, a detailed assessment of prime farmland impacts was included which indicated no other feasible and prudent site was identified in place of the proposed Project at the Project Area in Verona and Prescott Townships, Faribault County, MN.

With the exception of a few areas, Faribault County has a high percentage of soil that is classified as prime farmland or prime farmland if drained. Siting the Project focused on a location that contains a relatively large area where other disturbances were minimized, and efficiency and ease of access could be maximized. Faribault County overall contains approximately 87% prime farmland and approximately 100% of the Project Area includes prime farmland. As mentioned in Section 2.2.4, other alternative sites could not be identified in close proximity to the existing Xcel Huntley-Blue Earth 161 kV HVTL to avoid prime farmland, make efficient use of existing equipment, minimize line loss and avoid the need for large transmission construction that had a higher potential to negatively impact the environment⁴. Additionally, as further detailed in the Project VSMP, Northern Crescent Solar will utilize an adaptive management approach for vegetation management in order to provide the best care and protection for the prime farmland from year to year. Northern Crescent Solar is committed to ensuring the vitality of the soils during construction, operation, and eventual decommissioning of the Project.

Table 2: Acreage of Soils with Selected Classification Data

Project Feature	Total Acres	Prime Farmland				Land Capability Class					Hydric Soil ¹
		All Soils	Statewide Importance	If Drained	Not Prime Farmland	1	2e	2w	3w	6e	All Soils
	Acres										
Preliminary Development Area ² (fenced area)											
Access Roads ³	32.9	16.9	0.0	15.8	0.1	10.9	5.5	15.9	0.4	0.1	15.8
O&M Facility ⁴	0.4	0.4	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0
Project Substation	1.3	1.3	0.0	0.0	0.0	1.3	0.1	0.0	0.0	0.0	0.0
Xcel Switchyard	1.5	1.5	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0
BESS	3.2	3.2	0.0	0.0	0.0	1.5	1.7	0.0	0.0	0.0	0.0
Stormwater Basins (15)	24.9	4.4	0.7	19.7	0.0	1.0	3.4	17.3	3.2	0.0	20.5
Laydown Yards (9)	21.7	9.6	0.0	12.1	0.0	6.8	2.7	11.2	0.9	0.0	12.1
Solar Array Area ⁵	843.5	405.5	0.2	437.7	0.1	259.7	136.9	441.4	5.5	0.1	437.9
Subtotal	929.3	442.8	0.9	485.4	0.2	282.7	150.6	485.8	9.9	0.2	486.3
Area Outside Preliminary Development Area ⁶	249.5	118.5	4.1	126.5	0.5	73.4	42.5	121.8	11.4	0.5	130.6
Total Project Area	1178.9	561.3	5.0	611.9	0.7	356.0	193.2	607.7	21.3	0.7	616.9
¹ Hydric Soils are soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.											
² The Preliminary Development Area includes the area within the perimeter fence that is hosting solar equipment. The Preliminary Development Area, based on the Project’s preliminary design, includes access roads, buried electrical collection lines, inverter skids, an O&M Facility, Project Substation, BESS, Xcel Switchyard, sedimentation basins, and temporary laydown yards.											
³ Access roads will be between 20 and 24 feet wide.											
⁴ The O&M Facility includes the building, parking area, and other associated facilities that may be required such as a domestic drinking water well, aboveground water storage tanks, septic system, security gate, lighting, and signage.											
⁵ The Fence Area/Solar Array Area represents the land hosting the solar modules, the areas in between the solar modules, electrical collection lines, and the inverters.											
⁶ The Area Outside Preliminary Development Area includes all areas outside the fenced areas and associated Project facilities but within the overall 1,179-acre Project Area and consists of vegetative areas, wetlands, waterways, buffers, 0.87 acre of access road entrance improvements, and 4.38 acre of electrical collection lines (a temporary buffer width of 5 feet on either side of the collection line was to determine impacts).											

Land Capability Class (LCC) is a system of grouping soils primarily on the basis of their capability to produce common cultivated crops and pasture plants without deteriorating over a long period of time. Soils within the Preliminary Development Area are classified as LCC 1, 2e, 2w, 3e, 3w, and 6e. A numerical value of 1 and 2 indicates soils with no or few limitations that restrict the choice of plants or require very careful management. Soils in LCC Class 1 are typically considered prime farmland and soils in LCC Classes 2e and 2W are considered prime farmland if drained. Soils in Class 3W can be prime farmland as they are generally poorly drained soils but can be effectively tile drained. Nearly all of the soils in the Preliminary Development Area (919 acres, 98.9 percent) are in LCC 1, 2e, and 2w.

Hydric soils are generally described as soils in poorly drained to very poorly drained drainage classes. Hydric soils are formally a component of regulated wetlands and can be used to indicate areas with potential jurisdictional wetlands. Most of the soils in the Preliminary Development Area are hydric (486 acres, 52.3 percent), with 443 acres (47.7 percent) being considered non-hydric soils. While a majority of the site is mapped with hydric soils, historical aerial photography indicates that these areas are successfully cropped year after year indicating the presence of subsurface drainage.

Based on the Faribault County drain tile mapping, existing agriculture field drain tile is located in the northernmost section of the Project Area and a network of ditches exists throughout the site (**Exhibit 8**). According to the Faribault County Drainage Viewer, the eastern portion of the Project Area contains underground tile systems that are part of the JD17F Main Trunk drainage system. The Main Trunk drainage system consists of 8-to-10-inch drain tile that flows northwest into other tile systems. Several branches of drain tile connect with the JD17F Main Trunk system within the Project Area, including JD17F Branch 185, an 8-inch tile, and JD17F Main Diversion, a 26-inch tile that drains southeast towards an unnamed tributary associated with the Prescott WPA. JD17F Branch 116 is partially within the western portion of the Project Area and consists of an 8-inch drain tile and flows to the northwest.

In addition to drain tile information from Faribault County, Northern Crescent Solar has obtained drain tile maps of the farm fields located within most of the Project Area from participating landowners. Review of these maps indicate a number of drain tiles are located throughout the Project Area which appear to be connected to the surrounding County drain tile/judicial drainage ditch systems. Northern Crescent Solar will further evaluate drain tile locations and take this into account as final design/engineering is completed for the Project.

3.2.3 Construction-Related Interpretations: Highly Erodible Land (Wind and Water), Compaction Prone, Rutting Prone, and Drought Susceptible with Poor Revegetation Potential.

Selected construction-related interpretative data for site soils are broken down by acreage within the 929-acre Preliminary Development Area and the 250-acre undisturbed area in **Table 3**. Highly erodible land is identified as being susceptible to water and wind erosion. The majority of soils in the Preliminary Development Area are low relief, medium-textured soils with intermediate water infiltration characteristics that limit soil erosion by the agent of water. A very small portion (0.2 acre) of the Preliminary Development Area soils are highly water erodible.

Wind erosion was evaluated using the wind erodibility group. Highly wind erodible soils are medium textured, relatively well drained soils with poor soil aggregation, resulting in soils with soil surfaces dominated by particles that can be dislodged and carried by the wind. Highly wind erodible soils make up 0.9 acre of the Preliminary Development Area. Northern Crescent Solar will develop plans to mitigate the potential loss of soil in the SWPPP and through BMPs throughout Section 4.0.

Soils prone to compaction and rutting are subject to changes in soil porosity and structure as a result of mechanical deformation caused loading by equipment during construction. Compaction and rutting are related to moisture content and texture and are worse when medium- and fine-textured soils are subject to heavy equipment traffic when wet. None of the soils are prone to compaction, but all soils (929 acres, 100 percent) are anticipated to rut, if they are trafficked when wet. Northern Crescent Solar will develop operational guidelines to mitigate heavy trafficking soils when wet to minimize potential compaction and rutting in the SWPPP.

Soils susceptible to drought include coarse textured soils in moderately well to excessive drainage classes. Revegetation during seed germination and early seedling growth is severely compromised during dry periods on droughty soils. As indicated in **Table 3** none of the soils within the Preliminary Development Area are susceptible to drought.

Table 3: Acreage of Soils in Selected Construction - Related Interpretations

Project Feature	Total Acres	Highly Erodible ¹		Compact Prone ²	Rutting Hazard ³			Drought Susceptible ⁴ Water
		Water	Wind		Slight	Moderate	Severe	
	Acres							
Preliminary Development Area ⁵ (fenced area)								
Access Roads ⁶	32.9	0.1	0.0	0.0	0.0	0.0	32.9	0.0
O&M Facility ⁷	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Project Substation	1.3	0.0	0.0	0.0	0.0	0.0	1.3	0.0
Xcel Switchyard	1.5	0.0	0.0	0.0	0.0	0.0	1.5	0.0
BESS	3.2	0.0	0.0	0.0	0.0	0.0	3.2	0.0
Stormwater Basins (15)	24.9	0.0	0.7	0.0	0.0	0.0	24.9	0.0
Laydown Yards (9)	21.7	0.0	0.0	0.0	0.0	0.0	21.7	0.0
Solar Array Area ⁸	843.5	0.1	0.2	0.0	0.0	0.0	843.5	0.0
Subtotal	929.3	0.2	0.9	0.0	0.0	0.0	929.3	0.0
Area Outside Preliminary Development Area ⁹	249.5	0.5	4.1	0.0	0.0	0.0	249.5	0.0
Total Project Area	1178.9	0.7	5.0	0.0	0.0	0.0	1178.9	0.0

- ¹ Highly Erodible Water includes soils in Land Capability Class 4e through 8e or that have a representative slope value greater than or equal to 9%. High Erodible Water includes soils in wind erodibility groups 1 and 2.
- ² Includes soils that are somewhat poorly drained to very poorly drained soils in loamy sands and finer textural classes.
- ³ Rutting potential hazard based on the soil strength as indicated by engineering texture classification, drainage class, and slope. In general, soils on low slopes in wetter drainage classes and compromised of sediments with low strength will have potential rutting hazards.
- ⁴ Includes soils with a surface texture of sandy loam or coarser that are moderately well to excessively drained.
- ⁵ The Preliminary Development Area includes the area within the perimeter fence that is hosting solar equipment. The Preliminary Development Area, based on the Project's preliminary design, includes access roads, buried electrical collection lines, inverter skids, an O&M Facility, Project Substation, BESS, Xcel Switchyard, sedimentation basins, and temporary laydown yards.
- ⁶ Access roads will be between 20 and 24 feet wide.
- ⁷ The O&M Facility includes the building, parking area, and other associated facilities that may be required such as a domestic drinking water well, aboveground water storage tanks, septic system, security gate, lighting, and signage.
- ⁸ The Fence Area/Solar Array Area represents the land hosting the solar modules, the areas in between the solar modules, electrical collection lines, and the inverters.
- ⁹ The Area Outside Preliminary Development Area includes all areas outside the fenced areas and associated Project facilities but within the overall 1,179-acre Project Area and consists of vegetative areas, wetlands, waterways, buffers, 0.87 acre of access road entrance improvements, and 4.38 acre of electrical collection lines (a temporary buffer width of 5 feet on either side of the collection line was to determine impacts).

Note: Data obtained by merging facility polygons with the SSURGO spatial data in ArcGIS. Summations were performed in ArcGIS Pro and Microsoft Excel.

3.2.4 Summary of Major Soil Limitations at the Northern Crescent Solar and Storage Project

3.2.4.1 Prime Farmland

Soils within the Project Area are nearly level, generally deep, moderately drained, medium textured Mollisols. Nearly all of the soils (approximately 100%) within the Project Area are prime farmland (**Exhibit 8**). The primary limitations for the soils during Project construction, operations and maintenance, and eventual decommissioning include compaction and rutting that may occur when the soils are trafficked when wet, and the need to reserve and store large volumes of topsoil.

While certain soils classified as prime farmland will be impacted by the proposed solar facility, Northern Crescent Solar will implement BMPs during construction detailed in Section 4.0 including soil segregation and decompaction, wet weather conditions, erosion and sediment control, as well as implement the VSMP and SWPPP for the Project. After construction, and for the life of the Project, soils will be stabilized and given an opportunity to rest, as the site is revegetated with a permanent cover of perennial grasses, sedges, and forbs according to seeding and management specifications agreed to by Northern Crescent Solar to the benefit of wildlife and the soil. Upon decommissioning, the land could be returned to its pre-construction agricultural use or to another use if economic conditions at that time indicate another use is an appropriate use for the site. Northern Crescent Solar anticipates that the property will be restored to agricultural use upon decommissioning of the Project.

The cover crop is used to support soil health by preventing erosion, improving the soil's physical and biological properties, supplying nutrients, suppressing weeds, improving the availability of soil water, and breaking pest cycles.

Initial post-construction revegetation efforts, establishment activities, and maintenance of vegetation during operations will consider selecting suitable plants, managing seeding times for late spring-early summer when soil moisture is optimum for germination, use of mulch and other BMPs. Existing tile drainage systems will be maintained during Project construction and operation. If any damage occurs within the existing drain tile system, it will be resolved by Northern Crescent Solar.

