APPENDIX D

Vegetation Management Plan

Vegetation Management Plan for the Benton Solar Project in Benton County, Minnesota

Minnesota Public Utilities Commission Docket Numbers: IP7115/GS-23-423 and IP7115/ESS-24-283

AUGUST 2024

PREPARED FOR

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VEGETATION MANAGEMENT PLAN FOR THE BENTON SOLAR PROJECT IN BENTON COUNTY, MINNESOTA

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1 EXECUTIVE SUMMARY

Benton Solar, LLC (Benton Solar), a wholly owned, indirect subsidiary of NextEra Energy Resources, LLC, is requesting two Site Permits from the Minnesota Public Utilities Commission (Commission) for the Benton Solar Project, a 100-megawatt (MW) alternating current (AC) nameplate capacity solar energy conversion facility (Solar Facility) and a 100-MW battery energy storage system (BESS), and associated facilities to be located in Minden Township, Benton County, Minnesota (Benton Solar Project or Project) (Figure 1).

The Site is the 951.4[1] acres for which Benton Solar has full land control. The Site encompasses the Preliminary Development Area, 631.9 acres, which is the area where development is expected to occur and encompasses all Facilities, with the exception of the operations and maintenance (O&M) building that is anticipated to be located off-site in an existing office space, and the transmission line which is addressed in the Route Permit Application (Commission Docket IP7115/TL-23-425) (Figure 2). Facilities include all temporary and permanent features associated with the Project. The transmission line is a 0.5-mile-long, 115-kilovolt line that will deliver energy from the Project to the electric grid. The transmission line Route encompasses the Proposed Alignment and transmission line right-of-way (ROW). The Route varies in width, ranging from 454.7 to 1,308.3 feet. The transmission line ROW describes the area 50.0 feet either side of the alignment and is the area in which all construction activities will occur. Benton Solar anticipates a commercial operations date by the fourth quarter of 2027.

Benton Solar has developed this vegetation management plan (VMP) to guide Site preparation, vegetation establishment and management, undesirable species management, and erosion control. Benton Solar's primary goals are to establish regionally appropriate vegetation that, to the extent practicable: 1) will not impede Project operation; 2) will minimize the presence of noxious weeds and reduce long-term maintenance and invasive species management efforts; 3) will help to control erosion and runoff; and 4) will increase ecological diversity and function (Section 2.2). Vegetation management is designed to continue for 3 years then transition into long-term maintenance (Minnesota Department of Natural Resources [MDNR] 2020).

Benton Solar, its contractors, and the vegetation manager are responsible for implementation of this VMP and will be knowledgeable of the goals, objectives, and practices established herein. The term "vegetation manager" referenced herein refers to an approved and qualified ecological restoration expert that has demonstrated familiarity with these plans and sufficient botanical experience identifying native plants, native plant communities, invasive species, and non-native species typical of Minnesota. The vegetation manager may be a Benton Solar employee or other qualified agent. Benton Solar and its contractors will select equipment for use within the solar arrays that are of a size and dimension that allow safely fitting and operating within the Project solar array row widths. Further, Benton Solar intends to coordinate Site preparation and vegetation installation practices established herein with the Bee & Butterfly Habitat Fund (BBHF) to ensure consistency with Solar Synergy standards. The VMP is intended to be a working document and will be revised if appropriate as new information regarding vegetation management, Preliminary Development Area characteristics, and management practices becomes available.

[1] All measurements presented in this plan are approximate and have been rounded to the nearest tenth.

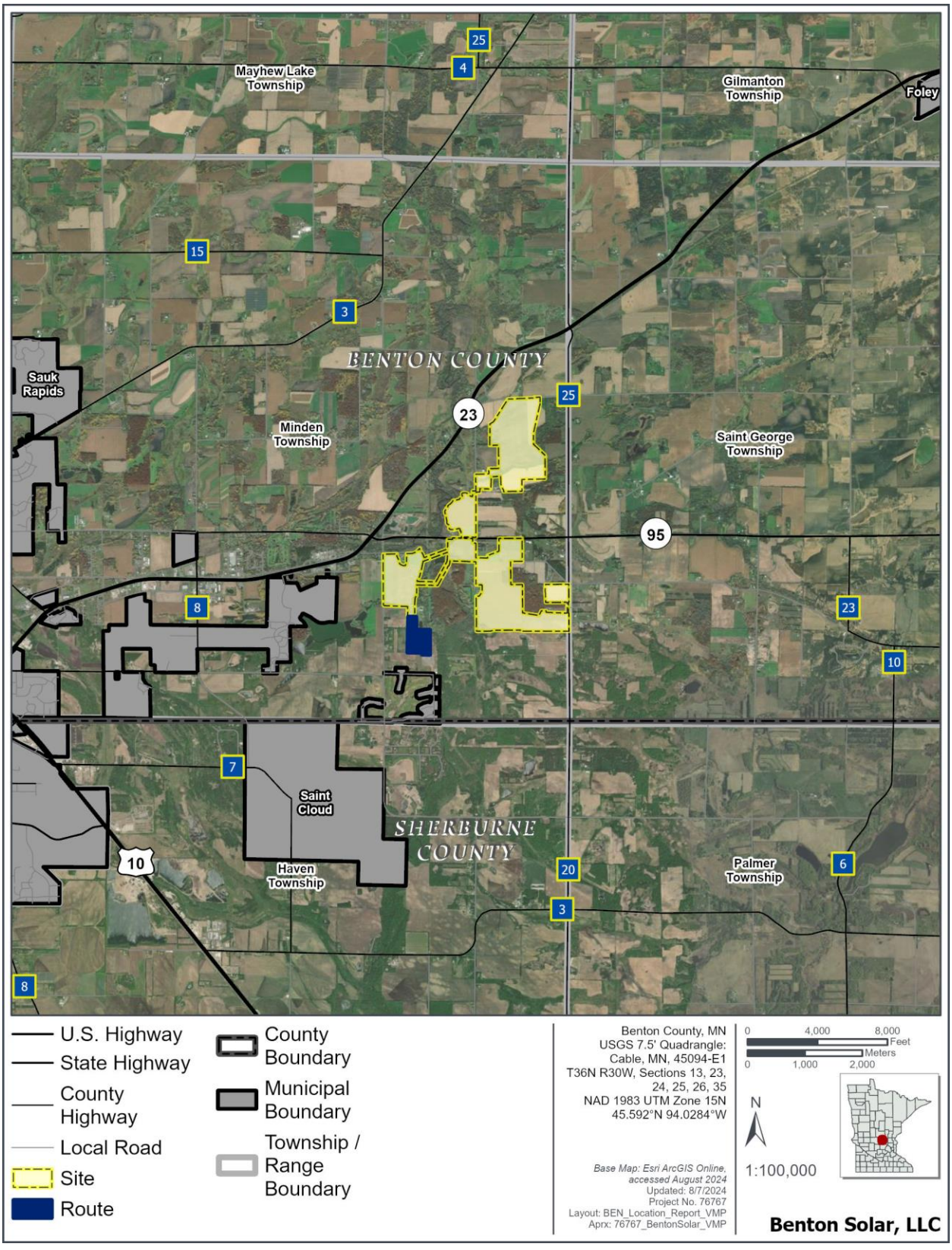

Figure 1. Project location.

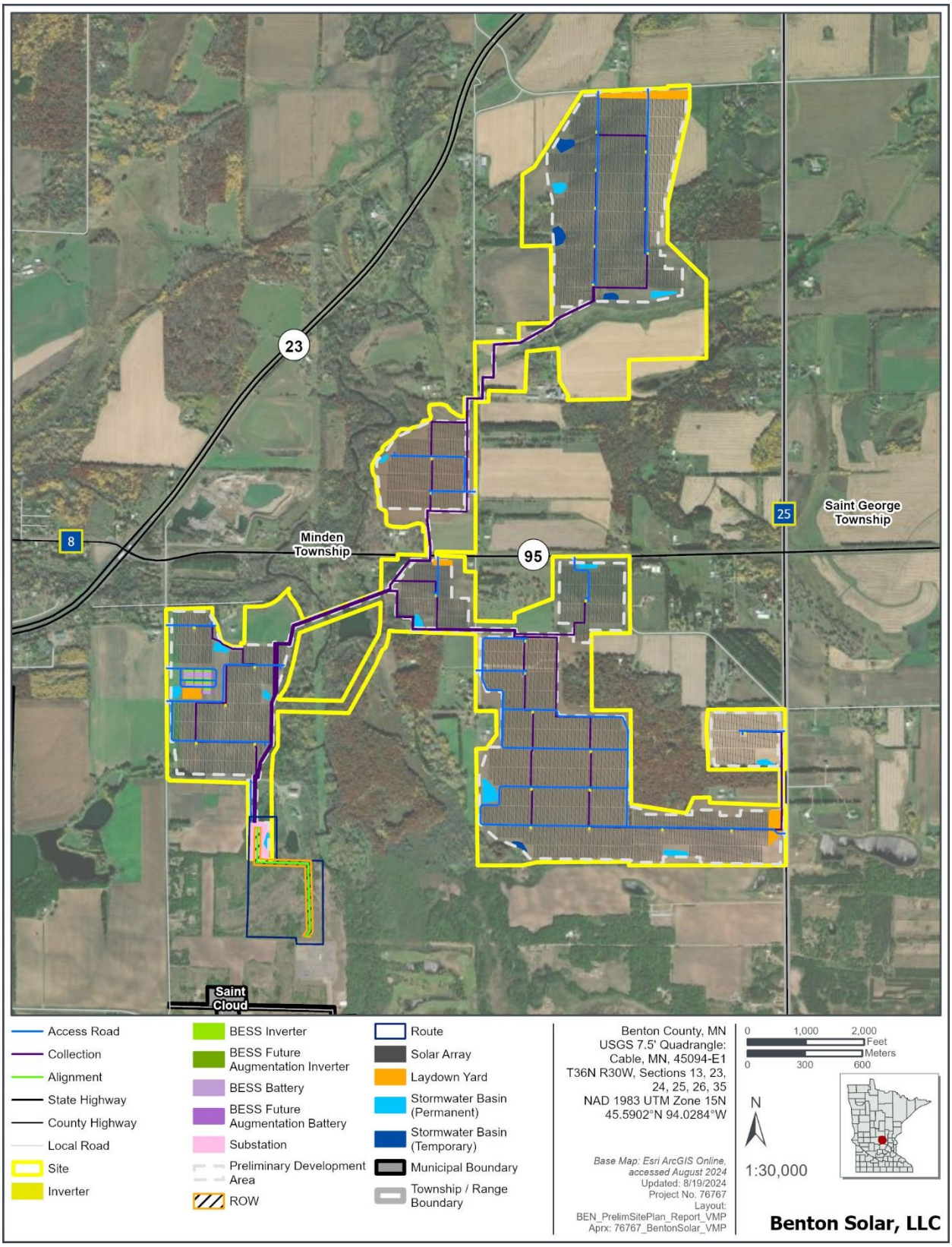

Figure 2. Preliminary site plan.

2 PLAN OVERVIEW

2.1 Guidance Documents

The methods and seed mixes described in this VMP follow State of Minnesota best practices and guidance for establishment of native vegetation (Minnesota Board of Water and Soil Resources 2019, 2022a, 2022b; Minnesota Department of Commerce 2021; MDNR 2020, 2023a).

Benton Solar has also partnered with the BBHF through the Solar Synergy program to inform and support Benton Solar's vegetation management goals and objectives. The Solar Synergy program, through partnership with the Monarch Joint Venture (MJV), works directly with solar developers to strategically design and monitor high-quality pollinator habitats within utility-scale renewable energy projects. The Solar Synergy program consists of uniquely designed outcomes that deliver multiple key benefits to projects, including development of high-value pollinator seed mixtures and extensive monitoring of pollinator health.

2.2 Goals and Objectives

Benton Solar's primary goals related to vegetation management, and objectives necessary to meet those goals, are described below.

- **Goal No. 1**. Establish regionally appropriate vegetation.
    - **Objective 1a**. Select species for inclusion in seed mixes based on the Site location and conditions, including hydrology and soil type.
- **Goal No. 2**. Establish regionally appropriate vegetation that, to the extent practicable, will not impede Project operation.
    - **Objective 2a**. Design seed mixes using species with a maximum height of approximately 20 inches to minimize concerns for shading of and interference with solar panels, which can result in reduced performance and safety hazards, while providing ancillary ecological benefits.
    - **Objective 2b**. Implement industry standard practices, including periodic mowing, to manage vegetation height.
- **Goal No. 3**. Establish regionally appropriate vegetation that, to the extent practicable, will reduce long-term maintenance and invasive species management efforts.
    - **Objective 3a**. During establishment, in Years 1 through 3, focus management on managing undesirable vegetation using industry standard practices such as mowing, herbicide application, and hand removal.
    - **Objective 3b**. During long-term management, conduct annual monitoring to determine whether, and what, maintenance is needed. If establishment is considered incomplete, implement measures outlined in Section 5.3.3.
- **Goal No. 4**. Establish regionally appropriate vegetation that, to the extent practicable, will stabilize soils, control surface runoff, and prevent soil erosion.
    - **Objective 4a**. Maximize establishment of vegetation during the preconstruction and construction phases to stabilize soils and to meet the requirements of the National Pollutant Discharge Elimination System permit and the Project's Stormwater Pollution Prevention Plan (SWPPP).

