March 2022

Wisconsin Public Service Commission

Certificate of Public Convenience and Necessity

PSC Docket No. 9810-CE-100

Portage Solar Project

Portage County, WI

Submitted by:
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nationalgrid renewables | PORTAGE SOLAR

Solar CPCN Application

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Prepared by National Grid Renewables
Portage Solar, LLC
Portage County, Wisconsin
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1 Project Description and Overview

Portage Solar, LLC ("Portage Solar" or "Applicant") submits this Application for a Certificate of Public Convenience and Necessity ("CPCN") in accordance with Wis. Stat. § 196.491(3) and Wis. Admin. Code § PSC 111.53 to the Public Service Commission of Wisconsin ("PSCW" or "Commission"). The Application was prepared pursuant to the guidance provided by the PSCW's Application Filing Requirements ("AFR") for Large (≥50 megawatt ["MW]) Solar Energy Projects (Ver. Updated 2021) and consultations with the PSCW and Wisconsin Department of Natural Resources ("WDNR")[1]. The Applicant is also seeking WDNR permits that are applicable as identified by the WDNR January 14, 2022 response to the Applicant's submitted engineering plan.

Portage Solar is seeking a CPCN and all other approvals and authorizations required to construct, install, operate, and maintain the Portage Solar Project, a 250-MW alternating current ("AC") solar energy generating facility in the Town of Grant and Plover, Portage County, Wisconsin ("Project"). The Project will utilize a single-axis tracker system and is anticipated to be placed in service as early as November 2024. The Project will support 250 MW_{AC} ("Primary Facility Area") and the required 25-percent alternate area ("Alternate Facility Area") required pursuant to the AFR. The Primary and Alternate Facility Areas comprise the "Project Boundary." The Project will also require construction of a new 115-kilovolt ("kV") substation (located within the Project Boundary), a Battery Energy Storage System ("BESS") and an approximately 500-foot new 115-kV electric transmission line (the "gen-tie line"). Because the proposed gen-tie line is under one mile in length, it requires no separate CPCN application.

1.1 General Project Location and Description of Project and Project Area

Provide the following information about the project:

1.1.1 Project Location – counties and townships in the project area.

The proposed Project is located in the Towns of Grant and Plover in Portage County, Wisconsin. Table 1.1-1 identifies the location of the Primary Facility Area and Alternate Facility Area.

Table 1.1-1 Project Location

County	Primary Facility Area				Alternate Facility Area			
	Township Name	Township	Range	Sections	Township Name	Township	Range	Sections
Portage	Grant and Plover	22 and 23	7E and 8E	1, 6, 12, 13, 30 and 31	Grant and Plover	22 and 23	7E and 8E	12, 13, 18 and 25

[1] Numbering in this application is consistent with numbering in the Filing Requirements.

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

Portage Solar reviewed an approximately 2,580-acre area to site the Primary and Alternate Facility Areas and ancillary facilities ("Project Study Area"). The Project components, which include the solar arrays, BESS, access roads, and ancillary facilities, will be sited within approximately 2,167 acres ("Project Boundary") lying within the Project Study Area.

The Project Boundary is situated on 73 separate parcels of land owned by 15 different property owners and under purchase option by Portage Solar. The Project Boundary is shown on Figure 1.1.2 (Appendix A).

The Project Boundary includes 1,719 acres of land to support the Primary Facility Area, which can produce 336 MW direct current ("DC") (252 MW_{AC}) of power, and 434 acres of land to meet the Commission's 25 percent standard for an alternate site (the Alternate Facility Area), which can produce 80.9 MW_{DC} (63 MW_{AC}) of power. The Project substation, BESS and operations and maintenance ("O&M") building are considered part of the Primary Facility Area and total roughly 9.8 acres. The total area proposed to be disturbed by construction of the Project is approximately 1,728.8 acres. The proposed sites and the evaluation process are described in detail in Section 1.5 below.

Portage Solar possesses purchase options for the parcels currently proposed to host the substation, BESS and O&M building. Portage Solar intends to lease the Project parcels (associated with the Primary and Alternate Facility Areas only) that will host the panels, access roads, collector circuits, laydown yards and inverters.

1.1.3 Size (rated capacity), in both DC and alternating current (AC) MWs, of the proposed project.

The full Project nameplate capacity of 250 MW_{AC} can be achieved with the single-axis tracking system proposed for the Project. The conceptual design of the primary array will generate 336.2 MWDC (252 MW_{AC}) and the alternate solar array will generate 80.9 MW_{DC} (63 MW_{AC}). FIRST SOLAR 485W monofacial cell modules were used for the conceptual design. Additional modules evaluated during the conceptual design process include:

- JA Solar JAM-72D30 530W bifacial mono-crystalline
- First Solar FS-6485-A 485W thin-film CdTe
- Canadian Solar CS7N-MB-AG 640W bifacial mono-crystalline

At the time of construction, several photovoltaic ("PV") module offerings from different suppliers will be evaluated and a selection will be made based on a number of Project criteria, including cost. The technologies that may be considered include thin-film, polycrystalline silicon, and monocrystalline silicon (including bifacial PV modules), and the final supply of modules may contain a mix of several similar wattages. PV modules produced by a wide range of manufacturers are under consideration for the Project.

1.1.4 Number of panel sites proposed for the project and the number of alternate panel sites that have been identified. Identify and new or modified electric transmission lines or other electric transmission facilities that might be needed.

The Primary Facility Area is designed for approximately 693,193 individual PV panels with a total DC generating capacity of 336.2 MW_{DC} which, for a designed 1.33 DC-to-AC ratio, is enough capacity to meet a nameplate generation of 252 MW_{AC} power.

The Alternate Facility Area is designed for approximately 166,920 individual PV panels with a total DC generating capacity of 80.9 MW_{DC}, for a designed 1.29 DC-to-AC ratio. This design incorporates enough capacity to meet a nameplate generation of 63 MW of AC power, which is 25 percent of the Primary Facility Area generating capacity.

No new or modified electric transmission lines or facilities are proposed for this Project, other than the gen-tie line.

1.1.5 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 1.1.2 provided in Appendix A depicts the general Project location within the state of Wisconsin and Figure 4.1.1 (Appendix A) shows the total Project area with an aerial photography basemap. Figure 4.1.2 (Appendix A) is a detailed mapbook of the proposed Project facilities.

1.2 Ownership

The applicant is Portage Solar, which may own and operate the Project, or develop and sell the Project to a utility or an independent power producer. Portage Solar, a Delaware limited liability company, is a wholly owned subsidiary of National Grid Renewables ("NG Renewables"), a National Grid Company.

NG Renewables, which includes the renewables development company formerly known as Geronimo Energy, is a leading North American renewable energy company based in Minneapolis, Minnesota, with satellite offices located in the regions where it develops, constructs, and operates renewable energy projects. As a farmer-friendly and community focused company, NG Renewables develops projects for corporations and utilities that seek to repower America's electricity grid by reigniting local economies and reinvesting in a sustainable future. NG Renewables is part of the competitive, unregulated Ventures division of National Grid and has a portfolio of solar, wind, and energy storage projects located throughout the United States in various stages of development, construction and operation.

1.3 Project Need/Purpose

Subsections 1.3.1 thru 1.3.5 of the AFR are not responded to because they apply to utilities only.

1.3.6 IPPs Only – Energy Agreements

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

Portage Solar has not yet finalized energy offtake for the Project. Portage Solar will provide this information to the PSCW and WDNR once the relevant agreements, if any, are executed.

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.

Portage Solar will provide this information if such contracts are executed.

1.3.6.2.2 Annual energy to be delivered under contract or expected to be delivered.

Portage Solar will provide this information if such contracts are executed.

1.4 Alternatives

Subsection 1.4.1 of the AFR is not responded to because it applies to utilities only.

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

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

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

Portage Solar identified the Project as a favorable development using its standard analysis for identifying suitable solar sites in Wisconsin and across the country. The primary selection criteria Portage Solar reviewed were transmission and injection capacity (existing electric transmission infrastructure), land availability (large, relatively flat parcels with willing landowners), transportation infrastructure, environmental considerations and constraints, landowner interest and a supportive community, and a compelling solar resource.

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

Portage Solar identified 121 brownfield sites within five miles of the point of interconnection using Open and Closed Site Boundaries from the WDNR Bureau of Remediation and Redevelopment database. Of the facilities listed, 54 are Environmental Repair Program sites, 81 are leaking underground storage tank sites, and 36 are spills sites. All of these sites are very small (less than five acres), located within Plover, Stevens Point, Grant, Whiting, Wisconsin Rapids, Bancroft, and Linwood townships. Three U.S. Environmental Protection Agency ("EPA") Brownfield sites and one EPA Superfund site are located within five miles of the Project Boundary based on review of the EPA Facility Registry Service and Cleanups In My Community databases.

Two of the overriding siting principles that limit the practicable locations for utility-scale solar developments are 1) having enough contiguous land to support a large-scale project (over 1,000 acres, and 2) immediate proximity to a viable grid interconnection point for the power. The brownfield sites Portage Solar evaluated fail to meet these two overriding siting principles.

1.4.2.1.3 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, Portage Solar utilized numerous criteria to site this Project. Although

formal weighting of these criteria was not performed for this Project, site selection criteria including transmission and injection capacity, land availability, and environmental constraints were given top priority in siting the Project.

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

Portage Solar did not complete a weighted analysis to identify the project area.

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

The project area was identified following a rigorous 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: The primary factor 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 points of interconnection are prioritized.

  Portage Solar submitted an interconnection request to MISO East DPP-2020 Cycle 1 on June 20, 2020 to interconnect into the American Transmission Company LLC ("ATC") Plover 115-kV substation. ATC indicated that the Plover substation can accommodate the interconnection of Portage Solar without substantial upgrades. Additionally, Portage Solar can pursue the interconnection of a BESS via the MISO surplus interconnection process. To request Surplus Interconnection Service, an interconnection customer can submit an Interconnection Request (Appendix 1 to Attachment X of the MISO tariff) to MISO accompanied by a study deposit in the amount of $60,000. The request can be submitted at any time if it meets all the requirements described in Attachment X of the MISO Tariff. If MISO determines that service outlined in the Surplus Interconnection Request would not result in material adverse impact on the Transmission System and/or Affected Systems, as compared to the impacts that are created by the Existing Generating Facility without the inclusion of the proposed Surplus Interconnection Service, the requested Surplus Interconnection Service will be granted.

- Land availability and infrastructure: Large tracts of relatively flat undeveloped lands are typically utilized for utility-scale solar facilities. The Project Boundary is mostly agricultural land that has been in production for decades. The topography within the Project Boundary is very flat and open which makes it conducive for solar development. The Portage Solar site is mostly flat and should not experience shading from external objects (trees, farm buildings, etc.). Specific Global Horizontal Irradiance for Portage Solar can be found in table 2.1-1 in Chapter 2.

  Through private negotiations Portage Solar has secured agreements for the 2,583 Project Study Area under consideration for the Primary and Alternate Facility Areas. The area

ultimately evaluated for the Project encompassed approximately 2,219.4 acres, all within proximity to the proposed point of interconnection with the existing 138-kV Plover substation. The Plover substation is located in the far northern portion of the project area directly south of the State Highway ("STH") 54 corridor.

Area infrastructure was reviewed for compatibility with large construction vehicles and delivery trucks and a summary of the finding is included in the Road Condition Report in Appendix R. The Project Boundary is located in an area where nearby roads and highways, such as STH 54, Townline Road and Birch Street, are suitable for equipment and material delivery during construction.

- Environmental considerations: A preliminary analysis followed by field surveys was 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. The Project Boundary has few field-verified environmental constraints, and the constraints identified will be avoided by the Project or permitted with the applicable authorities.
- Community: Portage Solar values working with communities that welcome solar projects and responsible economic development opportunities. Portage Solar places great importance on community-supported projects and engages with local landowners, neighboring landowners, municipal leaders, and state legislators early on in the development process. In order to be a good neighbor, it is important that any project start on the right foot by being transparent and being in frequent communication with the public. Portage Solar has been engaging the community and local municipalities, and values their feedback and concerns.

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 site and for the development of the Project Boundary. Portage Solar, along with its consultant, Stantec Consulting Services Inc. ("Stantec"), further evaluated the property for siting the Primary and Alternate Facilities. 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 proposed setbacks, potential locations of panels, and access roads. As the Project progresses, Portage Solar may make minor changes in the field to accommodate unforeseen circumstances; however, any changes shall take into account the basic premise of considerations that were used in designing the current Project layout.
- Environmental considerations: Natural resources such as wetlands, waterways, endangered species, floodplain, and cultural resources were evaluated as part of the Project development process. The Project was designed to avoid and minimize impacts to these resources to the extent practicable.
- Setbacks and screening: Setbacks from public rights-of-way ("ROWs"), utilities, and sensitive community resources were established and mapped. No sensitive community

resources such as churches, schools, or nursing homes are located within a one-mile radius of the Project Boundary.

- Unavailable or restricted land: Managed and public lands; conservancies; and land under contracts such as Conservation Reserve Program ("CRP"), Managed Forest Law ("MFL"), State Natural Areas ("SNA") and Farmland Preservation Agreements ("FPA") were reviewed and considered for restrictions. There are a total of 2 MFL properties, 37 WDNR managed land parcels, 4 Natural Resource Conservation Service ("NRCS") easements, and 7 Protected Areas Database ("PAD-US") properties located within a 2-mile buffer of the Project Boundary.
- Airport locations: Airports, airstrips, and runways were assessed to verify sufficient distances exist from runways to Project facilities. There is one active airport located within a two-mile buffer of the Project. One Federal Aviation Administration ("FAA")-registered municipal airport is located roughly 9 miles northeast of the Project, in the northeast portion of the City of Stevens Point.
- Existing Renewable Energy (Wind) Facilities: There are no existing wind energy facilities located within the Project Boundary or within five miles of the Project Boundary.
- Sound: Sound modeling determined that sound generated by the Project will remain below the typically used standard of 50 A-weighted decibels ("dBA") during daytime and 45 dBA during nighttime outside adjacent receptors.
- Constructability and collection: Construction considerations were factored into the design, including restrictions due to slopes and soils, irrigation ditches, 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 alternate panel sites (arrays).

The factors described in Sections 1.4.2 and 1.5 above were considered in an iterative process to arrive at a Project design that minimized impacts to the environment and surrounding landowners while maximizing the efficiency of the Project within the Primary Facility Area. The Alternate Facility Area will be utilized should the permitting process so dictate, or if circumstances arise prior to construction that prohibit the use of part of the Primary Facility Area or indicate that moving panels (subject to any additional necessary PSCW approval) otherwise provides for a better overall Project. 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.

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.

Project site characteristics were considered as described in Sections 1.4.2 and 1.5.1. The conceptual design for the Project includes: 485W FIRST SOLAR monofacial monocrystalline modules; POWER ELECTRONICS 4,200 kVA Central Inverters; and self-powered single-axis trackers provided by NEXTracker. For a 2024 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. Additional modules evaluated in the conceptual design process are included in Section 1.1.1.3 above.

1.5.3 Setback distances

Portage Solar designed the facilities to maintain minimum solar panel setbacks and boundary fence setbacks from residences, property lines, and other features. The Project does not require easements from non-participating landowners to accommodate the setbacks utilized. These setback distances meet or exceed all county, township, and village ordinances or rules.

1.5.3.1 Provide the minimum setbacks for both boundary fences and solar panels from:

- residences
- property lines
- other buildings (e.g., animal barns, storage sheds)
- roads
- wetlands and waterways
- any other features.

See table 1.5-1 below.

Table 1.5-1 Design Setbacks

Type	Setback/ Constraint	Setback	Clarification
Structures	Inhabitable Structures - Building Edge (nonparticipating)	100 feet (from building footprint)	As measured to edge of panel. Does NOT apply to access roads and fences
Structures	Inhabitable Structures - Building Edge (participating)	100 feet (from building footprint)	As measured to edge of panel. Does NOT apply to access roads and fences
Structures	Inhabitable Structures - Building Edge with Waiver	Per waiver	
Structures	Noninhabitable Structures	20 feet (from building footprint)	
Property Lines	Side-yard	8 feet	Measured from side lot line; setbacks could be revised during permitting process. Does not apply to shared participating lot boundaries.
Property Lines	Rear-yard	25 feet	Measured from rear lot line; setbacks could be revised during permitting process. Does not apply to shared participating lot boundaries.
Property Lines	Front-yard	Varies depending on class of road	In no case shall the distance of the setback to the edge of the ROW be less than the following; Streets and Town Roads (designated): 27 feet Streets and Town Roads (undesignated): 42 feet Federal, State, and County Trunk Highways: 67 feet

Type	Setback/ Constraint	Setback	Clarification
			Expressways and Freeways: 200 feet (residential use) and 67 feet (nonresidential use)
Structures	Height	40 feet	Applies to principal structures (panels, O&M facility)
Existing Infrastructure	Public Roads	Varies depending on class of road	In no case shall the distance of the setback to the edge of the ROW be less than the following; Streets and Town Roads (designated): 27 feet Streets and Town Roads (undesignated): 42 feet Federal, State, and County Trunk Highways: 67 feet Expressways and Freeways: 200 feet (residential use) and 67 feet (nonresidential use) Communications, collection and power transmission poles and lines may be constructed within the setback limits
Other	Project Boundary Fence	20 feet from property boundaries, buildings and rights-of-way (road, pipelines, transmission lines)	Project boundary fences were sited no less than 20 feet from all property lines.
Other	Wetlands	Interior Array Wetlands – 50 feet minimum Exterior to Array Fences – 50 feet minimum	Panels were sited no less than 50 feet from edge of wetland boundaries. Project boundary fences were sited no less than 50 feet from all wetland boundaries.
Other	Waterways	100 feet minimum	Project boundary feces were sited no less than 100 feet from all field verified waterways

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

No "good neighbor" agreements have been executed for the Project to date.

1.5.3.3 Status of easement agreements:

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

Portage Solar has 26 lease agreements or purchase options in place to construct the Primary and Alternate facility areas. Reference Table 1.5-2 for parcel information.

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.

Table 1.5-2 provided below identifies all Project site land agreements that have been signed and

those that are still in the process of negotiation.

Table 1.5-2 Status of Land Agreements

Primary Owner Name	Parcel ID	Type	Status	Sum of Acreage Rounded Under Agreement
Okray Produce Land, LLC and Okray Enterprises Land, LLC	030230725-16 030230830-11.01 030230830-11.02 030230830-15 030230830-16 030230831-01 030230831-02 030230831-03 030230831-04 03023083105	Lease	Participating	393
Okray Produce Land, LLC	030230725-13.01 030230831-07	Lease	Participating	80
Ron & Conrad Wolosek	030220806-03 030220806-02 01822-0712-16.02	Lease	Participating	98
Wolosek Family Enterprises, LLC	030-23-0831-15 030220806-15 030220806-11 018220701-16 018220701-15 018220701-14 030220701-01.02 030220701-01.05 030220806-09.02 030220701-04 018220712-01 018220712-04.01 018220712-04.02 018220712-13.01	Lease	Participating	460
Colleen Wolosek	030230830-09 030230830-13 030230830-14	Lease	Participating	136
Margaret C. Wolosek	030220701-02.02 030220701-03	Lease	Participating	65

Primary Owner Name	Parcel ID	Type	Status	Sum of Acreage Rounded Under Agreement
Patricia J. Wolosek Survivor's Trust	030220806-05.01 030220806-07.01 030230831-14 030230831-16 030230831-13 030220805-06 030220805-06.01 030220805.07 030220805-08.02 030220805-08.01 030220805-05	Lease	Participating	378
Ronald F. & Barbara K. Wolosek	030220806-01 030220806-14 030230831-09.05 030230831-11	Lease	Participating	168
Sylvester Wolosek	030220701-02.01	Lease	Participating	8
Joseph M. Stuczynski	030230830-03	Purchase	Participating	19
PSR Uplands, LLC	030220818-02 030220818-05 018220712-13.02 018220712-16.01	Lease	Participating	136
Nathan P. & Lynette A. Wolosek	018220713-01 018220713-02.02 018220713-03 018220713-04	Lease	Participating	131
Eric P & Jennifer A. Shudarek	030230830-04	Lease	Participating	33
David W. Wasileski	018220712-02	Lease	Participating	40
Wasieleski Farms, LLC	018220711-01 018220711-04 018220712-03 018220712-05.04 018220712-06.04 018220712-07 018220712-08 018220712-10 018220712-09 018220712-14	Lease	Participating	388
Daniel J. and Kara Wasieleski and Tara L. Pingel	018220713-06	Lease	Participating	40

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.

Setbacks are consistent with local zoning. No variations to local zoning requirements are anticipated for this Project.

1.6 Utilities Only - Cost

Section 1.6 of the AFR is not responded to because it 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 will be treated as an intermittent resource in the MISO market.

Portage Solar holds queue position J1573 in MISO's East ATC DPP-2020 Cycle 1. Communication has occurred primarily through the MISO study cycle parameters with the Project's feasibility report issued in July 2021 at the conclusion of Phase 1. In its application, Portage Solar requested full Network Resource Interconnection Service for 250 MW nameplate capacity of the facility.

Solar PV projects in MISO receive the class average of 50 percent for its Initial Planning Year until they can demonstrate three years of operational history. Thereafter, their capacity value is determined based on a three-year historical average output of the resource for peak hours during the summer months.

The Project is currently being evaluated and has completed Phase 1. Phase 2 is currently projected to conclude in May 2022, and Phase 3 is projected to conclude in September 2022. Portage Solar expects to execute a Large Generator Interconnection Agreement ("LGIA") with MISO for the Project in February 2023.

The impact to the MISO grid from the integration of a BESS at Portage Solar will be positive, as the storage system can act as an "electrical suspension" system for the grid, to smooth out abrupt ups and downs in solar production that can occur on partly cloudy days. Depending upon project design, the system can furnish other grid services such as frequency response, voltage support, and output scheduling to potentially shift some afternoon production to later in the day, if needed, to correspond with peak demands.

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

The design life for the Project is 25-35 years. Based upon future needs of the marketplace, the community, and Portage Solar, there may be an opportunity further on in the Project's lifecycle to extend the Project's life beyond 35 years.

