

Appendix C

Vegetation Management Plan



PRELIMINARY VEGETATION MANAGEMENT PLAN

Midwater Energy Storage Project

Shell Rock Township
Freeborn County, Minnesota

OCTOBER 8, 2024

PREPARED FOR:
Midwater BESS, LLC



PREPARED BY:

Westwood

Preliminary Vegetation Management Plan

Midwater Energy Storage Project

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1.0 Introduction

Midwater BESS, LLC (Midwater BESS or Applicant), a wholly owned indirect subsidiary of Spearmint Renewable Development Company, LLC (Spearmint Energy), proposes to construct and operate an up to 150-megawatt (MW) alternating current (AC) battery energy storage system (BESS) and associated facilities (BESS Facility), and an approximately 2,668-foot long 161 kilovolt (kV) high voltage transmission line (HVTL) and associated facilities (HVTL Facility) to interconnect the BESS Facility to the grid. The proposed BESS Facility and HVTL Facility (together, the Midwater Energy Storage Project or Project) are planned to be constructed in Shell Rock Township (Township), Freeborn County (County), Minnesota (Figure 1). The Applicant is anticipating construction to begin in the first quarter of 2027 with commercial operation by the end of 2027. In addition to battery energy storage enclosures, the BESS Facility will consist of inverters and transformers, electrical feeder lines, a substation, a potential operations and maintenance (O&M) facility, storage and parking areas, access roads, fencing, and other minor equipment and subcomponents as are typical of a BESS project.

Midwater BESS had prepared this Preliminary Vegetation Management Plan in support of the Construction of the Project requiring a Site Permit and a Route Permit from the Minnesota Public Utilities Commission (Commission or MPUC). Midwater BESS submits this Joint Application for a Site Permit for the BESS Facility and a Route Permit for the HVTL Facility (Application) to the Commission pursuant to the Minnesota Power Plant Siting Act (Minnesota Statutes [Minn. Stat.] chapter 216E) and Minnesota Administrative Rules (Minn. R.) chapter 7850. This Preliminary Vegetation Management Plan (Plan) is provided as part of the Site Plan Application for MPUC review to address revegetation following construction for the Project site for granting of the Site Permit, which is the only land use approval needed for construction of the Project (Minn. Stat. § 216E.10, subd. 1).

Midwater BESS, LLC has contracted Westwood Professional Services, Inc., (Westwood) to develop this Preliminary Vegetation Management Plan (VMP or Plan) to guide site preparation, installation of prescribed seed mixes, management of invasive species, and erosion and sediment control.

2.0 Project Description

The Project is located in Shell Rock Township, Freeborn County, Minnesota. The Project is generally located about 8 miles southeast of the city of Albert Lea and is immediately adjacent to the north of U.S. Highway 65. There is some existing vegetative buffer between the highway and the Project Area. The Project Area is located on slightly rolling fields conducive to BESS facility development in a rural area south of Glenville, Minnesota, immediately southeast of the ITC Midwest Glenworth Substation, and contains two 69 kV and two 161 kV overhead transmission lines (Figure 2).

The Project is proposed on three parcels totaling 104.4 acres currently under lease or purchase option with the underlying landowners (Project Area). Approximately 16.6 acres of the Project Area are proposed to be disturbed and occupied by the BESS Facility within the fenced area and the stormwater management ponds, proposed grading areas, access road connection to U.S. Highway 65,

and parking and storage areas external to the fence line (Proposed BESS Facility & Project Development Area) (Figure 2). An approximately 150-foot wide, 2,268-foot long area comprising approximately 8.2 acres of the Project Area are proposed for the HVTL Facility (Proposed HVTL Facility & Project Development Area) (Figure 2).

The Project interconnect at the existing ITC Midwest Glenworth Substation in Freeborn County, Minnesota. The Project substation and associated infrastructure will be permitted, constructed, and owned by Midwater BESS.

3.0 Plan Goals

Midwater BESS is committed to implementing the Plan during construction and operation of the Project within the entire Project Area. Areas not disturbed by Project construction and operation within the Project Area will be managed as needed by Midwater BESS. The overall goal of this Plan is to establish a sustainable, diverse, perennial ground cover for disturbed areas throughout the Project Area. The purpose of this Plan is to lay out a clear strategy for site preparation, seeding, planting methods, and the process and timeline for successful vegetation establishment. The Plan also outlines the long-term maintenance and monitoring necessary to contribute to the long-term success for the Project.

Specific goals of this Plan include:

- Maintain compliance with permit requirements regarding revegetation after construction of the Project Area.
- Improve and maintain soil health so that Project lands may be returned to CRP, productive agricultural land use, or other uses as determined by the landowner, after Project decommissioning.
- Develop and install perennial seed mixes that support the following objectives:
 - Increase biodiversity with the selection of native species.
 - Select species adapted to site specific environmental parameters including soils, drainage, and local climate, and compatible with function and operation of energy production equipment and facilities.
 - Improve water quality through reduced run-off and increased infiltration on site.
 - Increase carbon sequestration.
- Create a long-term monitoring and maintenance plan so desired vegetation is maintained across the Project site for entirety of its operational lifespan.
- Be compatible and compliant with Minnesota Pollution Control Agency (MPCA) Construction Stormwater General Permit the Project Stormwater Pollution Prevention Plan (SWPPP) and associated storm water management permit requirements during construction and operation of the Project. This Plan supplements, and does not replace, guidance provided in the SWPPP.

4.0 Existing Conditions

4.1 Existing Land Use Land Cover

The Project is located within a rural area approximately 0.4 mile southeast of the city of Glenville. The current land use of the Project Area is generally identified as agricultural areas by the U.S Geographical Society enrolled in CRP. Future land use within the Project Area is not covered by any publicly available comprehensive plans.

Historically, the area consisted of hardwood forest, tallgrass prairie, and bur oak savanna with some lakes. Agriculture is the most prominent land use in this subsection, with urban development accelerating in the northern part of the subsection.¹ Agricultural land includes cultivated cropland and hay/pasture. The top three crops in Freeborn County are corn, soybeans for beans, and vegetables harvested.

As shown in (Table 1) and on (Figure 3,) the predominant land uses in the Project Area are primarily covered in hay/pasture (41.10 percent), herbaceous (20.04 percent), and emergent herbaceous wetlands (20.23 percent). Smaller percentages of developed land, open water, crops, and wooded areas cover the rest of the Project Area. The Proposed BESS Facility & Project Development Area is primarily hay/pasture (89.47 percent).² The hay/pasture and herbaceous areas cover most of the Project Area and Proposed BESS Facility & Project Development Area and consist of generally open areas surrounded by trees and wooded areas. The emergent herbaceous wetlands are generally associated with the areas near the Shell Rock River. The Minnesota Land Cover Classification System (MLCCS) incorporates more detailed land cover information, including human-modified cover classifications; however, the Project Area is not covered by the MLCCS. Land cover acreages and percentages are instead taken from the National Land Cover Database (NLCD)³

Table 1: NLCD Land Cover within the Project Area and Proposed BESS Facility & Project Development Area

Land Cover Category	Project Area		Proposed BESS Facility & Project Development Area	
	Acres	Percent of Total	Acres	Percent of Total
Hay/Pasture	43.10	41.28	14.78	89.47
Herbaceous	20.04	19.19	1.53	9.55
Developed, Low Intensity	4.60	4.40	0.07	0.60
Emergent Herbaceous Wetlands	20.23	19.38	0.13	0.38
Open Water	4.89	4.68	0	0

¹ MNDNR. n.d. Oak Savanna Subsection (available at <https://www.dnr.state.mn.us/ecs/222Me/index.html>)

² Dewitz, J. 2021. National Land Cover Database (NLCD) 2019 Products (ver. 3.0, February 2024) [Data set]. U.S. Geological Survey (available at <https://doi.org/10.5066/P9KZCM54>).

