Appendix C

Agricultural Impact Mitigation Plan

AGRICULTURAL IMPACT MITIGATION PLAN

Hayward Solar Project

Freeborn County, Minnesota

APRIL 2021

PREPARED FOR:

Hayward Solar

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Agricultural Impact Mitigation Plan

Hayward Solar Project

Freeborn County, Minnesota

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Abbreviations and Definitions

AC	Alternating Current
AIMP or Plan	Agricultural Impact Mitigation Plan
BMPs	Best Management Practices
Commission or PUC	Minnesota Public Utilities Commission
Construction Manager	Person responsible for coordination and supervision of construction of the Project
Contractor	Construction Contractor
CSAH	County State Aid Highway
DC	Direct current
Decompaction	Treatment which relieves soil compaction by introducing air space into the soil.
Drain tile	System that removes excess water from the soil; typically, belowground.
GPS	Global positioning system
kV	Kilovolt
Hayward Solar or Hayward	Hayward Solar, LLC
Land Control Area	Approximate 1,958-acre area of privately-owned land for which Hayward Solar LLC has leased for the Project
LCC	Land Capability Class
Monitor	Environmental monitor
MDA	Minnesota Department of Agriculture
MNDNR	Minnesota Department of Natural Resources
MW	Megawatts
NEC	National Electric Code
NERC	North American Electric Reliability Corporation
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
O&M building	Operations and maintenance building
Preliminary Development Area	Approximate 1,272-acre area where Hayward Solar LLC proposes to build the Hayward Solar Project facilities
Project	Hayward Solar Project (a photovoltaic solar energy conversion project)
Project Area	Approximate 1,958-acre land area within which the Project will be developed
PV	Photovoltaic
SCADA	Supervisory Control and Data Acquisition
SSURGO	Soil Survey Geographic Database
SWPPP	Stormwater Pollution Prevention Plan
Tile Contractor	Agricultural drain tile contractor
VMP	Vegetation Management Plan

Table of Contents

Tables

Exhibits

Appendices

1.0 Purpose and Applicability of Plan

The objective of this Agricultural Impact Mitigation (Plan or AIMP) and the associated Vegetation Management Plan (VMP) is to identify measures that Hayward Solar, LLC (Hayward Solar) 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 Hayward Solar Project (Project)[1]. The Project is a photovoltaic (PV) solar energy conversion project planned to be up to 150 megawatts alternating current (MWac). The Project is planned to be sited on approximately 1,958 acres of farmland located in Sections 1, 2, 3, 11, 12, 13, 14, and 15, Township 102, Range 20 (Project Area) in Freeborn 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 first quarter of 2021.

Hayward 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 Hayward 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. Hayward Solar will consult with MDA to discuss any deviations from practices and/or methods as outlined in this plan prior to any alternative practices and/or methods being implemented.

The Plan includes establishing a beneficial plant species within the Project perimeter fence which will be installed around the planned Project PV solar arrays. Native and non-invasive introduced locally established plant species will be selected to thrive in shade conditions and not interfere with the operation of the solar panels yet provide benefits to the soil and pollinators species. 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 formulated to be native and locally established plants and are developed with recommendations from plant specialists in coordination with the Minnesota Department of Agriculture (MDA), Minnesota Department of Natural Resources (MnDNR), Minnesota Board of Water & Soil Resources (BWSR) and Freeborn County Soil and Water Conservation District (Freeborn SWCD), as applicable, as described in the VMP 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 Hayward Solar has for efficiently operating the solar facility, promote pollinator habitat, establish stable perennial ground cover, suppress weeds, reduce soil erosion and runoff, improve water infiltration, and work in conjunction with the VMP, NPDES construction stormwater permit, SWPPP, and related construction plans. Grazing may be implemented as a natural approach to

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[1] Note the VMP 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.

weed management. It is being considered in areas where weed control or use of mechanical equipment may be limited. Seed mixes that are suitable to grazing may differ from a seed mix that is sourced to promote pollinator habitat and will be established when the decision to use grazing occurs.

Hayward Solar will utilize an adaptive management approach[2] for vegetation management as further detailed in the VMP and described in the *Draft: Vegetation Management Plan Template and Guidance* document provided to Hayward Solar by the Minnesota Department of Commerce (DOC) on December 31, 2020; the VMP is being prepared in consultation with Natural Resources Services, Inc. (NRS), an experienced native plant community restoration company, with input from the MDA, MnDNR and the DOC. NRS will work with Hayward Solar to develop plans in the VMP for maintenance of the Project site's plantings, including potentially forage plantings, throughout the life of the Project. More information on maintenance of the native plantings is outlined in the VMP.

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 at the Project; 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

Hayward Solar, a Delaware limited liability company and a wholly owned indirect subsidiary of CD Clean Energy and Infrastructure VII JV, LLC (CD Fund VII), proposes to construct the Hayward Solar Project on approximately 1,958 acres (Project Area) of land in Hayward Township, Sections 1, 2, 3, 11, 12, 13, and 14; Township 102, Range 20, Hayward Township, Freeborn County, Minnesota (**Exhibit 1**). Hayward Solar anticipates that approximately 1,256 acres (Preliminary Development Area) will be affected by Project facilities (**Exhibit 2**). The Project lies south of Interstate Highway 90 (I-90) and County Highway 46 between County Highway 102 and County Highway 30; it is approximately 1.6 miles east of the City of Hayward, Minnesota. The Project will generate up to 150 MWac which is enough energy to provide electricity for approximately 28,000 homes annually and avoid the emission of approximately 118,783 metric tons of carbon dioxide equivalent annually.

The SPA will be submitted to the Commission during the first quarter of 2021 along with a Certificate of Need (CN). The CN and Site Permit (SP) are expected to be issued by the PUC in the first or second quarter 2022. Construction of the Project would occur in 2022-2023. The Project is planned to be placed in service by the end of 2023.

The Project will interconnect to Southern Minnesota Municipal Power Agency's (SMMPA's) existing Hayward-Murphy Creek 161 kilovolt (kV) high voltage transmission line (HVTL) via a line tap (SMMPA Line Tap) at a new switchyard (SMMPA Switchyard) to be located within the northern portion of the Project Area adjacent to County Highway 46. The SMMPA HVTL is connected to the Hayward Substation located approximately 2.5 miles west of the Project Area.

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[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 Chapter1.pdf (doi.gov).

Hayward 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, Hayward Solar also concluded that its development will not result in significant human settlement or environmental impacts.

The Project Area site is on a nearly level to gently rolling landscape with elevations generally ranging from 1,232 to 1,265 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.

Hayward Solar has entered into lease option agreements 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 Hayward Solar has secured under lease option agreements. Hayward Solar will enter into a purchase option agreement for the new SMMPA Switchyard site which will be turned over to SMMPA who will own and operate the SMMPA switchyard. The Preliminary Development Area is approximately 1,272 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, inverters, and tracking rack structures;
- Fencing;
- Access roads (as required);
- Operations and Maintenance (O&M) building;
- Project Substation;
- Power transformer;
- Overhead transmission lines;
- On-site electrical collection lines;
- Up to ten weather stations (up to 20 feet tall); and
- Ancillary equipment or buildings as necessary.

The Project will connect to the SMPPA's 161 kV HVTL via a line tap at a new switchyard site (to be owned, permitted and constructed by SMMPA) within the Project Area (point of interconnection or POI). The Project will interconnect with an approximately 200-300 foot long overhead 161 kV HVTL connection (Project Gen-Tie) between the Project Substation and the new SMMPA Switchyard (**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 48 inverter skids located throughout the Project with 2 at each location (roughly 1 for every 2 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 SMMPA Hayward-Murphy Creek 161 kV HVTL via a new SMMPA Switchyard and SMMPA Line Tap (**Exhibit 3**).

From smallest to largest scales Project components are described below and presented on **Exhibit 4**:

1. **Individual PV panels** are approximately 4 to 6.5 feet long by 2 to 3.5 feet wide by 1 to 2 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 290-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** PV of north/south lines of PV panels organized in racks 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 PV panels 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:
   a. a 700-acre (approximate) **North Unit** bounded by I-90 to the north, County Highway 46 to the northwest, County Highway 102 to the west, County Highway 30 to the east, 200th Street to the South, and bisected by 840th Avenue (Groups 1, 2, 5, and 6)
   b. a 525-acre (approximate) **South Unit** bounded by 200th Street to the North, County Road 30 to the East, 830th Avenue to the West, and 199th Street to the South (Groups 3, 4, and 7)
7. Approximately 85,200 feet of electrical collection system throughout the Project and underneath County Highway 46, 200th Street and township road T-236, connecting all inverters to the Project Substation.

Hayward 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 rows north and south 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 13.3 feet, which is sufficient for maintenance vehicles. Separation of PV panel lines will typically be 20-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 1,500 volts of DC power output from the PV solar panels to between 600-690 volts of AC power. 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 (see next section). 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 (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. The final type of electrical system will be determined prior to construction based on technology, availability of materials, and costs.

2.2.2.1 Inverters and Step-Up Transformers

For the AC electrical collection cabling, the Engineering, Procurement and Construction (EPC) contractor selected for the Project will be given the option to install the cabling either below-ground, underhung beneath the PV panels and racking (i.e., CAB system), or suspended above ground via the CAB system[3]. 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 46 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 8-12 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.

A specific solar inverter has not yet been selected for the Project. Several are under consideration, including units manufactured by FIMER, Power Electronics, SMA, Sungrow, and TMEIC. Hayward 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, Hayward Solar has modeled the SMA Solar Technology 4200 UP-US inverter. For the purposes of this AIMP, these technologies are substantially similar physically.

2.2.2.2 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 four feet deep and one to two feet wide), underhung beneath the PV panels and racking (CAB system), or installed on piles above ground (without racking - CAB system). The selected EPC 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

[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.

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.

2.2.2.3 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.

2.2.3 Project Substation, Switchyard, 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 northern end of the Project Area (Central Unit) and in proximity to the planned new SMMPA Switchyard site and existing SMMPA HVTL as depicted in **Exhibits 3 and 4**.

As discussed above, the Project will interconnect to the existing SMMPA Hayward-Murphy Creek 161 kV HVTL that crosses through the north end of the Project Area. An approximate 200-300 foot long 161 kV 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 SMMPA Switchyard/SMMPA Line Tap connected at the Hayward-Murphy Creek 161 kV HVTL.

The Project Substation will be designed according to regional utility practices, Midcontinent Independent Transmission System Operator (MISO) Standards, Midwest Reliability Organization Standards, National Electrical Safety Code, SMPPA standards, as applicable. As indicated above, SMMPA will modify the existing Hayward-Murphy Creek 161 kV HVTL, installing new dead-end structures within the right-of-way to re-direct the circuit in/out of the new SMMPA Switchyard. SMMPA will also design, engineer, permit and construct the new switchyard. Hayward Solar will convey the real property for this facility to SMMPA. These facilities will be network facilities owned and operated by SMMPA.

The Project Substation will occupy approximately 0.7 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 0.7-acre area will be approximately 150 feet by 200 feet once construction is complete. Final dimensions will depend on equipment selection, engineering, and design specifications.

The proposed new SMMPA Switchyard will be designed/engineered and constructed by SMMPA according to applicable SMMPA, MISO and other HVTL standards; the site is approximately 2.3 acres in size (**Exhibit 3**) and will be fenced with a lockable gate (fencing is described below). Hayward Solar will acquire the land underlying the new SMMPA Switchyard (via a purchase option agreement) and secure any other land rights that are necessary to facilitate the loop-in of the SMMPA Hayward-Murphy Creek 161 kV HVTL to the new SMMPA Switchyard. SMMPA will modify the existing Hayward-Murphy Creek 161 kV HVTL, installing new dead-end structures within the right-of-way to re-direct the circuit in/out of the new switchyard. SMMPA will also design, engineer, permit and construct the new SMMPA Switchyard. Hayward Solar will convey the real property for this facility to SMMPA. These facilities will be network facilities owned and operated by SMMPA.

An O&M building will provide a facility for Project maintenance and operations as well as storage of equipment, tools, materials, etc. The O&M building will be located adjacent to the Project Substation (**Exhibit 3**). The Project will obtain a building permit for the O&M building from Freeborn County prior to construction and the O&M building will be included in the Site Permit that will be issued by the Commission. The building will measure approximately 100 feet by 100 feet (10,000 square feet) 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. Equipment within the building will include a SCADA cabinet, spare panels, spare parts for the Project Substation and equipment to operate the substation, as well as safety equipment for working with live electricity and materials/supplies necessary for vegetation management.

Parking will be made available to employees but is not currently designed. The final size will be determined in accordance with the Freeborn County Ordinance and Site Permit. The parking lot will have no less than one parking space for each three employees to comply with the parking and loading regulations detailed in Section 42 of the Freeborn County Code of Ordinances (Freeborn County, 2017).

2.2.4 Access Roads

The Project will include approximately 11.4 miles of graveled access roads that lead to the inverters, SMMPA Switchyard/SMMPA Line Tap, Project Substation, and O&M building (**Exhibit 3**). The final length of the access roads will depend on the equipment selected and final engineering/design. These roads are up to 16 feet wide along straight portions of the roads and wider along curves at internal road intersections (approximately 45 feet). There are eight 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.

Hayward 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. Hayward 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. Hayward Solar will work with Freeborn County, Hayward Township and other local road authorities, as applicable, to facilitate public road upgrades that meet the required standards. Hayward 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 Freeborn County, which will be obtained prior to construction. Hayward Solar will also work with Freeborn County in the event a road use agreement or similar approval is deemed necessary for the Project.

2.2.5 Permanent Fencing

Permanent security fencing will be installed along the perimeter of each grouping of the solar arrays in the North and South Units’ construction areas (**Exhibit 3**). Fencing will consist of a light weight 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 Project arrays/construction units; one to two feet of 3-4 strands of smooth wire will be used instead. "High Voltage Keep Out" signs will be placed in accordance with National Electric Code (NEC) requirements along the fence line. This fencing will be designed to prevent the public and larger wildlife from gaining access to solar array electrical equipment which could cause harm or injury.