- **Goal No. 5**. Establish regionally appropriate vegetation that, to the extent practicable, will increase ecological diversity and function.
    - **Objective 5a**. Design seed mixes to use species that provide pollinator value greater than that provided by existing vegetation and promote the establishment of a diverse vegetation community that provides ecosystem service throughout various growing seasons (i.e., spring through autumn seasons).

3 SITE DESCRIPTION

3.1 Project Location and Size

The proposed Project is a 100-MW AC nameplate capacity Solar Facility and a 100-MW BESS, and associated facilities to be located in Minden Township, Benton County, Minnesota. The Project would produce up to 201,480 megawatt hours of solar energy annually. The Project is located in Township 36 North, Range 30 West, Sections 13 and 23–26. Benton Solar plans to develop a 115-kV transmission line of 0.5 mile in length (and with a ROW extending 50.0 feet to either side of centerline) to deliver energy from the Project to the electric grid. Benton Solar is applying to the Commission for a Route Permit pursuant to Minnesota Statutes Chapter 216E and Minnesota Administrative Rules Chapter 7850 (Commission Docket IP7115/TL-23-425), and the transmission line is addressed in the Route Permit Application. The transmission Route varies in width ranging from 454.7 feet to 1,308.3 feet. The transmission line ROW describes the area 50.0 feet either side of the transmission line alignment (see Figure 2).

3.2 Land Cover

The Project is located in a primarily agricultural and rural community setting (Figure 3). Primary land cover within the transmission line ROW is agriculture (hay/pasture [3.3 acres, 62.3%] and cultivated crops [1.2 acres, 22.6%]). Herbaceous cover (0.5 acre, 9.4%) and barren land (0.2 acre, 5.7%) comprise the remainder of the transmission line ROW. The primary land use within the Site is cultivated crops (88.1%), followed by hay/pasture (4.5%) and deciduous forest (3.6%). Each of the remaining land cover types present in the Site accounts for 1.4% or less of the total area. The primary land use within the Preliminary Development Area is cultivated crops (97.3%). Table 3.2-1 presents land cover data for the Site and Preliminary Development Area (U.S. Geological Survey 2021).

Table 3.2-1. National Land Cover Data for the Site and Preliminary Development Area

Land Cover Type	Area (acreage) within the Site	Percentage of Total Acreage within the Site	Area (acreage) within the Preliminary Development Area	Percentage of Total Acreage within the Preliminary Development Area
Cultivated crops	838.1	88.1%	614.5	97.3%
Hay/pasture	43.1	4.5%	10.0	1.6%
Deciduous forest	34.5	3.6%	4.6	0.7%
Developed, low intensity	13.3	1.4%	1.3	0.2%
Developed, open space	9.1	1.0%	0.6	0.1%
Emergent herbaceous wetlands	4.5	0.5%	0.4	0.1%
Woody wetlands	3.7	0.4%	0.0	0.0%

Land Cover Type	Area (acreage) within the Site	Percentage of Total Acreage within the Site	Area (acreage) within the Preliminary Development Area	Percentage of Total Acreage within the Preliminary Development Area
Mixed forest	1.6	0.2%	0.1	0.0%
Developed, medium intensity	1.5	0.2%	0.1	0.0%
Evergreen forest	1.3	0.1%	0.3	0.0%
Herbaceous	0.3	0.0%	0.0	0.0%
Developed, high intensity	0.2	0.0%	0.0	0.0%
Total	**951.4**	**100.0%**	**631.9**	**100.0%**

Source: U.S. Geological Survey (2021).

*Totals may be off slightly due to rounding.

3.3 Existing Vegetation

The Site lies within the Mille Lacs Uplands Subsection Ecological Classification System (ECS) 212Kb and the Anoka Sand Plain Subsection ECS 222Mc (MDNR 2023b). ECS 212Kb is characterized by gently rolling till plains and drumlin fields of the Superior Lobe ground moraines and end moraine in east-central Minnesota. Pre-settlement vegetation consisted of a mosaic of forest types. ECS 222Mc consists of flat, sand lake plains and terraces occurring along the Mississippi River. Low moraines are locally exposed, small dune features and ice block depressions are present, and southwest-trending tunnel valleys occur on the sand plain. Pre-settlement vegetation predominantly consisted of oak barrens and openings on droughty uplands and sandplain brushlands (MDNR 2023b).

Benton Solar completed aquatic resources surveys for the Project in 2022, 2023, and 2024. The majority of the Preliminary Development Area is typical of agricultural areas in central Minnesota. Upland areas were dominated by common hackberry (*Celtis occidentalis*), white oak (*Quercus alba*), bur oak (*Quercus macrocarpa*), sugar maple (*Acer saccharinum*), reed canarygrass (*Phalaris arundinacea*), ground ivy (*Glechoma hederacea*), goldenrod (*Solidago altissima*), green bristlegrass (*Setaria viridis*), yellow foxtail (*Setaria pumila*), and smooth brome (*Bromus inermis*). American elm (*Ulmus americana*), Canada thistle (*Cirsium arvense*), and stinging nettle (*Urtica dioica*) are also present in upland. Dominant wetland vegetation included green ash (*Fraxinus pennsylvanica*), sugar maple, river birch (*Betula nigra*), broadleaf cattail (*Typha latifolia*), common spikerush (*Eleocharis palustris*), common threesquare (*Schoenoplectus pungens*), reed canarygrass, wildrye (*Elymus virginicus*), and barnyard grass (*Echinochloa crus-galli*). Softstem bulrush (*Schoenoplectus tabernaemontani*), narrowleaf cattail (*Typha angustifolia*), sensitive fern (*Onoclea sensibilis*), switchgrass (*Panicum virgatum*), prairie cordgrass (*Spartina pectinata*), and broadleaf arrowhead (*Sagittaria latifolia*) were also present within wetlands.

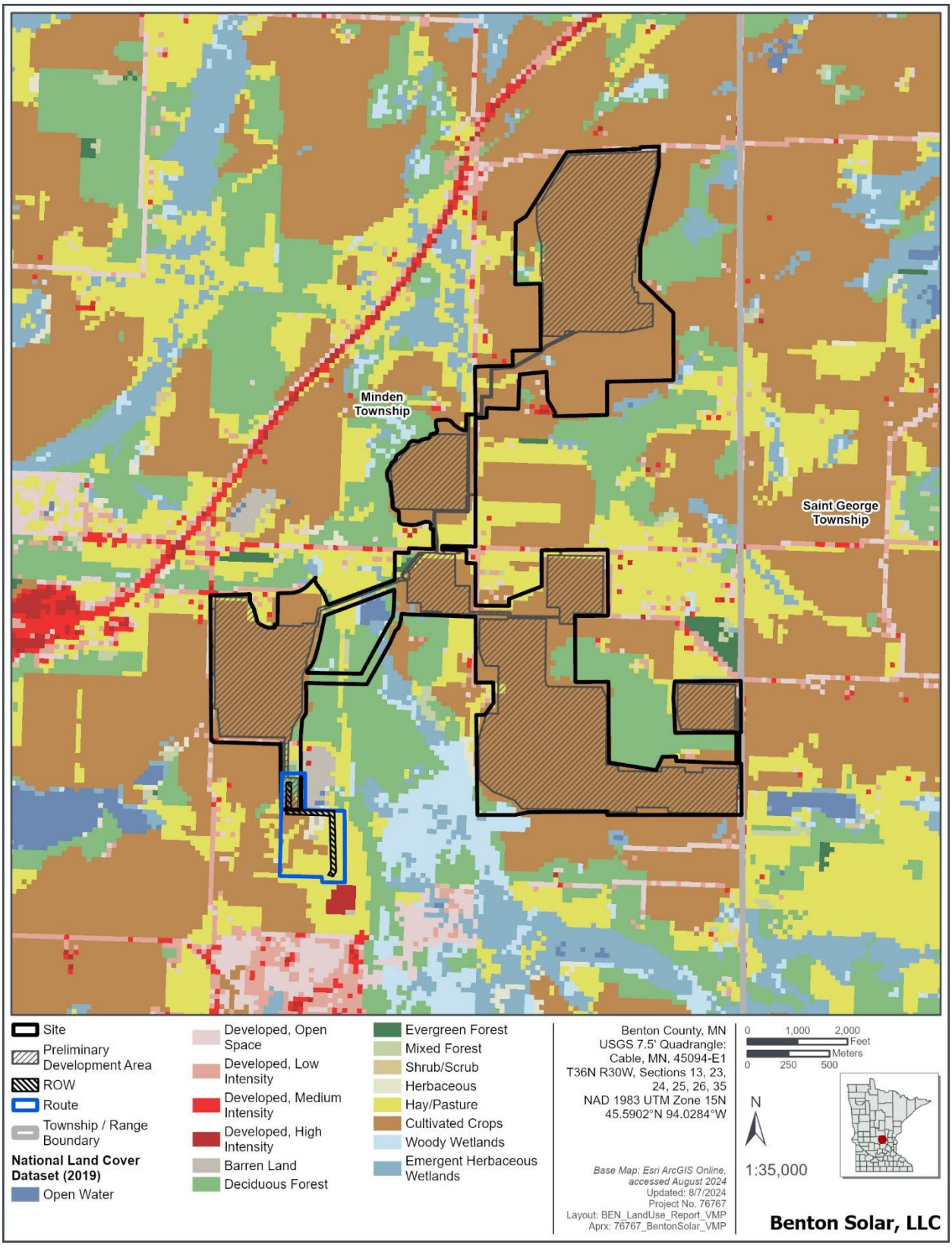

Figure 3. Land cover.

3.4 Soils

Soil resources within the Site and transmission line ROW were evaluated using the gridded Soil Survey Geographic database (SSURGO) (Soil Survey Staff 2023a). SSURGO, developed by the Natural Resources Conservation Service for natural resources planning and management, provides digital access to original soil survey data for streamlined use on GIS platforms. SSURGO identified 34 soil map units (SMUs) within the Site (Figure 4). Soils in the Site consist predominantly of mollisols and alfisols formed from outwash or sediments over till, alluvium (sediments deposited by running water of streams and rivers), and loess (material transported and deposited by wind and consisting of predominantly silt-sized particles) (Soil Survey Staff 2023b). Soils fall into a mesic temperature regime with average soil temperatures between 46.4 degrees Fahrenheit (°F) (8 degrees Celsius [°C]) and 59°F (15°C). Soil moisture regimes range from aquic (saturated long enough to cause oxygen depletion) to udic (humid or subhumid climate). Soils are generally very deep, excessively drained to very poorly drained, and sandy or loamy. Predominant soil textures consist of sandy, coarse loam, and loam. The Hubbard loamy sand and Milaca loam make up the predominant SMUs within the Site (Table A-1 in Appendix A).

Three SMUs were identified within the transmission line ROW (see Figure 4). The SMUs are Hubbard loamy sand, 2 to 6 percent slopes (21.2.0% of the transmission line ROW) and 6 to 12 percent slopes (26.9% of the transmission line ROW). SMU Stonelake-Sanburn complex, 15 to 40 percent slopes makes up the remaining 51.9% of the transmission line ROW.

3.5 Topography

The Project consists of a near level to gently rolling topography, with elevation ranging from 1,004 to 1,100 feet (Figure 5).

3.6 Hydrology

Benton Solar completed aquatic resources surveys for the Project in 2022, 2023, and 2024. A total of 13 wetlands totaling 23.5 acres were delineated within the Site. The total length of waterbodies within the Site is 0.2 mile (Figure 6). This includes one named river (Elk River) and three unnamed waterbodies. No wetlands or waterbodies are present in the transmission line ROW.

The National Park Service Nationwide Rivers Inventory does not identify any free-flowing stream or river sections in the Site or transmission line ROW (National Park Service 2022). There are 22.1 acres of Federal Emergency Management Agency–mapped floodplains in the Site, and 1.9 of these acres also occur in the Preliminary Development Area (MDNR and Federal Emergency Management Agency 2023). These floodplains are Special Flood Hazard Areas classified as Flood Zone A, with a 1.0% annual chance flood hazard. Outside of the floodplains, there are 68.3 acres of shoreland buffer in the Site, only 12.3 of which occur in the Preliminary Development Area (Benton County 2023a, 2023b). Shoreland is defined as a zone “within 1,000.0 feet of the ordinary high water mark of a lake or 300.0 feet of a river or stream on the landward side of a floodplain on such river” (Benton County 2023a). No floodplains or shoreland buffer areas are located in the transmission line ROW.

