

Attachment E

Draft Vegetation Management Plan
(Revised)

SUMMIT LAKE SOLAR PROJECT

NOBLES COUNTY, MINNESOTA

VEGETATION MANAGEMENT PLAN



SOLAR FACILITY DOCKET NO. IP-7153/GS-25-89

BESS FACILITY DOCKET NO. IP-7153/ESS-25-88

Prepared for:



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EXECUTIVE SUMMARY

Summit Lake Solar, LLC (Summit Lake), a wholly owned subsidiary of National Grid Renewables Development, LLC proposes to construct the Summit Lake Solar Facility (Solar Facility or Project) in Summit Lake and Elk Townships, Nobles County, Minnesota (Project Location) (see Figure 1). The Solar Facility is a solar energy conversion facility with a 200-megawatt (MW) alternating current (AC) nameplate capacity. The Project also includes a Battery Energy Storage System (BESS); land within the BESS will be graveled for operation of the facility and therefore the goals and objectives outlined throughout this plan do not apply to the BESS.

If approved, the Project will operate under a Site Permit issued by the Minnesota Public Utilities Commission in accordance with the Minnesota Power Plant Siting Act (Minnesota Statutes §216E) and Minnesota Administrative Rules Chapter 7850, in addition to other required federal, state and local permits. Currently, the Project is scheduled to commence construction activities in Q2 2026, with commercial operations anticipated to begin in Q4 2027.

The proposed Project is primarily located on agricultural land (95 percent) in a rural landscape. Land use data indicates that the Land Control Area is primarily managed for row-crop production of predominantly corn and forage crops. The Project is located on level to nearly-level topography, which is consistent with the current agricultural production.

A comprehensive Vegetation Management Plan (VMP) has been developed to manage soil and vegetation across all phases of the Project, from site preparation to ongoing long-term maintenance, and to aid qualified contractors. This VMP outlines steps for installing prescribed native seed mixes, controlling invasive and noxious weeds, and mitigating erosion and sedimentation. Summit Lake will focus on the company's long-term commitment to establishing and maintaining low-growing, minimal-mow vegetation, reducing long-term maintenance needs, and promoting consistent site performance.

The VMP covers the Preliminary Development Area (also referred to as the Site; see Figure 2, Land Cover/Land Use), which includes both the solar facility and surrounding lands that may be impacted, with designated zones of perennial native vegetation beneath and between solar panels and in a buffer outside the perimeter fence. The VMP's primary objective is to support Summit Lake's restoration and vegetation propagation goals by establishing resilient, site-specific vegetation that enhances soil stability, biodiversity, and aligns with local ecological goals, while also minimizing long-term maintenance costs.

This document is intended to be a working document, and revisions will be made as new information on vegetation management practices becomes available or if the Project layout changes.

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Attachment A	Habitat Friendly Solar Site Assessment Forms
Attachment B	Project Historical Climate Data
Attachment C	Seed Mixes

ACRONYMS AND ABBREVIATIONS

AC	alternating current
AIMP	Agricultural Impact Mitigation Plan
AUM	animal unit month
BWSR	Board of Water and Soil Resources
DC	direct current
General Permit	Construction Stormwater General Permit
GIS	geographic information systems
Land Control Area	1,989.6 acres of privately-owned land for which for which Summit Lake Solar, LLC has leases and purchase options to allow siting and construction of the Project.
Merjent	Merjent, Inc.
MNDNR	Minnesota Department of Natural Resources
MPCA	Minnesota Pollution Control Agency
MW	megawatt
NLCD	National Land Cover Database
NRCS	Natural Resources Conservation Service
Owner	Summit Lake Solar, LLC.
Plan	Vegetation and Management Plan
Preliminary Development Area	Approximately 1,567.0-acre area that falls entirely within the Land Control Area where Summit Lake Solar, LLC proposes to build the Summit Lake Solar Project facilities.
Project	Summit Lake Solar Project
Project Area	General area surrounding and including the solar energy facility
USDA	U.S. Department of Agriculture
Site	Approximately 1,567.0 acres of the Land Control Area, also referred to as the Preliminary Development Area
Solar Facility	Summit Lake Solar Facility
SSURGO	Soil Survey Geographic Database
Summit Lake	Summit Lake Solar, LLC
USEPA	U.S. Environmental Protection Agency
VMP	Vegetation Management Plan
MNDNR	Minnesota Department of Natural Resources

1.0 GOALS AND OBJECTIVES

Merjent Inc. (Merjent), on behalf of Summit Lake Solar, LLC (Summit Lake), developed this Vegetation Management Plan (VMP) to guide site preparation, develop and install prescribed seed mixes, manage undesirable species, implement erosion and sediment controls, and establish vegetation goals. This VMP incorporates best practices for establishing native vegetation, guided by the Minnesota Board of Water and Soil Resources (BWSR, 2019) and the Minnesota Department of Commerce (2021). Summit Lake's primary vegetation management goals are outlined below, with corresponding steps to achieve each goal.

1.1 Short-Term Goals

Short-term goals are goals applicable to the post-construction establishment phase of the proposed Summit Lake Solar Project (Project) in Years 1 to 5. The general goal is to establish a sustainable, diverse, perennial grassland community, appropriate to site conditions and safe operation, maintenance, and inspection that complies with all permits and regulations pertaining to the Site. The primary short-term goals are:

- Comply with permit conditions for site revegetation, per the Minnesota Pollution Control Agency (MPCA) Construction Stormwater General Permit (General Permit).
- After the first growing season, vegetate at least 70 percent of the Site, and ideally 80 percent of the Site.
- Establish sustainable, low grow and minimal-mow , diverse, perennial grassland community, appropriate to conditions on 70 percent of the Site and comprised of 90 percent native vegetation by Year 5.
- Implement cover crops to effectively assist in establishment of native vegetation, if practicable.
- Manage invasive species and noxious weeds per Minn. Stat., Sections 18.75 to 18.78, and 18.86.
- Install and establish vegetative screening as requested. The landscaping screening area should be established, with limited ongoing plant mortality, within one year of installation. At the end of the establishment phase, 80 percent of the installed shrubs and trees shall be present in the landscaping/screening area.

1.2 Long-Term Goals

Long-term goals are defined as goals beyond Year 5, following implementation of the short-term goals. Summit Lake will implement adaptive management of vegetation cover, guided by strategic integration of site-specific environmental conditions to maintain a perennial grassland community that keeps the soils on the Site stabilized, improves soil conditions and preserves the Site for agricultural use in the future. The primary long-term goals include:

- Maintain 95 percent of the Site in a vegetated state, and at least 90 percent of the cover comprised of native species.

- Establish six or more species of planted native graminoids and 12 or more species of planted native forbs across the Site.
- Establish a Site that is suitable for haying and/or grazing during facility operations, if determined to be a viable management strategy following construction. Accommodate vegetative management of the Site using traditional vegetative management methods for areas not managed by haying or grazing.
- Prioritize the implementation of all required vegetation management activities for safe and efficient operations support, including woody species control, height control of herbaceous species, wet area management, and landscape/screening management.

The Project's vegetation management program is eligible for the Board of Water and Soil Resources (BWSR) Habitat Friendly Solar Program. The Project meets and in some cases exceeds the minimum habitat friendly standards when scored using the Habitat Friendly Solar Site Assessment Form for Project Planning (see Appendix A).

1.3 Vegetation Management Phases

The VMP describes the Establishment, Maintenance, and Long-term Maintenance and Monitoring Phases in detail.

- The Establishment Phase addresses the initial three years of vegetation installation and management. The first year of establishment is focused on consistent undesirable plant control on a Site-wide basis through a variety of management techniques. The second year of establishment continues undesirable plant control, but generally employs more targeted techniques. In the third and fourth years of the Establishment Phase, undesirable plant control will consist of spot treatment to control the remaining small patches of undesirable species.
- The Maintenance Phase, which generally begins in the fifth year after initial seed mix installation, promotes and maintains the desired vegetation community, controls the reestablishment or spread of any undesired species, and combats the establishment of invading trees and shrubs.
- The Long-term Maintenance and Monitoring Phase includes quantitative and qualitative measures to assess how well the Project goals and performance standards are being achieved. During these years, the frequency of maintenance is greatly reduced and dependent on yearly soil moisture and vegetation growth.

2.0 SITE DESCRIPTION

To understand the ecosystem and landform characteristics surrounding the Project, a baseline Site analysis was conducted to inform the appropriate seed mix composition(s), anticipated period(s) of establishment, and maintenance perspectives required for a successful Establishment Phase. The baseline Site analysis consists of a desktop review of publicly available datasets, such as soil characteristics, land use, landform, historical aerial photos, linear hydrology, wetlands, and historical climate data. Additional considerations, such as annual precipitation, weather, and historical climate data inform the likelihood of adequate establishment of propagated seed mixtures.

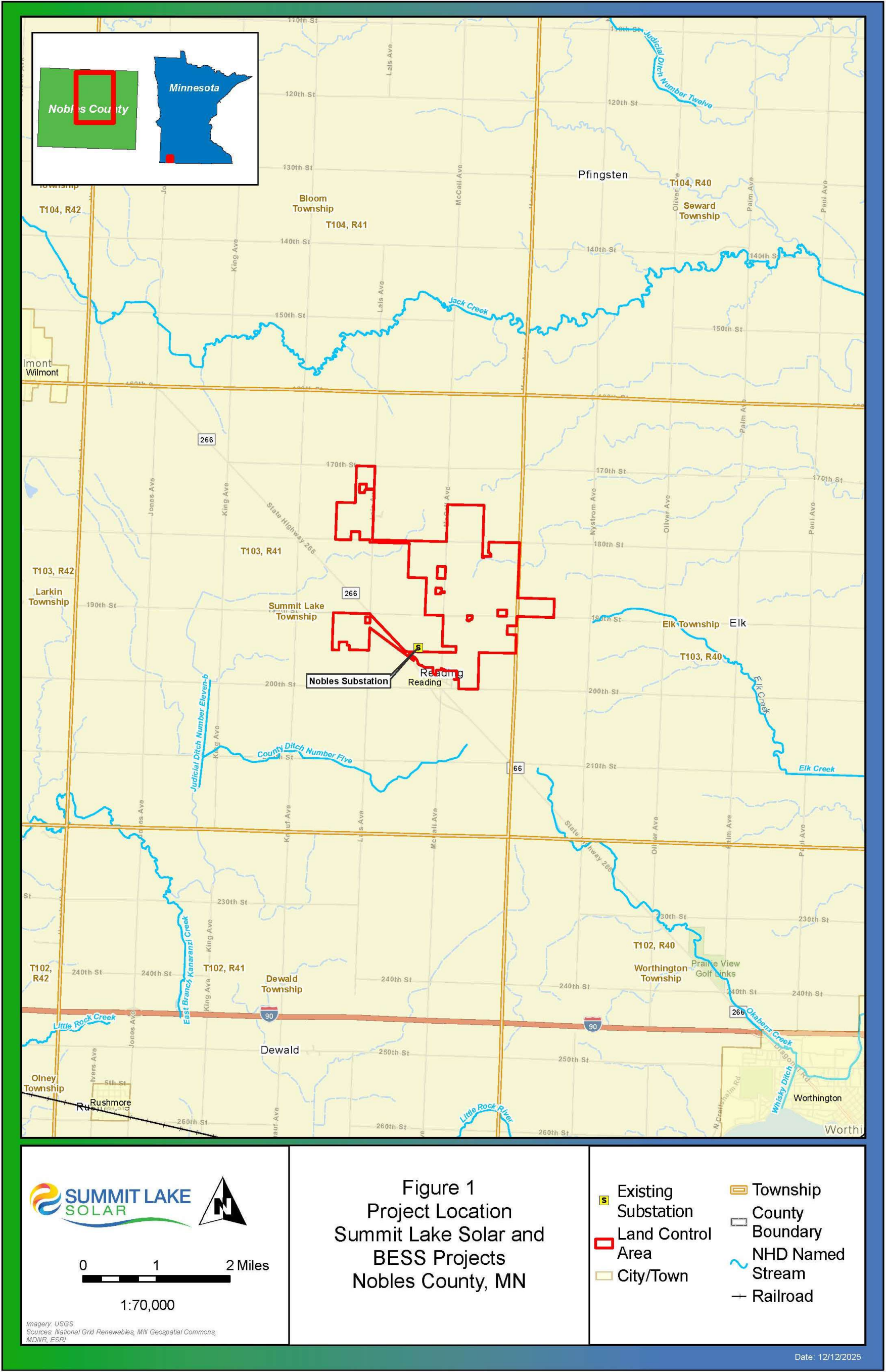
2.1 Project Location and Size

Summit Lake is proposing to build its solar facility in Township 103N, Range 40W, Sections 18 and 19 and Township 103N, Range 41W, Sections 10-15, and 22-24, Nobles County, Minnesota as shown on Figure 1. Summit Lake has obtained leases and purchase options for 1,989.6 acres of privately-owned land (Land Control Area). Based on preliminary design, the Project will cover approximately 1,567.0 acres of the Land Control Area (Preliminary Development Area or Site). There are approximately 422.6 acres of the Land Control Area for which Summit Lake has site control but are not currently contemplated for occupation by the Solar Facility or BESS. The 422.6-acre portion of the Land Control Area that will not be used by the Project is currently under lease with the underlying landowner and will be excluded from the area leased by Summit Lake during operation of the Project. The underlying landowner can then continue to farm the area released from the lease for the life of the Projects. The total nameplate capacity for the Solar Facility is 200 MW and the BESS is 200 MWac.

2.1.1 Vegetation and Land Use

Prior to Euro-American settlement, vegetation in this area was almost entirely tallgrass prairie. Wet prairies were restricted to narrow stream margins and forests were similarly restricted to ravines along a few streams, such as the Redwood River. Land in this area is currently used for agricultural activity and there are few remnants of pre-settlement vegetation left (Minnesota Department of Natural Resources [MNDNR], 2024).