To comply with the NEC, security fencing around the Project Substation will consist of 6-feet high chain-link fence with one foot of barbed wire at the top. High voltage warning signs will also be installed on the Project Substation fence. As indicated above, a lockable gate will be installed with the Project Substation site fencing. This fencing and gate will be designed to prevent the public and wildlife from gaining access to electrical equipment which could cause injury.

2.2.6 Stormwater Drainage Basins

Hayward Solar has preliminarily designed 10 drainage basins throughout the Preliminary Development Area that range in size from approximately 0.25 to 3.5-acre 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.

2.2.7 Transmission System

The Project will interconnect into the existing SMMPA Hayward-Murphy Creek 161 kV HVTL via a 161-kV overhead connection transmission line (Project Gen-Tie Line) of approximately 200-300 feet extending from the Project Substation to the new SMMPA Switchyard/SMMPA Line Tap. The current design includes a set of A-frame dead-end structures (up to 100 feet in height) located within the Project Substation site and in the new SMMPA Switchyard which will be connected via conductors in a single short span. Final layout and design of these facilities may require use of intermediate tangent structures if the span length is increased from what is expected at this time. In that case, a single dead-end structure will be located within the Project Substation and additional tangent pole structures will route the Project 161 kV conductors from the substation to the SMMPA Switchyard. The number of poles and length of Project 161 kV transmission line are pending final engineering and design. The tangent structures will likely be made of wood or metal and will be 60-90 feet tall (**Image 4**). The type of conductor will be determined following the completion of detailed electrical design.

The new SMMPA Switchyard will be connected via 161 kV SMMPA Line Tap to the existing Hayward-Murphy Creek 161 kV HVTL; these lines will be approximately 750-900 feet in length (SMMPA Line Tap). As discussed above, Hayward Solar will acquire land rights for these facilities, and SMMPA will design, permit, construct, own and operate the switchyard facility. Per Minn. Stat. 216E.01 subd. 4, the SMMPA Line Tap does not meet the definition of a high voltage transmission line because it is less than 1,500 feet and, therefore, a separate Route Permit from the Commission is not required.

2.2.8 Temporary Construction Facilities

During construction of the Project Hayward Solar will utilize temporary construction laydown areas within the Project Area totaling between 10-15 acres. 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, 4-8 inches. Filter fabric may be placed and then topped with aggregate to segregate subsoil from aggregate topping. Silt fencing will be used downstream of all disturbed areas throughout the site which should be considered the fence line plus a buffer, access road entrances, laydown yards, as well as the substation, interconnection, and O&M facilities. 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 VMP.

2.3 Construction

2.3.1 Site Clearing & Vegetation Removal

The start of construction is planned to begin mid-2022 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, Hayward Solar may plant a cover crop in Spring 2022 that is compatible with the Project VMP. This cover crop would stabilize soils if row crops are 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 as totals are shown in **Exhibit 5**. 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 sub-grade 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 geo-fabric 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.

Hayward 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 County Highway 46, 200th Street and township road T-236. Final engineering and procurement will help determine the construction method for the electrical collection system. For the purposes of this Plan, Hayward 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. 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 3 and will be further discuss.

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, pumpers 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 substation site for worker safety during construction and operation.

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 substation for both the foundation equipment and the concrete delivery trucks. BMPs that will be used during these earthmoving activities are described in Section 3. 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 SMMPA Line Tap Construction

Given the close proximity of the existing SMMPA 161 kV HVTL to the proposed Project Substation and new SMMPA Switchyard, a planned 161kV connection line of approximately 750-900 feet will be required to connect the Project to the grid (SMMPA Line Tap). The number of poles and length of SMMPA Line Tap are pending final engineering and design. The tangent structures will likely be made of wood or metal and will be 60-90 feet tall. The type of conductor will be determined following the completion of detailed electrical design. The SMMPA Switchyard will be connected via 161 kV in/out transmission lines (SMMPA Line Tap) to the existing Hayward-Murphy Creek 161 kV HVTL. As discussed above, Hayward Solar will acquire land rights for these facilities, and SMMPA will design, permit, construct, own and operate the switchyard facility.

2.3.9 SMMPA Switchyard Construction

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

In/out loop transmission lines will be installed in a new easement area from existing SMMPA Hayward-Murphy Creek 161 kV HVTL to the SMMPA Switchyard to interconnect the Project to the grid (SMMPA Line Tap). The length of these lines is approximately 750-900 feet and will include installation of either two dead-end pole structures (for single dead-ends) or six dead-ends (for 3-pole dead-ends), depending on SMMPA's selected design, and required electric conductors.

2.3.10Stormwater 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.

2.3.11Project 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 will consist of an agricultural woven wire fence and will extend a maximum of 6 feet above grade topped with one foot of 3-4 strands of smooth wire.

The fencing around the Project Substation will be a 6-feet above grade chain-link fence topped with one foot of barbed wire to comply with the NEC from the North American Electric Reliability Corporation (NERC). Corner posts will be augured 4 feet and embedded in concrete for structural support. Tangent posts will be direct buried 4 feet similar to corner posts. The Project site fencing will have lockable doors and gates installed, as needed to secure the PV arrays 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 (historicmapworks.com, 2021). Much of the land has been farmland since the late 1800's, based on maps of small tract owners from 1895 (**Exhibit 6**). Before the land was being used for agriculture, the land had a very wet history. Much of the Project Area was a marsh in the early 1900s as shown in **Exhibit 6**. The Project Area was originally settled in the mid 1800's (cityofalberta.org, 2020). The Project Area is located within the Shell Rock River Watershed (SRRW), as shown in **Exhibit 7**. Most of the land in the watershed area is cropland (approximately 72 percent).

The majority of Freeborn County is made up of prime farmland (28%), prime farmland if drained (48%) and farmland of statewide importance (17%). Typically, high value crops such as corn and soybean rotations are grown in the area. Hayward 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 to 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:

- Fenced area hosting solar panels, racks, and arrays;
- Inverter locations;
- Collection lines;
- Access roads;
- Laydown areas; and
- Project Substation and O&M building.

The acreage of major Project features sharing physical properties, classifications, and limitation interpretations important for construction, use, revegetation, and reclamation were determined by page spatial query of the GIS. Soils within the 1,958-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 1,272-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 1,958 acres within the Project Area. Selected physical characteristics of site soils are broken down by acreage within the 1,272-acre Preliminary Development Area and the 686-acre undisturbed area (the area within the Project Area that will not be used or impacted by the Project – this is the difference between the Project Area and 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 (1,272 acres) are in the Loamy (605.2 acres, 48 percent), Fine-Silty (301.1 acres, 24 percent), Fine Loamy (119.6 acres, 9 percent) , and Coarse-Loamy (116.1, 9 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. All of the soils (1,272 acres, 100 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[1]	Textural Family[2]						Slope Range[3]		Drainage Class[4]						Topsoil Thickness[5] (inches)		
		Fine	Fine-Loamy	Fine-Silty	Loamy	Coarse-Loamy	Fine-Loamy over Sandy or Sandy-skeletal	Slope 0-5%	Slope >5-8%	E	W	MW	SWP	P	VP	0-12	12-18	>18
	Acres																	
Preliminary Development Area (Potential Disturbance)																		
Fenced Area	1117.0	32.8	107.64	266.51	530.41	94.33	85.27	1117.00	0	0.00	4.92	0.00	46.76	270.16	795.16	543.05	303.36	270.60
Access Roads	77.9	1.9	5.79	21.75	34.11	9.14	5.18	77.91	0	0.00	0.00	0.00	4.39	21.78	51.74	34.11	23.73	20.07
Collection Line	55.6	0.1	6.14	11.15	29.17	4.73	4.35	55.63	0	0.00	0.00	0.00	1.97	14.01	39.64	29.17	14.34	12.12
Inverter	0.6	0.0	0.05	0.15	0.29	0.02	0.07	0.59	0	0.00	0.00	0.00	0.01	0.17	0.40	0.29	0.15	0.15
O&M Building	0.9	0.0	0.00	0.08	0.00	0.78	0.00	0.87	0	0.00	0.00	0.00	0.00	0.78	0.08	0.00	0.78	0.08
Stormwater Basin	13.7	0.0	0.00	0.33	11.27	1.73	0.28	13.66	0	0.00	0.00	0.00	0.00	1.13	12.53	11.27	0.33	2.06
Project Substation	1.7	0.0	0.00	0.00	0.00	1.67	0.00	1.67	0	0.00	0.00	0.00	0.00	1.67	0.00	0.00	1.67	0.00
SMMPA Switchyard	4.0	0.0	0.00	1.14	0.00	2.85	0.00	3.98	0	0.00	0.00	0.00	0.00	2.85	1.14	0.00	2.85	1.14
SMMPA Line Tap	0.8	0.0	0.00	0.00	0.00	0.80	0.00	0.80	0	0.00	0.00	0.00	0.00	0.80	0.00	0.00	0.80	0.00
Subtotal	**1272.1**	**34.9**	**119.6**	**301.1**	**605.2**	**116.1**	**95.2**	**1272.1**	**0.0**	**0.0**	**4.9**	**0.0**	**53.1**	**313.4**	**900.7**	**617.9**	**348.0**	**306.2**
Land Under Control but Not Currently Planned for Development																		
Undisturbed	686.4	31.06	77.05	236.66	113.22	107.85	120.57	686.41	0.00	0.00	0.00	15.87	33.74	417.99	218.81	121.16	255.84	309.41
Grand Total																		
TOTAL	**1958.5**	**66.0**	**196.7**	**537.8**	**718.5**	**223.9**	**215.7**	**1958.5**	**0.0**	**0.0**	**4.9**	**15.9**	**86.9**	**731.3**	**1119.5**	**739.0**	**603.8**	**615.6**

1 Total acres of Project features that are anticipated to be disturbed by supporting construction equipment traffic, excavation, and grading. Data 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 Ser4vice (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 Depth to bedrock taken directly from the SSURGO database. Stony/Rocky soils are those soils that have either a cobbley, stony, boulder, shaly, very gravely or extremely gravelly modifier to the textural class of the surface layer or that have a surface layer with >5% stones or rocks >3 inches in dimension.

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 Poor (P) and Very Poor (VP) drainage classes (313 and 901 acres, respectively, cumulatively 95 percent of the Preliminary Development Area acreage), with smaller areas mapped into Well (W) (4.9 acres, 0.4 percent) Somewhat Poor (SP) (53.1 acres, 4.2 percent) drainage classes. Soils in SP, 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 loamy and are characterized by the presence of relatively thick topsoil greater than 12 inches in depth (654 acres, 51 percent).

The presence of bedrock near the soil surface and rocks and stones in the soil profile affects constructability and revegetation. About half of the soils in the Preliminary Development Area are 0-12 inches from bedrock, making them shallow to bedrock or they have stones at the soil surface or within the soil profile.

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 1,272-acre Preliminary Development Area and the 686-acre undisturbed 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 uses[4] (nrcs.uda.gov, 2000). All of the soils in the Preliminary Development Area are classified into prime farmland, prime farmland if drained, or soils of statewide importance (58, 590, and 624 acres, 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 Department of Commerce (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

[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.

[1] *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/13929/.

includes describing why 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 Hayward Township, Freeborn County, MN.

With the exception of a few areas, Freeborn 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 of non-prime farmland and where other disturbances were minimized, and efficiency and ease of access could be maximized. While the County overall contains approximately 76% prime farmland, only 62% 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 SMMPA's existing 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 environment. Additionally, as further detailed in the Project VMP Hayward 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. Hayward 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[1]	Prime Farmland				Land Capability Class									Hydric Soil[2]
		All Soils	Statewide Importance	If Drained	Not Prime	1	2e	2s	2w	3s	3w	4s	5w	6s	
	Acres														
Preliminary Development Area (Potential Disturbance)															
Fenced Area	1117.0	51.67	546.80	518.52	0.00	38.92	0.00	12.75	270.16	0.00	795.16	0.00	0.00	0.00	1065.32
Access Roads	77.9	4.39	34.90	38.61	0.00	3.81	0.00	0.58	21.78	0.00	51.74	0.00	0.00	0.00	73.51
Collection Line	55.6	1.97	29.24	24.41	0.00	1.97	0.00	0.00	14.01	0.00	39.64	0.00	0.00	0.00	53.66
Inverter	0.6	0.01	0.29	0.28	0.00	0.01	0.00	0.00	0.17	0.00	0.40	0.00	0.00	0.00	0.57
O&M Building	0.9	0.00	0.08	0.78	0.00	0.00	0.00	0.00	0.78	0.00	0.08	0.00	0.00	0.00	0.87
Stormwater Basin	13.7	0.00	11.27	2.39	0.00	0.00	0.00	0.00	1.13	0.00	12.53	0.00	0.00	0.00	13.66
Project Substation	1.7	0.00	0.00	1.67	0.00	0.00	0.00	0.00	1.67	0.00	0.00	0.00	0.00	0.00	1.67
SMMPA Switchyard	4.0	0.00	1.14	2.85	0.00	0.00	0.00	0.00	2.85	0.00	1.14	0.00	0.00	0.00	3.98
SMMPA Line Tap	0.8	0.00	0.00	0.80	0.00	0.00	0.00	0.00	0.80	0.00	0.00	0.00	0.00	0.00	0.80
Subtotal	**1272.1**	**58.1**	**623.7**	**590.3**	**0.0**	**44.7**	**0.0**	**13.3**	**313.4**	**0.0**	**900.7**	**0.0**	**0.0**	**0.0**	**1214.1**
Land Under Control but Not Currently Planned for Development															
Undisturbed	686.4	49.62	126.90	509.90	0.00	39.08	0.00	10.54	417.06	0.00	219.74	0.00	0.00	0.00	636.80
Grand Total															
Grand Total	**1958.5**	**107.7**	**750.6**	**1100.2**	**0.0**	**84.8**	**0.0**	**23.9**	**730.4**	**0.0**	**1120.4**	**0.0**	**0.0**	**0.0**	**1850.9**

1 Total acres of Project features that are anticipated to be disturbed by supporting construction equipment traffic, excavation and grading. Data Obtained by merging facility polygons with the SSUGO spatial data in ArcGIS. Summations were performed in ArcGIS Pro and Microsoft Excel.
2 Data available directly from the NRCSS SSURGO spatial or attribute databases via geospatial query of the spatial or attribute data.