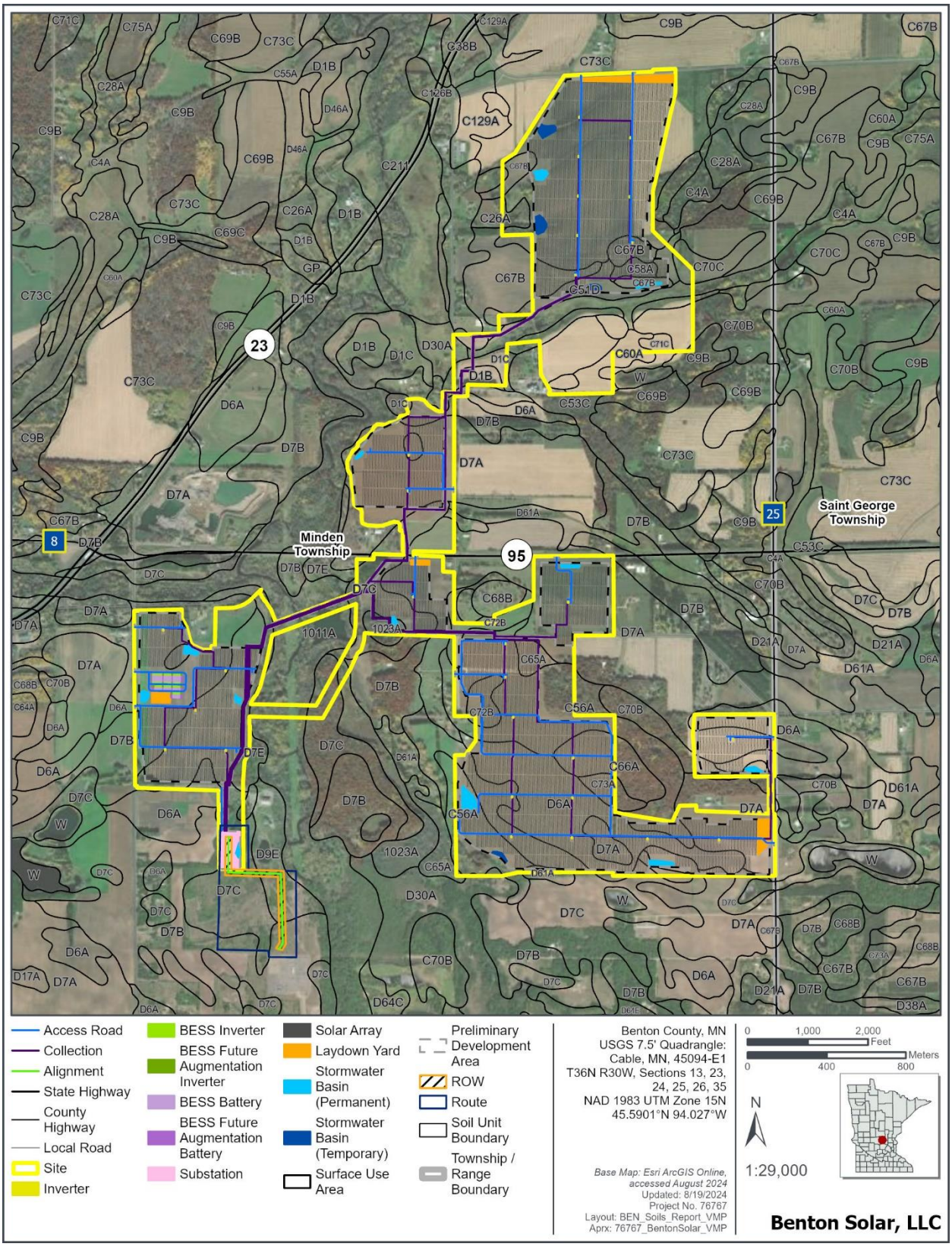

Figure 4. Soils.

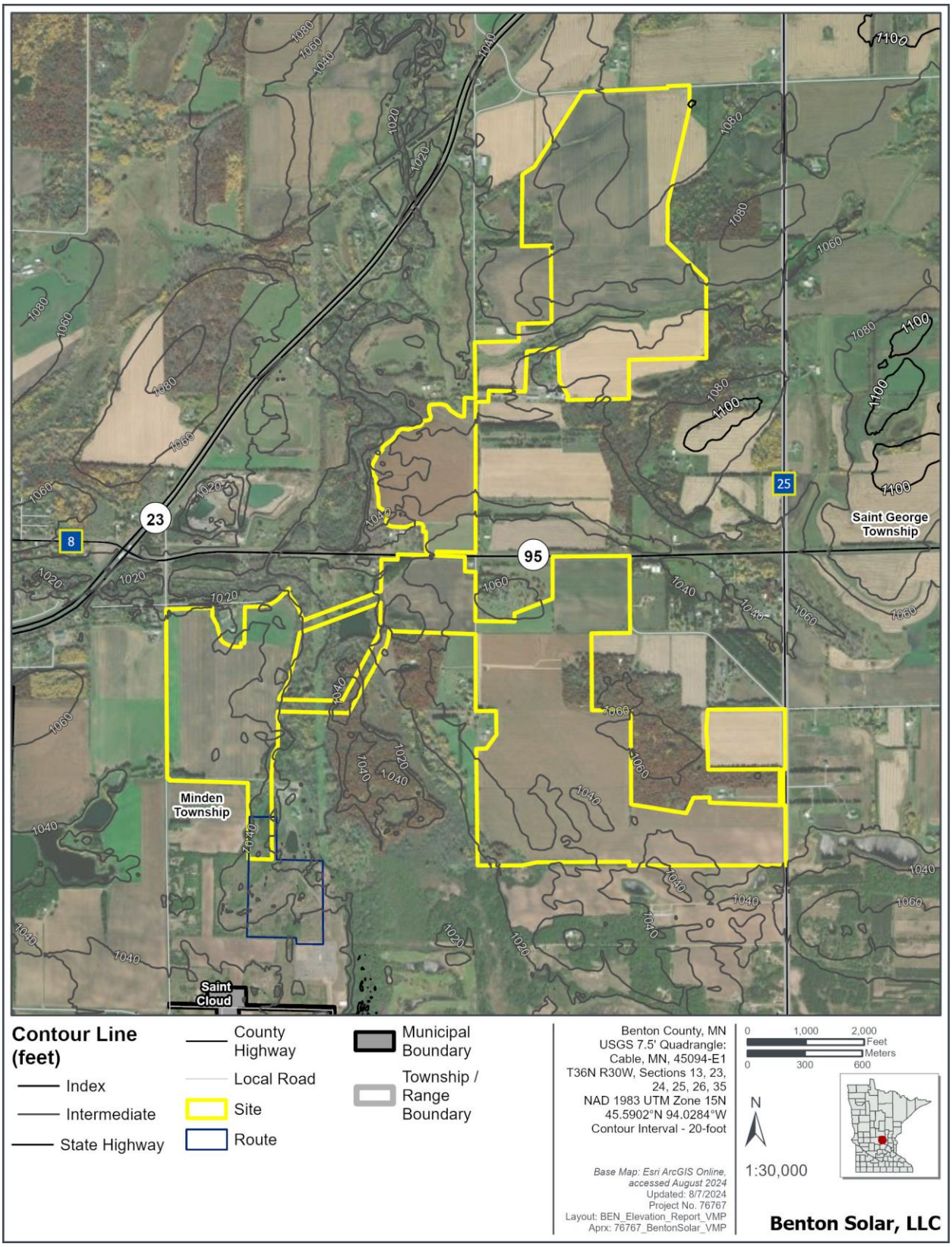

Figure 5. Topography.

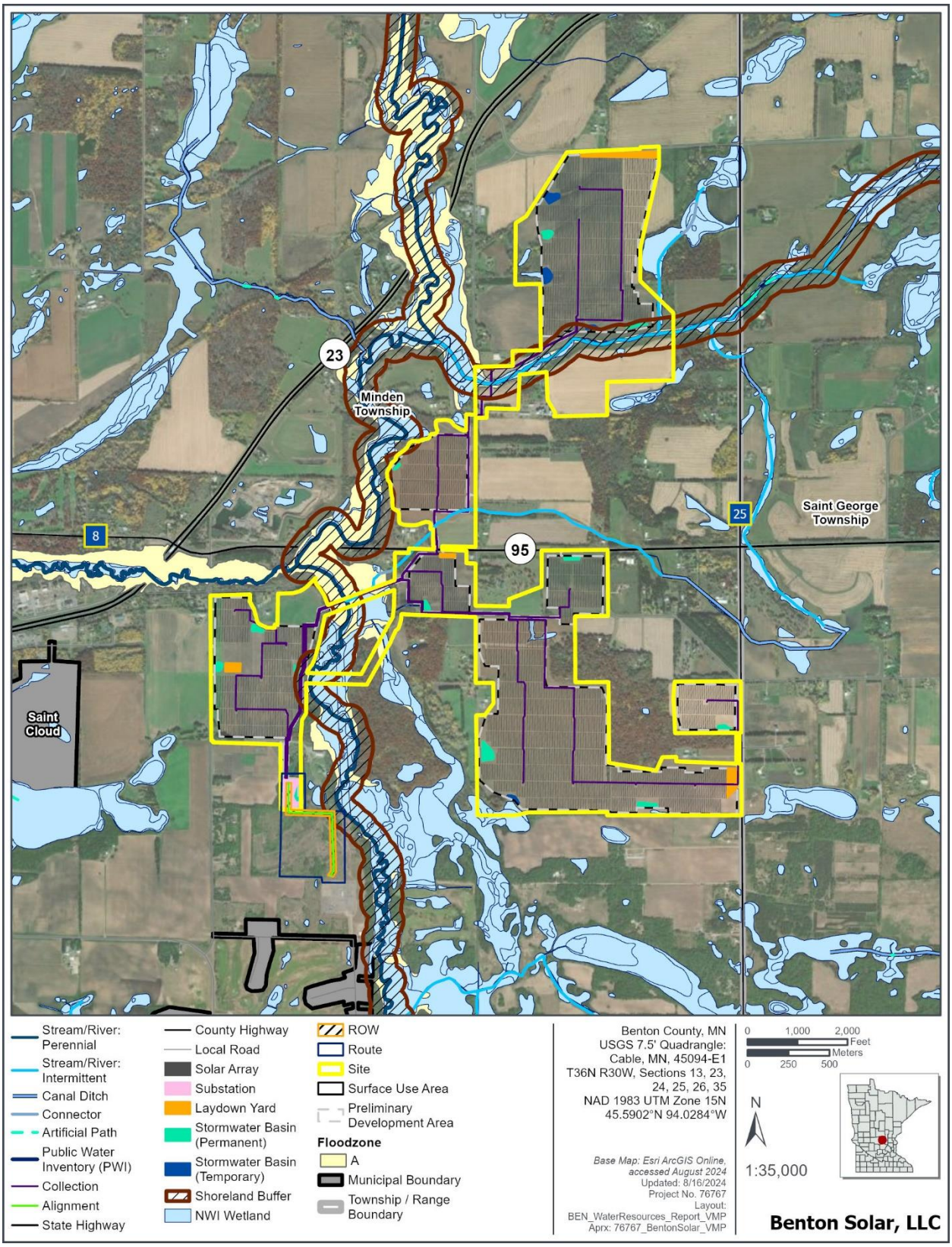

Figure 6. Hydrology.

4 VEGETATION MANAGEMENT AREAS AND ACTIONS

Vegetation management objectives have been developed specific to vegetation management areas, which include the array management area (510.8 acres), buffer management area (55.1 acres), and transmission line ROW management area (5.2 acres) (Figure 7). The majority (98.1%) of the array management and buffer management areas is currently agricultural (i.e., cultivated cropland and hay/pasture); Benton Solar will convert 571.1 acres, almost 90.0% of the Preliminary Development Area, to a pollinator-friendly landscape composed of regionally appropriate vegetation species that are designed to promote biodiversity through implementation of this plan. The size of each vegetation management area reported herein is approximate based on preliminary design and is subject to change during micrositing activities.

The following sections describe objectives for the preconstruction, construction, and O&M phases for the array management area and the buffer management area. The array management area and buffer management area share the same overall goals and objectives established herein and are both designed to meet the rigorous standards outlined in Section 5.2.1. The primary difference is that the buffer management area is not subject to vegetative height restrictions and thus utilizes a more diverse seed mix that includes taller species. The transmission line ROW management area is located on land owned by Great River Energy (GRE) in a corridor that is designated to host various transmission line and substation upgrades. Therefore, the restoration objective within the ROW will be to install a regionally appropriate seed mix compatible with GRE's utility expansion plans. The ROW will be managed using standard integrated vegetation management practices, including noxious weed control, in coordination with GRE and associated stakeholders. The BESS will be located on a graveled (or equivalent material) surface similar to the Project substation and is therefore not further addressed in this VMP.