3.2.4.2 Topsoil Storage

Topsoil thickness across the Project Area currently ranges from 0 to greater than 18 inches (**Table 1**) and the soil is relatively high in organic matter and fertile (**Table 2**). Storing topsoil in large deep stockpiles is not recommended as deep piles of topsoil may not have the same biotic interaction of existing topsoil. It is recommended to have larger areas of shallower topsoil stockpiles to prevent compaction and retain original soil characteristics. To the extent practicable, topsoil should be conserved by preselecting areas to receive excess topsoil from nearby areas, grading and seed bed preparation as appropriate, and revegetation to maintain a rhizosphere suitable for plant growth.

3.2.4.3 Subsoil Storage

Storing subsoil will occur in the same process as described in Section 2.2 above. While some subsoil will be used to fill on-site low spots, any additional soil will be stored in shallow stockpiles to prevent compaction and retain its original soil characteristics. This soil will be stored for refilling drainage basins during decommissioning.

3.2.4.4 Compaction and Rutting

Compaction and rutting are potential limitations to constructing the Project in the Preliminary Development Area. Northern Crescent Solar will design construction access and manage construction traffic to minimize the number of trips occurring on a given soil and location and will implement wet weather procedures when rutting is observed. Deep compaction is not anticipated to be a significant problem as the number of construction equipment passes over a given area is expected to be limited and construction equipment consists of smaller, low-ground-pressure tracked vehicles. If compaction becomes an issue, decompaction of the soil by tilling or ripping may be performed if safely distanced from existing buried utilities or other infrastructure.

Out of the 929 acres of the Preliminary Development Area, approximately 91 acres will need to be graded (roughly 9.8 percent). This further prevents the amount of compaction and/or rutting that could take place as heavy vehicles will not be needed as long as a project that needs more grading. Of acres to be graded, the majority is needed for stormwater management ponds which aid in minimizing water runoff and pollution.

4.0 BMPs During Construction and Operation

The Project will be constructed and operated on property leased by Northern Crescent Solar. Typical Project phasing is listed below. As stated above, the Project is located on highly productive farmland occupying a flat to gently rolling loess covered till plain in southern Minnesota (**Exhibits 1-3**).

Because all Project-related construction activities will be limited to the leased land, no direct impacts to adjacent land are expected. Additionally, technology to be deployed at the proposed facility does not require a completely flat or a uniform grade across the Project site. Because most of the Project site is currently nearly level or has slightly rolling terrain (**Table 1**), the amount of grading anticipated within the Preliminary Development Area is expected to be very minimal, less than 2 percent (**Exhibit 5**). The PV arrays will be designed to follow the existing grade of the Project Area within certain tolerances, which allows the designer of the facility to minimize the number of earthmoving activities that are required (see **Exhibit 3**).

While some grading activities may be required to raise or lower certain areas within the Project Area, the majority of the Project Area's topography would be left unchanged (**Exhibit 5**). The remainder of earthmoving activities would consist of work on the access roads, trenches for the DC and AC collection system, and foundations for the Project Substation and inverter skids, as necessary. The sections below describe the measures that the Contractor will implement to minimize the physical impacts to the integrity of the topsoil and topography of the Project site.

Project Construction Phasing:

- Identification of clearing and grading limits, sensitive areas, and wetlands prior to construction;
- Installation of sediment and erosion controls as identified by project plans/approvals, including any necessary site-specific modifications as identified;
- Performance of earthwork, drain tile adjustment, access road work, and initial stabilization of exposed soils;
- Construction/installation of permanent stormwater treatment facilities;
- Installation of the solar array and electrical components (concurrent with above);
- Application of seed and temporary stabilization; and
- Cleanup and permanent stabilization of the site.

4.1 Environmental Monitor

Northern Crescent Solar will contract with a third-party environmental monitor (Monitor) to periodically observe earthmoving activities during Project construction to ensure appropriate measures are taken to properly segregate and handle the topsoil. Northern Crescent Solar will coordinate with the MDA to identify a suitable Monitor.

The Monitor will have a variety of duties, including but not limited to:

- Perform weekly inspections during Project construction in which they have the freedom to pick a day of the week at random to inspect trenching and perform the following duties:
 - Observe construction crews and activities to ensure that topsoil is being segregated and managed appropriately;
 - Monitor the site for areas of potential soil compaction (except within access roads) for areas returning to agriculture after construction and make specific recommendations for decompaction;
 - Make recommendations related to applicable earthwork activities to Northern Crescent Solar's Construction Manager; and
 - Assist in determining if weather events have created "wet weather" conditions and provide recommendations to the Construction Manager on the ability to proceed with construction.
- Prepare a report of Northern Crescent Solar's adherence to soil BMPs and submit the report to the MDA on a regular basis during Project construction and upon completion of the Project.
- As applicable, attend construction and safety meetings upon accessing the construction site.

The Monitor will report potential and actual issues with BMPs to Northern Crescent Solar, its Construction Manager, and the MDA. If an independent third-party monitor is required for other Project aspects controlled by the site permit issued by the Commission, the Monitor will also complete the other required monitoring and the scope of the Monitor's responsibilities will also be coordinated with the Minnesota Department of Commerce Energy Environmental Review Analysis staff. The Construction Manager will use discretion to either correct the activity or stop work depending on the issue to be resolved.

4.2 Soil Segregation and Decompaction

During construction, one of the primary means to protect and preserve the topsoil at the Project site will be to separate the topsoil from the other subgrade/subsoil materials when earthmoving activities, excavation or trenching are taking place during grading, road construction, cable installation, foundation installation, etc. There may be limited situations where excavated subsoil will be stored on adjacent undisturbed topsoil as most subsoil will be untouched. In these situations, subsoil will be returned to the excavation with as little disturbance of the underlying topsoil as practicable. Laying down a thin straw mulch layer as a buffer between the subsoil and topsoil will be used as practicable to facilitate more effective separation of the subsoil and underlying topsoil during the excavation backfill process.

Based on SSURGO data, most of the topsoil has a thickness of 0-18 inches (58% of the Preliminary Development Area). This will be confirmed with geotechnical soil tests by prior to earthwork activities on the site. Northern Crescent Solar will identify the appropriate depth of topsoil that should be stripped and segregated from other subsoil materials during earthwork activities. This information will be provided with a recommendation on specific segregation methods/techniques to the Monitor for review and input.

As a preliminary recommendation Northern Crescent Solar suggests that the full depth of topsoil be stripped up to 12 inches in thickness in areas of construction grading. Topsoil greater than 12 inches from the soil surface would be treated similarly to the underlying subsoil. During the activities that require temporary excavations and backfilling (i.e., trenching activities) the subgrade material will be replaced into the excavations first and compacted as necessary, followed by replacement of topsoil to the approximate locations from which it was removed. Topsoil will then be graded to the approximate pre-construction contour. Northern Crescent Solar will strive to avoid compaction in other areas where it is not required by the design.

Following earthwork activities that require segregation of topsoil/subsoil, topsoil materials will be re-spread on top of the backfilled and disturbed areas to maintain the overall integrity and character of the pre-construction farmland. Any excess topsoil material would be re-spread on the Project Area site at pre-established locations. The location and amount of topsoil will be documented to facilitate re-spreading of topsoil as a part of Project decommissioning. This practice is described in more detail below for each of the earthmoving activities that are anticipated for this Project.

4.3 Wet Weather Conditions

During the construction of the Project, when periods of wet weather occur a temporary halt of construction activities may be called if significant adverse impacts to soil occur. The Construction Manager for Northern Crescent Solar will have responsibility for halting activities if weather conditions pose a risk to worker safety or if conditions are such that heavy equipment would cause significant soil compaction or rutting of the Project Area.

Following initial grading at the site, many activities could still proceed in wet weather conditions given the lack of heavy equipment required for those tasks. However, the Construction Manager for Northern Crescent Solar would be responsible for ensuring that topsoil erosion, rutting, compaction, or damage to drain tiles (as present) is avoided to the extent possible. If damage is done to the drain tiles, Northern Crescent Solar will repair them as soon as is practicable. All known drain tiles within the Project Area are avoided by the Project components (**Exhibit 9**).

The Construction Manager will ensure that proper techniques and practices are used to loosen soil appropriately when encountered. Soil loosening with chisel plows prior to disking and planting will typically be a standard method of soil preparation in areas proposed for seeding. Agricultural equipment capable of operating within the approximate 20-foot-wide space between panel lines when panels are oriented vertically would be used to loosen soil, prepare a seedbed, and plant suited seed mixes.

4.4 Adaptive Management During Construction

As with all forms of adaptive management, during construction of the Project changes may be made to the Plan should unforeseeable conditions arise that render the Plan unworkable. Using this approach will allow the Project to continue despite potential barriers. Should weather or site conditions during construction require different BMPs than those that are described in this section, Northern Crescent Solar will work with the Monitor, MDA and other appropriate agencies to discuss and select potential new approaches to the specific conditions that are encountered.

Northern Crescent Solar will remain flexible and implement new practices/procedures that will help ensure the quality of the Project land while maintaining the safety of the workers.

4.5 Initial Grading/Road Construction/Array Construction

The first phase of Project construction activities will involve general civil work at the Project Area where initial cut and fill activities will be performed by the Contractor. Northern Crescent Solar will identify the appropriate depth of topsoil up to 12 inches that should be stripped and segregated from other materials during initial grading activities. Based on soil information, topsoil in this region of Minnesota is generally 0-18 inches but may reach depths of up to 36 inches. This will be confirmed with tests prior to grading activities. If needed, Northern Crescent Solar will provide this information and a recommendation on specific segregation methods/techniques to the MDA for review and input.

The Contractor will first strip topsoil that sits higher than other areas. This will ensure that the topography falls within the tolerances allowed for by the solar array design. Based on preliminary design, engineering expects approximately 91 acres to require grading. During this civil work, topsoil will be pushed outside of the cut/fill areas and collected into designated spots for later use. Once topsoil is removed from the cut/fill areas, the sub-grade materials will be removed as required from on-site hills and relocated to spots with the least potential for runoff and erosion. Prior to relocating subgrade materials to the low spots, topsoil in the low areas will be stripped and set aside before the fill is added, then re-spread over the new fill. Topsoil and subsoil will remain segregated in order to avoid mixing maintain the integrity of both soil types. The sub-grade materials would be compacted in place. When compaction is complete, the topsoil spoil piles will be re-spread over the reconditioned sub-grade areas.

This newly spread topsoil will be loosely compacted and/or “tracked” to give a smooth-surface and employ the wind and stormwater erosion prevention BMPs.

After most of the initial earthwork activities has been completed, the Contractor will start construction of the Project access road network. This work would start with the stripping of topsoil materials from the planned new roadbed areas to a depth of at least 12 inches. Topsoil will be windrowed to the edges of each roadbed. Windrowing will consist of pushing materials into rows of stockpiles adjacent to the road which will be loosely compacted and/or “tracked” with stormwater and wind erosion BMPs in place. The Contractor will then compact the sub-grade materials. After gravel is installed and compacted to engineers’ requirements, the Contractor will shape Project drainage ditches as identified on the final grading plan. Previously stripped and windrowed topsoil will be re-spread throughout the Preliminary Development Area.

Following grading and road construction, the Contractor will begin the installation of foundation piles for the solar PV array racking system. This work will consist of directly driving the pile into the soil with pile driving equipment. The installation vehicles would operate on the existing surface of the ground and impacts would be limited and similar to a vehicle driving over the soil surface. Very little soil disturbance is expected from this activity.

4.6 Foundations

The Contractor will perform foundation work for the Project Substation, O&M, BESS, and inverter skids. For all facilities listed, other than the inverter skids, the Contractor will strip topsoil off the area, grade the site (as needed), install the pier-type foundations, compact sub-grade materials, re-grade spoils around the area, and then install clean rock on the surface. Topsoil stripped from the Project Substation and BESS areas will be pushed outside of the substation area and collected into designated locations for later use (**Exhibit 5**). These topsoil piles will be windrowed or piled and loosely compacted and/or “tracked” with stormwater and wind erosion BMPs in place. Once substation construction is sufficiently complete, the topsoil piles would be distributed in a thin layer adjacent to the substation area and the topsoil revegetated with an appropriate seed mix.

Where inverters are installed, topsoil will be stripped and placed adjacent to the inverter. The inverter foundations will then be excavated using an excavator followed by installation of rebar and concrete. After the concrete cures and its testing strength is completed, the subgrade soils will

be compacted around the inverters. After the inverter are set, the adjacent topsoil will be re-spread around the inverter.

4.7 Trenching

Construction of the Project may require trenching for the installation of both DC and AC collection lines across the Project Area. If the collection lines are buried, the Contractor will be installing AC and DC collection cables in trenches of approximately 2-5 feet deep using the “open trench” method. Topsoil and subgrade materials would be excavated from the trench using typical excavating equipment or backhoes and segregated as described above. The bottom of each trench may be lined with clean fill to surround the cables. Northern Crescent Solar anticipates that native subsoil will be rock free (**Table 1**) but will confirm this with thermal studies. Depending on the results, foreign fill may be necessary. After cables have been installed on top of bedding materials in the trench, 1 foot of screened, native backfill will be placed on the cables followed by additional 2 feet of unscreened native backfill trench spoil/subsoil. This material would be compacted as necessary. The last 1 foot of each trench will then be backfilled with topsoil material to return the surface to its finished grade after settling.