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, 2s, 2w, and 3w. 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 Class 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 (1,259 acres, 99 percent) are in LCC 1, 2w, and 3w.

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 (1,214 acres, 95 percent), with 58 acres (5 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 Freeborn 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**). Additionally, County ditches are located along 190th and 200th Streets, County Highway 102, and 840th Avenue. In addition to drain tile information from Freeborn County, Hayward 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. Hayward 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 1,272-acre Preliminary Development Area and the 686-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. None of the Preliminary Development Area has soils that 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 605.2 acres (48 percent) of the Preliminary Development Area. Hayward 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. Compaction and rutting are anticipated on 1,267 acres (99.6 percent) and 1,272 acres (100 percent), respectively, if they are trafficked when wet. Hayward 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[1]	Highly Erodible[2]		Compact Prone[3]	Rutting Hazard[4]			Drought Susceptible[5]
		Water	Wind		Slight	Moderate	Severe	
	Acres							
Preliminary Development Area (Potential Disturbance)								
Fenced Area	1117.0	0.00	530.41	1112.08	0.00	0.00	1117.00	0.00
Access Road	77.9	0.00	34.11	77.91	0.00	0.00	77.91	0.00
Collection Line	55.6	0.00	29.17	55.63	0.00	0.00	55.63	0.00
Inverter	0.6	0.00	0.29	0.59	0.00	0.00	0.59	0.00
O&M Building	0.9	0.00	0.00	0.87	0.00	0.00	0.87	0.00
Stormwater Basin	13.7	0.00	11.27	13.66	0.00	0.00	13.66	0.00
Project Substation	1.7	0.00	0.00	1.67	0.00	0.00	1.67	0.00
SMMPA Switchyard	4.0	0.00	0.00	3.98	0.00	0.00	3.98	0.00
SMMPA Line Tap	0.8	0.00	0.00	0.80	0.00	0.00	0.80	0.00
Subtotal	***1272.1***	***0.0***	***605.2***	***1267.2***	***0.0***	***0.0***	***1272.1***	***0.0***
Land Under Control but Not Currently Planned for Development								
Undisturbed	686.4	0.00	113.22	670.54	0.00	0.00	686.41	0.00
Grand Total								
Grand Total	**1958.5**	**0.0**	**718.5**	**1937.7**	**0.0**	**0.0**	**1958.5**	**0.0**

1 Total acres of Project features that are anticipated to be disturbed by supporting construction equipment traffic, excavation and grading. Data obtained by merging facility polygons with the SSUGO spatial data in ArcGIS. Summations were performed in ArcGIS Pro and Microsoft Excel.
2 Highly Erodible Water includes soils in Land Capability Cass 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.
3 Includes soils that are somewhat poorly drained to very poorly drained soils in loamy sands and finer textural classes.
4 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.
5 Includes soils with a surface texture of sandy loam or coarser that are moderately well to excessively drained.

3.2.4 Summary of Major Soil Limitations at the Hayward Solar Project

3.2.4.1 Prime Farmland

Soils within the Project Area are nearly level, generally deep, moderately drained, medium textured Mollisols. Over half of the soils (62%) within the Project Area are prime farmland (**Exhibit 8**). Only a relatively small percentage is prime farmland without condition (107.7 acres, 5 percent) (i.e., the categories prime farmland if drained and prime farmland if protected from flooding is not included in this acreage/%). 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, Hayward 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 VMP 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 native grasses, sedges, and forbs according to seeding and management specifications agreed to by Hayward 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. Hayward 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 Hayward 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. Hayward 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 1,272 acres of the Preliminary Development Area, only 18.9 acres will need to be graded (less than 2 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 Hayward 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 southwestern Minnesota (**Exhibits 1-3**).

Because all 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 Site within certain tolerances, which allows the designer of the facility to minimize the amount 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 site, the majority of the Project Site'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:

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

4.1 Environmental Monitor

Hayward 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. Hayward 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 Hayward 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 Hayward 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 Hayward Solar, its Construction Manager, and the MDA. 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 (76% of the Preliminary Development Area). This will be confirmed with geotechnical soil tests by prior to earthwork activities on the site. Hayward 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 Hayward 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. Hayward 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 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 Hayward 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 site.

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 Hayward 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, Hayward Solar will repair them as soon as is practicable. 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, Hayward 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.

Hayward 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 site where initial cut and fill activities will be performed by the Contractor. Hayward 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," but may reach depths of up to 3 feet. This will be confirmed with tests prior to grading activities. If needed, Hayward 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 19 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, new SMMPA Switchyard, and inverters. For the substation and switchyard, 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 area 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. Hayward 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), Hayward Solar will minimize the risk of excessive soil erosion on lands disturbed by construction.

Prior to construction, Hayward 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 waddles 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 waddles 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

Hayward 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. Hayward 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, Hayward 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 Hayward 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. Hayward Solar has obtained and will review available drain tile maps from participating landowners in the Project associated with the Project Area. Hayward 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 Hayward 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 Hayward 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
- Hayward Solar will make efforts to complete permanent tile repairs within a reasonable timeframe, considering weather and soil conditions.

4.9.2 Project Design Considerations

Hayward 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, Hayward 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 Hayward 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

Hayward Solar will prepare 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, Hayward 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, 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 reseeding 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 40 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 components are found below:

- **Panels**: Panels inspected for physical damage, tested for functionality, and removed from racking. Functioning panels packed and stored for reuse (functioning panels may produce power for another 25 years or more) or resale. Non-functioning panels packaged and sent to the manufacturer or a third party for recycling or another appropriate disposal method;
- **Racking**: Racking uninstalled, sorted, and sent to metal recycling facility;
- **Steel Pier Foundations**: Steel piles removed and sent to a recycling facility;
- **Wire**: underground cables and conduits shallower than the depth specified in the leases will be removed, overhead lines will be removed and taken to a recycling facility;
- **Conduit**: Above-ground conduit disassembled onsite and sent to recycling facility;
- **Junction boxes, combiner boxes, external disconnect boxes, etc.**: Sent to electronics recycler;
- **Inverter/Transformer**: Evaluate remaining operation life and resell or send to manufacturer and/or electronics recycler;

- **Concrete pad(s)**: Sent to concrete recycler;
- **Fence**: Fence will be sent to metal recycling facility and wooden posts for the agricultural fence will be properly disposed; and
- **Computers, monitors, hard drives, and other components**: Sent to electronics recycler. Functioning parts can be reused.

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 VMP 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 VMP. In accordance with the SWPPP, erosion and sediment control measures will be left in place, as needed, until the Project site is stabilized.

Hayward 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 Hayward Solar would evaluate the Project and determine if any changes would require re-permitting of the facility. If a new Site Permit is required, Hayward Solar would prepare an application and secure this approval.

6.0 References

City of Alberta. 2020. The Early Settlement of Albert Lea. Available at

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Historic Map Works. 2021. Hayward Township – Aerial. Available at

http://www.historicmapworks.com/Map/US/212656/Hayward+Township+++Aerial/Freeborn+County+1965/Minnesota/

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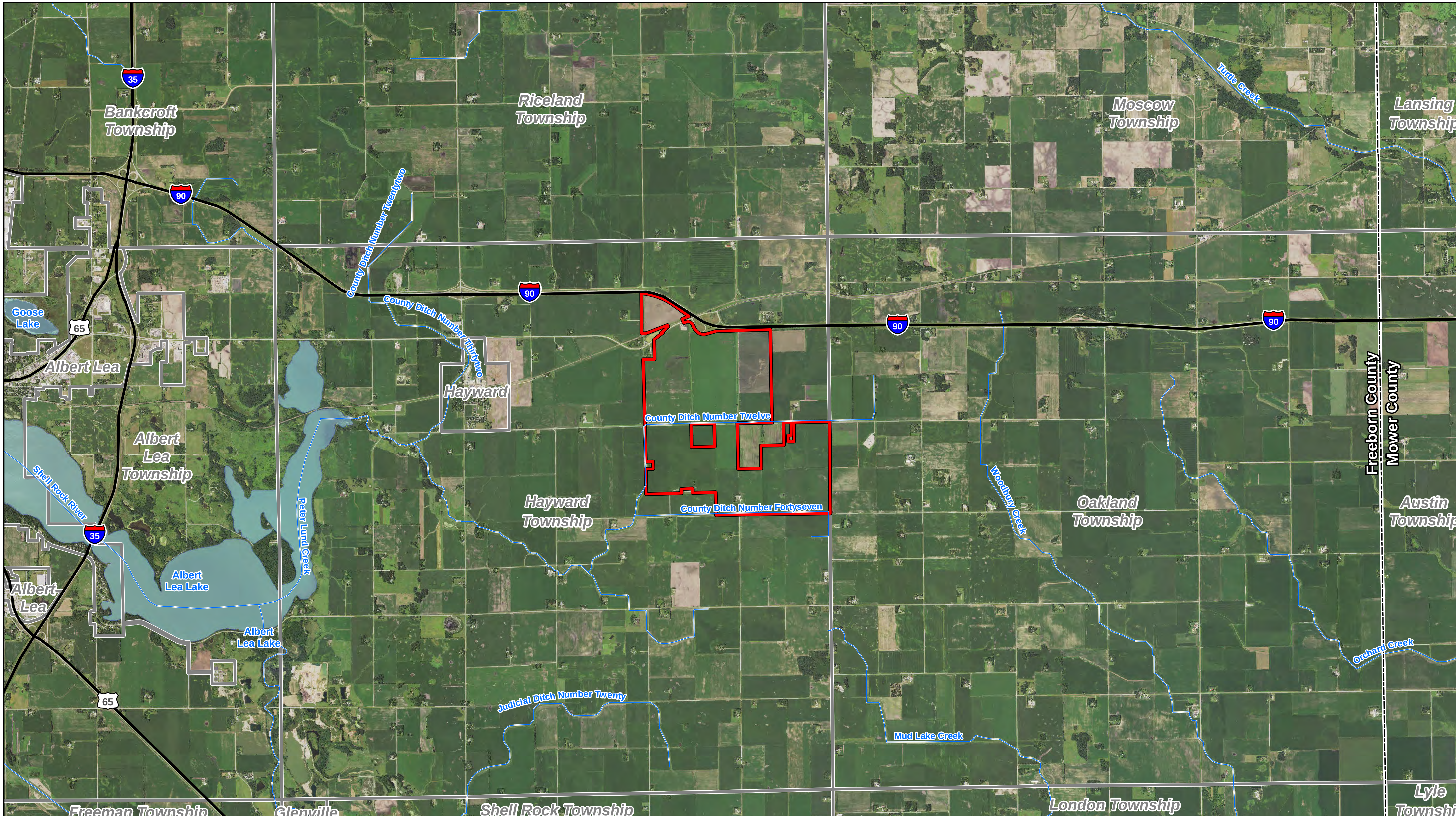
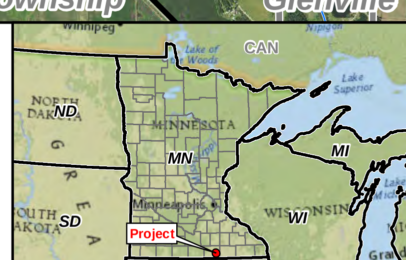


Data Source(s): Westwood (2021); Minnesota NAIP Imagery (2019); Census Bureau (2019); USGS NHD Dataset (2019).