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

The Project is expected to operate for at least 25 years based on current forecasts for modern equipment. At the end of the Project's useful life, Portage Solar will assess whether to cease operations and decommission the Project or to replace equipment to extend the life of the Project. In general, the majority of decommissioned equipment and materials will be recycled. Materials

that cannot be recycled with be disposed of at approved facilities. The Project decommissioning plan in included in Appendix S.

Decommissioning activities will require approximately 12 months to complete. In general, decommissioning activities would include:

1. Dismantling and removal of aboveground equipment (solar panels, racking, transformers, Project substation, etc.);
2. Removal of aboveground cabling;
3. Removal of foundations (piles, piers, and posts); and
4. Scarification of compacted areas within and contiguous to the solar facility (including but not limited to internal and external access roadways).

Removal of underground cabling will be determined by the future landowner.

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.

Portage Solar anticipates negotiation and execution of a joint development agreement with Portage County, the Town of Grant and the Town of Plover that would require the Project to provide a decommissioning plan and potential financial assurance that such plan be completed. The amount of the financial assurance would be determined by a mutually agreed-upon engineer net of salvage value.

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

As stated in Section 1.7.3 above, at the end of commercial operation, Portage Solar will be responsible for removing the solar arrays and associated facilities. Portage Solar reserves the right to extend Commercial Operations by applying for an extension of any required permits. Should Portage Solar decide to continue operation, it will evaluate whether to continue with the existing equipment or to upgrade the facility with newer technologies. During this evaluation, factors such as equipment replacement costs, ongoing maintenance costs, specific landowner agreement stipulations, market prices, and other factors will be examined. In general, all equipment installed as part of the development of the Project will be removed, including collector circuits, pilings, raking, panels, access roads and boundary fences. Access roads will be left in place if the landowner specifically requests it. The Project substation and O&M building may be left in place and utilized/modified by the existing Plover substation transmission provider. Project components standard decommissioning practices will be utilized, including dismantling and repurposing, salvaging/recycling, or disposing of the solar energy improvements and equipment, followed by restoration of the site. To facilitate a return to agricultural use following decommissioning, the land would be tilled to break the Project's vegetative growth, which will have enhanced the topsoil condition as further discussed in section 5.15.

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

Participating landowners will not be responsible for any decommissioning costs at any time during the construction, operation or decommissioning of the Project.

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.*

The expected permit and approval requirements listed above are included in Table 1.8-1 below. The regulatory agency and trigger for the permit requirement are also listed. Portage Solar is in contact with Portage County, the Town of Grant and the Town of Plover, and will update the list if additional requirements are identified. Required permits and approvals will be obtained before commencing construction activities.

1.8.1.1 Federal

1.8.1.1.1 Aviation Administration (FAA)

See Table 1.8.1 below

1.8.1.1.2 U.S. Army Corps of Engineers

See Table 1.8.1 below

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

See Table 1.8.1 below

1.8.1.1.4 Other federal agencies not listed above

See Table 1.8.1 below

1.8.1.2 State

1.8.1.2.1 WisDOT

See Table 1.8.1 below

1.8.1.2.2 DNR

See Table 1.8.1 below

1.8.1.2.3 DATCP

See Table 1.8.1 below

1.8.1.2.4 Other state agencies not listed above

See Table 1.8.1 below

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

See Table 1.8.1 below

Table 1.8-1 List of Potential Permits and Approvals

Agency	Interest or Permit	Contact	Application/ Notice Date	Status
Federal				
FAA	Federal Regulation Title 14 Part 77		Q2, 2023	
U.S. Army Corps of Engineers ("USACE")	Section 404 Wetland Permit		Q2, 2023	
U.S. Fish and Wildlife Service ("USFWS")	Federal Endangered Species Act ("ESA") Coordination	Dawn S. Marsh (952) 252-0092		Coordination Ongoing
State				
PSC	CPCN for construction of large energy generation facility of 100MW or more		Q1, 2022	To be submitted Q1, 2022
WDNR	Wisconsin Pollutant Discharge Elimination System / Stormwater Runoff Permit (NR216)	Samantha Whitens (608) 301-6110	Q4, 2023	
WDNR	Wisconsin Endangered Species Law (s. 29.604, Wis. Stats.)	Stacy Rowe (608) 266-7012	1/11/22	Coordination Completed
Wisconsin State Historical Society Historic Preservation Office	Cultural Resources (historical and archaeological) under Section 106 of the National Historic Preservation Act	Chip Brown (608) 264-6508	Q2, 2023	
Wisconsin Department of Transportation ("WisDOT")	Heavy and oversized load permits	Bob Fasick (920) 492-0148	Anticipated Q2, 2023	
DATCP	Portage County Drainage District (ATCP 48.44 (related obstructing or altering district drains))	Richard Rashhke (715) 340-5656	Anticipated Q2, 2023	Ongoing
Local (to the extent the requirement to get such permits is not otherwise preempted by the CPCN)				
Town of Grant	Driveway Access Permit Ordinance	Mary Rutz (715) 421-9200	Q2, 2023	

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 with applicable permitting agencies are provided in Appendix C. Portage Solar will continue to correspond with permitting agencies throughout development, construction, and operations phases of the Project.

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

2.1 Estimated Solar Resource and Projected Energy Production

Provide a complete solar resource and energy production assessment for the Project. This report should include, at a minimum:

2.1.1 Solar resource data used in analysis.

Solar energy resource of the Project was estimated using the Clean Power Research SolarAnywhere dataset. SolarAnywhere irradiance estimates are derived from real-time and historical satellite images, through a series of algorithms developed at the State University of New York at Albany. Solar resource, temperature, and humidity data are derived from surface-based weather stations and numerical weather prediction model trial fields. Additional details about the algorithms, including numerous validation studies, can be found on the SUNY website.[2]

Data was procured from the 10x10km SolarAnywhere grid cell containing the centroid of the project (44.45N, 89.55W). SolarAnywhere data are provided by Clean Power Research both as an hourly time series dating back to 1998 and as an hourly typical meteorological year ("TMY") file, which is used to simulate conditions during an average year. The TMY file was then used to simulate a typical full year of production with the photovoltaic systems software ("PVSYST") analysis program. The PVSYST model output information is included in Appendix D.

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

The system consists of an installed DC power capacity of 336.20 MW. These values will be confirmed once the final layout and generation equipment are determined. The gross and net capacity factors for the Project are calculated to be 26.77 percent and 21.99 percent, respectively when comparing the nameplate rating to the energy forecasted from the PVSYST model.

Below is a summary of the available solar energy throughout the year.

Table 2.1-1 Global Horizontal Irradiance

Global Horizontal Irradiance (GHI) on PV Plane (kWh/m²)												
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
52.4	73.8	114.2	138.6	173.2	177.2	189.1	158.8	123.0	78.7	48.7	40.0	1367.9

2.1.3 Estimated Energy Production of Project.

While the maximum output of the Project will be 250 MW_{AC} at the point of interconnection, its output may be less at any given time depending on the available energy from the sun. The software program PVSYST was used to simulate the energy conversion process using model files from the

[2] http://www.asrc.cestm.albany.edu/perez/directory/ResourceAssessment.html

PV module and inverter manufacturer, historical weather data as discussed in section 2.1.1, and the parameters that apply to the Project.

2.1.3.1 Estimated Production Losses.

Energy losses within the system include electrical losses in the AC and DC electrical collection system, energy conversion losses within the PV inverters, step-up transformers and various other equipment, as well as losses due to soiling of the PV modules themselves due to dust, debris and snow cover. Taking those factors into account, a reasonable estimate of energy losses range from 15 to 20 percent of the maximum output, which is consistent with industry-wide estimates.

2.1.3.2 Estimated Net Energy Production.

The estimated net annual energy production is between approximately 460,000 and 500,000 megawatt-hours. Annual energy production output will depend on final design, site specific features, and annual variability in the solar resource.

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.)

Solar panel technology is continually making advancements in both manufacturing and efficiency and is subject to commodity pricing based on the current market demand and available stock. The final PV module selection therefore cannot be made until detailed engineering is completed and ordering of the PV modules is possible.

The current conceptual layout included in this application was developed utilizing the FIRST SOLAR 485W panels.

Portage Solar is currently considering the following technologies:

- JA Solar JAM-72D30 530W bifacial mono-crystalline
- First Solar FS-6485-A 485W thin-film CdTe
- Canadian Solar CS7N-MB-AG 640W bifacial mono-crystalline

The datasheets for these PV modules are provided in Appendix B.

At the time of construction several PV module offerings from different suppliers will be evaluated, and a selection will be made based on the most cost-effective option. The technologies that may be considered are thin-film, polycrystalline silicon, and monocrystalline silicon (including bifacial PV modules), and the final supply of modules may contain a mix of several similar wattages.

2.2.2 Panel Delivery Date - Indicate whether or not this date is firm.

Panel deliveries are expected to occur as early as August of 2023.

2.2.3 Total Number of Panels Required for Project.

The Primary Facility Area is designed for approximately 693,192 panels with a generating capacity

of 336.2 MW of DC power. Based on the module wattages under consideration and the PV tracker system selected, the final count could range from approximately 525,300 and 700,400 panels. The full Project nameplate capacity of 250 MW_{AC} can be achieved with the single axis tracking systems for the site.

The Alternate Facility Area is designed for approximately 166,920 panels with a generating capacity of 80.9 MW of DC power.

2.2.4 Technical Characteristics of Panels.

The PV modules selected for the Project are either mono-crystalline or thin film CdTe semiconductors with up to 271 cells and will be a plate-glass module with an anodized aluminum frame with approximate dimensions of 1.2 to 1.3 meters by 2.0 to 2.3 meters. The PV modules will be connected in series for up to 1500V operation and will be mounted on a tracker system in-line in portrait orientation on racking which tracks east to west to follow the sun throughout the day.

The datasheets for the currently proposed PV modules are provided in Appendix B and it is anticipated that should other PV modules from another manufacturer be selected the physical characteristics will be similar and follow relevant industry standards.

2.2.4.1 Panel physical dimensions.

The panel physical dimensions are not known at this time because the panel model that will be installed has not been finalized as of this submittal.

2.2.4.2 Panel material/type.

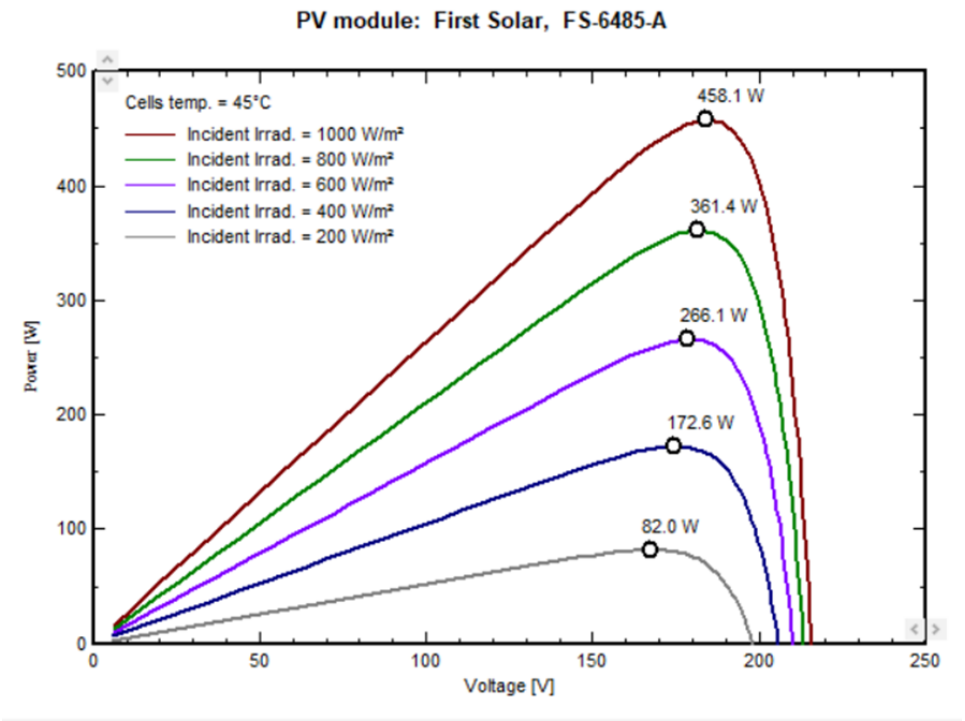
The panel material/type is not known at this time because the panel model that will be installed has not been finalized as of this submittal.

2.2.4.3 Any surface treatment of panels.

The panels will be covered in glass.

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

The power curve for one of the representative proposed solar modules, the FIRST SOLAR 485W is below.



2.2.4.5 Panel tolerances for extreme weather events or physical damage.

Panel tolerances are not known at this time because the panel model that will be installed has not been finalized as of this submittal.

2.2.5 Technical Characteristics of Inverters.

As noted in Section 2.2.1, the final selection of the inverters will be made at a future date based on the current market offering. A manufacturer specification sheet of the inverter used for the basis of the preliminary Project design is provided in Appendix B.

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.

The supports and racking will be constructed of galvanized steel.

2.2.6.2 Tracking system used.

The NEXTracker NX Gemini tracking system is proposed for this Project. If more suitable or technologically advanced trackers systems are developed post final order, Portage Solar may choose to use a different unit.

2.2.6.3 Dimensions and number of sections required.

The proposed layout for this Project will require three different tracking configurations; 16 string trackers, 12 string trackers and 8 string trackers. The 16 string tracker dimensions are 203 feet x 14.45 feet and will require 6,840 tables for the primary array and 1,597 for the alternate array. The 12 string tracker dimensions are 153 feet by 14.45 feet and will require 307 tables for the primary array and 113 for the alternate array. The 8 string tracker dimensions are 103 feet by

14.45 feet and will require 301 tables for the primary array and 114 for the alternate array.

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

The post to post spacing is 45.87 feet and edge to edge spacing is 31.42 feet. Access roads are 12-16 feet wide with a minimum of 10 feet of clearance to the array or other equipment. Fences are set back a minimum of 20 feet to arrays or other equipment.

2.2.6.5 Highest and lowest points of panels during daily rotation.

The daily rotation of panels will have a high point of 12 feet and a low point of 2 feet.

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.

The racking and tracking system proposed has intelligent wind stowing technology with symmetric dampers for maximum array stability in all wind conditions. No specialized technology is incorporated into the proposed system for snow or ice removal. Snow is removed from the panels according to manufacturer recommendations. Methods include blowing snow from equipment or utilizing cloth-based cleaning equipment.

2.2.6.7 Panel tolerance for placements on slopes.

The panel tolerances on slopes is 15 percent north to south and unlimited in the east to west direction.

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

Please refer to drawing included in Appendix B for typical panel row.

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.

Array fencing will consist of eight-foot-high deer fence with wood or metal fenceposts and direct-embed steel corner posts.

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.

Two solar arrays were designed, a 252-MW_{AC} primary array and an alternate 63-MW_{AC} array. The designed generating capacity for the primary and alternate arrays are slightly higher than the proposed capacity of 250-MW_{AC} for the primary array, and 62.5 MW for the alternate array (+25% generating capacity as specified in the AFR). Because the inverters used for this design are rated at 4.2 MW each, an additional inverter is required to get to the 250-MW_{AC} capacity, which results in an additional 2 MW_{AC} of generation. This additional generation will be limited to 250 MW_{AC} at the Point of Interconnection ("POI"), which will also take into account AC losses in the collection system. Drawings provided in Appendix B show the locations of both the primary and alternate arrays.

2.3.1.2 Lay-down/staging areas.

There will be a primary 26-acre laydown area constructed directly south of Birch Drive between Primary Array P7 and Alternate Array A2. This area consists of entirely agricultural land. One alternate laydown area approximately 4 acres in size is located south of Forest Drive within Primary Array P3. This area is also primarily in agricultural production.

2.3.1.3 Parking Area.

Parking (temporary) for construction activities will be provided at the primary and alternate Project laydown area. Permanent parking is planned for the O&M building. This parking areas will be 80 feet x 50 feet (4,000 square feet ["ft^2"]) and will accommodate up to 10 vehicles. Drawings provided in Appendix B show the location of parking at the laydown area and the O&M building.

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

A drawing provided in Appendix B shows the Project's general construction setup.

2.3.2 Collector Circuits.

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

There are approximately 25 miles of collector circuit runs for the primary array and 16 miles of collector runs for the alternate array. All project collection will be underground and be rated for 34.5 kV.

2.3.2.2 Specify the collector circuit voltage to be used.

The collector circuit voltage is 34.5 kV.

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

Thirty (30) SMA MVPS-4200-S 4200kVA on a 22'-0" x 12'-0" concrete pads. Drawing provided in Appendix B showing transformer locations.

2.3.2.4 Underground collector circuits.

2.3.2.4.1 Conductor to be used.

The collector conductors will be Al #750 and parallel #350s.

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.

There will be up to five collector circuits run in open-cut trenches with directional boring as required at road, creek, and wetland crossings. Drawings provided in Appendix B show the Project's 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 of circuits. Typical trench widths are as follows:

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

2.3.2.5 Overhead collector circuits.

2.3.2.5.1 Size of pole to be used.

No overhead collection system will be required for this Project.

2.3.2.5.2 Engineering drawing of structure to be used.

No overhead collection system will be required 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.).

The Project will use driven pier foundations and concrete foundations. The inverter/transformer skids will likely be installed on driven pier foundations but could be placed on concrete foundations if required by soil and geotechnical conditions. 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 phase; generally, the largest foundation will be the MPT foundation which will be approximately 50 feet by 30 feet. The piers will be from 5 feet to 10 feet deep.

2.3.3.3 Amount of soil excavated for each foundation type.

For driven pier foundations, no excavation is required. For the concrete foundations, soil excavation quantities will be determined in the detailed engineering phase.

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

Project construction is not anticipated to generate any excess soil. Should excess/excavated soil exist, 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 cropland, pasture, or wetland areas.

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. Approximately 7,440 trackers will be required for the primary array area and 1,820 will be required for the alternate array area.

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

See Appendix B for a technical drawing of a typical main transformer foundation.

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 the driven piles on which the solar panels are mounted will be determined with final engineering. Generally, the piles are driven to a depth of 5-20 feet below ground surface dependent upon the soil stability detailed in the preliminary geotechnical report. No pile testing was completed during the geotechnical investigation for this Project.

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 Project. No external temporary roads or temporary widening of existing permanent roads during construction are planned at this time.

Permanent internal access roads within the primary arrays are expected to be approximately 7.3 miles in total length. Roughly 2.3 miles of permanent access roads are planned for the alternate arrays. The internal 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.

No temporary access roads constructed within the Project array are anticipated at this time. If temporary access roads are required during construction, they will be built according to the specifications summarized in Section 2.3.4.2 below.

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

While not anticipated at this time, if they are eventually required, temporary access roads will be built utilizing wooden construction matting or aggregate. These roads will be used to a limited extent in areas with soil strength and stability limitations for construction vehicles. 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 the construction is complete.

Permanent access roads will be constructed by first removing the topsoil and organic material. Then the subgrade is compacted and constructed according to civil design requirements. 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. 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, de-compacting the soil if required, restoring the topsoil, and seeding to permanent perennial vegetation. A schematic showing a cross-section of a typical access road is provided in Appendix B. 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 will be 12-16 feet wide. No temporary access roads are planned at this time.

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

The site will have a perimeter fence with secured gates for site access. Only Portage Solar personnel and local emergency personnel will have access to the Project.

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

No permanent array access roads will be located within delineated wetlands. In general, permanent access roads have been sited a minimum of 50 feet from the delineated wetland boundaries. As stated above, access roads will be constructed with road base and WisDOT aggregate material. This material is permeable and will allow surface water flow through the access road without compromising the integrity of the roadway.

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.

Portage Solar does not anticipate any alternate laydown area outside of those planned and shown in the detailed site design set located in Appendix B. The primary laydown yard anticipated for the Project will total approximately 26 acres; one additional roughly 4-acre alternative laydown area

is also proposed in the northern portion of the Project.

Portage Solar will strip the topsoil from the laydown area prior to compacting or installing aggregate materials. The topsoil will be stockpiled and stored near the laydown/staging location and will have temporary erosion control measures per the Project specific Erosion Control and Stormwater Management Plan ("ECSWMP"). Following construction, the laydown/staging areas will be restored to pre-construction conditions.

2.3.5.2 Identify size and location of construction parking areas.

The primary construction laydown yard (anticipated to be approximately 26 acres in size) will also serve as a construction parking area. The exact dimensions of the parking areas within the laydown yard will be determined during detailed design.

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

The laydown areas will be reclaimed and restored to pre-existing conditions.

Upon completion of Project construction, aggregate surfaces will be removed to a depth where clean aggregate without soil mixing can be retrieved. This aggregate will be applied throughout the site on access roads as a final top layer.

Once the aggregate is removed, the yard will use deep disking construction equipment to de-compact the subgrade. Once the subgrade has been appropriately de-compacted, the topsoil will be evenly spread over the yard.

If the subsequent use will be agricultural in nature, standard agriculture equipment will be used to prepare the soil for a seed bed, and necessary steps taken to return crop yields to preconstruction levels.

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

Hazardous chemicals including fuel for vehicles, paints, and lubricants will be stored on site during the construction period. Gasoline and diesel fuel will be stored on site in secondary containment or in individual tanks. Refueling of the tanks will be contracted with a local fuel delivery service to be completed in the evening hours. Other hazardous chemicals on site will be stored in trailers located at the central laydown area. The expected hazardous chemicals include diesel fuel, gasoline fuel, oil, grease, spray paint, and galvanization paint.

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.

Portage Solar will require that a spill prevention, control, and countermeasures plan ("SPCC Plan") be provided by the contractor awarded the construction contract for the Project. The SPCC Plan will outline the procedures and preventive measures that will be followed throughout the construction period. Portage Solar and its contractors will be required to comply with the plan. 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 prevent spills;
- 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; and
- Contact information for individuals requiring notification if a spill should occur.

The SPCC Plan will be kept on-site during construction and will meet all EPA requirements. The SPCC Plan, because of its specificity, will be written by the contractor prior to commercial construction.

2.3.6 Construction Site Lighting.

2.3.6.1 Describe the site lighting plan during project 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.

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

There are no lighting ordinances for the Town of Plover or the Town of Grant. The Portage County ordinance for exterior lighting is included in the Portage County Code of Ordinances (Zoning Ordinances) provided in Appendix E.