Based on the National Land Cover Database (NLCD) land use/cover data as presented in Table 2.1.1-1 and Figure 2, the Preliminary Development Area would affect predominately agricultural land (1,557.6 acres/99 percent). Developed lands make up approximately 8.8 acres/0.06 percent of the Site. Herbaceous and barren lands consist of less than 0.1 percent of Project-related impacts, respectively. In addition, the NLCD data indicate potential wetland impacts; these impacts are further discussed in Section 2.1.4.



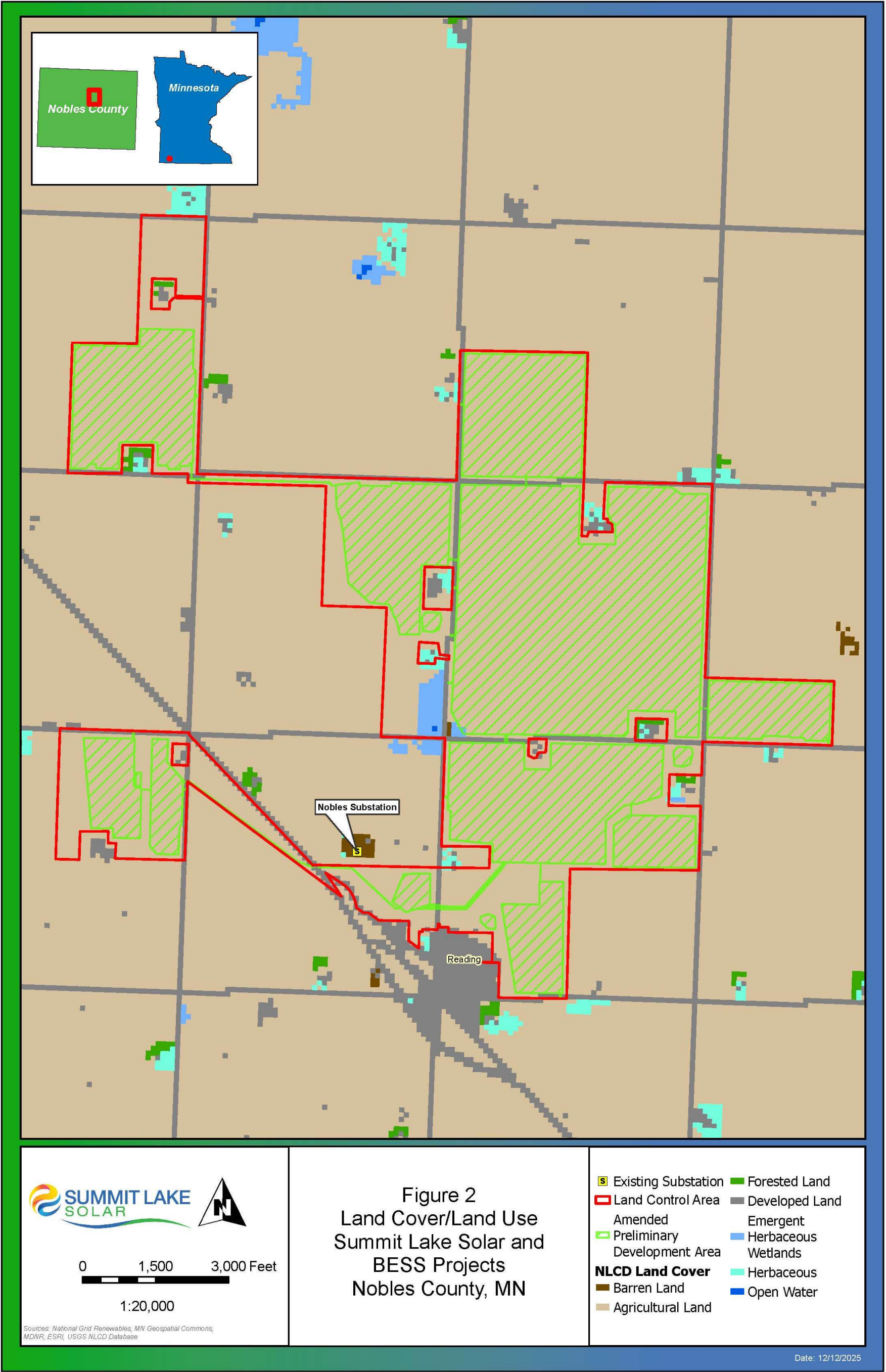


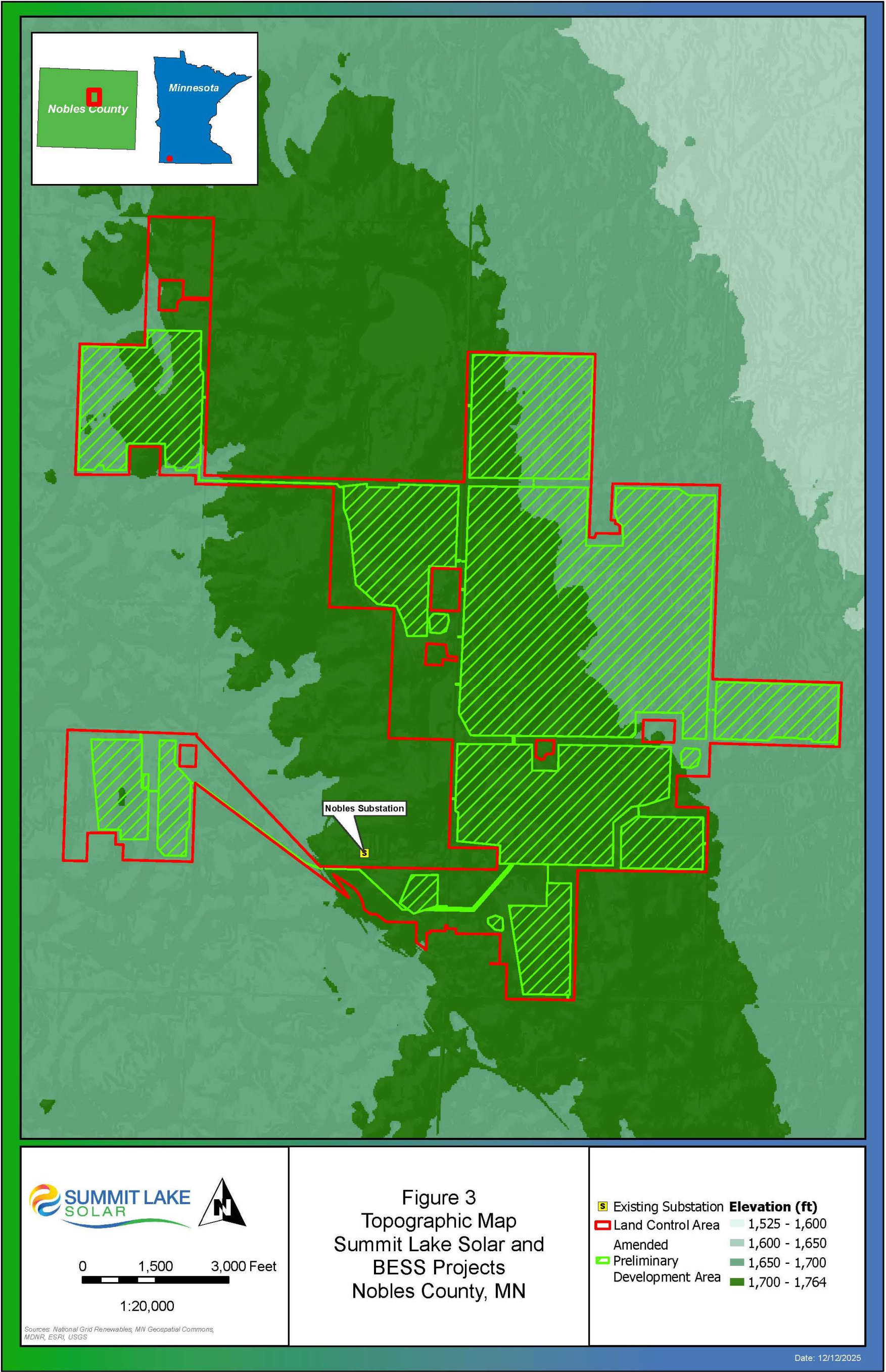
TABLE 2.1.1-1		
Land Use within the Preliminary Development Area		
Land Use Type	Acres in Preliminary Development Area	Percent of Preliminary Development Area
Agricultural ^a	1,557.6	99.4%
Developed	8.8	0.6%
Forested	--	--
Herbaceous	0.1	< 0.1%
Emergent Herbaceous Wetlands	0.5	< 0.1%
Barren Land	< 0.1	< 0.1%
Open Water	--	--
PROJECT TOTAL	1,567.0	100%
^a Agricultural land consists of the NLCD categories cultivated cropland and hay/pasture. Source: Dewitz and U.S. Geological Survey, 2021. Note: A double dash indicates that this land use/cover category is not present in the Preliminary Development Area.		

In the NLCD data used for Summit Lake’s environmental analysis agricultural land is used for row-crop production of predominantly corn and forage crops. Developed land generally consists of public roads, and a few small areas around the municipal boundary of Reading. The small amount of barren land identified in the NLCD data is associated with a roadside ditch along McCall Avenue.

2.1.2 Topography

The Project is located in a region characterized as a transition from shallow deposits of windblown silt (loess) over glacial till to deeper deposits of loess. The depth to bedrock is 600 to 800 feet through most of the Land Control Area. Soils are loamy and well-drained with thick dark surface horizons (MDNR, 2024).

The Land Control Area is relatively flat in gradient (see Figure 3) due to the overall historic topographical range and mass grading operations to facilitate current agricultural practices. The mean annual precipitation of the Land Control Area averages 24 to 32 inches and hosts a frost-free period of 155 to 175 days per year (MDNR, 2024). See Appendix B to reference historical climate data.



2.1.3 Soil Characteristics

An important factor that influences revegetation is the soil characteristics. A full understanding of the affected soil profiles on a project provides insight into vegetative growth, compaction, erosion, and the types of equipment required to implement seeding requirements. A soil analysis determines the ground's slope, hydric and flooding capabilities, and overall vegetative parameters for seed root penetration.

Soil characteristics within the Land Control Area (which is inclusive of the Site) were assessed using the Soil Survey Geographic Database (SSURGO) (Soil Survey Staff, 2024). The SSURGO database is a digital version of the original county soil surveys developed by Natural Resources Conservation Service (NRCS) for use with geographic information system (GIS). It provides the most detailed level of soils information for natural resource planning and management. Soil maps are linked in the SSURGO database to information about the component soils and their properties (U.S. Department of Agriculture [USDA], NRCS, 2024). Table 2.1.3-1 lists the soil types located within the Land Control Area, which are also shown on Figure 4.

Approximately 40.8 percent of the Land Control Area is underlain by hydric soils or soils containing hydric inclusions, indicating some wetlands are likely to be present as one of many wetland characteristics is hydric soil (see Section 2.1.4). All soils in the Land Control Area have low to moderate susceptibility to erosion by water (i.e., K-factors from 0.1 to 0.4). All soils in the Land Control Area are in Wind Erodibility Group (WEG) 3, 4, 4L, 5 or 6. WEG values of 3, 4, 4L, and 5 correspond to Wind Erodibility Indices of 86 tons/acre/year, and WEG values of 6 correspond to 48 tons/acre/year (USDA, NRCS, 2024).

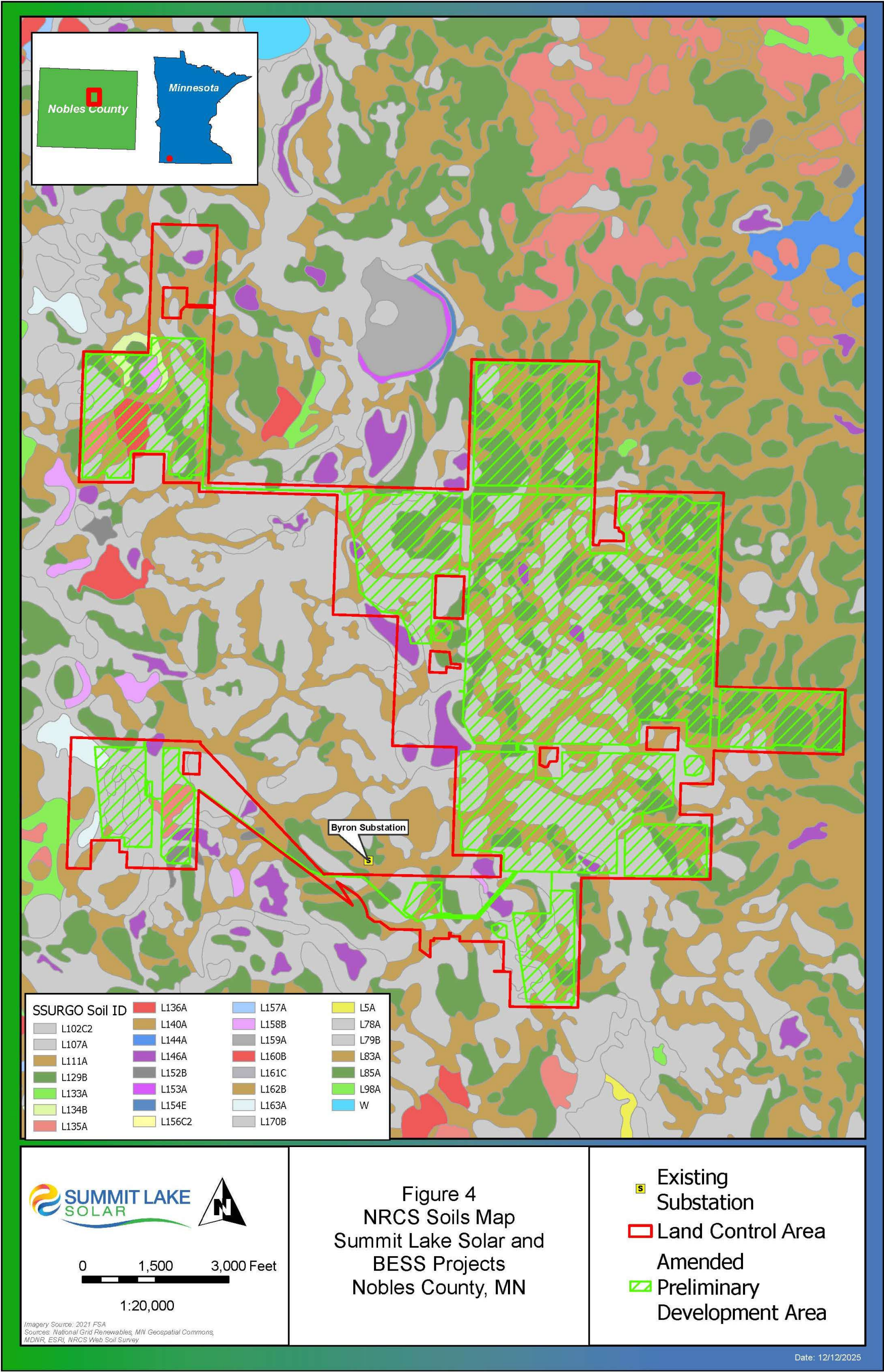
Soils prone to compaction and rutting are subject to dramatic and adverse changes in soil porosity and structure as a result of mechanical deformation caused loading by equipment during construction. Compaction and rutting are related to moisture content and texture and are worse when medium and fine textured soils are subject to heavy equipment traffic when wet. Soils in the Land Control Area are prone to compaction and rutting.