³ USGS. 2021. National Land Cover Database. <https://www.usgs.gov/centers/eros/science/national-land-cover-database>

Developed, Open Space	1.64	1.57	0.07	0
Developed, Medium Intensity	0.41	0.39	0	0
Developed, High Intensity	0.02	0.02	0	0
Barren Land	0.06	0.06	0	0
Cultivated Crops	7.63	7.31	0	0
Woody Wetlands	1.78	1.70	0	0
Total	104.39	100.0%	16.59	100.00%
Note: Addends may not sum due to rounding.				

4.2 Soils

The Soil Survey of Freeborn County indicates that the soils of Freeborn County are primarily deep, well-drained soils formed from loamy alluvium and sandy outwash, characterized by loamy sediments over sandy and gravelly outwash.⁴

The soils within the Project Area are typically sandy loam soils with a small amount of clay loam soils that are suited for the existing CRP land when drained, as indicated in (Error! Reference source not found.2). The Project Area has rolling topography, which is consistent with the current CRP practices. There are small areas of hydric soil present throughout the Project Area (Figure 4). Depth to the water table within the Project Area ranges from 0–20 feet, with an average depth of 0–10 feet to the water table.⁵

Table 2: Soils within Project Area

Map Unit Symbol	Map unit name	Hydric Classification	Hydric Rating ¹	Acres
1030	Pits, sand and gravel	Non-hydric	24.61	1030
W	Water	Non-hydric	10.14	W
41B	Estherville sandy loam, 2 to 6 percent slopes	Predominantly non-hydric	7.80	41B
27	Dickinson fine sandy loam, 0 to 2 percent slopes	Predominantly non-hydric	6.26	27
156	Fairhaven loam, 0 to 2 percent slopes	Predominantly non-hydric	0.57	156
41C	Estherville sandy loam, 6 to 12 percent slopes	Predominantly non-hydric	14.38	41C
5B	Dakota loam, 2 to 6 percent slopes	Predominantly non-hydric	3.49	5B
5C	Dakota loam, 6 to 14 percent slopes	Predominantly non-hydric	4.39	5C
41	Estherville sandy loam, 0 to 2 percent slopes	Predominantly non-hydric	0.43	41
5	Dakota loam, 0 to 2 percent slopes	Predominantly non-hydric	19.09	5
465	Kalmarville loam, frequently flooded	Predominantly hydric	6.72	465
1055	Aquents and Histosols, ponded	All hydric	0.84	1055
392	Biscay clay loam, 0 to 2 percent slopes	All hydric	2.50	392
517	Shandep loam	All hydric	1.40	517

⁴ Soil Survey Staff, USDA NRCS. 2019. Web Soil Survey, Freeborn County, Minnesota (available at <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>) Accessed July 2024.

⁵ Natural Resources Research Institute. 2024. Minnesota Natural Resources Atlas, Water Table – Depth (available at https://mnatlas.org/gis-tool/?id=k_0279) Accessed July 2024.

Map Unit Symbol	Map unit name	Hydric Classification	Hydric Rating ¹	Acres
525	Muskego soils, 0 to 1 percent slopes	All hydric	1.75	525
TOTAL				104.39
The Hydric Rating is based on the composition of hydric components of a soil unit. The five classes are Hydric (100 percent hydric components), Predominantly Hydric (66–99 percent hydric components), Partially Hydric (33–65 percent hydric components), Predominantly Nonhydric (1–32 percent hydric components), and Nonhydric (less than one percent hydric components).				

Most of the soil types are classified as predominantly non-hydric (56.51 acres). The remaining soils are classified as non-hydric, predominantly hydric, and all hydric (47.87 acres).

4.3 Hydrology

No surface water impacts are currently proposed for the construction of the BESS Facility and HVTL Facility. All pole structures and BESS facility components have been sited outside of and at an adequate distance to avoid impacts to the only identified watercourse, the Shell Rock River. The Shell Rock River is buffered by at least 50 feet from any Project facilities (Figure 2).

According to the National Hydrography Dataset (NHD), two watercourses and three waterbodies are within the Project Area. No waterbodies were identified within the Proposed BESS facility & Project Development Area or HVTL (Figure 5). One MnDNR Public Waters Inventory (PWI) watercourse was identified within the Project Area, the Shell Rock River (24024a). The Project is located in the County Ditch Number Sixteen-Shell Rock River (HUC 070802020105) watershed. There are no lakes in the Project Area. No waterbodies within the Project Area are identified as Outstanding Resource Value Waters under Minn. R. 7050.0335, subpart 3.⁶ No designated trout streams, MnDNR PWI basins, or MnDNR-designated shallow lakes or calcareous fens were identified within the Project Area.⁷

During wetland delineations, Westwood delineated seven wetlands and one pond totaling 28.48 acres. Most of these consist of wetlands classified as freshwater emergent or riverine (Figure 6). The wetland delineation identified no ephemeral streams or intermittent streams within the Project Area. One perennial watercourse (WC-01) was identified within the Project Area, the Shell Rock River.

There are several NWI and delineated wetlands identified within the Proposed BESS Facility & Project Development Area; however, no surface water impacts are currently proposed for the construction of the BESS Facility. There will be no unavoidable wetland impacts from BESS Facility components that may be subject to MDNR, USFWS, USACE, or local government permitting.

⁶ MPCA. 2022. Outstanding Resource Value Waters. ArcGIS Hub (available at <https://hub.arcgis.com/maps/mpca::outstanding-resource-value-waters/about?layer=5>) Accessed August 2024.

⁷ MNDNR. 2024b. Public Waters Inventory Lists (available at https://www.dnr.state.mn.us/waters/watermgmt_section/pwi/download_lists.html) Accessed July 2024.

The HVTL Facility has been designed in a manner to avoid and minimize impacts to identified water resources and existing infrastructure to the extent practicable. All pole structures have been sited outside of delineated wetlands. A small portion of the overhead line will pass over the western edge of wetland WB-01 (Figure 6). While no permanent impacts from the installed facilities are anticipated, there will likely be temporary, reversible impacts from construction and installation of the HVTL Facility. All impacts related to construction are expected to be minor.

4.4 Topography

The Project Area is located in a rural, rolling, agricultural setting, currently enrolled in CRP. The topography of the Project Area is generally level to gently rolling topography with elevations ranging from 1,204 to 1,230 feet above sea level (Figure 7). The existing topography of the Project and surrounding area is generally flat and allows for long viewsheds broken up mainly by existing vegetation. Existing rows of trees and shrubs provide substantial screening from U.S. Highway 65 to the southwest of the Project Area. View of the Project from the Shell Rock River to the south and east is also partially or substantially screened by existing vegetation.

5.0 Vegetation Establishment and Management During Construction

The following sections describe vegetation activities conducted during construction.

5.1 Site Clearing, Grading, and Vegetation Removal

Preparation for construction of the Project will require some amount of vegetation removal and grading and will occur in accordance with BMPs in the SWPPP. The Project utilizes 16.6 acres of CRP land for the Proposed BESS Facility & Project Development Area and related infrastructure and 8.2 acres for the Proposed HVTL Facility & Project Development Area for the life of the Project. Preliminary design of the Project avoids any tree clearing; therefore, the Project will not impact forested land. Grading impacts will primarily be from construction of foundations for the Project substation, BESS, O&M facility, laydown yard, stormwater basin areas, and access roads.

Based on the final Project design/engineering/construction plans and in accordance of the SWPPP, the limits of disturbance will be surveyed and marked in the field if needed. These marked areas will include the the wetland/waterway areas and associated buffers of such, and other sensitive areas to be avoided during construction and operation of the Project.

Erosion and sediment control devices will be installed in advance of grading activities and will be maintained throughout grading and stabilization according to the SWPPP, storm water

management permit, and associated Best Management Practices, (BMPs) developed for the Project.

As discussed above, the current topography is conducive for the placement of BESS and HVTL facilities as well as associated equipment and electrical facilities, but some grading earthwork for site preparation or improvements is required. Where grading is necessary, it will occur after installation of principal erosion and sediment control devices as required by the SWPPP. The contractor will avoid mixing or contaminating topsoil with subsoils. Topsoil will be stripped, portions needed for revegetation will be stockpiled, and properly maintained by BMPs separately from subsoils and reapplied during final grading for vegetation establishment. The balance of the topsoil, with permission of the landowner, will be spread in appropriate locations in adjacent agricultural lands. Stockpiled soils will be temporarily stabilized with an acceptable means for such stabilization; acceptable means will be described in the SWPPP.