4.8 Temporary Erosion and Sediment Control

By adhering to the Project specific Stormwater Pollution Prevention Plan (SWPPP) required under the National Pollutant Discharge Elimination System (NPDES) permitting requirement that is administered by the Minnesota Pollution Control Agency (MPCA), Northern Crescent Solar will minimize the risk of excessive soil erosion on lands disturbed by construction. Prior to construction, Northern Crescent Solar will work with engineers and the Contractor to outline the reasonable methods for erosion control BMPs and prepare the SWPPP.

These measures would primarily include silt fencing on the downside of all hills, near waterways, and near drain tile inlets. This silt fencing would control soil erosion via stormwater. Check dams and straw wattles will also be used to slow water during rain events in areas that have the potential for high volume flow. In addition, the Contractor can use erosion control blankets on any steep slopes, although given the site topography this BMP will not likely be required. Lastly, as outlined above, topsoil and sub-grade material will be piled and loosely compacted and / or “tracked” while stored. The BMPs employed to mitigate wind and stormwater erosion on these soil stockpiles will include installing silt fence on the downward side of the piles as needed and installation of straw wattles if these spoil piles are located near waterways.

The SWPPP will identify designated onsite SWPPP inspectors to be employed by the Contractor for routine inspections as well as for inspections after storm events per the plan outlined in the SWPPP.

4.9 Drain Tile Identification, Avoidance and Repair

Northern Crescent Solar will avoid County drain tiles and judicial ditches through design and during construction (**Exhibit 9**). Where County drain tiles and judicial ditches need to be crossed by Project facilities (e.g., collection lines), directional boring will be used to install the facilities

which will avoid impacts to these tiles and ditches. Northern Crescent Solar is aware of the presence of drain tiles within the farm fields making up the Project Area, which appear to be adequately draining the Project Area and discharging off site primarily into the surrounding County managed drain tiles and judicial drainage ditches. To minimize unforeseen repairs or damages to existing drain tile lines and/or drain tile systems, Northern Crescent Solar is committed to preserve soil drainage conditions as it currently exists. Existing drain tile lines and surrounding drainage systems will be maintained, repaired, relocated, or replaced (if damaged during construction or operation of the Project) by Northern Crescent Solar as needed.

4.9.1 Pre-Construction Tile Mapping and Repair

Pre-construction farm field drain tile mapping challenges often exist on solar energy projects. Identifying and locating drain tiles is complicated because of missing, incomplete, and inaccurate mapping. Northern Crescent Solar has obtained and will review available drain tile maps from participating landowners in the Project associated with the Project Area. Northern Crescent Solar will attempt to avoid and/or relocate existing drainage systems as needed for construction of the Project.

Drain tile or drainage system adversely affected by Northern Crescent Solar will be identified, repaired, relocated, or replaced as needed to achieve the function and scope to its original size and capacity. Replacement or rerouting of tile will take place during construction or as it is identified in order to maintain the integrity of the drainage lines. This practice should minimize interruption of drainage on site or on neighboring farms that may drain through the Project leased property. New or modified drain tile systems installed by Northern Crescent Solar will be located using GPS equipment and archived in Project construction files and the Project Decommissioning Plan.

The following considerations will also apply:

- Tiles will be repaired with materials of the same or better quality as that which was damaged;
- Tile repairs will be conducted and located in a manner consistent with industry-accepted methods;
- Before completing permanent tile repairs, tiles will be examined within the work area to check for tile that might have been damaged by construction equipment. If tiles are found to be damaged, they will be repaired; and
- Northern Crescent Solar will make efforts to complete permanent tile repairs within a reasonable timeframe, considering weather and soil conditions.

4.9.2 Project Design Considerations

Northern Crescent Solar will attempt to design, engineer and construct around the tiles to ensure placement of solar racking systems does not damage existing tile to the extent feasible. In some areas, re-routing of the tile may be necessary and this re-routing work will take place immediately prior to or during construction.

4.9.3 Construction Measures

In areas where it will be impossible to design solar arrays around existing drain tile locations, steps will be taken to ensure the integrity of the drainage system will remain intact both during and after construction. Tile lines that are in direct conflict with solar array installation or trenches (i.e., collection lines) will be rerouted around the conflict area. Tile lines that have the potential to be damaged by construction traffic will be bridged or reinforced to maintain integrity.

4.9.4 Operational Measures

Following completion of construction, Northern Crescent Solar will inspect the Project site after significant snow melt or rainfall events for evidence that tile systems are functioning adequately. If localized wet areas or standing water are observed, it is likely the tile system is not operating as anticipated. In this situation, a tile contractor will be engaged to pin-point damaged tile that may have been missed during construction. Tile would be repaired following the process outlines above.

4.10 Construction Debris

Construction-related debris and unused material will be removed by Northern Crescent Solar and the Contractor. Below-grade, unusable materials will be removed and loaded immediately onto trucks for subsequent disposal at a designated off-site location. The Contractor will use locally sourced dumpsters and removal services to regularly check and schedule pick-ups for full dumpsters which will be switched out for empty ones. To the extent practicable, recyclable materials (i.e., cardboard) will be sorted and recycled at a local facility.

Debris/trash collection points and dumpsters will be located both in the laydown yards as well as at strategically designated locations close to where actual work is being performed. If loose debris fails to be deposited into dumpsters or if it becomes wind-blown, the Contractor will inspect and clear fence lines of debris on a daily basis to ensure that debris and trash does not leave the Project Area. Contaminated materials are not expected; however, if such materials are encountered during construction, specialized dumpsters and handling instructions will be employed to suit the types of contaminated materials discovered. Contaminated materials will be disposed of at the nearest appropriate facility in accordance with applicable laws, ordinances, regulations, and standards.

5.0 Decommissioning

Northern Crescent Solar has prepared a formal Decommissioning Plan as required for the Site Permit to be issued by the Commission for the Project. At the end of the Project's useful life, Northern Crescent Solar will either take necessary steps to continue operation of the Project (such as re-permitting and retrofitting) or will decommission the Project and remove facilities. Decommissioning activities will include:

- Removal of the solar arrays, transformers, electrical collection system, fencing, lighting and substations, BESS equipment, and possibly the O&M building (the O&M building may be useful for other purposes);
- Removal of below-ground electrical cables to a depth of four feet (cables buried below four feet will be left in place, or removed as required by applicable lease option agreement);
- Removal of buildings and ancillary equipment to a depth of four feet or as required by applicable lease option agreement;
- Removal of surface road material and restoration of the roads to substantially the same physical condition that existed immediately before construction;
- Grading, adding or re-spreading topsoil, and reseedling according to the NRCS technical guide recommendations and other agency recommendations, areas disturbed by the construction of the facility or decommissioning activities, grading and soil disturbance activities will be kept to the minimum necessary to restore areas where topsoil was stripped in construction, topsoil in decommissioned roads and compaction only in areas that were compacted during decommissioning activities so that the benefits to the soil that were achieved over the life of the Project are not counteracted by decommissioning; and
- Standard decommissioning practices would be utilized, including dismantling and repurposing, salvaging/recycling, or disposing of the solar energy improvements, and restoration.

5.1 Timeline

Decommissioning is estimated to take approximately 30 weeks to complete, and the decommissioning crew will ensure that all equipment is recycled or disposed of properly.

5.2 Removal and Disposal of Project Components

The removal and disposal details of the Project site components are found below. Typical construction equipment to be used during decommissioning will include, but is not limited to, truck-mounted cranes, loaders, bulldozers, dump trucks, and decompaction equipment.

- Modules: Modules will be inspected for physical damage, tested for functionality, and disconnected and removed from racking. Functioning modules will be packed and shipped to an offsite facility for reuse or resale. Non-functioning modules will be packed, palletized, and shipped to the manufacturer or a third party for recycling or disposal.

- Racking: Racking and racking components will be disassembled and removed from the steel foundation posts, processed to appropriate size, and shipped to a metal recycling facility.
- Steel Foundation Posts: All structural foundation steel posts will be pulled out to full depth, removed, processed to appropriate size, and shipped to a metal recycling facility. The posts can be removed using backhoes or similar equipment. During decommissioning, the area around the foundation posts may be compacted by equipment and, if compacted, the area will be de-compacted in a manner to adequately restore the topsoil and sub-grade material to a density consistent to promote plant growth.
- Overhead and Underground Cables and Lines: All underground cables and conduits will be removed to a depth of 48 inches as specified in the lease agreements. Facilities deeper than 48 inches may remain in place to limit vegetation and surface disturbance. The underground cables around equipment pads will be completely removed up to a length of 25' around the perimeter of pads. Prior to any excavation, topsoil will be segregated and stockpiled for later use, and the subsurface soils will be staged next to the excavation. The subgrade will be compacted to a density similar to the surrounding soils to promote plant growth and maintain drainage. Topsoil will be redistributed across the disturbed area. Overhead HVTL conductors will be disconnected and removed from the Project and taken to a recycling facility. The steel transmission poles will be felled within the transmission line right-of-way (ROW) and any hardware, bracing, and attachments will be transported along with the poles to a recycling facility. Removed pole locations will be revegetated with a seed mix specified in the approved SWPPP and VSMP.
- Battery Energy Storage System, BESS: The BESS containers will be disconnected from electric ports prior to removal. The lithium-ion batteries will be transported to a recycling facility. The containers can be resold, reused, or recycled. Gravel aggregate will be removed and shipped from the Project site to be reused, sold, or disposed of appropriately, at the Project Owner's sole discretion, consistent with applicable regulations and industry standards. Clean aggregate can often be used as "daily cover" at landfills for no disposal cost. All internal service roads are constructed with geotextile fabric and eight inches of aggregate over compacted subgrade. All pile foundations will be pulled out completely. Underground cables and duct banks will be removed to a depth of four feet. Topsoil will be reapplied to the disturbed area. Soil and topsoil will be de-compacted, and the site will be restored to the pre-construction condition and re-vegetated.
- Inverters, Transformers, and Ancillary Equipment: All electrical equipment will be disconnected and disassembled. All parts will be removed from the site and reconditioned and reused, sold as scrap, recycled, or disposed of appropriately, at the Owner's sole discretion, consistent with applicable regulations and industry standards.
- Equipment Foundation and Ancillary Foundations: The ancillary foundation for the Project are pile foundations for both equipment skids and meteorological stations. As described for the solar array steel foundation posts, the foundation piles will be pulled out completely. Duct banks will be excavated to a depth of at least 48 inches. All duct banks, up to 50 feet, around the equipment pads will be removed. All unexcavated areas compacted by equipment used for decommissioning will be de-compacted in a manner to adequately restore the topsoil and sub-grade material to a density similar to the surrounding soils. All

materials will be removed from the site and reconditioned and reused, sold as scrap, recycled, or disposed of appropriately, at the Owner's sole discretion, consistent with applicable regulations and industry standards.

- Fence: All fence parts and foundations will be removed from the site and reconditioned and reused, sold as scrap, recycled, or disposed of appropriately at the Owner's sole discretion, consistent with applicable regulations and industry standards. Fence posts can be pulled out using skid-steer loaders or other light equipment. The surrounding areas will be restored to pre-Project conditions to the extent feasible.
- Access Roads: Facility access roads will be used for decommissioning purposes, after which removal of roads will be discussed with the applicable landowner.
 - 1) After final clean-up, roads may be left intact through mutual agreement of the landowner and the Owner, unless otherwise restricted by federal, state, or local regulations.
 - 2) If a road is removed, aggregate will be excavated and loaded in dump trucks using front loaders, backhoes, or other suitable excavation equipment, and shipped from the site to be reused, sold, or disposed of appropriately at the Owner's sole discretion, consistent with applicable regulations and industry standards. Clean aggregate can often be used as "daily cover" at landfills for no disposal cost. Another disposal option is to provide the aggregate to local landowners as clean fill. All internal service roads are constructed with geotextile fabric and eight inches of aggregate over compacted subgrade. Any ditch crossing connecting access road to public roads will be removed unless the landowner requests it remain. The subgrade will be de-compacted using a chisel plow or other appropriate subsoiling equipment. All large rocks will be removed. Topsoil that was stockpiled during the original construction will be distributed across the road corridor.