Project construction stormwater permits may impose additional requirements related to type, quality, and performance of installed vegetation and will guide establishment of vegetation within stormwater basin areas. Buffer management area mix species (see Section 5.2.1) may also be utilized in stormwater basin areas if Project objectives and site conditions allow.

4.1 Preconstruction and Construction

Preconstruction begins when Benton Solar assumes Site control and ends when construction activities begin. Construction is the phase during which Facilities are installed and includes, but is not limited to, access road construction and installation of solar arrays.

The following vegetation management actions apply to vegetation and soil management during the Project's preconstruction phase and prior to the installation of any Facilities or land-disturbing activities.

- **Vegetation Management Action – PC1.** In portions of the management areas where grading is not anticipated as part of construction, establish the array management area mix and buffer management area mix (Section 5.2.1) during the earliest available optimal seeding window to initiate permanent vegetation establishment (see Section 5.2.2, Table 5.2-4).
- **Vegetation Management Action – PC2.** In portions of the management areas where grading is anticipated as part of construction, establish, and maintain a temporary seed mix/cover crop until grading is complete to provide soil stabilization and compliance with SWPPP conditions, where necessary. If construction activities extend beyond the life cycle of the temporary vegetation, consider reseeding areas, as necessary.

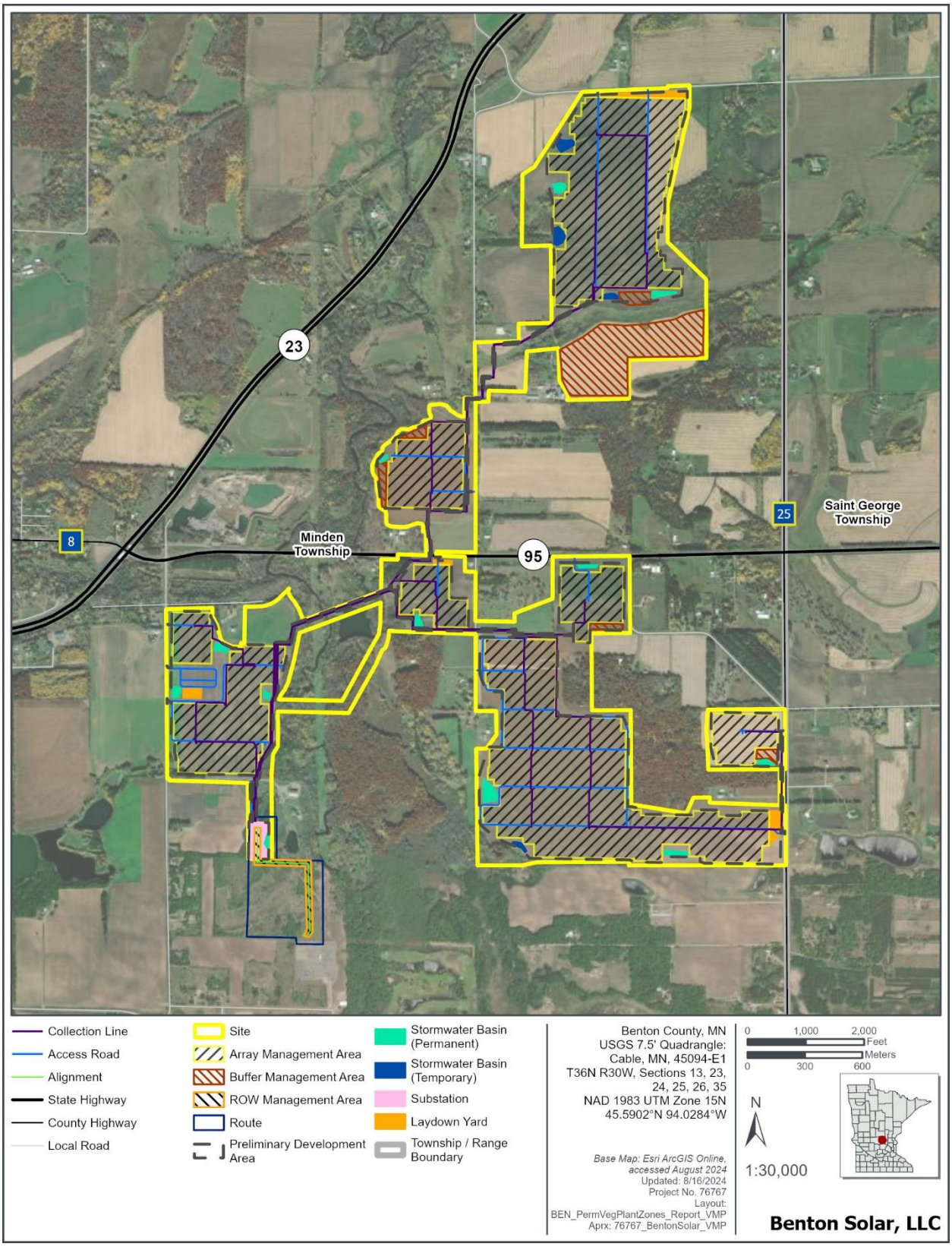

Figure 7. Management areas.

The following objectives apply to vegetation and soil management during the Project's construction phase.

- **Vegetation Management Action – C1.** In management areas where perennial vegetation was established during the preconstruction phase, manage vegetation in a manner that supports compliance with SWPPP conditions. Management includes mowing, herbicide applications, and reseeding areas disturbed by construction activities.
- **Vegetation Management Action – C2.** In management areas where construction requires grading or land disturbance, establish the array management area mix and buffer management area mix following completion of grading activities and prior to installation of Facilities (e.g., solar arrays, collection lines). Use management practices including mowing, spot-spraying, and reseeding to minimize establishment of state-listed noxious weed species (Minnesota Department of Agriculture [MDA] 2023a).
- **Vegetation Management Action – C3.** In areas where establishing the array management area mix and buffer management area mix immediately following construction is not possible, install a temporary seed mix to stabilize soil and control establishment of weeds and undesirable species, to remain compliant with SWPPP conditions and establish permanent vegetation during the earliest available optimal seeding window, and to increase the probability of successfully establishing vegetation. Use management practices including mowing, spot-spraying, and reseeding to minimize establishment of state-listed noxious weed species.

4.2 Postconstruction

4.2.1 Short-Term

Benton Solar understands the importance of demonstrating progress towards meeting desired objectives. Table 4.2-1 provides vegetation cover performance criteria for short-term and long-term objectives. Performance criteria are benchmarks and are included as a reference for measures obtained during inspections and monitoring, and to demonstrate trends or progress towards meeting and maintaining the management objectives. Benton Solar will compare actual vegetation performance to benchmarks in considering the success of current management in meeting objectives, and in identifying the need for additional, or different, management actions.

Table 4.2-1. Vegetation Cover Performance Criteria

Phase	Year	Percent Cover		
		Desired Species*	MDA-listed Noxious Weeds†	Undesirable Species
Establishment	1	≥25%	≤10%	≤50%
	2	≥50%	≤5%	≤30%
	3	≥75%	≤1%	≤10%
Maintenance	4+	≥85%	≤1%	≤10%

Note: Seeds installed during the growing season and prior to mid-September, that year would be considered Year 1. If seeds are installed after the growing season ends (approximately early November), germination of the seed is likely to occur in the following spring. Due to this, the following spring would mark the beginning of Year 1.

* Desired vegetation includes native seed mix species and/or naturally recruited species from existing vegetation; desired vegetation composition will be monitored, managed, and maintained to achieve vegetation management actions established for short-term management.

† MDA-listed noxious weeds will be managed in accordance with the Minnesota Noxious Wee Law (Minnesota Statutes 18.75-18.91); "prohibited-eradicate noxious weeds" will be managed to less than 1% cover with the primary goal of 0% cover from the initial identification; "prohibited-control noxious weeds" will be controlled in a way that prevents spread of these species.

Short-term management actions (STM) are defined as the desired conditions for management areas in Years 1 through 3 following construction activities (MDNR 2020). Short-term management objectives focus on establishing regionally appropriate perennial vegetation and are as follows.

- **Vegetation Management Action – STM-1.** Install prescribed seed mixes prior to construction as noted above, or if during construction, within the first 6 months following construction during the appropriate seeding window. Install seed mixes during the earliest available optimal seeding window to increase the probability of successfully establishing vegetation.
- **Vegetation Management Action – STM-2.** Establish or maintain > 70% temporary cover in disturbed areas that have not yet been revegetated (e.g., due to weather conditions) with a prescribed seed mix during either the preconstruction or construction phase, in order to meet National Pollutant Discharge Elimination System permit requirements for the Project.
- **Vegetation Management Action – STM-3.** During Year 1, mow to reduce presence of and competition with annual weeds; minimize MDA-listed noxious weed species to $\leq$ 10% cover; minimize weedy species to $\leq$ 50% cover; and establish $\geq$ 25% perennial vegetation cover.
- **Vegetation Management Action – STM-4.** During Year 2, mow to reduce presence of and competition with annual weeds; minimize MDA-listed noxious weed species to $\leq$ 5% cover; minimize weedy species to $\leq$ 30% cover; and establish $\geq$ 50% perennial vegetation cover.
- **Vegetation Management Action – STM-5.** During Year 3, use spot-herbicide applications, spot-mowing, and/or hand-weeding; limit MDA-listed noxious weed cover to $\leq$ 1% of total cover; and limit weedy species to $\leq$ 10% of total cover. Establish $\geq$ 75% perennial vegetation cover.
- **Vegetation Management Action – STM-6.** During Years 1 through 3, seasonally inspect and annually monitor management areas to identify where reseeding may be required. Consider whether modifications to seed mixes are appropriate as additional information about the Site is obtained.

4.2.2 Long-Term

Long-term management actions (LTM) are defined as the desired conditions for management areas in Year 4 through the end of the Project (MDNR 2020). Long-term objectives focus on maintaining regionally appropriate vegetation. Benton Solar's long-term management objectives follow.

- **Objective LTM-1.** Maintain percent of total vegetation cover as follows: perennial vegetation, $\geq$ 85%; state-listed noxious weeds, $\leq$ 1%; and weedy species, $\leq$ 10%.
- **Objective LTM-2.** Manage perennial vegetation through periodic mowing.
- **Objective LTM-3.** Use spot-herbicide applications, spot-mowing, and/or hand-weeding to control patches of noxious and invasive plants. Initiate adaptive management activities if MDA-listed noxious weed cover of "prohibited-eradicate noxious weed" species reaches or exceeds $\geq$ 1% of total cover, or if weedy species cover reaches or exceeds $\geq$ 10% of total cover.

5 ESTABLISHMENT AND MANAGEMENT PRESCRIPTIONS

Table 5-1 provides a general timeline of vegetation management activities relative to Project activities.

Table 5-1. General Timeline of Vegetation Management Activities

Activity	Description	Timeframe
Obtain seed	Coordinate with selected vendors to secure seed mix supplies.	During Project permitting to ensure sufficient availability of selected seed mixes.
Site monitoring during Project construction	Monitor for unexpected site alterations due to Project activities; modify VMP as needed.	Throughout Project construction.
Site preparation	Prepare seedbeds, control weeds/invasive species, install temporary seed as needed.	Disturbed, inactive areas requiring temporary seeding will be seeded and stabilized in accordance with the Project's SWPPP. Other site preparations will occur prior to permanent vegetation installation.
Permanent seed	Install permanent seed.	Immediately following site preparation activities or delayed until appropriate seasonal timing.
Establishment maintenance	Verify desired seed mix vegetation is established after installation for 3 years.	Immediately following installation of permanent seed and throughout the following 3 years.
Long-term maintenance	Maintain vegetation conditions.	Beginning in Year 4 and continuing throughout the life of the Project.

5.1 Site Preparation

Site preparation will begin immediately following the completion of construction-related ground-disturbing activities. As construction activities progress across the Preliminary Development Area, site preparation activities will follow. Prior to initiating site preparation activities for revegetation activities in any given location within the Preliminary Development Area, that location will be assessed to determine if construction activities have inadvertently altered the hydrology. Indication of potential unplanned alterations to hydrology include poor drainage due to severe compaction, broken drain tiles, and unanticipated surface water flow paths following precipitation events. If no signs of unplanned hydrological alterations are observed, site preparation activities will proceed. If signs of unplanned hydrological alternations are observed, appropriate actions will be implemented to address the concern to the extent practicable before proceeding with site preparation activities.

5.1.1 Topsoil and Subsoil Handling

Monitoring soil segregation and decompaction measures will be one of the ongoing priority activities conducted during construction to minimize handling and prevent impacts to the topsoil. During grading activities, topsoil will be stripped, stockpiled, and labeled, as practicable, to avoid mishandling or mixing with subsoil horizons. If needed, excavated subsoil will be windrowed adjacent to excavation in areas where topsoil has been salvaged. In these situations, subsoil will be returned to the excavation with no disturbance to topsoil as practicable (i.e., topsoil should be salvaged prior to subsoils excavation and segregated appropriately). Covering the topsoil with a thin layer of straw mulch to act as a buffer between the subsoil and topsoil may be used as necessary to facilitate a more effective separation of the subsoil and underlying topsoil.

