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Public Service Commission of Wisconsin
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Application for Certificate of Public Convenience and Necessity

PSC Docket Number: 9813-CE-100

Silver Maple Project

Fond Du Lac and Winnebago Counties, Wisconsin

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Acronym	Definition
AC	Alternating Current
AFR	Application Filing Requirements
ASNRI	Area of Special Natural Resource Interest
ATC	American Transmission Company
BESS	Battery Energy Storage System
bgs	Below Ground Surface
BMP	Best Management Practice
CAFO	Concentrated Animal Feeding Operation
CCP	Construction Compliance Program
CF	Capacity Factor
COD	Commercial Operation Date
CPCN	Certificate of Public Convenience and Necessity
CRP	Conservation Reserve Program
DATCP	Wisconsin Department of Agriculture, Trade and Consumer Protection
dBA	A-weighted decibels
DC	Direct Current
ECSWMP	Erosion Control and Storm Water Management Plan
EMF	Electromagnetic Field
EMI	Electromagnetic Interference
EPC	Engineering, Procurement, and Construction
ERR	Endangered Resources Review
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FSA	Facility Services Agreement
GIA	Generator Interconnection Agreement
GIS	Geographic Information System
HDD	Horizontal Directional Drilling
HVTL	High Voltage Transmission Line
Hz	Hertz
IPaC	Information for Planning and Consultation
JDA	Joint Development Agreement
kCMIL	Thousand Circular Mils (Wire Gauge Measurement)
km	Kilometer
kV	Kilovolt
kVA	Kilovolt Amps
kW	Kilowatt
kWh	Kilowatt-hour
LLC	Limited Liability Company
MFL	Managed Forest Law
MHz	Megahertz
MISO	Midcontinent Independent System Operator
MPT	Main Power Transformer
MW	Megawatts
NAIP	National Agriculture Imagery Program
NEC	National Electric Code

NESC	National Electric Safety Code
NEXRAD	Next-Generation Radar
NHD	National Hydrography Dataset
[redacted]	[redacted]
NRIS	Network Resource Interconnection Service
NWI	National Wetland Inventory Mapping
O&M	Operations and Maintenance
OHWM	Ordinary High-Water Mark
OTA TV	Over-The-Air Television
PAD-US	Protected Areas Database for the United States
POI	Point of Interconnection
Project Area	The approximately 2,200 acres of land under control for solar electric generation development
PSC	Public Service Commission of Wisconsin
PV	Photovoltaic
ROW	Right-of-Way
SCADA	Supervisory Control and Data Acquisition
SCS	Site Characterization Study
SHPO	State Historic Preservation Office
SNA	State Natural Area
Solar Development Area	The approximately 1,296-acre area where the Applicant proposes to build the solar electric generation project (includes the Proposed and Alternative Array Areas)
SPCC	Spill Prevention, Control, and Countermeasures
SSURGO	Soil Survey Geographic Database
TMY	Typical Meteorological Year
Undeveloped Area	The approximate 891-acre area outside of the fenced arrays.
US	United States
USACE	United States Army Corps of Engineers
USCS	Unified Soil Classification System
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VPA	Voluntary Public Access
W	Watts
WAC	Wisconsin Administrative Code
WDNR	Wisconsin Department of Natural Resources
WGNHS	Wisconsin Geological and Natural History Survey
WHS	Wisconsin Historical Society
WisDOT	Wisconsin Department of Transportation
WPDES	Wisconsin Pollutant Discharge Elimination System
WDSPS	Wisconsin Department of Safety and Professional Services
WWI	Wisconsin Wetland Inventory

1.0 Project Description and Overview

Silver Maple, LLC ("Silver Maple" or "Applicant") is proposing a 200 megawatt ("MW") alternating current ("AC") photovoltaic ("PV") solar electric generation facility in the Towns of Eldorado and Rosendale in Fond du Lac County, Wisconsin and the Town of Nekimi in Winnebago County, Wisconsin ("Project"). The Project is planned to be constructed within approximately 2,200 acres ("Project Area") and will consist of PV panels, trackers, inverters, transformers, underground electric collection lines, access roads, a meteorological station, security fencing, a Project substation, a Generator Lead Line connecting the Project substation to the point of interconnection ("POI"), a Utility substation (which is the POI and serves to connect the Project to the existing transmission grid), and an operations and maintenance ("O&M") facility. The Utility substation will connect to the transmission grid via new 345 kV Loop-In Lines. A battery energy storage system ("BESS") is not being considered at this time.

Silver Maple is seeking a Certificate of Public Convenience and Necessity ("CPCN") and all other approvals and authorizations required to construct, install, operate, and maintain the 200 MWAC Project. The Project is anticipated to be placed in service by Q3 2025.

The Project Area can support 200 MWAC and the required 25 percent alternative area pursuant to Wis. Stat. § 196.491(3)(d)3. and the Application Filing Requirements for Solar Electric Generation Projects (PSC REF#: 455855) ("AFRs"). The Project will require construction of a new Project substation, a new Utility substation, and approximately 300 feet of new 345 kV Loop-In Lines to connect the Utility substation to the existing transmission grid. The 345 kV Loop-In Lines will connect to the existing American Transmission Company, LLC ("ATC") Fitzgerald to South Fond du Lac 345 kV high voltage transmission line ("HVTL"). The Utility substation will be owned and operated by ATC. Maps showing the Project layout and facilities are provided in **Appendix A**.

Silver Maple submits this Application for a CPCN in accordance with Wis. Stat. § 196.491(3) and Wis. Admin. Code PSC 111.53 to the Public Service Commission of Wisconsin ("PSC" or "Commission"). This Application was prepared pursuant to the guidance provided by the AFRs and consultations with the PSC and Wisconsin Department of Natural Resources ("WDNR"). On September 10, 2021, the Applicant submitted an Engineering Plan to the WDNR in accordance with Wis. Stat. §196.491(3)(a)3. The Engineering Plan was also submitted to the PSC on September 10, 2021 (PSC Ref# 420527). In addition to this CPCN, the Applicant is seeking applicable permits that were identified by the WDNR's September 16, 2021, response to the Engineering Plan. Agency correspondence is included in **Appendix B**.

1.1 General Project Location and Description of Project and Project Area

The overall size of the project area will have an impact on the amount of data and analyses required in this AFR. It is recommended that the project area be optimized so that the project retains flexibility for siting panels while at the same time reducing the total area for which data will be required.) Provide the following information about the project:

1.1.1 Project location – counties and towns in the project area.

The Project is located in the Townships of Eldorado and Rosendale in Fond du Lac County, and Nekimi Township in Winnebago County, Wisconsin (Figure 1.1.1 in **Appendix A**). The Project is located generally west of Interstate 41 and Lake Winnebago, south of the City of Oshkosh, north of the Village of Rosendale, and bisected by Wisconsin Trunk Highway 26. **Table 1.1-1** identifies the Project location.

Table 1.1-1: Project Location

Town, County	Township	Range	Sections
Eldorado, Fond du Lac	16N	16E	5- 7 and 18-19
Rosendale, Fond du Lac	16N	15E	12-15 and 22-24
Nekimi, Winnebago	17N	16E	30-31

1.1.2 Size of project area (in acres), area to be disturbed by construction activities (in acres), and size of solar arrays (in acres).

The overall Project Area is approximately 2,200 acres (Figure 4.1.1 in **Appendix A**). Within the Project Area, Silver Maple has approximately 2,200 acres under contract; approximately 1,698 acres are under purchase option, 464 acres are under lease option, and 26 acres are under right of way option for collection line easements. The 2,200 acres represents all of the land that would be required to accommodate the solar panels for the 200 MWAC capacity at the POI plus 39 percent additional capacity for alternative panel siting, presenting a gross capacity total of 279 MWAC. The area required for development of Project facilities, including the Proposed and Alternative Array Areas, totals approximately 1296 acres of land ("Solar Development Area") within the Project Area. Within the Solar Development Area, Proposed Array Areas and associated facilities account for approximately 913 acres and Alternative Array Areas account for 384 acres. The remaining approximately 891 acres within the Project Area but outside of the Solar Development Area (the "Undeveloped Area") will not be developed for the Project. Silver Maple anticipates that approximately 913 acres will ultimately be developed for the 200 MWAC Project (Figures 4.1.2, 4.1.4.1, and 4.1.5.1, **Appendix A**). This area would include the surface area of solar panels themselves, spacing between the racking system, fence lines, access roads, Project and Utility substation and O&M building. The panel siting layout shown in **Appendix A** on Figures 4.1.1 and 4.1.2 includes approximately 39 percent additional capacity described as Alternative Array Areas.

The Project Area is situated on 97 separate parcels of land owned by 13 different property owners under contract with Silver Maple (Figure 4.1.7.2 in **Appendix A**). See Table 1.5-2 for a list of landowners and contract status. Silver Maple may require an additional easement to allow parts of the underground collection system to cross under local roads, depending on final Project design. As needed, Silver Maple will coordinate with applicable road authorities to obtain easements for the collection lines.

The Project components, including the solar arrays, access roads, Project substation, Utility substation, and ancillary facilities, will be sited entirely within the Solar Development Area. The Undeveloped Area includes vegetative areas, wetlands, waterways, buffers, and road rights-of-way (Figure 4.1.2, **Appendix A**). Table 1.1-2 lists the Project components in the Solar Development Area and the Undeveloped Area by acreage.

Table 1.1-2: Project Components

Component	Acreage
Solar Development Area[1]	
Proposed Solar Arrays (fenced area)	
Access Roads[2] and 7	25.0
O&M Facility[3]	0.1
Project Substation	2.1
Utility Substation	3.8
Sedimentation Basins – 1 Permanent	0.3
Laydown Yards – 4 Temporary	15.4
Solar Array Area[4]	861.3
Proposed Solar Array Sub Total	**907.9**
Alternative Solar Arrays (fenced area)	
Access Roads[2]	10.0
Solar Array Area[4]	378.5
Alternative Solar Array Total	**388.5**
Total Solar Development Area	**1,296.4**
Undeveloped Area	
Area Outside Fenced Areas[5]	872.2
Proposed Collection Outside Fenced Areas 6 and 8	18.1
Alternative Collection Outside Fenced Area	0.8
Total Undeveloped Area	**891.1**

[1] The Solar Development Area, based on the Project's preliminary design, incorporates all areas where facilities will be located, including access roads, buried electrical collection lines, inverters, an O&M Facility, Project substation, Utility substation, temporary/permanent sedimentation basin, and temporary laydown yards.

[2] Access roads will be between 12 and 16 feet wide. A width of 16 feet was used in the Project layout to conservatively estimate acreages and impacts.

[3] The O&M facility includes the building (40 feet x 50 feet), parking area, and other associated facilities that may be required such as a domestic drinking water well, aboveground water storage tanks, septic system, security gate, lighting, and signage.

[4] The Solar Array Area represents the land hosting the solar modules, the areas in between the solar modules, electrical collection lines within the fenced array areas, and the inverters.

[5] The Area Outside Fenced Arrays include all areas outside the fenced areas, except Access Roads and Collection Lines, outside the fenced areas but within the overall 2,200-acre Project Area and consists of undisturbed vegetative areas, wetlands, waterways, buffers, and road rights-of-way.

[6] Access Roads and Solar Array Areas took priority over Collection Routing in areas of overlap.

[7] Approximately 0.12 acres of Proposed Access Road exist outside of the Project Area and within a public road ROW.

[8] Collection Routing temporary impacts were assumed at 10 feet wide

If the CPCN Application is approved, Silver Maple will determine how land within the Project Area but not hosting Project facilities will be used, based on the final engineering and layout for the Project. Final land use determinations, including whether Silver Maple will retain rights, will depend on a variety of factors including the land's location, which Array Areas are approved by the Commission for facility placement, and landowner preference. Silver Maple will work with landowners to determine whether continued agricultural use is appropriate, pursuant to the individual lease agreements. Land that is managed by Silver Maple during the operation of the

Project will be managed pursuant to the final vegetation management plan developed for the Project.

Preparation for construction of the Project will require some amount of vegetation removal and grading. Based upon the preliminary Project design and layout, approximately 813 acres will require some level of grading and of that, approximately 15 acres will require vegetation clearing and grubbing. Of those 15 acres, approximately 3.9 acres may require tree removal associated with the Proposed Arrays and approximately 7.3 acres associated with the Alternative Arrays. Construction activities with the potential to cause ground disturbance include, but are not limited to, overland construction vehicle travel, preconstruction micro-grading, equipment and materials staging, solar equipment installation, access road development, and use of temporary laydown yards. The area disturbed may also include areas that will be revegetated, including previous agricultural land that will no longer be used for row crops.

The grading design attempts to balance cut and fill volumes as much as possible across the site; the estimated volume of grading based on the current design is 250,570 cubic yards (CY) of cut and 206,320 CY of fill, with 44,250 CY of excess material. Excess material may be spread in a controlled manner evenly across the site, or if required, disposed off-site in accordance with applicable regulations. This design is not final and will be revisited during preparation of final Project engineering. Prior to grading, topsoil will be stripped, stockpiled and maintained until its eventual reapplication onto pervious surfaces.

1.1.3 Size (rated capacity), in both DC and alternating current (AC) MWs, of the proposed project. When providing the DC MW size, a range can be provided. (If an actual panel model is not yet under contract, the applicant must provide information on at least two models that are being considered. Those panels must represent the maximum and minimum megawatt size under consideration for purchase for the project).

The Project's Proposed Array will have an installed capacity of 200 MWAC, with a total direct current ("DC") of approximately 240 MWDC, using a single-axis tracking system. Of the 1,296.4-acre Solar Development Area, 907.9-acres of land will support the Proposed Array Area and all other facilities necessary for the Project. The Project substation, Generator Lead Line, Utility substation, Loop-In Lines, and O&M facility are part of the Proposed Array Area. The remaining 383.5 acres of land will support the Alternative Arrays, which can host an additional 79 MWAC (approximately 95 MWDC) of capacity to meet the Commission's requirements for Project alternatives.

If all areas presented in the 200 MWAC layout (combined Proposed and Alternative Array Areas) are deemed acceptable by the Commission for use by the Project, the Applicant requests flexibility from the Commission in the CPCN Final Decision to use any of the approved Proposed and Alternative Array Areas within the approved Project Area for the final permitted 200 MWAC layout, for the following reasons:

1. Spacing of the aisles may change depending on final equipment selection. Availability of constructible array areas allows for better spacing and a higher capacity factor - more energy production on a per megawatt basis.

2. As covered in more detail in Section 1.4 of this Application, the Proposed Array Area includes uniform power blocks wherever possible to increase efficiency and reduce cost and environmental impact. A higher level of acceptable and approved array areas increases the number of uniform power blocks that could be constructed. Uniform power block sizing could be optimized during detailed design.

PV panels (modules) produced by multiple manufacturers are under consideration for the Project. The Project will analyze current market offerings to make a final selection on specific solar module, inverter and racking system equipment. The 545 W LONGi LR5-72 HBD bifacial panel manufactured by LONGi Green Energy Technology Co. was used for the layout design included in this Application. Silver Maple is also considering the First Solar Series 6 Plus or Series 7 thin film panel. Additional details concerning the panels are provided in Section 2.2. An example Primary Array Area configuration that is representative of what would be used consists of approximately 440,000 to 510,000 high-efficiency solar PV panels at wattages of 545 W (LONGi) and 470W (First Solar), respectively. The datasheets for these PV modules are in **Appendix C**.

While these two models are typical examples of what may be installed, final equipment selection will take into balanced consideration the cost, efficiency, and technology offered, to include higher wattage modules. The marketplace for solar modules is constantly changing. Although the description above is representative of a likely choice for equipment, panels could exceed 545 W of DC power output each, potentially leading to fewer total panels or other manufacturers may be considered and selected.

1.1.4 Number of panel sites proposed for the project and the number of alternative panel sites that have been identified.

The Proposed and Alternative Array Areas have been divided into 43 fenced areas for identification and discussion purposes as shown in Figure 4.1.1 (**Appendix A**). The Proposed Array Area includes 16 panel sites that are separately fenced, and the Alternative Array Area includes 27 panel sites that are separately fenced.

The Proposed Array Area is designed for approximately 440,400 individual PV panels with a total generating capacity of 200 MWAC of power. The Alternative Array Area is designed for approximately 174,400 individual PV panels with a total generating capacity of 79 MWAC of power, which is 39% more that the Project's nameplate capacity of 200 MW. Silver Maple designated portions of the Solar Development Area as an Alternative Array Area based on considerations including environmental conditions and distance of array to the proposed Project substation (i.e., electrical losses are minimized if array is closer to the Project substation).

The Typical Power Block Configuration in **Appendix D** illustrates how the Proposed Array areas could be divided into approximately 55 power blocks utilizing 4,200 kVA inverters for representative purposes.

1.1.5 Identify any new or modified electric transmission lines or other electric transmission facilities that might be needed. Provide all associated MISO interconnection studies, such as definitive planning phase studies, as well as the MISO interconnection queue number(s) associated with the project and any ancillary energy storage systems, such as battery energy storage systems

(BESS).

The Project includes installation of new electric conversion and transmission facilities to collect, convert, and transmit solar generated power to the grid. In addition to the inverters associated with the arrays, new facilities include a Project substation (one 34.5 kV to 345 kV power transformer and related electric equipment), a Utility substation (to be constructed, owned and operated by ATC), a 345 kV Generator Lead Line connecting the two substations, and 345kV transmission Loop-In Lines (to be constructed, owned and operated by ATC) routing the existing Fitzgerald to South Fond du Lac 345 kV HVTL transmission line through the new Utility substation. Additional information regarding new or modified electric transmission lines or other electric transmission facilities is described in Section 2.5.

The first Silver Maple interconnection request, queue number J1253, was part of the MISO DPP-2019 Cycle 1 Phase I East (ATC) Study Cluster. DPP Phase 3 has been completed and the Generator Interconnection Agreement is being negotiated. The second Silver Maple interconnection request, queue number J1716, is part of the MISO DPP 2020 Cycle East (ATC) Study Cluster and is currently in Phase 3. Studies for both queue numbers are provided in **Appendix I.**

There are no ancillary energy storage systems currently associated with the Project.

1.1.6 Provide a general map showing the location of the project area, nearest communities, townships, and major roads. Include an inset map showing where the project is located in the state. Scale should be appropriate for showing communities within at least 10 miles of the project area boundary.

Figure 1.1.1 in **Appendix A** depicts the general location of the Project, nearest communities, townships, and major roads within at least 10 miles of the Project Area, along with an inset map showing where the Project is located within the state of Wisconsin.

1.2 Ownership

Identify the corporate entity or entities that would own and/or operate the plant.

Silver Maple is a wholly owned subsidiary of Leeward Renewable Energy, LLC ("Leeward"), an independent power producer ("IPP"). Leeward develops, builds, owns, and operates utility-scale renewable energy facilities across three core technologies: wind, solar, and battery storage projects. Leeward has a proven development track record, owning and operating 24 facilities across nine states for a total about 2,500 MW of installed generation capacity. As of 2022, Leeward is actively developing nearly 20 gigawatts of additional capacity, spanning across dozens of projects and states across the country. Leeward anticipates commissioning over 1,000 MW of renewable energy projects in the next two years.

Silver Maple is developing the Project as a wholesale merchant plant pursuant to Wis. Stat. § 196.491(1)(w). Silver Maple, provided it receives a CPCN from the Commission, may directly or indirectly through its affiliates, own, construct and operate the Project by selling the power using long term power purchase agreements or other available options. Alternatively, Silver Maple may sell or assign the Project, or a portion thereof, to a public utility or other qualified entity at any

time before, during or after the Project is constructed. Any future buyer or assignee will be required to meet all permit conditions and any power purchase agreement obligations associated with the Project or portion thereof. As part of any such sale or assignment, Silver Maple or an affiliate may function as the Engineering, Procurement, and Construction ("EPC") contractor to construct the Project and function as the O&M services provider to operate and maintain the Project.

1.3 Project Need/Purpose

Independent Power Producers (IPP) (merchant plants) skip to Subsection 1.3.6.

Sections 1.3.1 thru 1.3.5 apply to utilities only. These subsections focus on compliance with Wis. Stat. § 196.374, the Renewable Portfolio Standard (RPS).

Sections 1.3.1 through 1.3.5 are not applicable for the proposed Project.

1.3.6 IPPs Only – Energy Agreements.

1.3.6.0 n/a

1.3.6.1 Identify all Wisconsin utilities under contract for delivery of energy from the proposed project.

There are currently no Wisconsin utilities under contract to obtain the energy generated by the Project.

1.3.6.2 For each utility under contract or with which an agreement in principle for delivery of energy is in place provide the following, by utility:

1.3.6.2.1 Rated capacity under contract.

Not applicable.

1.3.6.2.2 Annual energy to be delivered under contract or expected to be delivered, including expected capacity factor.

Not applicable.

1.4 Alternatives

Leeward is a privately held, independent developer whose employees have decades of experience identifying and vetting sites for renewable energy projects. The sections below describe the process by which Leeward identified the Project Area.

Under the PSC guidelines for renewable energy development, Silver Maple in this Application is proposing a layout capable of hosting 279 MWAC, which is 39% greater than the desired Project size of 200 MWAC. By offering the Commission the ability to select locations of solar panels within the greater Project Area that will comprise the approved Project, Silver Maple is placing before the Commission a variety of feasible alternative locations, limited only by the requirement that

Silver Maple be able to optimize the electrical and structural arrangement if certain areas are removed from consideration.

The Silver Maple Project Area encompasses approximately 2,200 acres. This is a larger footprint than Silver Maple needs to complete the Project. These boundaries can encompass a full-scale solar facility and alternatives which offer a variety of different characteristics and allow the Commission to consider multiple configurations for the Project with unique benefits and choices. The impacts described in this Application are based on the 279 MWAC as shown on Figures 4.1.1 and 4.1.2 in **Appendix A**.

1.4.1 Utilities (CPCN)– Supply Alternatives.

Section 1.4.1 applies to utilities only.

1.4.2 Utilities (CPCN) – Demand-Side Alternatives

Section 1.4.2 applies to utilities only.

1.4.3 Utilities (CPCN OR CA) and IPPs (CPCN) – Project Area Selection.

1.4.3.1 Alternative Project Areas. Describe the project area screening and selection process used to select the proposed project area. Provide the following:

1.4.3.1.1 List individual factors or site characteristics used in project area selection.

Wisconsin has a promising market for solar development. The state's current energy generation infrastructure is aging, which presents an opportunity for replacement with more cost-effective options like renewable energy.

The availability and quality of solar resource and proximity to bulk power transmission systems are the initial screening criteria for siting evaluation of any solar power project. Silver Maple used publicly available data to locate areas of suitable solar resource and nearby transmission lines for interconnection. Due to the primarily agricultural land use and open space, Winnebago and Fond du Lac Counties represent an optimal location to host solar generation facilities.

An initial screening of the general Project Area was conducted to identify any critical resource concerns such as cultural resources, environmentally sensitive areas or resources, streams and wetlands, and conflicting land uses. The analysis did not identify any significant constraints to preclude further Project investigation and development. The proposed Project Area possesses strong solar resources, access to the existing transmission system, conducive road infrastructure, highly compatible land use characteristics, positive feedback from participating landowners and neighbors and limited environmental impacts.

The preliminary layout maximizes solar energy generation while limiting disturbance to wetlands, waterways, and potential flooding areas. Setbacks were incorporated that meet or exceed county ordinance and state regulation. Additionally, the panel configuration has been oriented to reduce

glare hazards to roadways and adjoining residences. A summary of considerations in the incorporated design are presented below.

Additionally, the Project was laid out to be considerate of adjacent landowners offering vegetative screening and utilizing larger setbacks in some cases (see Section 1.5.3 and Table 1.5-1). In March of 2022 Silver Maple began meeting with residents in immediate proximity to the Project Area to discuss the Project and seek input which has been incorporated into the design.

Fond du Lac and Winnebago County were selected based on viability to support solar energy generation, compatible land-use characteristics, access to the bulk power transmission system, positive feedback from landowners, and few environmentally sensitive areas. As discussed above, the Applicant has entered into lease or purchase option agreements for multiple parcels of land from 13 property owners who have signed agreements to host the Project's facilities.

1.4.3.1.2 Explain in detail how brownfields were considered in the selection of sites to develop.

Wis. Stat. § 238.13(1)(a) defines a brownfield as "abandoned, idle, or underused industrial or commercial facilities or sites, the expansion or redevelopment of which is adversely affected by actual or perceived environmental contamination." Wis. Stat. § 196.491(3)(d)8. requires brownfields to be used to the extent practicable for large electric generating facilities.

The potential use of existing brownfield sites within the region was evaluated. A comprehensive list of brownfield sites was accessed from the US EPA website covering southern Wisconsin, particularly Fond du Lac and Winnebago Counties. Silver Maple identified 11 brownfield sites within Fond du Lac County ranging in size from 0.03 to 5.2 acres, and 100 sites within Winnebago County ranging in size from 0.05 to 107.13 acres. None of the sites reviewed were large enough to host a 200 MW project nor were any deemed suitable for solar development using the evaluation approach outlined in Section 1.4.2.2.

Given the land requirements of the proposed Project, it was concluded that no brownfield site across Fond du Lac and Winnebago Counties would be suitable.

1.4.3.1.3 Explain how individual factors and project area characteristics were weighted for your analysis and why specific weights were chosen.

As stated in Section 1.4.2.1.1, Silver Maple utilized numerous criteria to site this Project. Although specific weighting of these criteria was not performed for this Project, site selection criteria including transmission and injection capacity, land availability, landowner interest, public input, and environmental constraints were given priority in siting the Project.

1.4.3.1.4 Provide a list of all project areas reviewed with weighted scores for each siting factor or characteristic used in the analysis.

As noted in the previous section, Silver Maple views the described siting factors equally. A more detailed description of our approach to the site selection process is described in Section 1.4.2.2 below.

1.4.3.2 Provide a narrative describing why the proposed project area was chosen.

The Project Area was identified following an in-depth analysis. The following details the primary factors utilized in the evaluation of potential project sites and the selection process used to arrive at the Project Area.

Transmission and Injection Capacity

One of the primary factors in site selection for utility-scale solar development is availability of existing electric infrastructure necessary to connect a project to the power grid.

Preferred injection points are found where the existing electrical infrastructure is robust, thereby minimizing the interconnection facility costs and network upgrades frequently attributed to new generating facilities. Projects where land is available near POIs are prioritized by project developers such as Silver Maple.

The first Silver Maple interconnection request, queue number J1253, was part of the MISO DPP-2019 Cycle 1 Phase I East (ATC) Study Cluster. DPP Phase 3 has been completed and the Generator Interconnection Agreement is being negotiated. The second Silver Maple interconnection request, queue number J1716, is part of the MISO DPP 2020 Cycle East (ATC) Study Cluster. The cycle's Phase 3 study is underway. Studies for both queue numbers are provided in **Appendix I**.

Land Availability, Infrastructure, and Constructability

Large tracts of relatively flat undeveloped lands are typically utilized for utility-scale solar facilities. The Project Area is mostly agricultural land.

Overall, the Project Area topography is conducive to solar development. The Project Area is mostly flat, which limits grading disturbances and minimizes significant shading from exterior sources such as hills. Specific Global Horizontal Irradiance for the Project can be found in Table 2.1-1 in Section 2.0.

Through private negotiations, Silver Maple has secured agreements for the approximately 2,200 acres under consideration for the Proposed and Alternative Array Areas, all within proximity to the proposed POI with the existing Fitzgerald to South Fond du Lac 345 kV HVTL. The Fitzgerald to South Fond du Lac 345 kV HVTL is located directly east of the proposed Project substation. The Project substation is located northeast of the intersection of State Highway 26 and Frank Road in Eldorado Township.

The Project is located in an area where nearby roads and highways, such as State Highway 26 and County Highway N, C and FF are suitable for equipment and material delivery during construction.

Environmental Considerations

A preliminary desktop analysis followed by field surveys were completed to screen for environmental factors including, but not limited to, wetlands, waterways, endangered species, invasive species, critical habitat, floodplains, and cultural and historic resources. Silver Maple

made every effort to site Project facilities to avoid or minimize environmental impacts to the extent practicable. The Project Area contains few environmental and cultural resource constraints, and the constraints identified will be avoided by the Project or, if required, permitted with the applicable authorities.

Community

Silver Maple values working with communities that welcome solar projects and responsible economic development opportunities. Silver Maple places great importance on community-supported projects and engages with local residents, neighboring landowners, municipal leaders, and state legislators early in the development process. In order to be a good neighbor, it is important that any project be transparent and in regular communication with the public. Silver Maple has been engaging the community and local township and values their feedback and concerns for this Project. Public outreach materials are provided in **Appendix T**.

1.5 Utilities (CPCN or CA) and IPPs (CPCN) – Site Selection

Refer to Section 1.4.2 above for the individual factors or characteristics used to select the overall Project location and for the development of the Project Area. Silver Maple, along with its consultant, Westwood Professional Services, Inc. (Westwood), further evaluated the Project Area for siting the Proposed and Alternative Array Areas. This more detailed process also factored in the following:

Community Feedback

Throughout the Project development process, feedback from the community has been solicited and received. This feedback, including concerns and preferences, has been considered in the preliminary design, factoring into potential location of Project infrastructure. As the Project progresses, Silver Maple may make minor changes to accommodate unforeseen circumstances; however, any changes will take into account the considerations that were used during design of the current Project layout.

Environmental Considerations

Natural resources such as wetlands, waterways, endangered species, floodplain, shoreland, and cultural resources were evaluated as part of the Project development process. The Project was designed to avoid or minimize impacts to these resources to the extent practicable.

Setbacks

Setbacks from public rights-of-way, utilities, and sensitive community resources were established and mapped. With the exception of two places of worship located outside of the Project Area, no sensitive community resources such as churches, schools, or nursing homes are located within a one-mile radius of the Project Area.

Unavailable or Restricted Land

Managed and public lands, conservancies, land under contracts such as Conservation Reserve Program ("CRP"), Managed Forest Law ("MFL"), and Farmland Preservation Agreements ("FPA") were reviewed. With the exception of limited areas within the Project Area that contain approximately thirteen (13) acres of CRP land, no other unavailable or restricted lands were identified within the Project Area. See Section 5.15.9 for information on CRP lands within the Project Area.

Public Land

No public or managed lands were identified within the Project Area. There are several public and private lands open to the public within a two-mile buffer of the Project Area. These lands include Northwoods Park, the Fond du Lac County Waterfowl Production Area, and the Eldorado Wildlife Area. The Project is not anticipated to impact these lands.

Airports

Airports, airstrips, and runways were assessed to verify sufficient distances exist from runways to Project facilities. No active airports or airstrips were identified within a two-mile buffer of the Project Area. Two public and eight private airports are located within a ten-mile buffer of the Project Area; two of those are private helipads. The Project is not anticipated to impact these facilities.

Existing Renewable Energy Facilities

No existing renewable energy facilities were identified within two miles of the Project Area.

Sound

Sound modeling determined that sound generated by the Project at the proposed site will remain below 50 A-weighted decibels (dBA) during daytime hours and 45 dBA during nighttime hours at any of the sensitive noise receptors that were measured.

Constructability and Collection

Construction considerations were factored into the design including restrictions due to slopes and soils, construction efficiency, and equipment movement. Additionally, the ability to network the collection system between solar panel array sites was optimized to the extent possible.

1.5.1 List the individual factors or characteristics used to select the proposed and alternative panel sites (arrays).

The factors described in Section 1.4 were considered in an iterative process to arrive at a Project layout that minimizes impacts to the environment and surrounding landowners while maximizing the efficiency of the Project within the Proposed and Alternative Array Areas. The Alternative Array Area will be utilized should the permitting process so dictate, or if circumstances arise prior to or during construction that prohibit the use of part of the Proposed Array Area. Revisions to the panel layout design may require associated modifications to other Project components

including collection line routes, access roads, and shifts in other panel locations. Siting criteria is the same for Proposed and Alternative Array Areas.

1.5.2 Provide information on how site characteristics and the type/s of panels chosen factored into the selection of the final panel sites. Discuss any risks associated with supply chain disruption for the various panels under consideration and how such risks would be mitigated.

Project Area characteristics were considered as described in Sections 1.4.2 and 1.5.1. The conceptual design for the Project includes LONGi LR5-72HBD bifacial cell modules; TMEIC Solar Ware Ninja PVU-L0840GR inverters; and NX Horizon smart solar tracker system, a horizontal single-axis tracker, provided by Nextracker, Inc. Tracker selection is independent from module selection and will be chosen to minimize grading as much as possible. The NX Horizon tracker has a north-south maximum slope of 15 percent and uses independent rows such that east-west grading can also be optimized. Any tracker alternative would be chosen to feature similar characteristics. Specification sheets describing the mechanical characteristics of these components is provided in **Appendix C**.

For the planned Q3 2025 in-service date, the Project is expected to use products with similar electrical and physical characteristics that are readily available in the market at the time of purchase. Modules evaluated in the conceptual design process are included in Section 1.1.3.

Maintaining technological flexibility among high quality manufacturers allows Silver Maple to ensure the quality of the Project while also considering Project cost efficiency. A final determination of technology providers will be made closer to the start of construction; it is anticipated the quality and performance of panels, tracking, and inverters will continue to improve in the coming years.

The Project's procurement team will continue to evaluate the production capabilities of multiple suitable equipment manufacturers, the availability of different equipment models within the general parameters described above, and current lead times for equipment as the Project design progresses. Maintaining flexibility regarding the specific equipment selected for the Project will reduce the risk of supply chain disruptions.

1.5.3 Setback distances.

1.5.3.1 Provide the minimum setbacks and reasons for those setback distances for both boundary fences and solar panels from:

- residences
- property lines
- other buildings (e.g., animal barns, storage sheds)
- roads
- wetlands and waterways
- existing utility infrastructure (i.e. natural gas pipelines, electric distribution lines)
- any other features.

Silver Maple designed the facilities to maintain setbacks from residences, property lines, and other features as detailed in Table 1.5-1. The proposed setback distances meet or exceed setbacks described in the Towns of Rosendale, Eldorado, and Nekimi ordinances; the Fond du Lac and Winnebago County ordinances; and state statutes.

According to the Fond du Lac County Zoning Map[1],most of the Project Area is zoned Farmland Preservation within the Towns of Rosendale and Eldorado[2] indicates areas within the Town of Nekimi are zoned Agribusiness (A-1) and General Agriculture (A-2). The front, side, and rear yard setbacks in the applicable ordinances are included in **Appendix G**.

The Fond du Lac County GIS Viewer[1] and the Winnebago County Shoreland Viewer map[3] also show the Project Area includes areas within the Shoreland District (Figure 4.1.8.1 in **Appendix A**). Chapter 27 (Shoreland Zoning Code) of the Winnebago County Code of Ordinances and Chapter 44 (Shoreland Zoning) of the Fond du Lac County Code of Ordinances each identify the respective county's Shoreland District. The Shoreland District includes land within 1,000 feet of the OHWM of navigable lakes, ponds, or flowages, and land within 300 feet of the OHWM of navigable rivers or streams (**Appendix G**).

Both Counties have established a general 75-foot structure setback from the OHWM of any navigable water body within the Shoreland Overlay District, though certain exemptions may be applicable to some Project infrastructure (**Appendix G**). Sixteen (16) access roads (four associated with Proposed Arrays and 12 associated with Alternative Arrays) may be installed within the 75-foot shoreland setback from the OHWM of delineated wetlands or waterways. Silver Maple will obtain WDNR permits necessary to construct these roads if necessary pursuant to the final Project design.

The Project will not exceed the general standard of up to 15 percent impervious surface coverage within 300 feet of the OHWM. A 300-foot buffer was created from the OHWM of all delineated waterways with a total of 600.0 acres within the Project Area. Project components within the buffer include solar modules, inverters, and array fencing. The solar modules, which are disconnected impervious surfaces, comprise approximately 8.6 acres or 1.4 percent of the 300-foot buffer.

Table 1.5-1 provides a list of anticipated setbacks that were used for the Project layout.

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[1] Fond du Lac County. 2022. GIS Zoning Map. Available at: https://gisweb.fdlco.wi.gov/fonddulacts/. Accessed January 2023.

[2] Winnebago County. 2022. County Zoning Viewer. Available at: https://wcgis3.co.winnebago.wi.us/zoneviewer/. Accessed January 2023.

[3] Winnebago County. 2022. Shoreland Viewer. Available at: https://wcgis3.co.winnebago.wi.us/shoreviewer/. Accessed January 2023.

Table 1.5-1 Proposed Setbacks

Type	Ordinance/ Administrative Code	Minimum Setback Distance in Ord./Admin. Code	Silver Maple's Minimum Setback for Fences	Silver Maple's Minimum Setback for Arrays
Residences, Property Lines, & Other Buildings				
Residences	N/A	N/A	100 feet from edge of residential structure	150 feet from edge of residential structure
Front Yard/Street Setback	Town of Rosendale Zoning Ord. Art. II. §3.E	50 feet from road centerline unless a greater distance is required by law	Not less than 75 feet from property boundary	Front Yard (CL) 110 feet, Front Yard ROW 75 feet
	Winnebago Co. Code Ch. 23, §23.8-65; Ex. 8-2[1]	30 feet		
	Town of Eldorado Ord. §17.33(12)	Greater of 100 feet from centerline or 65 feet from ROW		
	Wis. Admin. Code § Trans 233.08	110 feet from centerline or 50 feet from ROW	Not less than 75 feet from property boundary	Front Yard (CL) 110feet, Front Yard ROW 75 feet
Side Yard Setback	Town of Rosendale Zoning Ord. Art. II. §3.E	25 feet for dwellings and 20 feet for all other structures	Not less than 50 feet from property boundary (for non-participating residences with Project on 2+ sides, setback is 75 feet)	Not less than 60 feet from property boundary (for non-participating residences with Project on 2+ sides, setback is 75 feet)
	Town of Eldorado Ord. §17.33 (12)	25 feet for dwellings and 50 feet for other structures		
	Winnebago Co. Code Ch. 23, §23.8-65; Ex. 8-2[1]	A-1: 20 feet for principal building, 15 feet for accessory building. A-2: 10 feet for principal building, 3 feet for accessory building.		
Rear Yard Setback	Town of Rosendale Zoning Ord. Art. II. §3.E	10 feet	Not less than 50 feet from property boundary (for non-participating residences with Project on 2+ sides, setback is 75 feet)	Not less than 60 feet from property boundary (for non-participating residences with Project on 2+ sides, setback is 75 feet)
	Town of Eldorado Ord. §17.33 (12)	40 feet		
	Winnebago Co. Code Ch. 23, §23.8-65; Ex. 8-2[1]	25 feet		
Other Buildings	N/A	N/A	Not less than 50 feet from other buildings (for non-participating residences with Project on 2+ sides, setback is 75 feet)	Not less than 60 feet from other buildings (for non-participating residences with Project on 2+ sides, setback is 75 feet)
Wetlands & Waterways				

Table 1.5-1 Proposed Setbacks

Type	Ordinance/ Administrative Code	Minimum Setback Distance in Ord./Admin. Code	Silver Maple's Minimum Setback for Fences	Silver Maple's Minimum Setback for Arrays
Wetlands	N/A	N/A	Not less than 75[3] feet from delineated boundary	Not less than 75[3] feet from delineated boundary
Waterways	Winnebago Co. Code Ch. 27, §6.1	75 feet from OHWM of any navigable water body [2]	75 feet from OHWM of any navigable water body	75 feet from OHWM of any navigable water body
	Fond du Lac County Code of Ord. §44-203	75 feet from OHWM of any navigable water body [2]		
Existing Utility Infrastructure & Other Features				
Pipelines	N/A	N/A	50 feet from utility centerline	50 feet from utility centerline
Transmission Lines	N/A	N/A	50 feet from utility centerline	50 feet from utility centerline
Distribution Lines	N/A	N/A	50 feet from utility centerline	50 feet from utility centerline
Water Wells	N/A	N/A	50 feet	50 feet
Cell Tower	N/A	N/A	210 feet (1x height of tower)	210 feet (1x height of tower)

[1] *See also* Winnebago Co. Code §23.8-371(a). Note that setbacks do not apply to fences. Winnebago Co. Code §23.8-65(b)(3).

[2] Exemption for utility structures provided if there is no feasible alternative location outside of the minimum setback and BMPs are employed to infiltrate or control stormwater runoff. Winnebago Co. Code Ch. 27, §6.1(1)(e); Fond du Lac Code of Ord. §44-203.

[3] Fences and arrays will not be located within 75 feet of wetlands and waterways, but access road crossings over waterways are proposed for the Project.

1.5.3.2 Identify any sites where non-participating "good neighbor" agreements have been executed.

As of the time of the Application, no good neighbor agreements have been offered or executed, however Silver Maple will work with non-participating landowners to provide vegetative screening when practicable.

1.5.3.3 Status of easement agreements:

1.5.3.3.1 Identify all project sites with easement agreements that have been signed.

Silver Maple has solar lease option or purchase options in place totaling approximately 2,200 acres within the Project Area, which fully incorporates the areas associated with the Proposed and Alternative Array Areas, and other Project facilities. **Table 1.5-2** identifies all parcels and their contract type and status.

1.5.3.3.2 Identify all sites where easement agreements have not been signed and provide a short description of the status of negotiations.

All solar easements or purchase agreements required to construct a 200 MW solar facility have been acquired. The contract type and status are listed in **Table 1.5-2**.