Drainage patterns from the Project Area will remain similar to pre-developed conditions, with a majority of the site draining via sheet flow to existing drainage ditches or swales bisecting large contiguous portions of the Project Area. According to the landowner, none of the fields within the Project Area are known to contain field drain tiles. In the event drain tiles are discovered and damaged during construction, they will be repaired to the extent necessary to maintain drainage on adjacent non-participating property.

Portions of the Project Area outside the fenced BESS areas and surrounding other Project facilities, including the HVTL routing that will not be graded will remain vegetated where applicable. Midwater BESS will evaluate the currently well vegetated area not planned to be utilized for Project facilities or impacted during construction to determine whether a different vegetation mix may be beneficial for the Project. Any portions of the Project Area outside the fenced BESS areas and surrounding other Project facilities that are currently in CRP where bare ground is exposed will be seeded. No vegetation clearing will occur within buffers of wetlands or waterways (Figure 2).

5.2 Invasive Species Management

Invasive and weed species management will be conducted as needed to reduce the spread of invasive species from existing populations into adjacent agricultural lands, improve establishment and success of the permanent seed mixes, and reduce vegetation impacts to the BESS facility and infrastructure.

State and federal law define noxious weeds as non-native plants that displace or out-compete native plants for soil moisture and degrade natural habitat. The Minnesota Department of Natural Resources (MnDNR) divides noxious weeds onto three (3) separate lists.⁸ Included in this report is both List A and B (Figure 8):

- List A – prohibited eradication
- List B – prohibited control and management

⁸ Minnesota Noxious Weeds. January 2023. Minnesota Department of Transportation (available at <https://files.dnr.state.mn.us/eco/invasives/noxious-weeds.pdf>) Accessed September 2024.

- List C – restricted

The overall goal for the site is the prevention and management of noxious weed populations from growing/recurring onsite. Throughout this plan there will be several terms used to describe the different management methods. Eradication means to eliminate entirely from a site. Control means extensively managing in a way that prevents spread of these species by seed or vegetative means. Suppression means reducing a noxious weed-infested area as well as curtailing the noxious weed's ability to spread to surrounding areas.

Properly controlling and reducing noxious weed species onsite will be done utilizing best management practices (BMPs), which may include the following:

- Minimizing traffic into and out of areas onsite with invasive and noxious weeds.
- Supervising the Property to identify weeds prior to becoming a substantial problem onsite.
- Cleaning vehicles and equipment after moving through known noxious weed areas.
- Allowing native plant populations to grow and infill to help reduce noxious weed growth.

The site should be monitored throughout construction for noxious weeds. Materials and equipment being brought onsite need to be inspected preceding application to ensure that they are noxious weed-free. Revegetation activities are to be implemented in a timely manner to reduce the opportunity for noxious weeds to reestablish.

5.3 Herbicides

Depending on the site conditions, a non-selective herbicide such as a Glyphosate may be used to prepare the seedbed. Broadleaf or grass-selective herbicide may be used depending on need. Application method will be reviewed to determine whether low volume/spot application or broadcast applications are appropriate. Some additional considerations include target species, vegetation density or composition, and site evaluation including sensitive surrounding areas, projected precipitation, or winds.

Herbicide treatments will be performed by individuals with a current Commercial Pesticide Applicator certification and license issued through the Minnesota Department of Agriculture, and in accordance with all applicable laws, regulations, and herbicide label instructions.

5.4 Temporary (Annual) Seeding

Temporary seeding shall be applied for all areas of disturbance intended to remain pervious and in accordance with the SWPPP. Additional areas where temporary seeding may be applied include topsoil stockpiles and non-structural soil material. Multiple applications will be necessary during the construction process to meet the requirements of temporary stabilization.

6.0 Vegetation Installation

The main goal of site preparation is to provide or create favorable growing conditions for seed to be installed. It will be essential to control invasive species after planting, along with erosion and sediment control, and preserving areas not meant to be disturbed.

The following section describes site preparation tasks that may be conducted prior to the installation of the permanent seed mixes. All site preparation activities shall maintain compliance with the SWPPP and Project storm water management permit.

The permanent seed mixes have been customized to be compatible with the Project Area and adapted to the site environmental conditions. The proposed seeding plan for areas within the Project Area is provided in (Figure 10).

6.1 Seed Bed Preparation

Prior to application of the seed mixes to the Project Area, the seed bed will be prepared to encourage successful propagation and survival of the desired plants in the Project Area. To prepare the site for effective seeding, any invasive species (Section 5.2) located within the area to be seeded should be treated with an approved herbicide (Section 7.2).

An adequate seed bed will be prepared using a disc, field cultivator, or chisel plow (or equivalent). Seedbed preparation will be based on seeding methods and species planted. Tillage and equipment operations related to seeding and mulching will be performed in a manner to minimize soil erosion.

As part of seed bed preparation, some soil decompaction measures may be needed, based on final site plans and construction sequencing. If decompaction is needed it can be performed with chisel plows, rippers, or tillers depending on the depth and severity of the compaction. When necessary, decompaction should be followed by disking to prepare a smooth, moist, and evenly textured soil surface.

Prior to seeding, topsoil testing should be performed to determine if there is a need for soil amendments or fertilizer and to determine seeding application rates. Soil samples should be collected that are representative of the site. Soil testing can be performed through a private contractor, or the University of Minnesota provides this service through their Soil Testing and research Analytical Laboratory. Based on the soil testing results, soil amendments and fertilizers can be applied during the seed bed preparation, ensuring they are adequately tilled into the soil to avoid runoff and making them more readily available for absorption through the new roots as the plants growth.

6.2 Installation Methods

Seed will be applied uniformly at specified rates by drilling, broadcasting, or hydroseeding. Seed will be sown to the appropriate depths based on method, species, soil type and available

moisture. Seeding activities will be suspended if conditions are such that equipment will cause significant rutting of the surface in the designated seeding areas. Other seeding processes, such as air seeding, will be evaluated during development of the final Vegetation Management Plan.

Drill Seeding – seeding equipment will be capable of uniformly distributing the seed and sowing it at the required depth. Drills will be equipped with a feeding mechanism that will provide a uniform flow of seed at the desired application rate. Double-disc furrow openers equipped with depth bands and packer wheels to firm the soil over the seed will be used where appropriate. Other types of drill seeder maybe used based on availability and soil conditions.

Broadcast Seeding – broadcast seeding rate will be double the drill-seeding rate. Seed will be uniformly distributed by mechanical or hand-operated seeder. Following seeding, a cultipacker, harrow, or hand rake will be used to cover the seeds and firm the seedbed as is appropriate for the area.

Hydroseeding – hydroseeding rate will be double the drill seeding rate, or the same as broadcast seeding rate. Seed will be applied alone or in a seed, fertilizer and/or hydromulch slurry. If seeding is applied alone, the amount of hydromulch material will be adjusted to the seed slurry to show where seeding has taken place, providing a means to identify uniform cover. Hydroseeders must provide continuous agitation and be capable of supplying a continuous, non-fluctuating flow of slurry. Hydroseed slurry will not be held in the tank more than 1 hour before use.

6.3 Permanent (Perennial) Seeding

Upon completion of construction, all disturbed areas that need to be vegetated will be seeded with a perennial seed mix that complies with Minnesota Pollution Control Agency (MPCA) Construction Stormwater General Permit the Project Stormwater Pollution Prevention Plan (SWPPP).

Westwood selected seed mixes from the MNDOT Seeding Manual⁹, to develop a diverse and appropriate seed mix for the Project based upon the existing site conditions and meeting Project goals (Figure 9). The Midwater BESS seed mixes are provided in Tables 3 - 4. These seed mixes are subject to availability at the time of purchase and substitution may occur if necessary. New species substituted into the mix will meet the same general criteria as those removed – low-growing, local-origin, and if applicable, native and pollinator friendly.