- Topsoil thickness will be field tested by a Minnesota Licensed Professional Soil Scientist prior to earthwork activities within the Preliminary Development Area.
- Benton Solar will work with the soil scientist to label and identify the appropriate salvageable topsoil depth in that area.
- Benton Solar will provide this information and a recommendation on salvage and segregation methods/techniques to the environmental monitor for review and input.

Benton Solar suggests a salvageable topsoil depth of up to 12 inches in thickness; topsoil greater than 12 inches from the soil surface would be treated similarly to the underlying subsoil, unless indicated differently by the soil scientist.

- ***Grading Activities***
    - Topsoil will be salvaged and stockpiled in preselected areas to maintain soil characteristics and prevent undesirable species from establishing.
    - Topsoil stockpiles will be seeded with a desired seed mixture if in place for more than 14 days, or a duration specified in the SWPPP.
- ***Trenching Activities*** (including activities with similar operations of temporary excavations and backfilling)
    - Subgrade material will be backfilled first and compacted, as necessary, followed by backfilling with topsoil and grading to the approximate preconstruction contour.[2]

Compaction will be avoided to the extent possible.

- Topsoil will be backfilled as the top layer to maintain the overall integrity and character of the pre-disturbed areas following earthwork activities where segregation of topsoils/subsoils is required.
- Any excess topsoil material will be re-spread within the Project area at preestablished locations.

Topsoil stockpile volumes and locations will be documented to facilitate backfilling after decommissioning.

5.1.2 Mitigating Soil Compaction

Soils at construction sites are generally compacted as a result of excavation, stockpiling, equipment storage, and equipment traffic; soils high in clay content and those characterized by saturated conditions are more susceptible to compaction. The vegetation manager will assess soil compaction resulting from construction activities prior to permanent seed installation and will implement appropriate measures as needed to support the establishment of permanent seed.

- Decompact soils using a disk and a minimum of two passes in areas of shallow compaction (less than 12 inches).
- Decompact soils with a winged subsoiler or straight ripper shank followed by a disk in areas of deeper, more substantial compaction (greater than 12 inches).

5.1.3 Seedbed Preparation

Following soil decompaction, the vegetation manager will review the area and determine whether additional actions are needed to prepare the seedbed. Benton Solar will complete a soil suitability test prior to installation of permanent seed in areas representative of dominant SMUs in the Site (see Table A-1 in Appendix A). Testing will occur in one, at a minimum, randomly selected sample per dominant SMU. The testing will include an assessment of the soil's nutrient availability profile and presence of herbicide residue. A qualified agronomic laboratory will complete laboratory soils analyses and, if

[2] Benton Solar recognizes that topsoil mixing is both an aesthetic and crop-productivity issue and intends to minimize to the extent practicable topsoil and subsoil mixing during construction, operations, and decommissioning/reclamation. For the purpose of identifying areas where topsoil mixing is a potential issue, the environmental monitor will consider topsoil stockpiles, restored trench excavations, and post-closure restored areas with > 5% area of the soil surface as obvious subsoil inclusions to be out of compliance. Remediation may consist of removal of subsoil and replacement with acceptable topsoil.

necessary, provide recommendations regarding corrective measures necessary to achieve Project objectives in consideration of site-specific soil conditions.

Soils in the Preliminary Development Area have been used for crop production of nitrogen-fixing soybeans and augmented with nitrogen fertilizer for corn. Further, Benton Solar has designed seed mixes to select species and strains that do not require fertilizer, water, or pesticides to establish and maintain. Therefore, no soil amendments are anticipated.

The seedbed should be characterized by smooth, firm, and loose soil that will facilitate seed-to-soil contact during permanent vegetation installation.

- Benton Solar will determine any additional necessary actions to prepare seedbeds following the review of seedbed conditions by the vegetation manager and with consideration of timing.
    - Additional disking and/or ripping will be used to provide a uniform surface when post-grading surface would impact seed installation or growth, as needed.
- Cultipacking will be used to firm the seedbed, depending on seed installation technique and equipment.
- Areas with existing vegetation within proposed planting zones will be mowed to a height of 4 to 6 inches (see Figure 7).
    - Mowing will occur approximately 1 week prior to seed installation; where site conditions such as excessive soil moisture do not allow equipment access, hand mowing may be required to ensure seed can be adequately installed.

Mowing for site preparation is not required in areas where existing vegetation will remain. In such areas, no new seeding will occur.

5.1.4 Temporary Seed Mixes and Cover Crops

Temporary site stabilization activities will be implemented in accordance with the Project's SWPPP and/or any other plans related to stormwater management, erosion control, and temporary stabilization. This VMP is supplemental to and does not replace these plans or permits, although the seed mixes described in this VMP should be used to satisfy SWPPP revegetation requirements.

Temporary site stabilization may include seeding appropriate, temporary cover crops consisting of a seasonally appropriate, annual, quick germinating species (Table 5.1-1). Various methods including, but not limited to, a broadcast seeder, air seeder, hydroseeder, or a no-till drill method may be used to seed temporary cover crops.

If necessary for site stabilization, temporary cover crop/stabilization plantings of introduced cool-season grasses can occur anytime adequate soil moisture is present and soil temperatures are above 50°F. Weather forecasts will be monitored to determine when occasional watering may be necessary for temporary seeding occurring in late spring to early fall.

Table 5.1-1. Suitable Temporary Cover Crops

Common Name (scientific name)	Suggested Time of Use	Seeding Rate
Oats (*Avena sativa*)	Spring and summer	30–50 lbs/acre
Winter wheat (*Triticum aestivum*)	Fall	50–90 lbs/acre

Common Name (scientific name)	Suggested Time of Use	Seeding Rate
American slough grass (*Beckmannia syzigachne*) (for use in wet areas)	Fall and spring	7–10 lbs/acre

Source: University of Minnesota Extension (2023).

Following installation of temporary seed mixes, further actions may be needed for soil stabilization. The SWPPP includes a description of stabilization requirements. Common practices include hydromulching, mulching, and use of erosion control blankets or coir matting.

5.2 Seeding and Planting

The following section addresses the installation of native plant communities and applies to both the array management area and the buffer management area. Benton Solar will revise establishment methods as needed to ensure the seed mix used for final reclamation will be established successfully.

5.2.1 Seed Mixtures

Solar energy facilities typically have various requirements or restrictions that constrain the vegetation community being established under and surrounding solar arrays. Such requirements and restrictions may include the following:

- ***Vegetation Height***
    - The height of the vegetation is not to exceed the lower edge of the solar panel when it is fully tilted to the maximum angle to avoid shading of the panel. The Project's lower panel height will be approximately 20 to 24 inches off the ground. Therefore, plant species with maximum growth height of approximately 20 inches are preferred for permanent installation in the solar arrays.
- ***Mowing***
    - Periodic mowing during the growing season may be necessary over the life of the Project to ensure vegetation does not exceed the lower edge of solar panels (see Section 5.2). Installed permanent vegetation must be able to persist under this mowing schedule.
- ***Commercial Seed***
    - A substantial amount of seed mix is required for the successful establishment of permanent vegetation. The selected seed mix must contain species for which sufficient seed quantities are available. In some cases, seed shortages result in the need to use substitutions (see Table 5.2-3).
- ***Microclimate and Shading***
    - Solar arrays cause partial shading and other microclimate effects. The selected species in the seed mix must be sufficiently robust to persist under these conditions.

Benton Solar partnered with the BBHF through the Solar Synergy program to develop specific regionally appropriate seed mixes for the Project (see Appendix A). The Solar Synergy program consists of uniquely designed outcomes that deliver multiple key benefits to projects, including the following:

- **High-value pollinator seed mixtures**

  The BBHF program uses NextGen Conservation custom seed mixtures, which are designed in consideration of no fewer than 15 different factors and project objectives. This ensures that not only are a project's objectives being met, but that the project produces significant pollinator

health and beneficial habitat. Additionally, NextGen Conservation seed mixtures are designed to promote biodiversity, greatly enhance soil health, and improve water quality within a solar site.

To achieve the Project's objectives, two different seed mixes would be installed within two designated areas of the Project area to satisfy goals geared towards pollinator health and beneficial habitat:

- Solar Array Area

  As described above, pollinator species would be selected under special consideration to fulfill growth height requirements, undergo mowing, be able to withstand shading and microclimate effects, and capable of fast establishment. While selection of these pollinator species may be limited due to restrictions and Project requirements, a second seed mix would be designed and installed within an open area or the buffer area.

- Buffer Area

  Due to the limitations the solar array area seed mix may pose, a buffer area seed mix would be designed that would not be confined to solar array vegetation requirements and/or restrictions. The pollinator species within the buffer area seed mix would consist of a diverse mixture of grasses and forbs of various heights and bloom periods.

- **Extensive monitoring of pollinator health**

  The MJV collects baseline and ongoing pollinator and habitat information for Solar Synergy sites on an annual basis. An extensive list of health and habitat outcomes are monitored and recorded including the documentation of which floral resources the pollinators are using within the habitat, which pollinator species are present, and the abundance of milkweed. There is an expected increase in the overall presence of pollinators as well as other wildlife, such as grassland songbirds, at sites using the Solar Synergy program (BBHF 2023).

The following sections described the array management area and buffer management area seed mixes in detail.

ARRAY MANAGEMENT AREA SEED MIX

Benton Solar will use a low-growing seed mix (Table 5.2-1) for long-term ground cover within the array management area (i.e., solar arrays). Seed mix development was informed by MDNR guidance to meet the following mid-diversity upland standards:

- A minimum seeding rate of 40 seeds/square foot;
- At least 30% of the total seeding rate should be composed of perennial forbs;
- Five or more native grass/sedge species with at least two species of bunchgrass;
- Ten to 15, or more, native forbs with at least three species in each bloom period: Early (April–May), Mid (June–July), and Late (August–October);
- Contain species of each group: cool-season grasses; warm-season grasses; sedges/rushes; legume; and non-legume forbs; and
- Include species of various plant families to support the widest diversity of pollinator species and enhance the overall health of planting.

The array management area mix will provide a community of relatively short-statured native species under solar panels. The seed mix will be composed of approximately 70% grasses and 30% forb species (i.e., wildflowers and legumes) that typically do not exceed a height of 24 inches, to minimize (with

management, including mowing) concerns for shading of and interference with solar panels. In addition, the mixture of native grasses and forbs will help to prevent undesirable vegetation from establishing under solar panels. Potential undesirable vegetation, such as fast-growing broadleaf invasive and noxious plants, will be identified more readily among native grasses as compared to among more high diversity mixtures dominated by forbs. Improved visibility of undesirable vegetation provides opportunities for more targeted treatments and reduced herbicide use in a timelier manner.

Table 5.2-1 provides details on the composition, seed numbers, and seeding rate of the array management area mix.

Table 5.2-1. Array Management Area Seed Mix Details

Component/Species	Scientific Name	Seeds per Square Foot	Seeding Rate (bulk lbs/acre)
Blue grama, alma	*Bouteloua gracilis*	4.99	0.300
Creeping red fescue – boreal	*Festuca rubra*	3.67	0.400
Fowl bluegrass	*Poa palustris*	4.35	0.060
Fowl mana grass	*Glyceria striata*	2.12	0.060
Fox sedge	*Carex vulpinoidea*	3.31	0.100
Path rush	*Juncus tenuis*	7.35	0.020
Plains oval sedge	*Carex brevior*	2.98	0.200
Prairie junegrass	*Koeleria macrantha*	4.25	0.080
Sideoats grama	*Bouteloua curtipendula*	4.39	1.200
Blackeyed susan	*Rudbeckia hirta*	1.81	0.050
Blacksamson	*Echinacea angustifolia*	0.46	.080
Dotted gayfeather	*Liatris punctata*	0.16	0.050
False boneset	*Brickellia eupatorioides*	0.48	0.040
Golden alexander	*Zizia aurea*	0.40	0.100
Gray goldenrod	*Solidago nemoralis*	0.69	0.030
Heal all	*Prunella vulgaris*	1.19	0.080
Heath aster	*Symphyotrichum ericoides*	0.25	0.003
Missouri goldenrod, native source	*Solidago missouriensis*	1.16	0.008
Prairie ragwort, native source	*Senecio plattensis*	0.05	0.001
Prairie trefoil	*Lotus purshianus*	0.16	0.100
Purple prairieclover	*Dalea purpurea*	0.73	0.100
Slender beardstongue	*Penstemon gracilis*	0.25	0.001
Upright coneflower	*Ratibida columnifera*	1.69	0.100
Western yarrow	*Achillea millefolium*	2.29	0.035
Whorled milkweed	*Asclepias verticillata*	0.023	0.004
Woolly plantain, native source	*Plantago patagonica*	0.35	0.025
Oats	*Avena sativa*	4.45	10.000
Grasses Total	–	37.397	2.420
Wildflower/Forb/Legume Total*	–	16.702	10.807

Component/Species	Scientific Name	Seeds per Square Foot	Seeding Rate (bulk lbs/acre)
Total Mixture	–	**54.100**	**13.227**

* Bloom periods include April to May (5 species); June to July (7 species); and August to October (5 species).