5.3 Restoration/Reclamation of Facility Site

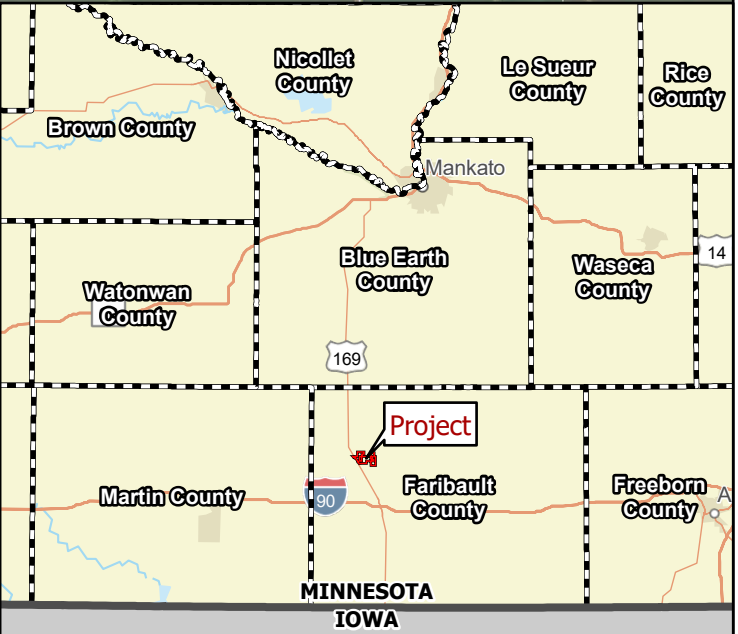
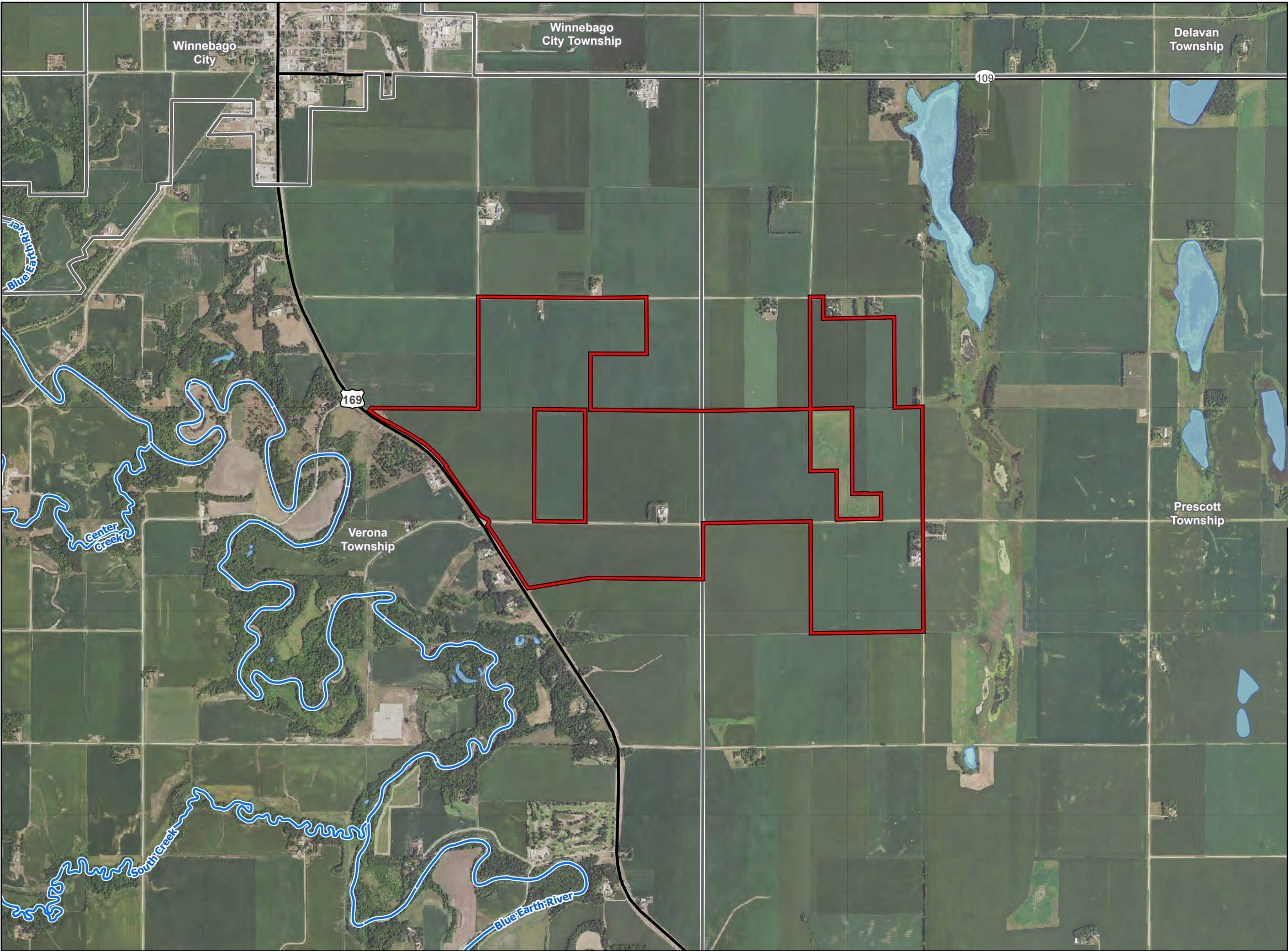
After equipment is removed, the facility Project Area could be restored to an agricultural use (in accordance with this AIMP, Project site lease agreements, the VSMP and applicable portions of the SWPPP) or to another use if the economic conditions at that time indicate another use is an appropriate use for the site. Holes created by fence poles, concrete pads, re-claimed access road corridors and other equipment, as well as trenches/drains excavated by the Project, will be filled in with soil to existing conditions and seeded.

Grading and other soil disturbance activities during decommissioning will be kept to the minimum necessary to effectively decommission the site to maintain the soil benefits realized during the long-term operation of the Project, such benefits include building topsoil through plant matter decay, carbon capture, and beneficial soil bacteria that are often absent from soil subject to row crop agriculture. This will include the revegetation in accordance with the details of the Project VSMP. In accordance with the SWPPP, erosion and sediment control measures will be left in place, as needed, until the Project site is stabilized.

Northern Crescent Solar reserves the right to extend operations instead of decommissioning at the end of the Site Permit term, as provided in the lease agreements for the Project. In this case, a decision may be made on whether to continue operation with existing equipment or to retrofit the facilities with upgrades based on newer technologies. If the decision is made to continue operations, the Northern Crescent Solar would evaluate the Project and determine if any changes would require re-permitting of the facility. If a new Site Permit is required, Northern Crescent Solar would prepare an application and secure this approval.

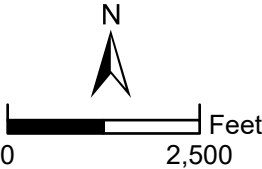
6.0 References

- Faribault County Zoning Ordinance, Section 15.A. 1994. Available at
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- Minnesota Department of Commerce. 2021. Guidance for Developing a Vegetation Establishment and Management Plan for Solar Facilities. Available at
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<https://mn.gov/eera/web/doc/13929/>.
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<http://winnebagoareamuseum.org/history.html>
- University of Minnesota. 2015. Minnesota Historical Aerial Photographs Online. Available at
<https://apps.lib.umn.edu/mhapo/>
- USDA NRCS. 2000. Prime Farmland. Available at
https://www.nrcs.usda.gov/wps/portal/nrcs/detail/null/?cid=nrcs143_014052



Data Source(s): Westwood (2024); NAIP(2021); U.S. Census Bureau (2021); NHD (2023).

- Legend**
- Project Area
 - State Boundary
 - County Boundary
 - Municipal Township
 - Named NHD Flowline
 - NHD Waterbody
 - Major Road

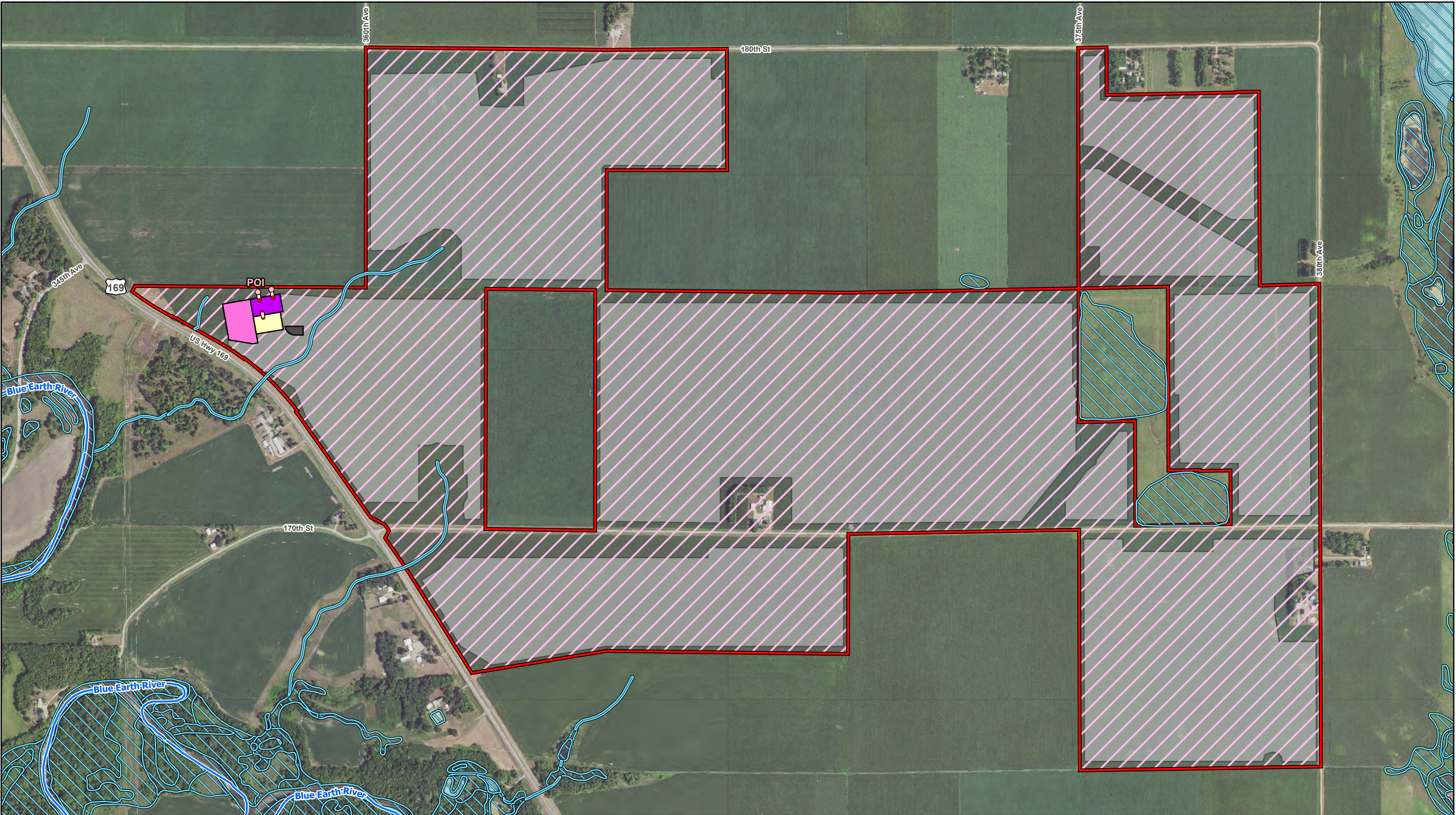


Northern Crescent Solar & Storage Project

Faribault County, Minnesota

Project Location

EXHIBIT 1 (July, 2024)



Data Source(s): Westwood (2024); NAIP (2021); U.S. Census Bureau (2021); NHD (2023); NWI (2022).

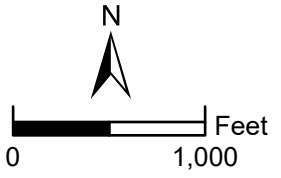
Legend

- Project Area
- Preliminary Development Area
- Current Site Control Area

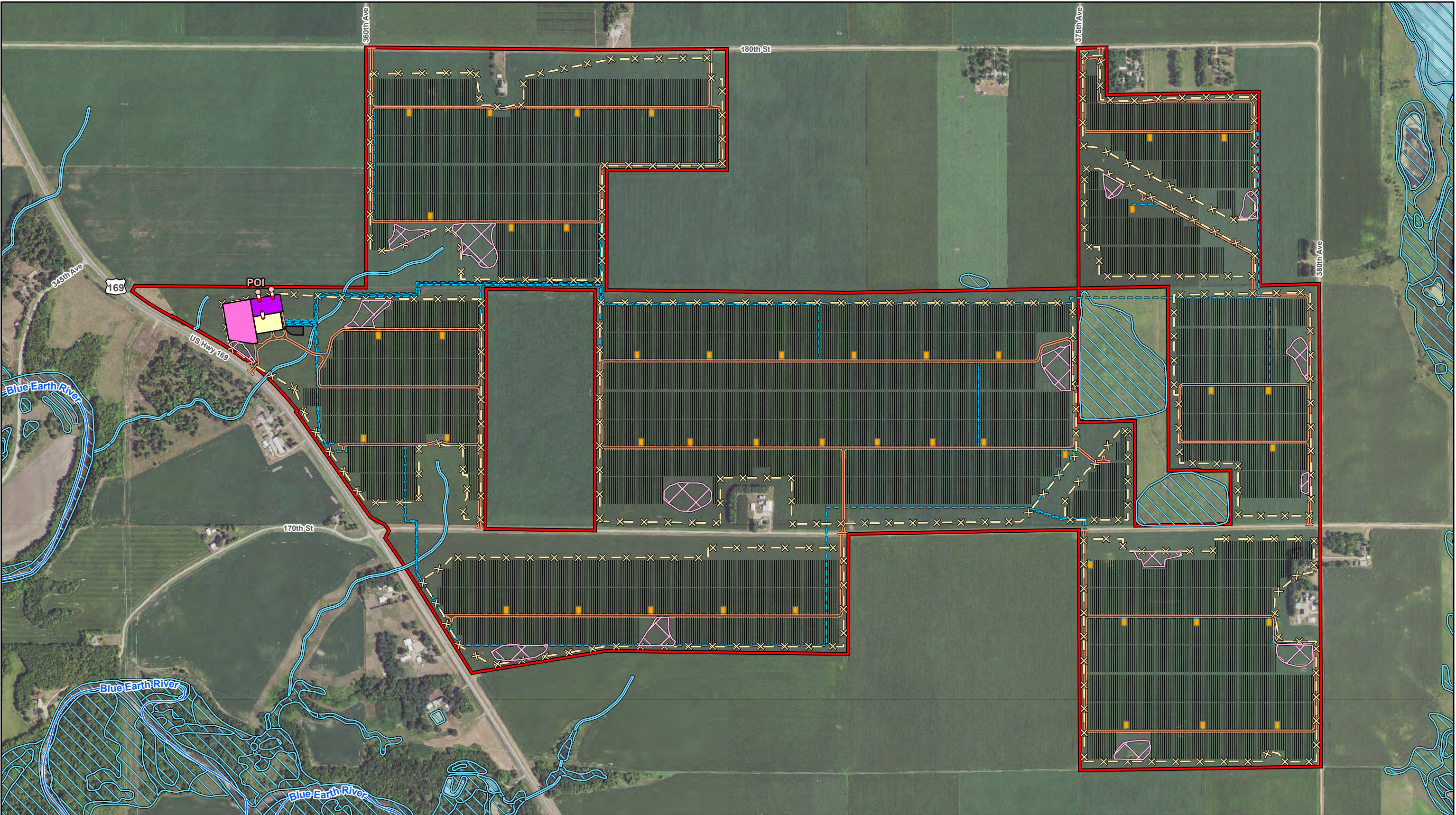
- Proposed Point of Interconnection (POI)
- Proposed Overhead Lines
- Proposed O&M Building