Table 1.5-2: Landowner Lease and Easement Agreements

Number	Proposed Owner Name	Parcel ID	Type of Option	Status	Acreage Under Option Agreement
1	Thomas and Linda Hill	0120528	Lease	Signed	16.58
2	Thomas and Linda Hill	012053804	Lease	Signed	75.31
3	Robert and Linda Hurkman	1205440201	Purchase	Signed	9.72
4	Robert and Linda Hurkman	012054403	Purchase	Signed	17.63
5	Robert and Linda Hurkman	0120554	Purchase	Signed	6.88
6	Thomas Klabunde	120539	Purchase	Signed	19.1
7	Thomas Klabunde	120544	Purchase	Signed	5.78
8	Thomas Klabunde	120547	Purchase	Signed	2.05
9	Thomas Klabunde	12054701	Purchase	Signed	18
10	Thomas Klabunde	12054702	Purchase	Signed	8.78
11	Thomas Klabunde	120548	Purchase	Signed	40
12	P&Q Hughes LLC	120552	Lease	Signed	4.6
13	P&Q Hughes LLC	120561	Lease	Signed	40
14	P&Q Hughes LLC	120564	Lease	Signed	40
15	P&Q Hughes LLC	120566	Lease	Signed	40
16	P&Q Hughes LLC	120567	Lease	Signed	38.43
17	P&Q Hughes LLC	120569	Lease	Signed	2.1
18	P&Q Hughes LLC	120578	Lease	Signed	4.6
19	Richard and Cheryl Langenfeld	T07-16-16-05-03-001-00	Purchase	Signed	19.24
20	Richard and Cheryl Langenfeld	T07-16-16-05-03-002-00	Purchase	Signed	12
21	Richard and Cheryl Langenfeld	T07-16-16-05-03-003-00	Purchase	Signed	9.66
22	Richard and Cheryl Langenfeld	T07-16-16-05-06-002-00	Purchase	Signed	19.95
23	Richard and Cheryl Langenfeld	T07-16-16-05-06-002-00	Purchase	Signed	13.93
24	Richard and Cheryl Langenfeld	T07-16-16-05-07-001-00	Purchase	Signed	24.44
25	Richard and Cheryl Langenfeld	T07-16-16-05-07-002-00	Purchase	Signed	11.6
26	Richard and Cheryl Langenfeld	T07-16-16-05-08-001-00	Purchase	Signed	28

Table 1.5-2: Landowner Lease and Easement Agreements

Number	Proposed Owner Name	Parcel ID	Type of Option	Status	Acreage Under Option Agreement
27	Richard and Cheryl Langenfeld	T07-16-16-05-08-002-00	Purchase	Signed	6.99
28	Richard and Cheryl Langenfeld	T07-16-16-05-14-001-00	Purchase	Signed	40
29	Richard Langenfeld	T07-16-16-06-02-006-00	Purchase	Signed	14.68
30	Richard Langenfeld	T07-16-16-06-02-007-00	Purchase	Signed	12.69
31	Richard Langenfeld	T07-16-16-06-03-005-00	Purchase	Signed	35.88
32	Richard Langenfeld	T07-16-16-06-04-003-00	Purchase	Signed	19.26
33	Richard Langenfeld	T07-16-16-06-05-001-00	Purchase	Signed	30
34	Richard and Cheryl Langenfeld	T07-16-16-06-05-002-00	Purchase	Signed	9.37
35	Richard and Cheryl Langenfeld	T07-16-16-06-06-001-00	Purchase	Signed	32.24
36	Richard and Cheryl Langenfeld	T07-16-16-06-06-005-00	Purchase	Signed	1.55
37	Richard and Cheryl Langenfeld	T07-16-16-06-07-001-00	Purchase	Signed	42.74
38	Richard and Cheryl Langenfeld	T07-16-16-06-08-002-00	Purchase	Signed	20
39	Richard and Cheryl Langenfeld	T07-16-16-06-08-003-00	Purchase	Signed	18.38
40	Richard and Cheryl Langenfeld	T07-16-16-06-09-004-00	Purchase	Signed	34.77
41	Richard and Cheryl Langenfeld	T07-16-16-06-14-001-00	Purchase	Signed	40
42	Michael J Pionkee	T07-16-16-06-12-001-00	Lease	Signed	4.5
43	Michael J Pionkee	T07-16-16-07-05-001-00	Lease	Signed	38.5
44	Michael J Pionkee	T07-16-16-07-07-001-00	Lease	Signed	30
45	Michael J Pionkee	T07-16-16-07-08-001-00	Lease	Signed	39
46	Duane D Bradley	T07-16-16-07-10-001-00	Purchase	Signed	34.63
47	Rickland Farms Inc.	T18-16-15-12-13-001-00	Right of Way	Signed	1.7
48	Duane D. Bradley	T18-16-15-12-16-001-00	Right of Way	Signed	6.7

Table 1.5-2: Landowner Lease and Easement Agreements

Number	Proposed Owner Name	Parcel ID	Type of Option	Status	Acreage Under Option Agreement
49	Duane D. Bradley	T18-16-15-13-01-001-00	Right of Way	Signed	2.63
50	Duane D. Bradley	T18-16-15-13-02-001-00	Right of Way	Signed	6.07
51	Duane D. Bradley	T18-16-15-13-03-001-00	Right of Way	Signed	6.8
52	Rickland Farms Inc.	T18-16-15-13-03-002-00	Right of Way	Signed	2.29
53	CERES FARMS WISCONSIN LLC	T18-16-15-13-08-004-00	Purchase	Signed	34.24
54	CERES FARMS WISCONSIN LLC	T18-16-15-13-07-003-00	Purchase	Signed	38.80
55	CERES FARMS WISCONSIN LLC	T18-16-15-13-10-003-00	Purchase	Signed	15.40
56	PINCH BROTHERS GRAIN FARM LLC	T18-16-15-13-09-006-00	Purchase	Signed	3.40
57	PINCH BROTHERS GRAIN FARM LLC	T18-16-15-13-09-008-00	Purchase	Signed	25.25
58	CERES FARMS WISCONSIN LLC	T18-16-15-13-10-004-00	Purchase	Signed	13.91
59	CERES FARMS WISCONSIN LLC	T18-16-15-14-13-002-00	Purchase	Signed	23.00
60	CERES FARMS WISCONSIN LLC	T18-16-15-14-14-001-00	Purchase	Signed	40.00
61	CERES FARMS WISCONSIN LLC	T18-16-15-14-09-001-00	Purchase	Signed	40.00
62	CERES FARMS WISCONSIN LLC	T18-16-15-15-16-002-00	Purchase	Signed	10.02
63	CERES FARMS WISCONSIN LLC	T18-16-15-14-11-001-00	Purchase	Signed	40.00
64	CERES FARMS WISCONSIN LLC	T18-16-15-14-12-001-00	Purchase	Signed	7.00
65	CERES FARMS WISCONSIN LLC	T18-16-15-14-12-002-00	Purchase	Signed	33.00
66	CERES FARMS WISCONSIN LLC	T18-16-15-14-15-001-00	Purchase	Signed	7.00
67	CERES FARMS WISCONSIN LLC	T18-16-15-14-15-002-00	Purchase	Signed	3.30
68	CERES FARMS WISCONSIN LLC	T18-16-15-14-15-003-00	Purchase	Signed	29.70
69	CERES FARMS WISCONSIN LLC	T18-16-15-14-16-003-00	Purchase	Signed	36.70
70	CERES FARMS WISCONSIN LLC	T18-16-15-23-01-003-00	Purchase	Signed	9.56

Table 1.5-2: Landowner Lease and Easement Agreements

Number	Proposed Owner Name	Parcel ID	Type of Option	Status	Acreage Under Option Agreement
71	CERES FARMS WISCONSIN LLC	T18-16-15-23-02-003-00	Purchase	Signed	33.56
72	CERES FARMS WISCONSIN LLC	T18-16-15-23-05-001-00	Purchase	Signed	40.00
73	CERES FARMS WISCONSIN LLC	T18-16-15-22-01-003-00	Purchase	Signed	2.20
74	CERES FARMS WISCONSIN LLC	T18-16-15-23-03-005-00	Purchase	Signed	14.57
75	CERES FARMS WISCONSIN LLC	T18-16-15-14-13-001-00	Purchase	Signed	17
76	CERES FARMS WISCONSIN	T18-16-15-23-006-002-00	Purchase	Negotiating	8.49
77	James and Sherilyn Zickert Family Trust	T18-16-15-13-15-001-00	Purchase	Signed	40.00
78	James and Sherilyn Zickert Family Trust	T18-16-15-24-02-001-00	Purchase	Signed	40.00
79	James and Sherilyn Zickert Family Trust	T18-16-15-24-03-001-00	Purchase	Signed	37.50
80	James and Sherilyn Zickert Family Trust	T18-16-15-24-01-001-00	Purchase	Signed	37.50
81	Ceres Farms Wisconsin LLC	T07-16-16-18-11-001-00	Purchase	Signed	7.926
82	Ceres Farms Wisconsin LLC	T07-16-16-19-06-001-00	Purchase	Signed	40.41
83	Ceres Farms Wisconsin LLC	T07-16-16-19-07-001-00	Purchase	Signed	38.15
84	Ceres Farms Wisconsin LLC	T07-16-16-19-10-001-00	Purchase	Signed	41.99
85	Ceres Farms Wisconsin LLC	T07-16-16-19-11-001-00	Purchase	Signed	39.68
86	Ceres Farms Wisconsin LLC	T07-16-16-19-12-001-00	Purchase	Signed	21.31
87	Ceres Farms Wisconsin LLC	T07-16-16-19-15-002-00	Purchase	Signed	6.09
88	Ceres Farms Wisconsin LLC	T07-16-16-19-14-002-00	Purchase	Signed	10.82
89	Ceres Farms Wisconsin LLC	T07-16-16-19-09-001-00	Purchase	Signed	40
90	Loron and Lorna Bock	T07-16-16-19-02-002-00	Purchase	Signed	18
91	Loron and Lorna Bock	T07-16-16-19-03-002-00	Purchase	Signed	15.99
92	Loron and Lorna Bock	T07-16-16-19-05-001-00	Purchase	Signed	37

Table 1.5-2: Landowner Lease and Easement Agreements

Number	Proposed Owner Name	Parcel ID	Type of Option	Status	Acreage Under Option Agreement
93	Loron and Lorna Bock	T07-16-16-19-08-001-00	Purchase	Signed	40
94	William D. Peachy	T18-16-15-24-09-001-00	Lease	Signed	15.82
95	William D. Peachy	T18-16-15-24-13-001-00	Lease	Signed	35
96	William D. Peachy	T18-16-15-24-14-001-00	Lease	Signed	40
97	James and Sherilyn Zickert Family Trust	T18-16-15-24-04-001-00	Purchase	Negotiating	0.19
98	James and Sherilyn Zickert Family Trust	T18-16-15-24-04-001-00	Right of Way	Negotiating	0.25
				Total	2,189.48
				Purchase	1,698.596
				Lease	464.44
				ROW	26.44

1.5.4 Identify whether setbacks are consistent with local zoning (county or municipality) or if there are variations from local zoning setbacks, describe why.

As described in Section 1.5.3.1 above, setbacks are generally consistent with local zoning.

1.6 Utilities Only – Cost

Section 1.6 applies to utilities only.

1.7 IPPs Only – MISO and Project Life Span

1.7.1 MISO Market. Describe how, at the time of this filing, the proposed facility would be treated as an intermittent resource in the MISO market.

The Project will be treated as a solar Network Resource Interconnection Service ("NRIS"), which allows the Project to integrate its generating facility with the transmission system in the same manner as for any resource being designated as a network resource. Public MISO documents are provided in **Appendix I**.

1.7.2 Provide an estimate of the expected life span for the power plant.

Utility-scale solar facilities typically have a useful operational life of 30 to 40 years. This Project is anticipated to remain operational for approximately 40 years, which is reflected in the lease and easement agreements. If equipment were to fail before the end of the anticipated useful lifetime of the facility, those components could be replaced with operational ones.

1.7.3 Describe how the facility would be decommissioned at the end of its life span. Describe expected decommissioning actions and timelines.

The Project is anticipated to have an operational life span of approximately 40 years with some replacing or updating of equipment during that time frame.

Decommissioning includes removing the solar panels, solar panel racking, steel foundation posts and beams, inverters, transformers, overhead and underground cables and lines (buried shallower than four feet), equipment pads and foundations, equipment cabinets, and ancillary equipment. The civil facilities, access road, security fence, and drainage structures, and sedimentation basins are included in the scope. Standard decommissioning practices would be utilized, including dismantling and repurposing, salvaging/recycling, or disposing of the solar energy improvements. A detailed Decommissioning Plan is provided in **Appendix E** and is generally summarized below.

Silver Maple will be responsible for removal of all aboveground equipment and underground equipment to a depth of four feet within the Project Area. Some components may remain in place such as the Project substation, the Utility substation, Generator Lead Line, and Loop-In Lines, if other agreements necessitate their continued use. Decommissioned equipment and materials will be evaluated for recycling based on economic viability. Disposal of materials will be consistent with applicable regulations and industry standards.

Facility access roads will be used for decommissioning purposes, and will be reinforced prior to decommissioning, if needed, after which all access roads may be left in-place through mutual agreement of the landowner and Silver Maple, or they would be removed, with the aggregate being reused, sold, or disposed of properly, and decompacted using a chisel plow or other appropriate subsoiling equipment.

Decommissioning is estimated to take approximately one year to complete. In general, decommissioning activities will include:

- Dismantling and removal of all aboveground equipment (solar panels, racking, transformers, etc.);
- Removal of all aboveground cabling;
- Removal of foundations (piles, piers, and posts) down to 48 inches below grade level; and
- Scarification of compacted areas within and contiguous to the solar facility (including but not limited to internal and external access roadways).

After all the equipment is removed, any holes or voids created by poles, concrete pads, and other equipment will be filled in with native soil to the surrounding grade and the site will be restored to pre-construction conditions, to the extent practicable. Areas compacted by equipment will be decompacted to a depth necessary to ensure drainage of the soil and root penetration prior to fine grading and tilling to a farmable condition and will include roadways unless landowner requests that roadways remain in place. The goal of restoration will be to restore natural hydrology and plant communities to the extent practicable while minimizing new disturbance and removal of native vegetation.

1.7.3.1 Provide an estimate of the cost of and source of funding for decommissioning. State whether financial security would be provided to cover decommissioning costs, including the amount and time it would be provided.

The Project has prepared a preliminary cost estimate for decommissioning. Based on current pricing, technology, and regulatory requirements, the estimated net decommissioning cost (cost of decommissioning minus any potential estimated resale and salvage value revenue) resulted in a net surplus of approximately $10,430,700 for the initial period of Project operation. The cost estimate is non-binding and was based on 2022 pricing for removal of components on five years of degradation and depreciation.

Silver Maple believes that, based on the potential resale and salvage value of the installed equipment, it is unnecessary to establish a decommissioning funding source at the early stages of operation. Silver Maple proposes to update the Decommissioning Plan and cost estimate in year 15 of commercial operation. At that time Silver Maple will post sufficient financial security to cover the updated net decommissioning costs (cost of decommissioning minus any potential resale and salvage value revenue). The plan would be updated at the 25-, 35- and 40-year anniversary and the financial security would be adjusted to be consistent with the then current estimated net decommissioning cost.

1.7.3.2 State how the start of decommissioning would be decided, including a description of what constitutes site abandonment.

At the end of commercial operation, Silver Maple will assess whether to cease operations and decommission the Project or to replace equipment and extend the life of the Project. Operation of the Project will be considered a discontinued use when a determination is made by the Silver Maple to discontinue use, or after approximately one year without energy production, subject to the final decision by Silver Maple.

1.7.3.3 State whether a participating landowner could be responsible for decommissioning costs in any situations.

Participating landowners would not be responsible for decommissioning costs under any situation.

1.7.3.4 Discuss any recycling or repurposing options that can be employed to eliminate waste streams for solar electric generating site components, including any BESS systems.

The components of solar panels, including glass, aluminum, silver, copper, and others, are recyclable and hold significant value as recycled materials. At this time, a number of companies in the United State offer solar recycling capabilities. An article from the World Economic Form[4]

[4] This is how solar panel recycling can be scaled up now. World Economic Forum. October 10, 2022. https://www.weforum.org/agenda/2022/10/solar-panel-recycling-is-here-and-now-is-the-time-to-scale-up/.

indicates the solar recycling industry is expected to grow significantly over the next several years, from $170 million in 2022 to $2.7 billion in 2030, up to as much as $80 billion by 2050. Based on those projections, it is anticipated that the Project will have the opportunity to use reliable, affordable recycling options for solar panels by the time the facility is decommissioned.

Electrical equipment, such as transformers, inverters, and cables, also contain recyclable and valuable components that will be extracted during decommissioning and recycled to the greatest degree feasible. Other standard building materials, such as steel piles/frames and concrete foundations, will be hauled to scrap or recycling facilities for reuse as well.

1.8 Utilities and IPPs – Required Permits and Approvals

1.8.1 Approvals and Permits. For each of the regulatory agencies listed below provide the following information:

- regulatory agency,
- the approvals/permits required,
- application filing date,
- the status of each application,
- agency contact name and telephone number.

1.8.1.1 Federal.

1.8.1.1.1 Federal Aviation Administration (FAA)

1.8.1.1.2 U.S. Army Corps of Engineers

1.8.1.1.3 U.S. Fish and Wildlife Service (USFWS)

1.8.1.1.4 Other federal agencies not listed above

1.8.1.2 State.

1.8.1.2.1 WisDOT

1.8.1.2.2 DNR

1.8.1.2.3 DATCP

1.8.1.2.4 Other state agencies not listed above

1.8.1.3 Local Permits – including county, town, city, and village.

Table 1.8-1 addresses the requirements of Section 1.8.1 of the AFR, including all subsections of 1.8.1.1 through 1.8.1.3, and summarizes the permits and approval types that may be required at the federal, state, and local level for the Project. Required permits and approvals will be obtained before commencing construction activities requiring that specific permit.

Table 1.8-1: List of Potential Permits and Approvals

Regulatory Agency	Permits/ Approvals	Regulatory Contact	Application/ Notice Date	Status
Federal				
FAA	Navigable Airspace Review (14CFR77.13(a))	FAA Notice Criteria Tool at: https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showNoNoticeRequiredToolForm	11/10/2021; Updated 1/9/2023.	Complete
USACE	Section 404 Clean Water Act	Appleton Area Office (920) 380-7101	TBD based on final Project design	TBD based on final Project design
USFWS	Federal Endangered Species Act Coordination	Minnesota-Wisconsin Ecological Services Field Office (920) 866-3650	11/3/2022	Complete
DoD	Informal Review Request for Government RADAR Systems	Dan Townes (571) 372-8414	11/11/2022; Updated 1/12/23.	Complete
State				
PSC	Certificate of Public Convenience and Necessity (CPCN)	Bert Chee Case Coordinator (608) 235-6087	2/23/2023	Application Filed
WDNR/PSC	Engineering Plan	Geri Radermacher – Wetland Regulatory/Zoning Specialist 262-574-2153 Geri.Radermacher@wisconsin.gov	9/10/21	Response Received 9/16/21
WDNR	Wisconsin Pollutant Discharge Elimination System (WPDES)/ Stormwater Runoff Permit (NR216)	Adrian Stocks (608) 266-2666	Anticipated Q1 2024	Draft ECSWMP in **Appendix H**
WDNR	Wisconsin Endangered Resource Review ("ERR")	Stacy Rowe (608) 266-7012	Most recent request: 11/3/2022	Most recent response received 11/11/2022
WDNR	Section 401 Clean Water Act, Water Quality Certification	Vicky Nelson (715) 822-2691	Only required if individual WQC is required for Wis. Stat. Ch. 30 permits	Only required if individual WQC is required for Wis. Stat. Ch. 30 permits

Regulatory Agency	Permits/ Approvals	Regulatory Contact	Application/ Notice Date	Status
WDNR	Wisconsin Navigable Waters, Harbors and Navigation (Wis. Stat. Ch. 30)	Geri Radermacher (262) 239-0994	To be completed if necessary based on final Project design.	To be completed if necessary based on final Project design.
WDNR	Wetland and Waterway Crossing Permits (Wis. Stat. § 281.36 and Wis. Stat. Ch. 30)	Geri Radermacher (262) 239-0994	To be completed if necessary based on final Project design.	To be completed if necessary based on final Project design.
WDNR	Private Well Notification Number and Approval required if a new well is constructed for O&M building	Deb Lyons-Roehl (608) 267-9350	Anticipated Q1 2024	To be completed if necessary based on final Project design.
WDSPS	Plan Review for O&M Building	Craig Mulder - Electrical Program Consultant (608) 444-5701	Anticipated Q1 2024	To be completed
Wisconsin SHPO	Cultural Resources (historical and archaeological) under Section 106 of the National Historic Preservation Act	Chip Brown (608) 264-6508	Not currently anticipated	Not currently anticipated
WisDOT	Oversize-Overweight Permit for transportation of oversize-overweight loads, such as the substation	Bureau of Highway Maintenance (608) 266-7320	Anticipated Q2 2024	To be completed if necessary.
WisDOT	Utility Permit to construct, operate, or maintain a utility facility on state trunk highway right-of-way	Linda Skaleski Permit Coordinator (920) 492-4166	Anticipated Q1 2024	To be completed
WisDOT	Connection permit to construct a driveway connected to a State highway	Dave Nielsen (920) 366-8961	Anticipated Q1 2024	To be completed
Fond du Lac County				

Regulatory Agency	Permits/ Approvals	Regulatory Contact	Application/ Notice Date	Status
Fond du Lac County Code Enforcement	Sanitary Permit	Kim Kessler 920-929-3198	Anticipated Q1 2025	To be completed if necessary
Fond du Lac County Highway and Public Works Department	Utility/Work in Right-of-Way Permits	Thomas Janke 920-929-3488	Anticipated Q1 2024	To be completed if necessary
Fond du Lac County Highway and Public Works Department	Access/Driveway Permit	Thomas Janke (920) 929-3488	Anticipated Q1 2024	To be completed for O&M building if necessary
Fond du Lac County Highway and Public Works Department	Over Size / Overweight Permit	Thomas Janke (920) 929-3488	Anticipated Q2 2024	To be completed if necessary
Winnebago County				
Winnebago County Zoning Department	Sanitary Permit	Cary Rowe (920) 232-3344	Anticipated Q1 2025	To be completed if necessary
Winnebago County Highway Department	Work in Right-of-Way Permit (Driveway/Access Permit)	Bob Doemel Hwy@co.winnebago.wi.us	Anticipated Q1 2024	To be completed if necessary
Winnebago County Highway Department	Utility Permit	Bob Doemel Hwy@co.winnebago.wi.us	Anticipated Q1 2024	To be completed if necessary
Winnebago County Highway Department	Over Size / Overweight Permit	Bob Doemel Hwy@co.winnebago.wi.us	Anticipated Q2 2024	To be completed if necessary
Local/Other				
Town of Eldorado Building Department	Driveway Road Access Permit	Dave Jahns (920) 921-6769	Anticipated Q1 2024	To be completed if necessary

Most wetland or waterway impacts will be directly avoided through siting or construction methods (i.e., directional boring of collection line). It is anticipated that the Project may require USACE Section 404 and WDNR Section 30 permits related to minor wetland and waterway impacts. See Section 8.0 for additional information on wetland and waterways.

No endangered species impacts are anticipated that would necessitate permits from the U.S. Fish and Wildlife Service ("USFWS") or WDNR. Feedback received from the WDNR during the pre-application meeting on May 25, 2021, and the subsequent ERR indicated the Project construction and operational will avoid impacts to known sensitive resources. See Section 5.8 for additional information on endangered resources.

Section 5.16.3 provides further discussion regarding agency consultations and permit requirements.

1.8.2 Correspondence with Permitting Agencies. Provide copies of correspondence to and from state and federal agencies that relate to permit approval, compliance approval, or project planning and siting. Provide copies of any correspondence to or from local governments. This should continue after submittal of the application.

Copies of correspondence to and from state and federal agencies and local governments that relate to permit approval, compliance approval, or Project planning and siting are listed in **Table 1.8-2** and included in **Appendix B**, unless otherwise noted. Silver Maple will continue to correspond with permitting agencies throughout development, construction, and operations.

Table 1.8-2: Correspondence with Permitting Agencies and Local Governments

Correspondence	Regulatory Agency	Meeting/Application/ Notice Date	Status
Pre-application meeting	PSC and WDNR	Meeting Date: 5/25/21	Completed
Endangered Resources Review (ERR Log 21-265)	WDNR	Submitted: 3/26/21 WDNR Response: 4/22/21 Updated: 10/15/21 WDNR Response: 10/15/21 Updated: 1/7/22 WDNR Response: 1/13/22 Updated: 11/3/22 WDNR Response: 11/11/22	Completed (Confidential **Appendix R**)
Engineering Plan	WDNR	Submitted: 9/10/21 PSC Accepted: 9/10/21 WDNR Response: 9/16/21	Completed
Wisconsin Technical Standard 1002 (Evaluation for Storm Water Infiltration)	WDNR	Submitted: 2/8/22 WDNR Response: 2/22/22	Completed
Floodplain Review	Fond du Lac County	Started: 5/5/22	Ongoing
Federal Threatened and Endangered Species Consultation (IPaC)	USFWS	Submitted: 3/24/21 Updated: 10/14/2022 Updated: 2/14/22 Updated: 11/3/22	Completed

Table 1.8-2: Correspondence with Permitting Agencies and Local Governments

Correspondence	Regulatory Agency	Meeting/Application/ Notice Date	Status
Noise Receptor Location Review	PSC	Submitted: 9/28/21 Approved: 9/30/21	Completed
Photo Location Review	PSC	Provided: 12/2/21 PSC Revised: 12/16/21 Approved: 1/25/22 Update provided: 10/27/22 and 11/16/22 Update approved: 11/15/22 and 11/23/22	Completed
Government RADAR Systems, Department of Defense (DoD), Military Aviation and Installation Assurance Siting Clearinghouse	DoD	Submitted: 12/15/21 DoD Response: 1/18/22 Updated: 11/11/22 DoD Response: 1/13/2023	Completed
Agricultural Impact Statement Release Letter	Wisconsin DATCP	Submitted 2/1/23	Pending

2.0 Technical Description – Project Area, Arrays, Panels, and Ancillary Facilities

2.1 Estimated Solar Resource and Projected Energy Production

Provide a complete energy production assessment for the project. This report should include, at a minimum:

2.1.1 Solar resource data used in analysis, including the name of any modeling program used to estimate such data.

To evaluate the solar energy resource for the Project, the SolarAnywhere version 3.5 typical meteorological year (TMY) dataset, provided by Clean Power Research, was used. The SolarAnywhere data was input to the PVsyst software program for resource and energy production analysis. PVsyst is considered the industry standard for this analysis. SolarAnywhere uses an algorithm to estimate typical annual solar global horizontal irradiance (GHI) from 22 years of geosynchronous satellite data. SolarAnywhere GHI data is shown to be accurate within +/- 4.5 percent on an annual basis with 95 percent confidence. The model is shown to be consistent spatially and across over two decades of record.[5] The TMY file was then used to simulate a typical full year of production with PVsyst. The PVsyst model output information is included in **Appendix F** (Confidential).

Table 2.1-1: Solar Radiation and Meteorological Parameters

Month	Global Horizontal Irradiance kWh/m² per day
January	52.4
February	75.4
March	118.1
April	137.0
May	172.1
June	182.7
July	194.9
August	162.4
September	123.6
October	79.5
November	51.0
December	40.8
Year	1389.9

[5] SolarAnywhere. 2021. Data Validation. Available at: https://www.solaranywhere.com/resources/data-validation/. Accessed January 2023.

2.1.2 Gross and net capacity factor (explain the method used to calculate the capacity factors and provide the data used).

Capacity factor ("CF") is defined as the ratio of the electricity generated, for the time considered (one typical meteorological year, or 8,760 hours), to the energy that could have been generated at continuous full-power operation (200 MWAC) during the same period. Gross CF is measured at the point of generation, the solar panel, and net CF is measured at the point of interconnection, net of any system losses. With these definitions, the Project will have an estimated gross CF of approximately 24 percent and an estimated net CF of approximately 21 percent. These values were calculated utilizing the PVsyst modeling software (the industry standard) and realistic loss assumptions based on many years of solar farm operation experience. These loss assumptions align with those observed throughout the industry. Table 2.1-1 above provides the available solar energy throughout the year.

2.1.3 Estimated energy production of project.

While the proposed power output of the Project is 200 MWAC, its output may be less at any given time depending on the energy available from the sun. The software program PVsyst was used to simulate the energy conversion process using model files from the PV module and inverter manufacturers, historical weather data as discussed in Section 2.1.1, and solar array design parameters such as DC-to-AC ratio, ground cover ratio, production losses described below, and other factors currently represented in the layout.

2.1.3.1 Estimated production losses. Separate production losses out for conversion from DC to AC and for distribution losses on the collector circuits between the inverter and the project substation.

Energy losses within the system include electrical losses in the AC and DC electrical collector systems; energy conversion losses within the PV inverters, step-up transformers, main power transformer, and various other equipment. Taking those factors into account, a reasonable estimate of energy loss ranges from 10 percent to 20 percent of the maximum output, which is consistent with industry-wide standards and regional considerations such as snow cover. The overall production loss percentage as modeled in the PVsyst report is 12.48 percent. This overall production loss breaks down as follows:

- PV array losses, 7.48 percent
- Inverter losses, 2.04 percent
- Distribution/collection/substation losses, 2.96 percent

Individual loss factors are shown in the report in **Appendix F** (Confidential).

2.1.3.2 Estimated net energy production.

Silver Maple estimates the net annual energy production will be approximately 362 gigawatt-hours (GWh) in the first year of operation. Considering an annual degradation of PV panel performance of 0.6 percent, the Project estimates total production through year 25 to be 8214 GWh, and total production through year 40 to be 11,941 GWh. Annual energy production output

will depend on final design and equipment selection, array placement and configuration, and annual variability in the solar resource. See **Appendix F** (Confidential) for the energy production modeling report.

2.2 Solar Panel Type and Characteristics

2.2.1 Identify the manufacturer and model of solar panel to be used. (If no Panel Purchase Agreement has been signed, applicants should identify the panel or panels being considered. It is acceptable to identify a range by providing information on the largest and smallest panel being considered, however, consult with Commission staff prior to preparing the application).

Manufacturing and efficiency of solar panel technology is making advancements and is subject to commodity pricing based on the current market demand and available stock. Silver Maple will make final equipment selection during final Project engineering based on the technology and pricing available at that time.

Modules under consideration range from 470 to 545 watts ("W") each. Examples of specific panel models being considered are the First Solar Series 6 Plus on the low wattage end and the LONGi LR5-72HBD on the higher wattage end. Datasheets for these models are included in **Appendix C**. While these two models are typical examples of what may be installed, final engineering will utilize current technology available, which may include higher wattage modules, to optimize Project efficiency and economics. It is also possible that a different manufacturer of a similar product could be selected in final procurement. Additionally, the panel selected may use bifacial technology.

Silver Maple will consider the costs and performance of each technology option available as well as environmental and safety standards when making its final selection. This procurement process has been incorporated into the proposed Project timeline.

2.2.2 Panel delivery date – Indicate whether or not this date is firm. Discuss how supply chain risks could impact the project.

Panel deliveries are expected to occur between Q2 and Q3 of 2025. This is not a firm date.

The Project's procurement team will continue to evaluate the production capabilities of multiple suitable equipment manufacturers, the availability of different equipment models within the general parameters described above, and current lead times for equipment as the Project design progresses. Maintaining flexibility regarding the specific equipment selected for the project will reduce the risk of supply chain disruptions.

2.2.3 Total number of panels required for project.

The Proposed Array Area is designed for approximately 440,400 panels with a total generating capacity of 200 MWAC power. Based on final equipment selection, the final count could range from approximately 440,000 to 510,000.

The Alternative Array Area is designed for approximately 174,400 panels with a total generating capacity of 79 MWAC.

2.2.4 Technical characteristics of panels.

2.2.4.1 Panel physical dimensions.

Dimensions for LONGi LR5-72HBD 545M panels used in the conceptual design are 2256 mm x 1133 mm (7.4 ft. x 3.7 ft) for one module. If a different module is selected during the final engineering design, it is anticipated that the dimensions will be similar to the models previously discussed. Total PV module surface area for the 200 MWAC Project is expected to be approximately 276 acres, pending final engineering design.

2.2.4.2 Panel material/type.

Each panel is made from a semiconductive layer of silicon cells (LONGi) or "thin film" compound (First Solar), a backsheet for mounting and protection, anti-reflective glass coating, aluminum frames, and weather-resistant "quick connect" wire connectors.

2.2.4.3 Any Surface treatment of panels.

During the manufacturing process, all solar panel manufacturers listed in the preceding sections treat the surface of each panel with an anti-reflective coating to minimize glare and increase efficiency. Periodic washing of the solar modules is unlikely to be needed due to consistent rainfall in the area, however if cleaning becomes necessary, it would be carried out with water brought to the Project via water trucks.

2.2.4.4 Panel power curve (provide actual data – solar resource and rated output needed to create the curve).

Appendix C (following the module data sheets) contains power curves for a variety of modules under consideration.

2.2.4.5 Panel tolerances for extreme weather events or physical damage.

Silver Maple intends to purchase equipment designed to ensure the highest level of operability and reliability across the range of anticipated environmental conditions for the lifetime of the Project.

The LONGi LR5-72HBD and First Solar Series 6 Plus 470W datasheets indicate the operating temperatures for both modules range from -40 degrees C to 85 degrees C (-40 degrees F to 185 degrees F). If a different module is selected during final engineering design, it is anticipated to have similar operating temperatures.

Any PV modules selected will meet international standards for hail ratings and operating temperature ranges. Furthermore, the single-axis tracking system employs automatic sensors to safely stow the modules for wind and hail events. Both the modules and trackers will be designed

and installed to meet local building codes for wind and snow loads, and the tracker driven pile foundation will be structurally engineered to meet the same codes.

2.2.5 Technical characteristics of inverters.

The TMEIC Solar Ware Ninja PVU-L0840GR inverter is 1991 mm x 1100 mm x 1100 mm (6.5' high x 3.6' wide and deep). Five of these 840kVA inverters will be mounted onto a single skid. The inverter skid will have a rating of 4,200 kVA (4.2 MWAC). The skid also includes a pad mounted step-up transformer approximately 8-10 feet wide and long, and approximately 8 to 10 feet tall, and auxiliary equipment for communications and weather data, for a total skid size of approximately 32' long x 4' wide x 9' tall. The inverter datasheet is in **Appendix C**. A typical profile view of the inverter skid is provided in **Appendix D**. The conceptual design for the Proposed Array shows 55 inverter skids.

While this model is typical of what may be installed, final engineering will utilize current technology available, which may include a different inverter, to optimize Project efficiency and economics. As an alternative, the Project may also consider the Sungrow SG3600UD-MV inverter. It is also possible that a different manufacturer of a similar product could be selected in final procurement.

Silver Maple will consider the costs and performance of each technology option available as well as environmental and safety standards when making its final selection. This procurement process has been incorporated into the proposed Project timeline.

2.2.6 Technical characteristics of any tracking systems, panel supports, and racking.

2.2.6.1 Type of material used for supports and racking.

Typically, the panel mounting system consists of a bracket which secures the module to the top of a steel tube, often called a "torque tube," which is connected to the gear and motor, and bolted to the racking superstructure. The racking superstructure is then mounted to the top of the steel driven pile foundation. The tops of the foundation piles are aligned to create a level structure for the mounting of the racking equipment. This gear and motor rotate the torque tube incrementally from east to west throughout the day. In addition to the main racking components, the tracker will also include wiring for tracker electrical components, grounding equipment such as lugs and rods, and wiring harnesses for PV panel wiring.

2.2.6.2 Tracking system used.

The solar modules will be mounted to a horizontal single-axis tracking system. Single-axis solar tracking system designs vary by manufacturer, but generally consist of modules mounted to a north-south oriented torque tube, as described above, with a drive motor system usually located in the center; this configuration is typically called a "row." The motor turns the torque tube and the modules, tracking the sun's motion from east to west throughout the day. Manufacturer's specifications for representative PV panels and racking systems under consideration are provided in **Appendix C**. Improving technologies could dictate the use of an alternative racking system as identified during the final procurement process. The racking and panels are supported by steel

piles that are typically driven into the ground to a depth generally between 7 and 10 feet. Geotechnical test borings have confirmed the adequacy of this pile depth (see **Appendix M**). Based on test borings, conventional driven pile foundations may be feasible to support the photovoltaic (PV) racking systems across portions of the site. However, other pile foundation methods may be required on a limited basis based on conditions at the time of installation and will be determined during final design.

Multiple tracking system manufacturers are currently being evaluated, such as Nextracker, Array Technologies, Soitec, and FTC; a similar system from a different vendor may also be selected.

The tracking systems being considered include a "one in portrait" configuration that would consist of north-south rows of single modules in a portrait (or vertical) configuration when viewed at an angle perpendicular to the axis of the tracking system, and a "two in portrait" configuration that would consist of north-south rows of two modules. The one in portrait system would require foundations with approximately 4 feet of "reveal" height out of the ground, an overall tip height of approximately 8 feet when the modules are tilted at maximum angles, ground clearance of about 18 inches and would have aisles with foundations spaced approximately every 17 feet. The two in portrait system would require foundations with approximately 8 feet of reveal, an overall tip height of approximately 15 feet, the same 18 inches of ground clearance and aisles with spacings of approximately 34 feet. A final decision will be made based on engineering, economic and reliability considerations. Examples of the one in portrait and two in portrait systems are provided in **Appendix C**.

2.2.6.3 Dimensions and number of sections required.

The Project is designed in 4.2 MWAC power blocks, which are typically comprised of approximately 118 tracker rows, with the final number dependent on the final electrical design.

Based on the information provided in the technical data sheets for the mounting systems under consideration, provided in **Appendix D**, the tracker widths range from 7.4 feet to 14.8 feet, though the width may change based on final engineering design. The number of sections required are dependent upon the manufacturer and type of panels installed, and the installation location, however, typical tracker sections or rows contain 50 to 80 modules. The tracking systems under consideration have different specifications and maximum capacities of solar panels that can be installed. Final estimates of the number of sections that will be required can be provided after a manufacturer(s) has been selected.

Additionally, a typical solar tracker may range from 100 to 350 feet long.

2.2.6.4 Typical distances between rows, access roads, and fences.

Distances between array rows, from panel edge to edge may range from 10 to 30 feet wide. The usual minimum distance from array edges to internal access roads is 4 feet. Distance from tracker array edges to fences is typically approximately 20 feet.

While the information above pertains to a typical solar array, the final distances will depend on the tracker and array technology utilized following final engineering layout and design specifications.

2.2.6.5 Highest and lowest points of panels during daily rotation.

At 60 degrees (tilted to the highest position), the highest point of the modules will be approximately 15 feet aboveground (depending on tracker configuration as described above) and the lowest point of the modules will be at least 1.5 feet from the ground. Final determination of PV module heights will be made by Silver Maple during final detailed Project design and will be based on factors such as PV system installation cost, capital cost, construction preference, tracker mounting configuration, and site constraints.

2.2.6.6 Operational actions in case of extreme weather events. Include descriptions of actions in response to high wind events, as well as snow or ice removal.

Silver Maple intends to purchase equipment designed to ensure the highest level of operability and reliability across the range of anticipated environmental conditions for the lifetime of the Project.

Final tracking system components, pile sizes, and pile depths will be designed to meet local building codes for wind and snow loads. Potential tracking technologies will be assessed in the context of other Project attributes, such as resource forecast and expected operating profile. Silver Maple anticipates using a tracking system that includes a setting or mode known as "stowing." During extreme weather events, the trackers can enter this setting automatically (or manually via remote control), after receiving weather forecast data through the communications system, and rotate the modules to reduce the degree of load experienced on them and racking structures from high directional winds.

Likewise, the trackers can be rotated to avoid snow loading if warranted. For example, if the modules are normally stowed flat in the evenings, a snowstorm is predicted, and wind conditions are conducive (i.e., calm), the trackers could tilt the solar modules to a maximum angle to reduce snow accumulation.

2.2.6.7 Panel tolerance for placement on slopes.

Single-axis tracker slope tolerances typically range from 5 to 15 percent, and some systems allow for even higher tolerances. However, the Project site was chosen in part for its relatively flat terrain, and so slope tolerance exceedance (which would require additional grading) is not a major concern for the Project.

2.2.7 Scale drawings of a typical panel row including inverter pad and transformer box.

Appendix D, sheet X201, includes a diagram depicting a typical array configuration.

2.2.8 Provide information on any perimeter fencing that would be used around the solar PV arrays. Describe any requirements on the fencing around the PV sites, including NEC or NESC requirements for specific project areas such as panel arrays or the project substation.

The solar array fence is consistent with recent PSC CPCN Order Points specifying the use of "agricultural" or "deer" fencing. The bottom of the fence will be raised to reflect an 8-inch opening to allow for the movement of small animal species. The fence for this design is knuckled (wrapped back and forth to form a smooth edge) to protect the wildlife that passes under the fence. The fence posts are typically driven four feet below grade, but alternative installation methods such as concrete foundations may be necessary in some cases, depending on the final engineering and geotechnical analysis of the site. The proposed lateral distance between fence posts will not exceed 10 feet.

The perimeter fence around the solar arrays will be up to 8-feet high to minimize human and wildlife intrusion into the facility and comply with the NEC. Fencing around the Project and Utility substations and O&M facility will likely be a chain link design with barbed wire to satisfy applicable NESC security requirements for those Project components. Access to the Project will be limited to Project personnel, first responders, and approved contractors.