5.2.1.1 BUFFER MANAGEMENT AREA SEED MIX

Benton Solar will install a more diversified pollinator seed mix within designated buffer management areas or open areas outside of solar arrays (Table 5.2-2). This seed mix includes native species of varying heights ranging from 1 to 4 feet with bloom times distributed throughout the growing season. Due to the typical height of these species and the potential for such vegetation to shade panels or otherwise impact array performance, this seed mix is proposed within fenced and non-fenced areas only where planting and growth to full height will not impact energy production.

Table 5.2-2 provides details on the composition, seed numbers, and seeding rate of the buffer management area seed mix that Benton Solar may install in buffer management areas or open areas outside of solar arrays.

Table 5.2-2. Buffer Management Area Seed Mix Details

Component/Species	Scientific Name	Seeds per Square Foot	Seeding Rate (bulk lbs/acre)
Big bluestem, Kaw	*Andropogon gerardii*	0.99	0.300
Canada wildrye	*Elymus canadensis*	1.31	0.500
Little bluestem, VNS	*Schizachyrium scoparium*	2.21	0.400
Path rush	*Juncus tenuis*	11.02	0.030
Plains oval sedge	*Carex brevior*	0.37	0.025
Prairie junegrass	*Koeleria pyramidata*	1.59	0.030
Sideoats grama, El Reno	*Bouteloua curtipendula*	1.83	0.500
Ashy sunflower, native source	*Helianthus mollis*	0.14	0.030
Blackeyed susan	*Rudbeckia hirta*	1.27	0.035
Blanketflower	*Gaillardia pulchella*	1.07	0.250
Butterfly milkweed	*Asclepias tuberosa*	0.04	0.025
Canada milkvetch	*Astragalus canadensis*	0.50	0.080
Canada tick-trefoil	*Desmodium canadense*	0.20	0.100
Common evening primrose	*Oenothera biennis*	1.11	0.035
Common milkweed	*Asclepias syriaca*	0.09	0.050
Dotted mint	*Monarda punctata*	1.01	0.030
Entire-leaved rosinweed, native source	*Silphium integrifolium*	0.02	0.030
False or oxeye sunflower	*Heliopsis helianthoides*	0.48	0.200
Foxglove beardstongue	*Penstemon digitalis*	0.28	0.030
Golden alexander	*Zizia aurea*	0.36	0.090
Gray goldenrod	*Solidago nemoralis*	0.23	0.010
Grayhead coneflower	*Ratibida pinnata*	0.59	0.060

Component/Species	Scientific Name	Seeds per Square Foot	Seeding Rate (bulk lbs/acre)
Heal all	*Prunella vulgaris*	0.90	0.060
Hoary vervain	*Verbena stricta*	0.67	0.050
Illinois bundleflower	*Desmanthus illinoensis*	0.20	0.100
Lanceleaf coreopsis	*Coreopsis lanceolata*	1.27	0.250
Late or giant goldenrod, native source	*Solidago gigantea*	1.39	0.008
Missouri goldenrod	*Solidago missouriensis*	0.87	0.006
New England aster	*Symphyotrichum novae-angliae*	0.48	0.020
Plains coreopsis	*Coreopsis tinctoria*	1.85	0.025
Plains sunflower	*Helianthus petiolaris*	0.12	0.045
Prairie aster	*Symphyotrichum falcatum*	0.47	0.050
Prairie cinquefoil	*Drymocallis arguta*	1.01	0.010
Purple coneflower	*Echinacea purpurea*	0.66	0.250
Rattlesnake master	*Eryngium yuccifolium*	0.14	0.035
Rough gayfeather	*Liatris aspera*	0.13	0.020
Roundhead lespedeza	*Lespedeza capitata*	0.16	0.040
Shell-leaf penstemon	*Penstemon grandiflorus*	0.15	0.030
Showy partridgepea	*Chamaecrista fasciculata*	0.90	0.600
Showy-wand goldenrod	*Solidago speciosa*	0.98	0.010
Skyblue aster	*Symphyotrichum oolentangiense*	0.44	0.015
Smooth blue aster	*Symphyotrichum laeve*	0.58	0.025
Stiff goldenrod	*Solidago rigida*	0.46	0.030
Stiff sunflower	*Helianthus pauciflorus*	0.51	0.030
Swamp milkweed	*Asclepias incarnata*	0.10	0.027
Tall boneset	*Eupatorium altissimum*	0.31	0.017
Upright coneflower	*Ratibida columnifera*	1.02	0.060
Western yarrow	*Achillea millefolium*	1.31	0.020
White prairieclover	*Dalea candida*	0.63	0.090
White wild indigo	*Baptisia alba*	0.02	0.040
Wild bergamot	*Monarda fistulosa*	1.46	0.050
Wild quinine	*Parthenium integrifolium*	0.13	0.050
Wild senna	*Senna hebecarpa*	0.03	0.060
Rice hulls - Filler for low planting rate mixtures		0.00	4.000
Grasses Total	–	*19.325*	*1.785*
Wildflower/Forb/Legume Total*	–	*26.729*	*3.178*
Filler Total	–	*0.000*	*4.000*
Total Mixture	–	**46.055**	**8.963**

* Bloom periods include April to May (7 species); June to July (25 species); and August to October (14 species).

5.2.1.2 SUBSTITUTIONS

Benton Solar and BBHF selected individual native species for their attributes appropriate for the specific applications described above. These species also are generally commercially available and have a reasonable chance of successful establishment when managed as outlined in this VMP. Shortages of individual species occasionally occur; therefore, substitutions may be necessary to meet the objectives regarding the number of species in each mix and seeding rates in terms of seeds per square foot and pounds of seed per acre. Benton Solar and its contractors intend to coordinate with the BBHF and applicable agencies regarding proposed species substitutions before seeding commences to ensure that the original vegetation management objectives will still be met.

Table 5.2-3 provides suitable substitute species for Project seed mixes.

Table 5.2-3. Substitution Seed Mix Species

Component/Species	Scientific Name
Grasses	
Fowl bluegrass	*Poa palustris*
Fowl mana grass	*Glyceria striata*
Forbs	
Canada milkvetch	*Astragalus canadensis*
Canada tick-trefoil	*Desmodium canadense*
Common evening primrose	*Oenothera biennis*
Common milkweed	*Asclepias syriaca*
Entire-leaved rosinweed, native source	*Silphium integrifolium*
False boneset	*Brickellia eupatorioides*
False or oxeye sunflower	*Heliopsis helianthoides*
Foxglove beardtongue	*Penstemon digitalis*
Golden alexander	*Zizia aurea*
Gray goldenrod	*Solidago nemoralis*
Grayhead coneflower	*Ratibida pinnata*
Heath aster	*Symphyotrichum ericoides*
Illinois bundleflower	*Desmanthus illinoensis*
Late or giant goldenrod, native source	*Solidago gigantea*
New England aster	*Symphyotrichum novae-angliae*
Plains coreopsis	*Coreopsis tinctoria*
Plains sunflower	*Helianthus petiolaris*
Prairie aster	*Symphyotrichum falcatum*
Prairie cinquefoil	*Drymocallis arguta*
Purple coneflower	*Echinacea purpurea*
Rattlesnake master	*Eryngium yuccifolium*
Rough gayfeather	*Liatris aspera*
Roundhead lespedeza	*Lespedeza capitata*

Component/Species	Scientific Name
Shell-leaf penstemon	*Penstemon grandiflorus*
Showy partridge pea	*Chamaecrista fasciculata*
Showy-wand goldenrod	*Solidago speciosa*
Skyblue aster	*Symphyotrichum oolentangiense*
Slender beardtongue	*Penstemon gracilis*
Smooth blue aster	*Symphyotrichum laeve*
Stiff goldenrod	*Solidago rigida*
Stiff sunflower	*Helianthus pauciflorus*
Swamp milkweed	*Asclepias incarnata*
Tall boneset	*Eupatorium altissimum*
Upright coneflower	*Ratibida columnifera*
Western yarrow	*Achillea millefolium*
White wild indigo	*Baptisia alba*
Whorled milkweed	*Asclepias verticillata*
Wild quinine	*Parthenium integrifolium*
Wild senna	*Senna hebecarpa*

5.2.2 Timing

Dormant seeding generally is preferred because it reduces initial competition with established plants, allows species to cold stratify properly, and allows seeds to germinate in the spring at the earliest opportunity, which further decreases competition. Dormant seeding can occur within both array and buffer management areas after November 1 until the ground freezes. Seeding rates should be increased by 25% for dormant seeding to account for losses due to wildlife consumption and decreased germination rates after winter.

If seeding occurs during the growing season, the optimal time to plant seeds is between April 1 and July 1. Table 5.2-4 provides a summary of options for seeding timing and installation methods for both array and buffer management areas. The vegetation manager will monitor weather forecasts to determine when occasional watering may be necessary for permanent seeding occurring in late spring to early fall.

Table 5.2-4. Summary of Seeding Timing and Installation Methods

General Timing	Methods	Justification
April 1 – May 31	Air seeder or hydroseeder, no-till drill, broadcast seeder	Seed can be installed once soil temperatures reach 60°F
June 1 – June 30	Air seeder or hydroseeder, no-till drill, broadcast seeder	Not preferred, but vegetation manager may approve seed installation before summer heat
July 1 – November 1	Air seeder or hydroseeder, no-till drill, broadcast seeder	Temporary seed mix/cover crop, if needed (no Management Area mix seeding during this period)
November 1 – ground freeze	No-till drill (recommended) or broadcast seeder	Dormant seeding after soil temperature drops below 50°F; use winter wheat as a cover crop
Ground freeze – April 1	None	Not recommended

Note: Timing and method based on MDNR (2020) recommendations for native seeding in southern Minnesota.

There may be a gap between the season/time at which site preparation activities are complete and the optimal seeding window for installation of permanent seed mixes. One strategy to cover this gap is to install a seasonally appropriate temporary cover crop per guidelines outlined in Table 5.1-1. The temporary cover crop will stabilize such locations and assist in suppressing undesirable vegetation from establishing. Once the appropriate seeding window arrives, the temporary cover crop can be removed, if necessary, through herbicide application or rough-cut mowing. Selection of the most appropriate seeding method for permanent seed mixes (see Section 5.2.1) should consider the presence of temporary cover crops and/or plant debris.

5.2.2.1 PERMANENT SEEDING PRIOR TO INFRASTRUCTURE INSTALLATION

If site preparation and final grading is completed in spring and allows for permanent seeding prior to June 30, Benton Solar may opt to install seed in all disturbed areas prior to installation of Facilities. Although seeding before Facilities are installed may result in decreased seed-to-soil contact related to equipment maneuvering, this approach allows native vegetation to begin root development and establishment concurrent with installation of Facilities. This approach offers advantages related to the initial seeding phase on undeveloped areas, such as reducing the labor intensity of necessary seeding methods.

If Benton Solar opts to install seed prior to Facility installation, it is anticipated that soil disturbance during construction will damage some seeded areas, particularly in heavily trafficked areas. This may be especially likely in wet areas or during wet soil conditions. This may necessitate preparing a seedbed and limited supplemental reseeding following installation of Facilities. To minimize disturbance of seeded areas, it is recommended that rubber-tracked, rather than rubber-tired, equipment be used during construction as practicable.

Following installation of permanent seed mixes, further actions may be needed for soil stabilization. The SWPPP includes a description of stabilization requirements. Common practices include hydromulching, mulching, and use of erosion control blankets or coir matting.

5.2.2.2 PERMANENT SEEDING FOLLOWING INFRASTRUCTURE INSTALLATION

If site preparation and final grading are not completed prior to June 30, or if Benton Solar opts not to install permanent seed prior to installation of Facilities, then disturbed areas will be seeded with a temporary cover crop following final grading to stabilize soils and prevent erosion during construction.

In this case, the vegetation manager would install a permanent seed mix in late fall or during the following spring (if Facility installation is not completed prior to soil freezing in fall). Seed application the following spring would adhere to methods described in Section 5.2.3. The MDNR (2020) recommends that fall dormant seedings occur after soil temperatures reach 50°F or below. If construction is completed in late fall, allowing for seeding after November 1 and before soils freeze, seed mixes will include approximately 30 pounds live seed per acre of winter wheat to provide a temporary nurse crop for the following year (instead of oats as a cover crop). A seeding in the following spring may be substituted for the fall dormant seeding. However, installing seed in the same year as Facility installation is preferred to facilitate early spring vegetative establishment and advance the timeline for terminating Site construction stormwater permits and monitoring requirements.