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.

A preliminary substation layout schematic can be found in Appendix B. The interconnection voltage for the Project will be 115 kV, however, the Project substation will be constructed to 138kVB standards.

The Project substation design will be completed during detailed engineering for the Project. A footprint of approximately 460 feet by 315 feet has been allocated at this stage and will generally include items below within the substation:

- 34.5kV, 1200A air-insulated circuit breakers for the feeders to the solar plant;
- 34.5kV, 3000A air insulated bus and supporting structures (includes air insulated isolation switches for the transformer and the individual feeder circuit breakers);
- 34.5kV metering and instrument transformers;
- 100kVA 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;

- Main power transformer 34.5/138kV, 95/125/155;
- 138kV, 1200A circuit breaker;
- 138kV, 1200A air insulated gang operated disconnect switch;
- 138kV surge arrestors, if required;
- 138kV bus and supporting structures;
- 138kV metering and instrument transformers;
- 138kV dead-end structure for outgoing transmission line (generation tie line to the Point of Interconnection);
- Protection and control building, which will include DC power equipment, DC panels, and relay/control/communication equipment;
- Internal access roads;
- Security fence with vehicle gate, man gate, barbed wire. Fence to be grounded to the substation ground grid per National Electrical Safety Code ("NESC") requirements;
- Bare copper 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.

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

A schematic showing the approximate orientation of the substation on the property is provided in Appendix B. The substation will be about 3.2 acres in size and is included on a parcel that is under a purchase option. The proposed BESS and associated stormwater detention facilities will be co-located within the same roughly 14-acre parcel as the Project substation.

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 proposed Project substation will have a footprint of approximately 470 feet by 300 feet. A physical layout showing the approximate orientation of the substation with major equipment on the property is provided in Appendix B.

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

Portage Solar has executed a purchase option for the land designated for the Project substation.

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

A typical construction sequence for the Project substation involves, in order, site grading work, below-grade installation foundations for the equipment and bus structures/supports; conduit, trenching, manholes and ground grid installation; above-grade physical construction of buswork, support structures, gravel/rocking, 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 but is not yet available. All contractors will be required to follow the ECSWMP, as well as adhere to any site-specific environmental requirements including erosion and dust control.

2.4.6 Describe associated permanent stormwater management facilities that will be constructed, or expansion/modification of existing stormwater 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.

Permanent stormwater management facilities will be constructed to manage and treat stormwater associated with the new Project substation. Two detention ponds will be constructed to handle stormwater runoff from the substation, O&M building, and BESS. The ponds will be constructed on the north side of the BESS facility and nearby grades will be constructed to ensure water is properly routed to the pond via overland sheet flow and/or vegetated swales. The detention pond will have an emergency overflow weir designed to safely route excess flow from a 100-year-or-above storm event.

The pond will control stormwater volume and discharge via a culvert that will travel south and then west along the southern boundary of the Project substation, eventually discharging adjacent to the railroad right of way. This culvert 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. Sufficient cover between the culvert and proposed access road will be designed for and the downstream endwall will have rip rap installed to ensure excess erosion does not occur.

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

The substation will be fenced according to the National Electrical Code and NESC. 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

2.5.1 Describe any transmission or distribution grid interconnection requirement.

This Project requires the construction of a 115-kV transmission gen-tie line.

2.5.2 Identify the length of the generator tie line.

The approximate length of the gen-tie line is 475 feet.

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.

The proposed design includes the use of five vertically framed steel monopole structures strung with 1590 Aluminum Conductor Steel Reinforced Lapwing conductor and steel guy wires.

Structure	Above Ground Height	Description
STR 1	60.0 feet	Utility Substation Terminal structure
STR 2	60.0 feet	Vertical angle dead-end on concrete foundation
STR 3	60.0 feet	In-line direct embed steel monopole
STR 4	61.0 feet	Vertical angle dead-end on concrete foundation
STR 5	60.0 feet	Solar Substation Terminal structure

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

The transmission line will be a single-circuit 115-kV line.

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

The 115-kV gen-tie line will require a ROW width of 60-80 feet. Easements and land agreements will be finalized once a PSCW final order for this Project is received.

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.

Portage Solar holds queue position J1573 in MISO's East ATC DPP-2020 Cycle 1. Communication has occurred primarily through the MISO study cycle parameters with the Project's feasibility report issued in July 2021 at the conclusion of Phase 1. The redacted J1573 Facilities Study Report developed for MISO is included in Appendix D.

It is Portage Solar's understanding that interconnection to the Plover substation is to occur via the south end of the existing substation. Specifically, the new 115-kV Project generator tie line will interconnect via a new line terminal in the Plover Substation.

2.5.7 For transmission interconnections, indicate where the project is in the MISO Queue 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.

Portage Solar holds queue position J1573 in MISO's East ATC DPP-2020 Cycle 1. The Project is currently being evaluated and has complete Phase 1. Phase 2 is currently projected to conclude in May 2022, and Phase 3 is projected to conclude in September 2022. Portage Solar expects to execute a LGIA with MISO for the Project in February 2023. During the review process the Project will continue to supply its latest reports from MISO.

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:

No off-ROW access roads are proposed at this time. Access to the gen-tie line will be down the ROW from the Project substation to the existing Plover Substation.

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 Tables.

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.

For construction of the gen-tie line, a wheeled or tracked hydraulic drill rig will be used to drill the hole for the pole placement and a wheeled or tracked crane will lift the poles into place. Other support equipment such as skid steers and forklifts will also be used.

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

No off-ROW access roads are proposed for this Project. All construction-related disturbance will be confined to the ROW.

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 ROW or within the arrays. No off-site soil disposal is anticipated.

2.5.12 Describe 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 kept 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. In rare events, discharge basins will be constructed with a combination of straw bales, filter fabric, and rock. Dewatering will comply with WDNR Technical Standards for dewatering.

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 POI for this Project is the existing ATC-owned Plover Substation. Modifications to the Plover substation will be required. These modifications include the installation of new 115-kV buss, switches and control house panels. Once completed, the Plover substation and the new Project circuit installed within the substation will continue to be operated by ATC. The circuit will be owned by Portage Solar or any purchasing utility.

2.6 Operations and Maintenance Building

An O&M building is proposed for this Project. Portage Solar will either rent or buy an existing building in the area of the Project or construct a Project-specific O&M building directly east of the existing Plover Substation. A generic, non-Project-specific O&M building layout is provided in Appendix B.

The sections below provide additional detail of the proposed new O&M building if constructed within the Project.

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

The purpose of the O&M building is to maintain an on-site facility for employee offices/ workstations, meeting spaces, spare parts, and equipment storage.

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

Portage Solar anticipates that there will be up to 4 full-time-equivalent (FTE) staff employed at the facility.

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

The O&M building will be approximately 2,400 ft^2 in size and will require an area of approximately 200 feet by 200 feet (40,000 ft^2) for access around the building and vehicle parking. A total of about one acre is required for this area.

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 drawing of the proposed O&M building is included in Appendix B.

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 proposed size of the O&M building will be roughly 2,400 ft^2.

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

The building will be a metal commercial-style building that houses offices, a conference room, garage space, and equipment storage.

2.6.5 Lighting and Security Plan for O&M Property

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

Fixtures used to light the project area will limit lighting of the night sky and will be directed away from adjacent properties and public ROWs to prevent light from trespassing or spilling onto those properties. Any lighting used on site will comply with all applicable rules and regulations.

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 secured using computerized card readers.

2.6.6 Describe any other facilities needed, including:

2.6.6.1 Parking lots.

A parking lot with space for approximately 10 vehicles will be constructed next to the O&M building.

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 potable water well will be constructed to provide water service to the O&M building.

2.6.6.4 Sewer requirements.

A septic system will be constructed to provide sanitary service to the O&M building.

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

The location of the proposed O&M building is currently forested. Prior to construction, trees will be cut and transported off site. The area will then be graded flat and perimeter erosion control Best Management Practices ("BMPs") will be installed. Initial grading of any stormwater management swales and ponds/infiltration basins will then be completed. The concrete foundation and/or slab for the O&M building will then be installed along with utilities to the building. The O&M building structure will then be erected. Site construction of the O&M building will include final grading of stormwater features and paving of the parking area.

Erosion control BMPs will be installed after tree clearing and prior to site grading. BMPs will include, but not be limited to, silt fence, straw waddles, hay bales, erosion matting, etc. Site infiltration basins and swales will be preliminarily graded during initial construction, and final graded once the O&M building is constructed. Stabilization of bare soils will be done through the use of a cover crop and specified seed mixture.

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.

Permanent stormwater management facilities will be constructed to manage and treat stormwater associated with the new Project substation, O&M building and BESS equipment. Two detention ponds will be constructed to handle stormwater on the northern boundary of the two primary BESS blocks. These two ponds will carry runoff via grading and swales to ensure water is properly routed to the ponds via overland sheet flow and/or vegetated swales. The detention pond will have an emergency overflow weir designed to safely route excess flow from a 100-year-or-above storm event.

Space has been left within the primary and alternate arrays for permanent stormwater facilities that will be developed during the final design stage of the Project. No design of temporary or permanent array stormwater and detention basins has been completed at this stage of the Project.

Further detail regarding The Erosion Control and Stormwater Management Plan ("ECSWMP") is included in Appendix M.

2.7 Battery Storage

If the proposed project would include a large-scale BESS or plans to include one in the future, provide the following information. 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.

Portage Solar is seeking approval to construct an approximately 137.5-MW (550 MWh) AC coupled BESS located within the Project substation property. The conceptual layout for the BESS and anticipated storage capacity is based on a 55 percent nameplate capacity storage system capable of a 4-hour discharge at 550 MWh.

2.7.1 Describe the location of the proposed BESS, including a map that shows its placement within the other project facilities.

The BESS will encompass approximately 5.5 acres of land surrounding the proposed Project Substation, O&M building and existing ATC Plover Substation. This acreage includes BESS access roads and perimeter security fencing. The BESS design set is included in Appendix B.

2.7.2 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.

Portage Solar developed the plan for the BESS on this Project based on feedback from potential off-takers. Portage Solar submitted an interconnection request to MISO East DPP-2020 Cycle 1 on June 20, 2020 to interconnect into the ATC Plover 138 115-kV substation. ATC indicated that the Plover substation can accommodate the interconnection of Portage Solar without substantial upgrades. Additionally, Portage Solar can pursue the interconnection of a BESS via the MISO surplus interconnection process. To request Surplus Interconnection Service, an interconnection customer can submit an Interconnection Request (Appendix 1 to Attachment X of the MISO tariff) to MISO accompanied by a study deposit in the amount of $60,000. The request can be submitted at any time if it meets all the requirements described in Attachment X of the MISO Tariff. If MISO determines that service outlined in the Surplus Interconnection Request would not result in material adverse impact on the Transmission System and/or Affected Systems, as compared to the impacts that are created by the Existing Generating Facility without the inclusion of the proposed Surplus Interconnection Service, the requested Surplus Interconnection Service will be granted

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

Battery storage systems are relatively new to Midwest utility scale solar facilities and the specifications of these systems are changing rapidly. Therefore, a common battery storage system manufacturer was used to develop the layout and design set of this Project.

The specifications that were used for this design are as follows:

- Container based battery storage system with on-board HVAC and fire suppression systems
- Container dimensions: 40’ (L) x 10’ (W) x 9.5’ (H)
- Operating temperature -20°C to 50°C
- 137.5 MW storage
- 550MWh at POI
- 53 BESS blocks at beginning of life
- 61 BESS blocks at end of life
- 8 total augmentation blocks
- Augmentation will occur at a rate of 2 blocks every 4 years

2.7.4 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.

BESS installations are similar to installations of other heavy substation equipment such as transformers and switchgear. Typical construction equipment such as excavators, bulldozers and cranes will be used to install the BESS. The BESS containers include battery racks and HVAC equipment with significant static loads. Therefore, the foundations will be constructed on steel reinforced concrete foundations or pads that can accommodate the heavy loads and will be designed based on regional soil conditions. BESS pad dimensions will be finalized once a battery storage manufacturer is chosen and final engineering and design is completed. The battery enclosures are accompanied by a generator step-up transformer and a bi-directional inverter or Power Conversion System. Minimal construction impacts to the site is anticipated other than what would be typical for other substation equipment.

On-going maintenance if a BESS typically involves servicing of the moving equipment (HVAC systems, fans and filters) as well as monitoring battery performance and degradation. It is anticipated that the BESS shall be augmented over the duration of the project life cycle (typically, every 4-6 years) where additional battery enclosures are added to replaced degraded energy capacity. Proper site shut-down procedures shall be followed during these battery augmentation periods.

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

Battery energy storage systems require similar safety awareness to other substation and solar PV equipment especially related to electrical safety associated with high voltage AC and DC hazards. Strict adherence to National Fire Protection Association standard NFPA-70E shall be followed as related to electrical safety. BESS can also exhibit hazards associated with thermal events, off-gassing and fires under adverse circumstances. All batteries shall be certified by the manufacturer to comply with Underwriters Laboratories standard UL9540A at the cell, module and unit (rack) level such that a thermal event occurring in a cell shall not migrate outside the rack to adjacent racks and equipment. In addition, hazards associated with battery off gassing shall be detected and exhausted safety from the enclosure to prevent exposition hazards. In some cases, a dry-type Siamese connection can be provided at a safe distance from the enclosure so that a fire hose can be connected to the enclosure to dispense a water deluge to cool a battery fire. Adherence to NFPA-855 shall be followed including facilitation of a Hazard Mitigation Analysis workshop by all stakeholders including the battery manufacturer, the battery integrator, the installer and the local fire department to determine how thermal and off-gassing events are detected, communicated to first responders and mitigated.

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

Prior to site grading, feeder cable runs from the Project substation and site grounding grid materials will be installed via excavated trenches. Groups of feeder cables may be installed inside cable tramways or other enclosed cable housing.

The BESS needs to be installed on a relatively flat surface. Therefore, site grading will be required followed by the placement of sub-base and final base aggregate material. The BESS container foundations and pads will likely be excavated and installed prior to the placement of the final base aggregate. During the site grading process, stormwater retention basins will also be constructed to accommodate the additional impervious surface created by the BESS and Project substation. A detailed conceptual stormwater and erosion control plan that includes modeled stormwater detention basins specific to this Project is included in Appendix M. Appropriate stormwater BMPs will be installed during construction to prevent excessive erosion, sediment and run-off (similar to solar farm grading practices). The stormwater detention basins will be stabilized with a cover crop and permanent seed mix and either erosion control matting or blown and crimped straw.

The BESS containers will be brought to the site on flatbed semi trailers. They will be placed and on the concrete pads utilizing an overhead crane. The containers will be fastened to the concrete pads with anchor bolts and all HVAC and water supply lines will be installed.

2.7.7 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.

In addition to the impervious surface created by the construction of the Project substation and O&M building, the BESS will also include roughly 9 acres of impervious surface. This additional impervious surface will require the construction of two stormwater ponds located north of the proposed Project substation and BESS. The western pond will be approximately 0.9 acre (41,000 ft^2) in size and contain both an inlet and outlet at set elevations. The eastern pond will be approximately 2.8 acres (124,000 ft^2) in size and also contain inlet and outlets set at a pre-determined and modeled elevation. An equalization pipe will be installed between the two ponds to provide flow between the ponds during heavy precipitation events. Water from the impervious surfaces will flow to the ponds via swales and grading. Together, the two proposed stormwater ponds have been sized to cumulatively store approximately 422,000 cubic feet of water. Further details on the stormwater management for the Project is in the stormwater and erosion control plan in Appendix M.

3 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. 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
Start of Construction	August 2023	
Site Preparation (Erosion Control and Tracking Pads)	August 2023	April 2024
Vegetation Removal	August 2023	October 2023
Staging and Laydown Areas	August 2023	September 2023
Construct Project Substation	February 2024	July 2024
Access Roads	August 2023	April 2024
Drive Posts	September 2023	March 2024
Install Racks	October 2023	April 2024
Install Inverter Pads	April 2024	May 2024
Install Solar Modules	February 2024	July 2024
Backfeed	July 2024	July 2024
Commissioning	August 2024	October 2024
In-Service Date		November 2024

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

The following provides a description of the staging and construction sequence for the Project:

- Installation of tracking pads at construction entry and exit points, and the installation of erosion control and stormwater BMPs as outlined in the ECSWMP.
- Vegetation removal (crop removal) starting in areas where initial staging and laydown areas will be located. Vegetation removal will continue across the site, sequenced to proceed in an organized and cost-efficient manner. Upland forest clearing will commence in a similar fashion.
- Vegetation removal, site grading and placement of sub-base and base material, foundations, pads and cable runs for Project substation and BESS.
- Installation of Project substation and BESS equipment.
- Grading and excavation of substation and BESS stormwater retention ponds. Final vegetative and erosion control stabilization of these ponds will occur immediately after completion.
- Development of staging and lay-down areas for receiving and storing construction materials and equipment. The laydown areas will also house trailers and parking for personnel and construction-related vehicles.

- Access-road installation to facilitate continued clearing operations and construction of the facility (limited grading is anticipated as roads will be constructed at grade when possible).
- Delivery of equipment, including piles, aluminum supports/mounting structures, tracking systems, and inverters. The Project will be constructed in blocks and multiple blocks will be constructed simultaneously over time. Deliveries will continue over time in advance of construction of the blocks.
- Solar-block construction in sequence, starting with driving pile foundations, then installing aluminum supports/mounting structures onto the piles.
- Delivery and installation of collection system equipment via trenching and directional drilling.
- Delivery and installation of solar PV modules.
- Stabilization and revegetation of disturbed areas in stages as construction of the solar blocks and collection trenches are completed.
- Material and equipment deliveries for installation of the step-up transformer substation.
- Gen-tie transmission line construction and connection to Project step-up transformer substation and ATC infrastructure.
- Interconnection inspections and testing and Project commissioning.
- Vacating staging and laydown areas prior to installation of piles and construction of the final solar blocks.
- Completion of final seed installation and revegetation activities at staging, laydown, and other disturbed areas consistent with revegetation and restoration plan.

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

The duration of construction for the Project is estimated in Section 3.1.1 to be 15 months. This timeline is in part dependent on winter weather conditions and the ability to work through the winter months. If the winter is mild, activities such as driving posts, installing racking, and installing inverter pads could be accelerated. In this case, the total construction period could last up to 17 months.

The construction timeline will be finalized after an engineering, procurement, and construction contractor is hired.

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

The sequence for staging and construction for all Project facilities is described above in 3.1.2.

3.1.5 If grading, land leveling or any other activity that would result 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 for this Project due to the relatively flat ground surface contours within the Project Boundary. If grading is required, it will commence generally in a north to south

orientation. Multiple crews will be conducting grading within different areas of the Project at the same time. Once a given area is completed, the area will be temporarily seeded and grading crews will move on to the next area. Pile driving crews could move into an area within a few days following the completion of grading. Likewise, collector circuit trenching, racking and tracker installation crews could also move into a particular area of the array within a few days of completion of a prior task. Given this fast-paced sequence, as much as 300 to 500 acres or more of the Project could be disturbed during the initial stages of the Project. Final disturbance numbers will not be known until final engineering design and construction sequencing are completed.

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.

Preliminary review of Project area site characteristics including existing topography and soils, show that the existing gentle slopes will not be subject to severe soil erosion. The majority of the Project area includes gentle slopes of less than 1 percent pitch. The Project area will be surrounded by silt fence which will filter low-velocity sheet flow coming from the work area. In locations where larger areas drain to the Project boundaries, the silt fence will be augmented by filter socks to allow settlement of sheet flow run-off. Erosion control blankets will be used in combination with silt fence to protect sensitive areas (wetlands, etc.) by establishing a vegetative buffer to allow additional settlement. In locations where large drainage areas occur with steeper ground slopes (>5% pitch), sedimentation basins will be established to allow settlement of run-off with a higher silt content.

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.

A conceptual level Erosion Control and Stormwater Management Plan ("ECSWMP") is included in Attachment M. Although silt fence is proposed to be the primary sediment control practice, in accordance with WDNR Silt Fence Technical Standard 1056, silt fence will only be used for slope lengths less than 100 feet. In addition to silt fence, slope breakers (water bars) will be utilized to reduce runoff velocity and divert water off of the construction area. Temporary slope breakers may be constructed of soil or sandbags. While silt fence will only be used for slope lengths less than 100 feet, slope breakers may be installed on slopes greater than 5 percent at the following maximum spacing: 5 percent-15 percent 300-feet max, 15 percent-30 percent 200-feet max, >30 percent 100-feet max. The outfall of each temporary slope breaker shall be directed to a stable, well-vegetated area. Slope breakers shall be positioned so that the outfall does not discharge sediment into wetlands, waterbodies, or other sensitive environmental resource areas.

The ECSWMP included in the Appendix M is a conceptual level plan and will be revised and finalized once a final design is complete and the final engineering process has begun. The final Project ECSWMP will call out specific locations and types of temporary and permanent stormwater features to be constructed prior to and after the installation of the solar array. Applicable stormwater and erosion control permit applications will be submitted 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 majority of the land included in the Project Boundary is currently in agricultural production. Soils in the area consist of a silt loam overlain by fine to medium sand, and topography is considered flat. Minimal pre-existing drainage features are present within the Project Boundary. Based on discussions with participating parcel owners and available data, the majority of the Project Boundary is drained via underground drain tiles. The tiles outfall into Ditch #1, which is a tributary to Buena Vista Creek. This ditch is the main drainage feature for the area between the Project and the City of Plover. Additionally, no grading or disturbance will occur in any of the field verified wetlands or waterways within the Project Boundary. These areas have been completely avoided by the Project.

Minimal grading is expected prior to the construction of the Project. Therefore, the effects of the preliminary and final site grading and installed solar facilities will be minimal.

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

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

The majority of the Project Boundary is currently agricultural production. Therefore, vegetation within the Project Boundary consists of row crops during the growing season and bare or tilled ground in the winter months. Existing vegetation is sparse and entirely associated with field verified waterways, fence lines and areas outside the reach of irrigation pivots. All waterways and wetlands will be avoided by this Project. To the extent practicable, existing herbaceous vegetation or vegetative buffers along waterways will be maintained during construction and operation of the Project. Farmed wetlands that are currently unvegetated will be seeded with a wetland seed mix and maintained through the live the Project. Any trees located within the footprint of the substation and gen-tie line, field fence lines and waste areas where the irrigation pivots cannot reach will be removed to ensure there is no interference (shading) with the solar facilities. Appropriate vegetative screening will be left in place around residences and other buildings.