2.3 Other Project Facilities

2.3.1 Site Construction Area. Describe the site construction area. Include the number of, location, and dimensions for:

2.3.1.1 Solar arrays, proposed and alternative.

Of the 1,296.4-acre Solar Development Area, 907.9 acres of land will support the Proposed Array Area, which can host 200 MWAC. The remaining 388.5 acres of land will support the Alternative Array Area, which can host an additional 79 MWAC. Combined, the Proposed and Alternative Array Areas total 279 MWAC. Generation will be limited to 200 MWAC at the Point of Interconnection ("POI"), which will also take into account AC losses in the collection system. The Proposed and Alternative Array Areas are shown on Figures 4.1.1 and 4.1.2 in **Appendix A.**

2.3.1.2 Lay-down/staging areas.

The Project conceptual layout includes four laydown areas as shown on Figures 4.1.1 and 4.1.2 in **Appendix A,** and sheet X001 and X002 in **Appendix D**. The four laydown yards total 15.41 acres (Table 2.3-1). Two of the laydown yards are located in Proposed Array Areas, one is located in an Alternative Array Area, and one is shared between an Alternative and Proposed Array Area. An example of a laydown area configuration is included in **Appendix D**. The final location and size of the laydown areas within array areas will be established during the final design and construction planning of the Project.

Table 2.3-1: Preliminary Laydown Areas

Laydown Yard	Fence ID	Array Area	Existing Landcover	Dimensions (feet)	Acres
1	A	Proposed	Agricultural	432x536	4..04
2	AD/AE	Proposed/Alternative	Agricultural	420x420	4.05
3	AM	Proposed	Agricultural	420x420	4.05

Table 2.3-1: Preliminary Laydown Areas

Laydown Yard	Fence ID	Array Area	Existing Landcover	Dimensions (feet)	Acres
4	L	Alternative	Agricultural	399x582x180x454	3.28
			Total		**15.4**

The laydown areas are entirely within agricultural land and sited to avoid sensitive resources. The main laydown area is located west of the Project substation and will be used for the main construction office. All laydown areas will be used for construction material storage, equipment staging, and to stockpile racking system components, such as PV modules, cable spools, and other components until they are needed. Laydown yards will also accommodate temporary water service, temporary construction power services, and tool sheds, as needed. Larger components such as inverters, transformers and substation equipment will be delivered directly to the final installed location whenever possible.

The Project construction contractor will utilize temporary staging area(s) within the Project Area that will provide equipment and material staging close to each power block as it is being constructed. These ad-hoc areas may hold PV panels, steel piles, wiring, excavated soil from trenching and foundations, and other items until they are permanently installed or moved to permanent storage. The temporary disturbances associated with these areas are already included in the disturbance calculations for the Solar Development Area.

2.3.1.3 Parking area.

Temporary parking for construction activities will be provided in the laydown areas. Permanent parking is planned for the O&M building and within the fenced Project substation. The O&M parking area will be approximately 20 feet by 50 feet (1,000 square feet) and will accommodate up to five vehicles as shown in **Appendix D**.

2.3.1.4 Provide a scale drawing showing the general construction setup for the solar array sites.

Scaled drawings of a typical solar array site and laydown yard construction layout are shown in **Appendix D**.

2.3.2 Collector Circuits.

2.3.2.1 Total number of miles of collector circuits required – separated by circuit type (overhead vs. underground).

The overall Project layout consists of 28.3 miles of underground collector circuits for Proposed Array Areas and 3.81 miles for Alternative Array Areas. There are no overhead collector circuits planned for the Project.

2.3.2.2 Specify the collector circuit voltage to be used.

The medium voltage AC collector circuit voltage will be 34.5 kV. Additionally, 1.5kV DC circuits may be used for short crossings connecting small Alternative solar array areas.

2.3.2.3 Transformer type, location, and physical size of transformer pad at each site.

Pad mounted step-up transformers that will be located on the inverter skids will be 3-phase, up to 4,500 kVA based on the current inverter configuration, 34.5 kV high side, and will be oil or air cooled. The transformers are approximately 8-10 feet wide and long, and 8-10 feet tall. An example of a pad-mounted transformer on an inverter skid is included in the inverter skid datasheet in **Appendix C**.

2.3.2.4 Underground collector circuits.

2.3.2.4.1 Conductor to be used.

The 34.5 kV medium voltage underground collector circuits from the Project substation low side bus will be daisy chained to up to approximately 7 to 8 inverter stations (depending on final inverter size) per circuit. Properly sized surge arrestors will be placed at the end of each medium voltage circuit. Conductor sizes up to 1250 KCMIL will be used.

The 1.5kV DC collector circuits will be used to connect small solar array areas physically separated from the inverters in main solar array areas (such as by a road or wetland). Junction boxes with disconnects will be placed at either end of the circuit. Conductors up to 4/0 AWG are typically used, but final design of the solar arrays will determine final conductor sizes.

2.3.2.4.2 Describe installation type and how lines would be laid (open-cut trench, vibratory plow, directional bore, etc.). Provide scale drawing of underground circuit.

Collector circuits will be installed using an open-cut trench, directionally bored, or plowed depending on conditions. All delineated wetlands and waterways, and roadway and railroad crossings will be directionally bored. Fiber optic cable for communications and controls may also be installed with the collector circuits. Figures 4.1.2 and 4.1.4.1 in **Appendix A** show the collector circuit routing.

2.3.2.4.3 Depth and width of trench, and minimum depth of soil cover over circuits (if applicable).

The typical burial depth for collector circuits is 36 to 48 inches. The width of the trench is dependent upon the number and type of circuits, and thermal/electrical resistivity values of the soil. Typical trench widths are as follows:

- Single Feeder trench width – 12 to 18 inches
- Two Feeder trench – 3-foot spacing and 3- to 6-foot trench width
- Five Feeder trench – 3-foot spacing and 15- to 16-foot trench width

Underground collector circuit burial depths will comply with the NEC requirements. The NEC states that cables shall be installed in accordance with NEC Table 300.50(A)(1), (A)(2), or (A)(3), and the installation shall meet the depth requirements of table 300.50.

2.3.2.5 Overhead collector circuits.

2.3.2.5.1 Size of pole to be used.

2.3.2.5.2 Engineering drawing of structure to be used.

No overhead collector circuits are proposed for this Project.

2.3.3 Site Foundations. Describe the type of foundation or foundations to be used for each part of the project. If more than one type of foundation may be needed describe each and identify under what circumstances each foundation type would be used. Include the following:

2.3.3.1 Describe how the panel and inverter foundations would be installed (e.g., direct imbed, excavation for pouring of concrete footings, etc.).

Based on the Project's Preliminary Geotechnical Investigation Report, the Project expects to use steel wide-flange (W-section) driven piles, for both panel foundations and inverter foundations, pending final engineering design. Piles will vary in size and embedment depth and may or may not be galvanized. If pile refusal is encountered due to subsurface obstruction, alternate foundation installation techniques or designs such as pre-drilled, cast in place, or helical piles may be needed. Alternate foundation types for inverters, such as concrete foundations or footings, may be considered during final engineering design.

The main power transformer ("MPT") will be installed on a concrete foundation.

2.3.3.2 Dimensions, surface area and depth required for each foundation.

Foundation dimensions will be determined in the detailed engineering design phase. Typically, the driven pile used for tracker foundations and inverter foundations will be W-section pile and driven to a depth around 5-15 feet. Pile cross-sections are variable based on soils and wind loading but W6x9 is a typical pile section. Generally, the largest foundation will be the MPT foundation, which is a pad approximately 50 feet by 30 feet.

2.3.3.3 Amount of soil excavated for each foundation type.

For tracker driven pile foundations, no excavation is required. For tracker cast-in-place foundations, soil excavation quantities are estimated to be less than 0.5 cubic yards per foundation and will be determined in the detailed engineering phase.

For shallow concrete inverter pad foundations, a typical excavation method could displace approximately 16 cubic yards of soil pending final engineering.

2.3.3.4 Describe how excavated soils would be handled including disposal of excess soil.

Installation of site foundations is not anticipated to generate excess soil. Should excess/excavated soil be generated, it will be spread within the Project Area. The excavated soils will be graded back in after construction and will not be graded into any agricultural land, pasture, or sensitive areas.

Prior to grading, topsoil will be stripped, stockpiled, and maintained until its eventual reapplication onto pervious surfaces.

2.3.3.5 Materials to be used for the foundation. Include:

2.3.3.5.1 Approximate quantity and type of concrete required for typical foundation.

Subject to detailed engineering, foundations will be standard reinforced concrete with compressive strength less than 5,000 pounds per square inch. The volume of concrete required for each foundation will be dependent upon the final engineering design.

2.3.3.5.2 Materials required for reinforcement.

The concrete will be reinforced with steel rebar.

2.3.3.5.3 Description of the panel mounting system.

The panels will be mounted to a ground-mounted aluminum single-axis-tracker racking system, as described in Section 2.2.6.

2.3.3.6 Provide technical drawings of each foundation type to be used showing foundation dimensions.

Typical drawings of the foundation types under consideration are included in **Appendix D**. Exact dimensions, surface area, depth, and final quantity will be determined upon final engineering design.

2.3.3.7 Describe how foundation or support installation would address the risk of frost heave on facilities.

Foundations or supports will be installed to a minimum depth of four feet below ground surface to minimize impacts from freezing and thawing conditions. Exact embedment depth for driven piles on which the solar panels are mounted will be determined with final engineering.

A final geotechnical study, including pile load testing, will be completed prior to construction which will be used to determine final engineering pile requirements. The final engineering design will be approved by a structural engineer to ensure compliance with all applicable regulations, the safety and durability of the Project, and with frost heave risk.

2.3.4 Access Roads.

2.3.4.1 Provide the total number and total miles required for access roads. Provide the amounts for both temporary access (used during construction only) and permanent access (for long-term facility operation and maintenance) roads. State if any temporary access roads would be converted into permanent access roads.

Existing public roadways will be used to access the site. No temporary widening of existing permanent roads during construction are anticipated at this time.

The overall Project layout consists of 12.9 miles of Proposed permanent access roads and 5.3 miles of Alternative access roads. No temporary access roads are anticipated at this time. If temporary access roads are required during construction, they will be built according to the specifications in Section 2.3.4.2.

It is anticipated that all access roads will be located within the secured fenced areas and will not be available for use by landowners. They will be designed to provide access to power conversion equipment within the panel arrays and to solar equipment, and to accommodate ongoing maintenance of the Project components. Roads will not be constructed within every aisle. The location of access roads based on the conceptual design is shown on Figure 4.1.2 in **Appendix A** and on sheets X001 and X002 in **Appendix D**.

2.3.4.2 Describe materials to be used and methods for construction of temporary and permanent access roads, including roadbed depth.

While not anticipated at this time, if they are eventually required, temporary access roads will be built utilizing wooden construction matting or aggregate. Where aggregate is used, a geo-fabric (or similar) material will be laid on the ground surface first to enable the easy and complete removal of aggregate once Project construction is complete.

Permanent access roads will be constructed by first removing the topsoil and organic material. Then the subgrade will be compacted and prepared according to civil design requirements. Subgrade work may include cement stabilization or other treatments as needed to create a suitable base. A layer of road base will then be added and compacted. Road aggregate or fill will be a local pit run aggregate material that meets WisDOT specifications. Upon completion of detailed engineering, the aggregate specifications will be available for construction quality assurance. Typical roadbed depth is six to 12 inches. The preliminary geotechnical report indicates 9 inches of aggregate for access roads; final roadbed depths will be determined during final design. Permanent access roads will be maintained for the life of the Project.

During decommissioning at the end of the Project's life, the permanent access roads will be restored by removing the aggregate, decompacting the soil if required, restoring the topsoil, and seeding to permanent perennial vegetation unless otherwise requested by the landowner. A schematic showing a cross-section of a typical access road is provided in **Appendix D**. Decommissioning activities for the Project are discussed in further detail in Section 1.7.3.

2.3.4.3 Specify the required width of temporary and permanent access roads. Fully describe any differences between final road size and that required during construction.

Permanent access roads may be up to 16 feet wide. During Project construction, permanent access roads may be temporarily widened to approximately 24 feet in necessary scenarios.

No temporary access roads are anticipated at this time. If eventually required, temporary road improvements will consist of temporarily widening a permanent access road to support additional traffic or off-loading activities, increased turn radius areas to support turning or larger equipment.

2.3.4.4 Describe any site access control (e.g., fences or gates).

The perimeter fence around the solar arrays will be up to 8-feet-high to minimize human and large wildlife intrusion into the facility and comply with applicable electrical codes. No barbed wire will be used on the perimeter fence around arrays, and "deer fence" will be used. Fencing around the Project substation and O&M facility will likely be a chain link design with barbed wire to satisfy applicable security requirements for those Project components. Access to the Project will be limited to Project personnel, first responders, and approved contractors. Lockable gates will be installed at the O&M facility, Project substation, and at access road entrances at public roads. Landowners will not have access to or use of access roads within the secured array areas.

2.3.4.5 Describe any setbacks from sensitive resources or storm water management considerations in road locations.

Permanent access roads have been sited to avoid sensitive resources to the extent practicable. In general, permanent access roads have been sited a minimum of 75 feet from the sensitive resources including delineated wetland boundaries and waterways, with some exceptions. As stated above, access roads will be constructed with road base and WisDOT specified aggregate material.

2.3.5 General Construction Areas.

2.3.5.1 Identify size, number, and location of laydown/staging areas outside of those found at the array sites and any other areas used for material storage.

Silver Maple does not anticipate any laydown yards or temporary staging areas outside of the Solar Development Area. The planned laydown yards are shown in Table 2.3-1 and on Figures 4.1.1 and 4.1.2 in **Appendix A**. The construction laydown areas and temporary staging areas are further described in Section 2.3.1.2. An example of a general construction laydown area configuration is included in **Appendix D**.

2.3.5.2 Identify size and location of construction parking areas.

The construction laydown areas will also serve as temporary construction parking areas. The exact dimensions of the parking areas within the laydown areas will be determined during final engineering design.

2.3.5.3 Describe the expected use of these areas after project completion.

Areas that are used for laydown and/or parking during Project construction that are not incorporated in the final Project layout will be revegetated according to the Preliminary Vegetation Management Plan ("VMP") (see Section 6.0 in **Appendix P**, Exhibit 5), or returned to agricultural use and seeded by landowners in accordance with their crop management program.

After construction is complete, aggregate surfaces will be removed to a depth where clean aggregate without soil mixing can be retrieved. This aggregate may be applied throughout the Project on access roads as a final top layer. Once the aggregate is removed, the subgrade will be decompacted and topsoil will be evenly spread within the area.

Areas that are used for laydown areas and/or parking during Project construction that are incorporated in the final Project layout will be seeded consistent with the final designated ground cover for that area. The conceptual design shows the laydown areas will be used for solar modules. The seed mixes are described in the preliminary VMP in **Appendix P**.

2.3.5.4 Provide a list of all hazardous chemicals to be used on site during construction and operation (including liquid fuel).

The primary hazardous chemicals that will be present on the Project site during construction and operation are fuel for vehicles and construction equipment, oil in the transformers at the substation and inverter pads, and heating fuel for the O&M building. Smaller quantities of additional chemicals will also be used on the Project site, including paints, lubricants, and cleaning products during Project operation and maintenance activities.

2.3.5.5 Discuss spill containment and cleanup measures including the Spill Prevention, Control, and Countermeasures (SPCC) and Risk Management planning for the chemicals proposed.

A Spill Prevention, Control, and Countermeasures (SPCC) Plan complying with all EPA requirements will be developed for both construction and operation of the facility. Spill kits will be available on site, and training, inspection protocols, and response procedures will be established in the SPCC Plan. The SPCC plan will be developed and implemented after initial construction mobilization to the site, but prior to storage of materials at the site that would require it. At a minimum, the SPCC Plan will identify the following:

- Typical fuels, chemicals, lubricants, and paints to be used or stored in the Project Area.
- Methods and location of storage.
- Locations designated for lubrication and refueling (i.e., outside of sensitive resource areas).
- Preventive measures to be used to minimize potential impacts.
- Mitigation methods to be employed, should a spill occur.
- Location of construction spill kits (gloves, booms, sorbents, barrier materials, etc.).
    - Emergency notification procedures and forms.
    - Contact information for individuals requiring notification if a spill should occur.
    - Procedures for handling contaminated and spill response materials.

The SPCC Plan will be kept on-site during construction and will meet all Environmental Protection Agency (“EPA”) requirements. The SPCC Plan, because of its specificity, will be written by the contractor prior to construction.

2.3.6 Construction Site Lighting.

2.3.6.1 Describe the site lighting plan during project construction.

Silver Maple does not plan to have any permanent lighting on-site during construction. Lighting equipment used during construction will consist of temporary light plants. The light plants are connected to a trailer and have generators to allow them to be transported around the construction site. The laydown area and parking area may have lights mounted to poles to support construction during non-daylight hours. All lighting associated with the laydown/staging areas will be illuminated downward and shielded away from abutting properties and public roads to minimize glare.

The only lights that would remain on outside of construction periods would be office lights in the construction trailer for administrative tasks, vehicle lights for transport, or possible security lights for the laydown yards.

During the operations phase, the O&M facility will include down-shielded lighting for security purposes to ensure that the nearby residence will not experience disturbance from constant, 24-hour lighting.

2.3.6.2 Provide copies of any local ordinances relating to lighting that could apply.

Winnebago County Code of Ordinances specifies in Chapter 23, section 23.8-371(b) that solar energy systems shall not be artificially lighted, except for security purposes or when specifically required by a state or federal authority.

Fond Du Lac County does not have any solar or lighting regulations that apply to the Project.

The Town of Eldorado Code of Ordinances includes lighting specifications for industrial districts, in Chapter 17, section 17.36(9)(b)(2), and for signs, in Chapter 20, sections 20.18(2), 20.21(5) and (6). None of these sections are applicable to the Project.

The Town of Rosendale Zoning Ordinance, sections 2(E)(2), 5(E)(2), and 6(F)(2), generally allow outdoor lighting in all yard areas of Rural Residential, Industrial, and Commercial districts. Such lighting must be no closer than three feet to an abutting property line and shall be adequately shielded or hooded so that no excessive glare or illumination is cast upon adjoining properties. None of these sections are applicable to the Project.

No local ordinances relating to lighting were identified for the Town of Nekimi.

Copies of these local regulations are provided in **Appendix G.**

2.4 Substation

If the project includes the construction of a substation or modifications to an existing substation, provide the following information:

2.4.1 A complete electrical description of required substation facilities including a list of transformers, busses, and any interconnection facilities required.

This section discusses the substations that will be developed for the Project. Two substations, the Project and Utility substations, will be constructed and located in close proximity to one another. The Project has set aside seven acres to locate the substations. Two acres are preliminarily designated to be used for the Project substation, and five acres for the Utility substation. Although the final substation areas may be less than these set-aside areas, this allows for flexibility in locating the substations for the most efficient design. The substation designs will be completed during detailed engineering for the Project.

The Project substation is a 345/34.5 KV substation to collect energy from the solar array and transform it to transmission interconnection voltage. A preliminary substation layout schematic is shown on in **Appendix D**. The Utility substation is the Project's POI; it will connect to the Project substation via a Generator Lead Line, and then connect to the existing 345kV transmission line with Loop-In Lines. The Generator Lead Line may be short "jumper" conductors or a rigid bus connection. The Utility substation will be built by ATC and is discussed further in Section 2.5.1 below.

The Project substation will have a footprint of approximately 290 feet by 300 feet and will generally include items below within the substation:

- Main power transformer 34.5/345 kV;
- 345 kV circuit breakers;
- 345 kV disconnect switch;
- 345 kV surge arrestors;
- 345 kV bus and supporting structures;
- 345 kV metering and instrument transformers;
- 345 kV dead-end structure for outgoing transmission line (Generator Lead Line to the POI);
- 34.5 kV, circuit breakers;
- 34.5 kV metering and instrument transformers;
- 100 kVA station service transformer installation, which includes AC panels, station service transformer with fuses, equipment for a secondary source for AC power, conductors and support structure for all equipment;
- Protection and control building, which will include DC power equipment, DC panels, and relay/control/communication equipment;
- Internal access road;
- Security fence with lockable vehicle gate, lockable man gate, barbed wire (fence to be grounded to the substation ground grid per National Electrical Safety Code requirements);
- Grounding grid (to be installed below grade) with high resistance gravel/rock installed above grade for protection against electrical shock;
- Power cables and control cables installed in a below grade concrete trench, polyvinyl conduit and manholes, as required;
- Lightning protection masts (as required);
- Yard lighting and receptacles to be used during maintenance and or during emergency; and
- Any required power factor control equipment (i.e., capacitor bank) with associated isolation equipment such as reactive power switching equipment and disconnect switches.

Fencing around the Project substation will likely be a chain link design with barbed wire to satisfy applicable security requirements for those Project components. Fencing around the Project substation will comply with applicable electrical codes, including the National Electrical Safety Code ("NESC") and National Electrical Code ("NEC").

2.4.2 Indicate the size (in acres) of the land purchase required for the new substation or substation expansion.

The approximately thirty-five-acre parcel of land where the substations are proposed is under purchase option. The Project substation will encompass approximately 2.0 acres while the Utility substation will encompass approximately 5.0 acres. A schematic showing the approximate location of the substations is depicted in **Appendix D** and on Figures 4.1.1 and 4.1.2 in **Appendix A**. The final location of the substations may be adjusted based on final engineering, layout considerations, and design inputs.

2.4.3 Indicate the actual size of the substation or substation addition in square feet, the dimensions of the proposed substation facilities, and the orientation of the substation within the purchase parcel. This should include the size of any new driveways associated with the substation.

The preliminary Project substation design will have a footprint of approximately 290 x 300 feet, or 87,000 square feet and will be oriented to the east to connect to the Utility substation and subsequently to the Fitzgerald to South Fond du Lac 345 kV HVTL. The Utility substation will be oriented north-south, facing east to connect to the transmission line and will have a footprint of approximately 570 x 290 feet, or 165,300 square feet. The substation preliminary layouts and designs are depicted on Figure 4.1.4.1 in **Appendix A** and on sheets X101-103 and X106-107 in **Appendix D.**

The Project substation and Utility substation will be located on agricultural land. Access to the substations will be from a newly constructed permanent access road from Frank Road. Driveways to each substation will connect to the permanent access road. The combined permanent access road and driveways will be approximately 640 feet long by 16 feet wide (10,2400 square feet).

2.4.4 Identify current landownership and whether applicant has control of property or whether or not an option to buy has been signed.

The land is currently under a purchase option sufficient to support collection routing, the Project substation, the Utility substation, and an operations and maintenance building.

2.4.5 Describe substation construction procedures (in sequence as they would occur) including erosion control practices (see Section 3.1).

BMPs, such as temporary seeding and silt fences, will be implemented prior to the start of construction of the Project substation in accordance with the ECSWMP. Once BMPs are in place, grading and access construction will commence.

A typical construction sequence for the Project substation involves, in order:

- site grading work;
- below-grade foundation installation;
- above-grade physical construction of buswork and installation of major electrical equipment, wiring and completion of all terminations; and
- testing, commissioning, and ultimately energization.

A site-specific construction specification and schedule will be developed during final engineering. All contractors will be required to follow the ECSWMP, as well as adhere to any site-specific environmental requirements including dust control. The ECSWMP is included in **Appendix H.**

2.4.6 Describe associated permanent storm water management facilities that will be constructed, or expansion/modification of existing storm water treatment facilities to comply with applicable post-construction performance standards in Wis. Admin. Code §§ NR 151.121 through 151.128. Identify the locations of the point(s) of collection and discharge.

Stormwater management for the Project is governed by Wisconsin Administrative Code NR 151. The Project will meet the following criteria:

- Pre-construction runoff rates will be maintained or reduced in post-construction conditions for the 1-year, 24-hour, and 2-year, 24-hour storm events.
- Project development will reduce the total suspended solids (TSS) load by at least 80 percent.
- Because the site has less than 40 percent connected imperviousness, infiltration volume will equal at least 90 percent of the pre-development infiltration volume.

Based on the analyses outlined in the Preliminary Storm Water Management Report (provided in Appendix E of the ECSWMP in **Appendix H**), proposed runoff rates for the 1-year and 2-year events will be less than existing conditions, TSS loads will be reduced by 96.96 percent, and the volume of post-construction storm water infiltration will be 15,212.91 ac-ft. Based on the conceptual design, the permanent sedimentation basin north of the substation and O&M facility will be designed to required volumes and to comply with applicable post-construction performance standards in Wis. Admin. Code §§ NR 151.121 through 151.128.

Water quality is improved over pre-development conditions due to the land cover's conversion from a higher runoff rate row-crop field to a lower runoff rate meadow grass. Water quality concerns are also minimized due to the low percentage of impervious surfaces and that runoff from these surfaces filters through the meadow grasses on site prior to discharging.

A permanent sedimentation (or detention) basin is proposed north of the substation and O&M facility areas to reduce the increase in runoff rates from existing to proposed conditions during the 100-year, 24-hour storm event from the additional impervious area created by the proposed substation and O&M areas. The Project substation and Utility substation will be on raised pads and runoff from these areas will sheet flow to the proposed permanent sedimentation basin. The permanent sedimentation basin will be contoured to hold water, provide sheet flow, and provide additional sediment removal and will ultimately discharge to the north towards field-delineated

wetland FW-K-1 (see Figures 8.3.1 and 8.3.2 in **Appendix A**). Existing and proposed drainage patterns are shown on Exhibits 5 and 6 in the Stormwater Management Report provided in Appendix E of the ECSWMP in **Appendix H**.

The permanent sedimentation basin will control stormwater volume and discharge via a culvert and will be sized and placed at an elevation to ensure post-development flows leaving the pond are less than pre-development flows up to the 100-year storm event.

2.4.7 Describe any security requirements for the substation site and provide information on how these would be met.

A control enclosure will be installed on-site that will house the protection, communication, and Supervisory Control and Data Acquisition ("SCADA") equipment necessary to safely operate the Project substation. The substation will be fenced according to the NESC and include lockable gates. The fence will be properly grounded to avoid any hazards. The substation will also have safety lighting and may have security cameras mounted at fence gates.

2.5 Transmission and Distribution Interconnection

If the project includes the construction of an electric generator tie line, that is not the subject of a separate application before the Commission, provide the following information:

2.5.1 Describe any transmission or distribution grid interconnection requirement.

The Project will be interconnected to the transmission grid through the new Utility substation (also the POI) as conceptually shown on drawings X101 and X102 in **Appendix D**. Loop-In Lines (345kV) will connect the Utility substation to the existing Fitzgerald to South Fond du Lac 345kV HVTL that runs north-south through the Project Area. The Utility substation and Loop-In Lines are network upgrades which will be owned by ATC and will be constructed by ATC. This includes the facilities determined necessary by MISO and ATC for the interconnection of the 200 MWAC Project. These modifications will be constructed pursuant to a GIA to be entered into and by MISO, ATC, and Silver Maple. The necessary network upgrades are related facilities to the solar generating facility and are essential for allowing the electricity generated by the Project to be transmitted on the ATC transmission system.

Silver Maple anticipates the following to be required as part of grid interconnection:

- A newly-constructed 34.5 kV to 345 kV Project substation within the Project Area. The Project substation is shown on Figure 4.1.4.1 in **Appendix A** and on drawing X106 in **Appendix D**.
- A newly-constructed short 345 kV Generator Lead Line connecting the Project substation to the POI. Final engineering and design will be completed to determine these facilities and structures. The POI is defined as the Utility substation within the Project Area.
- A newly-constructed 345kV Utility substation arranged in a three breaker ring bus configuration with one generation position and two line positions, capable of future expansion to four breakers. The new substation will segment ATC's overhead F-318 transmission line between existing Fitzgerald and South Fond du Lac Substations into two

segments to be re-named in detailed design. Relay protection and control will consist of two line relay panels with primary line current over fiber optic cable and secondary DCU over power line carrier communications. One line differential relay panel to protect the Generator lead Line with primary and secondary differential schemes, and two panels for breaker failure protection and auto reclose relaying for three interconnection substation breakers.

- Newly-constructed Loop-In Lines from the transmission grid's existing 345kV transmission line to the new Utility substation. Loop-In Lines are anticipated to consist of two (2) 3-pole dead-end structures routing the line through the ATC's new substation, segmenting the line between South Fond du Lac and Fitzgerald substations.

Preliminary drawings of these facilities are provided in **Appendix D**. Final engineering and design will be completed to determine these facilities and structures.

2.5.2 Identify the length of the generator tie line.

The Generator Lead Line is expected to be a short (less than 100 feet) connection between the Project and Utility substations. Final engineering and design will be completed to determine these facilities and structures.

2.5.3 Provide details on the types of structures (underground/overhead, single-pole/H-frame, direct embed/concrete caisson, typical span length, etc.) and lines that would be constructed as part of any necessary generator tie line, including the height of the structures. If the installation will be underground, identify the installation method(s), such as directional bore, open-cut trench, plow, etc.

It is anticipated that the Generator Lead Line will be overhead, supported by an H-frame structure on pier foundations, approximately 50 to 100 feet tall. Final design, including structure height and foundation type, will be completed in coordination with ATC, in compliance with the NESC.

The 345kV Loop-In Lines located between the Utility substation and the Fitzgerald to Fond du Lac 345 kV HVTL will span approximately 300 feet and will be supported by two (2) 3-pole dead-end structures, approximately 70 feet tall, with concrete pier foundations. Interconnection facilities will be designed and built by ATC in compliance with the NESC.

2.5.4 Describe the transmission configuration (single-circuit, double-circuit, etc.).

The 345kV Generator Lead Line and Loop-In Lines are planned to be single-circuit arrangements and may include fiber communication cable. Final design will be completed in coordination with ATC.

2.5.5 Describe the right-of-way (ROW) needed for the generator tie line and the status of any easements or other land agreements with property owners.

The Generator Lead Line will not require a ROW because it is located entirely within Project substation and Utility substation footprints on private lands with purchase options.

2.5.6 Describe all communications and agreements, official or otherwise, with the transmission or distribution owner. These can include definitive phase planning (DPP) studies and any signed generator interconnection agreements, or more informal meeting notes or letters.

The first Silver Maple interconnection request, J1253, was part of the MISO DPP-2019 Cycle 1 Phase I East (ATC) Study Cluster. DPP Phase 3 has been completed and the Generator Interconnection Agreement is being negotiated. The second Silver Maple interconnection request, J1716, is part of the MISO DPP 2020 Cycle East (ATC) Study Cluster and is currently in Phase 3. Both studies are provided in **Appendix I**.

2.5.7 For transmission interconnections, indicate the project's MISO generation and interconnection queue number(s), as well as those of any associated energy storage project associated with the solar project, and provide copies of the latest draft or final MISO report for the project interconnect. During the PSC review process applicant must continue to supply the latest reports from MISO. Discuss how the project will be interconnected to the grid (MISO generator interconnection queue, surplus interconnection request, or similar).

The Project has requested to interconnect to the MISO transmission network in the East Area and has progressed in that generator interconnection queue process as described in Section 2.5.6, above. DPP studies are provided in **Appendix I**.

2.5.8 Indicate how equipment access will occur, and if off-ROW access roads will be utilized. If off-ROW access roads will be utilized, provide the following:

2.5.8.1 Provide the number of off-ROW access roads proposed, and an identifying name or number for each off-ROW access road.

No off-ROW access roads are proposed at this time.

2.5.8.2 For each proposed route, provide the dimensions (length, width, area) and construction method, including any modifications that would be needed to utilize the off-ROW access roads, such as road widening, road fill placement, tree clearing, etc.

No off-ROW access roads are proposed at this time.

2.5.8.3 Discuss the reasons for the necessity for off-ROW access roads (e.g., topography, rivers/wetlands, etc.). If protection of a natural resource is a reason, discuss how the resource would be protected during construction and operation of the proposed project.

No off-ROW access roads are proposed at this time.

2.5.8.4 Provide quantitative land cover information for off-ROW access roads similar to the information provided in PSC Impact Table.

No off-ROW access roads are proposed at this time.

2.5.8.5 If the off-ROW access roads would be modified post-construction, provide details.

No off-ROW access roads are proposed at this time.

2.5.9 Describe the type of construction machinery that would be used.

The substations and lines will be constructed with standard construction practices consistent with industry standards, best practices, and regulations. Typical machinery may include, but is not limited to: drill rig, crane, skid steer, material handler, cable pulling trailer, concrete truck, and man lift. For general site preparation: bulldozer, compacting roller, backhoe.

2.5.10 Describe the construction disturbance zone, if different from the ROW.

Because the Project substation and Utility substation are located adjacent to one another, and the Utility substation is adjacent to the existing 345kV HVTL, disturbance related to Generator Lead Line and Loop-In Line construction will be confined to the Project footprint.

2.5.11 Describe how spoil materials would be managed on and off-site.

Spoils from drilling holes for direct-embed structures will be utilized on-site to the extent practicable. Excess soil not used for backfilling of the structure holes will be thin-spread within the Project substation and/or Utility substation footprint. If required off-site soil disposal will be in accordance with applicable regulations.

2.5.12 Describe how the dewatering method(s) that may be utilized during excavation activities, such as pit/trench dewatering or high capacity wells. Identify treatment methods that would be utilized to treat the discharge, and the discharge location.

If dewatering is required, all water will be pumped away from any existing wetlands or waterways and will be discharged onsite. Water will be pumped to a well-vegetated upland area where it can be discharged without causing erosion. Discharge locations will be constructed with energy dissipators to prevent erosion or suspension of surficial soils. Although a discharge basin is not anticipated, if one is required, it will be constructed with a combination of straw bales, filter fabric, and rock. Dewatering will comply with applicable WDNR permit requirements and technical standards.

2.5.13 Describe if the construction of a new substation or switchyard, or modifications to existing facilities would be needed for the transmission interconnection. If so, describe which company would own and operate the facilities, and which company would conduct any ground disturbing construction for the facilities.

The existing South Fond du Lac to Fitzgerald 345kV HVTL will be modified to route the transmission line through the new Utility substation. The Utility substation and 345kV Loop-In Lines which will connect the Utility substation to the existing 345kV HVTL. These facilities will be constructed, owned, and operated by ATC, though Silver Maple may be required to undertake certain site preparation activities pursuant to the final GIA.

2.6 Operations and Maintenance Building

2.6.1 Describe the purpose and use of the proposed O&M building.

The O&M facility would accommodate a permanent O&M building, parking area, and other associated facilities that may be required such as a domestic drinking water well, aboveground water storage tanks, septic system, security gate, lighting, and signage. The permanent O&M building would house administrative and maintenance equipment and personnel.

2.6.2 Number of full-time employees that would be working at the facility.

The O&M building will house one to three full-time employees and have additional office space for traveling workers.

2.6.3 Provide the size (in acres) of the land purchase required for the facility.

The O&M building will be built on land which is currently under purchase option. The O&M building will be approximately 2,000 square feet (40 feet by 50 feet) in size and include an additional 1,000 square feet (20 feet by 50 feet) for parking.

The O&M facility will require an area of approximately 60 by 50 feet (3,000 square feet) for the building, access around the building, and vehicle parking. A total of about 0.1 acre is required for the O&M facility.

2.6.4 Building and Building Footprint.

2.6.4.1 Provide a drawing or diagram of the O&M building with dimensions including square feet.

A diagram of a typical O&M building is on sheet X108 in **Appendix D**.

2.6.4.2 Indicate the actual size of the building in square feet, and the size of any permanent driveways for the building to be constructed.

The O&M building is expected to require 2,000 square feet and include a 16-foot-wide permanent driveway that will connect with the permanent access road that will also be used for the Utility substation as shown on Drawing X101 in **Appendix D**.

2.6.4.3 Describe the type of building to be constructed (metal, frame, etc.).

As the Project gets closer to construction and final engineering, the design of the O&M building will continue to be refined. The major material components would consist of metal, brick, wood, concrete, or other forms of structural materials. The final design and construction of this building will be consistent with applicable Wisconsin State Building Code and County Building Standards and may include materials not identified in this list.

2.6.5 Lighting and Security Plan for O&M Property.

2.6.5.1 Describe how the building property would be lit and how the lighting plan minimizes disturbance to nearby residences.

The O&M building will include down-shielded lighting for security purposes and will be directed away from adjacent properties and public ROWs.

2.6.5.2 Describe any security plans for the property (fences etc.).

The O&M building will be located within a secure fenced area adjacent to the Project substation. Gates and doors to the O&M building will be lockable.

2.6.6 Describe any other facilities needed, including:

2.6.6.1 Parking lots.

A parking lot will be adjacent to the Project substation and include approximately five parking spots to accommodate one to three employee vehicles and two visitor vehicles.

2.6.6.2 Sheds or storage buildings.

No sheds or additional storage buildings are planned for this Project. The O&M building will have sufficient space for permanent storage of equipment and materials. If necessary, on a temporary basis during construction or decommissioning, all storage containers outside the O&M building will comply with all applicable rules and regulations.

2.6.6.3 Supplies of water.

A domestic water well will be constructed to provide water service to the O&M building. Silver Maple will work with the applicable local regulatory authorities and obtain all necessary permits to construct a new domestic water well.

2.6.6.4 Sewer requirements.

A septic system will be constructed to provide sanitary service to the O&M building. Silver Maple will work with the applicable local regulatory authorities and obtain all necessary permits to construct sanitary facilities.

2.6.7 Describe construction procedures (in the sequence as they would occur), including erosion control practices (see Section 3.1).

Erosion control BMPs will be established per the ECSWMP. The area will then be graded and excavated per final engineering design. The concrete foundation and/or slab for the O&M building will then be installed, followed by structure erection. Final grading and paving will be performed last.

No separate stormwater management facility will be constructed for the O&M building. The permanent sedimentation basin has been designed and constructed to handle stormwater runoff from the Project substations and O&M facility.

2.6.8 Describe associated permanent storm water management facilities that will be constructed, or expansion/modification of existing storm water treatment facilities, to comply with applicable post-construction performance standards in Wis. Admin. Code §§ NR 151.121 through 128. Identify the locations of the point(s) of collection and discharge.

Stormwater management for the Project will comply with Wisconsin Administrative Code NR 151. The Project will meet the following requirements:

- Pre-construction runoff rates will be maintained or reduced in post-construction conditions for the 1-year, 24-hour, and 2-year, 24-hour storm events.
- Total suspended solids (TSS) load will be reduced by at least 80 percent.
- Because the site has less than 40 percent connected imperviousness, infiltration volume will equal at least 90 percent of the pre-development infiltration volume.

Based on the analyses outlined in the Preliminary Stormwater Management Report (Appendix E of the ECSWMP (see **Appendix H**), proposed runoff rates for the 1-year and 2-year events will be less than existing conditions, TSS loads will be reduced by 96.96 percent, and the volume of post-construction storm water infiltration will be 15212.91 ac-ft. Based on the conceptual design, the permanent sedimentation basin will be designed to required volumes and to comply with applicable post-construction performance standards in Wis. Admin. Code §§ NR 151.121 through 151.128.

Water quality is improved over pre-development conditions due to the land cover's conversion from a higher runoff rate row-crop field to a lower runoff rate meadow grass. Water quality concerns are also minimized due to the low percentage of impervious surfaces and that runoff from these surfaces filters through the meadow grasses on-site prior to discharging.

A permanent sedimentation basin will be constructed north of the substation and O&M facility to capture runoff, slow release rates, and provide treatment for the increased impervious surface. The O&M facility and substation will be on a raised pad and runoff from this area will sheet flow to the proposed permanent sedimentation basin. The permanent sedimentation basin will be contoured to hold water, provide sheet flow, and provide additional sediment removal and will ultimately discharge to the north towards delineated wetland complex FW-K-1 (see Figures 8.3.1 and 8.3.2 in **Appendix A**). Existing and proposed drainage patterns are shown on Exhibits 5 and 6 in the Preliminary Stormwater Management Report provided in Appendix E of the ECSWMP (see **Appendix H**).

The permanent sedimentation basin will control stormwater volume and discharge via a culvert and will be sized and placed at an elevation to ensure post-development flows leaving the pond are less than pre-development flows up to the 100-year storm event per state and local requirements.

The Preliminary Stormwater Management Report details how the Project meets requirements of Wis. Admin. Code Ch. NR 151 performance standards and is included as Appendix E to the ECSWMP (**Appendix H**).

2.7 Battery Storage

If the proposed project would include a large-scale Battery Energy Storage System (BESS) or plans to include one in the future, provide the following information.

No battery storage system is proposed for the Silver Maple Project at this time.

2.7.1 State clearly if the project is seeking authorization to construct a BESS in the current solar electric generation facility docket. Provide all of the environmental impact information for the BESS if one is being proposed, identical to the environmental impact information provided with all other project facilities.

2.7.2 Describe the location of the proposed BESS, including a map that shows its placement within the other project facilities. Discuss if the BESS will be centralized in one location or distributed throughout the project site and why either design choice was made or is being considered.

2.7.3 Explain what criteria was used to decide whether to use a BESS and provide information on how its inclusion would affect the electrical design of the project and MISO interconnection process. Provide the MISO interconnection queue number(s) for any associated BESS projects.

2.7.4 Identify the manufacturer and model of battery systems to be used. (It is acceptable to identify several potential units). Include technical specifications.

2.7.5 Provide information on how the BESS would be installed, any changes to project impacts through its inclusion, and ongoing operations and maintenance actions it would require.

2.7.6 Discuss any safety requirements specific to the BESS both on site and for local first responders.

2.7.7 Describe construction procedures (in the sequence as they would occur), including erosion control practices (see Section 3.1).

2.7.8 Describe associated permanent storm water management facilities that will be constructed, or expansion/modification of existing storm water

treatment facilities, to comply with applicable post-construction performance standards in Wis. Admin. Code §§ NR 151.121 through 128. Identify the locations of the point(s) of collection and discharge.

2.7.9 If applicable, describe any risk analysis the applicant conducted when siting the BESS and Collector Substation within a "potential impact radius" of any natural gas pipelines in the area. Provide a description of how an risks to facilities could be mitigated.