The proposed mixes are composed of various fast-establish, deep rooted grass and native grasses and forb species. The species selected may provide habitat or food for life-stages of pollinators. Once established and mowing is occurring on an annual or biennial basis, the proposed mixes will also provide nesting and foraging habitat for birds. Additionally, these native plant species will grow deep and prolific root systems leading to restructured agricultural soils for enhanced infiltration and increased organic matter. The species have

⁹ MnDOT Seeding Manual. June 2024. Minnesota Department of Transportation, (available at <https://www.dot.state.mn.us/environment/erosion/vegetation.html>) Accessed September 2024.

been selected on their growth size, composition, and ability to thrive under a wide array of site conditions. Final seed mixes and seeding rates may be modified based on factors such as site conditions and seed availability at the time of final design and construction and may result in the addition or removal of species, or adjustment of species component percentages.

6.3.1 BESS and HVTL Open Space Mix (Table 3)

This mesic prairie seed mix (BESS and HVTL Open Space Mix) is composed primarily of low growing grass and perennial species to provide permanent low maintenance and low stature vegetation that can thrive a variety of soil and environmental conditions. This mix is designed to be cost-effective as it covers portions of the Project Area where the proposed BESS, HVTL and other gravel covered equipment yards are not located. Where slopes have been graded, the seed mixes provide deep-rooted species to aid in soil stabilization. This mix is specially designed to remain at a lower height (12 to 36 inches) and reduces the maintenance needed around the BESS and HVTL facilities.

Table 3: BESS and HVTL Open Space Seed Mix – MNDOT Mesic Inslope Mix

Scientific Name	Common Name	% of Mix	PLS	Seeds / SF
Grasses				
<i>Bouteloua curtipendula</i>	Side-oats Grama	7.70	1.24	11.03
<i>Bromus bierbesteinii</i>	Meadow Brome	10.77	0.90	8.03
<i>Elymus trachycaulus</i>	Slender Wheat Grass	7.69	1.43	12.67
<i>Elymus virginicus</i>	Virginia Wild Rye	7.69	0.87	7.71
<i>Festuca ovina</i>	Sheep Fescue	12.31	10.95	97.34
<i>Lolium perenne</i>	Perennial Ryegrass	18.46	6.72	59.78
<i>Phleum pratense</i>	Timothy	3.08	6.35	56.47
<i>Poa palustris</i>	Fowl Bluegrass	7.69	26.86	238.75
<i>Poa pratensis</i>	Kentucky Bluegrass	16.92	39.48	350.97
	Total Grasses	92.31	94.81	842.76
Forbs				
<i>Dalea candida</i>	White Prairie Clover	1.15	0.59	5.23
<i>Dalea purpurea</i>	Purple Prairie Clover	1.15	0.46	4.13
<i>Heterotheca villosa</i>	Hairy Golden Aster	0.31	0.58	5.14
<i>Medicago sativa</i>	Alfalfa	3.08	1.17	10.41
<i>Trifolium repens</i>	White Clover	2.00	2.39	21.24
	Total Forbs	7.69	5.19	46.17
	MIX TOTAL	100		

The BESS and HVTL Open Space Mix will be drill or broadcast seeded based on site conditions and timing of seeding to uniformly distribute the mix. If a seed drill is used, seed will be sown at a depth of no more than 0.25 inch. The BESS and HVTL Open Space Mix will be sown with oats or winter wheat as a cover crop to limit erosion, suppress weed growth, and provide a micro-climate for the plants as they establish themselves.

The species in this mix will act as a permanent BMP and allow for runoff, sediment, and other pollutants to be infiltrated or captured by the vegetation to further aid in the site's soil stability, especially on slopes.

6.3.2 Storm Water Basin Mix (Table 4)

This native seed mix contains a wide variety of grasses, sedges, rushes, and forbs (Storm Water Basin Mix). The mix is intended to promote pollinator species diversity, with flowering species over each of the three blooming periods (spring, summer, and fall) that provide habitat to pollinators and other wildlife. The seed mix is composed of taller species (24 to 60 inches) and is intended for areas of higher moisture and occasional inundation, such as the permanent stormwater basin.

Table 4: Storm Water Basin Mix – MNDOT Wet Ditch Mix

Scientific Name	Common Name	% of Mix	PLS	Seeds / SF
Grasses				
<i>Andropogon gerardii</i>	Big Bluestem	5.00	1.10	3.67
<i>Bromus ciliatus</i>	Fringed Brome	7.50	1.81	6.06
<i>Calamagrostis canadensis</i>	Bluejoint Grass	0.25	1.54	5.14
<i>Elymus canadensis</i>	Nodding Wild Rye	10.00	1.14	3.82
<i>Elymus virginicus</i>	Virginia Wild Rye	20.00	1.85	6.17
<i>Glyceria grandis</i>	Tall Manna Grass	0.75	1.15	3.86
<i>Leersia oryzoides</i>	Rice Cutgrass	1.50	1.12	3.75
<i>Lolium perenne</i>	Perennial Ryegrass	30.00	8.94	29.89
<i>Panicum virgatum</i>	Switchgrass	2.50	0.77	2.57
<i>Poa palustris</i>	Fowl Bluegrass	5.00	14.28	47.75
	Total Grasses	82.50	33.70	112.68
Sedges & Rushes				
<i>Carex hystericina</i>	Porcupine Sedge	0.50	0.33	1.10
<i>Carex stipata</i>	Awl-fruited Sedge	0.25	0.19	0.62
<i>Carex vulpinoidea</i>	Fox Sedge	0.50	1.10	3.67
<i>Juncus dudleyi</i>	Dudley's Rush	0.25	17.58	58.77
<i>Scirpus atrovirens</i>	Dark Green Bulrush	0.50	5.05	16.90
<i>Scirpus cyperinus</i>	Woolgrass	0.50	18.68	62.44
	Total Sedges	2.50	42.92	143.51
Forbs				
<i>Anemone canadensis</i>	Canada Anemone	0.25	0.04	0.15
<i>Asclepias incarnata</i>	Swamp Milkweed	1.25	0.13	0.44
<i>Asclepias syriaca</i>	Common Milkweed	1.00	0.09	0.29
<i>Astragalus canadensis</i>	Canada Milkvetch	2.50	0.93	3.12
<i>Bidens cernua</i>	Nodding Bur Marigold	0.50	0.23	0.77
<i>Desmodium canadense</i>	Canada Tick-trefoil	2.50	0.30	1.01
<i>Doellingeria umbellata</i>	Flat-topped Aster	0.25	0.37	1.23
<i>Eupatorium perfoliatum</i>	Common Boneset	0.25	0.88	2.94
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod	0.15	1.15	3.86
<i>Eutrochium maculatum</i>	Spotted Joe Pye Weed	0.30	0.63	2.09
<i>Helenium autumnale</i>	Autumn Sneezeweed	0.50	1.43	4.78
<i>Helianthus grosseserratus</i>	Sawtooth Sunflower	0.30	0.10	0.33
<i>Liatris pycnostachya</i>	Prairie Blazing Star	0.85	0.21	0.69
<i>Lobelia siphilitica</i>	Great Lobelia	0.25	2.75	9.18

Scientific Name	Common Name	% of Mix	PLS	Seeds / SF
<i>Mimulus ringens</i>	Blue Monkey Flower	0.15	7.58	25.34
<i>Physostegia virginiana</i>	Obedient Plant	0.30	0.07	0.24
<i>Rudbeckia laciniata</i>	Cut-leaf Coneflower	0.50	0.15	0.51
<i>Solidago rigida</i>	Stiff Goldenrod	0.50	0.45	1.51
<i>Symphyotrichum lanceolatum</i>	Eastern Panicked Aster	0.25	0.86	2.87
<i>Symphyotrichum puniceum</i>	Red-stemmed Aster	0.25	0.44	1.47
<i>Thalictrum dasycarpum</i>	Tall Meadow Rue	0.50	0.22	0.73
<i>Verbena hastata</i>	Blue Vervain	0.75	1.53	5.12
<i>Veronicastrum virginicum</i>	Culver's Root	0.15	2.64	8.82
<i>Zizia aurea</i>	Golden Alexanders	0.80	0.19	0.65
	Total Forbs	15.00	23.37	78.14
	MIX TOTAL	100.00		

Hydroseeding will be used as necessary at locations where standard broadcast or drilling will not be sufficient.