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

Soil compaction from the movement of heavy construction equipment will be addressed through the use of plows or deep ripping equipment. Because the soil types within the Project Boundary consist of sand loam and pure sand, compaction of soils during construction will be minimal. Prior to final seeding, areas will be tilled or disced to provide a suitable base for the seed mixture. Topsoil excavated during construction will be separated and either thin-spread within another area of the Project, or disposed of at an appropriate off-site disposal location.

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

There are no slopes of 20 percent or greater within the Project Boundary.

3.2 Workforce

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

and operation.

During construction, the work force will be primarily comprised of delivery drivers, laborers, equipment operators, 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. Approximately 100 to 200 workers, at peak construction, are anticipated to be needed to construct the Project. Once construction is complete, the Project will require approximately four full-time-equivalent personnel for O&M. The plant operator(s) will have specific training and expertise to run a solar facility, including the high-voltage substation.

Portage Solar will implement a Construction Compliance Program ("CCP)" consisting of environmental training, regularly scheduled inspections, and tools such as permit matrices to ensure all applicable 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, and will be dependent upon the engineering, procurement, and construction contractor selected, as well as the labor market and availability at the time of construction.

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 to deliver panels and equipment to array sites. 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 MPT and other heavy equipment. For other substation components, small cranes, bucket trucks, and forklifts will be used to place equipment. For the gen-tie line, a wheeled or tracked drill rig will be used to drill the hole for the pole placement and a wheeled or tracked crane will lift the poles into place. 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 MPT and possibly the BESS equipment, delivery trucks will consist of legal load (80,000 pounds or less) over-the-road flatbed and box trucks. The Project will receive an average of approximately 7 to 10 box trucks (modules) a day throughout the module delivery period and 2

to 5 flatbed trucks a day (inverters, piles, racking, misc.) during the pile-driving period. The main MPT will weigh approximately 200,000 pounds and will be transported via rail to the nearest railyard and then using special multi-axle trucking and state road permits, as necessary, to the Project.

3.3.3 For vehicles used for delivery (diagrams or drawings of vehicles are acceptable). Include:

3.3.3.1 Overall vehicle length.

Except for the MPT, vehicles used for delivery will be standard over-the-road semi-trucks.

3.3.3.2 Minimum ground clearance.

Standard over-the-road semis/delivery vehicles will be used for this Project. These vehicles will have standard ground clearances. Vehicles used inside the arrays will be suitable for the engineered internal access roads and will have sufficient ground clearance.

3.3.3.3 Maximum slope tolerance.

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:

A Road Condition Report was completed for the Project in November 2021. Current desktop road-condition data and visual inspections were performed as part of that road study. The Road Condition Report is included in Appendix R.

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

The MPT and possibly the BESS equipment are the only equipment that will require use of transportation vehicles other than standard over-the-road flatbed trailers and box trucks.

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

The most likely route for equipment transport is from STH 54. Once the equipment is near the Project, the equipment will be delivered to the laydown yard using Monroe Drive, Coolidge Avenue and Birch Drive.

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. Solar projects generally use legal-limit loads. Per the conclusions of the Road Condition Report, no culvert or pavement damage is expected during the equipment delivery and construction phase of the Project. 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.

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 right-of-way (ROW)

might need to be removed.

No clearing of trees near any Project roadways is anticipated.

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:

Local deliveries of equipment and materials will likely use STH 54, Monroe Avenue, Coolidge Avenue and Birch Drive. During construction, between 100 and 200 construction workers are expected to travel to and from the Project. Local traffic congestion may occur from Monday to Friday, twice a day, coinciding with workers arriving or leaving the site.

The site will likely receive between two to five flatbed trucks a day delivering inverters, supports, and racking during the construction period and approximately 7 to 10 box trucks a day delivering solar modules during the panel installation period. These various delivery trucks are expected to be legal-load flatbed and box trucks. The MPT will likely require a special delivery vehicle, and due to its weight (estimated at 200,000 pounds) may require state road permits for its delivery. The delivery of the MPT utilizing a specialized multi-wheel trailer may require police traffic control along local roadways. This traffic control will only be required during the delivery of the MPT.

Local routes to the Project will have construction signage notifying deliveries and workers to reduce traffic. Signage will be posted to inform the general public of the additional construction traffic.

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

Table 3.3.5.1: Affected Roads

Affected Roads
STH 54
Monroe Avenue

Affected Roads
Coolidge Avenue
Prairie Drive
Birch Drive

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 driving to and from work.

4 Project Maps, Aerial Imagery, Photo Simulations, and GIS Shapefiles

Aerial Imagery: Recent aerial imagery is required for every project. Aerial imagery submitted with an application should be no older than three years – more recent in rapidly developing areas. Aerial images are typically used as a base for most maps and should be provided at a scale of at least 1:4800. Physical aerial photographs are not acceptable. Orthorectified imagery created using Geographic Information System ("GIS") is required – reduced size photos are not adequate. All spatial data submitted must be compatible with the most current version of ESRI ArcGIS.

In addition to providing the maps listed below, all GIS data used to create those maps must also be submitted with the application (see Section 4.2 for a list of GIS shapefiles required and pages vi-vii for instructions on GIS map projections). 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.

Provide the maps in both hard copy and digital versions. Refer to Application Formats in the Introduction.

4.1 Project Area Maps

Project maps are provided in Appendix A. The maps show the Project Boundary and other Project data on aerial photographs and include environmental, parcel, land use, and existing utility/infrastructure information. Also included is environmental information required to support WDNR's review. Portage Solar will be providing electronic formats of the maps GIS data files separately on discs to the Commission in Appendix F.

4.1.1 General Project Area Map

See the map labeled Appendix A – Figure 4.1.1 General Project Area Map. This map includes the entire Project Study Area and reaches at least one mile beyond the Project Study Area boundary and is of approximate scale 1:4800. The map shows the boundaries of the Project Site, the Primary Array, the Alternate Array (symbolized differently and identified by number), any new collector substation facilities, and access roads.

4.1.2 Detailed Project Area Map

See the maps labeled Appendix A - Figure 4.1.2 Detailed Project Area Map. The scale for this map is larger than that of the general Project map so additional detail is clearly visible.

4.1.3 Topographic Maps

See the map labeled Appendix A – Figure 4.1.3 Topographic Map. The map includes the Project Study Area boundary, the Proposed Array, the Alternate Array, substation facilities, BESS, collector circuits, access roads, and the O&M building.

4.1.4 Substation

4.1.4.1 Provide a map showing the following features:

See the map labeled Appendix A – Figure 4.1.4.1 Detailed Substation Map. The map includes the

location, dimensions, and layout of the new substation; recent aerial photos of the substation site; and the location of power lines entering and leaving the substation.

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

See Appendix B for a preliminary one-line drawing of the substation and an engineering diagram of the substation and substation equipment, including existing interconnection facilities.

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 image of the property.

See the map labeled Appendix A – Figure 4.1.5.1 Detailed O&M Building Map. The map includes the O&M building, parking area, roadway/driveway, and other facilities on a recent aerial photo.

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

See Appendix B for a preliminary drawing of the Project O&M building.

4.1.6 Battery Storage

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

See Appendix B for a detailed engineering drawing. Natural Resources and Land Use/Ownership Maps.

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

See the map set labeled Appendix A – Figure 4.1.7.1 displaying wetlands within the Project Study Area overlaid on topographic mapping and aerial imagery (separate figure sets as specified in Section 8.3). A separate figure set depicting which methods were used to identify wetland presence (as specified in Section 8.3.3) is not included as all wetlands were identified by field wetland delineation.

The mapping extent of field-delineated wetlands is only within the Project Study Area near areas considered for the proposed facilities. Properties owned by non-participating landowners were not investigated; therefore, actual wetlands may continue beyond the edges of mapped features.

4.1.6.3 Land ownership maps, minimum scale 1:10,000 (map extent to one mile from the project boundary)

Appendix A - 4.1.7.2 Land Ownership Map shows the following features: current parcel boundaries and landowners, roads, municipal boundaries, Project Study Area boundary, Proposed Array, Alternate Array, access roads, collector circuits, and topographic contours.

4.1.6.4 Public lands

Appendix A - 4.1.7.3 Public Lands Map is a figure displaying public and managed lands within two miles of the Project Study Area. This figure illustrates public land data including national, state,

and county forests; and parks, trails, and other managed lands as identified through the WDNR, USFWS, and U.S. Geological Survey ("USGS") Gap Analysis data.

4.1.6.5 Land cover

Appendix A - 4.1.6.4 Land Cover Map is a figure displaying the land cover types within the Project Study Area. Section 5.3 details the land cover types and those that will be impacted by Project construction or facilities.

4.1.6.6 Flood Insurance Rate maps (FIRM) (within the project boundary)

Appendix A - 4.1.7.5 Flood Map is a figure displaying the digital flood information within two miles of the Project Study Area. The figure displays digital Flood Insurance Rate Maps data acquired from the Federal Emergency Management Agency website.

4.1.6.7 Soil survey maps (within the project boundary)

Appendix A - 4.1.6.6 Soils Map is a figure displaying the Project Study Area. It illustrates soil information acquired from the U.S. Department of Agriculture ("USDA") NRCS Soil Survey Geographic Database.

4.1.6.8 Bedrock maps (within the project boundary)

Appendix A - 4.1.6.7 Bedrock Map presents the bedrock geological information gathered for the Project Study Area. The information is from state/regional-scale studies and not from geotechnical data. Appendix H contains the geotechnical study report for the Project.

4.1.7 Community Maps

4.1.7.1 Zoning maps

See the map labeled Appendix A - 4.1.8.1 Zoning Map. The map includes the Project Study Area and existing zoning out to 0.5 miles beyond the boundaries of the Project Study Area.

4.1.7.2 Sensitive sites.

There are no sensitive sites within the Project Boundary, therefore no map is included in Appendix A for sensitive sites.

4.1.7.3 Airports

See map labeled Appendix A - 4.1.8.3 Airport Maps. The map includes all FAA airports within 2 and 10 miles of the Project Study Area. There are 3 FAA airports within the 10-mile buffer for the Project Boundary.

4.1.8 Communication Infrastructure

4.1.8.1 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.

See map labeled Appendix A - 4.1.8.3 Communication. This map includes all communication infrastructure within one mile of the Project Study Area.

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 disc in Appendix F – GIS Shapefiles. GIS shapefiles provided on the data disc include all features described in Table 4.2 located in Appendix F – GIS Data.

4.3 Photo Simulations

Existing aesthetic conditions of the Project Study Area and its vicinity were documented with photographs taken November 2021. A subset of photographs collected during the site visit served as the baseline images for the creation of visual simulations. The simulations show rendered views that include the proposed solar facility components and arrays as proposed in engineering and plan documents.

Prior to commencing the photo simulation tasks for the Project, Portage Solar consulted with Commission staff to determine the suitability of potential Key Observation Points ("KOPs"). Six KOPs were selected and used to create visual simulations of what the Project may look like once constructed:

- KOP 01 – View northwest from residence and travelers near Forest Drive and Coolidge Avenue intersection
- KOP 02 – View southeast from eastbound State Highway 54 travelers approaching Alternative panel arrays
- KOP 03 – View southeast from eastbound Prairie Drive travelers and from nearby residence
- KOP 04 – View northwest Birch Street travelers
- KOP 05 – View southeast from 130th Street travelers and from nearby residence
- KOP 06 – View northeast from Birch Street travelers

A summary depicting the existing and simulated conditions is provided in Appendix G. It contains baseline photographs and visual simulations for the listed KOPs.

5 Natural and Community Resources, Description and Potential Impacts

5.1 Site Geology

5.1.1 Describe the geology of the project area.

Portage County lies within the Eastern Ridges and Lowlands of the Central Lowland Physiographic Province of the United States. Characteristic features of the Central Lowland province are flat lands with geomorphic remnants of glaciation. Portage County itself is typically divided into three areas having similar geologic and hydrologic conditions: the sand-plain province, the drift province and the drift crystalline province. The Project Boundary is located in the Central Sand Plain of Wisconsin within the sand plain province of Portage County. The Portage County landscape is a large, flat expanse of lacustrine and outwash sand, distinctive from any other part of the state in its origin as an extremely large glacial lake. The sand was deposited in Glacial Lake Wisconsin, along with outwash sand derived from glaciers to the north.

Bedrock within the Project Boundary is underlain by late Cambrian sandstone that contains strata of dolomite and shale. Precambrian igneous (granite) and metamorphic (gneiss) rocks lie beneath the sandstone and are exposed in a few locations along the Wisconsin River. Depth to bedrock in most of the Project Study Area is within 20 feet of the ground surface. USDA NRCS Soil Survey Geographic Database mapping indicates that depth to a restrictive layer for most of the Project Study Area is greater than six meters (20 feet), with some areas less than one meter.

The Project Area is located in southwestern Portage County. Soils in this portion of the county are classified as Richford-Rosholt-Billet association which are formed mainly on outwash sand and gravel. Slopes are nearly level to gently sloping and the soil is well drained. The majority of land cover and land use within the Project Study Area is row crops.

5.1.2 Geotechnical report on soil conditions.

A desktop geotechnical review and preliminary geotechnical field investigation was performed for the Project. Summary reporting for desktop and field geotechnical investigations is included in Appendix H.

5.1.2.1 Provide a summary of conclusions from any geotechnical report or evaluation of soils in the project area including (subjects in bullets below):

Portage Solar commissioned Terracon Consultants, Inc. to perform a desktop review and preliminary subsurface exploration and geotechnical engineering evaluation for the Project. The purpose of the investigation and report was to explore subsurface conditions, conduct field and laboratory testing to characterize the subsurface soils and bedrock properties, and to provide preliminary geotechnical engineering parameters for the design and installation of the tracking systems for the solar panels.

Summary reporting for desktop and field geotechnical investigations is included in Appendix H.

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

Fifteen soil test borings were performed for the Project at select locations within and adjacent to

the Project Area. Borings were conducted to a depth of seven to 20 feet. Soil boring and test pit locations are shown in Figure 1 in the Geotechnical Report located in Appendix H.

According to the geotechnical evaluation, a majority of the Project has a topsoil thickness ranging from about six to eighteen inches thick, generally underlain by granular soils comprised of poorly graded sand with varying gravel content extending to the boring termination depths.

Groundwater was encountered during auger advancement at 14 of the 15 borings. Wet soil was encountered in the one boring where groundwater was not encountered. Estimated groundwater depths at the specific boring locations at the time of drilling are presented in table format enclosed in Appendix C of the Terracon Geotechnical Report.

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

The geotechnical investigation performed for the Project did not include an analysis for soil infiltration or permeability testing. However, based on the soil type encountered within the geotechnical borings and during the wetland delineation, the soils consist of sand loam and fine to medium grade sand. These soil types are highly permeable and will provide excellent stormwater infiltration. The final site stormwater plan will review available soil infiltration data and account for these properties in the development of stormwater detention and treatment.

- Depths to seasonal high groundwater.

Groundwater was encountered at 14 of the 15 borings examined in the geotechnical investigation. Depth to groundwater ranged from a high of three inches below ground surface (“bgs”) to a maximum of 17 inches bgs. A full summary of the range of groundwater depths at each soil boring is included in the Terracon Geotechnical Report in Appendix C.

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

As stated above, soil infiltration rates were not analyzed as part of the Terracon Geotechnical Investigation included in Appendix C.

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

The majority of surface soils within the Project are considered non-frost susceptible. However, the mixing of surface and sub-surface soils from agricultural practices and water within or near the surface can affect the performance of subsurface infrastructure (piles, foundations, etc.). Based on a review of soil samples and published soils maps for the area, Terracon estimates that frost induced adfreeze stress would be approximately 500 pounds per square foot along the pile perimeter to a depth of 3.9 feet bgs. Side and lateral resistance for the site soils are anticipated to be satisfactory for conventional pile foundation design.

Evaluation and recommendations regarding general site grading, service roads, solar array, equipment slabs, and seismic classification are provided in detail in the Terracon Geotechnical report.

5.1.2.2 Depth to bedrock

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

Bedrock was not encountered in any of the 15 soil borings performed during the geotechnical investigation.

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

Bedrock was not encountered in any of the 15 soil borings performed during the geotechnical investigation.

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

Bedrock was not encountered in any of the 15 soil borings performed during the geotechnical investigation.

5.2 Topography

5.2.1 Describe the general topography of the project area.

Raster files of topographic features within the Project Boundary and surrounding landscape are included in Figure 4.1.3 in Appendix A.

The surface topography of the Project Area is flat across the entire extent of the Project Study Area, ranging from elevations approximately 1,055 feet above mean sea level ("msl") to 1,070 feet msl. Slight topographic lows are present in and around Ditch #1 (S01) and the field verified unnamed tributaries to Buena Vista Creek (S102 and S103). The remainder of the Project is very flat with only micro depressions and small undulations in the land surface.

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

The topography of the Project will not be substantially changed by construction activities including installation of the foundations for the tracking systems and trenching for the collection system. Other than grading requirements for the substation/step-up transformer and other localized areas within the solar arrays, significant grading is not anticipated. Panel arrays will be designed and constructed to conform to the existing topography to avoid the need for significant grading. However, some localized grading will be necessary to meet racking tolerances. Access roads will be constructed as close to existing grade as possible, maintaining preconstruction hydrologic flow patterns.

Upon completion of construction activities, the areas temporarily impacted due to construction activities will be returned to their pre-construction topography.

5.3 General Project Area Land Cover

The Project is located in a predominately agricultural rural landscape, between the Towns of Grant and Plover. The agricultural areas' crops consisted of beets, potato, corn, soybean, alfalfa, and peas. Non-agricultural upland within the Project Study Area consist primarily of untilled edges and

corners of active agricultural fields, forest, and roadside. Figure 4.1.6.4 in Appendix A provides an overview of the land cover existing within the Project Boundary. Table 5.3-1 below provides a summary of the land cover within the Project Study Area.

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.

The vegetative communities within the Project were evaluated by a combination of aerial photographic review and field visits during 2020 and 2021. A summary of the vegetative communities within the Project Study Area is included below.

5.3.1.1 Agricultural

- Row/traditional crops
- Specialty crops/other
- Prime farmland

The dominant vegetative community within the Project Study Area is comprised of actively cropped agricultural land. Crops within the agricultural areas consisted of potatoes, beets, corn, soybean, alfalfa, and peas. Other agricultural field species were common dandelion (*Taraxacum officinale*), lamb's quarters (*Chenopodium album*), fall panicgrass grass (*Panicum dichotomiflorum*), field bindweed (*Convulvulus arvensis*), pinkweed (*Persicaria pensylvanica*), redroot amaranth (*Ambrosia retroflexus*), common purslane (*Portulaca oleracea*), Shepheard's purse (*Capsella bursa-pastoris*), and hairy crabgrass (*Digitaria sanguinalis*).

A roughly 4.5-acre vineyard is present in the far northwestern corner of the Project, in the northeastern corner of Alternate Array A01. No pasture lands exist in the Project Study Area.

5.3.1.2 Non-Agricultural upland

- Prairie/grasslands/pasture/fallow field
- Upland forests

Non-agricultural upland within the Project Study Area consists primarily of the untilled edges and corners of agricultural fields, forest, and roadside ditch.

Upland forests are dominated by red pine (*Pinus resinosa*), and white pine (*Pinus strobus*), northern pin oak (*Quercus ellipsoidalis*), black cherry (*Prunus serotina*), red oak (*Quercus rubra*) and quaking aspen (*Populus tremuloides*), honeysuckle (*Lonicera sp.*), black raspberry (*Rubus occidentalis*), gray dogwood (*Corus racemosa*), eastern cottonwood (*Populus deltoides).* Herbaceaous vegetation within the upland forested areas includes Pensylvania sedge (*Carex pensylvanica*), smooth brome, white avens (*Geum canadense*), wild chervil (*Anthriscus sylvestris*) and river bank grape (*Vitis riparia*). Upland roadsides are dominated by Kentucky bluegrass (*Poa pratensis*) and smooth brome (*Bromus inermis*).

Approximately 41.1 acres of upland forested land is proposed to be cleared for this Project within both the Primary and Alternate array areas. Clearing will occur within Primary Array fence lines

and fence corners (15.9 acres), access roads and collector circuits (0.17 acre) and the substation, BESS, O&M and gen-tie property (12.97 acres) prior to the start of construction. Additional details are provided in Section 5.5.

5.3.1.3 Wetlands (Eggers and Reed classification type)

A total of 36 wetlands were identified within the Project Study Area. The wetlands delineated within the Project Study Area are further summarized in the Wetland Delineation Report in Appendix I. A summary of the wetland communities is also included in WDNR Tables 1 and 2 in Appendix T.

The field-delineated wetlands located with the Project Study Area consist of low-quality farmed, fresh (wet) meadow, shrub-carr and hardwood swamp wetlands. A summary of the wetland communities surveyed within the Project Study Area is presented below:

Typical fresh (wet) meadow vegetation includes reed canary grass (*Phalaris arundinacea*), pinkweed, curly dock (*Rumex crispus*), Dudley's rush (*Juncus dudleyi*), dark green bulrush (*Scirpus atrovirens*), and elderberry (*Sambucus nigra*). Fresh (wet) meadow wetlands located within the roadside ditch are considered degraded due to past grading/construction practices and the presence of invasive plant species.

Typical farmed wetland vegetation includes varying degrees of herbaceous agricultural weed coverage and stunted crops depending on degree of ponded conditions. Common herbaceous species includes barnyard grass (*Echinochloa crus-galli*), bog yellowcress (*Rorippa palustris*), broad-leaved cattail (*Typha latifolia*), common duckweed (*Lemna minor*), common purslane, Devil's beggartick (*Bidens fondosa*), fall panic grass, field bindweed, lamb's quarters, pinkweed, water smartweed (*Persicaria amphibia*), and sandbar willow (*Salix interior*). Farmed wetlands are considered degraded due to historic agricultural practices.

Dominant species included in the hardwood swamp areas delineated within the Project Study Area include reed canary grass, peach-leaf willow (*Salix amygdaloides*), and quaking aspen. The hardwood swamp wetland community was only identified within the Project Study Area and outside the Project Boundary; no hardwood swamp wetlands are located within the Project Boundary.