3.0 Construction Sequence and Workforce

3.1 Construction Sequence and Schedule

3.1.1 Provide the construction schedule for the proposed project, identifying any potential seasonal or regulatory constraints. Include a timeline showing construction activities from beginning of construction to in-service for all major components of the project, including any BESS system. Identify all critical path items.

The estimated construction schedule is provided in Table 3.1-1 below.

Table 3.1-1: Estimated Project Construction Schedule

Activity	Start	End
Securing perimeter of the areas in which construction will occur	04/2024	06/2024
Installation of stormwater and erosion control measures;	06/2024	10/2024
General clearing of the Project Area, particularly at PV arrays, access roads, laydown yards, and substation locations	04/2024	07/2024
Minimal grading for access roads, PV arrays, laydown yards and substation areas	04/2024	06/2024
Construction of access roads	04/2024	07/2024
Installation of piles for support of PV modules	07/2024	11/2024
Installation of PV modules	04/2025	08/2025
Installation of the electrical collection system	04/2025	09/2025
Construction and installation of substation	09/2024	06/2025
Connection to POI/Gen-Tie Built	05/2025	06/2025
Construction and installation of O&M Facility	05/2025	07/2025
Installation of inverters	05/2025	08/2025
Facility commissioning and energization	07/2025	10/2025
Commercial Operation Date/In-Service Date	10/2025	10/2025

All listed items are considered critical path except for the construction and installation of the O&M building.

Potential seasonal constraints include the following:

- Heavy rainfall could slow or halt work during fencing, erosion control, stormwater installation, clearing and grading. The construction schedule will account for normal seasonal rainfall and weather events.
- Heavy snow and frozen ground could prevent panel support pile installation and installation of the electrical collection system. The construction schedule will account for normal winter construction limitations.

- Extreme cold and heat index could also stop or slow down work during installation of PV modules and installation of the electrical collection system. The construction schedule will account for normal seasonal temperature ranges.

Potential regulatory constraints include the following:

- Unanticipated changes to regulatory requirements.
- Regulatory uncertainty arising from unclear or duplicative permit conditions or requirements.
- Delayed responsiveness from regulatory agencies for ongoing, post-permit notice and approval requirements.

3.1.2 Provide a description of the staging and construction sequence required for building a typical solar array. Include the delivery of materials.

The following provides a description of the staging and construction sequence for a typical solar array:

- Installation of tracking pads as needed, and installation of erosion control and stormwater best management practices (BMPs) as outlined in the ECSWMP.
- Installation of sensitive resource/impact avoidance signage/flagging, survey staking, and stormwater protection/wildlife exclusion measures (e.g., silt fence).
- Vegetation removal (crop removal) starting in areas where temporary staging areas will be located. Vegetation removal will continue across the site, sequenced to proceed in an organized and cost-efficient manner, and intended to minimize the amount of contiguous disturbed area, to the extent practicable. If necessary, upland forest clearing will commence in a similar fashion.
- Survey and stake access roads and panel locations.
- Access-road installation to facilitate continued clearing operations and construction of the array, including delivery of aggregate for roads. Limited grading is anticipated as roads will be constructed at grade when possible.
- Delivery of equipment, including aluminum supports/mounting structures, inverters, and tracking systems.
- Solar array construction in sequence, starting with driving pile foundations, installing aluminum supports/mounting structures onto the piles, installing inverter pads, and installing tracking systems.
- Delivery and installation of DC collection system equipment by means of trenching and directional drilling or above grade as illustrated in **Appendix D** sheet X301.
- Delivery and installation of solar PV modules.
- Stabilization and permanent revegetation of disturbed areas in stages as construction of the solar blocks and collection trenches are completed.
- Vacate and restore temporary staging areas if not otherwise used for array components. Decompact the subsoil, with windrowed topsoil re-distributed and decompacted again as needed.
- Completion of final seed installation and revegetation activities at staging and other disturbed areas consistent with the revegetation and restoration plan.

3.1.3 Provide an estimate of time required to complete construction at a typical solar array.

The solar array blocks will be constructed on a rolling basis with simultaneous activities occurring in multiple blocks. Average solar array block construction time will be determined once detailed design and final contractor construction means and methods are available, but is anticipated to be approximately 12 to 16 weeks.

3.1.4 Provide a description of the staging and construction sequence for any other facilities to be constructed.

It is anticipated that the O&M facility will be constructed during the second half of the construction period. If necessary, the laydown area in the close vicinity of the O&M building to the west can be used as a staging area.

3.1.5 If grading, land leveling, or any other activity that would result in a change in topography or vegetative or non-vegetative soil cover will occur provide the following information as fully as possible. If technical details are not available, discuss the goals and practices generally:

3.1.5.1 Indicate the maximum area (sq. ft. or acres) of disturbance that would occur at a given time.

Minimal grading is anticipated due to Project's relatively flat terrain. It is possible that multiple crews will be conducting grading within different areas of the Project at the same time. Project construction phasing, including clearing, grading, and other construction activities, will likely include multiple areas across the Project. During early stages of Project construction, 500 or more acres could be disturbed at a given time as temporary and permanent vegetation is seeded and established. Final disturbance numbers will not be known until final engineering design and construction sequencing are completed. Silver Maple will strive to minimize the number of contiguous acres disturbed and the length of disturbance during construction planning. Project phasing by construction activity, along with a discussion of the Best Management Practices (BMP) associated with each activity, is provided in the ECSWMP Section 5.6 (**Appendix H**).

3.1.5.2 Describe erosion and sediment control practices (e.g., sedimentation basins) that by design will be employed to result in a discharge of no more than 5 tons per acre per year of the sediment load carried in runoff from initial construction to final grading.

Because areas of contiguous disturbance over 5 acres are anticipated during construction, a temporary sedimentation basin will be required for the project. As shown on the conceptual design, Silver Maple proposes to install one temporary sedimentation basin within the substation parcel; this basin will become the only permanent sediment basin on the Project. As outlined in the ECSWMP in **Appendix H**, the basin will be periodically inspected to ensure that sediment deposition and accumulation remains below one-half of the storage volume. Should sediment deposition and accumulation exceed this limit, the basin would be cleaned out and the

accumulated sediment material would be removed within 24 hours, or as field conditions allow access prior to the next anticipated storm event.

3.1.5.3 Describe any structural practices that will be used to divert flow away from exposed soils, store runoff or otherwise limit runoff and the discharge of sediment.

Appropriate erosion and sediment control measures, as detailed in the ECSWMP, will be installed prior to ground disturbance to minimize soil loss from the construction area. Erosion control BMPs may include the buffer strips, straw/mulch, erosion control blanket, temporary seeding, and permanent seeding. Sediment control BMPs may include silt fence, fiber rolls, and topsoil berms. Temporary run-on and run-off controls will be installed to minimize scour, transport water across or down steep slopes or sensitive areas, divert clean water, and to provide temporary conveyances to maintain drainage. Potential run-on and run-off controls include the installation of riprap aprons for energy dissipation, diversion berms, and culvert protection.

Sediment controls are anticipated to minimize sediment discharge, capture sediment in suspension, and minimize off-site sedimentation. Please refer to the site plans in Appendix E of the ECSWMP (**Appendix H)** for the preliminary locations and details of erosion and sediment control BMPs.

The ECSWMP is a conceptual level plan and will be revised and finalized once a final design is complete. The final Project ECSWMP will include specific locations and types of temporary and permanent stormwater features to be constructed prior to and after the installation of the Project components. Applicable stormwater and erosion control permits will be obtained following final engineering design and prior to the start of construction.

3.1.5.4 Describe to what extent final grade will affect predevelopment drainage patterns.

The grading design seeks to minimize grading to the extent practicable while providing a surface suitable to meet tracker slope tolerances and allow for positive drainage. The majority of the land included in the Project Area is currently in agricultural production and is generally flat with slopes around 1 to 5 percent. The grading design will maintain on-site and existing (predevelopment) drainage patterns. Onsite runoff is split into 22 drainage areas based on discharge locations and existing low areas. The surface water runoff generally flows to existing wetlands and waterways throughout the Project Area. The site has six ultimate discharge locations; one to the north, one to the existing channel that runs through the northwest of the site, two that drain to the east, one that drains to the South Fork Willow River, and one to the south.

3.1.5.5 Describe how these preventative measures will be incorporated into the project:

- Maintenance of existing vegetation, especially adjacent to wetlands and surface waters whenever possible.

Most of the current land cover in the Project Area consists of agricultural cropland including corn and soybeans with minor components of forested, hay/pasture, and wetland cover. Existing vegetation is sparse and associated with wetlands and waterways, existing fence lines, and the woodland areas. The Project has been designed to avoid impacts to wetlands and waterways to the extent practicable. Where possible, vegetation within a 75-foot wetland and waterway buffer will not be impacted during construction and operation of the Project. Areas within the 75 feet of wetland and waterways that have been actively farmed will be seeded in accordance with the Vegetation Management Plan (**Appendix P**).

- Minimization of soil compaction and preservation of top-soil.

During construction activities, areas that require compaction will be excavated and backfilled for access roads, pads, and bases for electrical components. Areas that will be vegetated will be decompacted and prepared for seeding and restoration.

Compacted soil will be addressed using techniques such as ripping, which involves penetrating and breaking up compacted soil using deep tilling or other methods. Decompaction should be completed following final grade, topsoil placement, and prior to reseeding or other restoration activity.

After clearing and grubbing, the operator(s) should strip and stockpile topsoil material for reapplication on all future permanent pervious surfaces. Topsoil (the soil which is on the surface prior to construction) varies in depth and must be separated from subsoils during clearing, grading and excavations or fill. Once separated, topsoil will be stockpiled, and properly maintained by BMPs separately from subsoils and reapplied during final grading for vegetation establishment. Topsoil stockpiles will not be placed in swales, ditches, surface waters, buffer zones or outside of permitted disturbed limits of the Project Area. Topsoil stockpiles will be temporarily stabilized as required and detailed in the ECSWMP (**Appendix H**). All topsoil will be reapplied within the Project Area.

- Minimization of land-disturbing construction activity on slopes of 20 percent or more.

Topography within the Project Area consists of relatively flat terrain with slopes across the Project Area generally less than six percent and the majority of the Project Area consisting of three percent or flatter slopes. There are no slopes greater than 20 percent within fenced solar array areas.

3.2 Workforce

3.2.1 Provide information on the workforce size and skills required for project construction and operation.

During construction, the workforce will be primarily comprised of laborers, equipment operators, licensed electricians, and management personnel. The equipment operators will operate civil equipment, pile drivers, cranes, and material-handling equipment. Most of the personnel required to construct the Project will be laborers that install racking systems and place modules.

During peak construction periods, approximately 350 workers are anticipated. However, this is for an ideal construction schedule and peak workforce may vary based on the final schedule. Once construction is complete, the Project will require approximately two to three full-time equivalent personnel for O&M of the facility. The plant operator(s) will have specific training and expertise to run a solar facility, including the high-voltage substation.

Silver Maple will implement a Construction Compliance Program (CCP) consisting of environmental training, regularly scheduled inspections, and tools such as permit matrices to ensure all environmental laws and conditions are met. Under the CCP, the environmental lead will provide environmental training to all managers and the foreman prior to construction. Thereafter, the contractor will ensure any employee who works at the site is trained in accordance with the CCP. During construction, the environmental lead will conduct weekly meetings at the site as well as regular inspections to ensure all environmental regulations and conditions are being implemented.

3.2.2 Estimate how much of the expected workforce would come from local sources.

The amount of labor that will be sourced locally is unknown at this time. This percentage is dependent upon the local labor market and the availability of qualified employees at the time of construction. It is in the best interest of the Project to utilize local labor to the greatest extent possible. In order to optimize local labor sources, Silver Maple will require that its engineering procurement and construction contractor place adds within the county and hold an open house at the appropriate time. During the Project's operational life, two to three full-time employees are anticipated to reside locally in Fond du Lac and Winnebago Counties.

3.3 Construction Equipment and Delivery Vehicles

Provide a description of the types of construction equipment needed to build the project and the types of delivery vehicles that would be used. For large equipment and vehicles include:

3.3.1 Types of construction equipment and delivery vehicles.

The Project will require different equipment types depending on the phase of construction. The first phase consisting of civil work and road building will require dozers, motor graders, and rollers. The pile-driving phase will utilize pile drivers. After pile driving, installation of racking and panels will be supported mainly by skid steers and telehandlers. For the substation, a large truck crane will be needed to set the main power transformer and other heavy equipment. For other substation components, small cranes, bucket trucks, and forklifts will be used to place equipment. Other support equipment such as skid steers, all-terrain vehicles, and forklifts will also be used.

3.3.2 Gross vehicle weight (loaded and unloaded) for all vehicles using local roads.

Except for the main power transformer, delivery trucks will consist of legal load (80,000 pounds or less) over-the-road flatbed and box trucks. The anticipated delivery vehicle for the main power

transformer for the Project substation is estimated to have a gross vehicle weight of approximately 300,000 pounds.

Silver Maple's construction contractor will work with state and local authorities to obtain the applicable oversize-overweight permits, if necessary.

3.3.3 For vehicles used for delivery, include:

3.3.3.1 Overall vehicle length.

Except for the main power transformer, vehicles used for delivery will be standard over-the road semi or flatbed trucks, which are generally 50 to 70 feet in length.

3.3.3.2 Minimum ground clearance.

The minimum ground clearance will be the clearance for standard over-the-road semi-trucks, approximately 4 to 5 feet.

3.3.3.3 Maximum slope tolerance.

The slope tolerance of a standard semi-truck is 10 percent. However, the routes to the Project are relatively flat. Slope tolerance is therefore not expected to be an issue.

3.3.4 Roads and Infrastructure. Estimate the potential impacts of construction and delivery vehicles on the local roads. Provide the following:

3.3.4.1 Describe methods to be used to handle heavy or large loads on local roads.

As described in Section 3.3.2, vehicles used for transporting Project components will consist of legal load (80,000 pounds or less) over-the-road semi or flatbed trucks except for the delivery of the main power transformer for the Project substation.

Silver Maple's construction contractor will work with state and local authorities to obtain the applicable oversize-overweight permits prior to receiving delivery of the transformer.

3.3.4.2 Probable routes for delivery of heavy and oversized equipment and materials.

The most likely haul routes for heavy and oversized equipment and materials are U.S. Interstate 41 and State Highway 26 (see **Appendix B Figure 8.5.1**). County and Township roads within the Project Area will be used to deliver equipment and materials to the general construction laydown areas and directly to construction sites. The heavy equipment for the main power transformer would likely be delivered directly to the substation via State Highway 26 (Waupun Road). Final routes for equipment have not been chosen at this time although most loads will enter the Project Area via the roadways listed above. The WisDOT Oversize-Overweight Permit section will be contacted for additional information as soon as specific loads and routes are known.

3.3.4.3 Potential for road damage and any compensation for such damage.

Road damage during the construction phase of the Project is unlikely. Vehicles used for transporting Project components will consist primarily of legal load over-the-road flatbed and box trucks. Localized roadway damage may occur at turn-offs to Project access roads. If any damage is caused by the construction of the Project, it will be repaired to as good as or better than initial conditions. Silver Maple will negotiate in good faith with the local government entities to reach appropriate arrangements regarding road use.

3.3.4.4 Probable locations where local roads would need to be modified, expanded, or reinforced in order to accommodate delivery of equipment.

No modifications to local roads are expected.

3.3.4.5 Include an estimate of whether or not trees near or in road ROW might need to be removed.

No clearing of trees near or in road rights-of-way is anticipated at this time.

3.3.4.6 Provide an estimate of likely locations where local electric distribution lines would need to be disconnected in order to allow passage of equipment and materials.

No disconnection of local electric distribution lines will be necessary to allow for delivery of equipment and materials.

3.3.4.6.1 Describe how residents would be notified before local power would be cut.

Since local electric distribution lines will not need to be disconnected to allow for delivery of equipment and materials, there will be no cessation of local power, and, therefore, no need to notify customers of the loss of power.

3.3.4.6.2 Estimate the typical duration of a power outage resulting from equipment or materials delivery.

No power outages will be required for the delivery of equipment and materials.

3.3.5 Construction Traffic. Describe any anticipated traffic congestion and how congestion would be managed, minimized, or mitigated. Include:

3.3.5.1 List of roads most likely to be affected by construction and materials delivery.

Material deliveries may minimally affect County or Township roads that are planned for a solar array access road entrance. In addition to the County and State Highways noted under Section 3.3.4.2, local roads including Silver Maple Road, Highland Road, State Farm Road, Prairie Drive, Clear View Road, Frank Road, Hinz Drive, Hillside Road, Evergreen Drive, Zoar Road, and others may be used for the Project.

Traffic congestion will be minimal, and any traffic congestion will be managed, minimized, or mitigated. To the extent site conditions allow, delivery trucks will be off loaded near the point of use to minimize double handling or adding to the amount of trucking. Prior to any deliveries, a traffic control plan will be developed and reviewed with the Town, County, or WisDOT officials as appropriate. Signage will be installed to guide trucks to the appropriate roads after reviewing with local officials. Trucks will not be allowed to stage or block public roads. If trucks cannot exit the road in a timely fashion, they will be directed to a designated staging area. Major component deliveries will be required to stagger delivery times and dates, so the site teams are not overwhelmed with a surge of trucks at one time. Silver Maple will work with WisDOT to address any access constraints on State Highways. If certain proposed access points from State Highways are not permitted, Silver Maple will evaluate alternatives such as working with participating landowners to evaluate upgrading existing access points.

3.3.5.2 Duration of typical traffic disturbance and the time of day disturbances are most likely to occur.

A traffic increase will likely occur twice a day during the work week (Monday through Friday) when construction workers are traveling to and from the Project. This increase will consist of the personal vehicles owned by the workers. Deliveries of equipment will also be traveling to the Project during the work week. Material deliveries will generally be scheduled throughout the day versus during hours when residents are most likely to be driving to and from work.

Construction delivery traffic will mostly occur daily during daylight hours. Deliveries will begin in the early morning and continue to mid-late afternoon. Smaller vehicles for personnel arriving onsite may occur prior to or after daylight hours. Trucks will be directed off major roads, onto secondary roads or the construction site to minimize the potential for traffic congestion. Traffic delays should be limited to the time it takes for delivery trucks to turn on or off public roads. The delivery and construction timing may be adjusted as needed to maintain the Project's construction schedule.

4.0 Project Maps, Aerial Imagery, Photo Simulations, and GIS Data

Orthorectified imagery created using GIS is required – reduced size photos are not adequate. All spatial data submitted must be compatible with the most current version of ESRI ArcGIS.

Provide the sets of static maps listed in Section 4.1. The extent of the aerial imagery must be inclusive enough to show the landscape context within which the proposed facilities would be placed. Typically, this requires extending the map extent to at least two miles beyond any project boundary. Also, provide only the GIS data described in section 4.2.

Provide the maps in both hard copy and digital versions.

Refer to Application Formats in the Introduction.

4.1 Project Area Maps

Basic (background) features for both the general and the detailed project area maps must include recent aerial imagery (no older than three years), county boundaries, major roads, waterbodies and waterways, and municipality boundaries. All features should be labeled appropriately. In addition, the maps should contain the following features:

4.1.1 General Project Area Map. (The extent of this map should show the entire project area and reach at least 1 mile beyond the project area boundary. Approximate scale 1:4800.). Clearly show:

- The boundaries of the project area,
- All proposed and alternative solar array sites (symbolized differently and identified by number),
- Any new substation facilities or required expansion of an existing substation,
- O&M Building and facilities,
- Distribution and transmission interconnection,
- All access roads, distinguishing between temporary and permanent (if applicable).

The General Project Area Map is Figure 4.1.1 in **Appendix A**.

4.1.2 Detailed Project Area Map. (The scale for this map should be larger than that of the general project map so that the added detail is clearly visible. This usually necessitates a series of maps). Clearly show:

- *All the features listed for the General Project Area Map,*
- *All collector circuits both underground and overhead, symbolized by the installation method,*
- *Existing utility facilities within and up to one mile of the project area boundary (electric transmission and distribution, pipelines, etc.),*
- *Industrial/commercial facilities within and up to one mile of project area boundary,*

- *All residences (identified as either participating or non-participating) within and up to one mile of project area boundary,*
- *Daycare centers within and up to one mile of project area boundary,*
- *Hospitals or other health care facilities within and up to one mile of project area boundary.*

(If new residences, day-care centers, hospitals, or commercial or industrial facilities have been built since the date of the aerial image base map, note those features accurately on the detailed project area map).

The Detailed Project Area Map Book is Figure 4.1.2 in **Appendix A**.

4.1.3 Topographic Maps.

Provide topographic maps at 1:24,000 or larger scale showing project boundary all solar array sites (proposed and alternative), substation facilities, collector circuits, access roads, and O&M building.

The Topographic Map is Figure 4.1.3 in **Appendix A**.

4.1.4 Substation.

4.1.4.1 Provide a map showing the following features:

- *The location, dimensions (in feet and acres), and layout of any new substation or proposed additions to an existing substation.*
- *Recent aerial images of the substation site.*
- *The location of all power lines entering and leaving the substation, including any turning structures. Show details in a separate diagram of any turning structures that might impact adjacent landowners (size, type of structure, guying, etc.).*
- *For new substations, show the location of the access road, other permanent impervious ground surfaces (e.g., gravel, asphalt, concrete, etc.) and the location of permanent storm water management features (i.e., pond, swale, etc.). For expansion of existing substations, show details on changes to access roads that may be required (width, length, location, etc.), as well as any other ground disturbing construction activities.*
- *Show parcel data including the name of landowners for the substation site or substation addition. Include adjacent landowners.*
- *Show topographic contours of the property.*

Substation maps are included in Figure 4.1.4.1 in **Appendix A** and in Drawings X101-102 and X105 in **Appendix D**.

4.1.4.2 Provide an engineering diagram/s of the substation and substation equipment including any turning structures and interconnection facilities.

The typical substation diagram is in **Appendix D**.

4.1.5 O&M Building.

4.1.5.1 Provide a map showing the O&M building, parking area, roads, other impervious ground surfaces (e.g., gravel, aggregate, asphalt, concrete, etc.), permanent storm water management areas, and any other facilities. Include, as a background, a recent aerial photograph of the property.

4.1.5.2 Provide an engineering drawing of the O&M building.

A detailed design of the O&M building has not been completed at this time. A map showing the general layout is shown on Figure 4.1.4.1 in **Appendix A** and a diagram of a typical O&M building, with estimated overall dimensions, is provided in **Appendix D**.

4.1.6 Battery Storage.

No battery storage system is proposed for this Project at this time.

4.1.6.1 Provide an engineered drawing of the battery storage area, fencing, impervious ground surfaces, access roads, and permanent storm water management areas.

4.1.7 Natural Resources and Land Use/Ownership Maps.

4.1.7.1 Wetland and waterway maps. See section 8.3 for the map sets to provide.

The Wetland and Waterway Map Book – Topographic Map is Figure 8.3.1 in **Appendix A**. The Wetland and Waterway Map Book – Aerial Photography Map is Figure 8.3.2 in **Appendix A**. Methods Used to Identify Wetland Presence and Boundary is Figure 8.3.3 in **Appendix A**.

4.1.7.2 Landownership maps, minimum scale 1:10,000 (map extent to one mile from the project boundary). Show the following features:

- *Current parcel boundaries and landowners*
- *Roads*
- *Municipal boundaries*
- *Project boundary*
- *Solar arrays (proposed and alternative); (symbolized differently and identified by number)*
- *Access roads.*
- *Collector circuits.*
- *Substation.*
- *O&M building.*
- *Generator tie line.*
- *Topographic contours.*
- *Residences, including identification of participating and non-participating.*

The Landownership Map is Figure 4.1.7.2 in **Appendix A**.

4.1.7.3 Public lands. Show the following features:

- All publicly owned lands inside the project boundary and within two miles of the project area (parks, trails national/county/state forests, etc.). Public lands should be clearly labeled.
- Project boundary.
- Solar arrays (proposed and alternative); (symbolized differently and identified by number).
- Access roads.
- Collector circuits.
- Substation.
- O&M building.
- Battery storage.
- Generator tie line.

The Public and Managed Lands map is Figure 4.1.7.3 is included in **Appendix A**.

4.1.7.4 Land cover. Show the following features:

- *The distribution of vegetative communities within the project area using the land cover categories in Section 5.3.*
- *Project area boundary.*
- *Solar arrays (proposed and alternative); (symbolized differently and identified by number).*
- *Access roads.*
- *Collector circuits.*
- *Substation.*
- *O&M building.*
- *Battery storage.*
- *Generator tie line.*

The Land Cover map is Figure 4.1.7.4 in **Appendix A**. See Section 5.3 for information on land cover types, and Table 5.3-1 provides acreages of each land cover type identified within the Project Area.

4.1.7.5 Flood Insurance Rate maps (FIRMs) (within the project boundary). Provide flood insurance maps if the site is within one-half mile of a floodplain.

The FIRM map is Figure 4.1.7.5 is included in **Appendix A**.

4.1.7.6 Soil survey maps (within the project boundary)

The Soil Survey Map Book is Figure 4.1.7.6 in **Appendix A**.

4.1.7.7 Bedrock maps (within the Project Area). Map showing depth to bedrock for the entire project area.

Bedrock Maps are provided in Figure 4.1.7.7 in **Appendix A**.

4.1.8 Community Maps

4.1.8.1 Zoning maps. Provide a map or maps of the project area showing existing zoning (e.g., agriculture, recreation, forest, residential, commercial etc.). Map should show existing zoning within and up to 0.5 mile of the project area boundary.

The Existing Zoning map is Figure 4.1.8.1 in **Appendix A**.

4.1.8.2 Sensitive sites. Additional map (if necessary) showing proximity to schools, day care centers, hospitals, and nursing homes within and up to 0.5 miles of the project area boundary.

The Sensitive Sites map is Figure 4.1.8.2 in **Appendix A** and includes sensitive sites identified in section 4.1.8.2.

4.1.8.3 Airports. Include the following features:

- *All runways for public airports within and up to 10 miles of the project area boundary.*
- *All runways for private airports within and up to 10 miles of the project area boundary.*
- *All landing strips within and up to two miles of the project area boundary.*
- *Project area boundary.*
- *Both proposed and alternative solar array sites.*

The Airport map is Figure 4.1.8.3 in **Appendix A**.

4.1.9 Communication Infrastructure

4.1.9.1 Identify radio, television, microwave towers, and any NEXRAD or Doppler weather radar installations on a map and show the results of the line of sight analysis. Include communications and NEXRAD/Doppler installations within a one-mile radius of the project area.

The Communication Infrastructure map is Figure 4.1.9.1 in **Appendix A**. Communication studies and relevant maps are provided in **Appendix J**.

4.2 GIS Data

Provide GIS data with attributes as listed and described below. GIS attribute table information should be clearly labeled to identify fields and feature names.

All Project maps were created using ESRI ArcGIS Version 10.4 or higher. A spreadsheet of each GIS file, including the description of the data, the data source, and the date of when the data was generated or collected is provided as part of the GIS data **Appendix K** – GIS Shapefiles. GIS

shapefiles and databases provided include all features described in this section and are provided in **Appendix K** – GIS Data.

4.2.1 Project area boundary (polygon). Include area in acres.

4.2.2 Proposed solar array site components including:

4.2.2.1 Perimeters of fenced areas identified by letter or number (polygon). Include area in acres.

4.2.2.2 Solar arrays identified by number (polygon). Include area in acres.

4.2.2.3 Collector circuits (line). Include voltage, installation method, length in feet, length in miles, and differentiate whether located underground or overhead.

4.2.2.4 Inverters (point).

4.2.2.5 Access roads (polygon). Include area in acres and differentiate between permanent and temporary.

Alternative solar array site components including:

4.2.2.6 Perimeters of fenced areas identified by number (polygon, include area in acres).

4.2.2.7 Solar arrays identified by letter or number (polygon). Include area in acres.

4.2.2.8 Collector circuits (line). Include voltage, installation method, length in feet, length in miles, and differentiate whether located underground or overhead.

4.2.2.9 Inverters (point).

4.2.2.10 Access roads (polygon). Include area in aces and differentiate between permanent and temporary.

4.2.3 Generator tie line (line). Include voltage, length in feet, and length in miles, and whether located underground or overhead.

4.2.4 Generator tie line structures (point).

4.2.5 Bore pits for trenchless installation of any facilities (point). Include whether used for proposed or alternative routes/areas if applicable.

4.2.6 Laydown areas (polygon). Include whether used for proposed or alternative routes/areas if applicable.

4.2.7 Temporary matting (polygon). Include whether used for proposed or alternative routes/areas if applicable.

4.2.8 Electric distribution lines within and up to one mile of the project area boundary (line). Include voltage of each line and phases present (A, B, and/or C).

Voltage and phase of existing distribution is currently unknown. Distribution line locations have been provided based on aerial photos and are depicted in Figures 4.1.1 and 4.1.2 in **Appendix A**.

Typical distribution lines in Wisconsin range from 4 to 35kV and can be either one or three-phase lines. Because the Applicant is an IPP, not the local distribution owner, specific phase and voltage information is not readily available.

4.2.9 Electric transmission lines within and up to one mile of the project area boundary identified by voltage (line). Include voltage.

The existing Fitzgerald to South Fond du Lac is a 345kV High Voltage Transmission Line (HVTL). Transmission line locations have been provided based on data from Homeland Infrastructure Foundation-Level Data (HIFLD) and aerial photos and are shown on Figures 4.1.1 and 4.1.2 in **Appendix A**.

4.2.10 Natural gas high-pressure pipelines within and up to one mile of the project area boundary (line).

4.2.11 New substation components including:
4.2.11.1 Perimeter of entire parcel acquired or to be acquired (polygon).
4.2.11.2 Perimeter of substation (polygon).
4.2.11.3 Access road (polygon).
4.2.11.4 Other facilities such as a retention pond or storm water management (polygon).

4.2.12 Expansion of an existing substation components including:
4.2.12.1 Perimeter of original substation and of expanded area (polygon).
4.2.12.2 Boundary showing any new land acquisition (polygon).
4.2.12.3 All new power lines and reconfigured line work (line).
4.2.12.4 All collector circuits entering the substation (line).
4.2.12.5 Other facilities such as permanent storm water management features (polygon)

4.2.13 O&M Building components including:
4.2.13.1 Perimeter of property acquired (polygon).
4.2.13.2 Perimeter of building (polygon).

4.2.13.3 Perimeter of other buildings (polygon).
4.2.13.4 Perimeter of parking lot (polygon).
4.2.13.5 Access road (polygon).

4.2.13.6 Other facilities such as permanent storm water management features (polygon).

4.2.14 Battery Energy Storage System components including:
4.2.14.1 Perimeter of entire parcel acquired or to be acquired (polygon).
4.2.14.2 Perimeter of Battery Energy Storage System (polygon).
4.2.14.3 Access road (polygon).
4.2.14.4 Other facilities such as permanent storm water management features (polygon).

4.2.15 Wetlands and waterways in the project area:
4.2.15.1 Delineated wetlands (polygon). See Section 8.
4.2.15.2 Field identified waterways (polygon). See Section 8.

4.2.16 Landowners/buildings:
4.2.16.1 All residences within and up to one mile of the project area boundary (point). Include landowner name, address, and status as either participating or non-participating
4.2.16.2 All parcels within and up to one mile of the project area boundary (polygon). Include landowner name, address, and status as either participating or non-participating.
4.2.16.3 All industrial/commercial facilities within and up to one mile of the project area boundary (point). Include facility name, ownership name, and address.
4.2.16.4 All confined animal operations within and up to 0.5 miles of the project area boundary (point). Include type(s) of animal(s), the number of confined animals, and land owner name, address.

See Table 5.15-1 for a list of confined animal operations along with the type of animal, estimated number of animals, and landowners within 0.5-mile of the Project Area.

4.2.16.5 All sensitive sites, including schools, daycares, hospitals, nursing homes, places of worship, and cemeteries within and up to one mile of the project area boundary (point). Include facility name, ownership name, and address.[6]

All other buildings within and up to 300 feet of the project area boundary (point). Include type of building.

4.2.17 All known/mapped culverts within the project area boundary (line).

4.2.18 All known/mapped drainage system features (e.g., field drains and ditches, main district drain, drain laterals) within the project area boundary (line).

4.2.19 All public lands within and up to two miles of project area boundary

(polygon).

4.2.20 All participating properties enrolled in the Conservation Reserve Program within the project area (polygon). Information would be dependent on authorization from landowners to release CRP information. Work with PSC staff if any information is considered sensitive and/or confidential.

4.2.21 All properties known to be enrolled in a conservation easement within the project area boundary (polygon). Include entity that holds rights to conservation easement (e.g., state/federal government, private land trust, etc.).

4.2.22 All communication infrastructure in and near the project area boundary (point). Include radio, television, and microwave towers, and any NEXRAD or Doppler weather radar installations located within and up to one mile of the project area.

4.2.23 All public and private airport runways and landing strips within and up to 10 miles of the project area boundary (point). Include facility name and public status.

4.2.24 Land cover/Vegetative communities within the project area boundary (polygon). Include acreages of each dissolved land type. Do not use obsolete DNR Land Cover data. See Section 5.3.

4.2.25 Land cover within each fenced area (polygon). Include acreages of each dissolved land type identified by fence area number. Do not use obsolete DNR Land Cover data. See Section 5.3.

4.2.26 Local zoning designations within and up to one mile of the project.

4.3 Photo Simulations

Photo simulations are required. Simulations should seek to provide an accurate representation of what the project area would most likely look like after the project is completed. In order to be certain that any photo simulations provided in an application will be useful, please consult with PSC staff before preparing and submitting photos.

Photo simulations for six locations around the Project Area are included in **Appendix L**. Commission staff consultations were conducted electronically and photo simulation locations approved Tuesday, November 23, 2022.

Photo locations were selected to represent areas frequented by the public and provide a representative view of the Project from different parts of the Project Area. The locations were chosen near areas where arrays were on one or both sides of the highway and/or near residences. Other locations are along other major roads that travel by concentrated array areas in the northern and southern parts of the Project. The specific vantage point for each photo was selected for good visibility of the proposed Project.

Photos were taken at each location using a digital camera set to an effective focal length of approximately 50mm to best reflect the experience of a person standing at the photo location. A model of the existing topography and proposed infrastructure was then used to generate renderings simulating the view after construction of the Project. A map of the photo locations, and both the raw images (existing conditions) and rendering of the proposed condition are included in **Appendix L**. High-resolution raster image files have been provided to the PSC electronically.

5.0 Natural and Community Resources, Description and Potential Impacts

5.1 Site Geology

5.1.1 Describe the geology of the project area.

The Project Area is in the Central Lowland Province of the Interior Plains Physiographic Region.[7] The Central Lowlands span over North Dakota, Minnesota, Wisconsin, Michigan, South Dakota, Iowa, Illinois, Indiana, Nebraska, Kansas, Missouri, Oklahoma, and Texas, and encompasses the proposed Project site in Fond du Lac and Winnebago Counties, Wisconsin. According to the National Park Service, the Central Lowlands province is the largest of the physiographic provinces in the contiguous United States, with many features extending into Canada. The Central Lowlands are largely covered in Pleistocene-aged glacial deposits underlain by Paleozoic sandstones, shales, limestones, conglomerates, and coals.[8]

Bedrock geology beneath the Project Area is mapped within the Sinnipee Group. The Sinnipee Group is Ordovician in age and primarily consists of dolomite with some limestone and shale. No fault lines are mapped within the Project Area.

According to the USGS Karst Hazard Potential in the United States,[9] the Project Area is mapped within an area for karst potential due to carbonate rocks buried under less than 50 feet of glacially derived insoluble sediments in a humid climate. The USGS Karst Map of the Conterminous United States[10] also maps the Project Area as an area with karst potential due to Carbonate

[7] United States Geological Survey (USGS). 1946. Physiographic divisions of the conterminous U.S. Accessed from: https://water.usgs.gov/GIS/metadata/usgswrd/XML/physio.xml. Accessed January 2023.

[8] National Park Service (NPS). 2022. Physiographic Provinces: Central Lowland Province. Accessed from: https://www.nps.gov/articles/centrallowlandprovince.htm?utm_source=article&utm_medium=website&utm_campaign=experience_more&utm_content=small. Accessed January 2023.

[9] Weary, D.J., and Doctor, D.H. 2014. Karst in the United States: A digital map compilation and database: U.S. Geological Survey Open-File Report 2014–1156, 23 p. https://doi.org/10.3133/ofr20141156. ISSN 2331-1258 (online)

[10] United States Geologic Survey (USGS). 2020. Karst Map of the Conterminous United States – 2020. Available online at: https://www.usgs.gov/media/images/karst-map-conterminous-united-states2020 .

(limestone/dolomite) bedrock. Historic well log data in the project area shows that sandstone and limestone bedrock is typically encountered at depths ranging from 20 to 50 ft bgs. [11]

Based on the USDA Web Soil Survey Data, three major soil units are mapped on site in addition to a number of minor units:

- **Lomira silt loam** is described as loess over calcareous loamy till and is classified as a lean clay (CL).
- **Pella silty clay loam** is described as silty drift over loamy till and is classified as a fat clay (CH).
- **Pella silt loam** is described as silty glaciofluvial deposits over calcareous lacustrine deposits and is classified as silt (ML).

Surficial soils are mapped as Lean Clay (CL), Elastic Silt (MH), Silt (ML), or Peat (PT) according to the Unified Soil Classification System (USCS).

5.1.2 Geotechnical report on soil conditions.

Silver Maple commissioned Westwood to perform a preliminary geotechnical investigation for the Project. The geotechnical investigation was performed between April 11 and April 21, 2022. The purpose of the geotechnical investigation was to explore subsurface conditions and conduct field and laboratory testing to support preliminary foundation, civil, and electrical design efforts for the Project. The geotechnical investigation report is in **Appendix M**.

5.1.2.1 Provide a summary of conclusions from any geotechnical report or evaluation of soils in the project area including:

- Results of soil borings including a review of soil bearing capacity and soil settlement potential.

Fifteen soil test borings were performed within the Project Area. Fourteen borings were conducted in the solar array areas to a target depth of 20 feet below ground surface (bgs) or auger refusal. One soil test boring was conducted in the Project substation area to a target depth of 40 feet bgs or auger refusal. At each boring location, a 2-foot split spoon sample was taken as the first sample. Following the first sample, soil samples were collected every 2.5 feet in the upper 15 feet and every 5 feet thereafter.

Based on the conditions encountered at the soil boring, the general stratigraphic profile is described as follows:

Topsoil

[11] Wisconsin Department of Natural Resources (WDNR). 2022a. Well Construction Information (Well Records) Accessed from: https://dnr.wisconsin.gov/topic/Groundwater/Data.html. Accessed January 2023.

The borings performed in this investigation were located in active agricultural fields and an approximately 1-to-2-foot layer of tilled soil was generally observed throughout all borings. The depth of this tilled layer is expected to vary with time and agricultural practices. The tilled layer consisted of brown to dark brown, damp, clayey material intertwined with organic material. Desktop soil mapping broadly describes topsoil on-site to range from approximately 6-12 inches.

Lean Clay, Lean Clay with Sand, Lean Clay with Gravel, Sandy Lean Clay, Sandy Lean Clay with Gravel, Gravelly Lean Clay, Silty Clay with Gravel (CL, CL-ML).

Underlying the topsoil at most boring locations was lean clay with varying amounts of sand and gravel. The clay was typically brown to dark brown, damp to wet, and medium stiff to hard.

Clayey Sand, Clayey Sand with Gravel, Poorly Graded Gravel, Poorly Graded Gravel with Clay and Sand (SC, GP, GP-GC).

Underlying and occasionally interbedded within the clay were layers of clayey sand with varying amounts of gravel or poorly graded gravel with varying amounts of clay and sand. These coarser-grained units were typically various shades of brown (sand) or gray (gravel), damp to wet, and medium dense to very dense. Cobbles were occasionally observed in this layer.

- Results of soil borings and test pits for site Evaluation for Storm Water Infiltration (Wisconsin Technical Standard 1002).

Infiltration testing is not necessary at this time since no infiltration basins are being proposed. Planting meadow grass or other vegetation filter BMPs beneath the arrays is anticipated to meet infiltration requirements. Additional geotechnical information may be needed if the Project substation or parking areas are determined to be in or near soil that is suitable for an infiltration BMP. Silver Maple will continue working with the WDNR to meet infiltration requirements as engineering plans are finalized.

- Depths to seasonal high groundwater.

Boreholes were observed during and shortly after drilling for the presence of groundwater. During the investigations, a static groundwater level was observed at 11 boring locations, ranging in depth from 5 to 17.5 ft bgs. It should be noted that a clayey subsurface profile does not lend itself to accurate short-term groundwater level measurements and fluctuations in water table depth should be expected. Local well logs noted static ground water levels at depths ranging from 20 to 60 ft bgs.

- Results of any infiltration rate measurements, such as for permanent storm water infiltration basins or other practices.

As described above, infiltration testing is not necessary at this time.

- Identify any soil conditions related to site geology that might create circumstances requiring special methods or management during construction.

Conventional driven pile foundations may be feasible to support the PV racking systems across portions of the Project Area; however, difficult pile driving conditions and shallow refusals could occur in some areas due to the presence of subsurface obstructions such as gravel, cobbles, and boulders or possible shallow bedrock. Alternative foundation types or methods, such as pre-drilling holes and backfilling with soil cuttings or concrete, may be necessary to achieve sufficient embedment depth.

The clayey overburden soil encountered in the Project Area, particularly within the tilled crop fields, may be weak. Shallow spread footings and mat foundations will be designed to bear a minimum one foot below the ground surface and on non-frost susceptible structural fill extending to a minimum depth of 4 feet below surrounding grade to minimize the effects of differential movement.