TABLE 2.1.3-1

Summary of Soils within the Land Control Area

Map Unit Symbol	Soil Name	Land Control (acres / %)	Farmland Designation	Hydric Soil	K-Factor	Wind Erodibility Group
L78A	Canisteo clay loam, 0 to 2 percent slopes	138.7 / 7.0%	Prime farmland if drained	Yes	.28	4L
L107A	Canisteo-Glencoe complex, 0 to 2 percent slopes	11.0 / 0.6%	Prime farmland if drained	Yes	.28	4L
L79B	Clarion loam, 2 to 6 percent slopes	645.6 / 32.4%	All areas are prime farmland	No	.24	6
L134B	Clarion-Crooksford complex, 1 to 5 percent slopes	8.4 / 0.4%	All areas are prime farmland	No	.28	6
L102C2	Clarion-Storden complex, 6 to 10 percent slopes, moderately eroded	18.5 / 0.9%	Farmland of statewide importance	No	.28	6
L136A	Crooksford silty clay loam, 1 to 3 percent slopes	15.9 / 0.8%	All areas are prime farmland	No	.32	6
L170B	Estherville-Round lake complex, 2 to 6 percent slopes	24.9 / 1.3%	Farmland of statewide importance	No	.20	3
L146A	Glencoe silty clay loam, 0 to 1 percent slopes	38.7 / 1.9%	Prime farmland if drained	Yes	.28	6
L152B	Lowlein-Round lake complex, 1 to 6 percent slopes	5.1 / 0.3%	All areas are prime farmland	No	.20	5
L85A	Nicollet clay loam, 1 to 3 percent slopes	421.3 / 21.2%	All areas are prime farmland	No	.28	6
L140A	Ocheda silty clay loam, 1 to 3 percent slopes	9.0 / 0.5%	All areas are prime farmland	No	.28	4
L135A	Okabena silty clay loam, 1 to 3 percent slopes	19.1 / 1.0%	All areas are prime farmland	No	.32	6
L163A	Okoboji silty clay loam, 0 to 1 percent slopes	11.6 / 0.6%	Prime farmland if drained	Yes	.32	4
L158B	Round lake sandy loam, 1 to 6 percent slopes	6.2 / 0.3%	Farmland of statewide importance	No	.20	3
L129B	Terril loam, 2 to 6 percent slopes	3.6 / 0.2%	All areas are prime farmland	No	.28	6
L133A	Waldorf silty clay loam, 0 to 2 percent slopes	2.0 / 0.1%	Prime farmland if drained	Yes	.32	4
L83A	Webster clay loam, 0 to 2 percent slopes	610.2 / 30.7%	Prime farmland if drained	Yes	.28	6
PROJECT TOTAL		1,989.6 / 100.0%				

Source: Soil Survey Staff, 2024.



Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, and oilseed crops, and is also available for these uses (the land could be cropland, pasture, woodland, or other lands). Urbanized land and open water cannot be designated as prime farmland. Prime farmland typically contains few or no rocks, is permeable to water and air, is not excessively erodible or saturated with water for long periods and is not subject to frequent or prolonged flooding during the growing season. Soils that do not meet the above criteria may be considered prime farmland if the limiting factor is mitigated (e.g., by draining or irrigating) (USDA NRCS, 2024).

The NRCS also recognizes farmlands of statewide importance, which are defined as lands other than prime farmland that are used for production of specific high-value food and fiber crops (e.g., citrus, tree nuts, olives, fruits, and vegetables). Farmlands of statewide importance have the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed according to acceptable farming methods. Farmland of statewide importance is similar to prime farmland but with minor shortcomings such as greater slopes or less ability to store soil moisture. The methods for defining and listing farmland of statewide importance are determined by the appropriate State agencies, typically in association with local soil conservation districts or other local agencies.

As shown in Table 2.1.3-2, all of the soils within the Preliminary Development Area (Site) are classified as prime farmland, prime farmland if a limiting factor is mitigated, or farmland of statewide importance; however, it is important to note that the prime farmland designation is independent of current land use (USDA NRCS, 2024).

TABLE 2.1.3-2	
Farmland Classifications within the Preliminary Development Area	
Farmland Classification	Preliminary Development Area (acres / %)
Prime Farmland	933.1 / 59.5%
Prime Farmland if Drained	604.7 / 38.6%
Farmland of Statewide Importance	29.2 / 1.9%
Not Prime Farmland	0.0 / 0.0%
PROJECT TOTAL	1,567.0 / 100.0%
Source: Soil Survey Staff, 2024.	

For additional information regarding soils, best practices for segregation of topsoil and subsoil, as well as decompaction methods that will foster long term soil health and vegetative outcome success, refer to the Agricultural Impact Mitigation Plan (AIMP). The contractor is encouraged to visit the NRCS web soil survey to review detailed information about the soils across the Site in more detail.

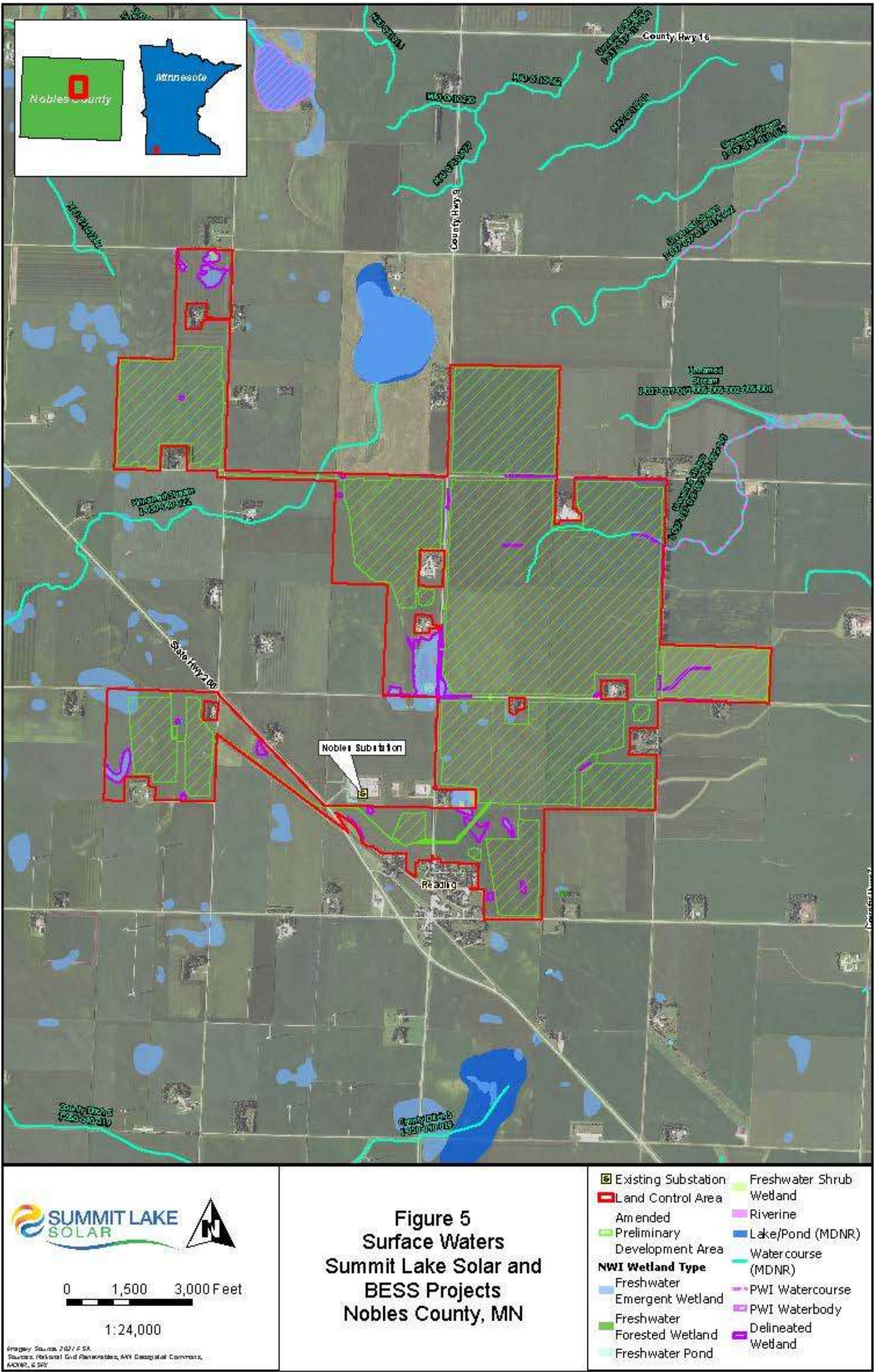
2.1.4 Hydrological Characteristics

The hydrology of a site proposed informs the locations where specific seed mixes may need to be developed, along with the parameters for implementation. Upland and lowland/wetland/riparian seed mixes can greatly differ in seeding species, rates, application techniques, and timing when considering how much water, saturation, or inundation a vegetation species can tolerate.

Hydraulic features within the Land Control Area include wetlands, waterways, and waterbodies. The Project is within the Des Moines River – Headwaters and Rock River Hydrologic Unit Code 8 Watersheds (U.S. Environmental Protection Agency [USEPA], 2023a).

Tetra Tech, Inc, conducted wetland and other waters delineations in 2023 and 2024 within the Land Control Area. Based on field delineations, 34 wetlands totaling approximately 48.66 acres were delineated within the Land Control Area. In addition, Judicial Ditch Number Nine is located in the northeast portion of the Land Control Area and East Fork Beaver Creek is located in the southwestern portion of the Land Control Area (see Figure 5).

The Project has been designed to minimize impacts to surface waters to the extent practicable. Impacts to waterbodies are not anticipated. The electrical collection and communication lines intersect approximately 0.09 acres of wetlands. These wetlands will be bored to avoid impacts. The access roads within the Solar Facility intersect approximately 0.02 acres of delineated wetlands. In addition, 6.2 acres of wetlands are located within the fenced solar facility; however, will not be impacted by any Project components. These wetlands are all currently farmed and will be enhanced through seeding and management as identified in this Plan.



3.0 MANAGEMENT UNITS

The Site is anticipated to be separated into smaller construction and management units for a common point of communication in management. For ease of reference, the management units will likely be designated by the array block numbering system already established as a part of the final engineering process. Each array block, which consists of an approximately 10- to 20-acre area of panels, is designated per the direct current (DC) collection system from the solar modules to a common inverter. Using an array block is a common point of understanding for onsite managers to quickly and effectively communicate the area undergoing final Site stabilization, requiring noxious weed treatment, or other vegetation management needs. As restoration progresses, a more simplified set of management units may be established by aggregating array blocks into larger units. This will be determined by onsite managers based on Site outcomes and monitoring reports.

Generally, three distinct types of management are possible on the Site. These include the possibility of haying, mowing, or grazing, and these methods are laid out in more detail later in the plan. This Plan has been drafted to allow a 'scaling' of each management measure based upon availability at the time such a management measure could be deployed. The goals and objectives for each management unit are the same and are provided in Section 1.0 of this Plan.

4.0 VEGETATION INSTALLATION

4.1 Site Preparation and Vegetation Clearing

Prior to vegetation installation, management techniques can be used that will lead to more successful vegetation establishment for the short- and long-term goals. Most of the soil and vegetation disturbances will occur during the first phase of construction when the grading activities take place. The construction contractor will follow the recommendations of the AIMP to ensure that best practices are used during construction and to prepare the Site for final stabilization. Additionally, to stabilize the soils, existing vegetation or plant material will be retained on the surface in areas that do not need to be graded. Any topsoil that is stripped or otherwise stockpiled during construction will be replaced and spread or otherwise stockpiled prior to seed bed preparation activities. Recommendations for weed control and implementation of cover crops to assist in Site stabilization prior to construction are provided in Section 5.1.

Following soil disturbing activities, any compacted areas, such as laydown areas, heavily travelled corridors, or portions of the access road corridors that were used as temporary roadbeds will be decompacted as described in the AIMP.

4.1.1 Seeding Contractors Qualifications:

Seeding contractors must possess a minimum of five years of experience in native seed installation, with specific expertise in utility-scale solar projects in Minnesota or the Upper Midwest. Contractors are required to provide references that demonstrate their capability to successfully execute similar projects, including vegetation establishment under and around solar panels.

4.1.2 Permanent Seeding Prior to Solar Installation

There are two permanent seeding timing options to consider. One option is to complete seeding prior to the installation of solar infrastructure. This approach offers several advantages.

Establishing vegetation early provides immediate ground cover that helps reduce potential erosion, stabilize soils, and improve stormwater infiltration before construction activity begins. Early establishment also helps suppress early-stage weed growth, reducing long-term vegetation management needs once the site is operational.