No wetlands will be impacted by the Project as currently proposed.

5.3.1.4 Developed land

- Residential
- Commercial/Industrial

Developed land within the Project includes residential, commercial/industrial, and roadways. Maintained gravel, paved, or lawn areas surrounding buildings are considered developed and are included in the total acreage of developed land. The Project Study Area includes approximately 24 acres of developed land and 0.93 acres of residential land.

Table 5.3-1 Total Land Cover

Acres of Land Cover Categories within Project Study Area (acres)		
Land Cover Classification		**Acres[1]**
Agriculture	Cropland	2,231.18
	Specialty Crops	4.59
Non-Agricultural Upland	Grassland	218.71
	Upland Wooded	74.72
	Fallow Field	0.0
Wetlands/Waterbodies	Forested Wetland	2.72
	Non-Forested Wetland	18.85
	Open Water	4.78
Developed Land	Residential	0.93
	Developed/Urban	24.43
Project Study Area Total		2,580.90

[1]Both solar panel and above-ground and underground collector line portions outside of the Project Boundary are included in the Project Study Area used to calculate land cover acres.

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 wetland and waterway inventory and impacts are summarized in WDNR Tables 1 and 2 provided in Appendix T. General land cover and fenced area impacts are summarized in PSC Solar Tables 1 and 2 in Appendix T. Impacts have been calculated using GIS software utilizing the previously described land cover digitized dataset and polygons representing the footprints of Project facilities. Land within the solar array fence line is considered impacted; however, the area (exclusive of access roads) will be revegetated as described in Section 5.6. Several small, farmed wetlands are located within the Project Boundary; however, none of these wetlands will be impacted by the Project. All field-delineated wetlands have been avoided in the layout and design of the panel arrays, access roads, substation and BESS. No permanent or temporary wetland impacts will occur.

Collector circuits will be installed utilizing a combination of trenching and directional-boring methods. The horizontal directional drill ("HDD") method will be utilized where collection crosses wetlands or to cross waterways. Ditch #1 will be bored to connect Alternate Array A06 with primary facilities located north of Birch Drive. Waterway S102 will be bored to connect Alternate

Arrays A04 and A05. Bore pits will be placed within agricultural fields or previously disturbed upland areas. No permanent or temporary impacts on wetlands or waterways are anticipated from the installation of the collection circuits.

5.5 Invasive Species

5.3.2 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.

The Project Study Area was evaluated for the presence of invasive species during field investigations in October, November, and December 2020 and October and November 2021. The dominant species and general locations of the invasive species were noted on wetland delineation field mapping (Appendix I) and later digitized in GIS. The most dominant invasive plants found during the 2020 and 2021 field investigations were reed canary grass, spotted knapweed (*Centaurea stoebe*), and bush honeysuckle (*Lonicera tatarica*).

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

Invasive species management for the Project may consist of spot cutting, mowing, and herbicide treatments. Vegetation management will be conducted prior to construction and/or the year following construction to prepare the Project Area for permanent seed installation.

Construction equipment that may come in contact with field-verified invasive species areas will be cleaned before arriving and prior to leaving the Project. Cleaning of construction equipment may consist of brushing, power washing, and steam cleaning.

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

Invasive and weed species management will be conducted as needed to reduce the spread of invasive species from existing populations, 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 cutting shall be appropriately timed to assist with control of invasive species (e.g., mow annual and biennial species during flowering but prior to seed production) and to remove vegetation to assist with site seedbed preparation.

Herbicide treatments are recommended for management of perennial invasive and noxious species, as mowing alone is not typically sufficient for adequate control. Ongoing management of invasive and noxious species is required for compliance. Herbicides are also used to remove undesirable vegetation to prepare for permanent seed installation. Additional information regarding invasive species management is provided in the Vegetation Management Plan included in Appendix J.

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 Vegetation Management Plan is included in Appendix J. Additional details about vegetation removal, timing, and equipment can be found in the Vegetation Management Plan.

Approximately 41.07 acres of upland forested land is proposed to be cleared for this Project within both the Primary and Alternate array areas. Clearing will occur within Primary Array fence lines and fence corners (15.89 acres), array access roads and collector circuits (0.17 acre) and the substation, BESS, O&M and gen-tie property (12.97 acres) prior to the start of construction. The upland forested areas proposed to be cleared consist of disturbed fence line and field corner areas and dominated by red pine, white pine, jack pine and scrub oak. A summary table of proposed upland forested clearing is provided in Table 5.6-1 below.

Table 5.6-1

Upland Forest Clearing	
Area	Acreage
Access Roads - Alternative	0.02
Access Roads - Proposed	0.09
Access Roads - Substation/BESS	0.11
Collector Circuits - Alternative	0.03
Collector Circuits - Proposed	0.08
Generator Tie Line	0.29
Operations & Maintenance Building	0.20
Perimeter Area	12.00
Primary Array – Fencelines	15.89
Alternate Array - Fencelines	0.00
Substation / BESS / Stormwater	12.37
	41.07

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 piled around the perimeter of the forested areas prior to transport off the Project or for landowner use. Stumps are proposed to either be removed or ground prior to preliminary grading and temporary seeding. The cleared areas will be stabilized with permanent seed mixes detailed in the Vegetation Management Plan in Appendix J.

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.

Proposed temporary and permanent seed mixes are provided in Section 4.0 of the Vegetation Management Plan included in Appendix J. 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.). Three permanent seed mixes are proposed for the Project:

1. Low-growth native / non-native graminoid seed mix for PV panel areas
2. Pollinator refuge prairie seed mix for select buffer areas
3. Pollinator refuge wetland native seed mix for wetlands (This mix will only be used in wetlands on the interior of fenced arrays, unless other wetlands are disturbed as part of construction)

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.

Proposed seed mixes described in Section 5.6.2.1 are presented in Appendix B of the Vegetation Management Plan located in Appendix J of this application. An upland and wetland pollinator friendly seed mix is included in the Project Vegetation Management Plan.

5.6.2.3 Vegetation monitoring and management protocols for subsequent years after construction.

All areas will require some form of ongoing maintenance to establish and maintain desirable vegetation that is compatible with PV panels and Project operations. Maintenance is expected to be most intensive in the establishment phase, or approximately two to three years following seeding as desirable species germinate, grow, and mature. In general, native species take longer to mature than non-native species. Monitoring will occur to confirm compatibility of vegetation with facility goals concurrently with routine vegetation maintenance activities.

Frequent cutting is typically required during the establishment phase (years 1 and 2 post-seeding) to reduce fast-growing weeds, minimize vegetation height under the PV panels, and assist with growth of planted species. This applies to all seed mixes. Mowing should be conducted when vegetation reaches a height of 8-12 inches. Anticipated establishment mowing will occur four weeks following seeding and every four-six weeks thereafter from mid-spring to mid-fall. Actual mowing frequency is dependent upon soil moisture; dry periods will reduce mowing frequency.

Years 3-5 represent a transition phase where desirable vegetation becomes increasingly established but remains susceptible to weed growth. The frequency of cutting may be reduced (approximately once per year), or transition to selective mowing to target specific areas of weed growth and minimize vegetation height under the PV panels.

Over the long-term (years 6-30), mowing should occur at least once every other year. Long-term mowing benefits low growing grasses by reducing thatch that hinders sunlight. Mowing at this time may be done to reduce thatch and litter build-up and minimize the establishment of woody vegetation.

Further details regarding monitoring and maintenance are included in Section 5.0 of the Project's Vegetation Management Plan included in Appendix J.

5.6.2.4 Invasive species management.

Invasive species management will generally include monitoring spot cutting, mowing, and herbicide treatments. Protocols for the removal of invasive species will be dependent upon the species involved. Invasive and weed 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.

5.7 Wildlife

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

The Project Study Area consists of mostly active agricultural land that provide suitable habitat for a variety of common Wisconsin wildlife and plant species. Typical mammals found in these habitats in central Wisconsin include white-tailed deer (*Odocoileus virginianus*), coyote (*Canis latrans*), common raccoon (*Procyon lotor*), red fox (*Vulpes vulpes*), eastern gray squirrel (*Sciurus carolinensis*), groundhog (*Marmota monax*), opossum (*Didelphimorphia*), rabbits (*Sylvilagus floridanus*), and deer mice (*Peromyscus maniculatus*), among others. Wildlife may utilize agricultural land and adjacent forested habitats to forage, shelter, and to move through the surrounding landscape.

Numerous bird species may also be found in the Project Study Area and their presence varies depending on time of year. Typical breeding bird species likely to occur within the Project Area include red-tailed hawk (*Buteo jamaicensis*), horned lark (*Eremophila alpestris*), tree swallow (*Tachycineta bicolor*), American robin (*Turdus migratorius*), gray catbird (*Dumetella carolinensis*), common yellowthroat (*Geothlypis trichas*), song sparrow (*Melospiza melodia*), and red-winged blackbird (*Agelaius phoeniceus*).

The Project is anticipated to have minimal impact on wildlife species and their preferred habitats since the majority of the Project Study Area consists of active agriculture. No significant wildlife habitat is expected to be lost as a result of Project construction. After construction is complete, Portage Solar will revegetate the Project with a mix of native and non-native perennial grasses and sedges. A pollinator-friendly seed mix will be incorporated in select open spaces between solar production area and the perimeter fence. It is anticipated that revegetation of the Project with a permanent cover of vegetation will maintain suitable habitat for a variety of wildlife species including pollinating insects, nesting birds, and small mammals.

The fence that will be used to surround and provide security to the Project will consist of eight-foot-high deer exclusion fencing. The Project substation will require a six-to eight-foot high chain link fence, which may include three strands of barb wire at the top, as required by applicable electrical safety codes. A schematic of the proposed Project fencing is found in Appendix B.

Based on the lack of existing available habitat and list of species likely to occur within the Project Study Area, Portage Solar does not anticipate any adverse impacts to plant and animal populations.

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

Portage Solar consulted with both the WDNR and USFWS for the purpose of determining whether pre-construction wildlife surveys would be required for the Project. The WDNR response indicated that both field surveys and time of year restrictions are required for three bird species and two invertebrate species. WDNR recommended time of year restrictions and field surveys for an additional bird species. Portage Solar will work with WDNR following the issuance of a CPCN and prior to construction to determine the best course of action for field surveys and time of year restrictions for the species listed above.

Consultation with the USFWS indicated that species-specific wildlife studies would be required for the Project for one invertebrate species, and recommended minimization measures for one bat species. Host plant surveys for the invertebrate species were completed in spring of 2020 for the original Project Study Area. Host plant surveys will likely be required for the additional Project boundary in Spring 2022.

See Section 5.8.1 below for additional information regarding agency consultations regarding wildlife.

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.

As mentioned in Section 5.7.2 above, pre-construction surveys for WDNR and USFWS listed species will likely be required based on required and recommended actions listed in the WDNR Certified Endangered Resources Review and the USFWS Information for Planning and Consultation ("iPAC") review. Portage Solar will work with WDNR and USACE following the issuance of a CPCN and prior to construction to determine the best course of action for field surveys and time of year restrictions for the species listed above. See Section 5.8.1 below for additional information regarding agency consultations regarding wildlife.

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.

Portage Solar will work with WDNR and USACE following the issuance of a CPCN and prior to construction to determine the best course of action for wildlife field surveys.

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

Portage Solar is proposing to install an eight foot high deer fence around all arrays areas and chain link fence with 3 strand barbed wire around ancillary facilities (substation, BESS 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, Portage Solar 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 DNR endangered resources screening (i.e. ER Review or ER Verification Form) and all supporting materials (see DNR Application Needs in the Introduction).

An Endangered Resource ("ER") Review was completed by Portage Solar's consultant on January 4, 2022. The WDNR ER Review response (ERR Log# 22-009) was received on January 11, 2022. The review showed that six species were listed for "Actions that need to be taken to comply with state and/or Federal endangered species laws," including three birds, one terrestrial invertebrate, one herptile, and the Karner Blue Butterfly Federal High Potential Range. The WDNR response indicated that suitable habitat may be present for these species within the Project Study Area and required implementing avoidance and minimization measures to avoid take of the species. One bird, one terrestrial invertebrate, one plant, and one community were listed for "Actions recommended to help conserve Wisconsin's Endangered Resources." The WDNR response indicated that that suitable habitat may be present for these species or communities within the Project Study Area and recommended implementing avoidance and minimization measures to avoid take of the species.

On January 11, 2022, Portage Solar's consultant requested an Official Species List report for the Project from the USFWS. Portage Solar then received a response (Consistency Letter) from USFWS online iPaC review system on February 8, 2022 indicating that "any take of the northern long-eared bat ("NLEB") that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o)." As a follow up to the Consistency Letter, a final determination letter for the remaining species listed will be submitted to the regional USFWS office to determine if the Project will result in the prohibited take.

The Official Species List included the following federally listed species that may occur in the vicinity of or may be affected by the Project:

- The NLEB (*Myotis septentrionalis*) suitable habitat may exist within the Project Study Area. To complete consultation specifically for the northern long-eared bat, per guidance from the USFWS, Portage Solar's consultant utilized the IPaC online assisted determination key (d-key) to generate a Consistency Letter. The letter indicates that any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR § 17.40(o). Based on the results of the Consistency Letter verifies that the Project is not likely to result in unauthorized take of the northern long-eared bat. USFWS recommended that tree removal occur between November 1 and April 1 or at minimum avoid removing trees outside of the pup season (June 1-July 31).
- The Karner blue butterfly (*Lycaeides melissa samuelis*) occurs in pine barrens and oak savannas on sandy soils containing wild lupine (*Lupinus perennis*), the only known host plant of Karner blue butterfly larvae. The Project Study Area is located within the known range of the Karner blue butterfly in Wisconsin. According to the USFWS official species list, the Project Study Area is located within proposed critical habitat for the Karner blue butterfly. Although Portage Solar anticipates no impacts based on the current land uses (agricultural land with significant disturbance throughout the Project footprint) wild lupine surveys were be conducted in the spring of 2021 per the USFWS Habitat Conservation Plan. Both wild lupine and Karner blue butterfly survey results will be submitted to the USFWS for follow up correspondence. Additional surveys may need to be completed for additional areas added.
- The monarch butterfly (*Danaus plexippus*) is a "candidate" species within the iPac species database. For this Project, specific mitigation measures are not likely to be required.
- The Fassett's locoweed (*Oxytropis campestris var. chartacea)* occurs on sandy shorelines of land-locked seepage lakes and appears to be dependent upon periodic fluctuations in lake levels and maintenance of the shoreline habitat. The Project Study Area is located within the known range of the Fassett's locoweed in Wisconsin. However, according to the USFWS official species list, the Project Study Area is not located within designated critical habitat for the Fassett's locoweed. Based on the lack of suitable habitat within the Project Study Area, the Project is not expected to affect the Fassett's locoweed.

5.8.2 Discuss how any DNR-required actions to comply with endangered species law would be incorporated into the project construction or operation. Include discussion of how any USFWS permits or required actions would be incorporated into the project.

The majority of the Project Study Area is currently in agricultural production. The fence lines and waste areas between fields are severely degraded and provide little habitat for wildlife.

The WDNR Certified ER review response indicated that suitable habitat may still be present for protected species within the Project Study Area and required implementing avoidance and minimization measures to avoid take of the species. Required pre-construction field surveys and time of year restrictions and minimization measures will be incorporated into construction and operation based.

Portage Solar will work with the WDNR following the submittal of the CPCN application to

determine the timing of specific surveys in spring 2022 and the need to complete other surveys prior to the receipt of the CPCN order.

At this time, Portage Solar anticipates that compliance with endangered resource law during and after construction will consist of time of year restrictions, avoidance and or mitigation measures (exclusion fencing). It is impossible at this time to determine an exact course of action for endangered species.

5.8.3 Discuss how any DNR-recommended actions to comply with endangered species law would be incorporated into the project construction or operation. Include discussion of how any USFWS recommended actions would be incorporated into the project.

The three species and one community listed in the WDNR Certified ER Review recommended actions section are considered special concern and require large expanses of grassland with no trees. Based on the current extent of agricultural land within the Project Study Area, no suitable habitat is present for any of the species listed for recommended actions.

Portage Solar will work with the WDNR following the submittal of the CPCN application to determine the need to complete surveys prior to the receipt of the CPCN, or if these surveys can wait until after the order is received. Portage Solar would prefer to wait until after the receipt of the order before conducting pre-construction field surveys for endangered species.

At this time, Portage Solar anticipates that compliance with endangered resource law during and after construction will consist of time of year restrictions, avoidance and or mitigation measures (exclusion fencing). It is impossible at this time to determine an exact course of action for endangered species until additional WDNR consultation and field surveys are completed.

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.

To assess the Project Study Area for the presence of public lands, recreational sites, and other special-use areas, the following were reviewed: USGS PAD-US, USGS topographic maps, aerial photographs, agency databases, and the internet (i.e., Google Earth, Google Maps). Portage Solar also consulted with USFWS and WDNR for natural resource areas, such as USFWS wetland easements and state lands, and contacted Portage County planning department staff and reviewed the county website for any special areas.

A GIS file of public lands within two miles of the Project boundary 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:

5.9.1.1 Wildlife Areas

No state wildlife areas are located within the Project Study Area. Fifty-three state-owned or -managed properties are located within two miles of the Project Boundary (see Figure 4.1.6.3 in Appendix A). These properties include:

- Buena Vista Wildlife Area is located in the far southern portion of the Project and boarders the eastern side of Townline Road and the southern border of Alternate Arrays A13-A15. This property is the northern most portion of the Buena Vista Wildlife Area and the Buena Vista Prairie Chicken Meadow State Natural Area. This property is owned and managed by the WDNR.

5.9.1.2 Fisheries Areas

No state-owned or managed fisheries areas are located within the Project Boundary or within two miles of the Project Boundary.

5.9.1.3 State Parks and Forests

No state parks are located within the Project Study Area or within two miles of the Project (see Figure 4.1.7.3 in Appendix A).

Fifty-two privately owned, WDNR MFL properties are located within two miles of the Project Study Area.

- Parcel 030-23-0830-03 (Stuczynski Parcel) – This parcel currently contains the existing ATC Plover Substation and the proposed Project Substation, O&M building, Gen-tie line and BESS. The parcel is entirely wooded and currently enrolled in the WDNR MFL program. Portage Solar has entered into a purchase agreement for this parcel and will work with the WDNR and the current landowner to comply with the MFL withdrawal requirements.

5.9.2 Federal properties, including but not limited to:

5.9.2.1 Wildlife Refuges

No federal properties including wildlife refuges are located within the Project Boundary or within two miles of the Project.

5.9.2.2 Parks

No federal properties including parks or recreation areas are located within the Project Boundary or within two miles of the Project.

5.9.2.3 Scenic Riverways

No wild or scenic riverways areas are located within the Project Boundary or within two miles of the Project. The Wisconsin River is located approximately one mile north of the Project Boundary. This portion of the Wisconsin River is not considered Wild and Scenic in the National Wild and Scenic Rivers System.

5.9.3 County Parks

A total of eight county parks are located within two miles of the Project. None of these parks are located within the Project Boundary. The Project will likely be visible at two of these county parks, however the parks are located within residential subdivisions so the visual impact of the Project will be minimal.

5.9.4 Recreation Trails

One snowmobile trail traverses the Project Boundary between Forest Drive and Prairie Drive. The snowmobile trail is operated by Portage County which has entered into easement agreements with the landowners that are impacted. This trail will no longer be allowed to cross the Project Boundary at its current location once the Project is constructed. Portage Solar will work with the Portage County Snowmobile Club to determine the best way around the Project once constructed.

No other recreation trails are located within the Project Boundary or within two miles of the Project Boundary.

5.9.5 Identify the owner/manager of each recreation resource.

The snowmobile trail that crosses the Project is operated and maintained by the Portage County Snowmobile Club.

5.9.6 Provide any communications with these owners/managers.

Portage Solar plans to coordinate with all interested parties concerning public lands and recreation as the Project is further designed.

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

As stated in Section 5.9.4 above, Portage Solar will work with the Portage County Snowmobile Club to determine the best course of action for re-routing the snowmobile trail once the Project is constructed.

No state, federal, county-owned, or other special use areas are located within the Project Boundary. The norther most property included in the Buena Vista Wildlife Area abuts the Project Boundary on the south side of Alternate Array A13 and the southern and eastern boundary of Alternate Array A14. These two alternate arrays are sited within active agricultural fields with perimeter fencing. If these two arrays are constructed, they will contain a perimeter fence similar to what is currently existing. Because this area is actively farmed and contains a perimeter fence, no short- or long-term impacts are anticipated.

As necessary and appropriate, Portage Solar will work directly with representatives of the WDNR and Buena Vista Wildlife 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.

The entire Project Boundary is located within a rural agricultural setting. Portage Solar does not anticipate any impact to local tourism as a result of the Project. Aesthetics will be mitigated through the use of minimally invasive fencing of similar construction to other fences in the area. Additionally, Portage Solar will work with adjacent landowners on vegetive buffers and screening, as appropriate, following completion of the Project. A roughly 20-foot vegetative buffer (existing red pines) will be left in place around the Project Substation and BESS facility to shield it from cars traveling on STH 54.

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.

According to a records search conducted by GeoSearch on February 7, 2022, there are 14 open/closed contaminated sites within a two-mile radius of the Project. Information on these sites was obtained from the Wisconsin Remediation and Redevelopment Database ("WRRD"). The databases are listed in the table below.

WRRD Sites	
Leaking Underground Storage Tank	7
SPILLS	4
No Action Required	3
Voluntary Party Liability Exemption	0
Superfund National Priorities List	0
Drycleaner Environmental Response Fund	0
Wisconsin Ready for Reuse Loan and Grant Program (Brownfield) Sites	0
Site Assessment Grants	0

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.

According to a records search conducted by GeoSearch on February 7, 2022, there are 9 Historic Registry of Waste Disposal Sites located within two miles of the Project. The databases searched include Solid and Hazardous Waste Information Management System ("SHWIMS"), Licensed Solid Waste Landfills ("SWLF"), Historic Registry of Waste Disposal Sites ("HISTWDS"), and Environmental Repair Program ("ERP"). Based on one or more of the following reasons, the sites listed in the GeoSearch report are not expected to present an environmental concern with respect to the Project Study Area: distance from the Project Study Area, position of sites with respect to assumed groundwater flow direction, the presence of low permeability native soils, and regulatory status.