Shallow foundations, such as large slab-on-grade equipment foundations (i.e., 10 to 20 feet wide) and conventional spread and strip footing foundations (i.e., 4 feet wide) bearing on properly compacted non-frost susceptible structural fill as defined in the geotechnical investigation report (**Appendix M**) may be designed for an allowable bearing capacity of 1,750 pounds per square foot (psf).

The shallow clayey material is generally considered adequate subgrade for access roads. A minimum of 9 inches of aggregate is recommended on access roads, and consideration should be given to incorporating geosynthetic reinforcement to improve performance and limit rutting when saturated.

5.1.2.2 Depth to bedrock

Based on local geologic mapping and the results of the geotechnical borings, the depth to bedrock in the Project Area is generally expected to range between approximately 20 and 50 feet. Bedrock within the Project Area is classified as limestone and sandstone.

- Identify any sites where panel supports or foundation construction must be modified because of the presence of bedrock.

It is expected that PV modules will be supported by steel racking systems mounted on driven steel wide-flange (W-section) pile foundations, which generally appears feasible based on the subsurface conditions encountered during the geotechnical investigation. Conventional driven pile foundations are anticipated to support the PV racking systems across portions of the Project Area; however, difficult pile driving conditions and shallow refusals could occur in some areas due to the presence of subsurface obstructions such as gravel, cobbles, and boulders or possible shallow bedrock. Alternative foundation types or methods, such as pre-drilling holes and backfilling with soil cuttings or concrete, may be necessary to achieve sufficient embedment depth.

Additional geotechnical investigation and analysis will be completed during final engineering.

- Describe construction methods and foundation issues associated with situations where bedrock formations are near the surface.

The preliminary geotechnical investigation did not identify bedrock formations near the surface. The geotechnical investigation has generally revealed no subsurface conditions that would preclude development of the proposed solar energy facility, although auger refusal was encountered during a limited number of borings. However, a comprehensive geotechnical investigation with pile load testing will be performed to verify the conditions and provide recommendations for final design.

- Discuss the likelihood or potential that construction on bedrock formations may negatively impact private wells within two miles of solar array sites.

Impacts to private wells within two miles of the solar array areas is not anticipated. If bedrock formations or boulders are encountered during the final geotechnical evaluation, measures such as pre-drilling or alternative foundations may be necessary. If bedrock is encountered during construction, preventative measures will be taken to prevent construction-related contaminants such as fuel and hydraulic fluid from reaching local groundwater.

5.2 Topography

5.2.1 Describe the general topography of the project area.

The existing topography within the Project Area is generally flat east of State Highway 26, while the portion west of the highway is characterized by gently rolling hills transitioning to a depression in the southwest portion of the Project Area. Elevations in the Project Area range from approximately 850 to 920 feet above mean sea level (amsl).

5.2.2 Describe expected changes to site topography due to grading activities.

The Project will be designed to use the existing topography to the extent practicable in order to minimize the amount of grading. Grading changes to the existing topography that would affect land use, water inflow/outflow directions from the site, and flow rates impacting erosion on or off the site, will be minimized in the engineering process. Cut/fill and associated blending of the site will be required in areas, pending final engineering design, but will not change the overall nature of the topography on the site. Preliminary cut/fill and earth movement quantities are provided in this application, and are subject to final design engineering. Erosion control and stormwater management on the site will comply with WPDES permit requirements. A preliminary ECSWMP is provided in **Appendix H.**

5.3 General Project Area Land Cover

The Project is located in a predominantly rural agricultural landscape. Land cover is dominated by row/traditional agricultural crops. Areas not used for agriculture consist of wetlands and upland woodlands. Table 5.3-1 summarizes the land cover types within the Project Area. Figure 4.1.7.4 in **Appendix A** provides an overview of the land cover within the Project Area.

Land cover within the Project Area was initially mapped using Wiscland 2.0 Land Cover Data. The accuracy of WLCD data was compared to existing conditions during the field investigations

in the spring and fall of 2021. The WLCD was also compared to 2020 NAIP photography to further evaluate current land cover conditions within the Project Area. Based on these reviews it was found the WLCD differed slightly from existing conditions on the ground. Using the WLCD shapefile, Westwood digitized land cover using GIS software to make a more accurate representation of current land cover within the Project Area. In addition, results of field delineations of wetlands and waterways were substituted for WLCD wetland land cover categories. This revised land cover shapefile was used to quantify existing conditions into the categories shown in Table 5.3-1.

Table 5.3-1: Estimated Land Cover Types Within Project Area

Land Cover Type	Proposed Array Area		Alternative Array Area		Project Area	
	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total
Agricultural						
Row/traditional crops	878.2	40.2	388.0	17.8	1,764.5	80.7
Non-Agricultural Upland						
Prairie/grasslands/ pasture/fallow field	1.8	0.1	0.0	0.0	28.3	1.3
Upland forest	3.5	0.2	7.3	0.3	36.5	1.7
Wetlands						
Wet meadow	0.4	0.0	0.0	0.0	131.2	6.0
Floodplain forest	0.0	0.0	0.0	0.0	1.1	0.1
Seasonally flooded basin	5.8	0.3	0.0	0.0	65.8	3.0
Shallow open water	0.0	0.0	0.0	0.0	2.7	0.1
Shrub-carr	0.0	0.0	0.0	0.0	27.0	1.2
Shallow marsh	0.2	0.0	0.0	0.0	50.1	2.3
Hardwood swamp	0.0	0.0	0.0	0.0	37.9	1.7
Waterways						
Ephemeral	0.0	0.0	0.0	0.0	1.6	0.1
Perennial	0.0	0.0	0.0	0.0	7.6	0.3
Excavated Pond	0.0	0.0	0.0	0.0	0.0	0.0
Intermittent	0.0	0.0	0.0	0.0	13.3	0.6
Developed						
Residential	0.0	0.0	0.0	0.0	0.0	0.0
Commercial/Industrial	0.0	0.0	0.0	0.0	0.0	0.0
Roads (gravel and paved)	6.7	0.3	0.0	0.0	20.1	0.9
Array Area Subtotal	896.5	41.0	395.4	18.1	2,187.7	100.0
Total Area Outside Array Areas	**895.6**		**0.0**		**0.0**	
Total[3]	**1,792.1**		**395.4**		**2187.5**	

Land Cover Type	Proposed Array Area		Alternative Array Area		Project Area	
	Acres	Percent of Total	Acres	Percent of Total	Acres	Percent of Total

[1] A total of 314.9 acres of wetland and 22.5 acres of waterways were delineated in April 2021, September 2021, and August 2022, which represents approximately 15.4 percent of the Project Area.
[2] Developed land includes gravel and paved roads and maintained rights-of-way. It also includes non-native grassland/herbaceous vegetation found within the road rights-of-way.
[3] The totals shown in this table may not equal the sum of addends due to rounding. Land cover wetland/waterway acreage is the combined acreage of field-delineated wetlands and waterways. Due to coordinate system conversions, wetland/waterway totals vary by <1 acre between this and delineation data.

5.3.1 Identify and describe the landscape within the general project area, including a list of dominant plants in the land cover categories listed in this section. Land cover may be based on GIS data, recent aerial imagery, and/or on-site evaluation not greater than two years old.

5.3.1.1 Agricultural

- Row/Traditional crops
- Specialty crops/Other
- Prime Farmland

Agriculture is the predominant land cover type, encompassing 80.7 percent (1,764.5 acres) of the Project Area and consists of corn and soybean fields. Specialty crops include fruits and vegetables, tree nuts, dried fruits, horticulture, and nursery crops, including floriculture.[12] Specialty crops can be cranberry bogs, vineyards, ginseng, orchards, and tree farms. No specialty crops were identified during the three wetland delineation field investigations on April 19-22, 2021, September 20-22, 2021, and August 22-25, 2022. No organic farms were identified within the Project Area or within two miles of the Project Area.[13]

As shown in Table 5.3-2, approximately 42.7 percent of the soils in the Project Area are classified as prime farmland, 50.6 percent as prime farmland if drained, and 4.9 percent as other farmland of statewide importance.

Table 5.3-2: Farmland Classification

Soil Map Unit	Soil Map Name	Rating	Acres in Project Area [1]	Percent in Project Area
AtA	Atterberry silt loam, 0 to 3 percent slopes	Prime farmland if drained	11.2	0.5
BsA	Brookston silt loam, 0 to 2 percent slopes	Prime farmland if drained	23.8	1.1

[12] USDA Agricultural Marketing Service. 2022. Specialty Crop Program. Available at: https://www.ams.usda.gov/services/grants/scbgp/specialty-crop. Accessed November 2022.
[13] USDA. 2022. Organic Integrity Database. Available at: https://organic.ams.usda.gov/integrity/ Accessed January 2023.

Table 5.3-2: Farmland Classification

Soil Map Unit	Soil Map Name	Rating	Acres in Project Area [1]	Percent in Project Area
CgB	Casco loam, loamy subsoil variant, 0 to 6 percent slopes	All areas are prime farmland	0.0	0.0
EbA	Elburn silt loam, 0 to 3 percent slopes	Prime farmland if drained	9.0	0.4
FsA	Fox silt loam, 0 to 2 percent slopes	All areas are prime farmland	1.7	0.1
FsB	Fox silt loam, 2 to 6 percent slopes	All areas are prime farmland	10.5	0.5
GP	Gravel pit	Not prime farmland	0.0	0.0
HmE	Hochheim loam, 20 to 30 percent slopes	Not prime farmland	0.6	0.0
Hu	Houghton muck, 0 to 2 percent slopes	Farmland of statewide importance	0.3	0.0
KuA	Kibbie silt loam, 0 to 2 percent slopes	Prime farmland if drained	0.1	0.0
LmA	Lamartine silt loam, 0 to 3 percent slopes	Prime farmland if drained	33.4	1.5
LmB	Lamartine silt loam, 2 to 6 percent slopes	Prime farmland if drained	29.6	1.4
LrB	LeRoy silt loam, 2 to 6 percent slopes	All areas are prime farmland	90.6	4.1
LrB2	LeRoy silt loam, 2 to 6 percent slopes, eroded	All areas are prime farmland	7.8	0.4
LrC2	LeRoy silt loam, 6 to 12 percent slopes, eroded	Farmland of statewide importance	16.3	0.7
LtC3	LeRoy soils, 6 to 12 percent slopes, severely eroded	Not prime farmland	20.4	0.9
LtD3	LeRoy soils, 12 to 20 percent slopes, severely eroded	Not prime farmland	4.0	0.2
LvA	Lomira silt loam, 0 to 2 percent slopes	All areas are prime farmland	6.7	0.3
LvB	Lomira silt loam, 2 to 6 percent slopes	All areas are prime farmland	273.4	12.5
LvB2	Lomira silt loam, 2 to 6 percent slopes, eroded	All areas are prime farmland	463.3	21.2
LvC2	Lomira silt loam, 6 to 12 percent slopes, eroded	Farmland of statewide importance	21.4	1.0
LvC3	Lomira silt loam, 6 to 12 percent slopes, severely eroded	Not prime farmland	10.8	0.5
LvD3	Lomira silt loam, 12 to 20 percent slopes, severely eroded	Not prime farmland	1.3	0.1
MoB	Mayville silt loam, 2 to 6 percent slopes	All areas are prime farmland	20.5	0.9
Os	Ossian silt loam	Prime farmland if drained and either protected from flooding or not frequently	134.5	6.1

Table 5.3-2: Farmland Classification

Soil Map Unit	Soil Map Name	Rating	Acres in Project Area [1]	Percent in Project Area
		flooded during the growing season		
Pa	Palms muck, 0 to 2 percent slopes	Farmland of statewide importance	6.8	0.3
Pc	Palms mucky peat, 0 to 2 percent slopes	Farmland of statewide importance	63.3	2.9
PhA	Pella silt loam, 0 to 2 percent slopes	Prime farmland if drained	291.5	13.3
PnA	Pella silty clay loam, cool, 0 to 2 percent slopes	Prime farmland if drained	506.8	23.2
ScA	St. Charles silt loam, 0 to 2 percent slopes	All areas are prime farmland	30.8	1.4
ScB	St. Charles silt loam, 2 to 6 percent slopes	All areas are prime farmland	28.5	1.3
VgA	Virgil silt loam, 0 to 2 percent slopes	Prime farmland if drained	47.9	2.2
VgB	Virgil silt loam, 2 to 6 percent slopes	Prime farmland if drained	18.7	0.9
W	Water greater than 40 acres	Not prime farmland	1.9	0.1
Total			**2,187.5**	**100.0**

[1] The totals shown in this table may not equal the sum of addends due to rounding.

5.3.1.2 Non-Agricultural upland

- Prairie/Grasslands/Pasture/Fallow field
- Upland forests

Non-agricultural upland within the Project Area consists primarily of untilled edges and corners of agricultural fields, pasture, grassland, forest, and roadside ditches. Grassland and pasture comprise 28.3 acres (1.3 percent), and upland forest comprises 36.5 acres (1.7 percent) within the Project Area and primarily consists of four upland forested tracts in the Project Area.

5.3.1.3 Wetlands (Eggers and Reed classification type)

A total of 63 wetlands were field identified on April 19-22, 2021, September 20-22, 2021, and August 22-25, 2022. Delineated wetlands comprise 314.9 acres of the Project Area. Seasonally flooded basin (65.8 acres), wet meadow (131.2), shallow marsh (50.1 acres), shallow open water (2.7), shrub-carr (27.0), floodplain forest (1.1), and hardwood swamp (37.9) wetland types were identified. Section 8.2 further describes the delineated wetlands and waterways.

5.3.1.4 Developed land

- Residential
- Commercial/Industrial

There is one single family home with associated outbuildings that is included within the Project Area. Other than this one farmstead, there are no developed residential or commercial/industrial lands within the Project Area. The Project Area includes approximately 20.1 acres (0.9 percent) of other developed land, including gravel and paved roads and maintained rights-of-way, and non-native grassland/herbaceous vegetation found within the road rights-of-way.

5.4 Land Cover Impacted by Proposed Project Facilities

Complete the PSC Solar Impact Table (comprised of 2 tabs) provided with these AFRs. Provide the tables in Microsoft Excel format and PDF. The PSC Solar Impact Table (comprised of 2 tabs) has instructions on completion and the type of information needed located in footnotes. Generally, the applicant should provide information on impacts by facility type on Tab 1 and by proposed and alternative fenced array areas with unique identifiers (e.g., number) for each fenced array area in Tab 2. Provide the estimated power capacity (MW) for each fenced array area. Provide land cover impacts for each solar panel fenced array area.

The PSC Solar Impact Table includes two worksheets titled PSC AFR Table_1_all_facilities (Tab 1) and PSC AFR Table_2_fenced-arrays (Tab 2). Tab 1 includes Table 1 – Land Cover Impact Table by Facility that provides information on impacts by facility type. Tab 2 includes Table 2 – Land Cover Impact Table by Fenced Array Area.

Information on impacts by facility type (collector circuits, access roads, substation, O&M Facility, interconnection lines, point of interconnect switchyard, and laydown yard) for the Proposed and Alternative Array Areas are provided in Tab 1. Land cover impacts by fenced array area, including estimated power capacity (MW), and Proposed and Alternative Array Areas with unique identifiers are provided in Tab 2. The PSC Solar Impact Table is in **Appendix N**.

5.5 Invasive Species

5.5.1 Describe locations where invasive species, forest pests, or diseases have been observed in the project area (e.g., invasive plants, oak wilt, etc.). State if invasive species surveys have occurred or would be conducted. If invasive species surveys have been conducted, provide documentation showing where surveys occurred and locations of invasive species found, indicating which species.

During the 2021 and 2022 field wetland delineations conducted by Westwood, invasive and non-native plant species were observed and documented in the Wetland Delineation Data Forms found in Appendix A of the Wetland Delineation Report (**Appendix O**). The majority of listed invasives were found in planted agricultural fields, field margins, pastures, roadside ditches, and wetlands. Table 5.5-1 lists the invasive plant species observed during the field surveys and their status as regulated or non-regulated invasive species. Regulated species currently have legal restrictions under the Invasive Species Rule, Wis. Admin. Code Ch. NR 40. Non-regulated species currently are not regulated by Chapter NR 40.[14]

[14] WDNR. Wetland Invasive Species. Available at: https://dnr.wi.gov/topic/Invasives/species.asp?filterBy=Wetland&filterVal=Y. Accessed November 2022.

Table 5.5-1: Regulated and Non-Regulated Invasive Species Observed

Scientific Name	Common Name	Regulated
Phalaris arundinacea	Reed canary grass	No
Typha x glauca	Hybrid cattail	Yes
Typha angustifolia	Narrowleaf cattail	Yes
Rhamnus cathartica	Common buckthorn	Yes
Cirsium arvense	Canada thistle	Yes
Alliaria petiolata	Garlic mustard	Yes
Arctium minus	Common burdock	No
Bromus inermis	Smooth brome	No

As described in the preliminary Vegetation Management Plan (**Appendix P**), Section 5.2, Silver Maple Solar intends to conduct a field review of invasive species prior to construction, and will incorporate the results of that review into the final Vegetation Management Plan, if necessary.

5.5.2 Describe mitigation actions during construction that would be used to prevent the introduction or spread of invasive species, forest pests, or diseases.

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 PV panels and solar facility infrastructure. Invasive species management for the Project may consist of spot cutting, mowing, and herbicide treatments.

Construction equipment that comes in contact with field-verified invasive species areas will be cleaned of potential weed and invasive species reproductive parts prior to entering the Project Area. Similarly, equipment will be cleaned after all work events in the Project Area. Cleaning can occur off-site at a designed cleaning station or facility, or a cleaning station constructed in the Project Area. Cleaned equipment should always be inspected to ensure removal of all vegetative matter

5.5.3 Describe planned ongoing invasive species monitoring and management for the project during operations.

Routine post-construction monitoring will include surveys for invasive species for the first five years, and as needed throughout the life of the Project.

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Routine maintenance and weed control will prevent more rapidly growing non-native and invasive weed species from establishing. Mowing practices described in the preliminary Vegetation Management Plan will be used to help keep undesirable vegetation and weed species at a reduced height and prevents them from blooming and setting seed. Spot spraying of herbicides may 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. Herbicides will only be used by trained and licensed professional in accordance with product labels.

5.6 Vegetation Management and Site Restoration

5.6.1 Provide a vegetation removal plan that discusses the types and locations where vegetation would be removed (e.g., herbaceous, agricultural crop clearing, shrub/forest clearing, etc.), the timing of vegetation removal, and the equipment to be used.

The Project's preliminary Vegetation Management Plan (VMP) is included in **Appendix P**. Additional details about vegetation removal, timing, and equipment can be found in the VMP.

Approximately 7.3 acres of upland forest are located within three Alternative Array Areas and approximately 3.9 acres of upland forest are associated with five Proposed Array Areas (see PSC Table 2 in **Appendix N**). If these areas are used for the Project, clearing will only occur within the solar array fence areas and would exclude delineated wetlands. Based on the conceptual design, the forested areas include solar arrays, access roads, inverters, and underground collection lines. The forested areas proposed to be cleared are dominated by burr oak (*Quercus macrocarpa*), red oak (*Q. rubra*), American elm (*Ulmus americana*), quaking aspen (*Populus tremuloides*) sugar maple (*Acer saccharum*), box elder (*A. negundo*), black cherry (*Prunus serotina*), and paper birch (*Betula papyrifera*).

Trees will be removed using heavy equipment. Prior to clearing and where applicable, perimeter BMPs will be installed to minimize issues with erosion from the removal of vegetation. Cut logs will be cleared and chipped or burned on-site to limit the risk of spreading forest pests or diseases such as emerald ash borer or oak wilt. The cleared areas will be stabilized and revegetated with permanent seed mixes detailed in the preliminary VMP **Appendix P**.

5.6.2 Provide a detailed revegetation and site restoration plan that discusses the following items. If site specific details are not finalized at the time of application, describe the concepts to be used and a methodology for discussing impacts with PSC and DNR staff:

5.6.2.1 Types of revegetation proposed for impacted areas.

Upon completion of construction, all disturbed areas will be seeded with a perennial seed mix that complies with Wis. Admin. Code § ATCP 20.01(27) related to prohibited noxious weed seeds. Permanent seeding will comply with WDNR Conservation Practice Standard 1059 Seeding for Construction Site Erosion Control. Mulch, if used, will comply with the WDNR Conservation Practice Standard 1058 Mulching for Construction Sites as outlined in the preliminary VMP (**Appendix P**).

5.6.2.2 Provide seed mixes, or example seed mixes if not known at time of application, and if seed mixes would be pollinator friendly.

The proposed mixes are composed of various native grasses and forb or wildflower species. The species selected provide food for all 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 been selected on their growth size, composition, and ability to thrive under a wide array of site conditions.

Proposed temporary and permanent seed mixes are provided in Section 6.0 of the preliminary VMP (**Appendix P**). A description of the mixes and installation location is provided below. Proposed seeding locations are dependent on the final design (e.g., distance between panels, fence placement, etc.). Four permanent seed mixes are proposed for the Project:

1. Solar Array Mix – a native mesic prairie seed mix composed primarily of low growing grass and sedge species that is designed to be installed beneath the arrays. 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.
2. Pollinator Mix – a native mesic prairie seed mix composed of a wide variety of grasses, sedges, and forbs that is designed to be installed outside a 20-foot buffer from the arrays. The mix is intended to promote pollinator species diversity, with flowering species over each of the three blooming periods (spring, summer, and fall), along with native bunch grasses and sedges that provide habitat to pollinators and other wildlife.
3. Stormwater Basin Mix – a seed mix composed of grasses, sedges, rushes, and forbs and is intended for areas of higher moisture and occasional inundation, such as the permanent sedimentation basin. 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).
4. Unused Agricultural Land Seed Mix – a seed mix composed of a wide variety of grasses and forbs that is intended to promote grassland habitat to pollinators and other wildlife. This seed mix is composed of taller species (24 to 60 inches) that can thrive in a wide variety of soil and environmental conditions. The mix is intended for areas of varying moisture and occasional inundation, such as the local depressions and hills. These seeds 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 native plants as they establish themselves.

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 – native to the region, low-growing, local-origin, pollinator friendly and if applicable, the same blooming category.

5.6.2.3 Vegetation monitoring and management protocols for subsequent years after construction. Include expected timing of actions such as mowing.

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. The Project will be monitored annually during the five-year establishment period. Monitoring will influence maintenance and vegetation management needs across the Project Area.

Mowing is an essential tool in the establishment of native vegetation proposed for revegetating the solar 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 spot mowing should be repeated as needed to keep undesired weed species from crowding or going to seed. A minimum of two mowing events per year should occur during the first two years. Triggers for these mowing events include when non-native species reach a height of around 12 to 18 inches or begin flowering. 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 should be established and there is less risk of weed growth. For all seed mixes, except Unused Agricultural Seed Mix, mowing will likely continue to occur at least once per year, or spot mowing to target only specific areas of weed growth. An alternative to mowing is grazing as numerous projects have started using sheep to replicate the same process. In years 3-5, the Unused Agricultural Seed Mix areas should be monitored and mowed annually if needed. Once vegetation is fully established past year five, mowing can occur every other year between October and March, or as needed based on monitoring.

Further details regarding monitoring and maintenance, including mowing and spot-herbicide treatments, are included in Section 7.0 of the preliminary VMP (**Appendix P**.)

5.6.2.4 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 solar panels and solar facility infrastructure.

Invasive species management will be conducted as needed to:

- Minimize the spread of invasive species from existing populations if present;

- Prepare the seeding areas for permanent vegetation to reduce competition and improve establishment and success of the permanent seed mixes; and
- Reduce vegetation impacts to the PV panels and solar facility infrastructure. Flowering non-native species that are not considered invasive and do not have heights that would interfere with the Project operations will not be actively managed.

Vegetation management equipment and implements will be cleaned of potential weed and invasive species reproductive parts prior to entering the Project Area. Similarly, equipment will be cleaned after all work events in the Project Area. Cleaning can occur off-site at a designed cleaning station or facility, or a cleaning station constructed in the Project Area. Cleaned equipment will be inspected to ensure removal of all vegetative matter.

Invasive species management, including herbicide treatments, is further discussed in Section 5.2 of the preliminary VMP (**Appendix P**).

5.7 Wildlife

Wildlife habitat found within and surrounding the Project Area was identified based on desktop habitat review, field investigations and observations, and state and federal information on threatened and endangered species.

In addition, Westwood prepared a Site Characterization Study ("SCS") for the Project in support of preparation of this Application. The purpose of the SCS is to characterize the existing conditions and biological resources on the site and to evaluate the likelihood of occurrence in the Project Area of species identified in the ERR and IPaC. The SCS is in **Appendix Q.**

5.7.1 Describe existing wildlife resources and estimate expected impacts to plant and animal habitats and populations.

The Project Area consists of mostly agricultural land, with inclusions of forest, grassland/hay/pasture, and field delineated wetlands and waterways that provide suitable habitat for a variety of common Wisconsin wildlife and plant species. The online database iNaturalist was consulted for species typical of the region.

5.7.1.1 Mammals

As detailed in Section 5.3, the Project Area is dominated by cultivated crops (80.7 percent), including corn and soybean fields. Corn and soybeans are annual cover types that are typically used by a few common wildlife species on a limited seasonal basis. Species that may use agricultural land include white-tailed deer (*Odocoileus virginianus*), small mammals such as mouse [Family Muridae] and vole [Family Cricetidae] species, raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), coyote (*Canis latrans*), and groundhog (*Marmota monax*).

Grassland and forested areas may be used by white-tailed deer, cottontail rabbit (*Sylvilagus floridanus*), squirrels [Family Sciuridae], Virginia opossum (*Didelphis virginiana*), and red fox (*Vulpes vulpes*).

Wetland habitat within the Project Area may be used by mammalian species such as American beaver (*Castor canadensis*), mink (*Neovison vison*) and muskrat (*Ondatra zibethicus*).

5.7.1.2 Birds

Familiar bird species that will utilize open fields and agricultural areas as foraging and resting grounds include Canada Goose (*Branta canadensis*), Turkey Vulture (*Cathartes aura*), Red-tailed Hawk (*Buteo jamaicensis*), Wild Turkey (*Meleagris gallopavo*), American Crow (*Corvus brachyrhynchos*), Common Grackle (*Quiscalus quiscula*), American Robin (*Turdus migratorius*), and American Goldfinch (*Spinus tristis*).

Though wetlands in the Project Area are of limited habitat quality for wetland-dependent birds, species that may be encountered include Mallard (*Anas platyrhynchos*), Red-winged Blackbird (*Agelaius phoeniceus*), and Common Yellowthroat (*Geothlypis trichas*).

Forest and woodland patches and riparian areas within the Project Area may support Downy Woodpecker (*Dryobates pubescens*), Hairy Woodpecker (*D. villosus*), Blue Jay (*Cyanocitta cristata*), Northern Cardinal (*Cardinalis cardinalis*), Indigo Bunting (*Passerina cyanea*), Black-capped Chickadee (*Poecile atricapillus*), White-breasted Nuthatch (*Sitta carolinensis*), and Eastern Phoebe (*Sayornis phoebe*).

5.7.1.3 Reptiles

Reptile species known to use agriculture habitats include the common garter snake (*Thamnophis sirtalis*) and eastern fox snake (*Pantherophis vulpinus*).

Though open water is limited in the Project Area, species may inhabit the wetland and open water areas in the Project Area, including the aforementioned species, the painted turtle (*Chrysemys picta*), and common snapping turtle (*Chelydra serpentina*).

5.7.1.4 Amphibians

Most amphibian species that may occur are likely limited to non-agricultural areas, wetlands, and riparian habitats within the Project Area. Amphibian species known to occur in Fond du Lac and Winnebago Counties and that may occur within the Project Area include the American toad (*Anaxyrus americanus*), gray treefrog (*Hyla versicolor*), green frog (*Lithobates clamitans*), northern leopard frog (*Lithobates pipiens*), and tiger salamander (*Ambystoma tigrinum*). The northern leopard frog and American toad are also known to use agricultural habitats.

5.7.1.5 Fish

Fish may inhabit some of the streams and ponds within the Project Area. As the waterways within the Project Area are small, it is unlikely that they are surveyed for species composition;

however, common species such as fathead minnow (*Pimephales promelas*) and golden shiner (*Notemigonus crysoleucas*) could be present.[15]

Anticipated Impacts

The Project is anticipated to have minimal impact on wildlife species and their preferred habitats since the majority of the Project Area consists of active agriculture. No significant wildlife habitat is expected to be lost as a result of Project construction. After construction is complete, Silver Maple will revegetate the Project with diverse flowering plants and grasses to provide habitat for pollinators and other wildlife. It is anticipated that revegetation with a permanent cover of vegetation will maintain suitable habitat for a variety of wildlife species including pollinating insects, nesting birds, and small mammals.

During Project construction, wildlife within the construction areas may be temporarily displaced due to construction noise and human activity. The displacement will be a temporary impact and will occur mostly in areas that are currently used for row-crop production. Species using the woodland and wetland areas are unlikely to be negatively affected by Project construction, as the planned siting of facility infrastructure is mostly outside of these habitat types. The operational stage of the Project is expected to have a predominately positive impact on area wildlife. For example, once construction is complete, the majority of the Project Area will be disturbed less frequently than it was during row-crop farming practices. Also, the herbaceous habitat available under the panels and in the general Project Area will improve habitat stability and diversity compared to row-crop habitat. It should be noted that the perimeter fence may exclude some large mammals from entering the Project Area; most small mammals, birds, reptiles and amphibians will still be able to access this area, whether through or over the fence.

5.7.2 Wildlife pre-construction surveys. (See Habitat Surveys and Biological Assessments in the Introduction.)

Silver Maple coordinated with the WDNR and USFWS for the purpose of identifying potential sensitive species in the Project Area and to determine whether pre-construction wildlife surveys would be required for the Project.

On November 3, 2022, Westwood requested an updated WDNR ERR to identify any records of sensitive species or habitats within or near the Project Area (WDNR's standard one-mile buffer for terrestrial species and two-mile buffer for aquatic species). Silver Maple received a response from the WDNR on November 11, 2022 (ERR Log# 21-265, **Appendix R**). The WDNR ERR identified the presence of a Bald Eagle nest (*Haliaeetus leucocephalus*), federally protected under the Bald and Golden Eagle Protection Act (BGEPA), as having the potential to occur within the Project Area or surrounding region. The WDNR recommended time of year restrictions, surveys, and habitat assessments if the eagle nest is present and active. The DNR also identified [redacted] and [redacted] within or adjacent to the Project Area.

[15] Hook and Bullet. No date (n.d.). West Branch Fond du Lac River Fishing. https://www.hookandbullet.com/fishing-west-branch-fond-du-lac-river-fond-du-lac-wi/. Accessed January 2023.

A raptor stick nest survey was conducted on May 18 and 19, 2022 (**Appendix R**). The survey was performed to determine if eagle or other raptor nests are present within the Project Area and a 660-foot buffer. Surveys were focused in areas of potentially suitable habitat, including but not limited to, riparian corridors, scattered forested areas, and larger forested areas. No Bald Eagle nests were found within the Project Area or a 660-foot buffer. The raptor stick nest survey also failed to identify the presence of the WDNR-identified Bald Eagle nest.

The USFWS IPaC database was most recently queried on November 11, 2022 for the potential presence of federally listed threatened, endangered, and candidate species within or in the vicinity of the Project Area. The database identified the federally threatened [redacted], candidate species [redacted], federally [redacted], and [redacted] as potentially occurring within the Project Area or surrounding region. During the May 18-22, 2022 field visit, a habitat assessment was performed for these species to determine the likelihood of occurrence. These species and likelihood of presence are described in the SCS (**Appendix Q**).

A Westwood biologist conducted additional field reconnaissance for Silver Maple from April 19-22, September 20-22, 2021, and August 22-25, 2022, during field delineations of wetlands and waterways within the approximately 2,200-acre Project Area.

5.7.2.1 Provide a summary of pre-application consultation meetings held with DNR and/or USFWS for the purposes of determining whether or not any pre-construction wildlife studies would be required for the project.

On May 25, 2021, a pre-application consultation meeting for the Project was held by the WDNR, PSC, Westwood, and Silver Maple staff to introduce the project. Silver Maple provided a description of the Project and associated maps, outreach efforts, and the anticipated Project timeline. During this meeting, Project plans and activities around stormwater management, erosion and sediment control, drain tiles, and local engagement were discussed. The need for pre-construction wildlife studies was not discussed during the meeting; however, Westwood requested ERRs from the WDNR, reviewed species lists from the USFWS IPaC database, prepared a comprehensive Site Characterization Study, and conducted a field-based habitat assessment and stick nest survey to identify potential sensitive wildlife species in the Project Area.

5.7.2.2 If, after consultation with DNR or USFWS, wildlife pre-construction studies are required, provide the following:

- *A copy of the approved survey methodologies for any studies including the species of interest, dates of surveys, and a schedule for releasing data and reports to the PSC and DNR.*
- *Copies of all data collected for all pre-construction studies (data should be provided using a format acceptable to DNR and PSC staff).*
- *Final report/s or analyses prepared using the data collected.*

While no specific pre-construction wildlife surveys were identified during the pre-application meeting with the WDNR, as mentioned in Section 5.7.2, Westwood performed a raptor stick nest survey based on the eagle nest that was documented in the WDNR Endangered Resource Review (ERR) (see Section 5.8.1 for details on the ERR).

Westwood also performed a qualitative on-site habitat assessment of the Project Area. The habitat assessment provides additional details on vegetation and trees and provides information on habitat quality and quantity for threatened and endangered species and other special status species identified in IPaC and ERR (**Appendix Q**).

5.7.2.3 Provide any monitoring and response protocol for wildlife accessing the solar arrays.

Silver Maple is proposing to install an up to eight foot high deer fence around all array areas, the Project substation, and O&M building to prevent wildlife access. On-site staff will monitor the arrays for wildlife as they are completing their daily and/or weekly tasks within the arrays. If a wild animal does become trapped within the array, Silver Maple will coordinate with local and state authorities, if necessary, to assist with the safe removal of the animal.

5.8 Endangered Resources

Endangered resources include any state or federally listed species (e.g., threatened, endangered), special concern species, and/or natural communities. Location specific information for endangered resources is considered sensitive and should be filed confidentially on ERF with a public redacted version also provided. As the location is defined by the project area, all species names should be redacted or generalized to taxa group wherever referenced throughout all application materials. In addition, any required/recommended actions or no impact justification should also be redacted wherever referenced throughout all application materials.

5.8.1 Provide a copy of the completed ER screening and all supporting materials for all project areas, including all applicable components such as off-ROW access routes, staging areas, new substations, and expansion of existing substations.

An ERR request was initially submitted to the WDNR on March 26, 2021. The WDNR responded on April 22, 2021 (ERR Log#21-265). The ERR identified a bald eagle nest within one mile of the Project Area and potentially suitable habitat within the Project Area. The WDNR recommended human activity be avoided from January 15 – July 30 within 660 feet of an active eagle nest. The DNR also identified [redacted] and [redacted] within or adjacent to the Project Area.

An updated ERR request was submitted to the WDNR on January 7, 2022. The WDNR responded on January 13, 2022 with information that the bald eagle nest within one mile of the Project Area had dropped from the response. No other species records were identified.

An updated ERR request was submitted to the WDNR on November 3, 2022. The WDNR responded on November 11, 2022 with information on a bald eagle nest within one mile of the Project Area included again in the response. It is unclear if this could be the same record originally identified in the ERR. No other species records were identified.

The ERR requests and WDNR responses are in **Appendix R**.

5.8.2 Submit results from habitat assessments and biological surveys for the proposed project, if completed or if required to be completed per the ER screening. If surveys or assessments are required to be completed prior to construction but have not yet been completed, state when these surveys will be completed. Results from additional surveys conducted during the review of the application, prior to the start of construction, and/or post-construction must be submitted as they are completed.

No surveys were required based on the ERR screening; however, a qualified Westwood biologist conducted a ground-based pre-construction stick nest survey encompassing the Project Area and a 660-foot buffer on May 18 and 19, 2022 to determine if Bald Eagle nests might be affected by the Project. Field investigations also included a search for potentially important eagle use areas as defined by BGEPA.

During the same May 18-19, 2022 visit, Westwood conducted a habitat assessment for species identified in the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) for the possibility of occurring in the Project Area. These include [redacted], [redacted], [redacted], and [redacted].

In addition, the special habitats identified in the ERR, [redacted] and [redacted], were investigated.

Spot-checking of additional, small parcels brought into the Project Area occurred in August 2022.

The results of the stick nest survey and habitat assessment are as follows:

- No eagles, eagle nests, or important eagle use areas were identified in the Project Area. There are few trees in the Project Area that are suitable for eagle nesting.
- Suitable foraging habitat for [redacted] is limited in the Project Area.
- No [redacted] are known to occur within one mile of the Project Area.
- [redacted] potentially suitable habitat is primarily limited to [redacted].
- There is no apparent suitable habitat present for [redacted].
- The [redacted] does not extend into the Project Area.
- A small portion of [redacted] is located [redacted].

5.8.3 For all project facilities and areas impacted by construction, discuss potential impacts to rare species as identified in the completed ER screening

and/or field assessments.

No direct, indirect, or secondary impacts to rare species are anticipated from facility construction and operations. Actions taken or planned to avoid impacts include the following:

- Continued coordination with the USFWS on best practices and required actions related to [redacted]
- A Best Management Practices plan has been developed to minimize or avoid disturbances to migratory birds, including [redacted], that may be present within the [redacted].
- As a proposed for listing species, no avoidance of [redacted] habitat will be attempted. Due to lack of suitable habitat in the Project Area, no impacts are anticipated to [redacted] and [redacted].

5.8.3.1 For any required follow-up actions that must be taken to comply with endangered species law, discuss how each required action would affect the proposed project, and how the required action would be complied with.

The WDNR ERR response did not identify required follow-up actions to comply with endangered species law. No USFWS permits or required actions were identified.

5.8.3.2 For any recommended follow-up actions to help conserve Wisconsin's rare species and natural communities, discuss if and how any recommended actions would be incorporated into the proposed project.

The WDNR recommended that, if an eagle nest is present and active, human activity be avoided from January 15-July 30 within 660 feet of the nest. As detailed in Section 5.7.2, Westwood performed a raptor stick nest survey and found no evidence of any active bald eagle nests within the Project Area or 660-foot buffer. If a new eagle nest is encountered in the Project Area or 660-foot buffer before construction begins, the Applicant would coordinate with the USFWS to confirm avoidance strategies.

The DNR recommended minimizing impacts to the [redacted] by implementing invasive species BMPs, and/or conducting work under frozen ground conditions when working adjacent to this natural community. However, this natural community is not in or adjacent to the Project Area and will not be impacted by the Project.

The DNR recommended that disturbance to the [redacted] be kept to a minimum within the [redacted] during the spring and fall migration seasons (March 15 – May 31 and August 1 – October 31). The Applicant has developed Best Management Practices to help minimize or avoid disturbances to migratory birds within the [redacted] during construction (**Appendix Q).**

5.8.4 Provide communications with DNR and U.S. Fish and Wildlife Service, as applicable.

The USFWS communications, ERR requests, and WDNR responses are in **Appendix R**.

5.9 Public Lands and Recreation

List all public properties within the project area and in a separate list all public properties within two miles of the project area boundary.

The Protected Areas Database of the United States (PADUS) and WDNR DNR Managed Properties data were used to locate and identify wildlife refuges, parks, and other public lands within the Project Area. PADUS is the nation's official inventory of public open space and private protected areas. In addition, USGS topographic maps, aerial photographs, and federal and state websites were reviewed. Silver Maple also consulted with USFWS and WDNR for natural resource areas and reviewed County webpages for public lands.

A GIS file of public lands within two miles of the Project Area is included with this submission. A map showing federal, state, county, and local properties within two miles of the Project Area is included as Figure 4.1.7.3 in **Appendix A**.

5.9.1 State properties, including but not limited to:

In addition to using PADUS, the WDNR Public Access Lands Mapping Application[16] and Surface Water Viewer[17] were used to locate and identify state land within the Project Area. According to the WDNR, their web mapping applications contain the most current information about WDNR properties and private lands under WDNR management with public access for hunting and recreational activities.

5.9.1.1 Wildlife Areas.

There are no state wildlife areas within the Project Area. The Eldorado Wildlife Area is located within two miles to the southeast of the Project Area. Multiple WDNR-owned Glacial Habitat Restoration Areas (GHRAs) are located west of the Project Area within the two-mile buffer. The GHRA is a WDNR wildlife management program located in Columbia, Dodge, Fond du Lac, and Winnebago Counties. The GHRA program focuses on restoring and managing grasslands and wetland habitats for game and non-game birds and wildlife (Figure 4.1.7.3, **Appendix A**). These areas are managed to provide opportunities for public hunting, trapping, wildlife observation, and other nature-based outdoor recreation such as birding, canoeing, hiking, and cross-country skiing.

5.9.1.2 Fisheries Areas.

There are no state fisheries within the Project Area or within two miles of the Project Area.[18]

5.9.1.3 State Parks and Forests.

[16] WDNR. 2022. Public Access Lands Mapping Application. Available at: https://dnr.wisconsin.gov/topic/fl/RealEstate/PALApplication. Accessed January 2023.

[17] WDNR. 2022. Surface Water Data Viewer. Available at: https://dnrmaps.wi.gov/H5/?Viewer=SWDV. Accessed January 2023.

[18] WDNR. 2022. DNR Fisheries Areas by County. Available at: https://dnr.wisconsin.gov/topic/Lands/FisheriesAreas/county.html. Accessed January 2023.