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Legend

- Project Area
- Major Road
- Municipal Boundary
- County Boundary
- Named NHD Flowline
- Named NHD Waterbody

N
0 1 Miles

Hayward Solar Project

Freeborn County, Minnesota

Project Location

EXHIBIT 1

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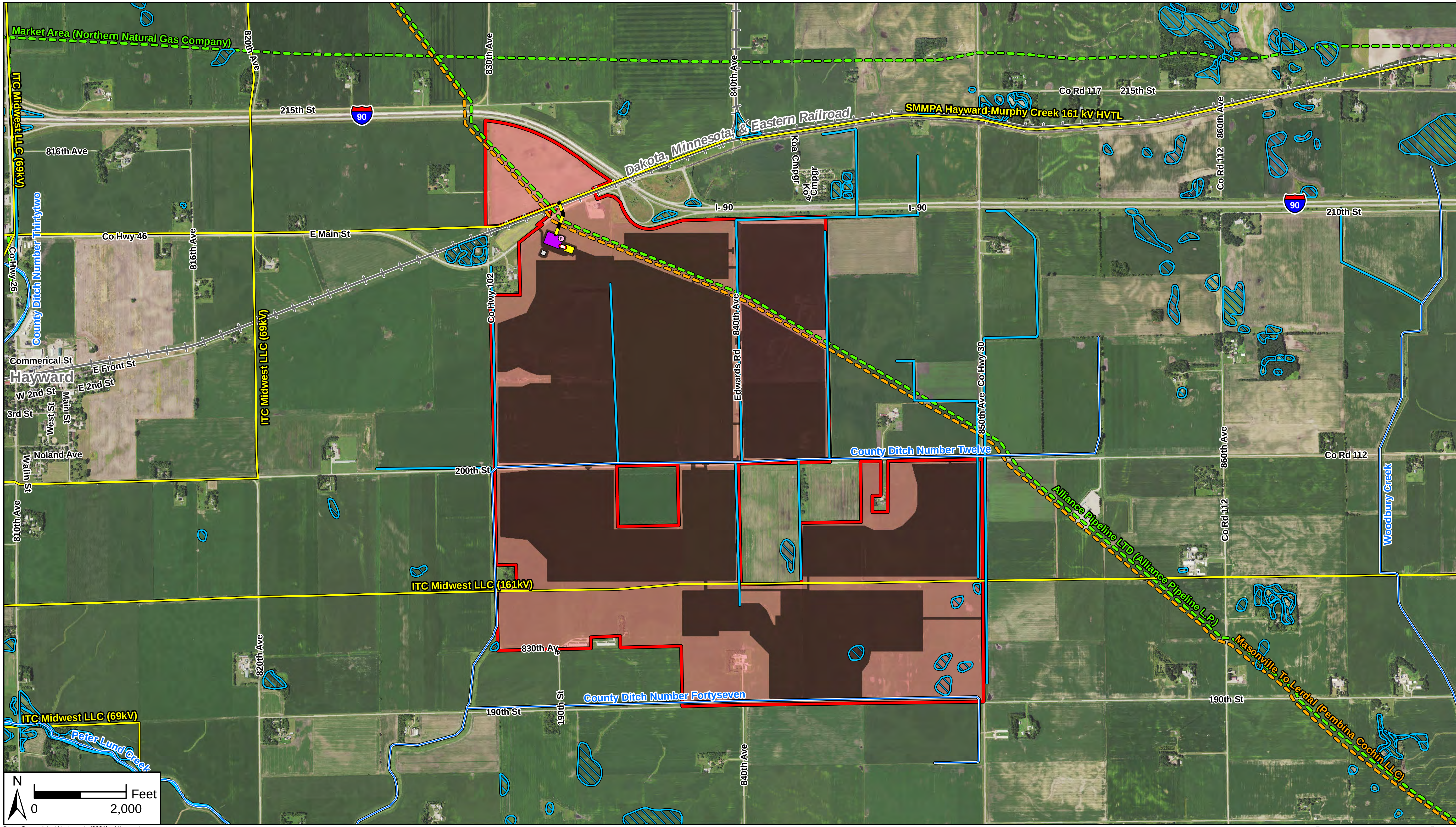

Data Source(s): Westwood (2021); Minnesota NAIP Imagery (2019); Census Bureau (2019); Ventyx Velocity Suite, Ventyx Energy LLC. (2020); USGS NHD Dataset (2019); U.S. Fish and Wildlife Service (2020); Ducks Unlimited (2020); NPMS (2021). Existing pipeline routes are approximate.

Legend

- Project Area
- Current Land Control Area
- Preliminary Development Area
- Proposed Project Substation
- SMMPA Switchyard
- Proposed Project O&M Building
- POI
- SMMPA Line Tap
- Project Gen-Tie Line
- Existing Transmission Line
- Existing Natural Gas Pipeline
- Existing Crude Oil Pipeline
- Named NHD Flowline
- NWI Wetland
- Railroad

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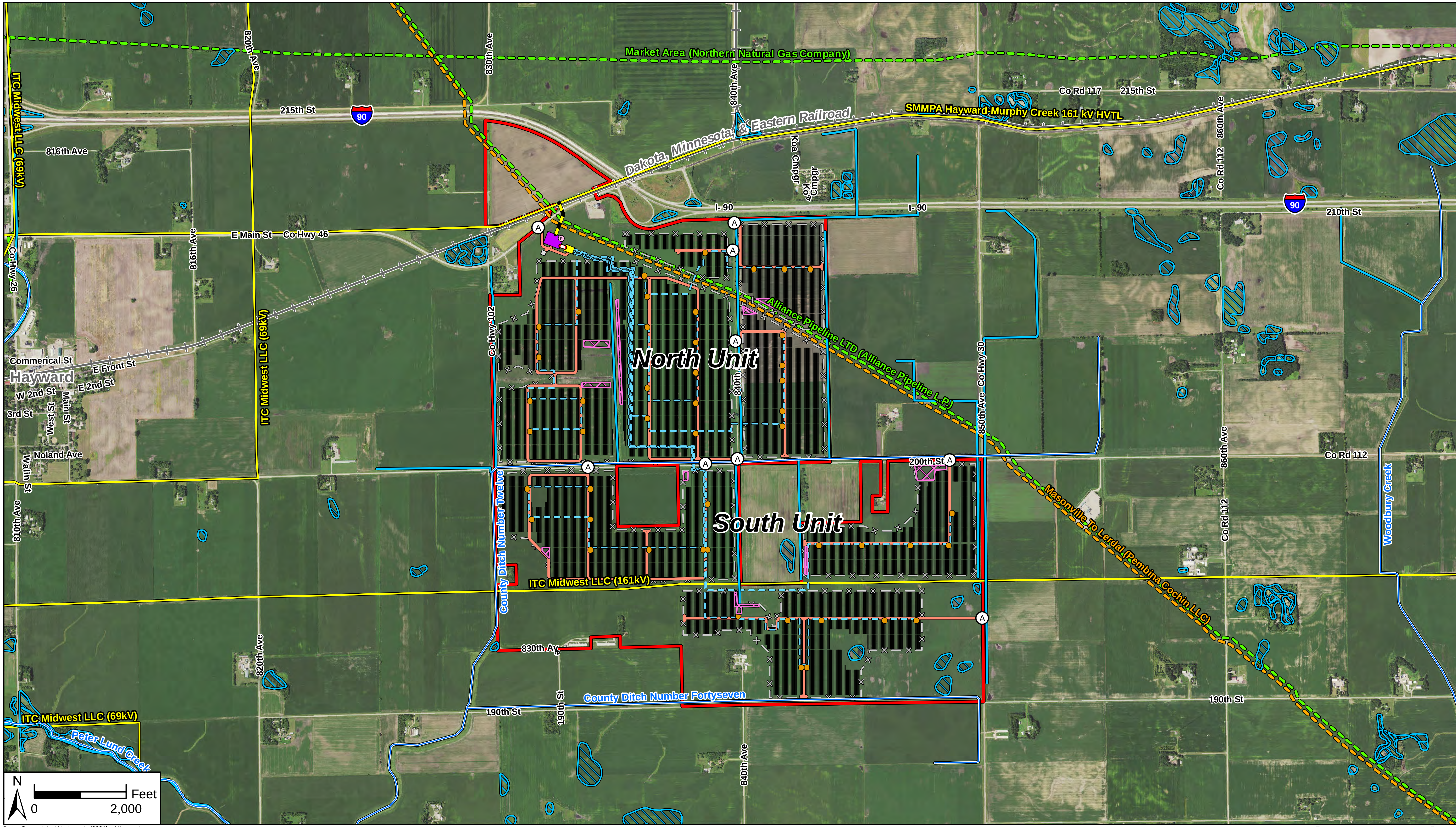
Hayward Solar Project

Freeborn County, Minnesota

Land Control & Preliminary Development Area Map

EXHIBIT 2

Map Document: N:\0026599.00\GIS\AIMP Figures\Hayward_AIMP_Ex2_LandControl&PreliminaryDevelopmentAreaMap_210427.mxd 4/27/2021 9:22:05 AM radevito



Data Source(s): Westwood (2021); Minnesota NAIP Imagery (2019); Census Bureau (2019); Ventyx Velocity Suite, Ventyx Energy LLC. (2020); USGS NHD Dataset (2019); U.S. Fish and Wildlife Service (2020); Ducks Unlimited (2020); NPMS (2021). Existing pipeline routes are approximate.

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Legend

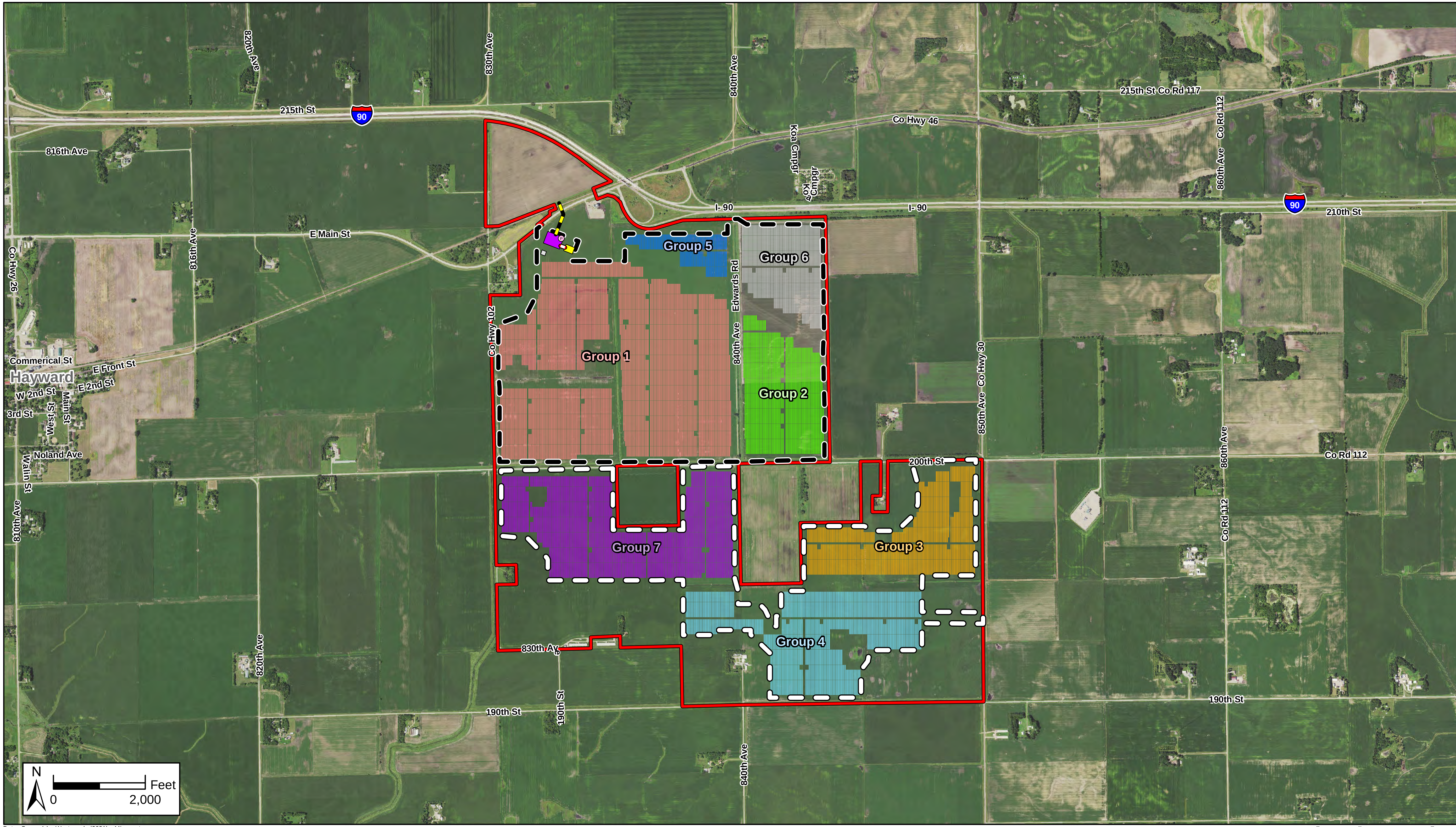
- Project Area
- Proposed Project Solar Array Layout
- Proposed Fence Boundary
- Proposed Project Access Road
- Proposed Project Access Road Entrance
- Proposed Project Inverter
- POI
- SMMPA Line Tap
- Project Gen-Tie Line
- Proposed Project Collection Line
- Proposed Project Substation
- SMMPA Switchyard
- Proposed Project O&M Building
- Proposed Project Stormwater Basin
- Named NHD Flowline
- NWI Wetland
- Existing Transmission Line
- Existing Natural Gas Pipeline
- Existing Oil Pipeline
- Railroad

Hayward Solar Project

Freeborn County, Minnesota

Preliminary Project Layout

EXHIBIT 3



Data Source(s): Westwood (2021); Minnesota NAIP Imagery (2019); Census Bureau (2019).