Following installation of permanent seed mixes, further actions may be needed for soil stabilization. The SWPPP includes a description of stabilization requirements. Common practices include hydromulching, mulching, and use of erosion control blankets or coir matting.

5.2.3 Seeding Methods

To properly conduct on-site seeding techniques, weather and site conditions must be suitable for the selected seeding method to ensure an adequate seeding rate and to minimize soil clodding or mixing. The vegetation manager is expected to use their expertise in recommending modifications to the proposed seed applications and methods. Once the seedbed has been prepared as outlined in Section 5.1.3, seed installation methods should be implemented as follows:

5.2.3.1 SEED INSTALLATION

Installation of seed mixes within both array and buffer management areas will consist of the following:

- Seed application at proper rates per acre.
- Sowing seed at a maximum depth of 0.13 to 0.25 inch into the soil.
- The seed mix and any inert material must be thoroughly mixed at the time of installation.
- Appropriate permanent seed installation equipment as determined by the vegetation manager.
    - If mowing and thatch removal is not completed prior to seeding, permanent seed installed within existing vegetation (e.g., cover crops) may be installed by a drill and may be necessary within the solar array where installation via a driller seeder is not feasible.
- It is preferred that seed be installed in two perpendicular passes. However, if the Project layout does not allow for two perpendicular passes, the seed can be installed in one pass.
- Broadcast seeding at a 1.5x seed rate is appropriate for segments of the Project area that are inaccessible to drill seeding equipment.
    - May require raking of seeds to ensure good seed-to-soil contact.
    - This method is best applied during non-windy conditions.
- A cultipacker must be used following seed installation to ensure a firm seedbed, and increased seed-to-soil ratios and corresponding seed germination rates.

Equipment

Several types of equipment can be used to install seed and can be used for any of the seed mixes described in this VMP. The vegetation manager will evaluate the Site to determine what equipment will produce the best results and can operate safely within the Site. When using this equipment, it is important that the Site be prepared as described in Section 5.1 to ensure a high seed-to-soil contact ratio, which is critical to successful germination. Seed installation equipment may include and is not limited to the following:

- No-till grass drill
- Cultipacker
- Air seeder or hydroseeder
- Broadcast seeder

5.3 Vegetation Management

5.3.1 Establishment: Years 1 through 3

Establishment within the array and buffer management areas will typically occur over the three growing seasons following seed installation. Management activities implemented during the first three growing seasons (e.g., "years") are intended to control noxious and invasive weeds, facilitate seed establishment, and support meeting the performance criteria found in Table 4.2-1. These management activities differ from the long-term management activities described in Section 5.3.2.

If seeds are installed during the growing season and prior to mid-September, that year would be considered Year 1. If seeds are installed after the growing season ends (approximately early November), germination of the seed is likely to occur in the following spring. In that case, the following spring would mark the beginning of Year 1. Annual forbs should establish within the first growing season. Perennial grass and forb species may not become apparent during the first growing season and may require up to 3 years to establish.

5.3.1.1 YEAR 1

Year 1 management activities focus on noxious and invasive weed control. During Year 1, native vegetation prioritizes root development and seedlings may reach only 4 to 6 inches in height. Mowing will prevent noxious and invasive weeds from adding new seeds to the soil and will begin to exhaust the soil seed bank, a process that can require several years. Project-wide mowing will occur as described in Table 5.3-1. The actual mowing frequency and timing will depend on when seeding was completed and on weather and Site conditions and will be determined by the vegetation manager. Benton Solar will remain flexible and adaptive regarding mowing frequency and timing to accommodate factors that cannot be predicted or that are beyond Benton Solar's control. For example, fewer mowings may be needed in a dry year and more mowings may be appropriate in a wet year. However, wet conditions also may prevent mowings during optimal times. Mechanized mowing will not be conducted when soil is saturated, as this could result in rutting, compaction, and/or soil displacement. Such disturbances could create localized areas of seed failure and/or invasive species establishment. To avoid this, Benton Solar will do one of the following:

- Postpone mechanized mowing until soils are not saturated;
- Use small equipment or equipment with flotation tires to avoid impacts to soil; or
- Use handheld equipment (e.g., brush cutters).

During all mowing events described in this VMP, the vegetation manager will take measures to avoid destroying ground-nesting bird nests during the nesting season (approximately May 15 to August 1).

Repeated mowing has potential to create a build-up of organic thatch that discourages the establishment of installed seed mixes. To avoid or minimize this build-up, mowing will be conducted with a flail-type mower that mulches the cut vegetation. A swing arm designed for mowing under solar panels is recommended. Spot-mowing with brush saws, weed whips, and similar equipment may also be appropriate in some areas.

Benton Solar will approve mowing techniques not addressed specifically in this VMP prior to implementation. The vegetation manager will clean mowing equipment prior to each use to prevent the introduction of invasive species.

Table 5.3-1. Mowing Recommendations During Establishment Years 1 through 3

Seed Mix	Year 1	Year 2	Year 3
Array Management Area Mix	Site-wide mowing to a height of 4 to 6 inches will occur as needed according to Site and weather conditions, and prior to weeds setting seed. Several mowing events may be needed. Mowing should occur when vegetation is between 18 and 24 inches in height. The vegetation manager will use appropriate equipment to reduce potential organic thatch build-up that may discourage the establishment of installed mixes. Herbicides may be used to treat perennial weeds.	Site-wide mowing to a height of 4 to 6 inches will occur one to two times in the growing season, according to Site and weather conditions, and prior to weeds setting seed. The vegetation manager may utilize spot-mowing to treat specific problem areas as needed and will conduct a minimum of two herbicide applications to treat noxious and perennial weeds.	Spot-herbicide applications may be used to control the remaining small patches of persistent weeds. Spot-mowing and hand-weeding may also be used.
Buffer Management Area Mix	Mow when vegetation reaches 12 to 18 inches in height and cut to a height of 4 to 6 inches. Up to three mowing events may be required depending on Site and weather conditions.	Mow when vegetation reaches 18 to 24 inches and cut to a height of 10 to 12 inches. One or more mowing events may be required depending on Site and weather conditions.	A single mowing event should occur prior to the start of the growing season during the dormant season (i.e., from November through March). Mow dormant vegetation to a height of 4 to 6 inches. This will remove the previous growing season's vegetative growth and accelerate decomposition of accumulated thatch.

In addition to mowing, noxious and perennial weeds may be treated through the application of herbicides, as described below, to prevent roots from resprouting.

5.3.1.2 YEAR 2

The second year of establishment continues to focus on noxious and invasive weed control but incorporates more targeted techniques. By this time, native grasses should have begun to form clumps but remain short, and some flowering should occur throughout the growing season. Site-wide mowing to a height of 4 to 6 inches one to two times between late spring/early summer, prior to weeds setting seed (see Table 5.3-1).

The vegetation manager may conduct spot-mowing to treat specific noxious and invasive weed areas, as needed. The vegetation manager will treat noxious and invasive weeds with at least two spot-herbicide applications.

5.3.1.3 YEAR 3

In the third year of establishment, noxious and invasive weed control will consist of spot-herbicide applications to control remaining patches of persistent noxious and invasive plants. The vegetation manager also may utilize spot-mowing or hand-weeding, if needed (see Table 5.3-1).

5.3.2 Long-Term: Year 4 to End of Project

The establishment period should be complete following Year 3. At this time, installed seed mixes should be sufficiently established and management areas will enter long-term management beginning with year 4. The vegetation manager will complete inspections approximately twice annually (June and September) in Year 4 and in all subsequent years to determine whether, and what, maintenance is needed.

Additionally, the MJV will conduct annual monitoring for up to 6 years to collect data that informs and supports conservation efforts for monarch butterflies and other pollinator species.

If establishment is considered incomplete by the end of Year 3 (e.g., presence of bare soil, areas with poor establishment of species in the installed seed mix, dense stands of invasive species), Benton Solar may implement adaptive management measures (Section 6.4).

The vegetation manager will manage installed vegetation to ensure the established vegetation persists over the life of the Project and that it does not interfere with safe and reliable power generation. The primary management tools will be continued mowing and herbicide application. Because healthy native and perennial herbaceous vegetation depends on disturbance, mowing should be implemented at least once per season on one-third of the management areas and be cut to a height of 4 to 6 inches (MDNR 2020). The vegetation manager may remove mowed vegetation if thatch build-up that might suppress healthy vegetation is observed. Mowed sections should not be mowed in consecutive years. At this time, Benton Solar anticipates between zero and three mowing events may be required per year. The vegetation manager will determine the actual number of mowing and herbicide application events in consideration of relevant variables including Site conditions, weather, seasonal variations, and encroachment of woody vegetation. The seed mixes have been designed to persist under such management conditions.

5.3.3 Reseeding of Poorly Established Areas

Reseeding will occur in locations with 1) bare soil and/or 2) poor establishment of species in the installed seed mix. Areas of bare soil provide an opportunity for the undesirable species described above to colonize and spread. Bare soil also can contribute to overall soil loss through erosion. Such erosion could prevent Benton Solar from terminating its construction stormwater permit in a timely manner. Therefore, observed areas of bare soil may be reseeded with the seed mix previously installed or identified in coordination with the BBHF and applicable agencies, and installation will follow applicable methods (Section 5.2.3). Areas may be overseeded at half the normal seeding rate. If bare soil or poor establishment/thin cover of installed species persists, Benton Solar may coordinate with a professional to identify appropriate remediation actions.

5.3.4 Invasive Species Management

Activities that require grading or decompaction of soils or that otherwise disturb soils have potential to promote the establishment of undesirable species, such as noxious weeds or invasive species, which have remained present within the seedbank in the soil. Invasive plant species, including MDA-listed noxious weeds and other weedy species, can negatively impact the establishment and persistence of seeded native and desirable vegetation, and management of such undesirable species for extended periods of time may prevent accomplishing vegetation management goals and objectives. MDA-listed noxious weeds are prohibited in Minnesota (MDA 2023a); Benton County does not recognize any species as invasive or noxious in addition to the state list (MDA 2023b).

The preferred strategy for preventing and controlling MDA-listed and invasive species (i.e., undesirable vegetation) is to initiate control measures beginning with the start of construction activities. Control measures may include, but are not limited to:

- Require that construction equipment comes to the construction area be free of soil and existing vegetation, and that equipment also leaves the Preliminary Development Area free of soil and vegetation;
- Require contractors to self-inspect all equipment arriving and departing the Preliminary Development Area and request proof of inspection upon request;

- Identify a wash station designated for cleaning equipment and monitor cleaning areas for presence of invasive species;
- Survey construction areas prior to beginning construction activities to determine presence of MDA-listed noxious weeds, other invasive plants species, and native vegetation. Identify on mapping and with signs where noxious weeds are located to prevent equipment from picking up and spreading seed and plant parts;
- Monitor the Preliminary Development Area on a seasonal basis to identify, map, and treat areas where invasive species are present; and
- In areas of known invasive species, make herbicide treatment a priority before appropriate seed mix is installed.

Undesirable vegetation, if identified, also may be controlled prior to seeding on a species-specific basis using appropriate methods such as herbicide application or timed mowing. Herbicide application may be most appropriate for control of perennial species, whereas mowing may be most appropriate for control of annual or biennial species, as mowing such species prior to seed production is critical to control and eradication.

Revegetation and vegetation management practices on utility-scale solar facilities may express a suite of undesirable plant species, including the existing seedbank and seed vectors from the adjacent properties. During vegetation monitoring, the vegetation manager and/or its contractors will identify undesirable vegetation and make recommendations for implementing control and removal treatments, where necessary. The vegetation manager will tailor control methods to vegetation, as follows.

- **Annuals or biennials**
    - Mowing prior to seed production may be sufficient to control annual or biennial plants.
- **Perennials**
    - Spot-herbicide applications may be required to control perennial species.
- **Grass-based plants**
    - If the target species is a grass-based plant species, the vegetation manager may use grass-selected herbicide (e.g., clethodim).
- **Broadleaf species**
    - The vegetation manager may use a broadleaf-selective herbicide (e.g., 2,4-D, triclopyr) to treat broadleaf species.
- **Various**
    - A non-selective herbicide may be used to control any undesirable vegetation. Non-selective herbicides with active ingredient(s) such as glyphosate may be used on a spot-treatment basis. The herbicide application will target the specific plant species, and applications will avoid contact with and impact on installed vegetation.

When revegetating areas with a history of row-cropping, both annual and perennial noxious weeds and invasive plant species will be a primary threat to successfully establishing native, desirable vegetation due to potentially existing seedbanks and from potential seed vectors in adjacent row-crop areas. Mowing and herbicide treatments that are completed prior to seed development are effective means to control annual weed species and reduce the spread of perennial weed species. Well-established regionally appropriate, grass-dominated vegetation (Years 4+) may be less susceptible to noxious weed and other invasive species establishment; however, it is anticipated that invasive species management will be an ongoing priority for vegetation management throughout the life of the Project. Within the Preliminary

Development Area, the period between construction and vegetation maintenance is when the management areas will be most vulnerable to invasive species establishment.