- Proposed Switchyard
- Proposed Substation
- Proposed BESS Facility
- NWI Wetland

- Named NHD Flowline
- NHD Waterbody



Northern Crescent Solar & Storage Project
Faribault County, Minnesota
Land Control & Preliminary Development Area
EXHIBIT 2 (July, 2024)

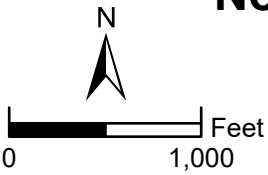


Data Source(s): Westwood (2024); NAIP (2021); U.S. Census Bureau (2021 & 2022); NHD (2023); NWI (2022).

Legend

- | | | | |
|---|--------------------------------------|------------------------|--------------------|
| Project Area | Proposed Underground Collection Line | Proposed Switchyard | Proposed Fenceline |
| Proposed Solar Array | Proposed Inverter | Proposed Substation | Named NHD Flowline |
| Proposed Point of Interconnection (POI) | Proposed Water Basin | Proposed BESS Facility | NWI Wetland |
| Proposed Overhead Lines | Proposed O&M Building | Proposed Access Road | NHD Waterbody |

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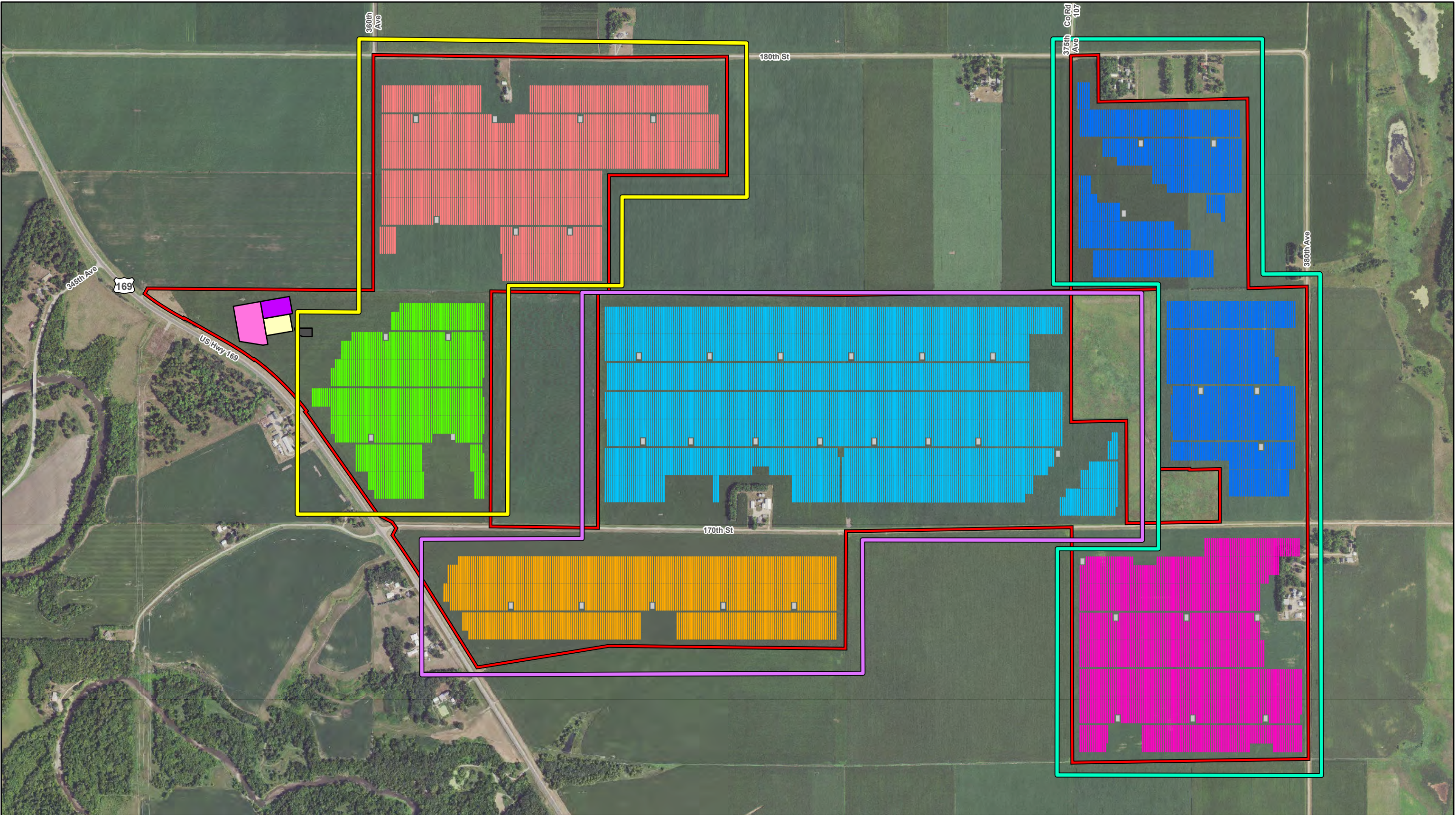
Northern Crescent Solar & Storage Project

Faribault County, Minnesota

Preliminary

Project Layout

EXHIBIT 3 (July, 2024)



Data Source(s): Westwood (2024); NAIP (2021); U.S. Census Bureau (2021 & 2022).



Legend

- Project Area
- Proposed Inverter
- Proposed BESS Facility
- Proposed Substation

- Proposed Switchyard
- Proposed O&M Building

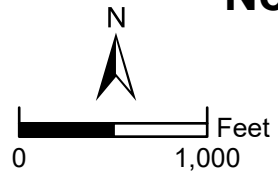
Proposed Project Array Groups

- Group A
- Group B

- Group C
- Group D
- Group E
- Group F

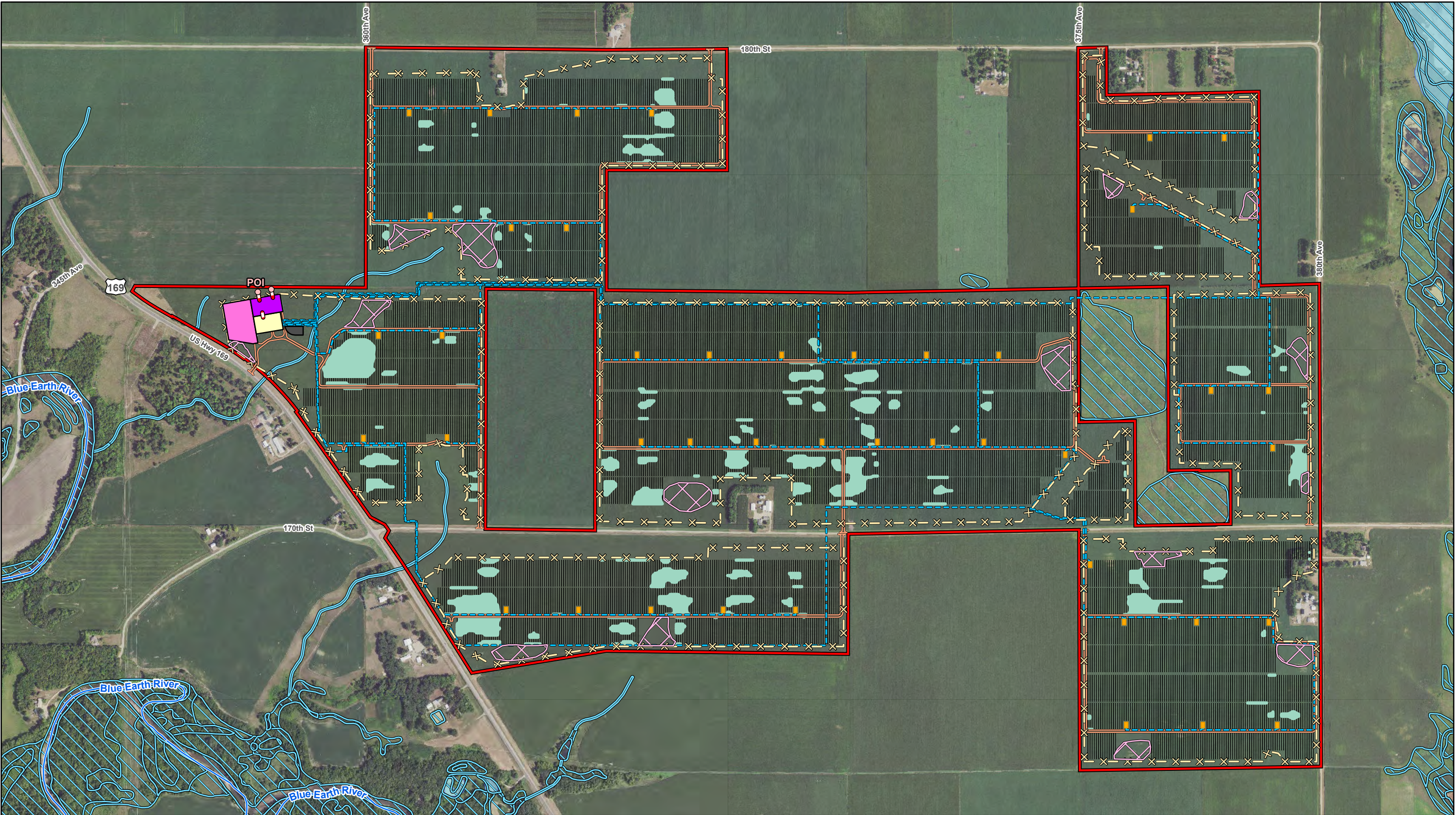
Construction Units

- West Unit
- Central Unit
- East Unit



Northern Crescent Solar & Storage Project

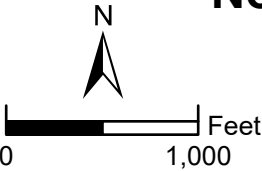
Faribault County, Minnesota
Configuration of Proposed Project Arrays
EXHIBIT 4 (July, 2024)



Data Source(s): Westwood (2024); NAIP (2021); U.S. Census Bureau (2021 & 2022); NHD (2023); NWI (2022).

Legend

- | | | | |
|---|--------------------------------------|------------------------|-------------------------------|
| Project Area | Proposed Underground Collection Line | Proposed Switchyard | Proposed Project Grading Area |
| Proposed Point of Interconnection (POI) | Proposed Water Basin | Proposed Substation | NWI Wetland |
| Proposed Overhead Lines | Proposed Inverter | Proposed BESS Facility | Named NHD Flowline |
| | Proposed O&M Building | Proposed Fenceline | NHD Waterbody |
| | | Proposed Access Road | |



Northern Crescent Solar & Storage Project
Faribault County, Minnesota
Preliminary Project Grading Areas
EXHIBIT 5 (July, 2024)



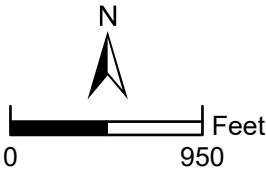
Data Source(s): Westwood (2024); Historical Information Gatherers (HIG) - 1938 Aerial Imagery (Accessed 2024).