Legend

- Project Area
- North Construction Unit
- South Construction Unit
- Proposed Project Substation
- SMMPA Switchyard
- Proposed Project O&M Building
- POI
- SMMPA Line Tap
- Project Gen-Tie Line

Proposed Project Array Groups

- Group 1
- Group 2
- Group 3
- Group 4
- Group 5
- Group 6
- Group 7

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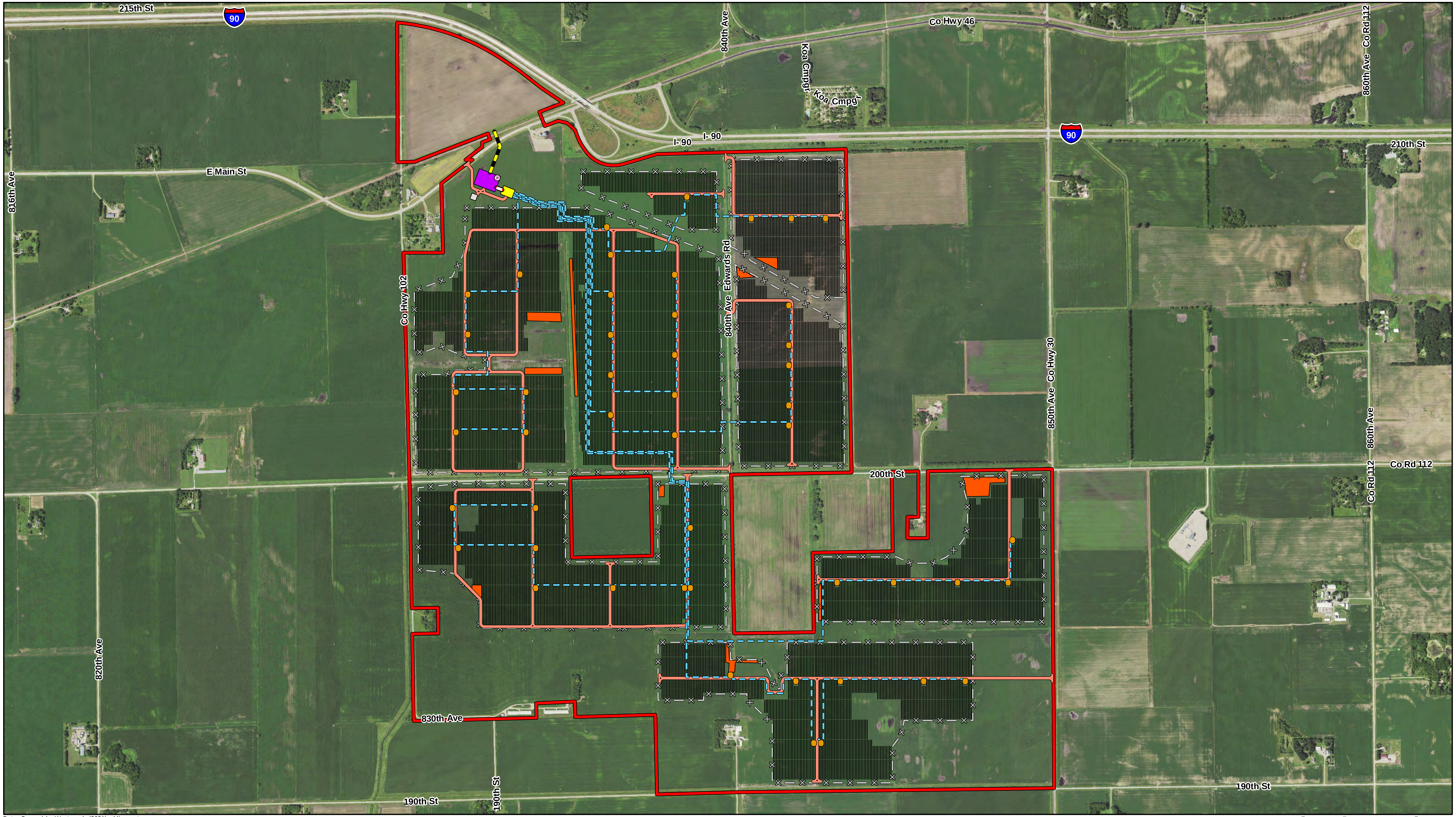
Hayward Solar Project

Freeborn County, Minnesota

Configuration of Proposed Project Arrays

EXHIBIT 4

Map Document: N:\0026599.00\GIS\AIMP Figures\Hayward_AIMP_Ex4_ConfigurationOfProjectComponentsMap_210427.mxd 4/27/2021 9:31:45 AM radevito



Data Source(s): Westwood (2021); Minnesota NAIP Imagery (2019); Census Bureau (2019).

Hayward Solar Project

Freeborn County, Minnesota

Preliminary Project Grading Areas

EXHIBIT 5

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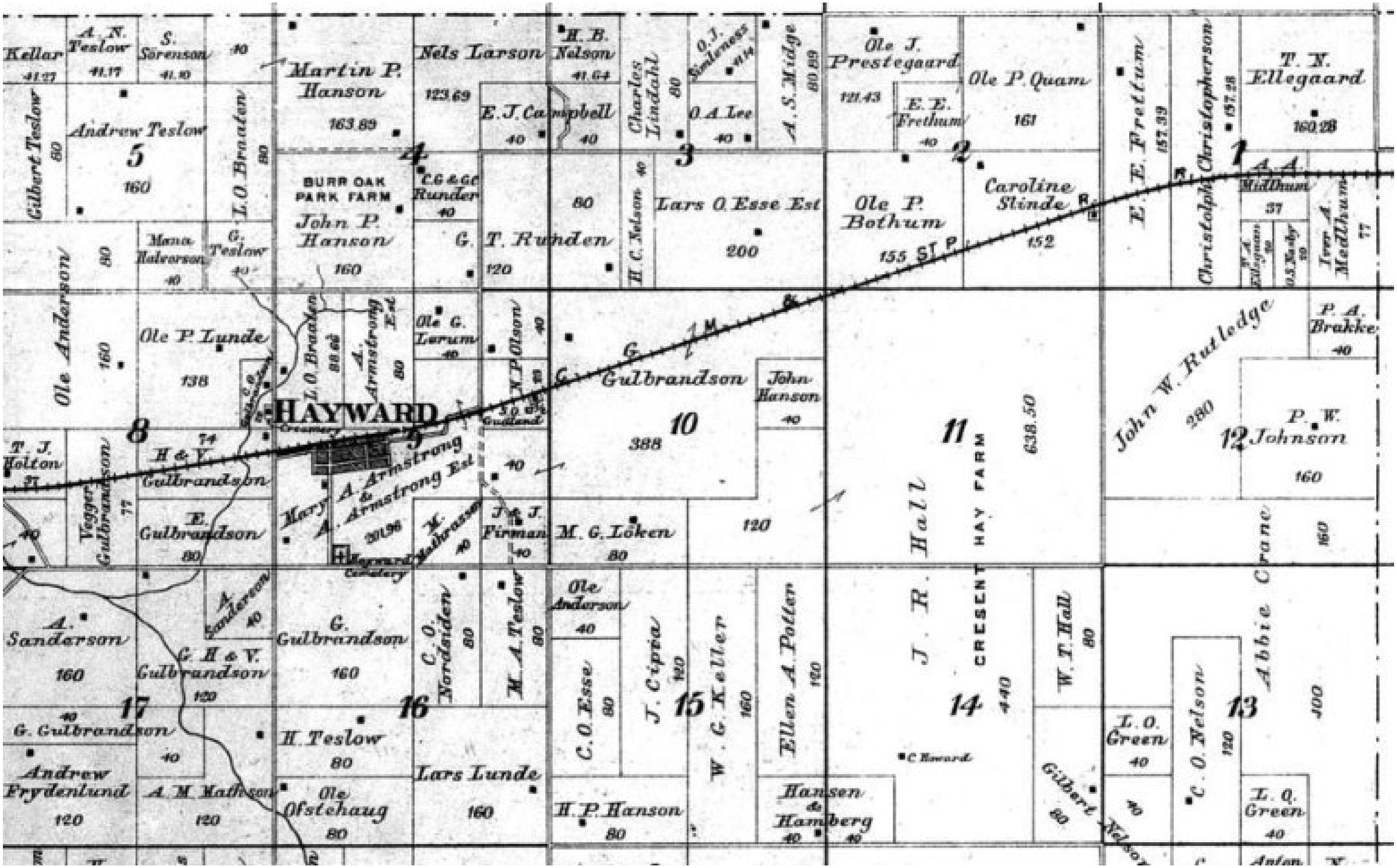
Map Document: N:\0026599.00\GIS\AIMP Figures\Hayward_AIMP_Ex5_GradingAreasMap_210427.mxd 4/27/2021 9:34:24 AM radevito

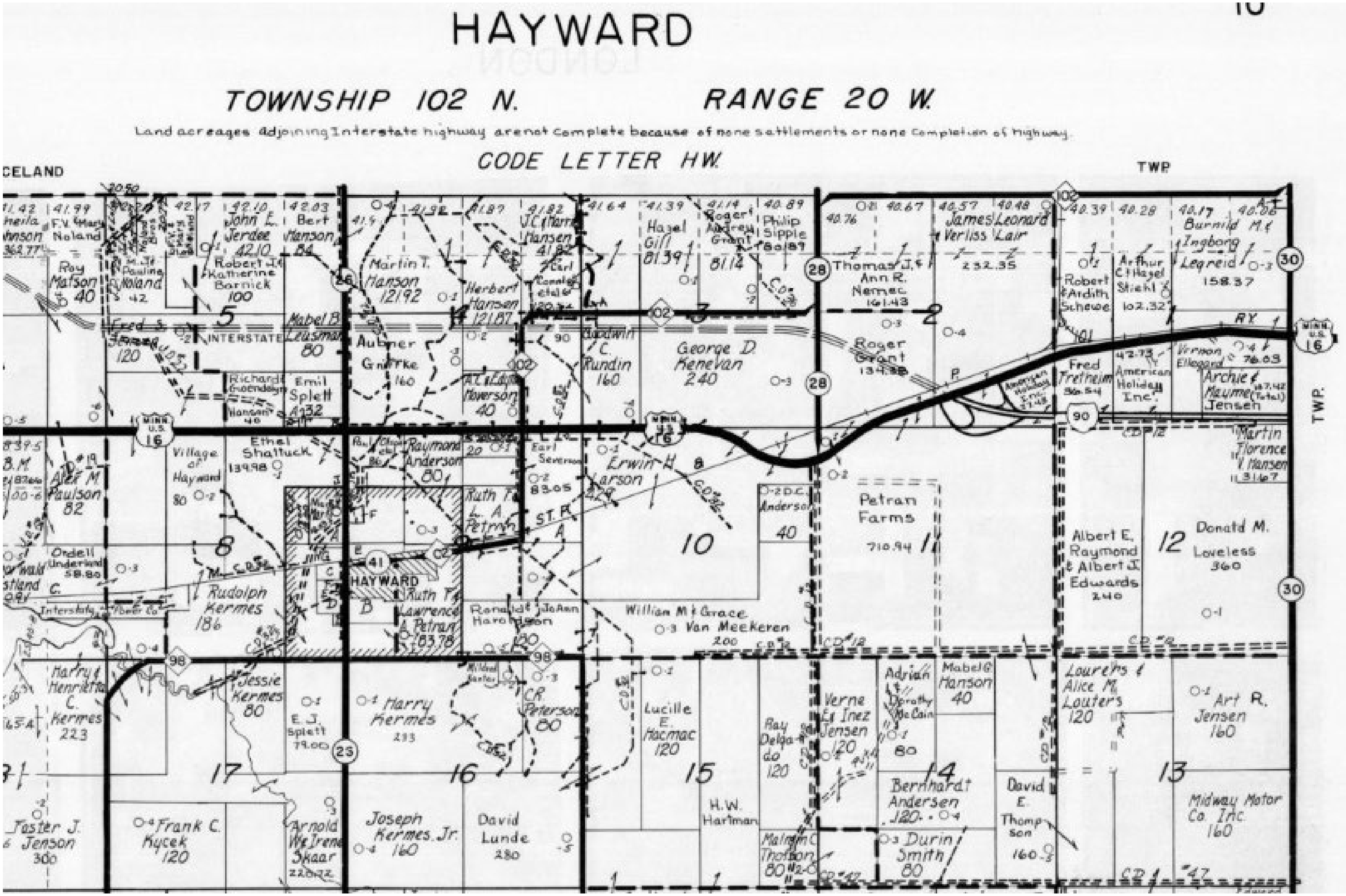
Exhibits



Source: http://www.historicmapworks.com/Map/US/478323/Hayward+Township/Freeborn+County+1895/Minnesota/

Hayward Township 1895
Freeborn County, Minnesota

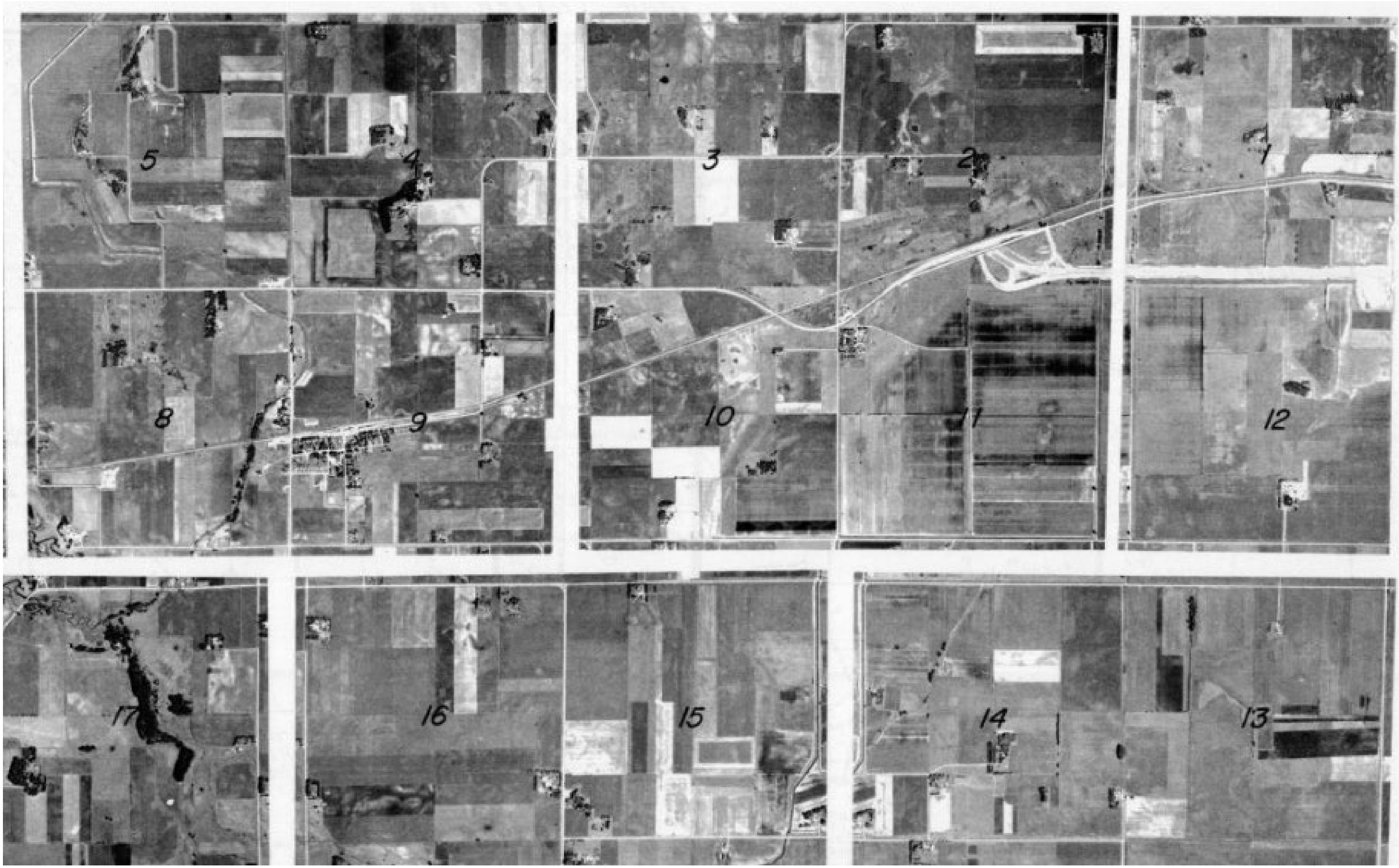
Hayward Township Land Use History
Exhibit 6