6.4 Timing

Native seeding will be performed either in the spring or fall. Spring seeding season would occur mid-March through June and the fall seeding season would occur from mid-October until first frost. A cover crop will be installed at the same time as perennial seeding.

Temporary cover crop (annual) seed and permanent (perennial) seed should be installed simultaneously but separately at approximately 90- degree angles to minimize competition and promote better establishment.

Mulch material or other erosion control materials will be applied per manufacture recommendations. The Minnesota Pollution Control Agency (MPCA) Construction Stormwater General Permit and the Project Stormwater Pollution Prevention Plan (SWPPP) may require application of a straw mulch or other approved compost cover over newly seeded areas to meet stabilization requirements.

6.5 Standards for Seeds and Seed Mixes

Seed and seed mixes will be native to the southeast region of Minnesota and regionally sourced and purchased on a Pure Live Seed (PLS) basis. Associated seed tags will identify purity, germination, date tested, total weight and PLS weight, weed seed content and supplier's information. Seeding rates will be based on the PLS rate and number of pure live seeds per square foot. Seed tags will be retained for record keeping such as dates and locations of application.

The contractor will keep record of which seed is used along with application rate and dates of application. The contractor will document seed tags for reference.

7.0 Monitoring and Maintenance

Follow-up monitoring and maintenance are critical tasks for achieving successful establishment of seeded vegetation. Native plant species typically take longer to mature than non-native species. For full establishment of native vegetation, the process usually takes two to three years for plants to reach maturity.

In the first year, most native species are developing their deep fibrous root system. The second year brings more developed foliage and blooms. During these first two years, it is essential to offer routine maintenance to prevent more rapidly growing non-native and invasive weed species from establishing. The following three years should show a reduction in need for maintenance as the native vegetation establishes.

The Project will be monitored through the construction process to verify temporary and permanent seeding is being completed. All vegetated areas should meet a targeted 70% of vegetated cover. The Project will be monitored annually during the five-year establishment period. Monitoring will influence maintenance and vegetation management needs across the Project Area. Construction contractors and SWPPP inspectors can monitor the vegetation establishment progress through construction in addition to the selected professional vegetation management contractor.

Vegetation monitoring and reporting will be completed in accordance with permit conditions. Based on site visits and annual reporting, an adaptive management approach can be developed in order to meet the long-term management goals of the project. Some methods to this approach could include adjusting mowing frequency or substituting and reseeding poorly performing species. Additionally, new best practices can be implemented as new technologies become available over the course of the Project lifespan.

7.1 Mowing

Mowing is an essential tool in the establishment of native vegetation proposed for revegetating the Site. Mowing keeps undesirable vegetation and weed species at a reduced height and prevents them from blooming and setting seed. Mowing also allows sunlight to reach the ground to facilitate growth of desirable species and prevents shading.

Mowing will take place approximately 4-6 weeks after permanent seeding of all seed mixes and then repeated as needed to keep undesired weed species from shading or going to seed. A minimum of two mowing events per year should occur during the first two years. When weeds reach a height of around 12 to 18 inches, they will be mowed. The mower deck should be set at 5 to 8 inches and raised as perennial plantings mature. Weed whipping will be needed in areas near equipment, to prevent damage.

In years 3-5, the perennial vegetation has established and there is less risk of weed growth. For all seed mixes except for Wet Ditch Seed Mix for the basins, mowing will continue to occur at least one per year, or spot mowing to target only specific areas of weed growth. Once vegetation is fully established past year five, mowing can occur every other year or as needed based on monitoring. An alternative to mowing is grazing as numerous projects have started

using sheep to replicate the same process. An alternative seed mix would be studied and proposed concurrent with the evaluation of grazing.

If needed in years 3-5, the BESS and HVTL Open Space Seed Mix areas should be monitored and mowed two times or more annually if needed or if desired to keep vegetation lower around electrical equipment yards. Once vegetation is past year five, mowing can occur every other year or as needed based on monitoring.

7.2 Spot-Herbicide Treatments

Herbicides are another essential tool to ensure planting success. Spot spraying can be utilized to target problematic perennial weeds or woody plants that need to be managed. To the extent possible, herbicide use will be limited to spot spraying to minimize potential impacts on preferred vegetation trying to establish. An appropriate herbicide will be selected depending on site specific conditions, including target species, vegetation density or composition, sensitive surrounding areas, and forecasted precipitation and wind.

In the post-construction condition, invasive species removal will be completed prior to establishing new vegetation. Herbicide treatments are recommended for management of perennial invasive species, as mowing alone is not typically sufficient for adequate control. Herbicide treatments will be performed by individuals with a current Commercial Pesticide Applicator certification and license issued through Minnesota Department of Agriculture, and in accordance with all applicable laws, regulations, and herbicide label instructions. Herbicide application in or immediately adjacent to wetlands with standing water will be avoided when possible.

8.0 References

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Figures

Midwater Energy Storage Project
Freeborn County, Minnesota

Figure 1: Project Location

Midwater Energy Storage Project

Shell Rock Township,
Freeborn County, Minnesota

Project Location &
USGS Topography

Figure 1 (August, 2024)

Legend

- Project Area
- State Boundary
- County Boundary
- PLSS Township Boundary
- PLSS Section Boundary
- Civil Township Boundary
- Municipal Boundary
- NHD Waterbody
- NHD Flowline
- Major Road
- Road
- Railroad

Data Source(s): Westwood (2024); ESRI WMS USA Topo & World Streets Basemaps (Accessed 2024); PLSS (2022); U.S. Census Bureau (2021 & 2023); MNDOT (2024); NHD (2024).