There are no state parks or state forests within the Project Area or within two miles of the Project Area.[19]

5.9.2 Federal properties, including but not limited to:

5.9.2.1 Wildlife Refuges.

There are no federal wildlife refuges within the Project Area or within two miles of the Project Area (USFWS, 2022).[20]

5.9.2.2 Parks.

There are no federal parks within the Project Area or within two miles of the Project Area (NPS, 2022).[21]

5.9.2.3 Scenic Riverways.

There are no Scenic Riverways located within the Project Area or within two miles of the Project Area (Interagency Wild & Scenic River Coordinating Council, 2022).[22]

There are no other federally managed properties located within the Project Area. The USFWS Fond du Lac County Waterfowl Production Area (WPA) is located within two miles of the Project Area to the west. A Wetlands Reserve Program (WRP) land managed by the Natural Resources Conservation Service is also located south of the Project Area and within the two-mile buffer.

5.9.3 County Parks

There are no county parks located within the Project Area or within two miles of the Project Area.[23][24]

5.9.4 Recreation Trails

There are no recreational trails located within the Project Area. The Mascoutin Valley Recreational Trail managed by Fond du Lac County is located within two miles of the Project Area.[25]

5.9.5 Identify the owner/manager of each recreation resource.

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[19] WDNR. 2022. Find A Park, Wisconsin State Parks, Forests, and Trails. Available at: https://dnr.wisconsin.gov/topic/parks/findapark. Accessed January 2023.

[20] USFWS. 2022. Find a Refuge. Available at: https://www.fws.gov/refuges/find-a-wildlife-refuge/. Accessed January 2023.

[21] NPS. 2022. Find a Park by State. https://www.nps.gov/findapark/index.htm. Accessed January 2023.

[22] Interagency Wild & Scenic River Coordinating Council. 2022. Wisconsin. Available at: https://www.rivers.gov/wisconsin.php. Accessed January 2023.

[23] Winnebago County Parks. 2023. https://www.co.winnebago.wi.us/parks. Accessed January 2023.

[24] Fond du Lac County. 2023. Fond du Lac County GIS Mapping Tool. Available at: https://gisweb.fdlco.wi.gov/fonddulacts/. Accessed January 2023.

[25] Fond du Lac County. 2023. Fond du Lac County GIS Mapping Tool. Available at: https://gisweb.fdlco.wi.gov/fonddulacts/. Accessed January 2023.

The owner/manager for each of these recreation resources is listed in Sections 5.9.1 through 5.9.4.

5.9.6 Provide any communications with these owners/managers.

No communications with any owners/managers have occurred to date.

5.9.7 Discuss how short and long-term impacts to these resources would be avoided and/or minimized.

No state, federal, county-owned, or other special use areas are located within the Project Area. The nearest resource is a WDNR GHRA located southwest of the Project Area. No short- or long-term impacts to the GHRA are anticipated as it is located outside of the Project Area.

5.9.8 Describe any measures that would be taken to mitigate or minimize impacts to aesthetics and tourism in the areas surrounding the project.

Land use in the Project Area is characterized as row crop agriculture. Aside from agricultural fields, the landscape also supports a patchwork of woodlands, wetlands, and drainages. The topography of the Project Area is generally flat with the majority of slopes generally ranging from 0 to 6 percent.

The Project facilities are apportioned throughout the Project Area, with array areas separated in many instances by existing features such as wooded windbreaks or roads. The settlements in the vicinity are residences and farm buildings (inhabited and uninhabited farmsteads) scattered along rural county and town roads. Most of these farmsteads are at least partially surrounded by woodlands or shelterbelts, which fractionally prevent uninterrupted views of the surrounding landscape. Additionally, there are several transmission lines within or adjacent to the Project Area that interrupt natural agricultural views as shown on Figure 4.1.2.

Silver Maple does not anticipate any impact to local tourism as a result of the Project. In some cases, where the closer proximity of Project facilities could potentially impact aesthetics, the impacts may be mitigated through vegetative screening or the installation of minimally invasive fencing, as described in Section 5.6.2.

Additionally, Silver Maple has begun working with, and will continue to work with adjacent landowners on vegetive buffers and screening, as appropriate, following completion of the Project. Silver Maple will develop parameters to use as guidance for offering vegetative screening and intends to make final determinations for vegetative screening for non-participating landowners on a case-by-case basis based on parameters such as the distance to the solar panels, the topography, existing vegetation, and other natural buffers.

5.10 Contaminated Sites

List all contaminated sites and solid waste sites within the project area, and in a separate list, all contaminated sites and solid waste sites within two miles of the project area boundary.

5.10.1 Using the Wisconsin Remediation and Redevelopment Database (WRRD),

http://dnr.wi.gov/topic/Brownfields/WRRD.html, identify any contaminated sites (open and closed) within the project area and within 2 miles of the project area.

There are no Bureau for Remediation and Redevelopment Tracking System (BRRTS) listings within the Project Area. **Table 5.10-1** lists BRRTS listing within 2 miles of the Project Area, which include open and closed contaminated sites in and within 2 miles of the Project Area as identified from http://dnr.wi.gov/topic/Brownfields/WRRD.html.

Table 5.10-1 BRRTS Listings Within 2 miles of the Project Area

Site Name	BRRTS #	Facility ID	Closure Status
Freiberg Property	0320270129	None	Closed
Mid-Lakes – Rosendale	0220547037	None	Closed
Roberts Trucking Inc.	0320001932	420116400	Closed

5.10.2 Using the Historic Registry of Waste Disposal Sites, http://dnr.wi.gov/topic/Landfills/registry.html, identify any Environmental Repair and Solid Waste disposal sites within the project area and within 2 miles of the project area.

Table 5.10-2 lists the Environmental Repair and Solid Waste disposal sites within 2 miles of the Project Area as identified from http://dnr.wi.gov/topic/Landfills/registry.html.

According to the WDNR Historic Registry of Waste Disposal Sites, there are no sites located within the Project Area.

Table 5.10-2 Environmental Repair and Solid Waste Listings Within 2 miles of the Project Area

Site Name	Object ID	Site ID
Clyde A Brey Property	None	420036540
Eldorado Township	None	420016300
Terry Wittchow Property	None	420034010
L H GYR Excavating	None	420037090
Donald Rickert Farm	None	420037420

5.10.3 If contaminated materials are known to exist on-site, list and describe:

- *The type of contaminant(s) known to exist on-site.*
- *The location of the contaminant(s).*
- *The media in which the contaminant is located within (i.e., soil, water, etc.).*
- *The estimated concentration of the contaminant(s).*
- *The estimated volumes of the contaminant(s).*

No contaminated materials are known to exist on-site.

5.10.4 If contaminated materials are newly discovered on-site, specify:

- *The procedure for screening materials.*

- *The location where materials be tested.*
- *The protocols that would be followed.*
- *Whether construction work would be impacted.*

It is not expected that any contaminated materials will be encountered on-site. If suspected contaminated soils or other materials are identified, a qualified firm will be contacted to test suspected materials. If contamination is confirmed, the contaminated materials will be treated and/or disposed of according to the appropriate protocol for the situation encountered and the relevant regulations. The WDNR will be contacted as required under state law. If contamination is encountered, work would be suspended as appropriate in the immediate area of contamination until the appropriate remediation measures have been completed.

5.11 Floodplain

5.11.1 Identify any work occurring in floodplains or known flood-prone areas (e.g., agricultural ponding).

Silver Maple is proposing a small portion of Project infrastructure in a floodplain. According to FEMA's National Flood Hazard Layer (NFHL) Viewer, [26] the southwestern portion of the Project Area contains approximately 119 acres of solar panels in the 100-year floodplain (Zone A) that is associated with the West Branch Fond du Lac River in Fond du Lac County. Although Silver Maple believes solar development is a beneficial and reasonable use of floodplains, the infrastructure in the floodplain has nonetheless been designated as Alternative Array Areas. Approximately 0.4 acres of Proposed Array Area is also located in the floodplain, but the solar panels and other energy facilities within the Proposed Array Area are not located in the floodplain.

5.11.2 Discuss if impacts to the floodplain have been evaluated, and how impacts to the floodplain will be avoided or minimized.

Silver Maple fully evaluated the potential impacts of placing Project facilities in floodplains. While traditional development such as agricultural buildings and single-family homes may not be feasible in floodplains, placing solar facilities in floodplains is feasible and reduces the amount of otherwise-available land that is temporarily occupied by the solar facility. Similarly, floodplains may be less suitable for agricultural crop farming because of the risk of crop damage from flooding or heavy rain events and because of increased costs such as for crop insurance. Allowing solar development in floodplains can reduce the amount of higher- quality farmland necessary for the Project.

To ensure the proposed infrastructure is suitable for placement in a floodplain, Silver Maple analyzed the infrastructure's potential impact on the 100-year flood level. First, a preliminary Hydrology Study was conducted to analyze and review the existing hydrology within the Project Area (**Appendix U**). The hydrologic modeling was created using FLO-2D software to review the overall watershed drainage within and through the Project Area to determine if any overland runoff causes flooding, high velocity, or scour impacts to the site.

The hydrology modeling shows low to moderate water depths and low velocities across most of the Project Area. During a 100-year storm, the flood depths across most of the Project Area are

less than 0.5 feet with velocities less than one foot per second (fps). Minimal scour is expected due to the flat terrain. The scour depths calculated for this Project consist of local scour only and are based on unarmored soils and pile bases to provide the most conservative local scour results.

Silver Maple further evaluated the potential impact of solar infrastructure in the floodplain by calculating the proposed infrastructure's percent obstruction of flood flow during a 100-year event. The analysis demonstrates that the Project's impact on flood flow is negligible, and is not anticipated to increase regional flood height (**Appendix U**). The equipment that would potentially be exposed to floodwater includes support piles for solar arrays and fenceposts, both of which have a small cross-sectional area and will therefore have minimal impacts on floodwater height. The calculated percent obstruction of effective flow area resulting from the Project ranges from 0.05% to 3.20%, and is not anticipated to impact flood flow. Moreover, grading proposed in the floodplain area is designed to result in a net cut, and will therefore not impede the effective flow area. Based on these analyses, Silver Maple determined the Project Area is suitable for the planned solar development.

5.11.3 Provide information on any discussions that have occurred with the application floodplain zoning authority, and how the project will comply with local floodplain ordinance(s). This requirement is not intended to preclude or otherwise modify Wis. Stat. §196.491(3)(i).

Project facilities are limited to floodplain in Fond du Lac County; the Project will not impact floodplain in Winnebago County. Discussions with the floodplain zoning authorities for Fond du Lac County occurred in June and July of 2022. On June 27, 2022. Silver Maple provided additional information to the County regarding the floodplain considerations for the Project and the proposed overlap of infrastructure with the floodplain (**Appendix B**). On July 13th, 2022, Fond du Lac County responded and requested an analysis showing that the Project will not obstruct flow or cause an increase in regional flood height. These communications are provided in **Appendix B**. The Silver Maple Solar Project FEMA Floodplain Impact Analysis provided in **Appendix B,** which is being submitted to Fond du Lac County concurrent with this Application, contains detailed plans of the locations of the panels and an analysis showing the Project will not obstruct flow or cause an increase in regional flood height, as discussed in Section 5.11.2, above.

The Project complies with Fond du Lac County's floodplain ordinance. Fond du Lac County maintains zoning regulations for all unincorporated areas within Fond du Lac County meeting the definition of a floodplain. The floodplain within the Project Area is designated as FEMA Zone A on the Fond du Lac County GIS Viewer [28] and by the online FEMA NFHL Viewer. The Project Area is covered by GIS Viewer panels 55039C0235F, 55039C0233F, 55039C0234F, 55039C0075F, 55039C0100F, 55139C0320E, 55139C0350E. The GIS Viewer panels have an effective date of November 3, 2009, and March 16, 2003. The Project Area does not include FEMA Zone AE areas.

The proposed Project facilities are all within the General Floodplain District (GFP) defined by Fond du Lac County. GFP does not have an established regional flood elevation. No Zone AE is within the Project boundary. Only a limited number of solar panel support piles are currently being considered within the GFP district. The cross-sectional area of these piles is negligible in comparison to the cross-sectional flow area of the floodplain. The piles will not obstruct flow or

impact regional flood height. Therefore, the Project meets the ordinance's requirements for the GFP district.

Facilities placed in GFP will not obstruct floodwater flow or decrease floodplain storage and consequently the regional flood height would not increase, in compliance with Fond du Lac County Ordinances § 26-26(1). In addition, all facilities within GFP will be anchored, constructed with flood-resistant materials, constructed to minimize flood damage, and all utility and mechanical equipment will be designed or located to avoid impact during conditions of flooding, pursuant to Fond du Lac County Code of Ordinances, § 28, Art. II.

In order to further minimize any floodplain risks, Silver Maple will implement the following detailed engineering design conditions for any infrastructure placed in a floodplain:

1. Design foundations will consider hydrodynamic and hydrostatic forces in addition to all other applicable civil, structural and geotechnical engineering criteria necessary to ensure that structures are designed and anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads.
2. All structures below the BFE will be concrete, steel, and/or appropriately rated enclosures and compliant with the flood-resistant material criteria in Fond du Lac County Code.
3. A minimum of 12" of freeboard will be provided or appropriately rated enclosures will be used for all utility and mechanical equipment, which will minimize flood damage and prevent water from entering or accumulating withing the equipment during conditions of flooding.

The Silver Maple Project will have no impact to floodplains. The Project satisfies the requirements of the Fond du Lac County Floodplain Ordinances and impacts to floodplains have been avoided or minimized to the extent practicable as part of Project design.

5.12Local Zoning and Safety

Sections 5.12.1 through 5.12.5 only applies to Utilities (CA).

5.12.6 Provide a list of potential local issues normally associated with zoning, road use and safety, or other condition uses.

Silver Maple has met and coordinated with county and local planning and zoning staff and local residents to discuss zoning, land use, and other local concerns. Silver Maple will continue to work proactively with residents and county and local staff to identify and address concerns. Additional details on local governmental impacts and public outreach are in Sections 6.0 and 7.0.

The Fond du Lac County Zoning Map shows that most of the Project Area is zoned Farmland Preservation District (A-1) in the Towns of Rosendale and Eldorado with one 12.7-acre parcel

zoned as Residential (R-1)[26] in the Town of Eldorado, and the Winnebago County Zoning indicates areas within the Town of Nekimi are zoned Agribusiness (A-1) and General Agriculture (A-2). The parcel zoned as Residential is proposed to include a section of alternative solar arrays.

Most of the Project Area in both Winnebago and Fond du Lac County is in approved Farmland Preservation Program area. The goals and policies for agricultural land in Farmland Preservation areas are outlined in the Fond du Lac and Winnebago County Farmland Preservation Plans (Appendix G).

Silver Maple believes that the proposed Project qualifies as an allowable use in the farmland preservation area and agricultural zoning district.

In addition to zoning/land use issues, local officials and members of the public have inquired about the following issues:

- Impacts to wildlife.
- Taking farmland out of production thus decreasing the available food stores for the community and the country.
- Viewshed.
- Stormwater management impacts during and after construction.
- Emergency response needs of the proposed facility.
- Source of Project construction and operations staff.
- Facility fencing.
- Impacts to neighboring land tax assessments.
- Impacts to property values.
- Local government tax impacts.

A Real Estate Adjacent Property Value Impact Report was completed by an independent real estate appraiser and is provided in **Appendix AA.** Based on this report, no market data demonstrates a negative impact on property values in the Project's surrounding area.

5.12.6.0 Provide copies of all correspondence to and from local government pertaining to issues of zoning, safety, or local road use safety plans.

Copies of local government correspondence are included in **Appendix B**.

5.12.6.1 Provide a discussion of how local concerns would be accommodated.

Silver Maple has established a thorough and multi-faceted outreach plan to receive and address local concerns as further discussed in Section 7.2. Upon receipt of a local concern, Silver Maple will work in good faith to reach a mutually agreeable resolution. Silver Maple will continue to work proactively with local staff and officials to identify and address issues and concerns should they arise. The Project website, silvermaplesolar.com provides an additional opportunity for residents to learn more about the Project and engage with Silver Maple representatives. If

[26] Fond du Lac County. GIS Mapping Tool. https://gisweb.fdlco.wi.gov/fonddulacts/. Accessed January 2023.

questions or concerns arise during construction or operation, these could be submitted through the website, by mail, phone, or in-person. Concerns will be recorded by a Silver Maple representative in a logbook. Silver Maple is committed to resolving complaints within 30 days of receipt, unless extenuating circumstances require a longer time period, or it is determined that the complaint is unresolvable.

5.12.7 Describe any impacts the proposed project would have on existing infrastructure including electric distribution lines and gas pipelines.

Prior to initiating construction, all crossings of Project infrastructure with existing infrastructure will be field-located by a licensed land surveyor. The Silver Maple development team will seek to negotiate crossing agreements with the owners of the infrastructure.

Major existing infrastructure within the Project Area includes one transmission line, the Fitzgerald to South Fond du Lac 345 kV transmission line. Solar infrastructure has been sited to avoid impacts to the identified electric transmission line. Several roadways cross or border the Project Area including State Highway 26, and County Highways N, FF and C, and several local roads. Solar infrastructure has been sited to avoid impacts to the distribution and transmission lines and roadways. No Project components will be located beneath the transmission line or distribution lines other than underground collection lines. The underground collection lines will be bored beneath roadways, based on final engineering design.

No natural gas, crude oil, hazardous liquids, or other pipelines were identified in the Project Area. No other infrastructure was identified in the Project Area.

5.13 Land Use Plans

Provide information from all land-use plans adopted by local governments that pertain to the project area, extending out two miles from the project boundary. Only submit those pages relevant to the project siting or operation. Do not submit multi-page ordinances, land use plans, etc. unless the entire document would be helpful for context. Include a list of website addresses to the source documents. Include not only general land-use plans, but also other relevant planning documents such as:

5.13.1 County Recreation Plans.
5.13.2 Farmland Preservation Plans.
5.13.3 Highway Development Plans.
5.13.4 Sewer Service Area Plans.

Copies of the requested land-use plans within the Project Area are included in **Appendix I**. A table of the additional plans and links to where they can be found on the internet is also included in **Appendix I**.

5.14 Archaeological and Historic Resources

Confidential information includes only the specific location and other sensitive details of archaeological and human burial sites (e.g., maps).[27,28] *Confidential information should be submitted on ERF as a confidential version in addition to a redacted public version. The Wisconsin Historical Society (WHS) can provide a list of qualified archaeologists, architectural historians, human burial specialists, or tribal preservation officers who may be required to perform steps of this review. Access to the Wisconsin Historic Preservation Database (WHPD) is required to complete this review. Access to WHPD is free at the WHS headquarters or can be used online for a fee. Depending on the outcome of this review, the Commission may be required to consult with the State Historic Preservation Office (SHPO). SHPO consultation may take up to an additional 30 days. The Guide for Public Archeology in Wisconsin, provides information about best management practices.*[29]

Silver Maple contracted Westwood to conduct a cultural resources desktop literature review and to prepare an Unanticipated Discoveries Plan (UDP). The purpose of the desktop review was to determine whether any recorded resources within or adjacent to the Project Area might be physically or visually impacted by the Project. The desktop review also helped determine the levels of previous disturbance, the amount and degree of previous cultural resource work conducted in the area, and the potential for unrecorded cultural resources. The UDP establishes procedures to be followed if unrecorded archaeological resources or human remains are discovered during construction of the Project.

No cultural resources were identified within the Project Area. Seventeen archaeological and burial sites, and 16 architectural history resources are located within one mile, but outside, of the Project Area. No NRHP listed resources are located within one mile of the Project Area. The Cultural Resources Literature Review report (Confidential) and UDP are provided in **Appendix W**.

A three-tiered archaeological site model was used to identify areas of moderate and high potential for archaeological sites. Site locations were identified from information obtained at the Wisconsin Historic Preservation Database (WHPD) maintained by the Wisconsin Historical Society (WHS). Historic structure locations were identified from the WHS dataset, historical aerial photographs since 1960, historic topographic maps dating from 1874 to 1968, and by current imagery. The model also considered streams, soil types, and landforms within and adjacent to the Project Area. Disturbed areas including ponds, completely developed land, and road rights-of-way were excluded from the model. The model predicted about 177 acres of high archeological potential, 161 acres of moderate archaeological potential, and 954 acres of low archaeological potential within the Project facility footprint. Results of the model are provided in **Appendix W**.

5.14.1 Provide maps or GIS files and a description of all archaeological sites,

[27] Wis. Stat. 157.70(2)(a): Any information in the catalog related to the location of any burial site, the disclosure of which would be likely to result in the disturbance of the burial site or the cataloged land contiguous to the burial site, is not subject to s. 19.35(1).

[28] Wis. Stat. 44.48(1)(c): The director may keep any specific information regarding archaeological resources closed to the public if the director determines that disclosure of the information would be likely to result in disturbance of the archaeological resources.

[29] Guide for Public Archeology in Wisconsin. The Wisconsin Archeological Survey. August 2012.

historic buildings and districts, and human burial sites within the project's area of potential effect (APE).

For archaeological and historic sites, the Direct APE is comprised of the physical Project Area where any ground disturbing activity may occur (e.g., digging, heavy equipment movement, etc.). No archaeological or burials sites have been previously identified in the Direct APE. For historic buildings and districts, the Indirect APE is 1,800 feet, consisting of the distance that the Project may be visible from outside of the Project Area. Maps of archaeological and burial sites must be submitted confidentially.

Mapping and descriptions of archaeological sites, historic buildings and districts, and human burial sites are included in **Appendix W**.

5.14.2 For archaeological sites and historic buildings or districts within the APE, determine the boundaries, historic significance, and integrity of each resource. In some cases, such as a landowner not granting land access, field surveys may instead be performed following the approval of a project.

No previously recorded archaeological sites are within the APE.

Architectural history fieldwork was conducted on March 15—17, 2022. Seven historic resources have been previously inventoried in the 1,800-foot buffer around the Project Area (Indirect APE). Two resources are nonextant. A windshield survey was conducted to identify previously unrecorded, potentially significant architectural/historic resources in the Project Area. Seventy-two (72) properties in the Direct and Indirect APEs contain at least one historic age resource (45 years or older).

One parcel containing historic age resources is located within the Direct APE. The farmstead, located west of County Road C on the north side of Zoar Road, is proposed for demolition. It was identified during the architectural/historic resources windshield survey but was not further inventoried. It lacks historic significance and has lost integrity due to alterations, loss of historic building stock, and intrusions of modern structures. The farmstead is recommended *not eligible* for listing in the NRHP, and therefore the Project will have no physical effects to historic properties in the Direct APE.

Three resources on two farmsteads in the Indirect APE did retain sufficient historic integrity and were newly inventoried during the reconnaissance survey. The five extant previously recorded resources were also revisited and their inventories updated. Following fieldwork, a preliminary evaluation of National Register of Historic Places (NRHP) eligibility was conducted. Two previously recorded resources in the Indirect APE, the Peniel Church (AHI #59772) and Bethesda Church (AHI #69162) are recommended *potentially eligible* for listing in the NRHP.

5.14.3 Identify the potential project effects on each resource.

Based on the cultural resources review and architectural history survey results provided in **Appendix W**, one property containing historic resources is located in the Direct APE. The farmstead, located west of County Road C on the north side of Zoar Road, is recommended *not eligible* for listing in the NRHP. No historic properties or cultural resources will be physically

impacted by the Project and therefore, the Project will have no physical effects to historic properties in the Direct APE.

Two previously recorded resources in the Indirect APE, the Peniel Church (AHI #59772) and Bethesda Church (AHI #69162) are recommended *potentially eligible* for listing in the NRHP. Both churches will retain their physical aspects of integrity, including *design*, *materials*, and *workmanship*. They will also retain their integrity of *location*, *feeling*, and *association*. There may be direct views of the Project from both churches, but the Project will not affect the overall character and their integrity of *setting* will remain intact. Primary views of the churches, as well as views from them, will appear much as they did historically. For these reasons, it is recommended the Project will have no adverse effects to the potentially NRHP eligible historic resources. Although there may be direct views, it is anticipated that the Project will have no adverse indirect effects to the potentially NRHP significant historic resources.

5.14.4 Describe modifications to the project that would reduce, eliminate, avoid, or otherwise mitigate effects on the resources. Examples of modifications include changes to construction locations, modified construction practices (e.g., use of low-pressure tires, matting, etc.), placement of protective barriers and warning signage, and construction monitoring.

Based on the cultural resources review and architectural history survey results provided in **Appendix W**, no known historic or cultural resources will be physically impacted by the construction of the Project, and no Project modifications are recommended.

Added vegetative screening along intervening Project boundaries may reduce, eliminate, or otherwise mitigate indirect effects to the integrity of *setting* at the Peniel Church (AHI #59772) and Bethesda Church (AHI #69162).

5.14.5 For any human burial sites within the APE, contact WHS to determine whether a Burial Site Disturbance Authorization/Permit is required.

Based on the cultural resources review results provided in **Appendix W**, no known cemeteries or burial sites are present within the Project Area. A Burial Site Disturbance Authorization/Permit is not required.

5.14.6 Provide an unanticipated archaeological discoveries plan. The plan should outline procedures to be followed in the event of an unanticipated discovery of archaeological resources or human remains during construction activities for the project.

If unrecorded archaeological sites are discovered during construction, the UDP will be followed. PUC and WHS will be informed if significant archaeological sites or human burials are encountered. Local law enforcement will be contacted immediately if human burials are discovered. Wisconsin THPOs would be contacted if any Native American human burial sites or significant prehistoric archaeological sites are discovered. The UDP is provided in Appendix W.

5.14.7 Notify Wisconsin Tribal Historic Preservation Officers of any Native American human burial sites and significant prehistoric archaeological sites

within the APE. Provide copies of all correspondence.

Based on the cultural resources review results provided in Appendix W, no known native American burial sites or significant prehistoric archaeological sites are present within the Project Area.

5.15Agricultural Impacts

5.15.1 State Whether a DATCP Agricultural Impact Statement (AIS) would be required. If the project would affect any properties used for agricultural purposes, submit one of the following, either 1.) a completed Agricultural Impact Notice (see DATCP website and search "Agricultural Impact Notice" for appropriate form or contact DATCP). Or, 2.) a release letter from DATCP stating that an AIS will not be written for this proposed project.

Approximately 1,266.2 acres of land currently used for agriculture would be potentially impacted by the proposed Project. An AIS is not required for construction of the Project. A release letter has been requested from DATCP and will be provided to the Commission once it is received.

5.15.2 Identify current agricultural practices in the project area.

Agricultural cropland (rotating corn and soybean crops) is the predominant land cover in the Project Area. Some areas of pasture, alfalfa, and hay fields used for grazing or for harvesting are also within the Project Area.

5.15.3 Identify the location of known agricultural drainage systems (tiles, ditches, laterals), irrigation systems, erosion control and water management practices and facilities in the project area that could be impacted by construction activities or the location of the proposed facilities.

Silver Maple continues to work with local landowners to identify drain tile locations. According to participating landowners, some agricultural fields within the Project Area are known to contain field drain tiles. Because many drainage systems have been in place for several years, accurate information regarding locations of tiles may not be available. If drain tiles are damaged during Project construction, Silver Maple will make repairs necessary to ensure that drainage on adjacent land is not impacted.

5.15.4 Identify any farming operations such as herd management, specialty crop production, field and building access, organic farming, etc. that could be impacted by the construction of the project.

No impacts to farming operations such as herd management, specialty crop production, field and building access, organic farming, or other farming operations are anticipated. As mentioned in Section 5.3.1.1, no specialty crops were identified during the wetland delineation field investigations and no organic farms were identified within the Project Area or within two miles of the Project Area.

5.15.5 Identify the amount (in acres) of designated prime farmland that would be removed from agricultural use during the operational life of the solar project.

Approximately 545.0 acres of Prime Farmland associated with the Proposed Array Areas would be removed from agricultural use during the operational life of the Project. An additional 295.8 acres in the Proposed Array Areas are designated as prime farmland if drained.

The Alternative Array Areas contain 174.9 acres of prime farmland and 201.9 acres designated as prime farmland if drained.

5.15.6 Describe how damage to agricultural facilities and interference with farming operations would be minimized during construction.

The Project will not cause damage to any operating agricultural facilities. No agricultural facilities (silos, buildings, structures, ponds, machinery, or animal housing facilities) are located in the Project Area with the exception of one farmstead planned for demolition prior to Project construction. Silver Maple continues to work with local landowners to identify drain tile locations. If drain tiles are damaged by Project construction, Silver Maple will make repairs necessary to ensure that drainage on adjacent land is not impacted.

5.15.7 Describe how damage to agricultural facilities would be identified and repaired

Silver Maple does not anticipate damage to agricultural facilities caused by the Project. According to participating landowners, several of the agricultural fields within the Project Area are known to contain field drain tiles. Silver Maple will continue to work with participating landowners to identify existing drain tile currently functioning to drain hydric soil areas and avoid or mitigate impacts to the drain tile to the extent practicable. In the event drain tiles are damaged during construction, they will be repaired to the extent necessary to maintain drainage on adjacent non-participating property. After decommissioning, drain tile will be replaced or repaired in accordance with the solar easement agreements.

5.15.8 Identify any farmland affected by the project that is part of an Agricultural Enterprise Area.

The Project Area is not within an Agricultural Enterprise Area.[30] There are currently no Agricultural Enterprise Areas (AEAs) within Winnebago or Fond du Lac Counties.

5.15.9 Identify any parcels of land in the project area that are part of a Drainage District and identify the Drainage District if applicable. The County Drainage Board will need to be notified before undertaking any action, including any change in land use that will alter the flow of water into or

[30] Wisconsin Department of Agriculture, Trade and Consumer Protection. 2021. Statewide Agricultural Enterprise Areas Map. March 2022. Available at: https://datcp.wi.gov/Documents/AEAMap.pdf. Accessed January 2023.

from a district drain, increase the amount of soil erosion, or the movement of sediment solids to a district drain or affect the operation of the drainage district, or the costs incurred by the Drainage District. This applies to parcels of land that receive water from, or discharge water to a Drainage District, regardless of whether the land is included in the Drainage District. The following items apply when any part of a project is located within a Drainage District.

5.15.9.1 Describe any permits needed from a Drainage District Board for construction and operation of the proposed project, and the status of any permits.

5.15.9.2 Identify if and where any culverts would be installed in areas of the Drainage District.

5.15.9.3 Provide any correspondence with State Drainage Engineer regarding the project.

The Project Area is located outside of any Drainage District in Wisconsin[31].

5.15.10 Identify any lands within the project boundary that are enrolled in agricultural conservation or agricultural tax incentive programs, such as farmland preservation programs and permanent agricultural or conservation easements.

Four CRP areas have been identified within the Project Area (CLU Nos. 6, 1, 10, and 24) as shown in Figure 4.1.2, **Appendix A**. Table 5.15-1 provides a summary of each CRP area within the Project Area. Less than 0.1-acres of CLU 24 is in Alternative Array Area AJ within the Solar Development Area. No arrays are planned for development within CLU 24.

Design, layout, construction, and operation of the Project will meet several of the goals and benefits associated with the CRP program. For example, the Project will encourage, establish, and maintain native vegetation; maintain drainage patterns; and minimize erosion through the Vegetation Management Plan ("VMP") and the ECSWMP. The Project will provide many of the same environmental benefits as the CRP even if portions of the land is removed from the CRP program to accommodate the Project.

Table 5.15-1: Summary of CRP Areas

Common Land Unit (CLU)	Crop	Practice Number	Practice Name	Acres of CRP within Project Area	Approximate Acres of CRP within Solar Development Area
6 (Tract 13479)	CRP	CP21	Filter Strip (Applied) (393) / Early Successional Habitat Development Management (647)	3.6	0

[31] Wisconsin Department of Agriculture, Trade and Consumer Protection. Interactive Map of Wisconsin Drainage Districts. Available at: https://datcpgis.wi.gov/maps/?viewer=dd. Accessed January 2023.

Table 5.15-1: Summary of CRP Areas

Common Land Unit (CLU)	Crop	Practice Number	Practice Name	Acres of CRP within Project Area	Approximate Acres of CRP within Solar Development Area
1 (Tract 9622)	CRP	CP21	Filter Strip (Applied) (393) / Early Successional Habitat Development Management (647)	3.8	0
10 (Tract 12229)	CRP	CP21	Filter Strip (Applied) (393) / Early Successional Habitat Development Management (647)	0.5	0
24 (Tract 1628)	CRP	CP21	Filter Strip (Applied) (393) / Early Successional Habitat Development Management (647)	0.62	<0.1
			Total	**8.5**	**<0.1**

5.15.11 Describe the process for returning land to agricultural use after decommissioning, including any subsequent years of monitoring.

Following decommissioning, areas affected by the Project facilities will be restored to a state that is suitable for agricultural use to the extent practical, consistent with the lease agreement. Silver Maple proposes to update the Decommissioning Plan and cost estimation in year 15 of commercial operation. At that time Silver Maple will post sufficient financial security to cover the updated net decommissioning costs (cost of decommissioning minus any potential resale and salvage value revenue). The year 15 posted security will cover the net decommissioning costs of both the leased and purchased land. During decommissioning, Project facilities will be removed to48 inches, backfilled with subgrade material and covered with suitable topsoil to allow adequate root penetration for plants. Any topsoil stripped during decommissioning efforts will be stockpiled then respread during reclamation to assist in establishing and maintaining plant communities. The soils will then be tilled to an agricultural condition and turned over to the landowner for cultivation. Silver Maple will work with landowners on reseeding and will provide support as needed to establish pre-existing conditions.

5.15.12 Discuss induced voltage issues as they relate to the project arrays, collector circuits, and generator tie line. Provide the following information:

5.15.12.1 Identify the location of confined animal dairy operations within one-half mile of any proposed transmission or distribution centerline or other project facilities.

According to the WDNR, Concentrated Animal Feeding Operations (CAFOs) include livestock/poultry feeding operations with 1,000 or more animal units and require a permit to operate. Smaller-scale animal feeding operations can also receive CAFO designations in some instances. According to the WDNR, there are 16 CAFOs in Fond du Lac County and three CAFO's in Winnebago County. No WDNR-permitted CAFOs are located within one half mile of the Project Area. The nearest CAFO is approximately 1.1 miles east of the Project Area.

Silver Maple has attempted to identify the locations of smaller confined animal operations within one half mile of the Project Area. High quality aerial imagery from 2011 to 2021 was used to estimate the number of cattle. A total of 38 farmsteads were reviewed for the presence of confined animal operations. Of the 38 farmsteads reviewed, 25 were identified as having confined animals. It is unclear how many of these operations are dairy. Table 5.15-2 summarizes the approximate number of animals identified on aerial imagery. When animals were not seen on 2021 aerial imagery, previous years were checked and noted in the table.

Twenty-five (25) possible confined animal operations (CAO) were identified within one-half mile of the Project Area (Figure 4.1.8.2 in **Appendix A**). Of these, one possible CAO (CAO 24) was identified adjacent to the Project Area, just northwest of County Highway 26. 2015 imagery shows fencing that may indicate the presence of horses; however, 2021 aerial imagery shows the fencing removed and no evidence of confined animals. Another possible confined animal operation (CAO 27) is located within 300 feet of the Project Area, just north of Seiler Road and east of County Highway 26. 2021 imagery shows the presence of cattle. No confined animal operations are within 300 feet of the POI.

Table 5.15-2: Small Confined Animal Operations within Half-Mile of Project Area

Site ID	Approximate Number of Livestock	Aerial Imagery Date
CAO 1[1]	25	2021
CAO 2[1]	4	2021
CAO 3[1]	15	2021
CAO 4[1]	74	2021
CAO 5[1]	14	2021
CAO 8[1]	7	2015
CAO 9[1]	69	2015
CAO 10[1]	15	2015
CAO 12[1]	27	2015
CAO 14[2]	3	2020
CAO 15[1]	3	2020
CAO 16[2]	2	2020
CAO 17[1]	26	2021
CAO 18[1]	10	2021
CAO 19[1]	5	2015
CAO 24[2]	2	2011
CAO 25[1]	19	2017
CAO 26[1]	5	2011
CAO 27[1]	11	2021
CAO 28[1]	12	2017
CAO 29[2]	1	2015
CAO 30[1]	18	2015
CAO 33[2]	2	2021
CAO 34[1]	13	2011

CAO 35[1]	14	2011
[1]……The animals observed appear to be cattle [2]……The animals observed appear to be horses		

5.15.12.2 Identify the location of agricultural buildings located within 300 feet of any proposed transmission or distribution centerline or other project facilities.

Seven agricultural buildings are located within 300 feet of Project facilities. No agricultural buildings are located within 300 feet of the Project Loop-In Lines.

5.15.12.3 Discuss induced voltage issues related to the project and its transmission or distribution line routes.

The Project will be constructed to meet the standards outlined in Chapters SPS 316 (Electrical), SPS 371 (Solar Energy Systems), PSC 114 (Wisconsin Electrical Code) of the Wisconsin Administrative Code, and the National Fire Protection Association's NFPA70 National Electric Code. Following the adopted electric codes and guidelines will ensure the system is designed correctly and potential issues of induced voltage are mitigated in accordance with applicable law.

Silver Maple does not anticipate issues regarding stray voltage as a result of the Project. The Project is self-contained with all electrical components, including collection wiring, both substations, and the interconnection lines, being inside the fenced area of the Project. The Project will be designed and installed per the guidelines of the NEC and NESC as applicable, including the proper selection of grounding equipment, conductors, insulation, and shielding. A grounding study will be done for the entire Project showing that in the event of a ground fault, the ground is safe to walk on; and the electrical equipment will be tested during Project commissioning. Project monitoring and controls can detect ground faults and remotely shut down equipment as needed.

5.15.12.4 Discuss any plans to conduct stray voltage testing pre- and post-construction.

Silver Maple will work with the applicable distribution utility to conduct stray voltage testing for any willing farm owner with a confined animal operation located within 0.5 mile of the final Project infrastructure, before any solar energy system construction that may interfere with testing commences, and after the Project is energized. Silver Maple will work with the distribution utility and farm owner to address any identified stray voltage concerns arising from the construction or operation of the Project. Prior to testing, Silver Maple will work with the applicable distribution utility and Commission staff to determine where and how to conduct the stray voltage measurements. Silver Maple will report the testing results to Commission staff.

5.16 Airports and Landing Strips

5.16.1 Airport, Landing Strips, and Helipads.

5.16.1.1 Identify all public and private airports, landing strips, and helipads within 10 miles of the project facilities (both for solar arrays and the nearest generator tie line structure).

5.16.1.2 Describe each of the airports, landing strips, and helipads with a description of the runways/landing zone and type of use.

5.16.1.3 Describe any potential for impacts to aircraft safety and potential facility intrusion into navigable airspace.

5.16.1.4 Describe any mitigation measures pertaining to public airport impacts.

Table 5.16-1 identifies and describes all public and private airports, landing strips, and helipads within 10 miles of the Project Area. Turf landing strips cater to smaller aircraft such as single-engine planes and crop dusters. The Fond du Lac Airport and Wittman Regional Airport can accommodate a variety of aircraft, including small jets.

Table 5.16-1: Airports, Landing Strips, and Helipads within 10 Miles of the Project Area

Facility Name	Airport ID:	Distance from Project	Ownership	Runway Information
Fond Du Lac Airport	FLD	8.5 miles southeast	Public	Three paved runways, public uses
Fun-Air Airport	WI46	3.5 miles east	Private	One turf runway, private uses
Mercy Medical Center Heliport	WS50	6.9 miles north	Private	One turf heliport, private uses
Pfaffenroth Airport	WI74	1.5 miles west	Private	One turf runway, private uses
Pioneer Airport	WS17	5.5 miles north	Private	One turf runway, private uses
Planeacres Airport	2WN7	2.9 miles north	Private	One turf runway, private uses
Ripon Medical Center	70WI	6.7 miles west	Private	One turf heliport, private uses
Vette/blust Seaplane Base	96WI	6.7 miles east	Private	One seaplane base, private uses
Williams Airport	1WI1	3.3 miles west	Private	One turf runway, private uses
Wittman Regional Airport	OSH	5.8 miles northwest	Public	Eight paved runways, public uses

[1] Distances were measured from the closest Project Area boundary.

The approximate maximum height of solar panels is 15 feet above ground. Given the low height of the solar panels and distance from existing airports, no impacts to private or public airports, landing strips, or helipads are anticipated as a result of Project development. Therefore, no mitigation measures have been proposed. Based on the results of the Glare Study (**Appendix Z**), none of the airport flight paths or the heliport would have yellow glare or red glare. See Section 5.20 for additional details on the glare analysis.

5.16.2 Commercial Aviation.

5.16.2.1 Identify all commercial air services operating within the project boundaries (i.e., aerial applications for agricultural purposes, state programs for control of forest diseases and pests (i.e., spongy moth (Lymantria dispar) control).

5.16.2.2 Describe any potential impact to commercial aviation operations.

5.16.2.3 Describe any mitigation measures pertaining to commercial aviation.

According to the DATCP's Interactive Map of the Spongy Moth Aerial Spray Program, no areas in Fond du Lac or Winnebago County have been treated with aerial applications in 2022.

No agricultural aerial application services (i.e., crop-dusting services) were identified within Fond du Lac or Winnebago County. Inquiries with local landowners determined that use of aerial applications services are not known to be used by anyone within or in close proximity to the Project.

Based on the maximum height of the facility equipment and the absence of airports as described above, no commercial aviation or private aviation impacts are anticipated for the Project.

This is supported by 14 CFR 91.119, which stipulates minimum safe altitudes for aircraft while flying over other than congested areas is 500 feet above the surface; or in excess of 500 feet from any person, vessel, vehicle, or structure when operating above sparsely populated areas. This rule is superseded by 14 CFR 137.49 which states, "during the actual dispensing operation, including approaches, departures, and turnarounds reasonably necessary for the operation, an aircraft may be operated over other than congested areas below 500 feet above the surface and closer than 500 feet to persons, vessels, vehicles, and structures, if the operations are conducted without creating a hazard to persons or property on the surface.