Source: http://www.historicmapworks.com/Map/US/212657/Hayward+Township/Freeborn+County+1965/Minnesota/

Hayward Township 1965
Freeborn County, Minnesota

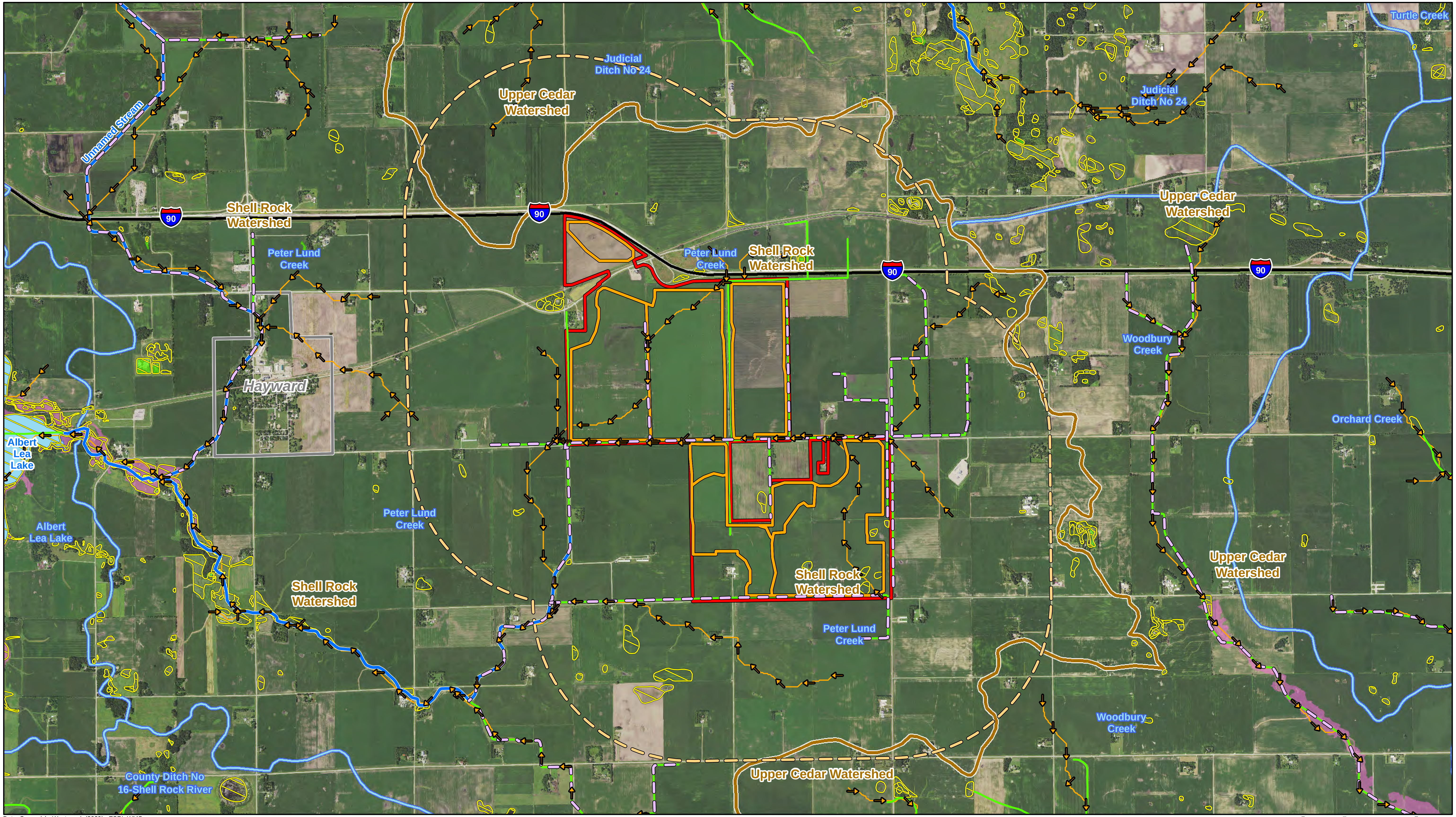
Hayward Township Land Use History
Exhibit 6



Source: http://www.historicmapworks.com/Map/US/212656/Hayward+Township+++Aerial/Freeborn+County+1965/Minnesota/

Hayward Township 1965, Aerial
Freeborn County, Minnesota

Hayward Township Land Use History
Exhibit 6



Data Source(s): Westwood (2020); ESRI WMS World Imagery Basemap (Accessed 2020); Census Bureau (2019); U.S. Department of Agriculture, Natural Resources Conservation Service (2020).

Legend

- Project Area
- Major Road
- 1-Mile Project Area Buffer
- Major Watershed Boundary
- Minor Watershed Boundary
- Flow Direction Line
- Municipal Boundary
- Hydro Drainage Area
- Drainage Ditch
- NWI Wetland
- FEMA Floodplain
- PWI Watercourse
- PWI Basin
- NHD Flowline
- NHD Waterbody

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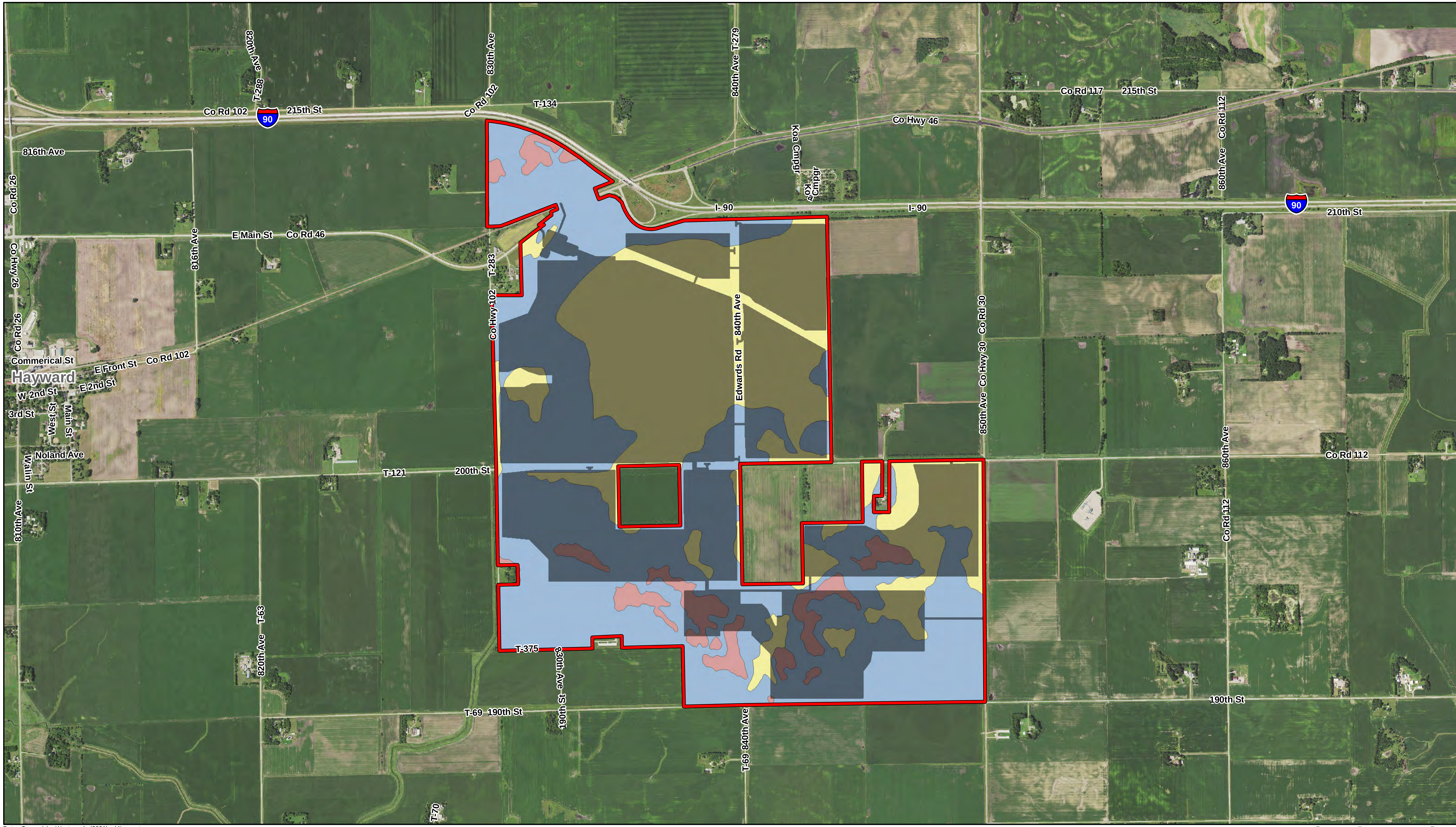
Hayward Solar Project

Freeborn County, Minnesota

Surface Waters & Watersheds of Project Area

EXHIBIT 7

Map Document: N:\0026599.00\GIS\Prime Farmland Exhibits\Hayward_PrimeFarm_Ex14a_SurfaceWaters&WatershedsOfProjectAreaMap_201215.mxd 12/15/2020 5:58:20 PM radevito



Data Source(s): Westwood (2021); Minnesota NAIP Imagery (2019); Census Bureau (2019); U.S. Department of Agriculture, Natural Resources Conservation Service (2020).

Legend

- Project Area
- Preliminary Development Area

Prime Farmland Classifications (Acreages & %'s of Preliminary Development Area)

- All areas are prime farmland - 58.05 Acres (4.56%)
- Farmland of statewide importance - 623.71 Acres (49.02%)
- Prime farmland if drained - 590.57 Acres (46.42%)

N

0 2,000 Feet

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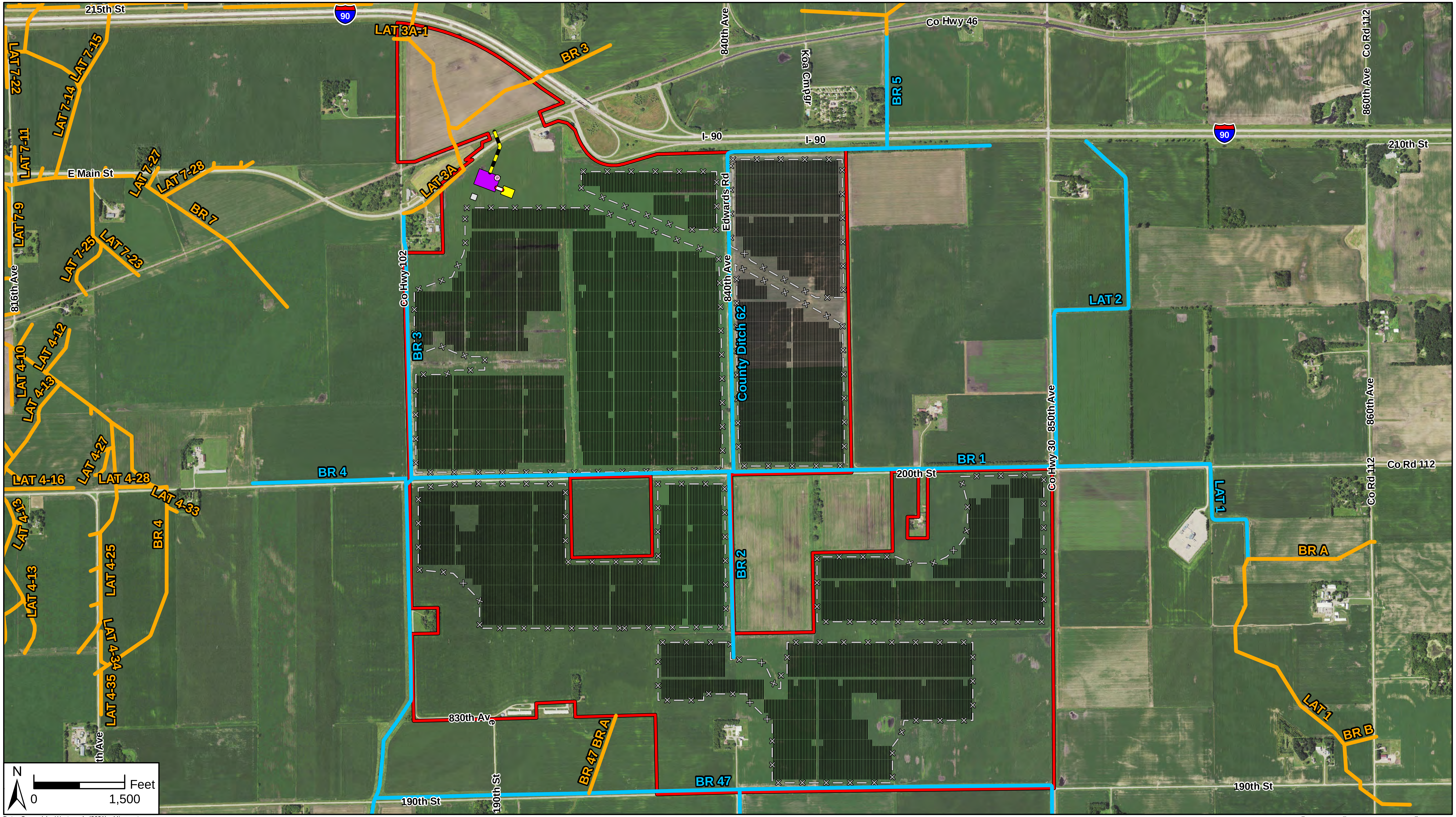
Hayward Solar Project

Freeborn County, Minnesota

Project Prime Farmland

EXHIBIT 8

Map Document: N:\0026599.00\GIS\AIMP Figures\Hayward_AIMP_Ex8_PrimeFarmlandMap_210427.mxd 4/28/2021 10:10:08 AM radevito



Data Source(s): Westwood (2021); Minnesota NAIP Imagery (2019); Census Bureau (2019); Freeborn County (2020).