Legend

 Project Area

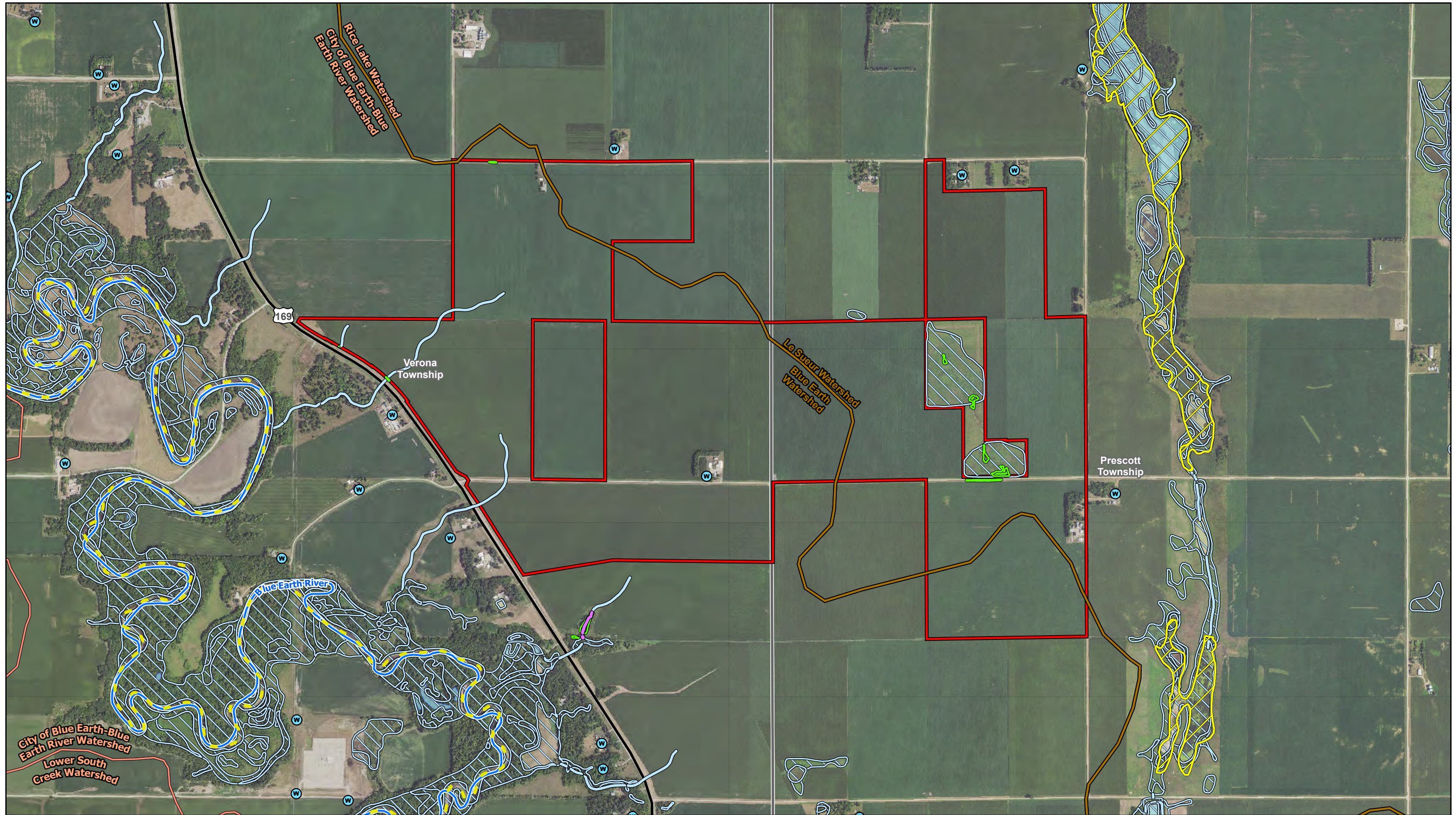
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**Northern Crescent Solar
& Storage Project**

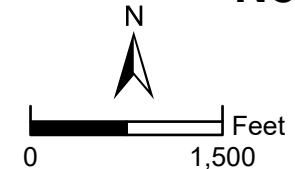
Faribault County, Minnesota
Prescott & Verona
Townships Land Use History
EXHIBIT 6 (February, 2024)



Data Source(s): Westwood (2024); NAIP (2021); U.S. Census Bureau (2021); NWI (2022); NHD (2023); MNDNR (2023).

Legend

- | | | | | |
|--------------------|--------------------------|----------------------------------|-----------------|--------------------|
| Project Area | Major Watershed Boundary | Field Delineated Wetland (2021) | PWI Watercourse | Named NHD Flowline |
| Municipal Township | Minor Watershed Boundary | Field Delineated Waterway (2021) | PWI Basin | NHD Waterbody |
| Water Well | | | NWI Wetland | Major Road |

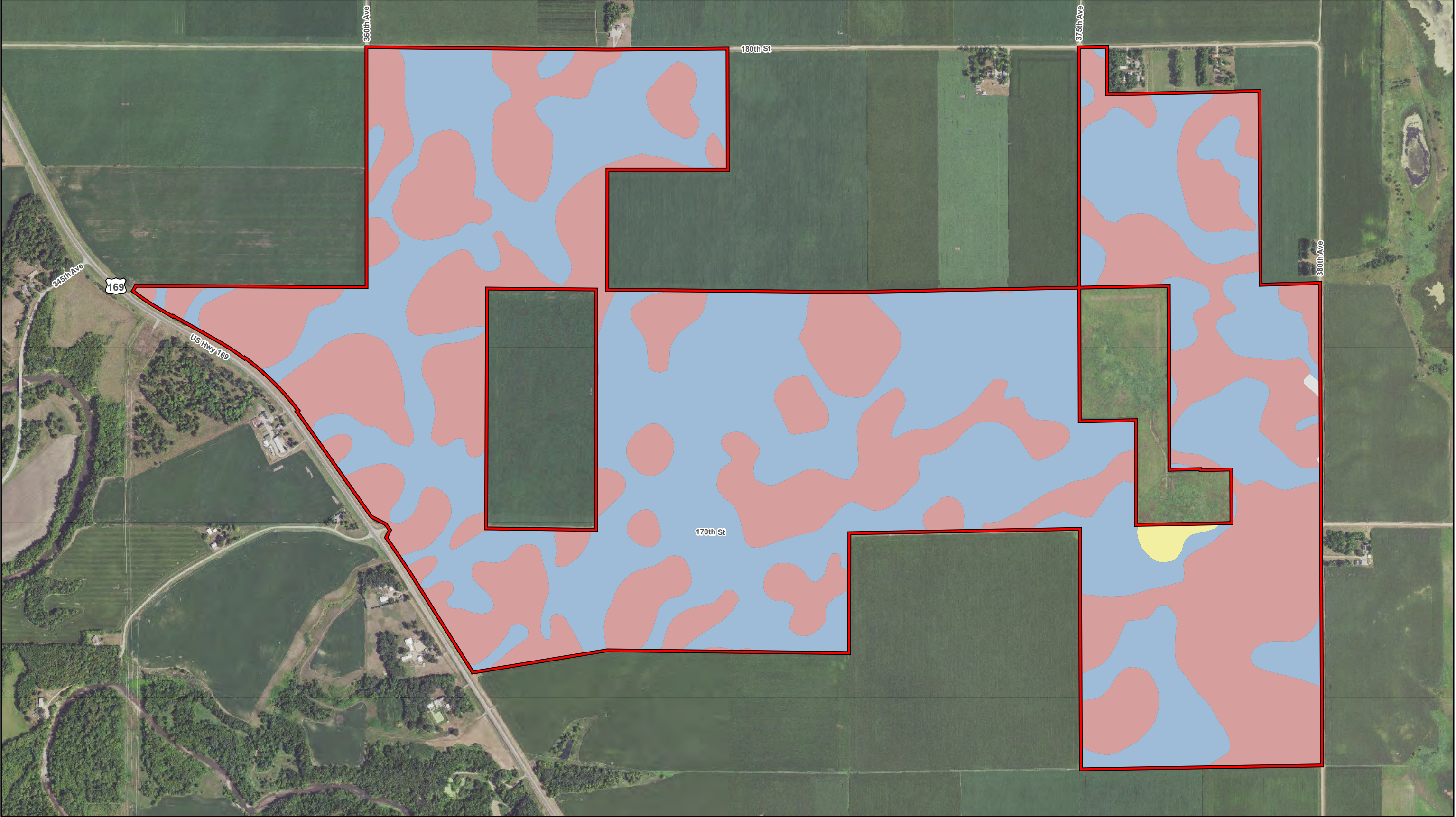


Northern Crescent Solar & Storage Project

Faribault County, Minnesota
Surface Waters & Watersheds
in Project Area
EXHIBIT 7 (July, 2024)

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Data Source(s): Westwood (2024); NAIP (2021); U.S. Census Bureau (2021 & 2022); NRCS Web Soil Survey (Accessed 2023).

Legend

Project Area

Prime Farmland Classification - Project Area Acreage (Percent Total)

All areas are prime farmland - 561.27 Acres (47.61%)

Farmland of statewide importance - 5.02 Acres (0.43%)

Prime farmland if drained - 611.85 Acres (51.9%)

Not prime farmland - 0.7 Acres (0.06%)

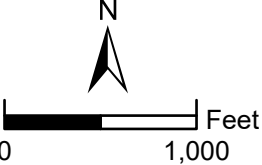
Westwood

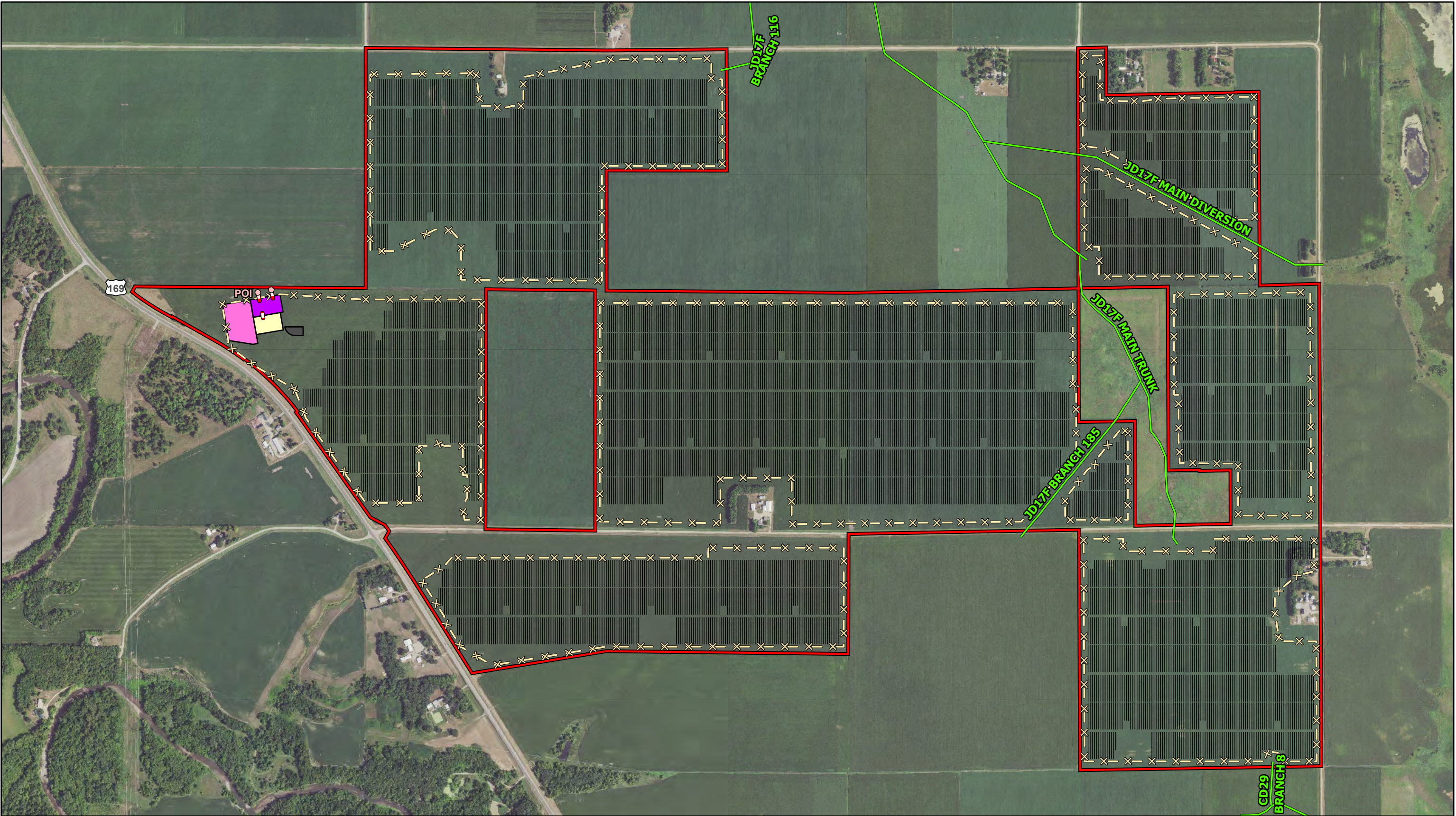
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Northern Crescent Solar & Storage Project

Faribault County, Minnesota
Project Area Farmland Classification

EXHIBIT 8 (July, 2024)





Data Source(s): Westwood (2024); NAIP (2021); U.S. Census Bureau (2021 & 2022); Faribault County (2022).