Historic Registry of Waste Disposal Sites	
SHWIMS	2
SWLF	0
HISTWDS	0
ERP	7

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 contaminants are known to exist within the Project Boundary. The Portage Solar Phase 1 summary report is included in Appendix V.

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

- The procedure for screening materials.
- The location where materials be [sic] tested.
- The protocols that would be followed.
- Whether construction work would be impacted.

Although no contaminated materials have been documented in the Project Boundary, a Soil Management Plan ("SMP") may be warranted to provide protocols for the proper management of unknown impacts to soil or subsurface features potentially encountered within the Project Boundary during grading and construction activities. Prior to construction, the SMP will be developed to outline specific procedures that will be used for identifying, testing, handling, and disposing of soil containing regulated constituents that may be encountered during the redevelopment activities. Implementing the procedures in an SMP will help to ensure that previously unidentified potentially contaminated soil or subsurface structure containing potential chemical contaminants is managed in a manner that is protective of human health and the potential environmental liability of Portage Solar and the landowner while compliant with applicable federal, state, and local regulations.

A copy of the SMP will be maintained on-site by the construction contractor and referenced as needed. The SMP will detail steps that should be taken in the event that visual or olfactory indications of contaminated material are observed during construction activities. At a minimum, the SMP will contain the following components:

- Key contact information for Portage Solar, Stantec, the WDNR, identified laboratories and disposal facilities, and other relevant state and local agencies;
- Notification procedures if unexpected conditions or highly contaminated materials are encountered;
- General excavation protocols and procedures;
- Environmental oversight procedures;
- Soil screening and characterization procedures for suspected impacted soil, including necessary laboratory analyses;
- Management and profiling procedures for any generated material/soil stockpiles;
- Soil disposal procedures, including the identification of properly licensed disposal facilities; and
- BMPs.

5.11 Floodplain

5.11.1 Identify any work occurring in floodplains or flood-prone areas (e.g. agricultural field

ponding).

The Project is not located within a floodplain or flood-prone area. The nearest mapped floodplain is associated with Wisconsin River, located within the Town of Plover, north of STH 54, and north of Primary Array P1 (approximately 400 feet).

5.11.2 Discuss if impacts to the floodplain have been evaluated, and how impacts to the floodplain will be avoided or minimized.

The Project is not located within a floodplain or flood-prone area and therefore will not create any impacts to nearby mapped floodplains.

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).

The Project is not located within a floodplain or flood-prone area; therefore, no discussion with the floodplain zoning authorities has occurred.

5.12 Local Zoning and Safety

5.12.1 thru 5.12.5

Responses to subsections 5.12.1 through 5.12.5 of the AFR are not included as they apply only to utilities.

5.12.6 Provide a list of potential local issues normally associated with zoning, road use and safety, or other condition uses.

The Project Boundary is located within the A-1 Exclusive Agricultural Zoning and A-4 General Agriculture of Portage County. A small portion of the Project Boundary is also located within CON Conservancy zoning. Roughly 882 acres of the Project Boundary is currently listed as Unzoned.

Portage Solar is coordinating with Portage County, the Town of Grant and the Town of Plover in an attempt to establish development agreements that will address any of the local governments' concerns regarding the Project.

5.12.6.1 Provide copies of all correspondence to and from local government pertaining to issues of zoning, safety, or local road use safety plans.

Communications with Portage County, the Town of Plover and the Town of Grant regarding the development agreements are ongoing. Details about outreach to local municipalities is outlined in Section 7.2 below.

5.12.6.2 Provide a discussion of how local concerns will be accommodated.

Portage Solar has met and coordinated with the Town of Plover, the Town of Grant, and Portage County representatives as well as with the larger community to discuss local issues. Portage Solar will continue to work proactively with the towns, county, and local communities to identify and address issues and concerns should they arise. The Project's goal is to utilize development agreements with the local government units to address concerns.

5.12.7 Describe any impacts the proposed project would have on existing infrastructure

including electric distribution lines and gas pipelines.

Two ATC 138-kV electrical transmission lines cross the Project Boundary in the northern portion of the Project. The first transmission line bisects Alternate Array A01 and then enters the Plover Substation along the northern boundaries of Primary Arrays P02 and P03. A second 128-kV transmission line leaves the Plover Substation from the south, and borders the northern boundaries of Primary Arrays P04 and P05 and southern border of Primary Array P01 as it travels east to the Town of Plover. As currently designed, Portage Solar will require, and anticipates receiving, a consent and crossing agreement with ATC for the underground electrical connection of the solar array footprint. Through obtainment of a consent and crossing, the Project will not impact this existing electrical transmission infrastructure.

Numerous electrical distribution lines run within the road ROWs that bisect the Project at numerous locations. Appropriate buffers for these distribution lines have been built into the conceptual layout for the Project. None of these distribution lines will need to be altered or moved in order to construct the Project.

The Project will be constructed within one mile of a natural gas transmission pipeline (located to the east of the Project). The panel and associated facilities siting/layout will not encroach on the easements of this pipeline.

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 through 5.13.4 County Recreation Plans, Farmland Preservation Plans, Highway Development Plans, Sewer Service Area Plans

Land use plans, zoning ordinances, and relevant planning documents are listed in Table 5.13-1 and provided in Appendix E.

Table 5.13-1 Land Use Plans and Ordinances

Government	Plan or Ordinance
Town of Grant	Town of Grant Adopted Comprehensive Plan (adopted from Portage County Comprehensive Plan)
Town of Plover	Town of Plover Zoning Ordinance
	Town of Plover Adopted Comprehensive Plan (adopted from Portage County Comprehensive Plan)
Portage County	Portage County Zoning Ordinance
	Portage County Shoreland Protection Ordinance
	Portage County Comprehensive Plan

5.14 Archaeological and Historical Resources

Portage Solar commissioned Stantec to conduct an initial cultural resources database review, create an archaeological site probability model, and conducted field investigations to identify any cultural resources present within the Project Boundary. The results of the cultural resources database review indicated that four archaeological surveys have been conducted with the Project. One archaeological site is within 0.25 mile of the Project and located within a participating parcel. There are no recorded cemeteries and burial sites are within 0.25 mile of the Project. One cataloged historic structure is located within 0.25 mile of the Project. The cataloged structure is located with a participating parcel.

Archaeological site-location modeling was used to identify areas of high potential for archaeological sites. Stantec identified the area of high archaeological site potential through review of the Wisconsin Historic Preservation Database online archaeological site files and historical maps mainly postdating the Civil War. High potential for prehistoric Native American sites was found to be within 300 feet of sources of water. Further, site locations were restricted to areas with less than 15 percent slope and on soil types that were not subject to frequent flooding.

Stantec archaeologists conducted a pedestrian survey of 70 acres of high prehistoric Native American and Historic period Euro-American archaeological site potential. The pedestrian survey resulted in the identification of six historic period sites with artifacts dating from the late nineteenth to early/mid-twentieth centuries. None of these sites appear to provide information significant to national or local history. Also, despite intensive survey, no evidence of the site within a participating parcel (a previously recorded prehistoric Native American site) was located. No prehistoric Native American archaeological sites were identified.

In conclusion, the cultural resources investigations determined that there will likely be no adverse effects associated with the siting and construction of the Project on cultural resources listed in or eligible for either the National Register of Historic Places or the Wisconsin State Register of Historic Places. No significant cultural resources will be impacted by the Project. The Cultural Resource Due Diligence Report is included in Appendix K.

5.14.7 Provide maps or GIS files and a description of all archaeological sites, historic buildings and districts, and human burial sites within or near the proposed project area.

Mapping of archaeological, historic buildings and districts, and human burial sites are included in the Cultural Resources Due Diligence report included in Appendix K.

5.14.8 For archaeological sites and historic buildings or districts, determine the boundaries, historic significance, and integrity of each resource. Additional field surveys may be required to make these determinations.

Portage Solar's consultant (Stantec) completed field surveys within archaeological site high-probability (determined from site probability modeling completed in July 2020 and November 2021) areas within the Project during the weeks of December 2020 and November 2021. The six historic period sites identified during the pedestrian survey yielded assemblages with both few artifacts and artifacts that predominantly date to the late nineteenth to twentieth century. The

artifacts from all six sites are common types, and disturbance of the site areas by agricultural practices suggests little potential for the presence of intact artifact deposits.

For the one cataloged historic structure within the Project, the Stantec field reconnaissance survey indicated that neither the barn nor the associated house and other outbuildings remain standing. No above-ground remains of the structures are present. There are no historic structures within 0.25 miles of the Project.

The Cultural Resource Due Diligence Report is included in Appendix K.

5.14.9 Identify the potential project effects on each resource.

Based on the cultural resources review results provided in Appendix K, no known historic or cultural resources will be impacted by the construction of the Project.

5.14.10 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 results provided in Appendix K, no known historic or cultural resources will be impacted by the construction of the Project.

5.14.11 For human burial sites, obtain a Burial Site Disturbance Authorization/Permit from WHS for all human burial sites that would be affected by the project.

Based on the cultural resources review results provided in Appendix K, no known cemeteries or burial sites are present within the Project Area of Potential Effects ("APE") for direct effects or the Project APE for indirect effects.

5.14.12 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.

An unanticipated archaeological discoveries plan is included in conjunction with the Cultural Resource Due Diligence Report included in Appendix K.

5.14.13 Notify Wisconsin Tribal Historic Preservation Officers of any Native American human burial sites and significant prehistoric archaeological sites that could be impacted by the project. Provide copies of all correspondence.

Based on the cultural resources review results provided in Appendix K, no known native American burial sites or significant prehistoric archaeological sites are present within the Project APE for direct effects or the Project APE for indirect effects.

5.15 Agricultural Impacts

5.15.7 Identify current agricultural practices in the project area.

The primary land use in the area is agricultural crop production (potatoes, beets, corn, soybean, alfalfa, and peas).

5.15.8 Identify the location of agricultural drainage tiles, 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.

Portage County does not have a comprehensive file detailing drainage tile systems within the proposed Project Boundary. Despite the lack of formal drainage tile documentation, Portage Solar has engaged in and will continue discussions with agricultural landowners supporting the Project to determine, to the extent practicable, where drainage tiles exist.

Portage Solar will coordinate with the participating landowners and will contract with a professional drainage tile company to locate, to the extent practicable, all drainage tiles on the Project once a CPCN is issued and final Project designs are underway. Portage Solar will attempt to refine the Project layout, if necessary, to avoid impacts to the existing drainage system, although some impacts may be unavoidable.

To the extent possible, major tile channels will be completely avoided. If impacts to a major tile line are unavoidable, the tile line will be rerouted post-construction. In the event that tile is damaged, cut, or removed as a result of trenching, it will be repaired or replaced depending on structural conditions. Portage Solar will make efforts to complete permanent tile repairs within a reasonable timeframe, taking into account weather and soil conditions.

Portage Solar completed irrigation system surveys within the Project Boundary during the field surveys for wetlands and waterways in fall 2021, and again utilizing a private land utility locating service in January 2022. The goal of these surveys was to document existing irrigation systems (wells, irrigation pivots and electrical conduits) within the Project Boundary, provide data to be used during the array layout phase of the Project, and to aid in consultation with participating landowners. A total of 22 wells and 30 irrigation pivots are located within the Project Boundary. The majority of the wells and irrigation pivots surveyed are currently operational and being used by property owners.

Portage Solar will work with participating landowners and adjacent landowners to determine whether the wells within or along the perimeter of the Project Boundary will remain in place or be abandoned.

5.15.9 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.

One approximately 4.6-acre vineyard (specialty crops) is located within Alternate Array A01. If this alternate array is constructed, the orchard will be removed in favor of solar panels, underground collection and inverters. Surveys for confined animal operations were completed within the Project Boundary and within 0.5 miles of the Project Boundary. Although there are confined animal operations near the Project Boundary, none of them will be impacted by construction of the Project. GIS database information on confined animal operations is included in Appendix F.

No impacts on herd management, field and building access, or organic farming are anticipated for this Project.

5.15.10 Identify the amount (in acres) of designated prime farmland that would be removed from agricultural use during the operational life of the solar project.

The Project will not affect any farmland that is designated as prime farmland by NRCS.

5.15.11 Describe how damage to agricultural facilities and interference with farming operations would be minimized during construction.

No damage to agricultural facilities or interference with farming operations are anticipated during construction of the solar facilities. Minimal interference between Project construction equipment and farm equipment travelling on town, village and state roadways may occur, but is not anticipated to be an issue. The Project is being constructed on lands that are primarily comprised of agricultural land that were planted for the purpose of crop production. Approved and signed landowner agreements are in place for all solar facilities within the perimeter fence, therefore, farming activities will be halted prior to and during construction. The lands that are converted to solar production areas will be suitable for a return to agricultural farming activities at the end of the Project lifespan (assumed to be 20-35 years).

5.15.12 Describe how damage to agricultural facilities would be identified and repaired.

No damage to agricultural facilities is anticipated for this Project.

5.15.13 Identify any farmland affected by the project that is part of an Agricultural Enterprise Area.

The Project will not affect any farmland that is part of an Agricultural Enterprise Area.

5.15.14 Identify any farmland in the project area that is part of a Drainage District, and identify the Drainage District if applicable. The following items apply when any part of a project is located within a Drainage District.

Portions of the Primary and Alternate arrays are within the Portage County Drainage District. These areas include Primary Arrays P28 – P32, P38, P40 – P47, P53 – P60 and Alternate Arrays A02 and A05 – A15.

5.15.7.1 Describe any permits needed from a Drainage District Board for construction and operation of the proposed project, and the status of any permits.

During final Project design, Portage Solar will determine if permits are required.

5.15.7.2 Identify if and where any culverts would be installed in areas of the Drainage District.

No culverts will be installed within the Project fenced area, but culverts may be installed within roadside ditches for access to fenced areas. Roadside ditch culverts may be located within the Drainage District.

5.15.7.3 Provide any correspondence with State Drainage Engineer regarding the project.

The State Drainage Engineer will be consulted as needed during final design development.

5.15.15 Identify any lands within the project boundary that are enrolled in agricultural conservation or agricultural tax incentive programs. Describe the process for returning land to agricultural use after decommissioning, including any subsequent years of monitoring.

None of the Project parcels are currently enrolled in CRP. A portion of the Project is part of Wisconsin's MFL program, and it will be removed from that as is allowed by MFL program guidelines. Following decommissioning activities, the sub-grade material and topsoil from affected areas will be de-compacted and restored to a density and depth consistent with the surrounding areas. If the subsequent use for the Project site will involve agriculture, a deep till of the Project site will be undertaken. The affected areas will be inspected, thoroughly cleaned, and all construction-related debris removed. Disturbed areas will be reseeded to promote re-vegetation of the area, unless the area is to be immediately redeveloped or farmed. In all areas restoration shall include, as reasonably required, leveling, terracing, mulching, and other necessary steps to prevent soil erosion, to ensure establishment of suitable grasses and forbs, and to control noxious weeds and pests.

5.15.16 Discuss induced voltage issues as they relate to the project arrays, collector circuits, and generator tie line. Provide the following information:

5.15.16.1 Identify the location of confined animal dairy operations within one-half mile of any proposed transmission or distribution centerline or other project facilities.

No confined animal dairy operations are located within 0.5 miles of the Project Boundary, according to the EPAs Concentrated Animal Feeding Operations database.

Confined animal operations were field verified in fall 2021. Two potential confined animal facilities are located directly adjacent to the Project Boundary, one directly east of Primary Array P52 and one directly west of Alternate Array A22. Three additional confined animal facilities are located within one mile of the Project Boundary. It could not be determined if any of these facilities were dairy operations. A figure depicting field verified confined animal facilities is included in Appendix A.

5.15.16.2 Identify the location of agricultural buildings located within 300 feet of any proposed transmission or distribution centerline or other project facilities.

No agricultural buildings are located within 300 feet of the Project gen-tie or the Project substation property.

A total of three agricultural buildings are located within 300 feet of the Primary Arrays along Monroe Avenue and Birch Drive.

5.15.16.3 Discuss induced voltage issues related to the project and its transmission or distribution line routes.

Portage Solar does not anticipate issues regarding induced (stray) voltage as a result of the Project. Induced voltage issues are generally caused by improperly grounded and/or isolated electrical circuits found in older buildings, factories, or barns. Grounding for Portage Solar's PV arrays will

be designed and certified by a licensed electrical engineer according to current applicable electric code requirements.

5.15.16.4Discuss any plans to conduct stray voltage testing pre and post construction.

Given the substantially low risk of the Project causing induced voltage, Portage Solar may conduct pre- and post-construction induced voltage testing at appropriate agricultural facilities located within 0.5 mile of the Project in coordination with the local distribution utility.

5.16 Airports and Landing Strips

5.16.7 Airport, Landing Strips, and Helipads

5.16.7.1 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).

A total of six airports are located in the vicinity of the Project. However, only four airports are located within 10 miles of the Project. The airports included within the 10-mile buffer around the Project are the Alexander Field Wood County Airport, Jennies Field, Reabe Spraying Services, and Stevens Municipal Airport, none of which have air traffic control towers.

5.16.7.2 Describe each of the airports, landing strips, and helipads with a description of the runways/landing zone and type of use.

The Alexander Field Wood County Airport contains three runways; two are constructed of asphalt, and one is a turf runway. The asphalt runway lengths are 5,500 feet and 3,640 feet and the turf runway is 2,100 feet.

The Jennies Field airport is private and contains one turf runway that is 1,300 feet long.

The Reabe Spraying Services airport contains one concrete runway that is approximately 2,450 feet long. The runway faces east-west with the hanger and associated facilities located on the eastern end of the airport.

The Stevens Point Municipal Airport has two concrete runways. The primary runway is approximately 6,028 feet in length and oriented southwest-northeast, while the secondary runway is approximately 3,640 feet in length and oriented northwest-southeast. Both are public use for light general aviation.

5.16.7.3 Describe any potential for impacts to aircraft safety and potential facility intrusion into navigable airspace.

Due to the height of proposed facilities and distance to the airports, no impacts to navigable airspace are expected.

5.16.7.4 Describe any mitigation measures pertaining to public airport impacts.

Due to the height of the proposed facilities and distance to the airport, mitigation measures are not expected to be necessary.

5.16.8 Commercial Aviation

5.16.8.1 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., Gypsy moth control).

No commercial air services are known to operate with the Project Boundary. Reabe Spraying Services airport houses crop dusting and aerial application equipment used in the Plover area. This airport is roughly 1 mile east of the Project Boundary.

5.16.8.2 Describe any potential impact to commercial aviation operations.

No commercial air services are known to operate with the Project Boundary.

5.16.8.3 Describe any mitigation measures pertaining to commercial aviation.

No commercial air services are known to operate with the Project Boundary.

5.16.9 Agency Consultation

5.16.9.1 Identify any potential construction limitations and permit issues.

No construction limitations will occur as part of the Project. Both of the airports described above are greater than one mile from the Project.

5.16.9.2 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).

No FAA determinations or mitigation actions are required for this Project.

5.16.9.3 Provide a list of any structures requiring WisDOT high structure permits, and the status of any such permits.

No WisDOT high structure permits are required 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.

Solar facilities are not likely to cause disruptions to line-of-sight and broadcast communications. The height of the Project facilities should not obstruct microwave beam paths, degrade broadcast communications, or interfere with cell phone communications or radio broadcasts. Although unlikely, if any resident or business were able to show impacts to line-of-sight or broadcast communications due to the Project, such impacts will be mitigated to the extent practicable.

GIS data from the Federal Communications Commission ("FCC") was used to determine the number of communication towers within 1 mile of the Project Boundary.

5.17.7 Provide an analysis or supportive data to predict whether or not any aspect of the proposed project would interfere with:

5.17.7.1 Cell phone communications

The FCC website was queried for registered cellular and antenna structures (towers) within one mile of the Project Boundary. No towers are located within the Project Boundary. One cellular

tower and 11 “Land Mobile Private Communication Towers” are located within one mile of the Project Boundary. Based on the search, the two closest towers are located approximately 4,200 feet and 10,400 feet from the closest proposed panel, one tower being 148 feet in height and one being 250 feet in height. The closest tower to the Project Boundary is owned by Hill and Welch (Earthlink), and the second is owned by Portage County. At this distance and based on the maximum height of the solar panels (10 to 12 feet [3.0 to 3.7 meters]) and the perimeter security fence (8 feet [2.4 meters]), the cellular services on the two towers should not be impacted.

In addition to the towers described above, there are also three microwave service towers located within one mile of the Project. These three towers are licensed to Wisconsin RSA #7 (Element Mobile), a Code Division Multiple Access based cellular service provider in Wisconsin Rapids, Wisconsin.

5.17.7.2 Radio broadcasts

The exclusion distance for AM broadcast stations varies as a function of the antenna type and broadcast frequency. For directional antennas, the exclusion distance is calculated by taking the lesser of 10 wavelengths or 1.9 miles (3 kilometers [“km”]). For non-directional antennas, the exclusion distance is simply equal to 1 wavelength. Potential problems with AM broadcast coverage are only anticipated when AM broadcast stations are located within their respective exclusion distance limit from an object that may potentially cause interference. Most facilities do not typically cause interference with FM broadcast stations.

The FCC website was reviewed for AM and FM radio stations within three miles (4.8 km) of the Project Boundary. No stations were identified by this search. As there were no AM or FM stations found within one mile of the Project, the Project should not impact the coverage of local AM or FM stations.

5.17.7.3 Internet (WiFi)

Portage Solar does not anticipate that the Project will impact WiFi or internet services for nearby residences and is not aware of evidence suggesting utility-scale solar interferes with internet service.

5.17.7.4 Television

Multipath interference to a television receiver occurs when television signals are scattered by reflecting off an object such as rotating wind turbine blades. Modern digital television (“TV”) receivers have undergone significant improvements to mitigate the effects of signal scattering. When used in combination with a directional antenna, it becomes even less likely that such signal scattering will cause interference to digital TV reception.

The FCC website was reviewed for any TV stations within one mile of the Project; no stations were identified by this search.