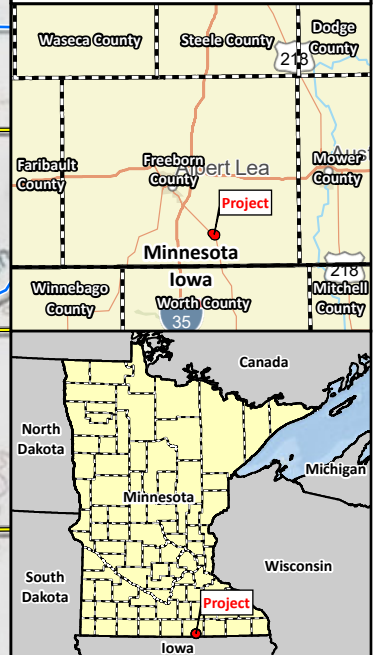
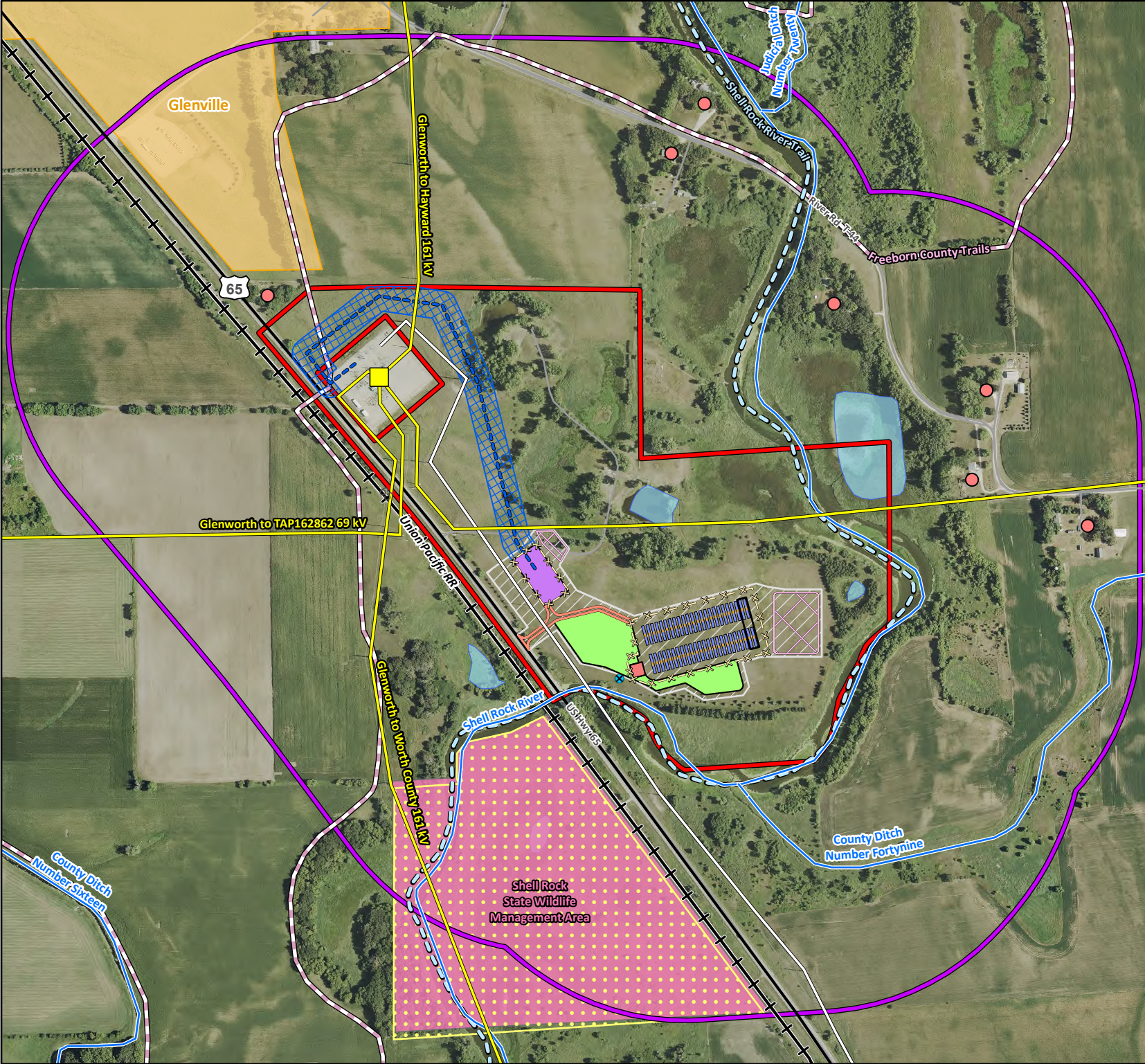


Figure 2: Project Area

Midwater Energy Storage Project
Shell Rock Township,
Freeborn County, Minnesota

Project Area & Facilities

Figure 2 (September, 2024)



Legend

- Project Area
- Project Area Quarter-Mile Buffer
- Municipal Boundary
- Wildlife Management Area
- NHD Waterbody
- NHD Flowline
- Water Trail
- Snowmobile Trail
- Existing Transmission Line
- Existing Distribution Line
- Existing Substation
- Receptor
- Major Road
- Road
- Railroad
- PADUS Designation**
- State Conservation Area
- Proposed Site Features**
- Proposed BESS Facility & Project Development Area
- Proposed Substation
- Proposed O&M Facility
- Proposed Auxiliary Transformer
- Proposed BESS Unit
- Proposed Future Augmentation Area
- Proposed Laydown Yard
- Proposed Basin Area
- Proposed HVTL Facility & Project Development Area
- Proposed Fence Line
- Proposed Tap Line
- Proposed Access Road
- Proposed Leach Field

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



Figure 3: Land Use





Midwater Energy Storage Project

Shell Rock Township,
Freeborn County, Minnesota












Land Cover

Figure 3 (August, 2024)

Legend

-  Project Area
-  Major Road
-  Road
-  Railroad

NLCD Classification (Acreage & Percent of Project Area)


-  Open Water: 4.89 Acres, 4.68%
-  Developed, Open Space: 1.64 Acres, 1.57%
-  Developed, Low Intensity: 4.6 Acres, 4.4%
-  Developed, Medium Intensity: 0.41 Acres, 0.39%
-  Developed, High Intensity: 0.02 Acres, 0.02%
-  Barren Land: 0.06 Acres, 0.06%
-  Herbaceous: 20.04 Acres, 19.19%
-  Hay/Pasture: 43.1 Acres, 41.28%
-  Cultivated Crops: 7.63 Acres, 7.31%
-  Woody Wetlands: 1.78 Acres, 1.7%
-  Emergent Herbaceous Wetlands: 20.23 Acres, 19.38%

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



Figure 4: Soils





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Midwater Energy Storage Project

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Freeborn County, Minnesota

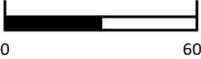

Soils - Hydric Classification

Figure 4 (September, 2024)

Legend

- Project Area
- Soil Unit Boundary
- Major Road
- Road
- Railroad
- Hydric Classification**
 - All Hydric
 - Predominantly Hydric
- Proposed Site Features**
 - Proposed BESS Facility & Project Development Area
 - Proposed HVTL Facility & Project Development Area
 - Proposed Fence Line
 - Proposed Tap Line
 - Proposed Access Road

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



Map Unit Symbol	Map Unit Name	Hydric Classification	Percent Hydric Classification
1030	Pits, sand and gravel	Non-Hydric	0
W	Water	Non-Hydric	0
41B	Estherville sandy loam, 2 to 6 percent slopes	Predominantly Non-Hydric	1
27	Dickinson fine sandy loam, 0 to 2 percent slopes	Predominantly Non-Hydric	3
156	Fairhaven loam, 0 to 2 percent slopes	Predominantly Non-Hydric	4
41C	Estherville sandy loam, 6 to 12 percent slopes	Predominantly Non-Hydric	4
5B	Dakota loam, 2 to 6 percent slopes	Predominantly Non-Hydric	4
5C	Dakota loam, 6 to 14 percent slopes	Predominantly Non-Hydric	4
41	Estherville sandy loam, 0 to 2 percent slopes	Predominantly Non-Hydric	6
5	Dakota loam, 0 to 2 percent slopes	Predominantly Non-Hydric	6
465	Kalmarville loam, frequently flooded	Predominantly Hydric	99
1055	Aquents and Histosols, ponded	All Hydric	100
392	Biscay clay loam, 0 to 2 percent slopes	All Hydric	100
517	Shandep loam	All Hydric	100
525	Muskego soils, 0 to 1 percent slopes	All Hydric	100

Figure 5: Hydrology Features













Midwater Energy Storage Project

Shell Rock Township,
 Freeborn County, Minnesota

Surface Waters

Figure 5 (September, 2024)

Legend

-  Project Area
-  Project Area Half-Mile Buffer
-  NWI Wetland
-  NHD Waterbody
-  NHD Flowline
-  PWI Watercourse
-  Impaired Waterway
-  Major Road
-  Road
-  Railroad
- Proposed Site Features**
-  Proposed BESS Facility & Project Development Area
-  Proposed HVTL Facility & Project Development Area