No mitigation measures have been considered pertaining to commercial aviation as there are no aerial services provided in or within the region surrounding the Project Area.

5.16.3 Agency Consultation.

5.16.3.1 Identify any potential construction limitations and permit issues.

5.16.3.2 Provide a summary of the status of any FAA determinations with details on mitigation actions or how any unresolved problems with aircraft safety are being addressed (including generator tie line structures).

5.16.3.3 Provide a list of any structures requiring, including generator tie line structures, WisDOT high structure permits, and the status of any such permits.

Evaluation of proposed infrastructure in conjunction with nearby airports was conducted using the FAA's Notice Criteria Tool. Results of the investigation revealed that solar infrastructure construction will not exceed notice criteria in accordance with CFR Title 14, Part 77.9 (see **Appendix J**).

CFR Title 14, Part 77.9 states that notice is required for any construction or alteration exceeding 200 feet aboveground level, any construction or alteration within 20,000 feet of a public use airport which exceeds a 100:1 surface from any point on the runway of each airport with at least one runway more than 3,200 feet, any construction or alteration within 10,000 feet of a public use airport which exceeds a 50:1 surface from any point on the runway of each airport with its longest runway no more than 3,200 feet, or within 5,000 feet of a public use heliport which exceeds a 25:1 surface.

The Fun-Air Airport (WI46), Pfaffenroth Airport (WI74), and Williams Airport (1WI1) private airports were identified within 20,000 feet of the Project Area. None of the identified airports

meet the criteria listed in §77.9 paragraph (d); therefore, Notice of Construction is not required under Title 14 Part 77.9. In addition, since the Project falls below the height threshold of 200 feet, Form 7460-1 is not required to be filed under CFR Title 14 Part 77.9(e)(4).

Based on Wis. Stat. § 114.135(7), the necessity of a permit for the erection of high structures is limited to objects that extend to a height greater than 500 feet aboveground within one mile of the location of the object, or above a height determined by the ratio of one vertical foot to 40 horizontal feet measured from the boundary of the nearest public airport or spaceport within the state. As there will be no structures constructed above 500 feet in height or within two miles of a public airport or spaceport for the Project, there is no need for a permit for the erection of high structures.

Overall heights of solar infrastructure will be between 850 feet and 920 ft amsl when including the maximum height of 15 feet for solar panels. Project development will not trigger the need for any FAA Notice or WisDOT high structure permits. Therefore, no mitigation measures or other airport safety assurance measures have been considered for the Project.

5.17 Communications Towers

For the following sections, include in the assessment all facilities that make up the solar arrays as well as any structures that are part of a necessary generator tie line for the project.

Silver Maple contracted with Comsearch to assess potential interference with mobile phone communications, AM/FM radio broadcasts, internet, off-air television, the commercial doppler radar network, land mobile and emergency services, and microwave paths and Fresnel zones. The Comsearch reports are in **Appendix J**. Silver Maple also consulted with the Department of Defense (DoD) to determine if the proposed Project is compatible with military operations. DoD correspondence is in **Appendix B**.

5.17.1 Provide an analysis or supportive data to predict whether or not any aspect of the proposed project would interfere with:

5.17.1.1 Cell phone communications.

Comprehensive technical databases containing information on licensed mobile phone carriers across the US were reviewed. Mobile phone carriers operate in multiple frequency bands and are often referred to as Advanced Wireless Service (AWS), Personal Communication Service (PCS), 700 MHz Band, Wireless Communications Service (WCS), and Cellular. They hold licenses on an area-wide basis which are typically comprised of several counties. A total of 55 AWS, PCS, 700 MHz, WCS, and Cellular carriers that provide service within the Project Area were identified. Two FCC-licensed cellular sites (US Cellular) were identified near the Project Area.

No cellular towers were identified in Proximity to the Project Area. Electromagnetic interference (EMI) from a solar farm is caused by an induction field, which is created by the AC electrical power and harmonics at the inverter of the Power Conversion Stations (PCS) located throughout the facility. The propagation of the interference occurs over very short distances which are generally around 500 feet or less, and due to the low frequency operation of the inverter, EMI does not normally extend above 1 MHz. Based on the frequency range for the mobile phone licenses

identified in the area from 700 MHz –2.3 GHz, and lack of cellular towers in proximity to the Project Area, Comsearch did not anticipate any harmful interference impact on mobile phone operations due to EMI from the Project.

No mitigation techniques or additional recommendations are required. The Mobile Phone Carrier Report is in **Appendix J**.

5.17.1.2 Radio broadcasts

AM and FM radio broadcast stations whose service could potentially be affected by the Project were analyzed. Database records for 14 licensed AM stations were identified within approximately 18.6 miles (30 kilometers) of the Project Area with the closest (WRPN) being located about 8.4 miles (13.5 kilometers) west of the closest panel locations. Since there were no AM stations found within 1.9 miles (3 kilometers) of the Project, which is the maximum possible exclusion distance based on a directional AM antenna broadcasting at 1000 KHz or less, the Project is not anticipated to impact the coverage of local AM stations.

Database records for 37 FM stations were identified within approximately 18.6 miles (30 kilometers) of the Project Area with the closest (WPKR) being located 1.1 miles (1.76 kilometers) to the south of the closest panel locations. At distances less than 0.3 mile (500 meters), distorting the antenna's radiation pattern could become a risk factor due to structures being placed in the proximity of the antenna (near-field). Because the nearest operational FM station is located further than 0.3 mile from the closest panel locations, the Project is not anticipated to cause interference.

No mitigation is necessary for the proposed Project, as the location of the solar arrays meet or exceeds the required distance separation from all licensed AM and FM broadcast stations near the Project Area. The AM and FM Radio Report is in **Appendix J**.

5.17.1.3 Internet (WiFi)

Wireless internet providers in proximity to the Project Area were identified and evaluated to determine potential impact in and around the Project Area. Wireless internet providers, often called WISPs (Wireless Internet Service Providers), deliver internet services via radio transmission to business and/or residential subscribers.

Most bands used for wireless internet services (primarily the unlicensed bands) have no reliable data source available since according to FCC rules, these systems are not required to license or register their transmitter locations. Therefore, the only band with a reliable data set to evaluate is the 3.65 GHz WBS (Wireless Broadband Systems) band, which by FCC rule requires registration of base and fixed transmitters. The 3.65 GHz band search identified one wireless internet system within 31 miles (50 kilometers) of the Project Area. The closest licensee identified was WQQU219, which has 8 antennas licensed, the closest of which is 26.7 miles (42.9 kilometers) east of the Project Area.

The presence of solar panels within a coverage area of a WISP is unlikely to pose a problem for their provision of service. The Wireless Internet Services Report is in **Appendix J**.

5.17.1.4 Television

Over-the-air (OTA) television stations broadcast signals from terrestrially-based facilities directly to television receivers. OTA stations whose service could potentially be affected by the Project were identified.

A total of 21 database records for OTA television stations within 62.1 miles (100 km) of the Project were identified, which is the distance most likely to provide OTA coverage to the Project Area and neighboring communities. Of these stations, twenty are currently licensed and operating, eight of which are low-power stations or translators. Translator stations are low-power stations that receive signals from distant broadcasters and retransmit the signal to a local audience. These stations serve local audiences and have limited range, which is a function of their transmit power and the height of their transmit antenna.

Typically, solar projects do not cause electromagnetic interference (EMI) to OTA television reception. If any, the most likely source of EMI are the photovoltaic (PV) inverters that are installed at every Power Conversion Station (PSC) throughout the Project Area. Due to the low frequency (60 Hz) operation of the PV inverters, EMI from these devices does not normally extend above 1 MHz which would be well below the frequency of operation for OTA television. Comsearch recommended that inverters be setback a minimum of 250 feet from any household to minimize OTA TV reception. The nearest inverter is about 300 feet from a household. The Over-the-Air TV Analysis is in **Appendix J**.

5.17.1.5 Doppler radar network

Comsearch conducted a search for Doppler Weather Radar Systems owned by operated by television stations and commercial interests within 155 miles (250 km) from the center of the Project Area, which is a reasonable search radius based on an analysis of the terrain surrounding the Project and the maximum height of the solar panels. Nine Doppler radar systems were identified within the 155-mile search radius. The nearest system is call signal WQAZ631, about 30.4 miles (49.0 km) from the nearest solar panel array.

To determine if the solar panels have the potential to impact the Doppler radar systems, line-of-sight (LOS) conditions were mapped based on the geographical region that have LOS to a given radar by considering the height of the radar antenna, the maximum height of the proposed solar panels, the curvature of the earth, and potential refractivity in the atmosphere. According to the LOS coverage plots (see Figures A-1 and A-2 in the Doppler Weather Radar Report in **Appendix J**), the effective terrain elevations would block LOS between the nine radar antennas and the Project Area. Additionally, obstruction due to land clutter (i.e., buildings, trees, etc.) would further impede LOS conditions. Therefore, LOS conditions would not exist between the radars and the solar panels, and the Project would not impact the nine Doppler radar systems. The Doppler Weather Radar Study is in **Appendix J**.

5.17.1.6 Other Communication Systems

5.17.1.6.1 Land Mobile & Emergency Services

In addition to the items analyzed in Sections 5.17.1.1 through 5.17.1.5, an assessment of the emergency services in proximity to the Project Area was conducted to identify potential impacts from the proposed Project. The following first-responder registered frequencies were evaluated: police, fire, emergency medical services, emergency management, hospitals, public works, transportation and other state, county, and municipal agencies. Industrial and business land mobile radio (LMR) systems and commercial E-911 operators in proximity of the Project Area were also identified.

Land mobile and emergency services data were derived from the FCC's Universal Licensing System (ULS) and the FCC's Public Safety & Homeland Security bureau. Comsearch identified site-based licenses and regional area-wide licenses designated for public safety use.

Five fixed land mobile sites were identified within two miles of the Project Area. Three of the sites are located 0.12 miles (0.19 kilometers) from the nearest panel area, one is located 0.88 miles (1.42 kilometers) away, and the fifth site is located 0.89 miles (1.44 kilometers) from the nearest panel area. In addition to the fixed-site licenses above, 603 land mobile licenses defined by center point and radius were found to intersect the Project Area.

The regional area-wide licenses were compiled from FCC data sources and identified for each county intersected by the Project Area. The Project Area is located in Public Safety Region 45, which contains all of the counties in Wisconsin. In the bands licensed by the FCC for area-wide first responders, which include 220 MHz, 700 MHz, 800 MHz and 4.9 GHz, as well as the traditional Part 90 public safety pool of frequencies, fifteen licenses were found for the State of Wisconsin, six for the County of Fond du Lac, and two for the County of Winnebago. These area-wide licenses are designated for mobile use only. Wireless operators are granted area-wide licenses from the FCC to deploy their cellular networks, which often include handsets with E911 capabilities. Seven mobile phone carriers were identified in St. Croix County (AT&T, Blue Ridge Wireless II, DISH Network, Nsight, T-Mobile, US Cellular, and Verizon).

First responder, industrial/business land mobile sites, area-wide public safety, and commercial E-911 communications are typically unaffected by the presence of a solar generating facility, and no impacts are anticipated to these services from the Project. Each of these networks is designed to operate reliably in a non-line-of-sight (NLOS) environment. Many land mobile systems are designed with multiple base transmitter stations covering a large geographic area with overlap between adjacent transmitter sites in order to provide handoff between cells. Furthermore, the heights of the solar panels whose height will not exceed fifteen feet aboveground level are generally lower than the antenna height of the land mobile system identified. As a result, very little, if any, change in their coverage should occur from the Project. The Land Mobile & Emergency Services Report is in **Appendix J**.

5.17.1.6.2 Microwave Networks

Microwave bands that may be affected by solar generating facilities operate over a wide frequency range (900 MHz – 23 GHz). A microwave study was conducted to determine the potential impact of the Project on licensed, proposed, and applied non-federal government microwave systems. The microwave study identified 10 microwave paths that intersect the area of interest, which includes a 1-mile buffer around the Project Area.

The Fresnel Zones and Consultation Zones for these microwave paths were calculated and mapped (see Figure 4.1.9.1 in **Appendix A**). The lower edge of the Fresnel Zones for paths 2-10 were found to be at least 40 meters (131 feet) above ground level throughout the Project Area (yellow). The solar panels have a maximum height of 15 feet, therefore there is no expected impact on these microwave paths from the proposed solar farm. One of the studied paths shows slight encroachment into the 100% Fresnel Zone from solar panels in the north section. However, based on significant existing terrain obstruction in the region north of the Project Area, this path appears to be operating on 60% Fresnel Zone. The addition of solar panels will not encroach the 60% Fresnel zone of this path, therefore no signal effect is expected for any of these existing microwave paths from the proposed Silver Maple Solar Project. The Microwave Study is in **Appendix J**.

5.17.1.6.3 Military Systems

An Informal Review Request was initially submitted on December 15, 2021 to the Department of Defense (DoD) Military Aviation and Installation Assurance Siting Clearinghouse to determine if the Project is compatible with DoD testing and training operations. The DoD responded on January 18, 2022 stating the Project will have minimal impact on military operations in the area and no concerns were identified.

Since the initial request, the Project has been redesigned and includes taller solar panels located on slightly less land, has less kilowatts of direct current, and no longer includes a Battery Energy Storage System (BESS) facility. An updated Informal Review Request was submitted to the DoD on November 11, 2022. The DoD responded on January 13, 2023, stating that based on the changes, the Project does not require an updated informal review. See **Appendix B** for agency correspondence.

5.17.2 Describe mitigation measures should interference occur during project operation for any of the communications infrastructure listed above.

No mitigation measures are proposed for the items referenced in Section 5.17.1 because the Project is not expected to adversely impact any identified communications infrastructure or interfere with military operations.

5.18 Electric and Magnetic Fields (EMF)

Provide an estimate of the magnetic profile created by necessary overhead collector circuits and electric transmission facilities (generator tie line). Estimates should be made using the following criteria:

- *Show the predominant electric line configurations proposed for the project (H-frame, single-pole delta, double-circuit, etc.).*
- *Show any existing lines that would be affected by the proposed collector circuits or generator tie-line and a post-construction diagram that incorporates the new and existing lines.*
- *Assume all panels are working and project is producing at maximum capacity.*
- *Show EMF profile at 0 ft., 25 ft., 50 ft., and 100 ft. from the centerline of each circuit type modeled.*

An evaluation of the electric and magnetic fields (EMF) associated with the Project's existing 345 kV transmission and 34.5 kV collection system was completed by Westwood for this Project. The transmission and collection systems contain an existing overhead 345 kV circuit and underground 34.5 kV collection circuits. Electric and magnetic fields ("EMF") of the 345 kV and 34.5 kV systems were modeled using the 3D EMF calculator within PLS-CADD, based on Electric Power Research Institute ("EPRI) and Institute of Electrical and Electronics Engineers ("IEEE") methods.

The calculations were performed on a 60 Hz frequency, with the conductors loaded at a max operating current of 600 amps. The calculations were made, based on IEEE standards, at 1 meter (3.28 feet) aboveground in 5-foot increments, +/- 200 feet from the center of 7 unique right-of-way sections containing similar 34.5kV collection circuits, one of which is parallel to an existing overhead 345 kV circuit.

The circuit design used for the underground circuit calculations, a 3-phase circuit, is a trefoil direct 3-foot burial spaced 15 feet from adjacent underground circuits.

As demonstrated in the EMF Study (**Appendix X**), the predicted maximum magnetic field from the 34.5kV underground circuits is predicted to be 26.137 mG and the maximum electrical field is predicted to be negligible due to the mitigating effects of the circuits being underground. The effect of the 34.5kV underground circuits on the parallel existing 345kV circuit is negligible Based on minimum NESC clearances, the maximum electric field from the parallel 345 kV transmission circuit is predicted to be 8.193 kV/m and the maximum magnetic field is predicted to be 461.057 mG. The values calculated in this study are similar to those calculated for other similar circuits. There are no federal or Wisconsin-specific standards limiting occupational or residential exposure to 60-Hz EMF in the United States.

In addition, the PSC has concluded that there is no correlation between magnetic fields and negative health effects.[32]

Charts showing the electric and magnetic field strengths of the 7 unique right-of-way sections from 0 to 200 feet, in 5-foot increments, are shown in Section 5.0 of the EMF Study in Appendix X. Construction typicals showing the 34.5 kV underground collection system are provided in **Appendix D**.

5.19 Noise

Pre- and post-construction noise studies are required for all electric generation projects. Noise measurement studies must be approved by PSC staff.

5.19.1 Provide existing (ambient) noise measurements and projected noise impacts from the project using the PSC's Noise Measurement Protocol. The PSC Noise Measurement Protocol can be found on the PSC website at: https://psc.wi.gov/SiteAssets/ConventionalNoiseProtocol.pdf.

[32] Public Service Commission of Wisconsin, EMF – Electric and Magnetic Fields, The Electromagnetic Spectrum. Available at: https://psc.wi.gov/Documents/Brochures/EMF.pdf. Accessed April 5, 2022.

Westwood was contracted to conduct a preconstruction ambient sound study and a Project operational noise impact evaluation. Westwood collected pre-construction ambient measurements on October 4-6, 2021, at various points across the proposed Project Area. These measurements were conducted in accordance with the PSC's "*Measurement Protocol for Sound and Vibration Assessment of Proposed and Existing Electric Power Plants*" (PSC Protocol) and were used as a basis for the measurement and analysis methodology. Measurement locations were approved by PSC staff. **Appendix B** includes documentation of the approval.

In the absence of explicit noise level limits for solar projects, in addition to using the PSC Protocol for measurement and analysis protocol, Westwood compared the modeled results to the noise level limits set forth for wind energy systems under Wis. Admin. Code § PSC 128.14, which includes a daytime project noise limit of 50 dBA at the outside wall of a nonparticipating residence or community building, and a nighttime project noise limit of 45 dBA at the same locations.

Ambient noise measurements were conducted at six PSC-approved locations in October of 2021. These locations were selected to represent the overall Project Area as well as near homes expected to have the highest levels of Project noise. Noise levels from the ambient survey ranged from 35.0 to 60.9 dBA across the six locations and measurement time periods.

The CADNA-A noise modelling software was used to calculate anticipated cumulative Project noise at all noise sensitive receptors within 3,000 feet of proposed Project infrastructure. A conservative ground absorption coefficient of 0.5 was assumed to account for the varying surface properties of the ground throughout the Project Area and over the course of a year (e.g., hard, frozen ground in winter vs. porous ground covered by vegetation in summer). The highest predicted Project noise level at a noise sensitive receptor is 41.6 dBA. These predicted noise levels are expected to have a minimal impact on the nearby residences, and no mitigation measures are anticipated. The Noise Impact Assessment is in **Appendix Y**.

It is anticipated that the construction contractors for the Project will typically work during daylight hours. The workday will vary slightly depending upon the time of year, access constraints and weather conditions. On some occasions, contractors may work outside of the typical hours because of electrical system access constraint requirements or schedule constraints. The construction task anticipated to create the most noise is pile driving. Pile driving will not take place outside of the 7 A.M. to 7 P.M. timeframe, Monday through Friday, and 9 A.M. to 7 P.M. timeframe on Saturday. The impact of this short-term, intermittent activity will decrease with distance to residences. Likewise, other construction-related noise is short-term and similar in nature to the type of noise produced by agricultural activity currently taking place in the Project Area.

5.19.2 Provide copies of any local noise ordinance.

The Project is located in Fond du Lac and Winnebago Counties, Wisconsin. County and Town regulations and ordinances were reviewed. The Town of Eldorado Zoning Ordinance and the Winnebago County Zoning Ordinance state that certain projects and facilities must not produce a nuisance, such as excessive noise. The Project will not violate these local ordinances.

5.19.3 Provide equipment manufacturer's description of noise attenuating methods and materials used in the construction of proposed facilities.

The main sound sources from the Project are expected to be the inverters and Project transformer. The specification sheets and noise emission profiles can be found in Appendix C of the Noise Impact Assessment in **Appendix Y**.

5.19.4 Describe how noise complaints would be handled.

Silver Maple will respond to any comments regarding noise from the Project. The Project is not predicted to result in any significant increases over ambient levels. If Silver Maple receives a complaint regarding noise from the Project, it will investigate to determine the source of the noise and make any necessary equipment repairs if it finds the noise is due to a mechanical issue. Alternatively, Silver Maple will attempt to come to a mutually agreeable solution.

5.19.5 Discuss any mitigation measures that would be used to address noise complaints during the operation of the project.

As demonstrated in the Noise Impact Assessment (**Appendix Y**), the Project noise is not expected to exceed 50 dBA during the daytime hours nor 45 dBA during the nighttime hours. Therefore, noise mitigation is not anticipated to be needed. While not anticipated, if noise levels are higher than projected and exceed these levels, Silver Maple would inspect the equipment to determine if repair or adjustment is needed and promptly repair any defective equipment to bring noise levels back to the 50/45 dBA levels. Additional noise mitigation measures could include installing noise barriers as appropriate, which could consist of vegetative buffering or other suitable materials.

5.20 Solar Panel Glare

5.20.1 Provide an analysis showing the potential for glint or glare from a typical project solar panel, as well as from the project as a whole. Include the following:

- *The analysis should list the basic assumptions used and the methodology/software used for creating the glint or glare analysis.*
- *The analysis should evaluate impacts to aircraft and air traffic controllers from any impacted airports.*
- *The analysis should also examine the risk of glint or glare to local residents and road users in the project area.*
- *The analysis software may indicate that proposed array areas are large enough to impact the accuracy of glare results. If this warning is encountered in the modeling, the applicant should break the affected array areas into smaller sub-arrays and perform the glare analysis using these smaller sub-arrays.*
- *The analysis software may model different amounts of glare at observation points with different elevations. For any stationary observation points that could have human occupancy at higher elevations (e.g., a second story of a residence), the applicant should model multiple elevations for those stationary observation points.*

- *The analysis software may model different amounts of glare depending on the assumed heights of the solar panels. The applicant should model panel elevations for at least two different solar panel heights to establish a range of potential glare results.*
- *The analysis software may model different amounts of glare depending on the assume rest angle of the solar panels. The applicant should model at least two resting angle configurations, including one configuration with a resting angle set at between zero and five degrees.*

Westwood completed a glare study using ForgeSolar's GlareGauge software to analyze glare hazard for the proposed Project. The full glare report can be found in **Appendix Z**.

The ForgeSolar program visually depicts glare effects using the following classification scheme on a series of project area maps (no color indicates no glare predicted):

- Green Glare: low potential for temporary after-image.
- Yellow Glare: potential for producing an after-image.
- Red Glare: potential for permanent eye damage.

A total of 40 residential structures, one air traffic control tower, and 16 public road segments (Routes) located within 500 feet of a proposed solar arrays, and 14 2-mile flight paths (FP) from three airport runways within approximately 10 miles of the Project (Fond du Lac Co. Airport (FLD), FP1-4; Wittman Regional Airport, Oshkosh, Wisconsin (OSH), FP5-12; Fun-Air FAA (WI46), FP13-14) were assessed for this study; the Wittman Regional Airport, Oshkosh, Wisconsin (OSH) has one air traffic control tower that was also assessed.

The 40 residential structures were assessed at 5 feet and 15 feet aboveground level (AGL) to simulate eye level at a first and second story for each residence (two observation points (OPs) for each residence for a total of 80 OPs).

This glare analysis used an average 6-foot array height with solar panel arrays having 0- and 5-degree resting angles (DRA), also referred to as stow angles. An alternative 9-foot array height having a 0-DRA was also modeled following Commission guidance.

Based upon the results, none of the OPs, Routes, or Flight Paths would have glare of an intensity to cause permanent impacts (red glare). The FPs from the airports and air traffic control tower located within approximately 10 miles of the Project also do not receive yellow glare, therefore this Project complies with the Federal Aviation Administration (FAA) 2013 interim policy adherence. The Project also complies with the 2021 FAA guidance because the Project is not located on a federally obligated airport.

Additionally, the PV modules for this Project will use anti-reflective glass coating and are designed to absorb the light, reducing the potential for glare.

5.20.2 In the event of an inquiry or complaint by a resident in or near the project area, describe what modeling or other analysis would be used to evaluate the possibility of unreasonable panel glint or glare at the residence.

In the event of a complaint about glare by a resident within or outside of the Project Area, GlareGauge modeling will likely be used to assess the extent and time of day of glare at the point of concern.

Glare from the Project is not anticipated to raise concerns based on the modeled results, which indicate that none of the OPs would have glare of an intensity to cause permanent impacts and only 24 residential OPs and 10 road segments may experience yellow glare at a 0-degree resting angle. This model incorporates conservative assumptions, including disregarding existing visual screening between the arrays and the OPs. However, if concerns regarding glare arise after the Project is operational, mitigation options may be available including installing vegetation or other screening and adjusting the resting angle of the panels.

5.20.3 Describe mitigation options available to reduce unreasonable panel glint or glare.

As the PV panels will be mounted to single-axis tracking systems, the surface of the PVs will be in-line with the position of the sun; thereby, reducing the potential for steep, glancing angles (i.e., chance for glare) compared to fixed-tilt systems. Additionally, the PV modules will use anti-reflective glass coating and are designed to absorb the light, reducing the potential for glare.

Silver Maple expects nighttime resting angles to be consistent across the Project Area and will seek to minimize any potential impacts from glare during final engineering of the site. The planned overnight resting angle for the proposed solar arrays varies across tracker manufacturers and the planned resting angle will be determined during final design engineering. The resting angle is likely to be approximately 0 degrees to 30 degrees. Silver Maple is willing to work with non-participating landowners to provide vegetative screening if necessary and practicable.

6.0 Local Government Impacts

6.1 Joint Development and Other Agreements

6.1.1 Provide a summary of major agreement items agreed upon in any Joint Development Agreements (JDA) or other type of agreement including:

6.1.1.1 All services to be provided by the city, town, and/or county during construction and when the plant is in operation (e.g., water, fire, EMS, police, security measures, and traffic control).

6.1.1.2 Specifically, address community and facility readiness for incidents such as fires.

Silver Maple will engage in good faith with local governments in discussions concerning a possible Joint Development Agreement ("JDA"), which will address subjects such as:

- Replacement of any lost tax revenues for local educational taxing jurisdictions which do not receive Utility Aid Shared Revenue funds.
- Road maintenance and repair, if applicable.

Local fire and emergency medical services will be relied upon during construction and during facility operation. Training and coordination with local emergency responders will be included in Silver Maple's emergency response plan. Cooperation and training meetings with local emergency providers will be organized and held to maintain familiarity with site facilities and clear channels of communication. Emergency responders will have access to the site.

If needed, the Fond du Lac and Winnebago Sheriffs' Offices are expected to provide traffic control and security services. Since the Project Area is sparsely populated, construction-related traffic disruptions should be minimal. Post-construction traffic disruptions should be rare given the limited need for post-construction deliveries at this type of facility.

Construction of a solar photovoltaic electrical generating facility does not create any unique or especially dangerous environments or situations for local emergency responders. Silver Maple will require that all contractors on the site during construction meet all state, federal and industry best practice standards for employee and public safety. Silver Maple intends to communicate regularly with site area Emergency Response agencies to provide Project and facility familiarization and establish communication channels. Should any aspect of the Project construction or operations present unfamiliar equipment or situations for responders, Silver Maple will arrange for adequate professional training to deal with those concerns.

6.1.2 Provide a copy of all agreements with local communities (e.g., JDA, road use).

No agreements have been finalized with local communities at this time.

6.2 Infrastructure and Service Improvements

6.2.1 Identify any local government infrastructure and facility improvements required (e.g., sewer, water lines, drainage districts, police, and fire).

Silver Maple is not aware of any infrastructure or facility improvements needed for the construction or operation of the Project.

If changes, such as turning radii expansion to existing roads along haul routes are required, Silver Maple will adhere to all applicable construction standards and will ultimately restore such areas to preconstruction conditions.

Silver Maple will keep a record of the condition of the roads before, during, and at the conclusion of construction or any major construction event. This will assist Silver Maple, the counties, and the towns in accurately assessing any possible damage to town and county roads related to the Project. Silver Maple will be responsible for the compensation for the repair of any damage caused by the Project to at least original condition.

6.2.2 Describe the effects of the proposed project on city, village, town and/or county budgets for these items.

Local government budgets will be positively impacted by hosting the Project. Wisconsin's Shared Revenue Utility Aid Program provides for payments to be distributed annually to the communities hosting an electric generator. Silver Maple's proposed 200 MW Project is expected to be eligible for two components of the Shared Revenue Utility Aid Program: the MW-based payment, and the Incentive payment.

6.2.3 For each site provide an estimate of any revenue to the local community (i.e., city, village, town, county) resulting from the project in terms of taxes, shared revenue, or payments in lieu of taxes.

The Project is expected to generate approximately $800,000 in annual payments through the above-referenced Shared Revenue Utility Aid Program.

The estimated Utility Payment breakdown for a 200 MW solar project for Towns of Eldorado, Rosendale, and Nekimi and Fond du Lac County and Winnebago County is summarized below in Table 6.2-1.

Table 6.2-1: Estimated Annual Revenue for a 200 MW Project

Component	Townships	Counties
MW Based Payment	133,333	266,667
Incentive Payment	200,000	200,000
Total	**333,333**	**466,667**

A conservative estimate of 25 years of operation would be expected to result in approximately $20 million in shared revenue to the towns and counties hosting the Project. At the expected design life of 40 years, the shared revenue would be expected to be approximately $32 million.

6.2.4 Describe any other benefits to the community (e.g., employment of local residents, reduced production costs, goodwill gestures).

Silver Maple is willing to enter into agreements to replace any tax revenues that the local educational taxing jurisdictions would lose due to land being removed from the local property tax rolls because of the Project.

Approximately 200 to 300 construction workers will be employed to build the Project. In addition to construction labor, the Project will require skilled electricians, operations staff, and maintenance workers. When possible, these jobs will be sourced from the labor pool in surrounding communities.

Silver Maple has sponsored Fond du Lac County Sheriff's Shop with a Cop and their K-9 unit. Silver Maple also sponsored the Rosendale Lions Club.

6.2.5 Provide information on the direct, indirect, and induced state and local economic impacts during and after construction.

Direct benefits include significant revenues to area landowners who participate in the Project. These lease payments will positively affect the region, to the extent that landowners spend their revenues locally.

Some construction related services such as gravel supply and food services will likely be sourced locally, to the extent practicable. After construction, Silver Maple will consider local services such as landscape maintenance and snow plowing that meet insurance and health and safety requirements.

Income generated from direct employment during the construction and operations phases will be used to purchase local goods and services, creating a ripple effect throughout the county.

A detailed Economic Impact Analysis was completed and is included in Appendix CC.

6.2.6 Describe how natural gas pipelines in the project area would be impacted during construction and operation of the project, whether the project would have any risk of damaging pipelines, any special safety measures that would be utilized to construct near or under pipelines, and any changes that may be required for local first responders to address emergencies involving the pipelines due to the project.

6.2.7 Describe reasonable safety measures that would be taken to meet the pipeline operator's documented policies around their natural gas pipelines.

6.2.8 Describe plans to work with the pipeline operators to develop a plan to construct and maintain facilities in a manner that does not interfere with the pipeline operators' ability to access their pipelines and rights-of-way.

No natural gas pipelines are in the Project Area or will otherwise be impacted by the Project.

7.0 Landowners Affected and Public Outreach

7.1 Mailing lists

Provide a separate alphabetized list (names and addresses) in Microsoft Excel for each of the groups described below:

7.1.1 Property owners and residents within the project boundary and a separate list of property owners and residents from the project boundary out to a distance of one mile. It is strongly recommended that applicants consult with PSC staff in order to ensure that the format and coverage are appropriate considering the project type, surrounding land use, etc.

A list of property owners within the Project Area and a one-mile buffer is submitted electronically in **Appendix S**.

7.1.2 Public property, such as schools or other government land.

No public or government lands were identified within the Project Area. There are several public lands within a one-mile buffer of the Project Area. These lands include Northwoods Park, the Fond du Lac County Waterfowl Production Area, several GHRAs, a WRP and the Eldorado Wildlife Area (Figure 4.1.7.3, **Appendix A**).

7.1.3 Clerks and chief officers of cities, villages, townships, and counties affected by the proposed project, and the contact for the Regional Planning Commission relevant to the project area. Also include on this list the main public library in each county the proposed facilities would occupy.

The clerks and chief officers, and contacts for the regional planning commission and main public library are listed in Table 7.1-1 and in **Appendix S**.

Table 7.1-1: Clerks and Chief Officers Directly Affected

Entity	Clerk or Chief Officer Name	Address
Town of Eldorado	Gary Miller, Town Chairperson	N7664 County C, Eldorado, WI 54932
Town of Eldorado	Cheryl Pionke, Town Clerk	N7664 County C, Eldorado, WI 54932
Town of Nekimi	Glen Barthels, Town Chairman	3790 Pickett Road, Oshkosh, WI 54904
Town of Nekimi	Tom Pollack, Town Clerk	3790 Pickett Road, Oshkosh, WI 54904
Town of Rosendale	Roxanne Tarnow, Clerk/Treasurer	N8472 Co Rd M, Ripon, WI 54971
Town of Rosendale	Kenneth Kamps, Chairperson	N8472 Co Rd M, Ripon, WI 54971
Winnebago County	Sue Ertmer, County Clerk	112 Otter Avenue, Oshkosh, WI 54901
Fond Du Lac County	Lisa Freiberg, County Clerk	160 S Macy St Ste 2, Fond Du Lac, WI 54935
Regional Planning Commission	East Central Wisconsin Regional Planning Commission	400 Ahnaip St, Menasha, WI 54952
Public Libraries - Winnebago County	Oshkosh Public Library	106 Washington Ave, Oshkosh WI 54901
Public Libraries - Fond Du Lac County	Fond Du Lac Public Library	32 Sheboygan Street, Fond Du Lac, WI 54935

7.1.4 Local media for the project area, at least one print and one broadcast.

The following print and broadcast media for the Project Area are listed below and in **Appendix S**.

Print Media:
Fond du Lac Reporter
N6637 Rolling Meadows Dr
Fond du Lac, WI 54936

Broadcast Media:
89.3 WPNE Public Radio
2420 Nicolet Dr
Wood Hall Room 107
Green Bay, WI 54311

7.1.5 Tribal government representatives for Native American Tribes that hold off-reservation treaty rights in Ceded Territory. This only applies to projects within the following counties: Douglas, Bayfield, Ashland, Iron, Vilas, Forest, Florence, Marinette, Oconto, Menominee, Shawano, Langlade, Oneida, Price, Sawyer, Washburn, Burnett, Polk, Barron, Rusk, Taylor, Lincoln, Marathon, Portage, Wood, Clark, Chippewa, Eau Claire, Dunn, and St. Croix County.

Not applicable.

Appendix S addresses the requirements of Section 7.1 of the Application Filing Requirements.

7.2 Public Outreach and Communication

Silver Maple is committed to being a dedicated member of the community and to work hard to earn the trust of our neighbors. Our engagement with the community goes well beyond job creation, economic investment, and providing clean, renewable energy. We strive to build lasting partnerships with civic leaders, property owners, and community members. We pride ourselves on being transparent in our communication and highly responsive to public feedback throughout the life of the Project. Public outreach materials are provided in **Appendix T**.

7.2.1 List and describe all attempts made to communicate with and provide information to the public. Describe efforts to date and any planned public information activities.

Local Residents – Silver Maple has regularly engaged with prospective landowners, their tenants, and nearby residents to determine local interest in the Project to secure land and to identify potential concerns that can be addressed during Project development.

Local Units of Government – Silver Maple has met with local town and county staff to inform them of Project activities, to gauge interest in a solar facility, to understand permitting requirements, and to identify potential concerns.

State Elected Representatives – Silver Maple held virtual and in-person meetings with local and state representatives to introduce the Project and discuss the economic benefits to the Townships and Counties.

Regulatory Agencies – Silver Maple met virtually with staff from the PSC and WDNR on May 25, 2021 to introduce the Project, solicit comments, and to identify possible permits.

Other Organizations and the Public – In addition, Silver Maple has engaged in outreach activities to share information and gather feedback from a broader public audience, including one-on-one communication with Project neighbors and community leaders and established a dedicated website (silvermaplesolar.com) that provides an overview of the Project; timelines for planning, permitting, construction, and operation; information about the Project along with Q&A, additional resources, and contact information.

Outreach efforts were modified where appropriate and practical to virtual settings to accommodate COVID-19 safety protocols and restrictions. A summary of the public outreach and communications to-date are provided below. All presentation materials are provided in Appendix T.

- 05/25/2021 – Virtual pre-application meeting with PSC and WDNR.
- 11/15/2021 - Virtual meeting with Tricia Rathermel, CEO of Greater Oshkosh Economic Development Corporation, to introduce the Project.
- 11/23/2021 - Virtual meeting with Jim Cleveland VP of Economic development, Envision Greater Fond du Lac, to introduce the Project.
- 12/02/2021 - Virtual meeting with Rob Kleman, Senior Vice President, Oshkosh Chamber of Commerce to introduce the Project.
- 01/05/2022 - Virtual meeting with Fond du Lac County Executive Allen J. Buechel and Director of Administration Erin Gerred to introduce the Project.
- 01/13/2022 - Virtual meeting with John S. Scopelliti, Planner, Fond du Lac County Planning and Development. 01/18/2022 Presented the Project at Town of Rosendale Board meeting at Town of Rosendale Town Hall.
- 01/24/2022 In-person meeting with Winnebago County Executive John Doemel and Zoning Administrator Cary Rowe.
- 2/10/2022 Virtual meeting with State Representative Michael Schraa, Assembly District 53, to introduce the Project.
- 2/14/2022 - In-person meeting with State Senator Dan Feyen, District 18, to introduce the Project. 2/21/2022 - In person presentation with Township of Eldorado held at Rosendale High School auditorium to introduce the Project.
- 3/15/22 - Virtual meeting with Fire Chiefs Jerry Borski and Dave McCoy, Town of Eldorado and Rosendale respectively, to introduce the Project.
- 4/7/2022 Virtual meeting with Fire Chief Matt Potratz, Town of Nekimi, to introduce the Project.
- 5/19/2022 - Virtual meeting with Erin Gerred and Fond du Lac County Executive Sam Kauffman.
- 5/23/2022 - In-person meeting with Rosendale School Superintendent Wayne Weber, to introduce the Project.
- 5/23/2022 - In-person meeting with Larry Crook, Rosendale Lions Club President.
- 5/23/2022 - In-person open house at American Legion, 500 Fond Du Lac Ave, Fond du Lac, WI 54935. Posterboards were displayed and a fact sheet was handed out.

7.2.2 Provide copies of public outreach mailings or website addresses for project pages.

Project outreach materials are provided in **Appendix T**. The Project website is available at: https://silvermaplesolar.com/.

7.2.3 Describe plans and schedules for maintaining communication with the public (e.g., public advisory board, open houses, suggestion boxes, and newsletters).

Project representatives will continue to make themselves available for phone calls, virtual conferences, in-person meetings, and open houses. Communication with the public will also continue with mailings, local governmental board meeting attendance, meeting with landowners, and updating the Project website listed in Section 7.2.2.

7.2.4 Identify all local media that have been informed about the project.

At this time, Silver Maple has not provided information to local media.

7.2.5 Describe the ongoing ways that the public would be able to communicate with plant operators or the company. Describe any internal process for addressing queries or complaints.

When construction commences, Silver Maple will select a Construction Site Manager as the Proposed local point of contact. This person will be available for local inquiries via phone and email.

During the operation of the Project, members of the community will be able to communicate with Project personnel through the O&M facility, which will be centrally located near the Project substation and house full time maintenance personnel. Any maintenance or operations related questions can be directed to the maintenance staff at this location or by contacting Silver Maple at silvermapleinfo@silvermaple.com. If questions or concerns arise during construction or operation, these could be submitted through the Project website, by email, mail, phone or in-person. Concerns will be recorded by a Silver Maple representative in a logbook. Silver Maple is committed to resolving complaints within 30 days of receipt, unless extenuating circumstances require a longer time period, or it is determined that the complaint is unresolvable.

8.0 Waterway/Wetland Permitting Activities

Section 8.0 covers information required by WDNR for waterway, wetland, and erosion control permits. The following subsections apply to both proposed and alternative solar array sites.

Questions about this section should be directed to WDNR Office of Energy staff.

8.1 Waterway Permitting Activities

This section should be consistent with the waterways included in WDNR Tables 1 and 2 and associated maps. See page iii of the AFR document on what to include in DNR Tables 1 and 2 regarding waterway resources.

The Project was designed to avoid waterways to the extent practicable. The WDNR Table 1 (Wetland and Waterway Impact/Crossing Table) and Table 2 (Wetland and Waterway Inventory Table) are in **Appendix O**. Figures 8.3.1 and 8.3.2 in **Appendix A** show the wetland and waterway locations.

8.1.1 Identify the number of waterways present, including all DNR mapped waterways and field identified waterways, assuming all waterways are navigable until a navigability determination is conducted (if requested). Provide an overall project total, as well as broken down by the proposed site and the alternative site and their associated facilities.

The WDNR 24K Hydrography Dataset mapped 16 waterways (WBIC flowlines) within the Project Area (Table 8.1-1). The WBIC flowlines within the Project Area generally overlap with mapped NHD flowlines and NWI mapped riverine wetlands. Five WDNR 24K water bodies were identified from the WDNR 24K Hydrography Dataset within the Project Area.