Seeding before solar installation also improves construction efficiency. With no racking, panels, or underground electrical components to work around, the restoration contractor can move freely across the site, which shortens implementation time and reduces labor costs. Heavy equipment can operate more safely and effectively without the risk of damaging installed solar components. In areas with highly compactible soils, vegetative establishment ahead of construction can also improve soil structure and root development, providing a better growth medium once permanent vegetation is required under and around panels.

An additional benefit is reduced dust generation during construction, particularly on large sites with sandy or exposed soils. Established vegetation acts as a natural dust suppressant, improving visibility and safety while protecting nearby properties and sensitive resources. Early seeding may also help delineate work zones and minimize off-corridor disturbance by providing a visible, stable surface.

The primary disadvantage is the potential need for supplemental or repeated seeding in areas that experience heavy construction traffic or disturbance during panel installation. However, these areas are typically localized and can be efficiently addressed during final stabilization.

Permanent seeding should occur two to three months ahead of the installation of solar panels to allow the vegetation to establish. Prior to seeding, an herbicide treatment is recommended to treat undesired plant species and noxious or invasive weeds. Soil tillage can create an optimal seed bed and may be required at select locations based on soil profiles. If tillage occurs, rock picking may be required for rock equal to or larger than four inches in diameter. If tillage is necessary, seeding options include Brillion, Trillion, broadcast, or drill seeding. With most of the land currently being farmed, it is anticipated that drill seeding directly after herbicide treatment will be adequate for a large portion of the Site. The seeding method will be determined at the time of installation and will be dependent on soil conditions, weather, and time of year. If tillage is not needed, the vegetation may need to be mowed once depending on the height and density of the vegetation during seed installation.

During solar installation, there is a likelihood that portions of the Site will require reseeding. To minimize seedling disturbance, it is recommended that specialized low-impact equipment and/or construction mats be used on heavily traveled areas during construction to minimize soil compaction.

4.1.3 Permanent Seeding After Solar Installation

The other permanent seeding option occurs after the solar panels are installed. This creates challenging seeding conditions and requires specialized equipment and more time to complete. The advantage of this method is that only one mobilization for the restoration contractor is required and no reseeding due to construction activities will be required.

4.2 Temporary Seed Mixes

A temporary cover crop will help mitigate erosion, decrease the need for erosion control devices, increase soil moisture, and suppress weed growth. Cover crops assist in Site stabilization during

construction activities and are especially helpful in areas that do not require grading activities. Early season cover crop installation is typically seed oats (*Avena sativa*), but Summit Lake will work with the Project Contractor/s to select the best option. A cover crop will not be planted prior to construction unless there is adequate time between the start of the growing season and the start of construction for the cover crop to grow to a sufficient height to provide soil surface protection during construction. Cover crop recommendations vary by location and season; however, oats and/or winter wheat (*Triticum aestivum*) are recommended for Nobles County. Suggested cover crop seeding rates per season are given in Table 4.2-1 below.

TABLE 4.2-1			
Temporary Cover Crops			
Season	Seed	Seeding Rate as Nurse Crop ^a	Seeding Rate as Cover Crop ^a
Spring and Summer	Oats (<i>Avena sativa</i>)	16-32 pounds/acre	96
Fall	Winter Wheat (<i>Triticum aestivum</i>)	10-60 pounds/acre	90-120
Fall	Cereal Rye (<i>Secale cereale</i> L.)	10-60 pounds/acre	90-120
^a Seed rates are based on drill seed application and will vary based on site-specific conditions, final seed mix, and seasonal considerations.			

4.3 Seeding Timing

An optimal planting time for native species is in the fall (October to November). A fall planting allows seeds to naturally go through the cold stratification process, which many native species need to break dormancy (University of Minnesota Extension, n.d.). Spring planting can occur between and early spring (April to early May). In their *Native Vegetation Establishment and Enhancement Guidelines*, BWSR encourages monitoring soil temperatures and adjusting planting schedules based on local conditions (2022).

Below is breakdown of seeding recommendations based on time of year:

- Spring Seeding: May 1 to July 1 when soil temperatures are at least 60 degrees Fahrenheit or higher.
- Fall Seeding: Should occur when soil temperatures fall below 50 degrees Fahrenheit for a consistent period of time (usually around November 1).
 - Fall dormant seedings can help reduce weed pressure during the first year of growth because cool-season grasses and forbs germinate earlier and start competing with weed species right away. Frost seedings are also an option if the snow cover is not too deep.
 - For a frost seeding, seeding rates may need to be increased by 25 percent due to lower germination rates and loss of seed that is consumed by wildlife over the winter months.

If Site preparation and grading is completed between the summer and early fall, dry soils may pose a challenge and require deeper soil tilling to create a good seed bed. If delaying seeding until late fall is an option, a temporary cover crop will be planted after construction is complete (see Section 4.2). Installation of a temporary cover crop will help mitigate erosion, reduce the

requirement for sediment control structures, and suppress weed growth. Recommended applications of temporary cover crops vary by season, as described in Table 4.2-1 above.

A late fall or winter seeding is referred to as dormant seeding. When seeding in late fall the seeding is timed to avoid germination. To prevent seed germination, seeding should occur after soil temperatures fall below 50 degrees Fahrenheit for a consistent period. Seeding that occurs before the soil is frozen is planted with a shallow-seeding drill. When seeding after soils have frozen, a broadcast seeder is used since the freeze-thaw cycle in winter causes soil cracks to open and draw seed into the soil (BWSR, 2022).

4.4 Permanent Seed Mixes

Reestablishing native vegetation can serve multiple purposes, including soil stabilization, reducing erosion, lessening the sediment load to any nearby ditches or streams, increasing nutrient retention through deep root systems, carbon sequestration, and providing wildlife habitat. A mixture of native grasses that includes forbs will produce a high-quality prairie habitat that is more resilient to drought, pests, and disease than monoculture grasslands or low diversity vegetation stands.

An **Array Mix** is used to establish vegetation within the solar arrays, as shown in Figure 6. This seed mix will consist of short-statured (< 24 inches) grasses, sedges, and forbs adapted to full sun and partial shade and may include flowering species that bloom in spring and summer. Outside of the arrays and to the fence line, a **Perimeter Mix** is used (see Figure 6). This seed mix contains greater plant diversity and provides increased benefit to pollinators. A diverse mix of forbs and grasses in the perimeter will provide natural screening of the array and could include flowering species across the spring, summer, and fall. A **Wetland Mix** is used in moist soil conditions and selected species will tolerate damp soil environments (see Figure 6). This seed mix will consist of medium length grasses, sedges, and forbs that are flowering and adapted to full sun and partial shade.

Specific species were selected that align with local climate and particular soil conditions found throughout the Site, as identified in Appendix C, and on the seeding plan (see Figure 6). The seed mixes were tailored to the regional soil conditions, each incorporating a unique selection of low-growing, low-maintenance prairie grasses and forbs adapted to the Project region. The genetic source origin of all native seed must be local, preferably sourced within a 150-mile radius of the Site. Plant species should be native to Nobles County (BWSR, 2019), though considerations of range shifts due to climate change may necessitate adjustments to this guidance. Species shall be true to their scientific name as specified in Appendix C. Seed tags or nursery confirmation of the order must be provided to Summit Lake prior to installation. Any species eliminations, substitutions, or source origin exceptions must be approved by Summit Lake prior to installation. If necessary, seeds shall be properly stratified and/or scarified to break seed dormancy. If applicable, all legumes shall be inoculated with proper rhizobia at the appropriate time prior to planting.

The Array Native Seed Mix includes grasses, sedges, and forbs that are low growing (24 inches and less), will not impact the operation of the solar arrays, and are adaptable to full sun and partial shade. In addition, the Array Native Seed Mix offers a diverse variety of forage species suitable for sheep grazing. Outside of the arrays, a Perimeter Native Pollinator Seed Mix will be used. The Perimeter Seed Mix is more diverse and includes grasses, sedges, and forb species of greater height (30 inches and less) which provide increased benefit for high quality prairie and pollinator habitat. In addition, the Perimeter Native Pollinator Seed Mix offers a diverse variety of forage

species suitable for sheep grazing. Seeding of temporary and permanent sediment basins, as well as contractor laydown yards or other disturbed areas if included in final Contractor design, may require additional seed mixes suitable to those applications to ensure appropriate vegetation coverage and viability. All substitutions shall meet the parameters discussed above in section 4.4.

4.5 Seed Mix Substitutions

Procurement of seeds can be difficult to obtain in quantities necessary for large solar sites. Sourcing of proposed seed mixes should be done as soon as practicable. Substitutions to seed mixes will be completed by a qualified professional with sufficient botanical experience in identifying native plants, native plant communities, invasive species, and non-native species typical of Minnesota. Any substitution will be approved by Summit Lake prior to implementation, and substitutions will have no effect on the short- and long-term goals of this Plan.

For consistency in management across the Site, it is desired that the uniform seed mix recommended in the plan be used. However, should sourcing issues arise, Summit Lake has developed alternative species to use should procurement be problematic. Seed mix substitutions are listed beneath each seed mix shown in Appendix C.

4.6 Seed Installation

Native seeds require special considerations related to planting depth and application method. Many native grasses and larger-seeded forbs require a shallow planting depth of 0.125 inch to a maximum depth of 0.25 inch. For small seeds, 0.125 inch is the maximum depth and surface sowing is the ideal method. Equipment may require modification so the small seed is not drilled at all, but dropped on the surface, as some seeds planted too deep may never be able to emerge. Depending on site conditions and timing of seeding, a variety of specialized seeding methods will be considered on a site-by-site basis; the Contractor shall evaluate the site and determine which technique will produce the best results. Seeding options include drill, Brillion, Trillion, and broadcast seeding. Equipment capable of handling seeds of varying sizes is required. Drill seeding typically produces higher observed plant density, so broadcast seeding may require an increased seeding rate or overseeding during the establishment period to achieve performance standards. Seed installed into a previous cover crop or other vegetation must be installed with a seed drill. Prior to installation, seed shall be divided into two equal parts. The first half shall be installed in one pass, and the second half installed in a second pass (perpendicular to the first pass, where possible). In areas where broadcast seeding is employed, raking, harrowing, or culti-packing of seeded areas shall be used to ensure good seed-to-soil contact. After seeding, an application of mulch will be required to prevent erosion and promote seed germination.

The topography and soil analysis indicate elevated erosion potential across approximately half of the project area, particularly within zones characterized by steeper slopes, high K-factors, and increased wind exposure. To address these conditions, Summit Lake designed targeted stabilization measures to minimize soil loss and promote sustainable vegetative cover. High-risk areas will receive enhanced treatments, including crimping, hydromulching with tackifier, or application of erosion control blankets, as appropriate to site conditions. Seeding activities will be conducted using no-till or conventional drilling methods that follow existing land contours to reduce surface disturbance and runoff potential. Additional measures will be addressed in detail within the Stormwater Pollution Prevention Plan (SWPPP).

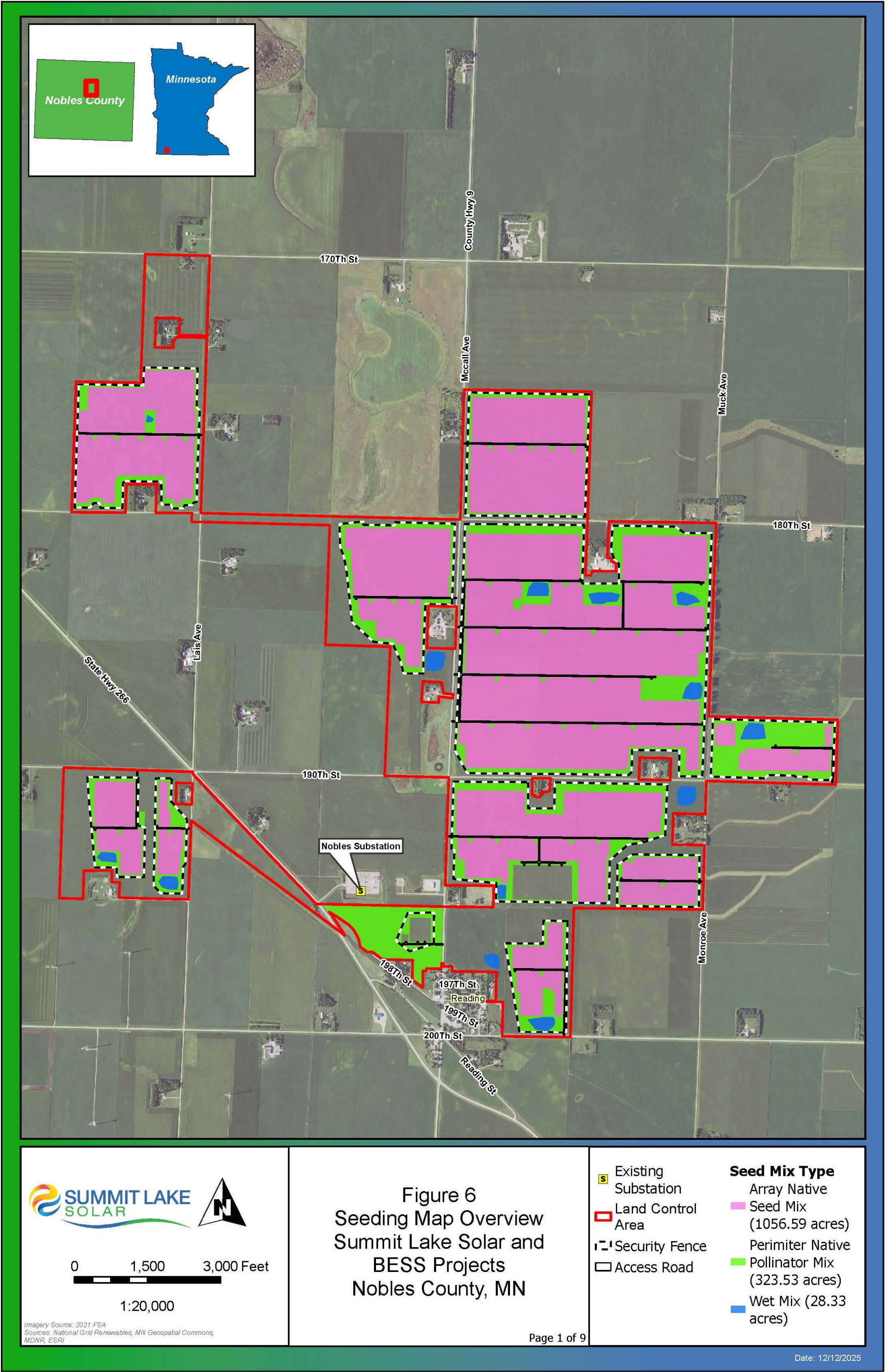
If a cover crop has been installed at any time during the calendar year, native seed mixes must be installed the same year with a fall dormant seeding, unless the Summit Lake gives permission