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

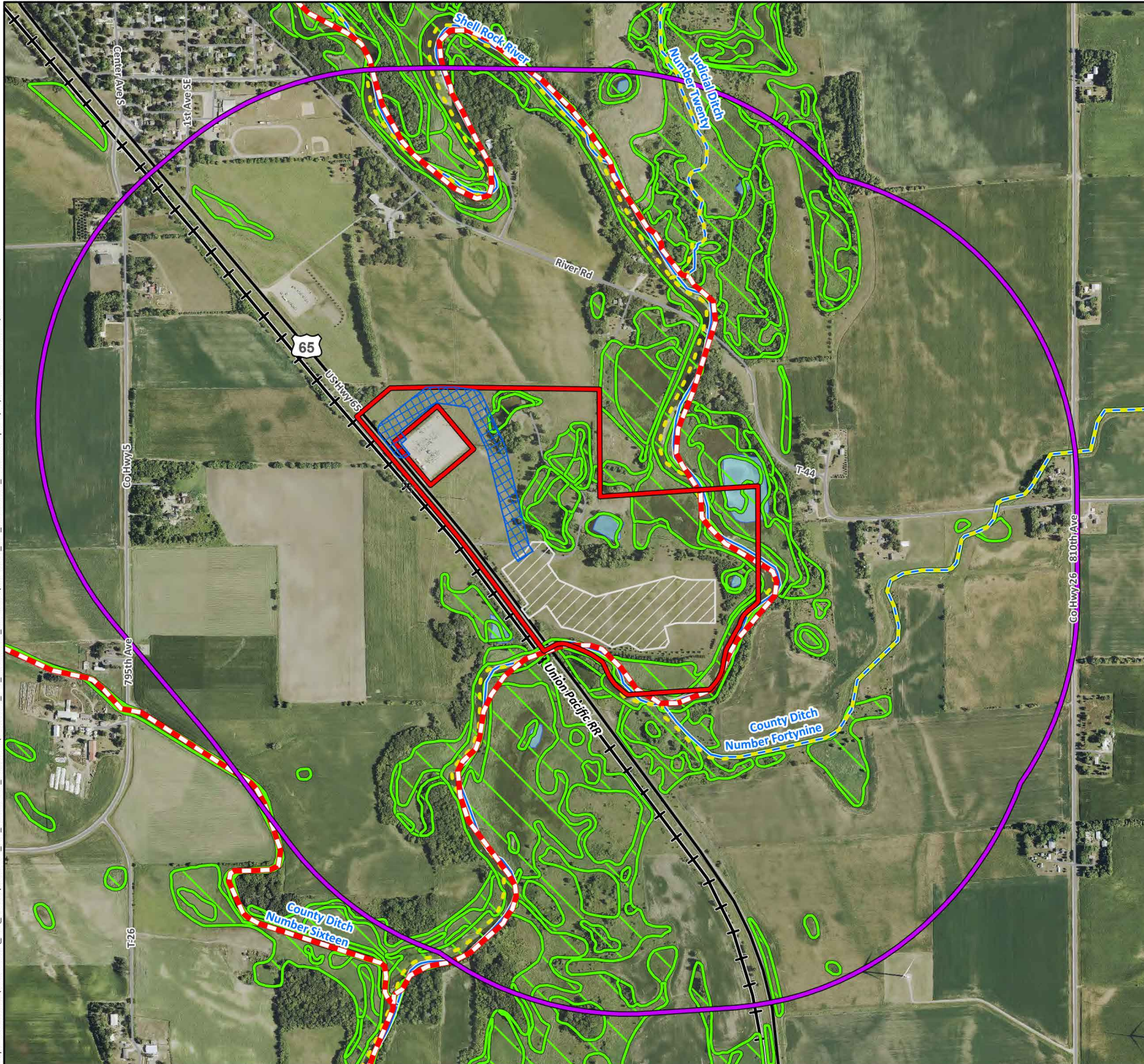


Figure 6: Wetlands

Midwater Energy Storage Project

Shell Rock Township,
 Freeborn County, Minnesota

Wetlands Map

Figure 6 (September, 2024)

Legend

- Project Area
- Field Delineated Wetland
- Field Delineated Pond
- Field Delineated Watercourse
- Existing Transmission Line
- Existing Distribution Line
- Existing Substation
- Major Road
- Road
- Railroad

Proposed Site Features

- Proposed BESS Facility & Project Development Area
- Proposed HVTL Facility & Project Development Area

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

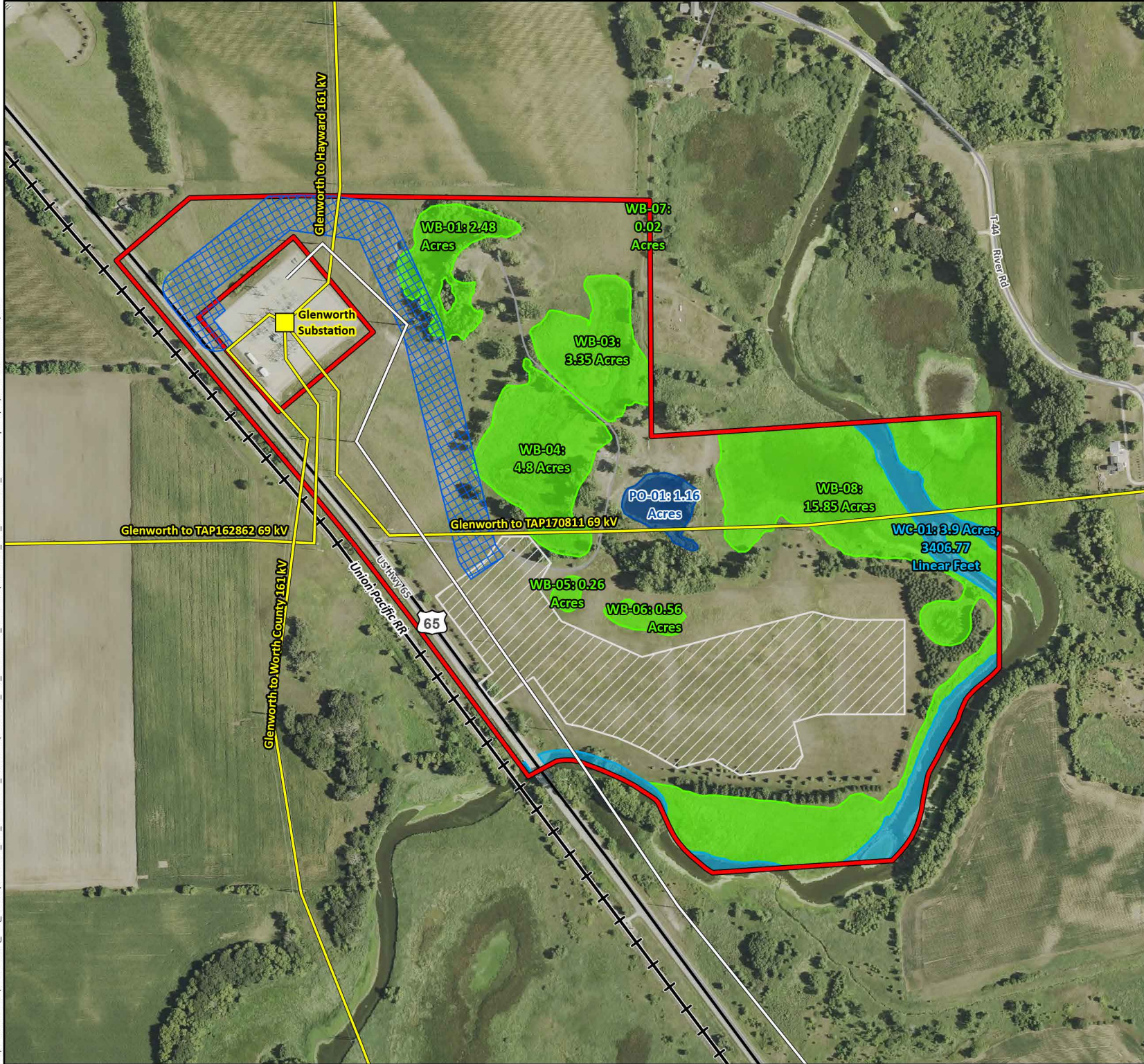


Figure 7: Site Topography





Midwater Energy Storage Project

Shell Rock Township,
Freeborn County, Minnesota

Topographic Map

Figure 7 (September, 2024)

Legend

-  Project Area
 -  Project Area Half-Mile Buffer
 -  Major Road
 -  Road
 -  Railroad
 -  10ft Contour
 -  2ft Contour
- ## Proposed Site Features
-  Proposed BESS Facility & Project Development Area
 -  Proposed Substation
 -  Proposed BESS Area
 -  Proposed HVTL Facility & Project Development Area
 -  Proposed Fence Line
 -  Proposed Tap Line
 -  Proposed Access Road

Data Source(s): Westwood (2024); NAIP (2023); U.S. Census Bureau (2021 & 2023); USGS 3DEP (Accessed 2024).