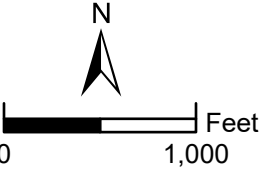
Legend

- | | | | |
|---|-------------------------|-----------------------|----------------------------------|
| Project Area | Proposed Overhead Lines | Proposed O&M Building | Proposed BESS Facility |
| Proposed Point of Interconnection (POI) | Proposed Fenceline | Proposed Switchyard | Faribault County Drainage |
| | Proposed Solar Array | Proposed Substation | Tile Centerline |

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Northern Crescent Solar & Storage Project

Faribault County, Minnesota
County Drain
Tiles & Ditches
EXHIBIT 9 (July, 2024)



Appendix A: Selected Soil Physical Features, Classification, and Interpretations and Limitations																
Feature Type	Acres	Map Unit Symbol	Map Unit Name	Selected Soil Physical Features					Selected Soil Classification				Construction/Reclamation Interpret			
				Particle Size Family	Slope Range	Drainage Class	Topsoil Thickness	Prime Farmland	Land Capability Classification	Hydric Soil Rating	Highly Erodible Water	Highly Erodible Wind	Compact Prone	Rutting Hazard	Drought Susceptible	
Laydown Yard	1.758509	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No	
Laydown Yard	0.020982	102B	Clarion loam, 2 to 6 percent slopes	fine-loamy	0-5	Moderately well drained	16	All areas are prime farmland	2e	No	No	No	No	Severe	No	
Laydown Yard	0.078547	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No	
Laydown Yard	4.904222	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No	
Laydown Yard	0.128443	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No	
Laydown Yard	0.118106	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No	
Laydown Yard	2.97265	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No	
Laydown Yard	2.041121	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No	
Laydown Yard	0.330528	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No	
Laydown Yard	2.319302	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No	
Laydown Yard	0.152204	86	Canisteo clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No	
Laydown Yard	0.345401	134	Okoboji silty clay loam, 0 to 1 percent slopes	fine	0-5	Very poorly drained	33	Prime farmland if drained	3w	Yes	No	No	No	Severe	No	
Laydown Yard	0.535724	134	Okoboji silty clay loam, 0 to 1 percent slopes	fine	0-5	Very poorly drained	33	Prime farmland if drained	3w	Yes	No	No	No	Severe	No	
Laydown Yard	0.560967	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No	
Laydown Yard	1.625877	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No	
Laydown Yard	0.646618	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No	
Laydown Yard	1.254654	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No	
Laydown Yard	0.916403	229	Waldorf silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No	
Laydown Yard	0.968232	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No	
Laydown Yard	0.000973	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No	
Stormwater Basin	0.344174	286B	Shorewood silty clay loam, 3 to 6 percent slopes	fine	0-5	Moderately well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No	
Stormwater Basin	0.252406	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No	
Stormwater Basin	0.047334	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No	
Stormwater Basin	0.000749	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No	
Stormwater Basin	1.569393	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No	
Stormwater Basin	0.312762	102B	Clarion loam, 2 to 6 percent slopes	fine-loamy	0-5	Moderately well drained	16	All areas are prime farmland	2e	No	No	No	No	Severe	No	
Stormwater Basin	0.691016	102B	Clarion loam, 2 to 6 percent slopes	fine-loamy	0-5	Moderately well drained	16	All areas are prime farmland	2e	No	No	No	No	Severe	No	
Stormwater Basin	1.507647	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No	
Stormwater Basin	0.487718	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No	

Feature Type	Acres	Map Unit Symbol	Map Unit Name	Selected Soil Physical Features					Selected Soil Classification				Construction/Reclamation Interpret		
				Particle Size Family	Slope Range	Drainage Class	Topsoil Thickness	Prime Farmland	Land Capability Classification	Hydric Soil Rating	Highly Erodible Water	Highly Erodible Wind	Compact Prone	Rutting Hazard	Drought Susceptible
Stormwater Basin	5.442874	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Stormwater Basin	4.00687	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Stormwater Basin	1.879702	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Stormwater Basin	0.334459	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Stormwater Basin	0.139582	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Stormwater Basin	0.267432	1907	Lakefield silt loam	fine-silty	0-5	Moderately well drained	18	All areas are prime farmland	1	No	No	No	No	Severe	No
Stormwater Basin	0.140088	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Stormwater Basin	0.078072	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Stormwater Basin	0.309529	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Stormwater Basin	0.008234	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Stormwater Basin	0.008749	909D2	Bold-Truman complex, 12 to 18 percent slopes, eroded	coarse-silty	5-16	Well drained	7	Not prime farmland	6e	No	Yes	No	No	Severe	No
Stormwater Basin	0.227629	336	Delft clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	39	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Stormwater Basin	0.726466	539	Klossner muck, lake plain, depressional, 0 to 1 percent slopes	loamy	0-5	Very poorly drained	46	Farmland of statewide importance	3w	Yes	No	Yes	No	Severe	No
Stormwater Basin	0.581974	134	Okoboji silty clay loam, 0 to 1 percent slopes	fine	0-5	Very poorly drained	33	Prime farmland if drained	3w	Yes	No	No	No	Severe	No
Stormwater Basin	1.873844	134	Okoboji silty clay loam, 0 to 1 percent slopes	fine	0-5	Very poorly drained	33	Prime farmland if drained	3w	Yes	No	No	No	Severe	No
Stormwater Basin	0.236231	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Stormwater Basin	1.571428	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Stormwater Basin	0.842292	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Stormwater Basin	0.697255	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Stormwater Basin	0.157372	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Stormwater Basin	0.119736	229	Waldorf silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
BESS	0.448027	286B	Shorewood silty clay loam, 3 to 6 percent slopes	fine	0-5	Moderately well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
BESS	1.235054	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
BESS	1.512888	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Switchyard	0.000086	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Switchyard	1.473994	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Substation	0.055418	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Substation	1.280647	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
OM	0.353388	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No

Feature Type	Acres	Map Unit Symbol	Map Unit Name	Selected Soil Physical Features					Selected Soil Classification				Construction/Reclamation Interpret		
				Particle Size Family	Slope Range	Drainage Class	Topsoil Thickness	Prime Farmland	Land Capability Classification	Hydric Soil Rating	Highly Erodible Water	Highly Erodible Wind	Compact Prone	Rutting Hazard	Drought Susceptible
OM	0.023847	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.246358	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Access Road	0.277657	281	Darfur loam	coarse-loamy	0-5	Poorly drained	22	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.540766	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.712856	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.41059	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Access Road	0.356121	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Access Road	0.098876	102B	Clarion loam, 2 to 6 percent slopes	fine-loamy	0-5	Moderately well drained	16	All areas are prime farmland	2e	No	No	No	No	Severe	No
Access Road	0.54815	102B	Clarion loam, 2 to 6 percent slopes	fine-loamy	0-5	Moderately well drained	16	All areas are prime farmland	2e	No	No	No	No	Severe	No
Access Road	0.54928	102B	Clarion loam, 2 to 6 percent slopes	fine-loamy	0-5	Moderately well drained	16	All areas are prime farmland	2e	No	No	No	No	Severe	No
Access Road	0.196048	102B	Clarion loam, 2 to 6 percent slopes	fine-loamy	0-5	Moderately well drained	16	All areas are prime farmland	2e	No	No	No	No	Severe	No
Access Road	1.240338	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.559508	110	Marna silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	18	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.20276	128B	Grogan silt loam, 1 to 6 percent slopes	coarse-silty	0-5	Well drained	18	All areas are prime farmland	2e	No	No	No	No	Severe	No
Access Road	1.058301	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	4.324686	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.053764	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.444503	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.442889	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.536748	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.308007	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.489942	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.358037	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.196348	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.038177	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.189925	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.113312	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.236351	229	Waldorf silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.408934	1877	Fostoria loam	fine-loamy	0-5	Somewhat poorly drained	10	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.425376	1877	Fostoria loam	fine-loamy	0-5	Somewhat poorly drained	10	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.155206	1877	Fostoria loam	fine-loamy	0-5	Somewhat poorly drained	10	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	1.870098	1877	Fostoria loam	fine-loamy	0-5	Somewhat poorly drained	10	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.552263	1907	Lakefield silt loam	fine-silty	0-5	Moderately well drained	18	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	1.247633	1907	Lakefield silt loam	fine-silty	0-5	Moderately well drained	18	All areas are prime farmland	1	No	No	No	No	Severe	No

Feature Type	Acres	Map Unit Symbol	Map Unit Name	Selected Soil Physical Features					Selected Soil Classification				Construction/Reclamation Interpret		
				Particle Size Family	Slope Range	Drainage Class	Topsoil Thickness	Prime Farmland	Land Capability Classification	Hydric Soil Rating	Highly Erodible Water	Highly Erodible Wind	Compact Prone	Rutting Hazard	Drought Susceptible
Access Road	0.391265	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.24196	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.382355	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.163104	96A	Collinwood silty clay loam, 1 to 3 percent slopes	fine	0-5	Somewhat poorly drained	21	All areas are prime farmland	2w	No	No	No	No	Severe	No
Access Road	0.19609	L85A	Nicollet clay loam, 1 to 3 percent slopes	fine-loamy	0-5	Somewhat poorly drained	17	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.342934	230A	Guckeen silty clay loam, 1 to 3 percent slopes	fine	0-5	Somewhat poorly drained	15	All areas are prime farmland	2w	No	No	No	No	Severe	No
Access Road	0.220323	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Access Road	0.287171	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Access Road	0.138624	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Access Road	0.054185	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Access Road	0.132111	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Access Road	0.295417	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Access Road	0.352786	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Access Road	0.119928	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Access Road	0.83778	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Access Road	0.275194	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Access Road	0.328004	86	Canisteo clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.028177	110	Marna silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	18	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.124463	909D2	Bold-Truman complex, 12 to 18 percent slopes, eroded	coarse-silty	5-16	Well drained	7	Not prime farmland	6e	No	Yes	No	No	Severe	No
Access Road	0.16563	336	Delft clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	39	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.210857	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.278834	134	Okoboji silty clay loam, 0 to 1 percent slopes	fine	0-5	Very poorly drained	33	Prime farmland if drained	3w	Yes	No	No	No	Severe	No
Access Road	0.14283	134	Okoboji silty clay loam, 0 to 1 percent slopes	fine	0-5	Very poorly drained	33	Prime farmland if drained	3w	Yes	No	No	No	Severe	No
Access Road	0.527401	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	1.532232	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.096185	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.315786	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	1.246124	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.239039	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.173116	1877	Fostoria loam	fine-loamy	0-5	Somewhat poorly drained	10	All areas are prime farmland	1	No	No	No	No	Severe	No

Feature Type	Acres	Map Unit Symbol	Map Unit Name	Selected Soil Physical Features					Selected Soil Classification				Construction/Reclamation Interpret		
				Particle Size Family	Slope Range	Drainage Class	Topsoil Thickness	Prime Farmland	Land Capability Classification	Hydric Soil Rating	Highly Erodible Water	Highly Erodible Wind	Compact Prone	Rutting Hazard	Drought Susceptible
Access Road	0.221171	1877	Fostoria loam	fine-loamy	0-5	Somewhat poorly drained	10	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.18774	1907	Lakefield silt loam	fine-silty	0-5	Moderately well drained	18	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.256159	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.329131	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.937049	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.653628	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Access Road	0.844604	229	Waldorf silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Access Road	0.216072	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	0.165518	286B	Shorewood silty clay loam, 3 to 6 percent slopes	fine	0-5	Moderately well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	2.183982	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	4.566062	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	2.164766	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	2.225943	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	4.246433	281	Darfur loam	coarse-loamy	0-5	Poorly drained	22	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	0.509132	286A	Shorewood silty clay loam, 1 to 3 percent slopes	fine	0-5	Somewhat poorly drained	17	All areas are prime farmland	2w	No	No	No	No	Severe	No
Fence Area/Solar Array Area	31.507023	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	27.252972	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	0.044344	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	5.66326	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	15.477476	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	6.346006	102B	Clarion loam, 2 to 6 percent slopes	fine-loamy	0-5	Moderately well drained	16	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	2.142126	102B	Clarion loam, 2 to 6 percent slopes	fine-loamy	0-5	Moderately well drained	16	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	3.138555	102B	Clarion loam, 2 to 6 percent slopes	fine-loamy	0-5	Moderately well drained	16	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	8.531736	102B	Clarion loam, 2 to 6 percent slopes	fine-loamy	0-5	Moderately well drained	16	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	10.600896	102B	Clarion loam, 2 to 6 percent slopes	fine-loamy	0-5	Moderately well drained	16	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	9.045238	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	19.982873	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	17.104218	110	Marna silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	18	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	1.346796	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	11.050619	128B	Grogan silt loam, 1 to 6 percent slopes	coarse-silty	0-5	Well drained	18	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	23.48768	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No