Problematic plant species may also include native plant species that present the potential to interfere with Project function. These plants may be present in the soil seedbank or may enter the Preliminary Development Area through seed rain from adjacent properties. Problematic native plants with potential to shade solar panels will be controlled through mowing. Vining species may be manually pulled and removed. Woody vine species will be cut to within 1 inch of the ground and the stump will be treated with an appropriate herbicide (e.g., glyphosate, triclopyr). Cut woody species and brush will be removed from the Preliminary Development Area and disposed of appropriately.

Herbicides will be applied by a licensed applicator, if required, and in accordance with the herbicide label directions for the target species and application site conditions. If undesirable species exist within or adjacent to aquatic resources, the applicator will use an aquatic-approved herbicide. Herbicide application will occur at least 2 weeks before the final seeding installation. Herbicide application is not required in areas where existing vegetation will remain (e.g., ditches). In such areas, no new seeding may occur. Benton Solar will complete a survey regarding pesticide use among participating landowners to determine whether potential carryover (i.e., herbicide drift) is likely to be an issue that prevents or impacts installed seed germination rates. Where herbicide drift is determined to have potential to impact revegetation practices and vegetation management, Benton Solar will consider the extended use of temporary cover crops or other carryover resistant vegetation until the potential for residual effects is considered minimal or unlikely. Benton Solar will coordinate with a qualified vegetation manager in making determinations regarding the potential for pesticide carryover.

6 MONITORING AND ADAPTIVE MANAGEMENT

6.1 Construction

In accordance with Benton Solar's Agricultural Impact Management Plan (AIMP), an environmental monitor will be on-site during all construction activity to ensure compliance with all associated Project-specific permits and plans, and to conduct ongoing vegetation monitoring. The environmental monitor will focus specifically on reducing construction-related impacts such as soil compaction and erosion. The vegetation manager will be responsible for overseeing and/or implementing the monitoring strategies outlined below.

6.2 Establishment: Years 1 through 3

The vegetation manager will complete quantitative and qualitative monitoring approximately every 8 weeks during the growing season (May–October) following seed installation and until the Site is considered fully established per the performance criteria established in Section 4.2. Additionally, the MJV through the Solar Synergy program will collect baseline and ongoing pollinator and habitat information on an annual basis. An extensive list of health and habitat outcomes will be monitored and recorded including the documentation of which floral resources pollinators are using within the habitat, which pollinator species are present, and the abundance of milkweed. Benton Solar will use standard and approved monitoring methods to ensure the resulting assessments are informed and objective.

Monitoring vegetation establishment, identifying issues, and prescribing corrective actions through adaptive management (see Section 6.4), if needed, are important steps in meeting Project objectives. For example, if the vegetation manager observes that the vegetation is not sufficiently establishing during

Year 3, the mowing regime described for Year 2 also may be implemented in Year 3. The vegetation manager will be responsible for: 1) identifying when adaptive management may be needed relative to the performance criteria established in Section 4.2; and 2) describing what measures are likely to be most appropriate and effective.

Monitoring, evaluations, and adaptive management also will inform the necessary frequency of these activities during long-term management.

6.3 Long-Term: Year 4 to End of Project

The establishment period should be complete following Year 3. At this time, installed seed mixes should sufficiently be established and the Project area will enter long-term management beginning with Year 4. The vegetation manager will complete inspections approximately twice annually (June and September) in Year 4 and in all subsequent years to determine whether, and what, maintenance is needed. Additionally, monitoring will be conducted annually by the MJV for up to 3 additional years (beyond the establishment phase) to collect ongoing data that informs and supports conservation efforts for monarch butterflies and other pollinator species.

If establishment is not considered complete by the end of Year 3 per the performance criteria established in Section 4.2 (e.g., presence of bare soil, areas with poor establishment of species in the installed seed mix, dense stands of invasive species), Benton Solar may implement adaptive management measures, if needed (see Section 6.4).

6.4 Adaptive Management

Benton Solar may implement adaptive management measures. Such measures may include:

- Selective use of herbicide to control localized occurrences of invasive species;
- Additional soil sampling and reseeding in areas of seed failure;
- Modification of seed mixes to include other species that may have a greater chance of success as determined in coordination with the BBHF and applicable agencies;
- Additional mowing in areas where vegetation establishment is slow, or where reseeding was necessary; or
- Interseeding of additional forb seeds to increase the diversity of plants that provide floral resources for pollinators in areas where grasses and sedges are dominant with few forb species established.

Benton Solar will assess data collected during monitoring to demonstrate trends or progress towards meeting and maintaining management objectives. If, following the establishment period, a management area is not meeting its defined objectives, Benton Solar will develop a specific work plan for that management area. The work plan will include revised management actions to achieve objectives that are supported by spatially represented problem areas and to be displayed or shared electronically. Every 3 to 5 years, Benton Solar will evaluate monitoring data collected and monitoring protocols to determine whether changes to either are warranted. Reasons to update data collected or monitoring protocols include:

- Changes to reporting requirements for permit compliance;
- Need for different or additional information to effectively inform management decisions; or

- New developments in technology or data analysis (e.g., use of unpiloted aerial vehicles, artificial intelligence).

7 ANNUAL REPORTING

Benton Solar will prepare an annual monitoring report addressing each growing season. The annual report will include, and not be limited to, the following:

- A description of Site conditions;
- A summary of quantitative and qualitative monitoring results;
- A summary of management activities, including adaptive management actions, implemented during the reporting period intended to meet objectives by management area/unit;
- A description of challenges or unforeseen circumstances (e.g., unanticipated weather events) that the Project faced during the reporting year and how these challenges may have affected vegetation establishment;
- Representative photographs of the management area vegetation; and
- KMZs or shapefiles of mapped areas containing invasive/noxious weeds or significant bare soil areas.

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APPENDIX A

Soils Summary Table

Table A-1. Soil Summary within the Site

Map Unit Symbol	Soil Map Unit	Acres	Percentage of Site	Farmland Designation	Depth to Water Table (inches)	Water Erodibility	Wind Erodibility	Hydric Soil	Compaction Prone
D7A	Hubbard loamy sand, 0 to 2 percent slopes	181.2	19.1%	Not prime farmland	>80.0	Slight	Severe	Nonhydric	No
C73C	Milaca loam, 1 to 7 percent slopes, stony	151.7	15.9%	Farmland of statewide importance	24.0 – 43.0	Severe	Slight	Predominantly nonhydric	Yes
D7C	Hubbard loamy sand, 6 to 12 percent slopes	129.1	13.6%	Not prime farmland	>80.0	Slight	Moderate	Nonhydric	No
C56A	Langola loamy fine sand, 0 to 2 percent slopes	96.1	10.1%	Farmland of statewide importance	6.0	Moderate	Severe	Predominantly nonhydric	No
D6A	Verndale sandy loam, acid substratum, 0 to 2 percent slopes	91.1	9.6%	Farmland of statewide importance	>80.0	Slight	Moderate	Nonhydric	Yes
D7B	Hubbard loamy sand, 2 to 6 percent slopes	72.7	7.6%	Not prime farmland	>80.0	Slight	Severe	Nonhydric	No
C67B	Bushville complex, 1 to 6 percent slopes	24.2	2.5%	Farmland of statewide importance	12.0	Moderate	Severe	Predominantly nonhydric	No
C51D	Emmert-St. Francis complex, 6 to 25 percent slopes	23.6	2.5%	Not prime farmland	>80.0	Slight	Moderate	Nonhydric	No
C70B	St. Francis-Mahtomedi complex, 2 to 6 percent slopes	21.0	2.2%	Farmland of statewide importance	>80.0	Slight	Moderate	Nonhydric	Yes
C36A	Nokasippi loamy fine sand, depressional, 0 to 1 percent slopes	20.1	2.1%	Not prime farmland	0.0	Slight	Severe	Hydric	No
C53C	Pomroy loamy fine sand, 6 to 12 percent slopes	20.0	2.1%	Not prime farmland	18.0	Slight	Severe	Nonhydric	No
C72B	Langola complex, 1 to 6 percent slopes	17.0	1.8%	Farmland of statewide importance	12.0	Moderate	Severe	Predominantly nonhydric	No
C66A	St. Francis fine sandy loam, 0 to 2 percent slopes	14.1	1.5%	Farmland of statewide importance	>80.0	Slight	Moderate	Nonhydric	Yes
D7E	Hubbard loamy sand, 18 to 35 percent slopes	10.7	1.1%	Not prime farmland	>80.0 in	Slight	Severe	Nonhydric	No
1011A	Fordum-Winterfield complex, 0 to 2 percent slopes, frequently flooded	10.7	1.1%	Not prime farmland	0.0	Slight	Moderate	Predominantly hydric	No

Map Unit Symbol	Soil Map Unit	Acres	Percentage of Site	Farmland Designation	Depth to Water Table (inches)	Water Erodibility	Wind Erodibility	Hydric Soil	Compaction Prone
C60A	Bushville fine sand, 0 to 2 percent slopes	10.1	1.1%	Farmland of statewide importance	6.0	Moderate	Severe	Predominantly nonhydric	No
D1C	Anoka and Zimmerman soils, terrace, 6 to 12 percent slopes	8.3	0.9%	Not prime farmland	>80.0	Slight	Severe	Nonhydric	No
C65A	Parent loam, 0 to 2 percent slopes, stony	6.2	0.7%	Prime farmland if drained	0.0	Moderate	Slight	Predominantly hydric	Yes
C71C	Milaca-Mora complex, 1 to 7 percent slopes, stony	6.0	0.6%	Farmland of statewide importance	24.0 – 43.0	Moderate	Slight	Predominantly nonhydric	Yes
1023A	Seelyeville and Markey soils, ponded, 0 to 1 percent slopes	5.8	0.6%	Not prime farmland	0.0	Not rated	Slight	Hydric	No
C73A	Mora loam, 1 to 3 percent slopes, stony	4.8	0.5%	All areas are prime farmland	6.0	Moderate	Slight	Predominantly nonhydric	Yes
D1B	Anoka and Zimmerman soils, terrace, 2 to 6 percent slopes	4.6	0.5%	Not prime farmland	>80.0	Slight	Severe	Nonhydric	No
D61A	Glendorado loamy sand, 0 to 2 percent slopes	4.3	0.4%	Not prime farmland	12.0	Slight	Severe	Predominantly nonhydric	No
C58A	Ogilvie loam, 0 to 2 percent slopes	4.2	0.4%	Farmland of statewide importance	12.0	Moderate	Slight	Predominantly nonhydric	Yes
C26A	Foglake silt loam, 0 to 2 percent slopes	4.0	0.4%	Prime farmland if drained	0.0	Severe	Slight	Predominantly hydric	No
D30A	Seelyeville and Markey soils, depressional, 0 to 1 percent slopes	2.6	0.3%	Not prime farmland	0.0	Slight	Severe	Hydric	No
D17A	Duelm loamy sand, 0 to 2 percent slopes	2.5	0.3%	Not prime farmland	30.0	Slight	Moderate	Predominantly nonhydric	No
C70C	St. Francis-Mahtomedi complex, 6 to 12 percent slopes	2.4	0.2%	Not prime farmland	>80.0	Severe	Moderate	Nonhydric	Yes
C68B	Milaca fine sandy loam, 3 to 6 percent slopes, stony	1.1	0.1%	Farmland of statewide importance	18.0	Slight	Moderate	Predominantly nonhydric	Yes
D21A	Isan sandy loam, depressional, 0 to 1 percent slopes	0.5	0.1%	Not prime farmland	0.0	Slight	Severe	Predominantly hydric	No
C69B	Milaca, stony-St. Francis complex, 3 to 8 percent slopes	0.4	<0.1%	Not prime farmland	18.0	Slight	Moderate	Nonhydric	Yes
C9B	Mora-Ronneby complex, 1 to 4 percent slopes, stony	0.2	<0.1%	Farmland of statewide importance	16.0 – 24	Moderate	Slight	Predominantly nonhydric	Yes

Map Unit Symbol	Soil Map Unit	Acres	Percentage of Site	Farmland Designation	Depth to Water Table (inches)	Water Erodibility	Wind Erodibility	Hydric Soil	Compaction Prone
C126B	Balmlake-Rosy complex, 1 to 6 percent slopes	0.2	<0.1%	All areas are prime farmland	>80.0	Moderate	Moderate	Nonhydric	Yes
W	Water	<0.1	<0.1%	Not prime farmland	n/a	Not rated	Not rated	Not rated	Not rated
–	**Total***	**951.4**	**100.0%**	–	–	–	–	–	–

Source: Soil Survey Staff (2023a).

* Totals may vary slightly due to rounding.