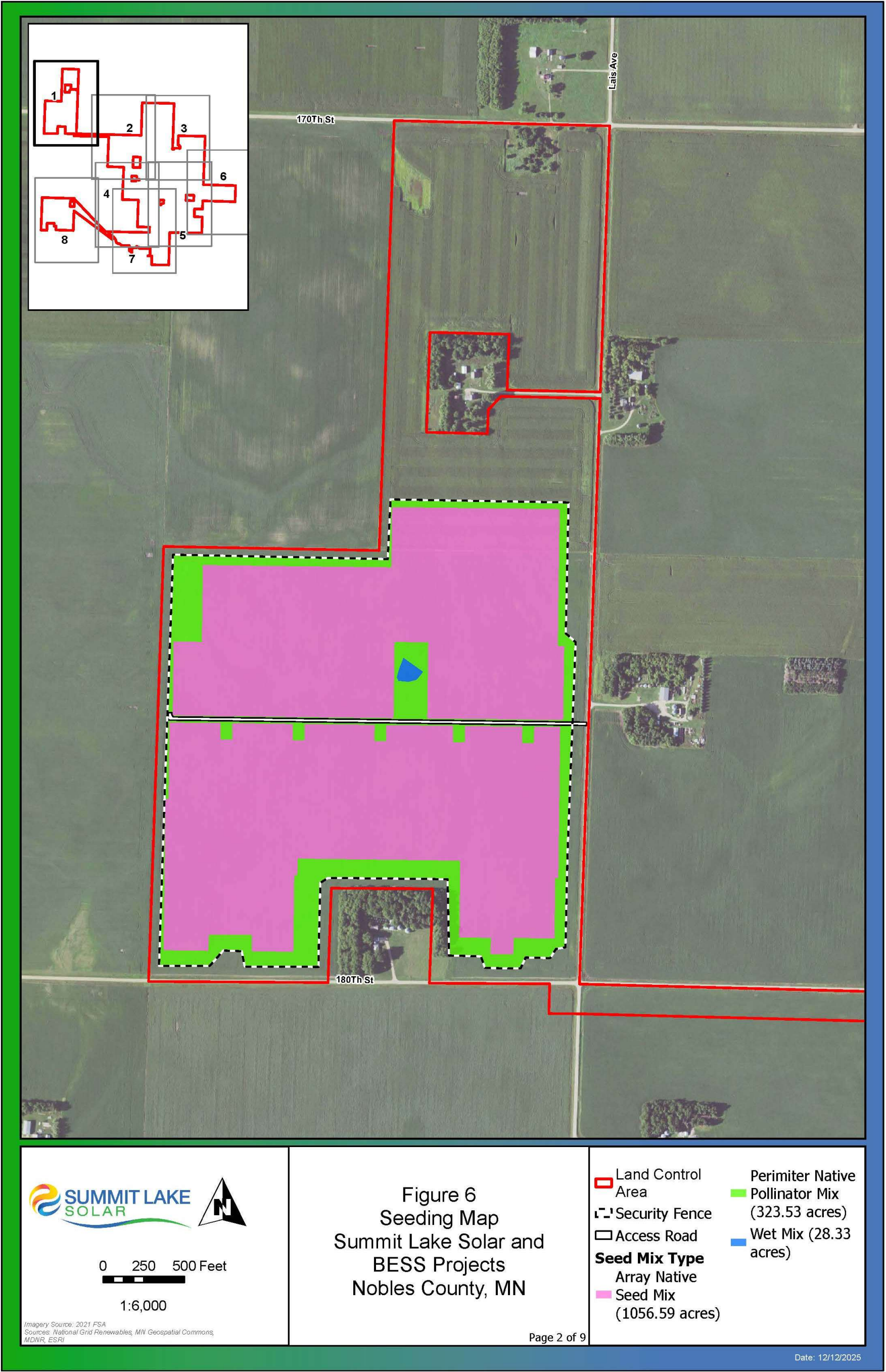
to the Contractor for a spring seeding. Prior to seeding into a cover crop, the Contractor shall evaluate the planting area and determine if any preparation is required prior to installation. Mowing may be required if the cover crop is too dense/robust. All native seeding into a cover crop must be completed by drill seeding.

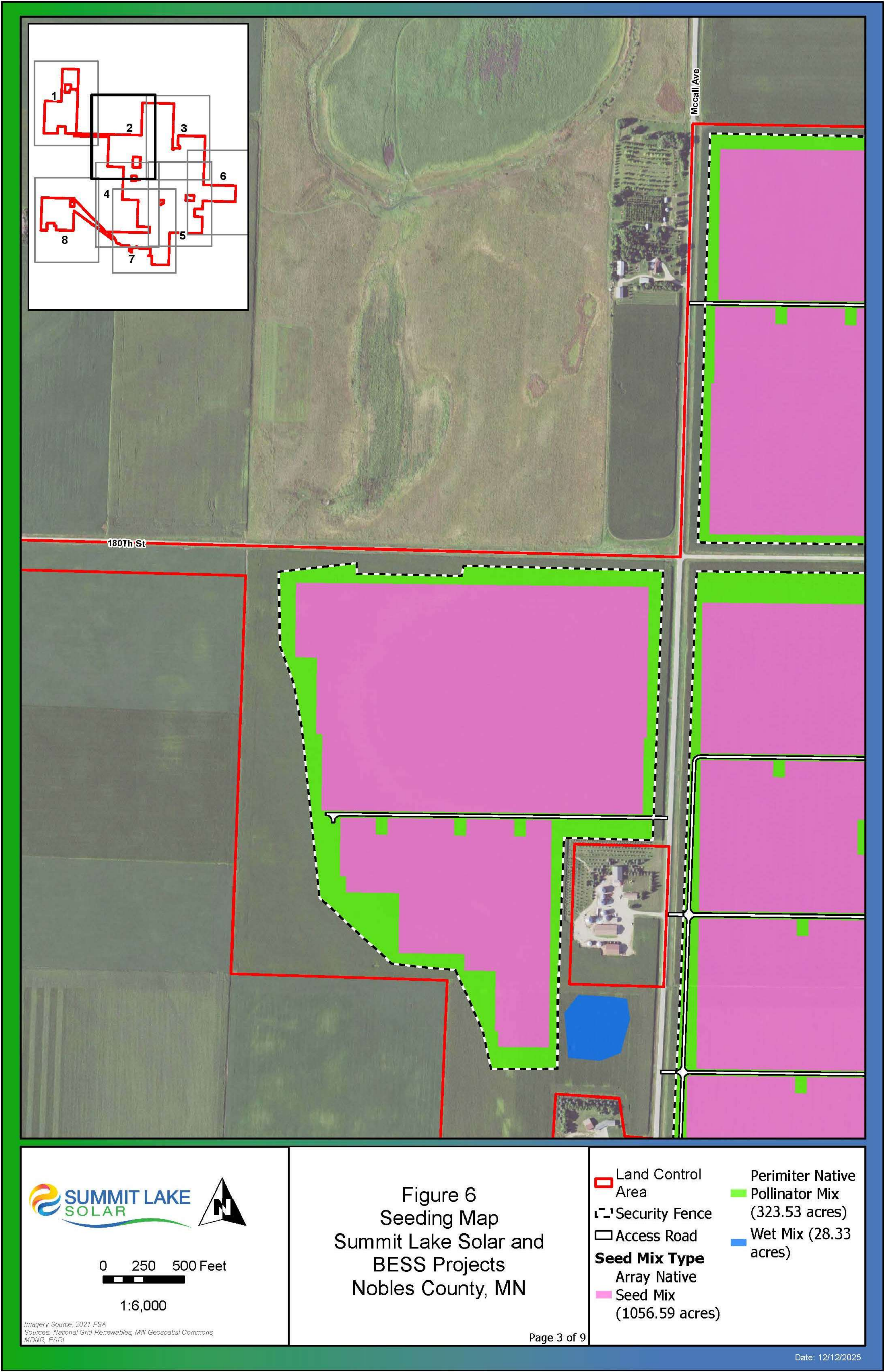
4.7 Soil Amendments

A preliminary desktop evaluation of the soil substrates within the Site determined it was unlikely that lime or fertilized implementation will be required to adequately restore soils and achieve vegetation goals.

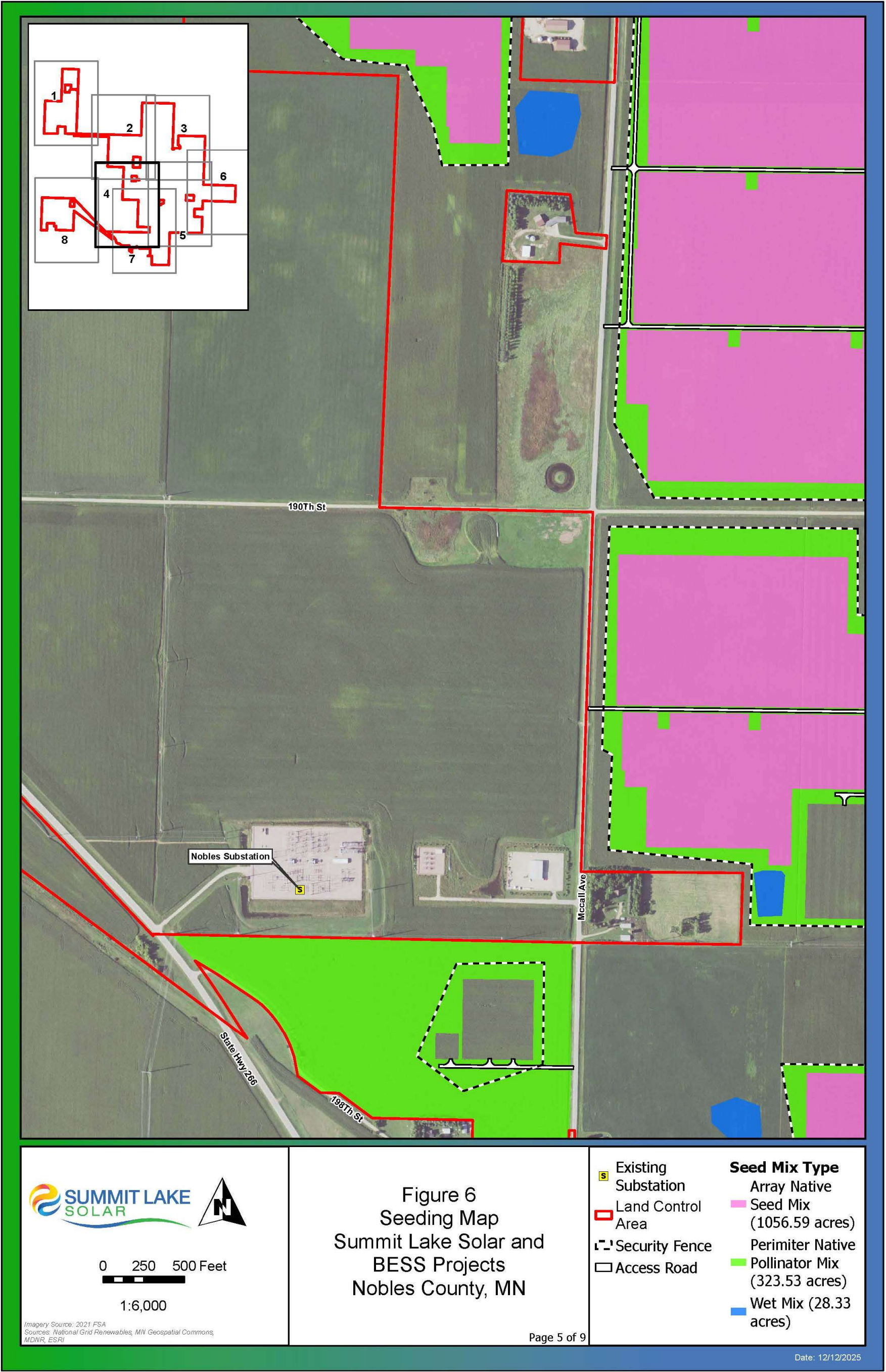
It is recommended to conduct soil sampling to confirm soil profiles and determine if soil amendments are warranted.