Feature Type	Acres	Map Unit Symbol	Map Unit Name	Selected Soil Physical Features					Selected Soil Classification				Construction/Reclamation Interpret		
				Particle Size Family	Slope Range	Drainage Class	Topsoil Thickness	Prime Farmland	Land Capability Classification	Hydric Soil Rating	Highly Erodible Water	Highly Erodible Wind	Compact Prone	Rutting Hazard	Drought Susceptible
Fence Area/Solar Array Area	138.678515	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	1.83407	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	3.660222	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	19.75489	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	9.29976	L85A	Nicollet clay loam, 1 to 3 percent slopes	fine-loamy	0-5	Somewhat poorly drained	17	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	8.9266	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	4.663525	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	4.104876	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	1.334541	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	9.665699	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	10.694142	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	0.670791	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	0.00894	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	0.450038	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	14.421923	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	1.245109	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	0.824784	229	Waldorf silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	12.44469	1877	Fostoria loam	fine-loamy	0-5	Somewhat poorly drained	10	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	5.926494	1877	Fostoria loam	fine-loamy	0-5	Somewhat poorly drained	10	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	8.557781	1877	Fostoria loam	fine-loamy	0-5	Somewhat poorly drained	10	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	35.535943	1877	Fostoria loam	fine-loamy	0-5	Somewhat poorly drained	10	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	3.512768	1877	Fostoria loam	fine-loamy	0-5	Somewhat poorly drained	10	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	12.082185	1907	Lakefield silt loam	fine-silty	0-5	Moderately well drained	18	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	29.672763	1907	Lakefield silt loam	fine-silty	0-5	Moderately well drained	18	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	14.989397	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	10.525504	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	1.427527	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	0.128146	96A	Collinwood silty clay loam, 1 to 3 percent slopes	fine	0-5	Somewhat poorly drained	21	All areas are prime farmland	2w	No	No	No	No	Severe	No
Fence Area/Solar Array Area	2.717825	L85A	Nicollet clay loam, 1 to 3 percent slopes	fine-loamy	0-5	Somewhat poorly drained	17	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	6.00235	230A	Guckeen silty clay loam, 1 to 3 percent slopes	fine	0-5	Somewhat poorly drained	15	All areas are prime farmland	2w	No	No	No	No	Severe	No
Fence Area/Solar Array Area	3.6892	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	4.899118	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	5.884462	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No

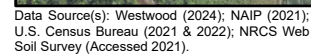
Feature Type	Acres	Map Unit Symbol	Map Unit Name	Selected Soil Physical Features					Selected Soil Classification				Construction/Reclamation Interpret		
				Particle Size Family	Slope Range	Drainage Class	Topsoil Thickness	Prime Farmland	Land Capability Classification	Hydric Soil Rating	Highly Erodible Water	Highly Erodible Wind	Compact Prone	Rutting Hazard	Drought Susceptible
Fence Area/Solar Array Area	0.002529	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	3.630258	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	5.894999	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	11.141915	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	2.867345	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	4.659651	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	11.936347	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	0.310453	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	0.968713	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	14.634838	86	Canisteo clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	0.340437	110	Marna silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	18	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	0.008483	110	Marna silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	18	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	0.094903	909D2	Bold-Truman complex, 12 to 18 percent slopes, eroded	coarse-silty	5-16	Well drained	7	Not prime farmland	6e	No	Yes	No	No	Severe	No
Fence Area/Solar Array Area	2.741204	84	Brownton silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	15	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	0.202305	84	Brownton silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	15	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	0.392556	336	Delft clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	39	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	0.159564	539	Klossner muck, lake plain, depressional, 0 to 1 percent slopes	loamy	0-5	Very poorly drained	46	Farmland of statewide importance	3w	Yes	No	Yes	No	Severe	No
Fence Area/Solar Array Area	5.114202	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	2.385439	134	Okoboji silty clay loam, 0 to 1 percent slopes	fine	0-5	Very poorly drained	33	Prime farmland if drained	3w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	0.610532	134	Okoboji silty clay loam, 0 to 1 percent slopes	fine	0-5	Very poorly drained	33	Prime farmland if drained	3w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	2.294707	134	Okoboji silty clay loam, 0 to 1 percent slopes	fine	0-5	Very poorly drained	33	Prime farmland if drained	3w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	12.49861	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	3.645008	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	32.351457	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	7.6189	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	7.977942	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	27.081097	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	5.281699	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No

Feature Type	Acres	Map Unit Symbol	Map Unit Name	Selected Soil Physical Features					Selected Soil Classification				Construction/Reclamation Interpret		
				Particle Size Family	Slope Range	Drainage Class	Topsoil Thickness	Prime Farmland	Land Capability Classification	Hydric Soil Rating	Highly Erodible Water	Highly Erodible Wind	Compact Prone	Rutting Hazard	Drought Susceptible
Fence Area/Solar Array Area	4.633097	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	1.056613	1877	Fostoria loam	fine-loamy	0-5	Somewhat poorly drained	10	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	0.591041	1877	Fostoria loam	fine-loamy	0-5	Somewhat poorly drained	10	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	0.799858	1907	Lakefield silt loam	fine-silty	0-5	Moderately well drained	18	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	2.247446	1907	Lakefield silt loam	fine-silty	0-5	Moderately well drained	18	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	1.27483	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	23.906053	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	4.192405	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	14.034613	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	12.859683	229	Waldorf silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Fence Area/Solar Array Area	2.333128	96A	Collinwood silty clay loam, 1 to 3 percent slopes	fine	0-5	Somewhat poorly drained	21	All areas are prime farmland	2w	No	No	No	No	Severe	No
Fence Area/Solar Array Area	4.044628	L85A	Nicollet clay loam, 1 to 3 percent slopes	fine-loamy	0-5	Somewhat poorly drained	17	All areas are prime farmland	1	No	No	No	No	Severe	No
Fence Area/Solar Array Area	0.659666	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	6.508937	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Fence Area/Solar Array Area	0.520625	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	2.273211	286B	Shorewood silty clay loam, 3 to 6 percent slopes	fine	0-5	Moderately well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	3.119558	286B	Shorewood silty clay loam, 3 to 6 percent slopes	fine	0-5	Moderately well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	1.03658	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	8.660355	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	0.582351	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	2.767328	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	1.002618	286A	Shorewood silty clay loam, 1 to 3 percent slopes	fine	0-5	Somewhat poorly drained	17	All areas are prime farmland	2w	No	No	No	No	Severe	No
Area Outside PDA	3.437716	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	0.150489	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	0.297428	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	1.142772	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	1.701178	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	2.06029	102B	Clarion loam, 2 to 6 percent slopes	fine-loamy	0-5	Moderately well drained	16	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	1.175951	102B	Clarion loam, 2 to 6 percent slopes	fine-loamy	0-5	Moderately well drained	16	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	0.688838	102B	Clarion loam, 2 to 6 percent slopes	fine-loamy	0-5	Moderately well drained	16	All areas are prime farmland	2e	No	No	No	No	Severe	No

Feature Type	Acres	Map Unit Symbol	Map Unit Name	Selected Soil Physical Features					Selected Soil Classification				Construction/Reclamation Interpret		
				Particle Size Family	Slope Range	Drainage Class	Topsoil Thickness	Prime Farmland	Land Capability Classification	Hydric Soil Rating	Highly Erodible Water	Highly Erodible Wind	Compact Prone	Rutting Hazard	Drought Susceptible
Area Outside PDA	5.050841	102B	Clarion loam, 2 to 6 percent slopes	fine-loamy	0-5	Moderately well drained	16	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	0.341867	102B	Clarion loam, 2 to 6 percent slopes	fine-loamy	0-5	Moderately well drained	16	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	3.087068	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	11.460816	110	Marna silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	18	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	0.480075	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	0.481757	128B	Grogan silt loam, 1 to 6 percent slopes	coarse-silty	0-5	Well drained	18	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	0.537971	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	47.46838	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	9.114422	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	0.015936	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	1.227674	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	0.083858	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	2.506599	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	0.44294	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	0.037797	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	1.007809	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	1.984204	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	0.27579	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	0.822764	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	2.003211	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	2.063538	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	2.396642	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	9.373111	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	0.319991	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	0.498188	229	Waldorf silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	1.677266	1877	Fostoria loam	fine-loamy	0-5	Somewhat poorly drained	10	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	11.483994	1877	Fostoria loam	fine-loamy	0-5	Somewhat poorly drained	10	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	0.597959	1907	Lakefield silt loam	fine-silty	0-5	Moderately well drained	18	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	4.732218	1907	Lakefield silt loam	fine-silty	0-5	Moderately well drained	18	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	10.089775	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	0.188251	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	0.255644	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No

Feature Type	Acres	Map Unit Symbol	Map Unit Name	Selected Soil Physical Features					Selected Soil Classification				Construction/Reclamation Interpret		
				Particle Size Family	Slope Range	Drainage Class	Topsoil Thickness	Prime Farmland	Land Capability Classification	Hydric Soil Rating	Highly Erodible Water	Highly Erodible Wind	Compact Prone	Rutting Hazard	Drought Susceptible
Area Outside PDA	0.062116	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	0.581347	96A	Collinwood silty clay loam, 1 to 3 percent slopes	fine	0-5	Somewhat poorly drained	21	All areas are prime farmland	2w	No	No	No	No	Severe	No
Area Outside PDA	2.441735	L85A	Nicollet clay loam, 1 to 3 percent slopes	fine-loamy	0-5	Somewhat poorly drained	17	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	0.403223	230A	Guckeen silty clay loam, 1 to 3 percent slopes	fine	0-5	Somewhat poorly drained	15	All areas are prime farmland	2w	No	No	No	No	Severe	No
Area Outside PDA	1.064477	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	0.216521	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	3.619365	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	0.857095	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	1.529086	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	1.476667	101B	Truman silt loam, 2 to 6 percent slopes	fine-silty	0-5	Well drained	14	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	0.946602	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	1.743156	110	Marna silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	18	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	0.327716	110	Marna silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	18	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	0.081518	909D2	Bold-Truman complex, 12 to 18 percent slopes, eroded	coarse-silty	5-16	Well drained	7	Not prime farmland	6e	No	Yes	No	No	Severe	No
Area Outside PDA	0.395294	909D2	Bold-Truman complex, 12 to 18 percent slopes, eroded	coarse-silty	5-16	Well drained	7	Not prime farmland	6e	No	Yes	No	No	Severe	No
Area Outside PDA	2.905458	84	Brownton silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	15	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	0.943067	84	Brownton silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	15	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	0.66242	336	Delft clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	39	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	0.035116	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	4.106227	539	Klossner muck, lake plain, depressional, 0 to 1 percent slopes	loamy	0-5	Very poorly drained	46	Farmland of statewide importance	3w	Yes	No	Yes	No	Severe	No
Area Outside PDA	0.030129	539	Klossner muck, lake plain, depressional, 0 to 1 percent slopes	loamy	0-5	Very poorly drained	46	Farmland of statewide importance	3w	Yes	No	Yes	No	Severe	No
Area Outside PDA	3.536197	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	4.569521	134	Okoboji silty clay loam, 0 to 1 percent slopes	fine	0-5	Very poorly drained	33	Prime farmland if drained	3w	Yes	No	No	No	Severe	No
Area Outside PDA	1.636614	134	Okoboji silty clay loam, 0 to 1 percent slopes	fine	0-5	Very poorly drained	33	Prime farmland if drained	3w	Yes	No	No	No	Severe	No
Area Outside PDA	1.011392	134	Okoboji silty clay loam, 0 to 1 percent slopes	fine	0-5	Very poorly drained	33	Prime farmland if drained	3w	Yes	No	No	No	Severe	No
Area Outside PDA	1.584736	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	2.511654	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No

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				Particle Size Family	Slope Range	Drainage Class	Topsoil Thickness	Prime Farmland	Land Capability Classification	Hydric Soil Rating	Highly Erodible Water	Highly Erodible Wind	Compact Prone	Rutting Hazard	Drought Susceptible
Area Outside PDA	6.531788	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	2.216401	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	3.342658	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	4.212392	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	0.22607	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	0.310652	1877	Fostoria loam	fine-loamy	0-5	Somewhat poorly drained	10	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	0.637437	1877	Fostoria loam	fine-loamy	0-5	Somewhat poorly drained	10	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	3.663595	1907	Lakefield silt loam	fine-silty	0-5	Moderately well drained	18	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	2.425361	1907	Lakefield silt loam	fine-silty	0-5	Moderately well drained	18	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	1.248371	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	3.573539	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	2.409478	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	3.914231	197	Kingston silty clay loam, 1 to 3 percent slopes	fine-silty	0-5	Somewhat poorly drained	16	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	10.176036	229	Waldorf silty clay loam, 0 to 2 percent slopes	fine	0-5	Poorly drained	20	Prime farmland if drained	2w	Yes	No	No	No	Severe	No
Area Outside PDA	0.611785	96A	Collinwood silty clay loam, 1 to 3 percent slopes	fine	0-5	Somewhat poorly drained	21	All areas are prime farmland	2w	No	No	No	No	Severe	No
Area Outside PDA	0.184638	L85A	Nicollet clay loam, 1 to 3 percent slopes	fine-loamy	0-5	Somewhat poorly drained	17	All areas are prime farmland	1	No	No	No	No	Severe	No
Area Outside PDA	0.660807	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	0.162221	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	0.002146	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No
Area Outside PDA	1.550201	275B	Ocheyedan loam, 2 to 6 percent slopes	fine-loamy	0-5	Well drained	10	All areas are prime farmland	2e	No	No	No	No	Severe	No



 Project Area

 Soil Unit Boundary

Northern Crescent Solar & Storage Project

Faribault County, Minnesota

NRCS Soils

Appendix B (July, 2024)