Figure 8: Minnesota Noxious Weed List

Figure 8: MINNESOTA NOXIOUS WEEDS LIST

Eradicate. All noxious weeds and their propagating parts of the plant must be destroyed on all lands within the state.	
Scientific Name	Common Name
<i>Ailanthus altissima</i>	Tree of heaven
<i>Amaranthus palmeri</i>	Palmer amaranth
<i>Centaurea diffusa</i>	Diffuse knapweed
<i>Centaurea jacea</i>	Brown knapweed
<i>Centaurea solstitialis</i>	Yellow star thistle
<i>Conium maculatum</i>	Poison hemlock
<i>Cynanchum louiseae</i>	Black swallow-wort
<i>Cynanchum rossicum</i>	Pale swallow-wort
<i>Digitalis lanata</i>	Grecian foxglove
<i>Dipsacus fullonum</i>	Common teasel
<i>Dipsacus laciniatus</i>	Cut-leaved teasel
<i>Heracleum mantegazzianum</i>	Giant hogweed
<i>Humulus japonicus</i>	Japanese hops
<i>Linaria dalmatica</i>	Dalmatian toadflax
<i>Lonicera japonica</i>	Japanese honeysuckle
<i>Sorghum halepense</i>	Johnsongrass
<i>Thladiantha dubia</i>	Red hailstone
Control. All noxious weeds and their propagating parts of the plant must be controlled on all lands within the state.	
Scientific Name	Common Name
<i>Berberis vulgaris</i>	Common barberry
<i>Cardamine impatiens</i>	Narrowleaf bittercress
<i>Carduus acanthoides</i>	Plumeless thistle
<i>Celastrus orbiculatus</i>	Round leaf bittersweet
<i>Centaurea stoebe</i>	Spotted knapweed
<i>Centaurea x moncktonii</i>	Meadow knapweed
<i>Cirsium arvense</i>	Canada thistle
<i>Conium maculatum</i>	Poison hemlock
<i>Euphorbia esula</i>	Leafy spurge
<i>Lythrum salicaria</i>	Purple loosestrife
<i>Pastinaca sativa</i>	Wild parsnip
<i>Phragmites australis</i>	Non-native phragmites
<i>Polygonum x bohemicum</i>	Bohemian knotweed
<i>Polygonum sachalinense</i>	Giant knotweed
<i>Polygonum cuspidatum</i>	Japanese knotweed
<i>Tanacetum vulgare</i>	Common tansy

Source : Minnesota Department of Natural Resources and
Minnesota Department of Agriculture

Figure 9: MNDOT Seed Mixes

Table 3: BESS and HVTL Open Space Seed Mix – MNDOT Mesic Inslope Mix

Scientific Name	Common Name	% of Mix	PLS	Seeds / SF
Grasses				
<i>Bouteloua curtipendula</i>	Side-oats Grama	7.70	1.24	11.03
<i>Bromus bierbesteinii</i>	Meadow Brome	10.77	0.90	8.03
<i>Elymus trachycaulus</i>	Slender Wheat Grass	7.69	1.43	12.67
<i>Elymus virginicus</i>	Virginia Wild Rye	7.69	0.87	7.71
<i>Festuca ovina</i>	Sheep Fescue	12.31	10.95	97.34
<i>Lolium perenne</i>	Perennial Ryegrass	18.46	6.72	59.78
<i>Phleum pratense</i>	Timothy	3.08	6.35	56.47
<i>Poa palustris</i>	Fowl Bluegrass	7.69	26.86	238.75
<i>Poa pratensis</i>	Kentucky Bluegrass	16.92	39.48	350.97
	Total Grasses	92.31	94.81	842.76
Forbs				
<i>Dalea candida</i>	White Prairie Clover	1.15	0.59	5.23
<i>Dalea purpurea</i>	Purple Prairie Clover	1.15	0.46	4.13
<i>Heterotheca villosa</i>	Hairy Golden Aster	0.31	0.58	5.14
<i>Medicago sativa</i>	Alfalfa	3.08	1.17	10.41
<i>Trifolium repens</i>	White Clover	2.00	2.39	21.24
	Total Forbs	7.69	5.19	46.17
	MIX TOTAL	100		

Table 4: Storm Water Basin Mix – MNDOT Wet Ditch Mix

	Common Name	% of Mix	PLS	Seeds / SF
Grasses				
<i>Andropogon gerardii</i>	Big Bluestem	5.00	1.10	3.67
<i>Bromus ciliatus</i>	Fringed Brome	7.50	1.81	6.06
<i>Calamagrostis canadensis</i>	Bluejoint Grass	0.25	1.54	5.14
<i>Elymus canadensis</i>	Nodding Wild Rye	10.00	1.14	3.82
<i>Elymus virginicus</i>	Virginia Wild Rye	20.00	1.85	6.17
<i>Glyceria grandis</i>	Tall Manna Grass	0.75	1.15	3.86
<i>Leersia oryzoides</i>	Rice Cutgrass	1.50	1.12	3.75
<i>Lolium perenne</i>	Perennial Ryegrass	30.00	8.94	29.89
<i>Panicum virgatum</i>	Switchgrass	2.50	0.77	2.57
<i>Poa palustris</i>	Fowl Bluegrass	5.00	14.28	47.75
	Total Grasses	82.50	33.70	112.68
Sedges & Rushes				
<i>Carex hystericina</i>	Porcupine Sedge	0.50	0.33	1.10
<i>Carex stipata</i>	Awl-fruited Sedge	0.25	0.19	0.62
<i>Carex vulpinoidea</i>	Fox Sedge	0.50	1.10	3.67
<i>Juncus dudleyi</i>	Dudley's Rush	0.25	17.58	58.77
<i>Scirpus atrovirens</i>	Dark Green Bulrush	0.50	5.05	16.90
<i>Scirpus cyperinus</i>	Woolgrass	0.50	18.68	62.44
	Total Sedges	2.50	42.92	143.51
Forbs				
<i>Anemone canadensis</i>	Canada Anemone	0.25	0.04	0.15
<i>Asclepias incarnata</i>	Swamp Milkweed	1.25	0.13	0.44
<i>Asclepias syriaca</i>	Common Milkweed	1.00	0.09	0.29
<i>Astragalus canadensis</i>	Canada Milkvetch	2.50	0.93	3.12
<i>Bidens cernua</i>	Nodding Bur Marigold	0.50	0.23	0.77
<i>Desmodium canadense</i>	Canada Tick-trefoil	2.50	0.30	1.01
<i>Doellingeria umbellata</i>	Flat-topped Aster	0.25	0.37	1.23
<i>Eupatorium perfoliatum</i>	Common Boneset	0.25	0.88	2.94
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod	0.15	1.15	3.86
<i>Eutrochium maculatum</i>	Spotted Joe Pye Weed	0.30	0.63	2.09
<i>Helenium autumnale</i>	Autumn Sneezeweed	0.50	1.43	4.78
<i>Helianthus grosseserratus</i>	Sawtooth Sunflower	0.30	0.10	0.33
<i>Liatris pycnostachya</i>	Prairie Blazing Star	0.85	0.21	0.69
<i>Lobelia siphilitica</i>	Great Lobelia	0.25	2.75	9.18
<i>Mimulus ringens</i>	Blue Monkey Flower	0.15	7.58	25.34
<i>Physostegia virginiana</i>	Obedient Plant	0.30	0.07	0.24
<i>Rudbeckia laciniata</i>	Cut-leaf Coneflower	0.50	0.15	0.51
<i>Solidago rigida</i>	Stiff Goldenrod	0.50	0.45	1.51
<i>Symphyotrichum lanceolatum</i>	Eastern Panicked Aster	0.25	0.86	2.87
<i>Symphyotrichum puniceum</i>	Red-stemmed Aster	0.25	0.44	1.47
<i>Thalictrum dasycarpum</i>	Tall Meadow Rue	0.50	0.22	0.73
<i>Verbena hastata</i>	Blue Vervain	0.75	1.53	5.12
<i>Veronicastrum virginicum</i>	Culver's Root	0.15	2.64	8.82
<i>Zizia aurea</i>	Golden Alexanders	0.80	0.19	0.65
	Total Forbs	15.00	23.37	78.14
	MIX TOTAL	100.00		

Figure 10: Seeding Plan