Legend

- Project Area
- Proposed Project Solar Array Layout
- Proposed Project Fence Boundary
- Proposed Project Substation
- SMMPA Switchyard
- Proposed Project O&M Building
- POI
- SMMPA Line Tap
- Project Gen-Tie Line
- Freeborn County Drain Tile
- Freeborn County Ditch

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Hayward Solar Project

Freeborn County, Minnesota

Drain Tiles & Ditches

EXHIBIT 9

Map Document: N:\0026599.00\GIS\AIMP Figures\Hayward_AIMP_Ex9_DrainTiles&DitchesMap_210427.mxd 4/27/2021 9:38:33 AM radevito

Appendix A

Selected Soil Physical Features, Classifications, and Interpretations and Limitations

Hayward Solar Project
Agricultural Impact Mitigation Plan
Freeborn County, Minnesota

Appendix A: Selected Soil Physical Features, Classifications, and Interpretations and Limitations

Feature Type	Acres[2]	Map Unit Symbol[3]	Map Unit Name[3]	Selected Soil Physical Features					Selected Soil Classifications				Construction/Reclamation Interpretations and Limitations		
				Particle Size Family[3]	Slope Range[4]	Drainage Class[5]	Topsoil Thickness[6]	Prime Farmland[3]	Land Capability Classification[3]	Hydric Soil Rating[3]	Highly Erodible Water[7]	Highly Erodible Wind[8]	Compact Prone[9]	Rutting Hazard[10]	Droughty[11]
Access Road	1.76	392	Biscay clay loam, 0 to 2 percent slopes	fine-loamy over sandy or sandy-skeletal	0-5	Poorly drained	20.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Access Road	1.47	L78A	Canisteo clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Access Road	1.50	300	Dassel mucky loam	coarse-loamy	0-5	Very poorly drained	21.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Access Road	2.11	160	Fieldon loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Access Road	0.51	L84A	Glencoe clay loam, 0 to 1 percent slopes	fine-loamy	0-5	Very poorly drained	39.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Access Road	4.44	282	Hanska loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Access Road	34.11	L13A	Klossner muck, 0 to 1 percent slopes	loamy	0-5	Very poorly drained	9.00	Farmland of statewide importance	3w	Yes	No	Yes	Yes	Severe	No
Access Road	3.81	239	Le Sueur loam, 1 to 3 percent slopes	fine-loamy	0-5	Somewhat poorly drained	14.00	All areas are prime farmland	1	No	No	No	Yes	Severe	No
Access Road	0.50	227	Lemond loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	18.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Access Road	0.58	247	Linder sandy loam, 0 to 3 percent slopes	coarse-loamy	0-5	Somewhat poorly drained	12.00	All areas are prime farmland	2s	No	No	No	Yes	Severe	No
Access Road	2.24	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Access Road	0.08	252	Marshan silt loam	fine-loamy over sandy or sandy-skeletal	0-5	Poorly drained	15.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Access Road	1.49	253	Maxcreek silty clay loam	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Access Road	1.54	940	Maxcreek-Barbert complex	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Access Road	3.34	255	Mayer loam, 0 to 2 percent slopes	fine-loamy over sandy or sandy-skeletal	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Access Road	1.94	134	Okoboji silty clay loam, 0 to 1 percent slopes	fine	0-5	Very poorly drained	33.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Access Road	0.80	391	Spicer silt loam, depressional	fine-silty	0-5	Very poorly drained	20.00	Farmland of statewide importance	3w	Yes	No	No	Yes	Severe	No
Access Road	2.80	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Access Road	8.33	386	Wacousta mucky silt loam	fine-silty	0-5	Very poorly drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Access Road	4.55	400	Wacousta silt loam	fine-silty	0-5	Very poorly drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Collection Line	1.81	392	Biscay clay loam, 0 to 2 percent slopes	fine-loamy over sandy or sandy-skeletal	0-5	Poorly drained	20.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Collection Line	2.66	L78A	Canisteo clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Collection Line	0.86	300	Dassel mucky loam	coarse-loamy	0-5	Very poorly drained	21.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Collection Line	0.26	160	Fieldon loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Collection Line	1.32	L84A	Glencoe clay loam, 0 to 1 percent slopes	fine-loamy	0-5	Very poorly drained	39.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Collection Line	3.50	282	Hanska loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No

Appendix A: Selected Soil Physical Features, Classifications, and Interpretations and Limitations															
Feature Type	Acres[2]	Map Unit Symbol[3]		Selected Soil Physical Features					Selected Soil Classifications				Construction/Reclamation Interpretations and Limitations		
			Map Unit Name[3]	Particle Size Family[3]	Slope Range[4]	Drainage Class[5]	Topsoil Thickness[6]	Prime Farmland[3]	Land Capability Classification[3]	Hydric Soil Rating[3]	Highly Erodible Water[7]	Highly Erodible Wind[8]	Compact Prone[9]	Rutting Hazard[10]	Droughty[11]
Collection Line	29.17	L13A	Klossner muck, 0 to 1 percent slopes	loamy	0-5	Very poorly drained	9.00	Farmland of statewide importance	3w	Yes	No	Yes	Yes	Severe	No
Collection Line	1.97	239	Le Sueur loam, 1 to 3 percent slopes	fine-loamy	0-5	Somewhat poorly drained	14.00	All areas are prime farmland	1	No	No	No	Yes	Severe	No
Collection Line	0.10	227	Lemond loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	18.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Collection Line	1.35	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Collection Line	0.12	252	Marshan silt loam	fine-loamy over sandy or sandy-skeletal	0-5	Poorly drained	15.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Collection Line	0.12	253	Maxcreek silty clay loam	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Collection Line	0.28	940	Maxcreek-Barbert complex	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Collection Line	2.42	255	Mayer loam, 0 to 2 percent slopes	fine-loamy over sandy or sandy-skeletal	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Collection Line	0.09	134	Okoboji silty clay loam, 0 to 1 percent slopes	fine	0-5	Very poorly drained	33.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Collection Line	0.07	391	Spicer silt loam, depressional	fine-silty	0-5	Very poorly drained	20.00	Farmland of statewide importance	3w	Yes	No	No	Yes	Severe	No
Collection Line	1.20	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Collection Line	5.50	386	Wacousta mucky silt loam	fine-silty	0-5	Very poorly drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Collection Line	2.63	400	Wacousta silt loam	fine-silty	0-5	Very poorly drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Collection Line	0.19	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Fenced Area	33.74	392	Biscay clay loam, 0 to 2 percent slopes	fine-loamy over sandy or sandy-skeletal	0-5	Poorly drained	20.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Fenced Area	38.21	L78A	Canisteo clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Fenced Area	0.09	129	Cylinder loam, 0 to 2 percent slopes	fine-loamy over sandy or sandy-skeletal	0-5	Somewhat poorly drained	19.00	All areas are prime farmland	2s	No	No	No	Yes	Severe	No
Fenced Area	4.92	5	Dakota loam, 0 to 2 percent slopes	fine-loamy	0-5	Well drained	8.00	All areas are prime farmland	2s	No	No	No	No	Severe	No
Fenced Area	4.33	183	Dassel loam	coarse-loamy	0-5	Very poorly drained	23.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Fenced Area	30.52	300	Dassel mucky loam	coarse-loamy	0-5	Very poorly drained	21.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Fenced Area	7.72	123	Dundas silt loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	10.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Fenced Area	11.47	160	Fieldon loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Fenced Area	16.62	L84A	Glencoe clay loam, 0 to 1 percent slopes	fine-loamy	0-5	Very poorly drained	39.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Fenced Area	34.82	282	Hanska loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Fenced Area	530.41	L13A	Klossner muck, 0 to 1 percent slopes	loamy	0-5	Very poorly drained	9.00	Farmland of statewide importance	3w	Yes	No	Yes	Yes	Severe	No
Fenced Area	38.92	239	Le Sueur loam, 1 to 3 percent slopes	fine-loamy	0-5	Somewhat poorly drained	14.00	All areas are prime farmland	1	No	No	No	Yes	Severe	No

Appendix A: Selected Soil Physical Features, Classifications, and Interpretations and Limitations

Feature Type	Acres[2]	Map Unit Symbol[3]	Selected Soil Physical Features						Selected Soil Classifications				Construction/Reclamation Interpretations and Limitations		
			Map Unit Name[3]	Particle Size Family[3]	Slope Range[4]	Drainage Class[5]	Topsoil Thickness[6]	Prime Farmland[3]	Land Capability Classification[3]	Hydric Soil Rating[3]	Highly Erodible Water[7]	Highly Erodible Wind[8]	Compact Prone[9]	Rutting Hazard[10]	Droughty[11]
Fenced Area	5.44	227	Lemond loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	18.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Fenced Area	7.75	247	Linder sandy loam, 0 to 3 percent slopes	coarse-loamy	0-5	Somewhat poorly drained	12.00	All areas are prime farmland	2s	No	No	No	Yes	Severe	No
Fenced Area	17.82	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Fenced Area	5.13	252	Marshan silt loam	fine-loamy over sandy or sandy-skeletal	0-5	Poorly drained	15.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Fenced Area	21.66	253	Maxcreek silty clay loam	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Fenced Area	8.77	940	Maxcreek-Barbert complex	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Fenced Area	46.31	255	Mayer loam, 0 to 2 percent slopes	fine-loamy over sandy or sandy-skeletal	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Fenced Area	32.84	134	Okoboji silty clay loam, 0 to 1 percent slopes	fine	0-5	Very poorly drained	33.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Fenced Area	16.40	391	Spicer silt loam, depressional	fine-silty	0-5	Very poorly drained	20.00	Farmland of statewide importance	3w	Yes	No	No	Yes	Severe	No
Fenced Area	37.80	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Fenced Area	75.50	386	Wacousta mucky silt loam	fine-silty	0-5	Very poorly drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Fenced Area	88.56	400	Wacousta silt loam	fine-silty	0-5	Very poorly drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Fenced Area	1.25	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Inverter	0.02	392	Biscay clay loam, 0 to 2 percent slopes	fine-loamy over sandy or sandy-skeletal	0-5	Poorly drained	20.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Inverter	0.02	L78A	Canisteo clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Inverter	0.01	300	Dassel mucky loam	coarse-loamy	0-5	Very poorly drained	21.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Inverter	0.01	L84A	Glencoe clay loam, 0 to 1 percent slopes	fine-loamy	0-5	Very poorly drained	39.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Inverter	0.01	282	Hanska loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Inverter	0.29	L13A	Klossner muck, 0 to 1 percent slopes	loamy	0-5	Very poorly drained	9.00	Farmland of statewide importance	3w	Yes	No	Yes	Yes	Severe	No
Inverter	0.01	239	Le Sueur loam, 1 to 3 percent slopes	fine-loamy	0-5	Somewhat poorly drained	14.00	All areas are prime farmland	1	No	No	No	Yes	Severe	No
Inverter	0.04	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Inverter	0.01	252	Marshan silt loam	fine-loamy over sandy or sandy-skeletal	0-5	Poorly drained	15.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Inverter	0.01	940	Maxcreek-Barbert complex	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Inverter	0.04	255	Mayer loam, 0 to 2 percent slopes	fine-loamy over sandy or sandy-skeletal	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Inverter	0.01	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Inverter	0.07	386	Wacousta mucky silt loam	fine-silty	0-5	Very poorly drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No

Appendix A: Selected Soil Physical Features, Classifications, and Interpretations and Limitations