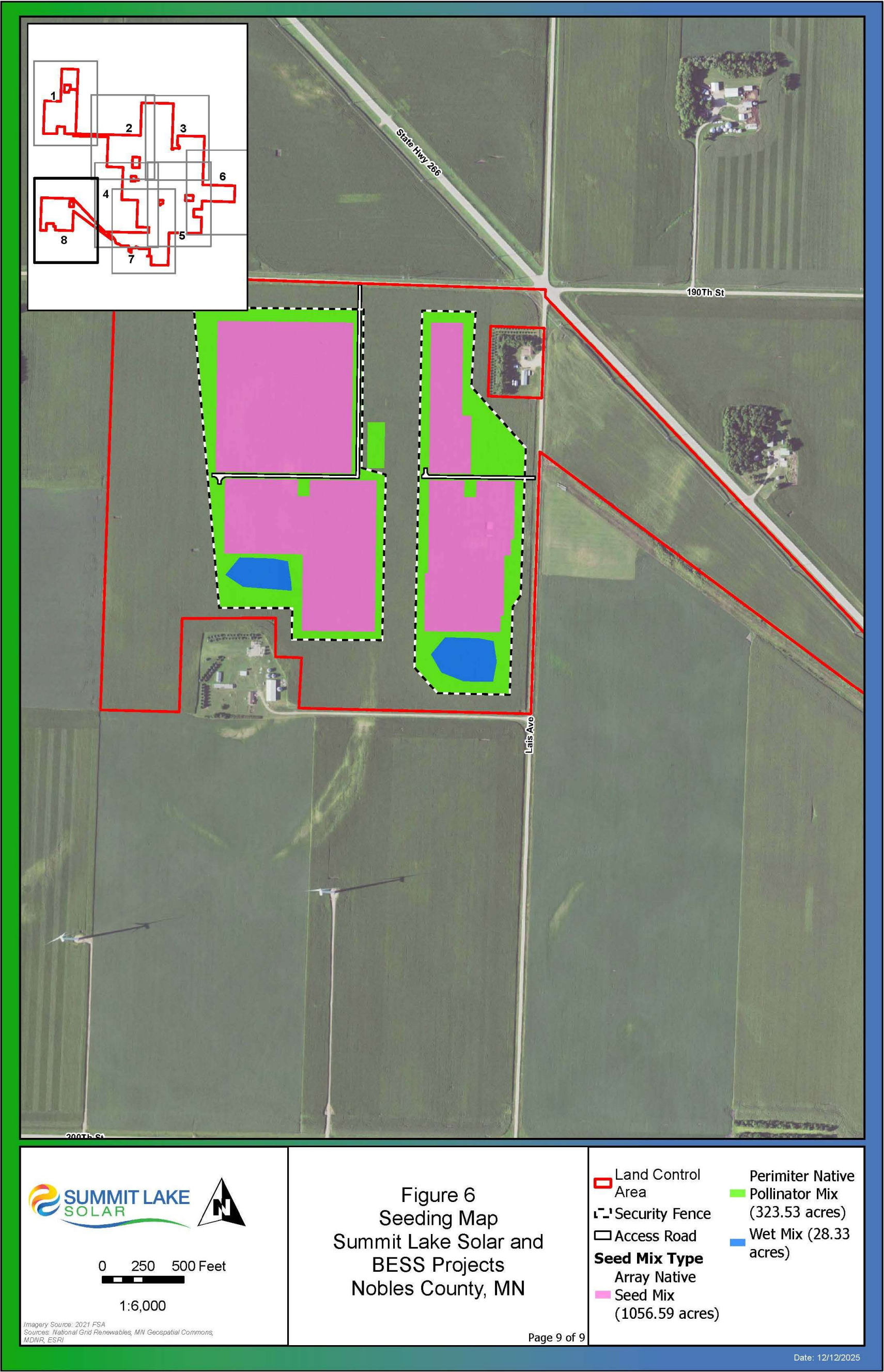












4.8 Wet Weather Considerations

During seed installation, certain activities may be suspended in saturated soil conditions. Rainfalls between 0.25 and 0.5 inch could have the potential to cause soil rutting. If rutting occurs, the contractor will cease work in rutting-prone areas until site conditions improve. Weather forecasts will be monitored daily to help determine if above rainfall amount is anticipated during seed or solar panel installation. Construction site managers will ultimately decide if wet weather shutdown is necessary. Incidental damage, such as tire ruts, should be repaired in accordance with the General Permit.

4.9 Pesticide Drift

During the establishment phase, Summit Lake will contact each owner of land surrounding the Site to inform them of the native plants planted pursuant to this Plan, the likely use of the vegetation by pollinators and the need to avoid and minimize pesticide drift from land that is adjacent to the Land Control Area. The installation of access roads on the periphery of the entire Project Area will operate as a buffer from potential pesticide spraying adjacent to the Land Control Area.

4.10 Landscape Screening

The Project may involve landscape screening as a requirement through the regulatory process or landowner requests. This may include a combination of planted trees and shrubs to block the view from roads or nearby landowners. This Plan will be updated with additional landscape screening requirements once available.

5.0 VEGETATION MANAGEMENT

5.1 Undesirable Species

Following permanent seeding, a variety of undesired species may germinate in the Site as native species are establishing. Summit Lake will manage undesirable species defined as follows:

1. Noxious Weeds according to Section 18.78 of the 2023 Minnesota Statutes
2. Invasive Species according to Part 6216.0250 of the Minnesota Administrative Rules
3. Project-designated “weeds” or undesired plants

Tables 5.1.1-1, 5.1.1-2 and 5.1.1-3 provide lists of invasive and weed species of concern for the Site. Because each site is unique, an adaptive management approach to managing invasive and weedy populations will be used.

Site management will be conducted, as needed, to reduce the spread of invasive and weedy species, improve establishment and success of permanent seed mixes, and minimize vegetation interference with solar infrastructure. This may include cleaning and inspecting equipment prior to use at the Site.

Invasive and weed plant populations must be effectively managed during the Establishment Phase to ensure that the desired species are given the opportunity to establish. Management activities in the first three years strongly determine the success of planting and are referred to as the Establishment Phase, while Long-Term Maintenance Phase refers to management activities occurring after the first three years. Sections 5.2, 5.3 and 5.4 describe the management activities that will be implemented during these three phases, respectively.

5.1.1 Prescribed Treatment for Common Invasive Species and Weeds

This Plan describes common techniques to manage a variety of invasive plants and common weeds growing in the Southwest Minnesota and Nobles County, though actual techniques required are dependent on Project conditions. During each site visit, the site will be photo-documented and general notes collected regarding site conditions, species present, and areas of bare soil. Management techniques for five categories of weeds are described in the following sections.

5.1.1.1 Annual Weeds

Annual weeds include all unwanted species that grow for a single year, set seed, and die. A list of problematic and common annual weeds that may be encountered on the site are shown in Table 5.1.1-1 below.

TABLE 5.1.1-1	
Problematic Annual Cropland Weeds ^a	
Species	Growth Form
Common cocklebur (<i>Xanthium strumarium</i>)	Annual Forb
Common lamb's-quarters (<i>Chenopodium album</i>)	Annual Forb
Common ragweed (<i>Ambrosia artemisiifolia</i>)	Annual Forb

TABLE 5.1.1-1	
Problematic Annual Cropland Weeds ^a	
Species	Growth Form
Common sunflower (<i>Helianthus annuus</i>)	Annual Forb
Eastern black nightshade (<i>Solanum ptychanthum</i>)	Annual Forb
Field pennycress (<i>Thlaspi arvense</i>)	Annual Forb
Giant ragweed (<i>Ambrosia trifida</i>)	Annual Forb
Green foxtail (<i>Setaria viridis</i>)	Annual Grass
Horseweed (<i>Conyza canadensis</i>)	Annual Forb
Kochia (<i>Bassia scoparia</i>)	Annual Forb
Large barnyard grass (<i>Echinochloa crus-galli</i>)	Annual Grass
Redroot pigweed (<i>Amaranthus retroflexus</i>)	Annual Forb
Shepherd's purse (<i>Capsella bursa-pastoris</i>)	Annual Forb
Velvetleaf (<i>Abutilon theophrasti</i>)	Annual Forb
Woolly cupgrass (<i>Eriochloa villosa</i>)	Annual Grass
Yellow foxtail (<i>Setaria pumila</i>)	Annual Grass
^a Source: University of Minnesota Extension	

The goal of treating annual weeds is to prevent seed production. Beginning in spring, inspections will take place to evaluate the need for treating annual weeds (see Section 6.0 for discussion of monitoring protocols). It is recommended sites be mowed as described in Section 5.2.1 to prevent annual weeds from flowering and setting seed.

5.1.1.2 Perennial Weeds

Perennial weeds include all unwanted species that persist for two or more years after germination. Many of these weeds greatly diminish during the Establishment Phase with proper maintenance, but several require special attention when establishing native vegetation due to their highly competitive behavior. A list of common Minnesota perennial weeds that colonize and compete with native vegetation is provided in Table 5.1.1-2 below.

TABLE 5.1.1-2*	
Problematic Perennial Cropland Weeds ^a	
Species	Growth Form
Blackseed plantain (<i>Plantago rugelii</i>)	Perennial Forb
Common yarrow (<i>Achillea millefolium</i>)	Perennial Forb
Curly dock (<i>Rumex crispus</i>)	Perennial Forb
Dandelion (<i>Taraxacum officinale</i>)	Perennial Forb
Field bindweed (<i>Convolvulus arvensis</i>)	Perennial Forb
Ground ivy (<i>Glechoma hederacea</i>)	Perennial Forb
Horsenettle (<i>Solanum carolinense</i>)	Perennial Forb
Perennial sow thistle (<i>Sonchus arvensis</i>)	Perennial Forb
Quackgrass (<i>Agropyron repens</i>)	Perennial Grass
White clover (<i>Trifolium repens</i>)	Perennial Forb
Yellow nutsedge (<i>Cyperus esculentus</i>)	Perennial Sedge
Yellow wood sorrel (<i>Oxalis stricta</i>)	Perennial Forb
Yellow rocket (<i>Barbarea vulgaris</i>)	Perennial Forb
^a Source: University of Minnesota Extension, the Minnesota Department of Agriculture (MDA), and the Minnesota DNR.	

Mowing is important to prevent seed production, but herbicide is generally required to prevent the spread of perennial weeds. Perennial grasses should be treated by spot-spraying or boom spraying, as warranted, with glyphosate or an appropriate grass-selective herbicide. Perennial broadleaf weeds should be treated by spot-spraying or boom spraying, as warranted, with glyphosate, triclopyr, clopyralid, or comparably effective herbicides. All herbicides will be applied by a licensed applicator, following instructions and prohibitions provided by the herbicide label.

5.1.1.3 Problematic Native Plants

Native species present in the soil seed bank or entering the Site from neighboring properties may have the potential to interfere with the functioning of the solar panels or ecological goals. Knotweed colonies can grow in dense clusters that crowd out any native species. Giant ragweed (*Ambrosia trifida*) grows tall enough to shade the panels. Several native vines have the potential to overgrow installations, including wild grape (*Vitis riparia*), wild cucumber (*Echinocystis lobata*), and Virginia creeper (*Parthenocissus* spp.). Giant ragweed and Phragmites or any other native species shading the arrays should be controlled by mowing. If growing under or near the solar panels, wild cucumber and bur cucumber will be pulled and removed manually, but woody vines such as wild grape and Virginia creeper will be cut to within one inch of the ground and the stump treated with glyphosate, triclopyr, or a comparable herbicide by a licensed applicator (BWSR. 2022) following instructions provided on the herbicide label. Other native plants with weedy tendencies will be controlled with the same methods as non-native weeds and invasive plants.

5.1.1.4 Woody Species

Woody species can shade or otherwise interfere with the operation of solar panels. Native tree seedlings of concern are box elder (*Acer negundo*), sugar maple (*Acer saccharum*), and green ash (*Fraxinus pennsylvanica*). During the Establishment Phase, all woody plants require removal. This can be accomplished by mowing, herbicide application, or a combination of both methods. All woody plants over 0.5 inch in diameter at breast height should be cut to within one inch of the ground and the stump treated with triclopyr or a comparable herbicide by a licensed applicator and following instructions provided by the herbicide label. Cut brush will be removed from the Site.

5.1.1.5 State-Listed Noxious Weeds

Each state maintains a list of prohibited noxious plants that must be eradicated and controlled. All state-listed species be treated by manual removal, mowing, herbicide application, or a combination of these methods, with the intention of preventing the weeds from setting seed. If using herbicide, a licensed applicator with knowledge of the herbicide treatments should apply herbicide at appropriately timed windows depending on target species. Table 5.1.1-3 below provides an abbreviated list of prohibited noxious plants in Minnesota.

TABLE 5.1.1-3		
Abbreviated List of Minnesota Prohibited/Restricted Noxious Weeds and Invasive Plants		
Species	Growth Form	Regulatory Category ^a
Amur maple (<i>Acer ginnala</i>)	Tree	SR
Bell's honeysuckle (<i>Lonicera X bella</i>)	Shrub	RN
Black locust (<i>Robinia pseudoacacia</i>)	Tree	RN
Canada thistle (<i>Cirsium arvense</i>)	Perennial Forb	PN
Common barberry (<i>Berberis vulgaris</i>)	Shrub	PN
Common or European buckthorn (<i>Rhamnus cathartica</i>)	Shrub/Tree	RN

TABLE 5.1.1-3

Abbreviated List of Minnesota Prohibited/Restricted Noxious Weeds and Invasive Plants

Species	Growth Form	Regulatory Category ^a
Common reed – non-native subspecies (<i>Phragmites australis</i> subsp. <i>australis</i>)	Grass	PN, PPI
Common tansy (<i>Tanacetum vulgare</i>)	Perennial Forb	PN
Crown vetch (<i>Securigera varia</i>)	Perennial Forb	RN
Garlic mustard (<i>Alliaria petiolata</i>)	Biennial Forb	RN
Glossy buckthorn (<i>Frangula alnus</i>)	Shrub	RN
Japanese barberry (<i>Berberis thunbergii</i>)	Shrub	RN
Leafy spurge (<i>Euphorbia esula</i>)	Perennial Forb	PN
Morrow's honeysuckle (<i>Lonicera morrowii</i>)	Shrub	RN
Norway maple (<i>Acer platanoides</i>)	Tree	SR
Plumeless thistle (<i>Carduus acanthoides</i>)	Biennial Forb	PN
Poison hemlock (<i>Conium maculatum</i>)	Perennial Forb	PN
Purple loosestrife (<i>Lythrum salicaria</i>)	Perennial Forb	PN, PI
Siberian peashrub (<i>Caragana arborescens</i>)	Shrub	RN
Spotted knapweed (<i>Centaurea stoebe</i>)	Biennial Forb	PN
Tatarian honeysuckle (<i>Lonicera tatarica</i>)	Shrub	RN
Wild carrot/Queen Anne's Lace (<i>Daucus carota</i>)	Biennial Forb	RN
Wild parsnip (<i>Pastinaca sativa</i>)	Biennial Forb	PN
Winged burning bush (<i>Euonymus alatus</i>)	Shrub	RN
^a SR = Minnesota Department of Agriculture (MDA) Specially Regulated Plant; RN = MDA Restricted Noxious Weed; PN = MDA Prohibited Noxious Weed; PPI = Minnesota Department of Natural Resources (MNDNR) Proposed Prohibited Invasive Species; PI = MNDNR Prohibited Invasive Species		

5.2 Establishment Phase

Within the Establishment Phase, the first three years of vegetation management will be a concerted effort to remove any undesired species, while helping to establish planted seeds. Native perennial plantings will require several years to establish and will involve frequent site management to limit undesirable species, which could impact the growth of planted native seeds. Site management will ensure a focus on achieving the required Site goals and performance standards. An adaptive management approach is recommended to respond to construction site conditions, challenges, and successes over time. As time progresses, the temporary cover crop will begin to subside, and the native species will start to germinate gradually.