5.17.7.5 Doppler radar network

A Doppler radar is a specialized radar that uses the Doppler effect to produce velocity data about objects at a distance. It does this by bouncing a microwave signal off a desired target and analyzing how the object's motion has altered the frequency of the returned signal. This variation gives

direct and highly accurate measurements of the radial component of a target's velocity relative to the radar. Doppler radars are used in applications such as aviation, sounding satellites, and weather. Tall structures such as trees or buildings within the sight line of the sending position may result in radar interference. Because radar towers are elevated to avoid interference from topography (minimum height of Next Generation Weather Radar, or NEXRAD, towers is 32.8 feet [10 meters] in height, for example), it is not anticipated that there would be any impact to radar services due to the development of the Project.

No doppler radar network towers are located within one mile of the Project.

5.17.8 Describe mitigation measures should interference occur during project operation for any of the communications infrastructure listed above.

The facilities developed for the Project are consistent with the height of existing development in the Project area and are not anticipated to impact any communications infrastructure. After commercial operation, any interference reports will be investigated. Any reports determined to be caused by the installation of the Project will be mitigated to the extent practicable to provide the same level of coverage prior to the installation of the Project.

5.18 Electric and Magnetic Fields (EMF)

Provide an estimate of the magnetic profile created by any necessary electric transmission facilities (generator tie line). Estimates should be made using the following criteria:

- Show the predominant generator tie 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 generator tie-line and a post-construction diagram that incorporates the new 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 EMF study for the underground collector system, BESS (feeder lines) and overhead gen-tie line was completed for this Project. Modeling was conducted for the underground collector circuits and BESS feeder circuits EMF study using CYMCAP 8.1 software and the overhead gen-tie line EMF study using Bonneville Power Administration Corona and Field Effects software. Where required, general underground cable orientations and typical overhead pole configurations were assumed to smoothly perform the calculations.

Electric field intensity was not calculated for the underground cable scenarios in the analysis because it is canceled out due to the shielding by the metallic screen on the underground cables.

Model and software results for the underground collection system indicated the maximum magnetic field strength at the centerline of the cable trench with 1 underground cable was at 19.28 milli-Gauss (“mG”). The maximum magnetic field strength model output for this Project was present in a scenario that included two parallel underground cables (25.62 mG). The maximum electric field strength at 40 feet from the centerline of the overhead gen-tie line was 66.98 mG and the electric field was 0.091 kV/m. Higher magnetic and electric field values were recorded due

to the existing transmission lines on the structures. The Portage Solar EMF report that includes EMF profile data at various distances is included in Appendix O.

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.

Portage Solar commissioned Stantec to complete a pre-construction ambient sound survey and operational predictive assessment for the Project. Sound generated due to operation of the facility will be from the substation transformer, the BESS and the inverters located throughout the Project Area. Results of the analysis show that the Project will comply with the historically applied state standard.

Solar energy facilities operate by converting solar radiation into electricity. The Project will only produce electricity (and inverter operation will only be necessary) between sunrise and sunset. After sunset, the site will no longer receive solar radiation and the inverters will not operate and produce sound. The substation transformer will be energized but will not produce sound. Sunrise and sunset times on the longest day of the year (June 20) will be approximately 5:08 am to 8:36 pm. Therefore, the majority of the operation of the solar facility, and therefore the sound production, will occur during the daytime hours as defined by Wis. Admin. Code § PSC 128.14, 6:00 am to 10 pm daily, discussed in more detail directly below.

A total of 75 inverters and 244 BESS units were assessed within the Project area in the noise study as well as the new Project substation and BESS. The analysis performed for this Project assumed the maximum sound pressure level of each inverter skid at one meter (approximately three feet) is less than 99.7 decibels, A-weighted (dBA). The Project will include BESS facilities located on the north-central portion of the Project area. The BESS heating, ventilation, and air conditioning (HVAC) systems are expected to operate at a sound pressure level of approximately 88.0 dBA at the source. The BESS internal inverters systems are expected to operate at a sound pressure level of approximately 92.0 dBA at the source. Due to the assumed high levels of sound from the operating BESS, a 10-dB sound buffering wall was considered in the results provided in this report. Depending on the final equipment manufacturer chosen, the sound mitigation measures may be modified or not required during final Project design.

Two main power transformers will be installed in the Project substation on the north-central portion of the Project area. The analysis performed for this report assumes the sound power level of each transformer at the source is 96.3 decibels, A-weighted ("dBA").

Due to the absence of regulations related to noise generated by solar energy projects, guidance for wind energy systems (PSC 128.14) was used to assess noise at area receptors. Under this regulation, nighttime hours are the hours beginning at 10:00 p.m. and ending at 6:00 a.m. daily, and daytime hours are the hours beginning at 6:00 a.m. and ending at 10:00 p.m. daily. The noise

limits apply at the outside wall of a nonparticipating residence or occupied community building. Applying the sound regulations applicable to wind energy systems to this project, the solar energy system must be designed so that the noise attributable to the constructed operating system does not exceed 50 dBA during daytime hours and 45 dBA during nighttime hours.

Pre-construction ambient sound measurements were made at five monitoring sites surrounding the proposed substation location and solar array inverters. Stantec considered locations that represent the overall Project layout, with locations near residences with potential solar farm arrays in multiple directions and around the area of the substation. Based upon the Leq values, the background sound levels varied from 27.0 to 82.5 dBA for the varying sample locations and sample periods. The predominant sound source during the sampling was distant vehicular traffic, passing cars, distant trains, vegetation rustling in the wind, birds, and insects. Results of the existing ambient sound measurements are provided in Section 5.0 of the Pre-Construction Sound Report included in Appendix P.

The sound signatures of the equipment are based on information provided by manufacturers for equipment similar to what is expected to be installed for this project. The maximum sound impact at a residence is predicted to be approximately 44.7 dBA with all equipment in operation, and a 10-dB sound barrier in place at the BESS and substation location. The maximum nighttime sound is expected to be less than 43.7 at receptors.

A post-construction sound analysis and report will be completed following construction of the Project and commencement of operations. The purpose of the analysis will be to verify the findings and conclusions of this report.

5.19.2 Provide copies of any local noise ordinance.

No regulations directly applicable to noise from a solar facility were identified in local ordinances. The Town of Plover, the Town of Grant, and Dodge County have similar public nuisance ordinances that restrict unreasonably loud or disturbing noises.

5.19.3 Provide equipment manufacturer's description of noise attenuating methods and materials used in the construction of proposed facilities.

The Power Electronics 4,200 kVA Model FS4200M inverter was used for the design conceptual design of the Project. The final selection of the inverters will be made once the CPCN is received and will be based on the current market offering. The specification sheet for this unit is provided in Appendix A of the Pre-Construction Sound Report which is included in Appendix P of this application. Manufacturers of the relatively small solar inverters and motors used for solar energy facilities do not provide information on sound attenuating methods and materials used in construction of the equipment because these sources do not produce appreciable sound.

As stated in Section 5.19.1, the projected sound values due to operation of the facility, including the skid inverters and the substation, are at or very near the existing background ambient sound levels.

5.19.4 Describe how noise complaints would be handled.

Portage Solar will work to maintain equipment and conduct repairs in a timely manner to avoid excessive sound. If Portage Solar receives a sound complaint from a local resident, the complaint will be investigated and mitigated to resolve the complaint, if appropriate.

5.19.5 Discuss any mitigation measures that would be used to address noise complaints during the operation of the project.

As determined by the Sound Analysis conducted for the Project, sound resulting from the operation of the solar facility is anticipated to have minimal impact on nearby residences. No additional mitigation measures are required beyond compliance with the equipment specifications used for the analysis.

For the BESS, a 10 dB sound buffering wall was considered in the sound study report. For the study, the wall was assumed to be constructed of sound dampening materials and be approximately 8 to 12 inches thick and a minimum of 12 feet high. Depending on the final equipment manufacturer chosen, the sound mitigation measures may be modified or not required during final Project design.

5.20 Solar Panel Glint or 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.

The web-based ForgeSolar program was used to analyze glare potential in one-minute increments throughout the year. 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: Low potential for temporary after-image.
- YELLOW: Potential for temporary after-image.
- RED: Potential for permanent eye damage.

Based on the solar array parameters provided and the current site design, glare is not predicted from the Project for pilots landing at three of the four airports within a 10-mile radius of the Project, including Stevens Point Municipal Airport, Alexander Field Wood County Airport, and Jennies Field Airport. Pilots landing at the Reable Spraying Services Airstrip (i.e., crop dusters) are expected to see green glare (low potential for temporary after image) while approaching the landing strip from the west, primarily from panels located at the west end of the 2-mile approach path. However, "green" glare is not considered problematic for pilots and crop duster planes rarely fly in predictable or typical patterns and may avoid the far end of the standard approach path. The full glare report can be found in Appendix N.

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 boundary, ForgeSolar modeling will likely be used to assess the extent and time of day of glare at the point of concern.

Glare is not predicted for drivers along the 14 roadways analyzed that are adjacent to the Project area. The potential glare for a range of driver conditions was evaluated for viewing heights of 5 feet for cars and small trucks and 9 feet for semi-trucks. The exception is a very short segment of Monroe Avenue, which is predicted to see 38 minutes of "yellow" glare per year for 9-foot vehicles with 2-foot panels, on some December afternoons. This same short segment is predicted to receive "green" glare for up to 100 minutes per day from September through March in late afternoon; however, "green" glare is not considered problematic for pilots and should not be considered problematic for drivers and the yellow glare is essentially negligible (yellow glare has also been recently deemed acceptable for pilots by the FAA).

Glare is also not predicted for the 199 structures, primarily residences, that were analyzed within proximity to the Project area. All routes and structures were analyzed using 2-foot, 7.5-foot and 15-foot panel heights

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 panels 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-axis systems. Additional options for minimizing the impacts include antireflective coating on panel surfaces, fencing, and vegetation.

6 Local Government Impacts

6.1 Local 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:

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).

Although the Project is under the PSCW's jurisdiction, Portage Solar is working to partner with the Town of Grant, Town of Plover and Portage County to prepare a JDA regarding Portage Solar's formal commitments to the local community.

Portage Solar does not anticipate significant impacts to local public services or traffic. During construction activities, Portage Solar anticipates minimal disruptions to the free flow of traffic on the roads that will be employed for Project access. The majority of focused construction traffic will be temporary in duration, and post-construction traffic disruptions should be rare.

5.20.3.1 Specifically, address community and facility readiness for incidents such as fires.

Training and coordination with local emergency responders will be included in Portage Solar's emergency-response plan that will be finalized and submitted as part of the post-CPCN pre-construction preparation for the Project. Safety protocols and contact information for Portage Solar's facility operations team will be provided to all local first responders.

Solar energy systems and their components do not present unusual safety hazards. When requested, or previously scheduled, periodic meetings will be held with first responders to ensure their familiarity with site facilities.

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

No additional infrastructure or current upgrades to existing facilities are expected to be required to construct the Project. Cumulative benefits to the budgets of local governments will be significant due to yearly Shared Revenue Utility Payments. Additional benefits include the Project's Education Fund, significant local spending, and increased local jobs during construction and operation.

6.2.2 Identify any local government infrastructure and facility improvements required (e.g. sewer, water lines, railroad, police, and fire).

Portage Solar is not aware of any infrastructure or upgrades to existing facilities that will be needed for the construction (or operation) of the Project. If improvements are necessary, such as the repair/improvement to specific roads used in hauling materials during construction, they will be done at Portage Solar's expense.

Portage Solar anticipates that no changes to existing roads along haul routes will be required. If such changes are needed for accommodating turning radii, Portage Solar will adhere to all local construction standards.

A Road Condition Report was completed by Portage Solar in January 2022 and is included in Appendix R. The Road Condition Report reviewed existing desktop road condition data prior to completing visual field inspections. This report will assist Portage Solar, Portage County, the Town of Grant, and the Town of Plover in assessing any potential damage to county and town roads. Should any damage occur as a result of the Project, it will be repaired by Portage Solar to the original condition or better.

Portage Solar may assist Portage County, the Town of Grant, and the Town of Plover in conducting additional pre- and post-construction inspections of haul roads utilized during construction.

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. Portage Solar's proposed 250-MW Project would be eligible for two components of the Shared Revenue Utility Aid Program: Component 4, the MW-based payment, and Component 5, 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.

Portage Solar will generate approximately $1,000,000 in annual payments through the above-referenced Shared Revenue Utility Aid Program. A 250-MW project would generate Shared Revenue Utility Payments of $25 million added revenue to the Town of Grant, Town of Plover, and Portage County over an assumed 25-year life based on current law.

A 250-MW project would annually contribute approximately $75,000 to the Town of Grant, $341,667 to the Town of Plover, and $583,332 to Portage County. The Utility Payment breakdown for the Village, Town, and County is summarized below in Table 13.2-1. Actual amounts will be determined with final design based on MW placement of the array. Estimates in the table below assume primary array generation of approximately 205 MW_{AC} located in the Town of Plover and 46.2 MW_{AC} located in the Town of Grant, as currently designed.

Table 6.2.3-1 Estimate of Annual Revenue For 250-MW Project

	Town of Grant	Town of Plover	Portage County
MW-based payment	$30,000	$136,667	$333,332
Incentive Payment	$45,000	$205,000	$250,000
Total	$75,000	$341,667	$583,332

6.2.4 Describe any other benefits to the community (e.g. employment, reduced production costs, goodwill gestures).

Approximately 300-400 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 surrounding communities.

Other benefits include significant revenues to area landowners who participate in the Project (including land leasers, sellers and easement grantors), and a potential increase in local employment opportunities to support the Project. Food service, lodging, fuel, sanitation, gravel, asphalt, and other service providers commonly experience a post-construction uptick in their businesses.

Portage Solar is working on establishing JDAs with the local communities which would include an Education Fund for the local school districts within the Project. The Education Fund would be set up as a 501(c)3 and there would be annual donations once the project is constructed for up to 20 years. Portage Solar is beginning outreach to the Wisconsin Rapids Public Schools and the Stevens Point Area Public Schools District.

6.2.5 Provide information on the direct, indirect, and induced state and local economic impacts during and after construction

Approximately 300 to 400 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. Altogether there will be 300-400 temporary jobs throughout the construction process. When possible, these jobs will be sourced from surrounding communities.

7 Landowners Affected and Public Outreach

7.1 Contact 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 Boundary and within a 1.0-mile buffer is submitted electronically in Appendix Q.

7.1.2 Public property, such as schools or other government land.

The Project Boundary abuts the Town of Plover and a small portion is located within the Town of Grant. As shown on Figures 4.1.2 and 4.1.7.3 in Appendix A, there are no schools, government-owned buildings, or other government-owned lands within the Project Boundary.

As detailed in section 5.9, a total of eight public properties (City or County Parks), four NRCS easements, and 53 WDNR Tax Law parcels are located within a 2-mile buffer of the Project Boundary. There are also 2 WDNR properties and 10 private easements (managed by the U.S. Bureau of Land Management and NRCS) listed in a PAD-US search within the two-mile buffer of the Project Boundary. There are no WDNR-owned SNAs located within two miles of the Project Boundary. There is also one locally operated snowmobile trail that crosses the Project Boundary roughly 1,500 feet north of Prairie Drive.

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 communities listed in the table below have lands within the Project Boundary or have certain rights of extraterritorial jurisdiction within the Project Boundary. A list of town and village clerks and public libraries in the vicinity of the Project are included in Appendix Q.

Table 7.1-1 Clerks of Municipalities Directly Affected

Municipality	Clerk Name	Phone Number
Town of Plover	Patricia Weller	(715) 344-7684
Portage County	Kayla Filen	(715) 346-1351
Town of Grant	Vikki Zimmerman	(715) 423-9193

Municipality	Clerk Name	Phone Number
Plover Public Library (Portage County)	Sunshine Buchholz	(715) 341-4007

7.1.4 Local media for the project area, at least one print and one broadcast.

Print Media: Stevens Point News
2619 Post Road
Stevens Point, WI 54481

Broadcast Media: WSAW TV
1114 Grand Avenue
Wausau, WI 54403

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.

- *The following Tribes hold off-reservation treaty rights in Ceded Territory:*
- *Bad River Band of Lake Superior Chippewa Indians*
- *Lac Courte Oreilles Band of Lake Superior Chippewa Indians*
- *Lac du Flambeau Band of Lake Superior Chippewa Indians*
- *Red Cliff Band of Lake Superior Chippewa Indians*
- *St. Croix Chippewa Indians of Wisconsin*
- *Sokaogon Chippewa Community (Mole Lake Band of Lake Superior Chippewa Indians)*

No Native American Tribes that hold off-reservation treaty rights are located within Portage County.

7.2 Public Outreach and Communication

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.

Portage Solar has made a considerable effort to communicate Project information with the local community. Outreach efforts have been modified where appropriate and practical to a virtual setting to account for COVID-19 safety protocols and restrictions. Those efforts are summarized below.

Local Residents – Portage Solar has regularly engaged with prospective landowners, their tenants, and nearby residents to determine local interest in the Project in order to secure land and to identify potential concerns that can be addressed during the development stage of the Project.

Local School Districts – Portage is starting outreach to the Wisconsin Rapids Public Schools and the Stevens Point Area Public Schools District to introduce the Project to discuss the anticipated benefits the school districts are expected to receive.

Local Units of Government – Portage Solar has met with local town and county elected officials and staff to advise them of Project activities, understand potential permitting requirements and concerns, and/or introduced the concept of a joint development agreement:

- Town of Grant: Clerk, Chairperson
- Town of Plover: Clerk, Chairperson
- Portage County: Planning & Zoning Staff, Water Resources & Conservation Staff, Emergency Management Staff, Highway Department Staff, County Executive.

State Elected Representatives and Regulatory Agencies –

- Portage Solar met with Jeff Schultz, state Sen. Patrick Testin's communications director, on October 13, 2021. The meeting introduced NG Renewables and more specifically Portage Solar including the high-level location, target size of facility, key landowners in the Project, and tentative timeline.
- Portage Solar met with Rep. Katrina Shankland and her chief of staff, Emily Conklin. The meeting introduced NG Renewables and more specifically Portage Solar including the high-level location, target size of facility, key landowners in the Project, and tentative timeline.
- Portage Solar met virtually with staff from the PSCW and WDNR to discuss permitting and related topics on November 1, 2021. Portage Solar has also had regular communication with the two regulatory agencies in anticipation of filing this Application.

Community Outreach:

- October 20, 2021: Portage Solar reached out to UW-Stevens Point Center for Land Use Education to discuss utility scale solar and Portage Solar specifically. The meeting introduced NG Renewables and Portage Solar.
- January 24, 2022: Portage Solar mailed neighbors within 300 feet of the Project information introducing the Project and National Grid Renewables. It also included an invitation to a virtual open house for the Project as well as a link to the Project website. Portage Solar received and responded to numerous calls and emails resulting in information sharing from the mailing. Participating landowners were included in the mailing, with a total of 44 letters sent out. Invitations were also sent to Portage County staff, as well as the Town of Grant and Town of Plover to post on their website and send to Board members, if desired.
- February 16, 2022: Portage Solar had an informational meeting with the Wisconsin Potato & Vegetable Growers Association and provided general solar information and Project specific information.

- February 18, 2022: Portage Solar had a virtual teleconference with the Portage County Business Council Executive Director and provided Project development information and estimated economic contributions.
- February 23, 2022: Portage Solar hosted a virtual public information meeting for adjacent neighbors and community members. The meeting included a presentation on solar energy development, construction, key Project components, and specific information on Portage Solar. Questions and answers followed the presentation. 44 invites were sent and 41 registrations were received, with 21 ultimate attendees.
- Project representatives have had multiple one-on-one communications with community leaders.

Project representatives have continued to offer to attend regularly scheduled local government meetings to present and discuss the Project, with the understanding that due to COVID-19 this may not be the preference or may be challenging to facilitate.

7.2.2 Provide copies of public outreach mailings or website addresses for project pages.

The URL for the Project website is www.nationalgridrenewables.com/portage-solar (may be subject to change once finalized). Mailings sent to relevant state legislators are included in Appendix C.

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 have made themselves available and will continue to do so for phone calls, virtual conferences, in-person meetings, and open houses. For quick reference about the Project, individuals can view the Project's website listed above in 7.2.2.

7.2.4 Identify all local media that have been informed about the project.

At this time, Portage Solar has not provided anything to the 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.

Portage Solar will keep up-to-date contact information on file with host municipalities in case a complaint is placed directly with the towns or County. Portage Solar will also develop a system for logging and investigating complaints related to Project operation, in consultation with local municipalities.

8 Waterway/Wetland Permitting Activities

Section 8.0 covers information required by WDNR for waterway and wetland permits. *The following subsections apply to both proposed and alternative solar array sites.*

Portage Solar retained Stantec to identify wetlands and waterways within the 2,580-acre Project Study Area. Wetland delineations were completed during the fall of 2020 and 2021 in accordance with the criteria and methods outlined in the U.S. Army Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1 (1987) and subsequent guidance documents, and applicable Regional Supplements to the Corps of Engineers Wetland Delineation Manual. The extent of the Project Study Area, detailed information on wetland and waterways, and the methodology used is provided in the Wetland Delineation Report included in Appendix I.

8.1 Waterway Permitting Activities

The Project was designed to avoid waterways to the extent practicable. No waterway impacts are anticipated from Project construction. The WDNR Wetland/Waterway Impact Location Table and Environmental Inventory Table (Tables 1 and 2, respectively) are provided in Appendix T.

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 alternate site and their associated facilities.

Four waterways and no open water features were identified within the Project Study Area. Waterway S1 (WBIC 1391600 – named Ditch #1 in WDNR 24K hydro layer) is identified on the WDNR 24K hydro layer as a perennial stream and is contiguous with delineated Wetland W2. This waterway is a tributary to Buena Vista Creek. Waterway S101 (WBIC 5019782 – unnamed) is contiguous with delineated Wetland W118 and is identified on the WDNR 24K hydrography layer as an intermittent stream. Waterway S102 is an unmapped and unnamed waterway that is contiguous with delineated Wetland W122. Waterway S103 is an unmapped and unnamed waterway that is contiguous with delineated Wetland W123.

Stantec prepared and sent a navigability determination request to WDNR on January 21, 2022, for the four field verified waterways. As of the submittal of this CPCN application, WDNR had not responded to the navigability determination request. The navigability determination request is included in Appendix C.