Table 8.1-1: WDNR Mapped Flowlines and Waterbodies

WBIC ID	WBIC Name	Associated with	Notes
0	Unnamed	FWW-BB-2	WBIC Flowline.
135000	Unnamed	FWW-BB-3	WBIC Flowline.
135100	Unnamed	FWW-B-10	WBIC Flowline.
140900	Eightmile Creek	FWW-BB-9	WBIC Flowline.
5026083	Unnamed	FWW-BB-8	WBIC Flowline.
5026151	Unnamed	FWW-K-2	WBIC Flowline.
5026153	Unnamed	FWW-K-3	WBIC Flowline.
5026155	Unnamed	Not Mapped	WBIC Flowline.
5026254	Unnamed	FWW-K-3	WBIC Flowline.
5026276	Unnamed	FWW-BB-7	WBIC Flowline.
5026375	Unnamed	FWW-K-4	WBIC Flowline.
5026513	Unnamed	FWW-BB-2	WBIC Flowline.
5026566	Unnamed	FWW-B-9	WBIC Flowline.
5026633	Unnamed	FWW-B-5	WBIC Flowline.
5026640	Unnamed	FWW-B-3	WBIC Flowline.
5026660	Unnamed	FWW-B-7	WBIC Flowline.
5560657	Unnamed	FW-B-02a	WBIC Waterbody.

Table 8.1-1: WDNR Mapped Flowlines and Waterbodies

WBIC ID	WBIC Name	Associated with	Notes
5561423	Unnamed	FW-BB-1c	WBIC Waterbody. Listed as a Priority Navigable Water (PNW). Feature identified as a lake less than 50 acres.
5561218	Unnamed	FW-BB-5a	WBIC Waterbody.
5561565	Unnamed	FW-B-11a	WBIC Waterbody.
5561603	Unnamed	FW-B-18a	WBIC Waterbody.

During the field delineation, 22 waterways totaling 22.3 acres (9.57 miles) were delineated within the Project Area (Table 8.1-2). One additional waterway (FWW-K-1) was observed during the field visit but was not mapped because it was inaccessible. Fourteen of the delineated waterways correspond to WDNR-mapped WBIC flowlines. A summary of the waterways within the Project Area is included in DNR Table 2 (**Appendix O**) and shown on Figures 8.3.1 and 8.3.2 (**Appendix A**). All of the delineated waterways exhibited physical OHWM characteristics.

Table 8.1-2: Waterways within the Project Area

Delineated Waterway	WBIC ID	NHD Name	Waterway Type	Acres
FWW-B-2	N/A	N/A	Intermittent	0.24
FWW-B-3	5026640	N/A	Intermittent	1.43
FWW-B-4	N/A	N/A	Intermittent	0.40
FWW-B-5	5026633	N/A	Intermittent	0.43
FWW-B-6	N/A	N/A	Ephemeral	0.57
FWW-B-7	5026660	N/A	Intermittent	0.97
FWW-B-8	N/A	N/A	Ephemeral	0.13
FWW-B-9	5026566	N/A	Perennial	1.94
FWW-B-10	135100	N/A	Perennial	1.98
FWW-K-1	5026155	N/A	Perennial	Not Mapped
FWW-K-2	5026151	N/A	Perennial	1.02
FWW-K-3	5026254 and 5026153	N/A	Perennial	0.55
FWW-K-4	5026375	N/A	Intermittent	1.02
FWW-K-6	N/A	N/A	Intermittent	0.70
FWW-BB-1	N/A	N/A	Ephemeral	0.17
FWW-BB-2	5026513, 0	N/A	Intermittent	1.82
FWW-BB-3	135000	N/A	Intermittent	0.65
FWW-BB-4	N/A	N/A	Ephemeral	0.07
FWW-BB-5	N/A	N/A	Intermittent	0.33
FWW-BB-7	5026276	N/A	Intermittent	5.29
FWW-BB-8	5026083	N/A	Perennial	0.07
FWW-BB-9	140900	N/A	Perennial	1.85
FWW-BB-10	N/A	N/A	Ephemeral	0.63
Total				**22.3**

Silver Maple made significant efforts to avoid and minimize impacts to waterways within the Project Area. As a result of these efforts, no waterways are located within perimeter fencing. As discussed in Section 8.1.4.3, below, a total of ten waterways will be potentially impacted by permanent access roads. Four waterways will potentially be impacted by permanent access roads associated with the Proposed Arrays, five waterways will potentially be impacted by permanent access roads associated with the Alternative Arrays, and one waterway will be potentially impacted by permanent access roads associated with both the Proposed and Alternative Arrays.

No other waterway impacts are anticipated from Project infrastructure.

DNR Table 2 identifies whether a waterway is associated with the Proposed or Alternative Array Areas (**Appendix O**).

8.1.2 Identify any waterways in the project area that are classified as Outstanding or Exceptional Resource Waters, Trout Streams, Wild Rice Waters, and Wild or Scenic Rivers.

No waterways in the Project Area are classified as Outstanding or Exceptional Resource Waters. Trout Streams, Wild Rice Waters, or Wild and Scenic Rivers.

8.1.3 State if you are requesting DNR staff perform a navigability determination on any of the DNR mapped waterways and/or field identified waterways that would be impacted and/or crossed by project activities. If a navigability determination is requested, provide the following information in a separate appendix with the application:

- A table with columns for:
    - The crossing unique ID
    - Waterbody Identification Code (WBIC) for each waterway (found in the Surface Water Data Viewer or in the GIS data for the DNR mapped waterways)
    - Latitude and longitude for each crossing
    - Waterway name
    - Waterway characteristics from field investigation
    - Any other pertinent information or comments
- Site photographs, clearly labeled with the photo number, direction, date photo was taken, and crossing unique ID. A short description of what the photo is showing, and any field observation must also be included in the caption.
- Project map showing the following:
    - Aerial imagery (leaf-off, color imagery is preferred)
    - DNR mapped waterways (labeled with their unique ID)
    - Field identified waterways (labeled with their unique ID)
    - the location of each site photograph taken (labeled with the photo number)
    - the project area, and
    - Call out box/symbol for each DNR mapped waterway crossing where the navigability determination is requested (labeled with their unique ID)

A navigability determination is not being requested as a part of this application. All flowlines within the Project Area have been assumed navigable.

8.1.4 For both the proposed and alternative sites and their associated facilities, provide the following:

8.1.4.1 The number of waterways that would be crossed by collector circuits and specify the installation method (e.g., X waterways would be bored, Y waterways would be trenched, etc.).

All impacts to waterways from collection line crossings will be avoided through construction methods such as directional boring. As summarized in the DNR Table 1 (**Appendix O**) and as shown on Figures 8.3.1 and 8.3.2 in **Appendix A**, thirteen waterways (FWW-B-3, FWW-B-4, FWW-B-6, FWW-B-7, FWW-B-10, FWW-BB-2, FWW-BB-3, FWW-BB-5, FWW-BB-7, FWW-BB-9, FWW-BB-10, FWW-K-2, and FWW-K-4) will be crossed with collection lines. [10] waterway crossings associated with 32 collection lines are associated with the Proposed Arrays, and 5 waterway crossings associated with 6 collection lines are associated with the Alternative Arrays.

8.1.4.2 The number of waterways that would be traversed with equipment for temporary access roads, and how that crossing would be accomplished (e.g., temporary clear span bridges (TCSB), use of existing bridge or culvert, etc.).

No impacts to waterways are proposed for temporary access roads.

8.1.4.3 The number of waterways that would be impacted for permanent access roads, and how that crossing would be accomplished (e.g., placement of culvert, ford, permanent bridge, etc.).

Proposed access roads will have minimal impacts on waterways. Silver Maple made significant efforts to minimize and mitigate the impacts of access road crossing by using existing crossings wherever possible. Five waterways (FWW-K-2, FWW-BB-2, FWW-B-9, FWW-BB-9, and FWW-BB-7) are proposed to be crossed by 5 access roads associated with the Proposed Array Area. Two of these crossings (FWW-B-9 and FWW-BB-9) will utilize existing crossings and will not result in additional impacts to the waterways in these locations. The crossing of FWW-BB-7 will utilize an existing crossing but will need to be widened to accommodate Project construction and operation, which will result in minor additional impacts. Other crossings may require the placement of a new culvert crossing.

Six waterways (FWW-B-4, FWW-B-8, FWW-B-10, FWW-K-4, FWW-K-6, and FWW-BB-2) are proposed to be crossed by 7 access roads associated with Alternative Array Areas. Waterway FWW-BB-2 contains one proposed crossing associated with a Proposed Array Area (FWW-BB-2d) and one proposed crossing associated with an Alternative Array Area (FWW-BB-2c). Waterway FWW-B-10 contains two proposed culvert crossings in separate locations. The crossing of FWW-K-4 will utilize an existing crossing but will need to be widened to accommodate the Project construction and operation, which will result in minor additional impacts. Other crossings may require the placement of a new culvert crossing.

DNR Table 2 identifies whether a waterway is associated with the Proposed or Alternative Array Areas (**Appendix O**).

It is anticipated that these crossings would be permitted under a GP21 application and would likely involve the placement of permanent culvert structures. Proposed access road crossings of waterways are included in **DNR Table 1** (**Appendix O**)

Existing culvert crossings are being utilized in 4 locations (FWW-B-9, FWW-BB-9, FWW-K-4 and FWW-BB-7). Two of these crossings (FWW-B-9 and FWW-BB-9) will utilize existing crossings and will not result in additional impacts to the waterways in these locations and are therefore not included in **DNR Table 1**. The crossings of FWW-BB-7 and FWW-K-4 will utilize existing crossings but will need to be widened to accommodate increased traffic and will result in additional, but reduced impacts which have been included **DNR Table 1.** Silver Maple is continuing to work with participating landowners to evaluate the use of existing crossings in order to further minimize the Project's impacts on waterways.

8.1.4.4 The number of waterways that would be impacted and/or crossed by fence installation and footings.

Perimeter fencing is not proposed to impact or cross any waterways

8.1.4.5 The number of waterways that would be impacted and/or crossed by other construction activities or facilities (e.g., placement of a stormwater pond within 500 feet of a waterway, stream relocation, staging areas, etc.).

No waterways are expected to be impacted or crossed by other construction activities or facilities. No stream relocation is proposed, staging areas will be sited in upland areas, and no stormwater basin is proposed within 500-feet of any field delineated waterways or WDNR WBIC flowlines.

8.1.5 Provide the methods to be used for avoiding, minimizing, and mitigation construction impacts in and near waterways. This discussion should include, but not be limited to, avoiding waterways, installation methods (i.e., directional bore versus open-cut trenching or plowing), equipment crossing methods (i.e., for temporary access, the use of TCSB versus temporary culvert; for permanent access, the use of permanent bridge versus permanent culvert), sediment and erosion controls, invasive species protocols for equipment, etc.

Silver Maple made significant efforts to avoid Project-related impacts to navigable waterways through siting and construction planning and methods. As stated above, installation of underground collection line crossings have been proposed as directional bores to avoid impacts to waterways. The proposed access road crossing locations were decided upon after going through various iterations of proposed designs. Existing farm crossing locations were utilized in four locations to reduce or eliminate the impact zone and prevent multiple crossings in close proximity. Silver Maple is continuing to evaluate the potential use of other existing farm crossings, to the extent feasible.

Each crossing was evaluated for the use of a potential permanent bridge crossing. Ultimately, culvert crossings are being proposed due to the heavy loads which are required to construct the Project. Large vehicles and heavy equipment will need to utilize each crossing during the construction phase of the Project and the potential loads put great stress on proposed bridges. Additionally, the costs of constructing bridges over culverts crossings is much higher. It is ultimately for these reasons that culverts were selected over bridges as the preferred crossing method.

Appropriate sediment and erosion control measures, as discussed in the ECSWMP (**Appendix H**), will be installed to minimize sedimentation into waterways. Vegetation management equipment and implements will be cleaned of potential weed and invasive species reproductive parts prior to entering the Project Area. Similarly, equipment will be cleaned after all work events in the Project Area. Cleaning can occur off-site at a designed cleaning station or facility, or a cleaning station constructed in the Project Area. Cleaned equipment will be inspected to ensure removal of all vegetative matter.

8.1.6 Describe fence crossings of waterways, including the location of support pilings (i.e., in waterway channel, at the top of the waterway banks) and the amount of clearance between the bottom of the fence and the ordinary high-water mark. Also describe any existing public use of the waterway and how this public use may be impacted by the fence crossing.

Perimeter fencing is not proposed in any waterways.

8.1.7 For waterways that would be open-cut trenched, provide the following:

8.1.7.1 State if any waterways are wider than 35 feet (measured from OHWM to OHWM).

8.1.7.2 The machinery to be used, and where it would operate from (i.e., from the banks, in the waterway channel) and if a TCSB is needed to access both banks.

8.1.7.3 The size of the trench (length, width, and depth) for each waterway crossing.

8.1.7.4 The details on the proposed in-water work zone isolation/stream flow bypass system (i.e., dam and pump, dam and flume, etc.).

8.1.7.5 The details on the proposed dewatering associated with the in-water work zone isolation/stream flow bypass system, including where the dewatering structure would be located.

8.1.7.6 The duration and timing of the in-stream work, including the installation and removal of the isolation/bypass system and the trenching activity.

8.1.7.7 How impacts to the waterway would be minimized during in-water work (e.g., energy dissipation, sediment controls, gradually releasing dams, screened and floating pumps, etc.).

8.1.7.8 How the waterway bed and banks would be restored to pre-existing conditions.

No open-cut trenching across waterways is proposed. All collection line crossings of waterways are anticipated to be directionally bored.

8.1.8 For waterways that would be directionally bored, provide the following:
Where the equipment would operate from (e.g., from upland banks, from wetland banks, etc.) and if a TCSB is needed to access both banks.

Entry points and exit points will be positioned outside of the 75-foot waterway buffer. No impacts to wetlands associated with the waterways are anticipated from either the borings or bore pits.

8.1.8.1 The location and size of any temporary staging and equipment storage.

Temporary staging and equipment storage will be located in the four laydown areas as shown in Table 2.3-1 and on Figures 4.1.1 and 4.1.2 in **Appendix A** or in upland areas near the proposed bore location. If the boring cannot be completed in one day, overnight storage of equipment will be in upland areas near the bore pits and within the fenced array area. Appropriate BMPs and contaminant management (oil absorbent booms, etc.) materials will be put in place prior to leaving the boring area for the day.

8.1.8.2 The location and size of bore pits.

A typical bore pit is approximately 10 feet by 20 feet by 6 feet deep. Approximately 1,200 cubic feet (45 cubic yards) of material may be excavated for each pit. Each of the borings will require two bore pits. Each pit will be constructed in upland areas outside of the 75-foot waterway buffer.

8.1.8.3 Provide a contingency plan for bore refusal and a plan for the containment and clean-up of any inadvertent releases of drilling fluid (e.g., a frac-out).

A frac-out contingency plan ("FCP") that describes the standard measures for underground collector line crossings wetlands and waterways using the HDD construction method. The FCP establishes operational procedures and responsibilities for the prevention, containment, and cleanup of frac-outs associated with the proposed directional drilling and boring operation for the Project. The FCP is in **Appendix BB**.

8.1.9 For waterways that would have a TCSB installed across them, provide the following:

8.1.9.1 A description of the TCSB proposed, including dimensions, materials, and approaches.

8.1.9.2 State if any waterways are wider than 35 feet, and/or if any in-stream supports would be used.

8.1.9.3 State how the TCSB placement and removal would occur (e.g., carried in and placed with equipment, assembled on site, etc.) and if any disturbance would occur to the bed or banks for the installation and removal, including bank grading or cutting.

8.1.9.4 The duration of the TCSB and when installation and removal would occur.

8.1.9.5 Describe sediment controls that would be installed during the installation, use, and removal of the TCSBs.

8.1.9.6 Describe how the TCSBs would be inspected during use, and how they would be anchored to prevent them from being transported downstream.

8.1.9.7 State if the required five foot clearance would be maintained, or if the standards in Wis. Admin. Code NR 320.04(3) would be complied with.

8.1.9.8 How the waterway banks would be restored when the TCSB is removed.

No temporary clear span bridge crossings of waterways are proposed.

8.1.10 Describe the proposed area of land disturbance and vegetation removal at waterway crossings. Include a description of the type of vegetation to be removed, and if this vegetation removal would be temporary (allowed to regrow) or permanent (maintained as cleared).

Permanent vegetation clearing near waterways is anticipated for areas where culvert crossings are proposed for permanent access roads. Permanent clearing of vegetation will be limited to the areas of the culvert crossings which will be approximately 16-feet wide. Vegetation near the culvert crossings consists primarily of herbaceous vegetation. Tree and shrub clearing is not anticipated for culvert crossing locations in waterways.

Temporary vegetation clearing may be required for areas adjacent to the permanent area of disturbance for the construction of the waterway crossings. In this case, these areas will be stabilized and restored in accordance with the methods provided in the Erosion Control and Stormwater Management Plan (**Appendix H**) and Vegetation Management Plan (**Appendix P**).

Permanent vegetation clearing for bore pits is not anticipated. A typical bore pit is approximately 10 feet by 20 feet by 6 feet deep. Approximately 1,200 cubic feet (45 cubic yards) of material may be excavated for each pit. Each pit will be located in upland areas and vegetation removal will be minimal and temporary. All materials removed from the bore pits will be stored adjacent to the bore pit with appropriate BMPs installed. Once the boring is completed, the excavated material will be reused as backfill into the pit. Once a final grade is reached and the bore is complete, the disturbed area will be seeded and stabilized with appropriate erosion and sediment control devices installed (e.g., silt fence, erosion matting). Tree and shrub clearing is not anticipated for bore pits.

8.1.11 If any of the following activities are proposed, provide the information as detailed on the applicable permit checklist:

- New culvert placement: https://dnr.wi.gov/topic/waterways/documents/PermitDocs/GPs/GP-CulvertWPEDesign.pdf (General Permit) or https://dnr.wi.gov/topic/Waterways/documents/PermitDocs/IPs/IP-culvert.pdf (Individual Permit).
- New permanent bridge placement: https://dnr.wi.gov/topic/waterways/documents/PermitDocs/GPs/GP-ClearSpanBridge.pdf (General Permit, no in-stream supports) or https://dnr.wi.gov/topic/Waterways/documents/PermitDocs/IPs/IP-bridgeTempCross.pdf (Individual Permit, in-stream supports).
- New Stormwater pond within 500 feet of a waterway: https://dnr.wi.gov/topic/waterways/documents/PermitDocs/GPs/GP-StormwaterPond.pdf.

A detailed culvert design will be developed during final engineering for each crossing in the final Project layout. It is anticipated that culvert crossings will be permitted via a WDNR General Permit and via a non-reporting USACE Utility Regional General Permit. Silver Maple Solar will conform to the design requirements and conditions of these permits pending final design of the proposed culvert crossings. If any in-stream work needs to be conducted during fish timing restrictions, a waiver will be requested through the Wisconsin DNR. No stormwater ponds are proposed within 500 feet of a waterway.

8.2 Wetland Permitting Activities

This section should be consistent with the wetlands included in DNR Tables 1 and 2 and associated figures. See page iii in this document on what to include in DNR Tables 1 and 2 regarding wetland resources.

8.2.1 Describe the method used to identify wetland presence and boundaries within the project area (i.e., wetland delineation, wetland determination, review of desktop resources only, etc.). If a combination of methods were used, describe which project areas utilized which method. The associated delineation report and/or desktop review documentation should be uploaded to the PSC's website as part of the application filing. State if wetlands mapped via desktop resources would be field confirmed, and when (if known).

A desktop delineation of wetlands and waterways within the overall Project Area was completed using available public resources prior to the field delineation. Desktop-identified wetlands were classified by their probable Wetlands and Deepwater Habitats of the United States, [33] Wetland Plants and Communities of Minnesota and Wisconsin, [34] and Wetlands of the United States[35] wetland types for the wetland or wetland complex. Field-identified wetlands were delineated in accordance with the level two routine determination method set forth in the USACE 1987 Wetlands Delineation Manual and the supplemental methods set forth in the regional supplement to the USACE Wetland Delineation Manual: Northcentral & Northeast Region.

A field delineation of wetlands and waterways was completed in three mobilizations with the first occurring between April 19 - 22, 2021, the second mobilization occurring between September 20-22, 2021, and the third mobilization between August 22 – 25, 2022. A total of 63 wetlands or wetland complexes (94 distinct Eggers and Reed polygons) totaling approximately 315.1 acres were field delineated within the Project Area. Desktop-identified wetlands within the delineation

[33] Cowardin, L.M., V.M. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, Biological Services Program, Washington, DC, USA. FWS/OBS-79/31. 103 pp. Accessed from: https://www.fws.gov/wetlands/documents/classification-of-wetlands-and-deepwater-habitats-of-the-united-states.pdf.

[34] Eggers, Steve D., and Donald M. Reed. 2015. Wetland plants and communities of Minnesota and Wisconsin - Version 3.2 – July 2015. U.S. Army Corps of Engineers, St. Paul District. 478pp. Accessed from: https://usace.contentdm.oclc.org/digital/collection/p266001coll1/id/2801/.

[35] Shaw, S.P. and C.G. Fredine. 1971. Wetlands of the United States. U.S. Fish and Wildlife Circular 39. U.S. Department of the Interior, Washington, D.C. 67 pp. Accessed from: https://www.fws.gov/wetlands/documents/Wetlands-of-the-United-States-Their-Extent-and-Their-Value-to-Waterfowl-and-Other-Wildlife.pdf.

area were confirmed in the field and, if meeting the criteria for wetland conditions, delineated as wetlands with associated upland/wetland transects using USACE Northcentral & Northeast region datasheets. Desktop wetlands were reviewed in the field for wetland conditions (hydrology, soils, and vegetation). If a desktop wetland was determined to be upland in the field, a data point, USACE datasheet, and photos were taken to document upland characteristics.

An inventory of field delineated wetlands in the Project Area can be found in the Wetland Delineation Report and DNR Table 2 in **Appendix O**. A map book of all field delineated features is shown on Figures 8.3.1 and 8.3.2, and wetland delineation methods within the Project Area are indicated in Figure 8.3.3 (**Appendix A**).

8.2.2 Identify the number of wetlands present and by wetland type, using the Eggers and Reed classification. Provide as an overall project total, as well as broken down by the proposed site and the alternative site and their associated facilities.

Silver Maple made significant efforts to avoid wetland impacts to the extent practicable through Project design and construction methods. A total of 94 distinct Eggers and Reed wetlands exist in the overall Project Area. A total of 86 distinct Eggers and Reed wetlands are present within the Project Area but outside of the Proposed and Alternative Array areas. All of the wetlands are classified according to the Eggers and Reed method and are included in **Appendix O** and shown on Figures 8.3.1 and 8.3.2 in **Appendix A**. Seven Eggers and Reed community types were field delineated and include seasonally flooded basin, wet meadow, shallow marsh, shrub-carr, shallow open water, floodplain forest, and hardwood swamp.

A total of five wetlands (FW-B-12, FW-B-13, FW-A-03a, FW-A-03b, and FW-A-04) are located within the fencing of the Proposed Array Area. Wetlands located within the fencing of the Proposed Array Area are not expected to be impacted by the Project. A total of 14 wetlands would be crossed by 57 collection lines associated with the Proposed Array Areas. All collection line crossings are anticipated to be directionally drilled to avoid wetland impacts. No wetlands will be impacted by access roads associated with the Proposed Arrays.

The Alternative Array Area does not include any wetlands within the perimeter fencing. One wetland would be crossed by an underground collection line associated with an Alternative Array Area. All collection line crossings are anticipated to be directionally drilled to avoid wetland impacts. A total of 3 wetlands (FW-B-18b, FW-BB-2b, and FW-BB-10) may be impacted by two proposed access road crossings associated with the Alternative Array Areas. These wetlands are classified as shrub-carr, wet meadow, and shallow marsh.

8.2.3 Wetland functional values:

8.2.3.1 Discuss the existing functional values of the wetland present. Functional values include but are not limited to floristic diversity, fish and wildlife habitat, flood storage, water quality, groundwater discharge and recharge, public use, etc.

Functional values of wetlands are generally low due to their presence within or near cultivated fields. Floristic diversity is generally limited to select weedy species in seasonally flooded basins

and dominated by reed canary grass in wet meadows, and other wetland types generally contain degraded community diversity and existing noxious or invasive species.

8.2.3.2 Discuss how the project may impact existing functional values of wetlands.

Silver Maple made significant efforts to avoid wetland impacts through Project design and construction methods. Wetland impacts for the Project are limited to 3 crossings associated with permanent access road crossings for Alternative Array Areas. No vegetation clearing will occur within 75 feet of wetlands or waterways outside of proposed access road crossings. It should be noted that crossings already exist in these areas so wetland impacts are minimized by using existing crossings for alternative access roads. Functional values of wetlands in these locations should largely be unaffected by the improvements to already existing access roads. Additionally, functional values of the other wetlands within the Project Area will be improved by the removal of agricultural practices from surrounding areas.

8.2.3.3 Provide Wisconsin Rapid Assessment Methodology (WRAM) forms, or other assessment methodology documentation, if completed.

8.2.4 Identify any wetlands in the project area that are considered sensitive and/or high-quality wetlands, including, but not limited to:

8.2.4.1 Any wetlands in or adjacent to an area of special natural resource interest (Wis. Admin. Code § NR 103.04).

No wetlands are in or adjacent to an area of special natural resource interest as none occur within the Project Area.

8.2.4.2 Any of the following types: deep marsh, northern or southern sedge meadow not dominated by reed canary grass, wet or wet-mesic prairie not dominated by reed canary grass, fresh wet meadows not dominated by reed canary grass, coastal marsh, interdunal or ridge and swale complex, wild rice-dominated emergent aquatic, open bog, bog relict, muskeg, floodplain forest, and ephemeral ponds in wooded settings.

Wet meadows in the Project Area were generally dominated by reed canary grass due to their close proximity to roadsides or cultivated fields. One floodplain forest totaling 1.14 acres was delineated during field efforts. No open bog, bog relict, muskegs, ephemeral ponds in wooded settings, interdunal or ridge swale complex, wild rice-dominated emergent aquatic wet or wet-mesic prairies, deep marsh, or sedge meadow communities were identified during the field delineation efforts.

8.2.4.3 Any wetlands with high functional values based on factors such as abundance of native species and/or rare species, wildlife habitat, hydrology functions, etc.

Functional values for wetlands within the delineation area were generally low due to their presence within or near cultivated fields. Vegetative diversity within wetlands was generally low and most wetlands were dominated by non-native or invasive species.

8.2.5 For both proposed and alternative sites and their associated facilities,

provide the following:

8.2.5.1 How many wetlands would be crossed by collector circuits and specify the installation method (i.e., X wetlands would be bored, Y wetlands would be trenched).

A total of fourteen wetlands would be crossed by 57 underground collection lines associated with Proposed Array Areas. One wetland would be crossed by an underground collection line associated with an Alternative Array Area. All underground collection lines are proposed to be directionally bored to avoid impacts to wetland features. Proposed and Alternative collection line crossings are included in **DNR Table 1 (Appendix O)**.

8.2.5.2 How many wetlands would have construction matting placed within them to facilitate vehicle access and operation and material storage. Also provide the total amount of wetland matting, in square feet.

No construction matting in wetlands is anticipated during the construction and operation of the Project.

8.2.5.3 How many wetlands would be impacted for permanent access roads and indicate if culverts would be installed under the roads to maintain wetland hydrology.

No wetlands will be impacted by permanent access roads associated with the Proposed Arrays. A total of 3 wetlands (FW-B-18b, FW-BB-2b, and FW-BB-10) may be impacted by two proposed access road crossings associated with the Alternative Array Areas. Both wetland access road crossings correspond with existing field crossings which reduced the potential wetland impacts. Wetlands FW-B-18b and FW-BB-2b may be impacted as the result of one access road crossing, as FW-B-18b was delineated to the south of the crossing and FW-BB-2b was delineated to the north. This crossing also contains a portion of a WNDR WBIC flowline (Labeled 0) which was not delineated at the time of the field survey due to not having a defined channel because the majority of the surrounding wetland were underwater at the time of survey. Impact calculations for this feature were included in the delineated wetland features. Proposed access road crossings of wetlands associated with Alternative Array Areas are included in **DNR Table 1 (Appendix O)**. Existing culverts in the area may require replacement and will be designed to maintain hydrology between wetland features. In the location of the WBIC flowline which is associated with the crossings of wetland features FW-B-18b and FW-BB-2b, the culverts will also be designed with consideration for the WBIC flowline. No other wetland impacts from Project facilities are anticipated.

8.2.5.4 How many wetlands would be impacted and/or crossed by fence installation and footings.

No perimeter fences are proposed in wetlands.

8.2.6 Describe if wetlands would be disturbed for site preparation activities (e.g., grading, leveling, etc.) in the array areas, and for the installation of the arrays and associated supports.

Silver Maple made significant efforts to avoid Project-related impacts to wetlands. Accordingly, no wetland impacts are anticipated for site preparation activities (e.g. grading, leveling, etc.) in the array areas, and for the installation of the arrays and associated supports.

8.2.7 Describe if wetlands will be disturbed for site preparation activities:

8.2.7.1 Grading, leveling, etc. in the array areas, and for the installation of the arrays and associated supports.

8.2.7.2 If vegetation removal will be conducted in wetlands, describe how woody debris (i.e., brush piles, wood chips, etc.) would be handled and disposed of when clearing shrub and forested wetlands.

Vegetation removal in wetlands is expected to be limited to areas associated with the three access roads which would be used to access Alternative Array Areas. Outside of Alternative access road crossings, no vegetation or trees will be removed within wetlands. Some minor clearing of trees and shrubs might be required for the construction of one of the Alternative access roads. If required, woody vegetation would be chipped or burned on site outside of any wetland or waterway areas to prevent the spread of forest pests or diseases such Emerald ash borer or oak wilt.

8.2.8 Describe the sequencing of matting placement in wetlands and the anticipated duration of matting placement in wetlands. For matting placed in any wetland for longer than 60 consecutive days during the growing season, prepare and submit a wetland matting restoration plan with the application filing.

No construction matting is proposed for the Project, however if construction matting is determined to be needed at a later date, the Applicant will communicate on best management practices with the DNR. The Applicant will follow the guidelines below. Ingress and egress to the wetland will be avoided where possible and practical. Ingress and egress to this wetland will be done either during frozen ground or dry ground conditions, when possible, to avoid and minimize impacts to the wetlands. In addition, construction access will be limited to defined points to the wetland to further limit construction traffic within the wetland regardless of conditions. The defined access points will be identified as final design is completed and prior to any activities in or near the wetland area. If frozen or dry ground conditions are not possible during construction, construction mats will be temporarily placed across this wetland area where necessary for construction ingress and egress and remain in place until construction in the particular wetland area is complete. Any matting not removed within 60 days after it is placed will have a documented wetland restoration plan prior to start of construction in these areas. Wetlands within the fence boundary will be protected from adjacent construction activities with appropriate sediment and erosion control BMPs.

8.2.9 For wetlands that would be open-cut trenched, provide the following:

8.2.9.1 Provide details on the total disturbance area in wetland, including how total wetland disturbance was calculated. Include the size of the trench (length, width, and depth), where stockpiled soils would be placed (i.e., in upland, in wetlands on construction mats, etc.), and where equipment would operate.

8.2.9.2 Details on the proposed trench dewatering, including how discharge would be treated and where the dewatering structure would be located.
8.2.9.3 Duration and timing of the work in wetland.
8.2.9.4 How the wetland would be restored to pre-existing conditions.

No wetlands are proposed to be crossed by open-cut trenching.

8.2.10 For wetlands that would be directionally bored, provide the following:
8.2.10.1 How bored wetlands and associated bore pits would be accessed.

Bored wetlands and associated bore pits would be accessed from adjacent upland areas.

8.2.10.2 The location and size of any temporary staging and equipment storage.

It is anticipated that the largest temporary storage area needed would be 100 feet by 100 feet. The length of the bore will determine the size of the equipment used to complete the bore, which will determine the size of the specific staging area. Sizes of final staging areas will be better understood once final design is completed.

8.2.10.3 The location and size of bore pits.

Entry points and exit points will be positioned at least ten feet outside of the established wetland boundaries and will be moved further away when appropriate to achieve the proper depth required for each bore and to avoid tree lines and other obstacles. Bore pits will generally be twenty feet long, twenty feet wide, and approximately four feet deep.

8.2.10.4 Provide a contingency plan for bore refusal and a plan for the containment and clean-up of any inadvertent releases of drilling fluid (e.g., a frac-out).

A standard frac-out plan is included in **Appendix BB**. In the event of a refused boring, the boring will be re-attempted from the same boring pit on a slightly different path than the refused bore. In the case it is determined that the area of the refused bore is not adequate for a bore, the bore location will be moved to a new location and the bore re-attempted, which may require an additional bore pit at that location. The frac-out plan describes in detail the response actions for clean-up of inadvertent releases of drilling fluid, but in general the actions to be taken include ceasing work to assess the nature of the release, containment of the released fluids, and as required, notification of the appropriate agency(ies).

8.2.11 Describe how fence installation would occur in wetlands, including the footing types (e.g., direct imbed, concrete, etc.), any associated wetland impact such as vegetation clearing, operation of equipment, etc.

No fence installations are proposed in wetlands.

8.2.12 For wetland vegetation that would be cleared or cut, provide the following:
8.2.12.1 The justification for why wetland trees and shrubs are proposed to be cleared, and what construction activity the clearing is associated with.

8.2.12.2 The timing and duration of vegetation removal.

8.2.12.3 Describe the type of equipment that would be used, and if the vegetation removal would result in soil disturbance, including rutting and soil mixing.

8.2.12.4 The type of wetland and type of vegetation to be cleared.

8.2.12.5 If tree and shrubs removed would be allowed to regrow or be replanted, or if cleared areas would be kept free of trees and shrubs long-term.

8.2.12.6 Indicate the plan for removal and disposal of brush and wood chips.

If wooded areas are cleared for the construction of the Project, these areas will be cleared then chipped or burned onsite to limit the risk of spreading forest pests or diseases such as emerald ash borer or oak wilt.

8.2.13 Indicate if any permanent wetland fill is proposed, such as for substation placement, permanent roads, fence or array footings, pole locations, etc. and provide the amount of permanent wetland fill.

Permanent wetland impacts are expected to be limited to two anticipated access road crossings associated with the Alternative Array Area. Total cumulative fill amounts for the three Alternative access road crossings would equal approximately 622 square feet (0.014 acres) as shown in DNR Table 1 (**Appendix O**). No fence or array footings, substation infrastructure, inverters, or other Project infrastructure is proposed within wetlands.

8.2.14 Provide the methods to be used for avoiding, minimizing, and mitigation construction impacts in and near wetlands. This discussion should include, but not limited to, avoiding wetlands, installation methods (i.e., directional bore versus open-cut trenching, soil segregation during trenching, etc.), equipment crossing methods (i.e., use of construction matting, frozen ground conditions, etc.), sediment and erosion controls, invasive species protocols for equipment, etc. Additional guidance to prepare this discussion can be found here: https://widnr.widen.net/s/fxdd8pmqgg/paasupp3utility

Silver Maple made significant efforts to avoid and minimize Project-related wetland impacts through Project design and construction methods. Permanent impacts for the Project are limited to two Alternative access road crossings. Impact avoidance efforts include routing access roads around wetlands where possible, utilizing existing field road crossings for access roads, utilizing directional bores for collection line crossings of wetlands and generally avoiding wetlands with Project infrastructure. The access roads have been designed to cross wetlands in a perpendicular manner, and designed to be the minimum width possible (16-feet) while still allowing for safe operations of vehicles and other construction related equipment. Additionally, erosion control BMPs will be installed around field delineated wetlands and waterways to prevent sediment from reaching any nearby water resources.

Vegetation management equipment and implements will be cleaned of potential weed and invasive species reproductive parts prior to entering the Project Area. Similarly, equipment will be cleaned after all work events in the Project Area. Cleaning can occur off-site at a designed

cleaning station or facility, or a cleaning station constructed in the Project Area. Cleaned equipment should always be inspected to ensure removal of all vegetative matter.

8.2.15 Indicate if an environmental monitor would be employed during project construction and restoration activities. If so, describe the monitors roles and responsibilities, frequency of visits, etc.

A third-party stormwater/environmental monitor will be on-site periodically throughout construction to ensure compliance with the construction stormwater permit, that wetland/waterway impacts are being avoided and minimized, and that BMPs are being properly installed and maintained.

The draft ECSWMP currently anticipates a site inspection once every 7 days and within 24 hours after a rainfall event of 0.5 inch if the Project is active. *See* **Appendix H**: Erosion Control and Storm Water Management Plan.

8.2.16 Describe how all wetlands within the project area would be restored. This includes wetlands that would be encompassed within the arrays even if not directly impacted by project construction. This discussion should include details on the seeding plan, maintenance and monitoring, restoring elevations and soil profiles, restoring wetland hydrology, etc.

Silver Maple made significant efforts to avoid Project-related wetland impacts through Project design and construction methods. Major clearing and grading will begin after installation of principal sediment and runoff control measures. In order to avoid indirect impacts to wetlands within the Array Areas, wetlands will be marked in the field and have silt fence installed around their perimeter to prevent disturbance. Additional control measures will be installed as grading continues. The Project's setbacks and temporary and permanent BMPs and actions outlined in the ECSWMP will protect all adjacent wetlands from direct and indirect impacts during active construction and until stabilization is achieved.

Upon completion of grading activities, the site will be restored to pre-construction conditions, to the extent practicable. Grading activities are not expected to increase runoff rates or alter existing drainage patterns. Therefore, wetland hydrology is not anticipated to be impacted.

Upon completion of construction, all disturbed areas outside of the 75-foot wetland buffer and areas within the buffer that have been actively farmed, will be seeded with a perennial seed mix that complies with Wisconsin Administrative Code Chapter ATCP 20.01(27) related to prohibited noxious weed seeds. Permanent seeding will comply with WDNR Conservation Practice Standard 1059 Seeding for Construction Site Erosion Control. Mulch, if used, will comply with the WDNR Conservation Practice Standard 1058 Mulching for Construction Sites.

Revegetation of the site, including specific seed mixes and maintenance and monitoring is described further in Section 5.6 and included in the Vegetation Management Plan in **Appendix P**.

8.3 Mapping Wetland and Waterway Locations, Impacts, and Crossings

Provide the following map sets, as detailed below, for each proposed facility. Each map set should include an overview or index page that includes page extents for the corresponding smaller-scale map pages within the remainder of the map set. The smaller-scale map pages, to show the project and resources in greater detail, should include page numbers to reference the overview page and have consistent scales throughout the smaller-scale pages.

8.3.1 Topographic map set showing the following:

- Solar arrays and all associated components, including but not limited to:
  - permanent and temporary access roads
  - fences
  - collector circuits (labeled with the installation method, i.e., directional bore, plow, open-cut trench, etc.)
  - Staging areas (labeled with identifying name/number) and all temporary workspaces
  - O&M Building and associated driveways, storm water management features, etc.
  - New and existing substations
  - Distribution or transmission interconnection, including pole locations and all access roads (including off-ROW access roads), include identifying labels for each facility
  - Generator tie line, including pole locations and all access roads, including off-ROW access
- Delineated wetlands, labeled with the feature unique ID
- Wisconsin Wetland Inventory and hydric soils if a delineation was not conducted.
- DNR mapped waterways, labeled with the feature unique ID.
- Field identified waterways, labeled with the feature unique ID.
- Locations of proposed storm water features (i.e., ponds, swales, etc.).
- Vehicle crossing method of waterways for both permanent and temporary access, labeled by the crossing method (i.e., TCSB, installation of culvert, installation of bridge, installation of ford, use of existing culvert, use of existing bridge, use of existing ford, driving on the bed).
- Placement of construction matting in wetlands.
- Excavation areas in wetlands (i.e., bore pits, open-cut trench, etc.).

8.3.2 Aerial imagery map set showing the following:

- Solar Arrays and all associated components, including but not limited to:
  - permanent and temporary access roads
  - fences
  - collector circuits (labeled with the installation method, i.e., directional bore, plow, open-cut trench, etc.)
  - Staging areas (labeled with identifying name/number) and all temporary work
  - spaces
  - O&M Building and associated driveways, storm water management features, etc.
  - New and existing substations

  - Distribution or transmission interconnection, including pole locations and all access roads (including off-ROW access roads), include identifying labels for each facility
  - Generator tie line, including pole locations and all access roads, including off-ROW access
- Delineated wetlands, labeled with the feature unique ID
- Wisconsin Wetland Inventory and hydric soils if a delineation was not conducted
  - DNR mapped waterways, labeled with the feature unique ID.
  - Field identified waterways, labeled with the feature unique ID
  - Locations of proposed stormwater features (e.g., ponds, swales, etc.)
  - Vehicle crossing method of waterways for both permanent and temporary access (i.e., TCSB, installation of culvert, installation of bridge, installation of ford, use of existing culvert, use of existing bridge, use of existing ford, driving on the bed)
  - Placement of construction matting in wetlands
  - Excavation areas in wetlands (i.e., bore pits, open-cut trench, etc.)

8.3.3 A map showing which method(s) were used to identify wetland presence and boundaries within the project area (i.e., wetland delineation, wetland determination, review of desktop resources only)

See Figures 8.3.1, 8.3.2 and 8.3.3 in **Appendix A** for the above-referenced maps.

9.0 DNR Information regarding Erosion Control and Storm Water Management Plans (not PSC requirements)

This section serves as guidance for development of Erosion Control and Storm Water Management Plans associated with DNR NR 216 Permits. These are not requirements for PSC CPCN or CA.

A Project-specific ECSWMP that includes procedures for materials management and dewatering protocols has been developed for the Project. The ESCWMP is preliminary in nature and will be revised once the CPCN is granted by the PSC and Silver Maple provides final Project engineering/design and contractor bidding documentation. Once finalized, a revised ESCWMP and Notice of Intent will be submitted to the WDNR. The preliminary ESCWMP is included in **Appendix H**.

9.1 Erosion Control and Storm Water Management Plans

See Section 9.0 above for information on the ESCWMP included in **Appendix H**.