Establishment Years one to five will require the most maintenance and monitoring to control any undesired species. Figure 7 portrays the Site conditions as the vegetation transitions from the establishment phase into the Long-Term Maintenance Phase.

Once the native seeds are fully established, the Site will require less yearly maintenance. Recommendations for Establishment Years one to five are outlined below.

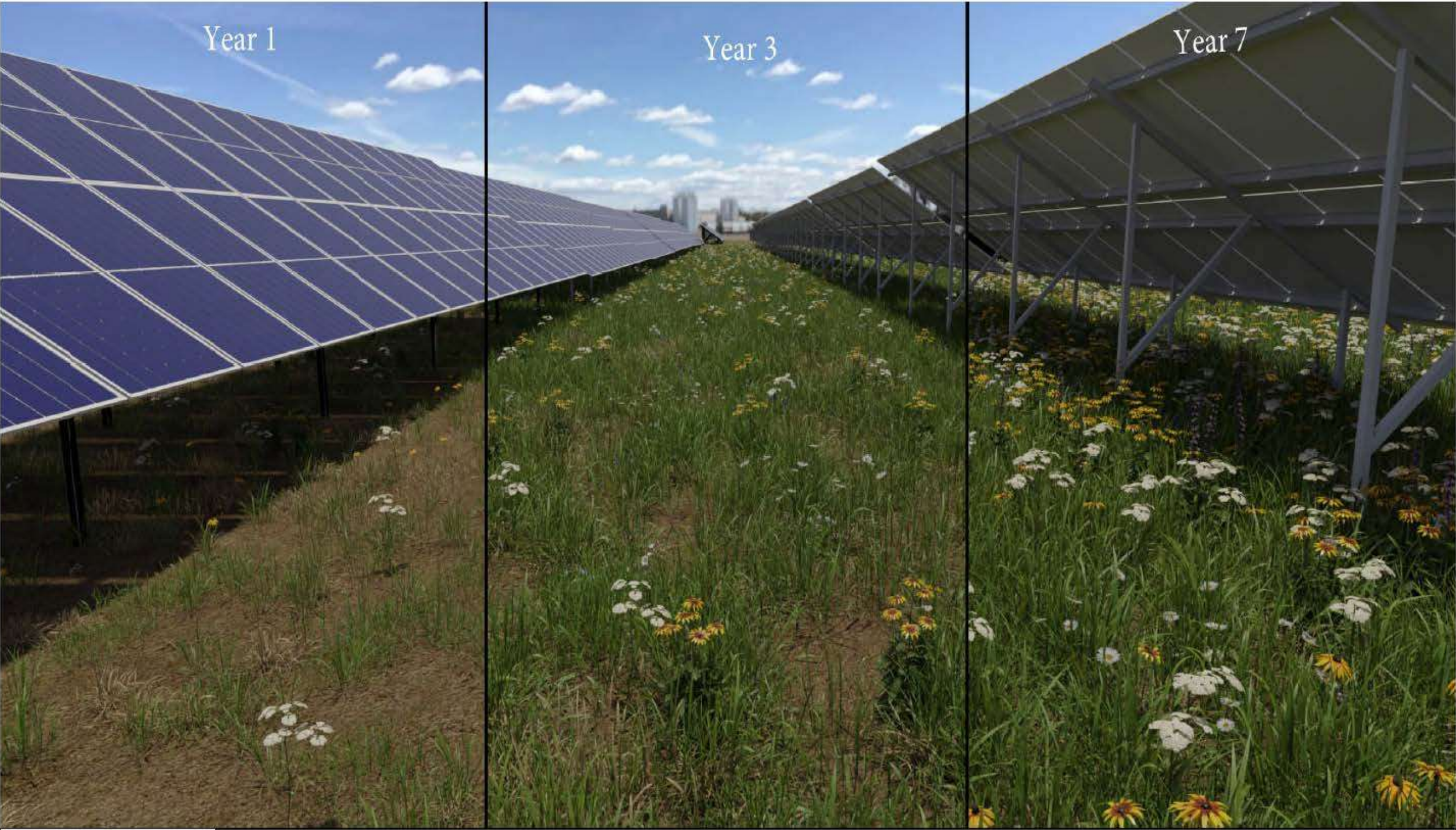


Figure 7
Transitional Vegetation Growth
Summit Lake Solar and BESS Projects
Nobles County, MN

5.2.1 General Tasks for Managing Vegetation

5.2.1.1 Establishment Year 1

The first year of establishment is focused on consistent invasive plant control on a site-wide basis. Mowing the grassland areas during the first year should prevent invasive plants from adding new seeds to the soil and begin to exhaust the soil seed bank (a process that often requires several years to complete). From June 1 of the first establishment year, site-wide mowing to a height of 6 to 9 inches shall occur whenever vegetation reaches a height of 18 to 24 inches. The landscaped/screening area shall be spot sprayed during the establishment phase to control invasive plants. Attempting to mow between the landscaping plants will likely be difficult and may lead to unanticipated damages to the new plants. Mowing in wet areas will also be limited to those periods of time when the wet areas are not susceptible to rutting or compaction (i.e. frozen or dry conditions). Spot-spraying, use of a swing arm, brush saws, weed whips or similar equipment may be used in wet areas as necessary to prevent soil damage when the soils are wet.

Monthly evaluations of the plantings shall be conducted by a botanist employed by the Contractor, during the growing season (May to September) to determine the appropriate treatment techniques to use and the timing of those treatments based on the presence and development stage of both invasive plants and the native plantings. Invasive species should be treated prior to such plants flowering or seeding, with the goal of preventing seed set by noxious and invasive species.

Repeated mowing may produce a buildup of organic thatch, which discourages the development and persistence of diverse native vegetation. To help prevent thatch buildup onsite, mowing shall be conducted with a flail-type mower to mulch the cut vegetation, or the Project Site shall be hayed so that cut vegetation is removed. A swing arm specifically designed for mowing under solar panels is recommended for cutting beneath panels, but spot-mowing with brush saws, weed whips, and similar equipment is also permitted. It may be possible to coordinate with Summit Lake to adjust the orientation of the panels to increase the ease of mowing, but the Contractor should not depend on this coordination to complete its work. Any other techniques must be approved by Summit Lake prior to the start of work. Mowing equipment shall be cleaned prior to use onsite to prevent the introduction and spread of invasive and non-native species. This mowing regime will prevent annual and perennial weeds from flowering and setting seed, prevent weeds from shading out the solar panels, and help control woody plant growth onsite. Additionally, noxious and perennial weeds shall be treated by spot-herbicide treatment, as described below, to prevent roots from resprouting.

5.2.1.2 Establishment Year 2

The second year of establishment continues invasive plant control but generally employs more targeted techniques. Site-wide mowing to a height of 6 to 9 inches shall occur when vegetation height reaches 18 to 24 inches.

Spot-mowing may be employed to treat specific problem areas as needed. Noxious and perennial weeds shall be treated with spot-herbicide during the growing season, typically in late May/early June and late July/early August, with the focus on preventing seed set and achieving the required performance standards (described in Section 5.2.2).

The landscaped/screening area shall be spot sprayed during the establishment phase to control invasive plants. Attempting to mow between the landscaping plants will likely be difficult and may lead to unanticipated damages to the new plants. Mowing in wet areas will also be limited to those

periods of time when the areas are not susceptible to rutting or compaction. Spot-spraying or use of brush saws, weed whips, or similar equipment may be employed in wet areas as necessary to prevent soil damage when the soils are wet.

Monthly evaluations of the plantings shall be conducted by a qualified botanist, during the growing season (May to September) to determine the appropriate treatment techniques to use and the timing of those treatments based on the presence and development stage of both invasive plants and the native plantings. Invasive species should be treated prior to such plants flowering or seeding, with the goal of preventing seed set by noxious and invasive species.

5.2.1.3 Establishment Years 3-5

In the third, fourth, and fifth years of the establishment phase, invasive plant control should consist of spot-herbicide treatment to control the remaining small patches of persistent weeds. Efforts should be focused on achieving the required performance standards (described below).

Site-wide mowing to a height of 6 to 9 inches shall occur when vegetation height reaches 18 to 24 inches. Spot-mowing should be employed as needed to prevent vegetation interference with energy generation and infrastructure. Additional onsite treatment with spot-mowing or hand weeding may be employed at the discretion of the Contractor.

5.2.2 Herbicide Specifications

All herbicide treatments shall be restricted to those pesticides and methods of application approved by the Minnesota Department of Agriculture, MNDNR, and USEPA. Spraying should be conducted by certified applicators holding all necessary permits and licenses. All herbicides shall be applied in accordance with the applicable regulations and the label requirements and in a safe and cautious manner to avoid damaging adjacent properties. Herbicide shall be applied selectively where applicable to avoid damaging existing native vegetation.

Approved pre-emergent herbicides include indaziflam (trade name Esplanade) and aminopyralid/metsulfuron-methyl (trade name Opensight) or equivalent. Additionally, pre-emergent formulations are recommended to include an adjuvant such as trade name Grounded or equivalent. Approved foliar herbicides include glyphosate (trade name Aquaneat), triclopyr (trade name Garlon), and aminopyralid (trade name Milestone) or equivalent. The Contractor shall submit a list of all herbicides to be used on the project to Summit Lake for written approval prior to the start of work.

Pre-emergent herbicides are recommended to be applied in the spring once the temperature is above 55°F. Foliar herbicides shall be applied during the growing season as a control measure to prevent noxious weeds and invasive species from flowering or setting seed. The Contractor shall have knowledge of the phenology of species to treat on site to conduct herbicide treatments at the appropriate time and shall submit a schedule of planned visits each year prior to May 1.

The landowner shall be contacted at least 14 days prior to any application of herbicide on their property. Apiaries known by Summit Lake to be present within three miles of the Project should be notified of any herbicide spraying at least 14 days prior to such application. The herbicide applicator must keep documentation of location and timing of herbicide use, weather conditions on site during application, type of herbicide used, volume of herbicide used, number of acres treated, and species of plants treated, and submit a copy of all herbicide records to Summit Lake to be included in an annual report.

5.2.3 Reseeding Bare Soil

Areas of bare soil are detrimental to successful establishment of native vegetation. Bare soil provides opportunities for the common invasive and weed species described above to colonize and spread. Bare soil is also likely to contribute to soil loss by erosion. Site performance standards and goals may indicate reseeding is required in these areas using the seed mix previously installed and following the timing instructions laid out in Section 4.0.

5.3 Transition Phase

After the establishment phase of vegetation management, yearly management is required to control the spread of invasive species and combat the establishment of undesirable and invading trees and shrubs. Two trips during the growing season are recommended. Some degree of weed whipping and spot-mowing, and/or spot herbicide treatment may be warranted to maintain vegetation quality and achieve the Site goals and performance standards.

5.4 Long-term Maintenance Phase

The long-term maintenance phase follows the end of the Transition Phase of vegetation management. The phase includes yearly management to promote and maintain the desired vegetation community, control the reestablishment, and spread of invasive species, combat the establishment of undesirable and invading trees and shrubs, and reduce biomass/fuel load onsite. The primary tools for this management are weed whipping, spot-mowing, and spot-herbicide treatment, which may be warranted thereafter to maintain vegetation quality and achieve the Project goals. It's likely that these activities may be warranted every other year depending on soil moisture and growth of vegetation.

5.5 Haying

Summit Lake may elect to use haying as a long-term management technique in a portion of the Project that is not otherwise occupied by the solar array. These areas are primarily located around the periphery of the facility (within the fence) and in areas that were used as laydown areas during construction. Annual haying to a height of 6 to 9 inches shall occur each September prior to prairie plants going dormant to maximize forage value of the hay crop.

5.6 Grazing

Grazing can be an effective vegetation management strategy, offering an eco-friendly alternative to mowing or herbicides to control plant growth around solar panels. Grazing animals naturally recycle nutrients back into the soil, which can improve soil health, reduce erosion, and support a more diverse ecosystem. Grazing can also restrict woody vegetation and non-native species encroachment into grasslands, prevent excessive litter accumulation, improve forage production, and accelerate decomposition and nutrient cycling. Managed grazing also supports -pollinator friendly habitats by maintaining a variety of plant species that can thrive under periodic grazing. Additionally, grazing programs can support local farmers by providing a seasonal grazing area. Careful planning is essential to ensure grazing is done at appropriate times and intensities to prevent overgrazing and maintain plant cover, ultimately contributing to both vegetation management goals and sustainability objectives for the solar project.