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.

Ditch #1 is considered an Area of Special Natural Resource Interest ("ASNRI") Trout Stream. The upper three miles of the stream are considered Class 1 trout waters while the lower mile is considered Class 2. The ditch is located on the north side of Birch Drive, then turns southwest at the intersection of Birch Drive and Monroe Avenue. The waterway then flows directly south to the confluence with Buena Vista Creek.

None of the other three waterways field verified within the Project Study Area are classified as Outstanding or Exceptional Resource Waters, Trout Streams, Wild Rice Waters, and/or Wild or 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

Stantec prepared and sent a navigability determination request to WDNR on January 21, 2022, for the four field verified waterways. As of the submittal of this CPCN application, WDNR had not responded to the navigability determination request. The navigability determination request is included in Appendix C.

8.1.4 For both the proposed and alternate sites and their associated facilities, provide the following:

8.1.4.1 The number of waterways that would be crossed by collection lines and specify the installation method (e.g. X waterways would be bored, Y waterways would be trenched, etc.).

Primary Array: No waterways are proposed to be crossed by collection lines or other primary Project facilities. No waterways will be crossed by open trenching during the construction of the primary array.

Alternate Array: One waterway is proposed to be crossed by an alternate array collection line via HDD method. The HDD bore under Ditch #1 will be approximately 120 feet long and will incorporate two bore pits (on north and south side of the channel north of inverter A06). The HDD under waterway S102 will also travel under 130th street between inverter block A02 and A03. This HDD will be approximately 100 feet long and will also incorporate two bore pits. No waterways will be crossed by open trenching within the alternate 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.).

Primary Array: No waterways are proposed to be traversed during construction.

Alternative Array: No waterways are proposed to be traversed during construction. Access to directional bore-pit locations will be attained from upland areas.

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.).

Primary Array: No waterway impacts are anticipated for permanent access roads.

Alternative Array: No waterway impacts are anticipated for permanent access roads.

8.1.4.4 The number of waterways that would be impacted and/or crossed by fence installation and footings.

Primary Array: No fence installations or footings are proposed to cross waterways associated with the Project.

Alternative Array: No fence installations or footings are proposed to cross waterways associated with the Project.

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.).

Primary Array: No waterway impacts are anticipated by other construction activities or facilities.

Alternative Array: No waterway impacts are anticipated by other construction activities or facilities.

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.

Portage Solar does not anticipate impacts to waterways. HDD boring methods will be utilized to cross Ditch #1 and Waterway S102 within inverter blocks A06 (Ditch #1), A02, A03 and A04 (Waterway S102) to avoid waterway and wetland impacts. Proper sediment, erosion control, and invasive species control BMPs will be installed/utilized adjacent to all waterways prior to construction activities.

The Project civil design set that includes the proposed erosion control plan and BMP utilization near waterways is included in Appendix M.

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.

Primary Array: No fence installations or footings are proposed to cross waterways associated with the Project.

Alternate Array: No fence installations or footings are proposed to cross waterways associated with the Project.

8.1.7 For waterways that would be open-cut trenched, provide the following:

No waterways will be open cut trenched or impacted by the Project. Therefore, responses to sections 8.1.7.1 thru 8.1.7.8 of the AFR are not provided.

8.1.8 For waterways that would be directionally bored, provide the following:

8.1.8.1 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.

No HDDs are anticipated within the Primary Array.

HDD borings within the Alternate Array will be completed from upland banks of Ditch #1 and Waterway S102. No impacts on wetlands associated with these two waterways are anticipated from either the boring or the bore pits.

8.1.8.2 The location and size of any temporary staging and equipment storage.

HDD boring equipment will be stored either in the Project laydown yard or near the location of the proposed borings within the Alternate Array. If the boring cannot be completed in one day, overnight storage of equipment will be in upland agricultural areas within 50 feet of the bore pits. Appropriate BMPs and contaminant management (oil absorbent booms, etc.) materials will be put in place prior to leaving the boring area for the day.

8.1.8.3 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 within the Alternate Array (Ditch #1 and Waterway S102) will require two bore pits. Each pit will be constructed on the upland banks of these two waterways.

All materials removed from bore pits will be stored adjacent to the boring with appropriate BMPs installed. Once the boring is completed, the excavated material will be reused as backfill of the pit. Once a final grade is reached, the area will be seeded with a cover crop and permanent seed mixture with appropriate erosion control devices installed (silt fence, erosion matting, etc.), if necessary.

8.1.8.4 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).

Contingency plans for bore refusal and frac-outs will be developed by the construction contractor prior to construction start by the HDD contractor. The plans are expected to include the following:

Prior to construction:

- The drilling entry and exit areas, surrounding work areas, and the drilling route (to the extent accessible) will be surveyed to ensure there are no protected resources on the surface;
- Any sensitive cultural or environmental resources will be flagged for avoidance or construction limits will be clearly marked;
- Barriers will be placed between the bore site and any nearby sensitive resources;
- Field personnel will be briefed on monitoring and timely reporting of frac-outs; and
- Necessary response equipment will be maintained on-site or at a readily accessible location.

Contingency response:

- Once a frac-out is identified, all drilling activities will be stopped, and the location and extent of the frac-out will be determined;
- All necessary notifications will be made to the proper authorities;
- Appropriate mitigations will be taken based on the nature of the frac-out; and
- After the frac-out is stabilized and any required removal is complete, post-clean-up conditions will be documented and reported as required.

While not anticipated, if there is general bore refusal, the proposed HDD alignment will be modified using the same general location with drilling reattempted. If the HDD bore cannot be advanced and abandonment is required, the bore hole will be grouted with an approved material and the bore pits will be backfilled to pre-existing land surface contours.

8.1.9 For waterways that would have a TCSB installed across them, provide the following:

No TCSB will be installed. Therefore, responses to section 8.1.9 of the AFR are not provided.

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).

Portage Solar anticipates utilizing the HDD boring method to cross Ditch #1 and Waterway S102 within inverter blocks A06 (Ditch #1), A02, A03 and A04 (Waterway S102) to avoid waterway and wetland impacts. Bore pits will be located in upland areas (upland agricultural fields) and vegetation removal will be minimal and confined to low growing herbaceous vegetation along the field edges. No trees will be cleared to prepare for HDD borings. Vegetation removal will be temporary, and all areas restored will be seeded and stabilized following boring completion.

The approximate land disturbance caused by the HDD boring pits will be 200 ft^2 per boring pit (4 total pits = 800 total ft^2). An additional 500 ft^2 per boring may be disturbed by activities associated with the HDD boring. All impacts will be temporary in nature and will be confined to upland agricultural land.

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).

No new culverts are anticipated for this Project.

- 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).

No new permanent bridge placement is anticipated for the Project.

- New stormwater pond placed within 500 feet of a waterway: https://dnr.wi.gov/topic/waterways/documents/PermitDocs/GPs/GP-StormwaterPond.pdf.

See section 2.4.6 describing permanent stormwater management facilities. No new stormwater facilities are proposed within 500 feet of a waterway.

8.2 Wetland Permitting Activities

This section should be consistent with the wetlands included in WDNR Tables 1 and 2 and associated figures. See page iii in this document on what to include in WDNR Tables 1 and 2 regarding wetland resources.

The Project was designed to avoid wetlands to the extent practicable. No wetland impacts are anticipated from Project construction. The WDNR Wetland/Waterway Impact Location Table and Environmental Inventory Table (Tables 1 and 2, respectively) are provided in Appendix T.

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).

Wetland determinations were based on the criteria and methods outlined in the U.S. Army Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1 (USACE 1987) and subsequent guidance documents, and applicable Regional Supplements to the Corps of Engineers Wetland Delineation Manual. The wetland determination involved a desktop review that included the use of available resources such as USGS topographic maps, USDA NRCS soil survey, WDNR Wisconsin Wetland Inventory ("WWI") mapping, and aerial photography. Additionally, antecedent precipitation in the three months leading up to the field investigation was reviewed. The current year's precipitation data were compared to long-term (30-year) precipitation averages and standard deviation to determine if precipitation was normal, wet, or dry for the area using the Climate Analysis for Wetlands Tables (also known as a WETS analysis) as developed by the NRCS. Finally, a review of four years (2010, 2013, 2015, 2017, and 2018) of USDA National Agriculture Imagery Program aerial imagery was conducted for the Project Study Area. The aerial imagery review assists in the wetland determination due to the presence of farmed areas with mapped "poorly drained" or "somewhat poorly drained" soils within the Project Study Area. The aerial imagery was reviewed for the appearance of wetland signatures.

The desktop and field wetland delineation procedures described above were used for all parcels within the Project Study Area.

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 alternate site and their associated facilities.

The wetlands delineated within the Project Study Area are further summarized in the Wetland Delineation Report in Appendix I. A summary of the wetland communities is included in WDNR Tables 1 and 2.

A total of 36 separate wetlands were identified within the Project Study Area. Delineated wetlands W1-W3, W5-W11, W124 and W125 are located within the Primary Facility Area and wetlands W101-113 and W115-W124 are located within the Alternate Facility Area.

A total of 24 wetlands delineated within the Project Study Area consist of Seasonally Flooded Basin wetland community types. Thirteen of the wetlands delineated consist of Degraded Wet Meadow wetland types and three consist of shrub-carr wetland plant communities. Two of the field verified wetlands contained a Forested Wetland plant community. Six of the field delineated wetlands contained multiple wetland plan communities. The wetlands are further described in the Wetland Delineation Report in Appendix I. A summary of the wetland communities is listed below and included in WDNR Tables 1 and 2.

Typical seasonally flooded basin vegetation includes barnyard grass (*Echinochloa crus-galli*, FAC), bog yellowcress (*Rorippa palustris*, OBL), broad-leaved cattail (*Typha latifolia*, OBL), common duckweed *(Lemna minor*, OBL), and common purslane (*Portulaca oleracea*, FACU). Seasonally flooded basin wetlands located within the active agricultural fields typically had minimal vegetation and were delineated based on the aerial wet signature review.

The degraded wet meadow wetland vegetation includes varying degrees of herbaceous agricultural weed coverage and stunted crops depending on degree of ponded conditions. Common herbaceous species includes reed canary grass (*Phalaris arundinacea*, FACW), pinkweed, curly dock (*Rumex crispus*, FAC), Dudley's rush (*Juncus dudleyi*, FACW), and dark green bulrush (*Scirpus atrovirens*, OBL).

Dominant species included in the shrub carr areas delineated within the Project Study Area include included reed canary grass, black willow (*Salix nigra*, FACW), American elm (*Ulmus americana*, FACW), peach-leaf willow (*Salix amygdaloides*, FACW), and red osier (*Cornus alba*, FACW). The shrub carr wetland type was typically found along field delineated waterways.

The forested wetland vegetation community type is dominated by reed canary grass, peach-leaf willow, and quaking aspen (*Populus tremuloides*, FACU). This wetland type was also associated with the field delineated waterways and field edges/fence lines associated with the waterways.

Wetland functional values: No wetland impacts are anticipated for the Project. Therefore, responses to section 8.2.3 of the AFR are not provided.

8.2.3 Identify the any wetlands in the project area that are considered sensitive and/or high-quality wetlands, including, but not limited to:

8.2.3.1 Any wetlands in or adjacent to an area of special natural resource interest (Wis. Admin. Code NR § 103.04).

Ditch #1 is considered an ASNRI trout stream. Wetlands W2, W10, W101, W102, W103 and W110-W113 are located within the "floodplain" of this waterway. However, due to historic dredging and straightening of this waterway, the floodplain has become disconnected from the waterway. Due

to this disconnected floodplain, all of these wetland areas are currently farmed and will be completely avoided by Project facilities.

8.2.3.2 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.

No wetland impacts are anticipated for the Project; therefore, impacts to the wetland communities listed above are not anticipated.

8.2.3.3 Any wetlands with high functional values based on factors such as abundance of native species and/or rare species, wildlife habitat, hydrology functions, etc.

No wetland impacts are anticipated for the Project, and therefore, a wetland functional value assessment was not completed on the field verified wetlands.

8.2.4 For both the proposed and alternate sites and their associated facilities, provide the following:

8.2.4.1 How many wetlands would be crossed by collection lines and specify the installation method (i.e. X wetlands would be bored, Y wetlands would be trenched).

Two wetlands are proposed to be crossed via directional boring by collection lines. The first wetland (W121) is a degraded wet meadow located in the northwest corner of the parcel housing Alternate Array A4. The second wetland to be crossed consists of a riparian wetland (W122) contiguous with Waterway S102 within Alternate Array A3. Both of these wetlands will be bored and no impacts are anticipated. No other wetland impacts are anticipated for construction of collection lines associated with the Project.

8.2.4.2 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 wetland impacts are anticipated from construction matting during the construction of the Project.

8.2.4.3 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 wetland impacts are anticipated for construction of permanent access roads.

8.2.4.4 How many wetlands would be impacted and/or crossed by fence installation and footings.

No wetland impacts are anticipated for construction of fence installation.

8.2.5 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.

No wetland impacts are anticipated for construction-preparation activities.

8.2.6 Describe if wetlands will be disturbed for site preparation activities:

No wetland impacts are anticipated for site-preparation activities.

8.2.6.1 Grading, leveling, etc. in the array areas, and for the installation of the arrays and associated supports.

No wetland impacts are anticipated for the installation of arrays or associated supports.

8.2.6.2 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.

No vegetation removal/tree clearing is anticipated within wetlands for the Project.

8.2.7 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 wetland impacts are anticipated for the Project; therefore, construction matting in wetlands is not anticipated.

8.2.8 For wetlands that would be open-cut trenched, provide the following:

8.2.8.1 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.

No wetland impacts are anticipated from open-cut trenching for construction of the Project.

8.2.8.2 Details on the proposed trench dewatering, including how discharge would be treated and where the dewatering structure would be located.

No wetland impacts are anticipated from open-cut trenching for construction of the Project. Dewatering activities may be necessary during the excavation of directional drill bore pits and trenching. Water pumped during these activities will be discharged into upland vegetated areas or into a constructed dewatering basin. The contractor awarded the construction contract will comply with the standards and methodologies as presented in the WDNR Technical Standard 1061.

8.2.8.3 Duration and timing of the work in wetland.

No wetland impacts are anticipated during construction of the Project.

8.2.8.4 How the wetland would be restored to pre-existing conditions.

No wetland impacts are anticipated during construction of the Project.

8.2.9 For wetlands that would be directionally bored, provide the following:

Primary Array: No wetlands are proposed to be crossed by directional bore method.

Alternate Array: Two wetlands are proposed to be crossed via directional boring by collection lines. The first wetland (W121) is a degraded wet meadow located in the northwest corner of the parcel housing Alternate Array A4. The second wetland to be crossed consists of a riparian wetland (W122) contiguous with Waterway S102 within Alternate Array A3. Both of these wetlands will be bored and no impacts are anticipated.

8.2.9.1 How bored wetlands and associated bore pits would be accessed.

One HDD bore is required to cross Waterway S102 and wetland W122. Access will be attained from upland areas (upland agricultural fields) utilizing existing public roads and an existing farm access point in the central portion of the array (off 130th Street). Proper sediment, erosion control, and invasive species control BMPs will be installed/utilized adjacent to the bore pit prior to construction activities beginning to prevent sediment from leaving the workspace and entering any nearby wetlands.

No construction equipment will cross field-delineated wetland W122 during the HDD boring process.

8.2.9.2 The location and size of any temporary staging and equipment storage.

HDD boring equipment will be stored either in the Project laydown yard or near the location of the proposed boring. If the boring cannot be completed in one day, overnight storage of equipment will be in upland agricultural areas within 50 feet of the bore pits. Appropriate BMPs and contaminant management (oil absorbent booms, etc.) materials will be put in place prior to leaving the boring area for the day.

8.2.9.3 The location and size of bore pits.

A typical bore pit is approximately 10 feet by 20 feet by 6 feet. Approximately 1,200 cubic feet (45 cubic yards) of material may be excavated for each pit. The boring of Waterway S102 and wetland W122 will require two bore pits, one on each side of the stream channel. The bore pits will not be located within any field delineated wetlands.

All materials removed from bore pits will be stored adjacent to the boring with appropriate BMPs installed. Once the boring is completed, the excavated material will be reused as backfill of the pit. Once a final grade is reached, the area will be seeded with a cover crop and permanent seed mixture with appropriate erosion control devices installed (silt fence, erosion matting, etc.), if necessary.

8.2.9.4 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).

Contingency plans for bore refusal and frac-outs will be developed by the construction contractor prior to construction start by the HDD contractor. The plans are expected to include the following:

Prior to Construction:

- The drilling entry and exit areas, surrounding work areas, and the drilling route (to the extent accessible) will be surveyed to ensure there are no protected resources on the surface;
- Any sensitive cultural or environmental resources will be flagged for avoidance or construction limits will be clearly marked;
- Barriers will be placed between the bore site and any nearby sensitive resources;
- Field personnel will be briefed on monitoring and timely reporting of frac-outs; and
- Necessary response equipment will be maintained on-site or at a readily accessible location.

Contingency Response:

- Once a frac-out is identified, all drilling activities will be stopped and the location and extent of the frac-out is determined;
- All necessary notifications will be made to the proper authorities;
- Appropriate mitigations will be taken based on the nature of the frac-out; and
- After the frac-out is stabilized and any required removal is complete, post clean up conditions will be documented and reported as required.

While not anticipated, if there is general bore refusal, the proposed HDD alignment will be modified using the same general location with drilling reattempted. If the HDD bore cannot be advanced and abandonment is required, the bore hole will be grouted with an approved material and backfilled.

8.2.10 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 installation/footings will be installed within wetlands. Fence installation and equipment operation will be conducted in upland areas.

8.2.11 For wetland vegetation that would be cleared or cut, provide the following:

No vegetation removal/tree clearing is anticipated within wetlands for the Project.

8.2.11.1 The justification for why wetland trees and shrubs are proposed to be cleared, and what construction activity the clearing is associated with.

No vegetation removal/tree clearing is anticipated within wetlands for the Project. The clearing of trees and shrubs will be required to mitigate for panel shading. This clearing will occur within upland areas only.

8.2.11.2 The timing and duration of vegetation removal.

No vegetation removal/tree clearing is anticipated within wetlands for the Project.

8.2.11.3 Describe the type of equipment that would be used, and if the vegetation removal would result in soil disturbance, including rutting and soil mixing.

No vegetation removal/tree clearing is anticipated within wetlands for the Project.

8.2.11.4 The type of wetland and type of vegetation to be cleared.

No vegetation removal/tree clearing is anticipated within wetlands for the Project.

8.2.11.5 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.

No vegetation removal/tree clearing is anticipated within wetlands for the Project.

8.2.11.6 Indicate the plan for removal and disposal of brush and wood chips.

No vegetation removal/tree clearing is anticipated within wetlands for the Project. Therefore no brush or wood chips will be generated.

8.2.12 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.

No permanent or temporary wetland impacts are anticipated for the construction of the Project.

8.2.13 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://dnr.wi.gov/topic/Sectors/documents/PAAsupp3Utility.pdf.

No permanent or temporary wetland impacts are anticipated for the construction of the Project. Proper erosion control BMPs will be installed around field delineated wetlands to prevent sediment from reaching any nearby wetlands and/or waterways.

8.2.14 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.

Portage Solar will utilize an internal environmental Construction Compliance Program ("CCP") that ensures compliance with all applicable environmental permits, plans, and regulations. An environmental monitor will conduct ongoing on-site inspections during construction to ensure all employees are environmentally aware and ensuring compliance throughout construction.

The environmental monitor will be responsible for implementing the CCP, which will consist of environmental training, regularly scheduled inspections, and tools such as permit matrices and inspection summary logs to ensure all environmental laws and conditions are met. Under the CCP, the environmental monitor will provide environmental training to all construction managers, foreman, and operators prior to construction.

Portage Solar and the environmental monitor will ensure any employee who works at the Project is trained in accordance with the CCP and applicable environmental permitting. During

construction, the environmental monitor will attend weekly meetings at the site and provide feedback to construction crews on issued previously identified.

8.2.15 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.

All field-verified wetlands will be avoided on this Project. Wetlands will be marked in the field and have silt fence installed around their perimeter to prevent disturbance.

After site grading is complete, a temporary cover crop will be planted to prevent soil erosion during construction. Upon completion of construction all disturbed areas will be seeded with a perennial seed mix that complies with Wis. Admin. Code ch. ATCP 20 regarding noxious weed seed content and labeling. Permanent seeding will comply with WDNR Conservation Practice Standard 1059 Seeding for Construction Site Erosion Control. If applied, mulch will comply with the WDNR Conservation Practice Standard 1058 Mulching for Construction Sites.

Revegetation of the site, including wetland specific seed mixes, is described further in Section 5.5 and included in the Vegetation Management Plan in Appendix J.

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 to the overview page and have consistent scales throughout the smaller-scale pages.

Project maps depicting the information requested in Section 8.3.1 through 8.3.3 are provided as Figures 4.1.7.1 and 4.1.7.6 in Appendix A. These figures display recent aerial photography with Project facilities, delineated wetlands and waterways, WWI data, and soil survey data. Additionally, the wetland delineation report and associated figures are located in Appendix I. No waterway or wetland impacts are proposed as part of the Project.

Topographic map set: See figures located in Appendix A.

Aerial image map set: See figures located in Appendix A.

8.3.1 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).

A desktop review of available wetland data and a field wetland delineation utilizing protocols in the U.S. Army Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1 was completed for all areas of the Project. The wetland delineation report and associated figures are located in Appendix I.

All wetlands and waterways located within the Project Study Area were first reviewed via the desktop review process outlined in Section 8.2.1 above and then field verified via wetland delineations.

9 DNR Guidance Information regarding Erosion Control and Storm Water Management Plans (not PSC requirements)

A preliminary Project-specific ECSWMP that includes procedures for materials management and dewatering protocols has been developed for the Project. The ECSWMP is preliminary in nature and will be revised once the CPCN is granted by the PSCW, and Portage Solar provides final Project engineering/design and contractor bidding documentation. Once finalized, a revised ECSWMP and Notice of Intent will be submitted to the WDNR. The preliminary ECSWMP is included in Appendix M.

9.1 Erosion Control and Stormwater Management Plans

A preliminary Project-specific ECSWMP is included in Appendix M.