Feature Type	Acres[2]	Map Unit Symbol[3]	Map Unit Name[3]	Selected Soil Physical Features					Selected Soil Classifications				Construction/Reclamation Interpretations and Limitations		
				Particle Size Family[3]	Slope Range[4]	Drainage Class[5]	Topsoil Thickness[6]	Prime Farmland[3]	Land Capability Classification[3]	Hydric Soil Rating[3]	Highly Erodible Water[7]	Highly Erodible Wind[8]	Compact Prone[9]	Rutting Hazard[10]	Droughty[11]
Inverter	0.01	400	Wacousta silt loam	fine-silty	0-5	Very poorly drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
O&M Building	0.78	160	Fieldon loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
O&M Building	0.08	391	Spicer silt loam, depressional	fine-silty	0-5	Very poorly drained	20.00	Farmland of statewide importance	3w	Yes	No	No	Yes	Severe	No
Stormwater Basin	0.89	300	Dassel mucky loam	coarse-loamy	0-5	Very poorly drained	21.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Stormwater Basin	0.85	282	Hanska loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Stormwater Basin	11.27	L13A	Klossner muck, 0 to 1 percent slopes	loamy	0-5	Very poorly drained	9.00	Farmland of statewide importance	3w	Yes	No	Yes	Yes	Severe	No
Stormwater Basin	0.00	940	Maxcreek-Barbert complex	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Stormwater Basin	0.28	255	Mayer loam, 0 to 2 percent slopes	fine-loamy over sandy or sandy-skeletal	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Stormwater Basin	0.04	134	Okoboji silty clay loam, 0 to 1 percent slopes	fine	0-5	Very poorly drained	33.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Stormwater Basin	0.33	386	Wacousta mucky silt loam	fine-silty	0-5	Very poorly drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Substation	1.67	160	Fieldon loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Switchyard	2.85	160	Fieldon loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Switchyard	1.14	391	Spicer silt loam, depressional	fine-silty	0-5	Very poorly drained	20.00	Farmland of statewide importance	3w	Yes	No	No	Yes	Severe	No
Transmission Line	0.80	160	Fieldon loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Undeveloped Area	38.95	392	Biscay clay loam, 0 to 2 percent slopes	fine-loamy over sandy or sandy-skeletal	0-5	Poorly drained	20.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Undeveloped Area	14.66	L78A	Canisteo clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Undeveloped Area	0.99	129	Cylinder loam, 0 to 2 percent slopes	fine-loamy over sandy or sandy-skeletal	0-5	Somewhat poorly drained	19.00	All areas are prime farmland	2s	No	No	No	Yes	Severe	No
Undeveloped Area	1.92	183	Dassel loam	coarse-loamy	0-5	Very poorly drained	23.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Undeveloped Area	20.87	300	Dassel mucky loam	coarse-loamy	0-5	Very poorly drained	21.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Undeveloped Area	73.80	160	Fieldon loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Undeveloped Area	7.70	L84A	Glencoe clay loam, 0 to 1 percent slopes	fine-loamy	0-5	Very poorly drained	39.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Undeveloped Area	9.52	282	Hanska loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Undeveloped Area	0.62	380	Havana silt loam	fine-loamy	0-5	Poorly drained	17.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Undeveloped Area	7.81	190	Hayfield silt loam, 1 to 3 percent slopes	fine-loamy over sandy or sandy-skeletal	0-5	Somewhat poorly drained	9.00	All areas are prime farmland	2s	No	No	No	Yes	Severe	No
Undeveloped Area	113.22	L13A	Klossner muck, 0 to 1 percent slopes	loamy	0-5	Very poorly drained	9.00	Farmland of statewide importance	3w	Yes	No	Yes	Yes	Severe	No

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Feature Type	Acres[2]	Map Unit Symbol[3]		Selected Soil Physical Features					Selected Soil Classifications				Construction/Reclamation Interpretations and Limitations		
			Map Unit Name[3]	Particle Size Family[3]	Slope Range[4]	Drainage Class[5]	Topsoil Thickness[6]	Prime Farmland[3]	Land Capability Classification[3]	Hydric Soil Rating[3]	Highly Erodible Water[7]	Highly Erodible Wind[8]	Compact Prone[9]	Rutting Hazard[10]	Droughty[11]
Undeveloped Area	17.77	239	Le Sueur loam, 1 to 3 percent slopes	fine-loamy	0-5	Somewhat poorly drained	14.00	All areas are prime farmland	1	No	No	No	Yes	Severe	No
Undeveloped Area	1.74	247	Linder sandy loam, 0 to 3 percent slopes	coarse-loamy	0-5	Somewhat poorly drained	12.00	All areas are prime farmland	2s	No	No	No	Yes	Severe	No
Undeveloped Area	61.51	136	Madelia silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Undeveloped Area	10.14	252	Marshan silt loam	fine-loamy over sandy or sandy-skeletal	0-5	Poorly drained	15.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Undeveloped Area	40.09	253	Maxcreek silty clay loam	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Undeveloped Area	0.93	83	Maxcreek silty clay loam, swales	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Undeveloped Area	13.02	940	Maxcreek-Barbert complex	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Undeveloped Area	53.49	255	Mayer loam, 0 to 2 percent slopes	fine-loamy over sandy or sandy-skeletal	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Undeveloped Area	0.67	318	Mayer loam, swales	fine-loamy over sandy or sandy-skeletal	0-5	Very poorly drained	21.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Undeveloped Area	15.75	377	Merton silt loam, 1 to 3 percent slopes	fine-loamy	0-5	Moderately well drained	16.00	All areas are prime farmland	1	No	No	No	No	Severe	No
Undeveloped Area	0.13	381	Newry silt loam, 1 to 3 percent slopes	fine-loamy	0-5	Moderately well drained	8.00	All areas are prime farmland	1	No	No	No	No	Severe	No
Undeveloped Area	5.44	L85A	Nicollet clay loam, 1 to 3 percent slopes	fine-loamy	0-5	Somewhat poorly drained	17.00	All areas are prime farmland	1	No	No	No	Yes	Severe	No
Undeveloped Area	31.06	134	Okoboji silty clay loam, 0 to 1 percent slopes	fine	0-5	Very poorly drained	33.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Undeveloped Area	13.68	391	Spicer silt loam, depressional	fine-silty	0-5	Very poorly drained	20.00	Farmland of statewide importance	3w	Yes	No	No	Yes	Severe	No
Undeveloped Area	77.74	140	Spicer silty clay loam, 0 to 2 percent slopes	fine-silty	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Undeveloped Area	8.51	393	Udolpho silt loam	fine-loamy over sandy or sandy-skeletal	0-5	Poorly drained	14.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Undeveloped Area	18.72	386	Wacousta mucky silt loam	fine-silty	0-5	Very poorly drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Undeveloped Area	10.97	400	Wacousta silt loam	fine-silty	0-5	Very poorly drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Undeveloped Area	15.01	L83A	Webster clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	20.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No

1. Project Area include soils under Elk Creek Solar lease but that are not anticipated to be disturbed during construction or operations.
2. Data obtained by merging facility polygons with the SSURGO spatial date in ArcGIS. Summations were performed in Microsoft Excel.
3. Obtained directly by query of the SSURGO geospatial database.
4. Representative slope values are taken directly from the SSURGO database. The SSURGO2 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.
5. Drainage class as taken directly from the SSURGO database. ED, PD, and VPD indicate Excessively Drained, Poorly Drained, and Very Poorly Drained soils, respectively.
6. Topsoil thickness is the aggregate thickness of the A horizons described in the SSURGO database.

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			Map Unit Name[3]	Particle Size Family[3]	Slope Range[4]	Drainage Class[5]	Topsoil Thickness[6]	Prime Farmland[3]	Land Capability Classification[3]	Hydric Soil Rating[3]	Highly Erodible Water[7]	Highly Erodible Wind[8]	Compact Prone[9]	Rutting Hazard[10]	Droughty[11]

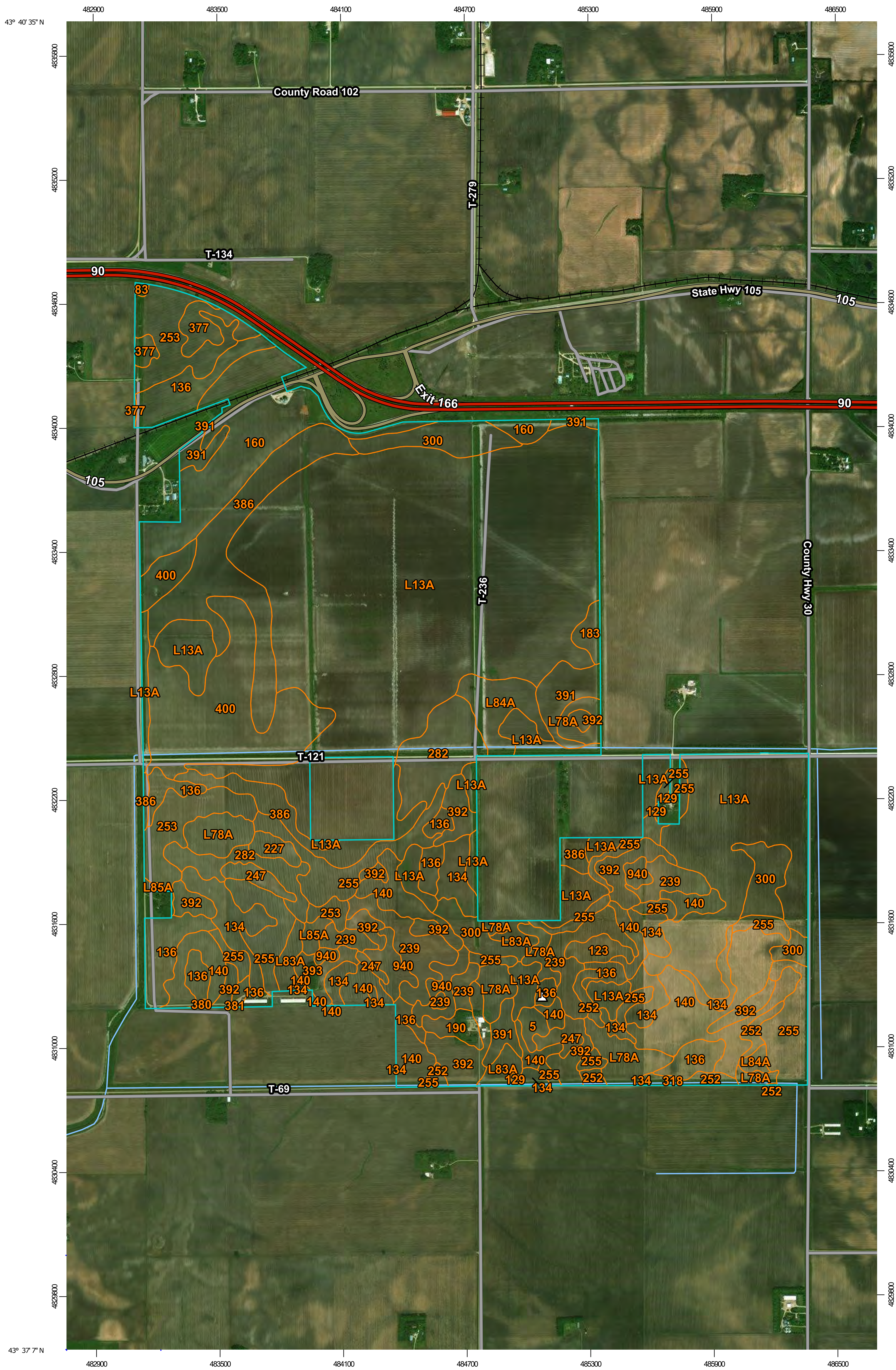
7. Includes soils in land capability classes 4e through 8e or that have a representative slope value greater than or equal to 9%.
8. Includes soils in wind erodibility groups 1 and 2.
9. Includes soils that are somewhat poorly drained to very poorly drained soils in loamy sands and finer textural classes.
10. 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 comprised of sediments with low strength will have potential rutting hazards.
11. Includes soils with a surface texture of sandy loam or coarser that are moderately well to excessively drained.

Appendix B

Soil Map

Hayward Solar Project
Agricultural Impact Mitigation Plan
Freeborn County, Minnesota

Soil Map—Freeborn County, Minnesota
(Hayward Solar AIMP)



Map Scale: 1:18,000 if printed on B portrait (11" x 17") sheet.

Meters: 0, 250, 500, 1000, 1500

Feet: 0, 500, 1000, 2000, 3000

N

Map projection: Web Mercator   Corner coordinates: WGS84   Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Freeborn County, Minnesota
Survey Area Data: Version 16, Jun 5, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 1, 2013—Feb 17, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5	Dakota loam, 0 to 2 percent slopes	4.9	0.3%
83	Maxcreek silty clay loam, swales	0.9	0.0%
123	Dundas silt loam, 0 to 2 percent slopes	7.7	0.4%
129	Cylinder loam, 0 to 2 percent slopes	1.1	0.1%
134	Okoboji silty clay loam, 0 to 1 percent slopes	66.1	3.4%
136	Madelia silty clay loam, 0 to 2 percent slopes	83.0	4.2%
140	Spicer silty clay loam, 0 to 2 percent slopes	119.6	6.1%
160	Fieldon loam, 0 to 2 percent slopes	93.4	4.8%
183	Dassel loam	6.3	0.3%
190	Hayfield silt loam, 1 to 3 percent slopes	7.8	0.4%
227	Lemond loam, 0 to 2 percent slopes	6.0	0.3%
239	Le Sueur loam, 1 to 3 percent slopes	62.5	3.2%
247	Linder sandy loam, 0 to 3 percent slopes	10.1	0.5%
252	Marshan silt loam	15.6	0.8%
253	Maxcreek silty clay loam	63.2	3.2%
255	Mayer loam, 0 to 2 percent slopes	106.0	5.4%
282	Hanska loam, 0 to 2 percent slopes	53.2	2.7%
300	Dassel mucky loam	54.6	2.8%
318	Mayer loam, swales	0.7	0.0%
377	Merton silt loam, 1 to 3 percent slopes	15.7	0.8%
380	Havana silt loam	0.6	0.0%
381	Newry silt loam, 1 to 3 percent slopes	0.1	0.0%
386	Wacousta mucky silt loam	108.2	5.5%
391	Spicer silt loam, depressional	32.1	1.6%
392	Biscay clay loam, 0 to 2 percent slopes	76.4	3.9%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
393	Udolpho silt loam	8.5	0.4%
400	Wacousta silt loam	106.7	5.4%
940	Maxcreek-Barbert complex	23.6	1.2%
L13A	Klossner muck, 0 to 1 percent slopes	718.6	36.7%
L78A	Canisteo clay loam, 0 to 2 percent slopes	57.1	2.9%
L83A	Webster clay loam, 0 to 2 percent slopes	16.5	0.8%
L84A	Glencoe clay loam, 0 to 1 percent slopes	26.2	1.3%
L85A	Nicollet clay loam, 1 to 3 percent slopes	5.5	0.3%
Totals for Area of Interest		**1,958.4**	**100.0%**