Summit Lake may decide to use grazing with sheep, as a long-term vegetation management technique in portions of the Project occupied by the solar array or those areas surrounding the

arrays. Grazing using livestock is a developing management approach; therefore, the instructions in this Plan should be considered a guide, and actual practices must adapt year-to-year to the specific vegetation conditions at the Project Site. This Plan describes the grazing methods to be used on a small unit of the overall portion of the Project occupied by the array. These specifications can be scaled appropriately to accommodate grazing in larger or smaller portions of the array depending on the availability of livestock and appropriate partners to conduct the grazing operations. Any area that is not grazed can be managed using mowing or haying management techniques as outlined above. Should grazing be selected as a management technique for some or all of the Project Site, the following methodologies will be followed:

- Grazing should not be started until after the start of the third growing season after vegetation installation.
- Grazing should only be used if the Project is able to identify and form a partnership with a local livestock farmer who is willing and able to use a portion of the Site for grazing in accordance with this Plan. The chosen partner must be able to comply with Site security requirements and Site management processes outlined in this Plan.
- The partner must have sufficient insurance to cover any damages caused during grazing of the Site.
- The seed mix has been formulated to be used for livestock grazing and to also function well if livestock grazing is not used.

5.6.1 Site Setup for Grazing

If an appropriate partner is identified to provide livestock grazing, portions of the Site will be managed with rotational grazing, wherein animals are moved periodically among the four paddocks within each grazing unit, with the aim of maintaining a vegetation height of 10 to 12 inches across the portions of the Site that are grazed. The area of the Site to be grazed will be divided into grazing units of approximately 16 acres each in preparation for grazing, although grazing unit size may change with input from the grazing partner. The number of grazing units used in any given year will be determined at the beginning of each growing season based on the number of acres to be grazed and the number of sheep available for grazing. For best outcomes for pollinator species, it is recommended that no more than 50 percent of the available forage be removed by grazers. The preferred method for dividing the Site is poly-wire or net electric fencing with plastic step-in poles; the grazing operator shall consult with the Summit Lake before other options are installed. Sensitive areas will also be fenced off to avoid inadvertent disturbance. The electric fencing shall be grounded independently of the Project infrastructure, with the grounding stakes at least 66 feet from the Project's grounding systems. The grazing operator shall consult Gopher State One Call before siting the grounding stakes and take underground utilities and travel corridors into consideration when placing the grounding stakes. The energizing unit for the electric fence must be independent of the solar facility infrastructure. The energizer can run on 110 Volt electrical current or be charged from a battery. The grazing operator shall be responsible for any damage to the solar facility infrastructure due to improper setup or maintenance of the electric fence. Fencing for sheep will not be greater than 5 feet in height, which should not significantly impact wildlife movement.

The grazing rotation in each 16-acre grazing unit will be managed by dividing the unit into four, four-acre paddocks (e.g., unit 1, paddocks A-D), which will be grazed over the course of one

month. For the first week of the month, the sheep in each unit will graze Paddock A. For the second week, the sheep will graze Paddock B, and so on. This pattern will result in each paddock being grazed for one week and rested for three weeks each month. Grazing will continue for the entire growing season (approximately May 15 to September 15).

When livestock are grazing each unit, they will need to be provided with drinking water. The method of watering the flock will be left to the grazing operator, with approval from Summit Lake. A mobile watering trough, especially one that does not kill vegetation while it remains in place, is preferred. Moving the watering trough from paddock to paddock as the flock moves will reduce damage to the vegetation under the trough and prevent areas of dead vegetation from forming. Watering shall occur as near to the center of the paddock as possible; water is an attractant, and a trough set too far to a paddock side or corner can lead to uneven grazing of the paddock.

5.6.2 Stocking Rate and Management

The number of sheep in a grazing unit at any time is the stocking rate. The standard way to describe the stocking rate, or grazing pressure, is by animal unit month (AUM). One animal unit is 1,000 pounds of livestock, and one AUM is 1,000 pounds of livestock grazing for one month. AUM is usually calculated on a per acre basis, so the final unit for stocking rate is AUM/acre. If the livestock being used to graze are sheep, depending on the variety of sheep used, 1 animal unit is approximately six ewes. If grazing units are 16 acres each (as described previously), this would mean an initial stocking rate of about 50 sheep per unit. Each 16-acre grazing unit would start with 50 sheep grazing Paddock A for one week, then all 50 sheep will be moved to Paddock B for the second week, then Paddock C in the third week, then Paddock D in the fourth week, and then back to Paddock A to start the rotation over again. Since the Site is anticipated to cover approximately 1,500 acres, grazing the entire Site would require approximately 94 grazing units and 4,700 sheep. The actual number of sheep used will depend on the amount of forage present and will be adjusted by the grazing partner throughout the growing season.

The grazing partner shall be responsible for monitoring the response of the vegetation to grazing. The management goal is to have an average vegetation height of 10 to 12 inches when the livestock are first moved into a paddock and to remove the livestock when the vegetation is an average of 6 to 8 inches. If grazing does not achieve the desired vegetation height and is shading the arrays, the Contractor shall immediately contact Summit Lake and be responsible for mowing the paddock to a uniform height of 4 to 6 inches. The Contractor shall determine with Summit Lake a change in stocking rate to improve the effect of grazing in the future. The grazing partner shall have access to additional livestock in case the stocking rate needs to be increased to achieve the vegetation management goal. Should the entire Site be found to have met the vegetation height and forage removal, the livestock will be relocated offsite until grazing management is once again necessary.

If maintenance by grazing is no longer feasible or desired, vegetation height can be managed by mowing as outlined in Section 5.2.1 of this Plan.

6.0 LONG-TERM MONITORING

Long-term monitoring methods include quantitative and qualitative measures to assess how well the Project goals and performance standards are being achieved.

- Quantitative techniques allow for comparisons of subsequent reporting to understand the progression of vegetation establishment over time. Vegetation is

sampled using standardized techniques with fixed sample locations and photo points and includes percent vegetation cover and estimated species richness.

- Qualitative monitoring consists of documentation of onsite vegetation through visual inspections.

Long-term monitoring will evaluate seed mixes and associated planting areas for establishment including the number of species present and percent cover; presence of invasive species, and subsequent management activities needed, to include both species on site and early detection of new invasions. Three monitoring visits will generally occur in the spring, summer, and fall.

6.1 Monitoring Protocol

Vegetation monitoring shall occur three times per year during the Establishment Phase (Years 1 to 5) and annually thereafter over the lifetime of the Project. During the Establishment Phase, inspections shall occur three times in the growing season to accurately document the presence of installed native species: late May/early June, mid-July, and late August/early September. After the Establishment Phase has concluded, inspections shall occur once per year, in mid-July. Once every five years during the Management Phase, inspections shall occur three times during the year, on the same schedule as the Establishment Phase, to record the continued presence of native species across the growing season.

The monitoring protocol shall include both microplots and a meander survey. Microplots provide accurate data for the Site but cover a small area. Vegetation can be patchy due to microtopography and other factors, so scattered microplots have the potential to miss species assemblages or new invasive species populations. For this reason, a meander survey shall also be conducted to provide a broad assessment of vegetation across the Site.

Microplot surveys shall be conducted during each inspection in the Establishment Phase. During the Management Phase, surveys should be undertaken at a time when spring- and fall-blooming species can be identified, usually July; the Monitor should assess the best timing for microplot surveys based on the advancement of the growing season. 50 microplots of 1 meter by 1 meter each shall be distributed at locations that represent conditions across the Project Site. For instance, lowland and upland areas should be sampled in proportion to their acreage. Microplots will be first selected using available maps and air photos, with the final location selected in the field on the day of sampling to represent the general area of the microplot. Before entering the field, the Monitor will provide the project with a map of the general locations of the 50 microplots. In each microplot all plant species present shall be recorded and assessed using a 1 to 10 scale (1 = $\leq 10\%$, 2 = $> 10\%$ but $\leq 20\%$, etc.), based on the percent cover of the species in the microplot. The total percentage of vegetative cover and bare ground will also be recorded.

While traversing the Site from microplot to microplot, the Monitor will follow a meandering path, recording all plants species seen. Upon completing the meander survey, each plant species recorded will be assessed on a 1 to 4 scale (1 = $\leq 10\%$, 2 = $> 10\%$ but $\leq 30\%$, 3 = $> 30\%$ but $\leq 50\%$, 4 = $> 50\%$) based on the percent cover of the species across the entire Site along the meander path.

After each survey event, the percent cover of native and noxious plant species in microplots and along the meander survey, the total native and invasive vegetation cover and the total native species richness will be entered in an Excel spreadsheet. Each survey event's data will be compared to past survey event data to detect positive, negative, or neutral trends. A positive trend

would be decreasing cover by invasive plants and increasing cover by native plants from one survey event to the next.

Each monitoring visit shall also conduct a hazard assessment. While on Site and during the meander survey, the Monitor shall record the location of noxious weeds/invasive species, adventive trees/shrubs, large areas of bare soil, areas of significant erosion, and damage to the vegetative screening area. Any observed significant erosion or damage to the vegetative screening area should be reported to the Owner immediately. The remaining hazards will be compiled in an annual report (see Section 6.4). Hazard assessments should also be conducted by the Contractor any time they are on Site performing vegetation management. The Contractor hazard assessments should be submitted to the Monitor for review and inclusion in the annual report.

6.2 Targets and Projected Outcomes

6.2.1 Native Vegetation Targets

A typical best practice for achieving soil stabilization and water quality on solar conversion sites is to include a minimum of 15 native species (graminoids and forbs) when using native vegetation (BWSR, 2019). Vegetation management should result in a diverse plant community dominated by native species and lack noxious and prohibited species, as outlined in this Plan. Construction stormwater permits, local requirements, and regulations may impose additional requirements on the final quality and performance of native plantings.

The following are typical goals for native revegetation and will be revised when targets for the Project are identified. Short-term goals are goals applicable to the post-construction establishment phase of the proposed Project in Years 1 to 5. Long-term goals are defined as goals beyond Year 5, following implementation of the short-term goals.

Short-Term Goals:

- Comply with permit conditions for site revegetation, per the Minnesota Pollution Control Agency (MPCA) Construction Stormwater General Permit (General Permit).
- After the first growing season, vegetate at least 70 percent of the Site, and ideally 80 percent of the Site.
- Establish sustainable, low grow and minimal mow, diverse, perennial grassland community, appropriate to conditions on 70 percent of the Site and comprised of 90 percent native vegetation by Year 5.
- Implement cover crops to effectively assist in establishment of native vegetation, if practicable.
- Manage invasive species and noxious weeds per Minn. Stat., Sections 18.75 to 18.78, and 18.86.
- By the end of the Establishment Phase (approximately 36 to 60 months after vegetation installation), at least 95 percent of the Site shall be vegetated, and at least 90 percent of the cover shall be comprised of native species. Six or more

species of planted native graminoids and 12 or more species of planted native forbs shall be well-established across the Project.

- Install and establish vegetative screening as requested. The landscaping screening area should be established, with limited ongoing plant mortality, within one year of installation. At the end of the establishment phase, 80 percent of the installed shrubs and trees shall be present in the landscaping/screening area.

Long-Term Goals:

- Maintain 95 percent of the Site in a vegetated state, and at least 90 percent of the cover comprised of native species.
- Establish six or more species of planted native graminoids and 12 or more species of planted native forbs across the Site.
- Maintain a mature landscaped screen that minimizes views of the solar array from an adjacent target parcel over the life of the Project.
- Establish a Site that is suitable for haying and/or grazing during facility operations, if determined to be a viable management strategy following construction. Accommodate vegetative management of the Site using traditional vegetative management methods for areas not managed by haying or grazing.
- Prioritize the implementation of all required vegetation management activities for safe and efficient operations support including woody species control, height control of herbaceous species, wet area management, and landscape/screening management.

6.2.2 Noxious Weeds and Problem Plants

All prohibited noxious weeds and other plants previously identified in Tables 5.1.1-1, 5.1.1-2, and 5.1.1-3 will be treated repeatedly with herbicide and/or mowed, where appropriate, at a frequency sufficient to prevent seed set and to remove target weeds over time. The following are typical targets for controlling weeds and problem plants:

- Each treatment will show evidence of at least 90 percent of the target vegetation having been affected by herbicide or removed.
- Two weeks after treatment, at least 95 percent of all plants treated with herbicide will be removed, dead, or dying within any 100 square foot area.
- All herbicides must be approved by the appropriate land management agency and applied by permitted applicators.
- Applications of herbicides must also consider wind drift, which may transfer herbicides to nontarget areas and buffers or setbacks from sensitive locations such as water resources or sensitive habitats.

- By the end of the Establishment Phase (approximately 36 months after vegetation installation), all prohibited noxious and other problem plants will not exceed 5 percent aerial cover within any 100 square foot area across the Site.

6.3 Reporting

An independent third-party inspector, qualified to conduct native plant inspections and assessments and retained by Summit Lake shall prepare a report documenting the status of the established vegetation and hazards encountered during such year (i.e., a report every year for years 1 to 5 and a report for every fifth year thereafter). The report shall include the results of inspection and monitoring activities during the prior year and shall report how the vegetation on the Project Site has achieved or is achieving the goals and objectives set forth in this Plan. The report shall be submitted to the Minnesota Public Utilities Commission by February 1 of the following year in order to provide sufficient time to review the recommended actions for the upcoming growing season.

In addition to the above report content requirements, the reports shall also include descriptions of adaptive management actions to be completed in the upcoming year to meet management objections and management challenges encountered during the reporting period. These recommended actions may include, but are not limited to, mowing, spot-mowing, targeted herbicide application, or overseeding bare soil.

6.4 Adaptive Management

Every year during years 1 to 5 and every fifth year thereafter, a third-party independent monitor will be retained by the Project and produce a report summarizing the status of the vegetation established on site and identifying hazards encountered during the reporting period. This report will address any areas of noncompliance and plan targeted remediation efforts for the upcoming reporting period, including altering the timing or extent of mowing or herbicide application, adjusting the rate or formulation of herbicide applied, or conducting targeted overseeding of appropriate seed mixes. The report will also record the presence and location of any noxious or invasive weeds to be treated, which will both guide the Contractor and document changes in the vegetation establishment and management approach over time. This protocol will ensure that timely management activities reflect reporting from the previous monitoring observations.

7.0 REFERENCES

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ATTACHMENT A

HABITAT FRIENDLY SOLAR SITE ASSESSMENT

ATTACHMENT B

PROJECT HISTORICAL CLIMATE DATA

ATTACHMENT C

SEED MIXES