APPLICATION TO THE OHIO POWER SITING BOARD

FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE

CHIPMUNK SOLAR PROJECT

DEER CREEK, JACKSON, AND MONROE TOWNSHIPS AND THE VILLAGE OF WILLIAMSPORT

PICKAWAY COUNTY, OHIO

CASE NO. 21-0960-EL-BGN

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ACRONYMS AND ABBREVIATIONS

AC	Alternating Current
AEP	AEP Ohio Transmission Company, Inc.
ANSI	American National Standards Institute
BMP	Best Management Practices
CAUV	Current Agricultural Use Value
dBA	Decibels (A-Weighted)
DC	Direct Current
DSM	Digital Surface Model
EAP	Emergency Action Plan
EDFR	EDF Renewables Development, Inc.
EDR	Environmental Design and Research
EMF	Electromagnetic Fields
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FTE	Full Time Equivalent
GIS	Geographic Information System
gpm	Gallons Per Minute
HASP	Health and Safety Plan
IEEE	Institute of Electrical and Electronics Engineers
JEDI	Jobs and Economic Development Impact
kV	Kilovolt
kW	Kilowatt
MW	Megawatt
MWh	Megawatt-hour
NLCD	National Land Cover Database
NEC	National Electrical Code
NESC	National Electric Safety Code
NPDES	National Pollutant Discharge Elimination System
NREL	National Renewable Energy Laboratory
NRHP	National Register of Historic Places
O&M	Operations and Maintenance
OAC	Ohio Administrative Code
ODOT	Ohio Department of Transportation
ODNR	Ohio Department of Natural Resources
OHI	Ohio Historic Inventory
OPSB	Ohio Power Siting Board
PJM	PJM Interconnection, LLC
POI	Point of Interconnection
PV	Photovoltaic
PVHI	Photovoltaic Heat Island Effect
RSG	Resources Systems Group, Inc
SCADA	Supervisory Control and Data Acquisition
SEIA	Solar Energy Industries Association
SHPO	State Historic Preservation Office
SPCC	Spill Prevention Control and Countermeasures
SR	State Route
SWAP	Source Water Assessment and Protection
SWPPP	Storm Water Pollution Prevention Plan
US	U.S. Route
USDOE	U.S. Department of Energy
USFWS	U.S. Fish and Wildlife Service
USGS	U. S. Geological Survey
VRA	Visual Resource Assessment
VSA	Visual Study Area

EXECUTIVE SUMMARY

Chipmunk Solar LLC (Chipmunk Solar or Applicant) is proposing to construct an up to 400 MW solar-powered electric generation facility in Deer Creek, Jackson, and Monroe Townships and the Village of Williamsport in Pickaway County, Ohio (Project). The Project Area consists of approximately 3,684 acres of land for the development of Project infrastructure. The land for the Project is leased from local property owners and will be returned to its original use at the end of Project operations.

Overall benefits of solar energy production in Ohio include the following:

- Creates a clean, safe, reliable, cost-effective source of energy
- Creates direct tax revenue and jobs for the local community and the state
- Attracts and retains high-profile businesses that are looking to purchase in-state renewable energy for use in data centers and manufacturing facilities, indirectly supporting thousands of jobs and hundreds of millions of dollars in new investment in Ohio
- Provides a steady income to landowners and their families, allowing farmlands to remain in the family's possession after active farming is no longer economical for the family
- Generates local economic activity without permanently altering the use or character of the land, unlike other development options that could take place on the same land, such as permanent housing, commercial development, or industrial development
- Uses the land in a way that does not produce any air pollution, water pollution, or odors, and negligible noise and traffic, in comparison to agricultural uses such as industrial commodity crop and livestock production
- Contributes revenue directly to the community, benefitting schools, health care systems, emergency services, libraries, and other community services
- Reduces the demand for fossil fuels, thereby reducing air pollution emissions, including emissions that contribute to climate change

The Applicant has engaged the local community in numerous ways. Feedback received from the public has been incorporated into the Project design to reduce impacts to neighboring property owners, including the following:

- Incorporation of a 100-foot setback from the center of public roads to PV panels, and an at least 300-foot setback from non-participating residences to PV panels;
- Exclusion of panels and other Project components from an approximately 30-acre area targeted for development by Deer Creek Township;

- Implementation of Good Neighbor Agreements providing payments and viewshed mitigation commitments to homes adjacent to the Project boundary;
- Installation of fencing best-suited to blend in with the natural aesthetic of the area;
- Planting evergreen trees and shrubs in visually sensitive locations around the Project to protect residents' viewsheds, limiting Project visibility, and including a more robust planting design at the substation location, based on community feedback; and
- Maintaining the natural environment of the area and conserving plant and animal habitat by maintaining existing wooded areas and avoiding most wetlands and all streams.

Additionally, the Applicant intends to implement the following best management practices that are beyond industry standards or permit requirements:

- Recycling solar panels at the end of life/decommissioning, depending on the nature of the available technology at that time;
- Incorporation of increased pollinator habitat and native vegetation that is best suited for the natural community and for reducing soil erosion; and
- Working with the community to support projects, events, or conservation efforts that would benefit the local community.

Many community members and organizations within the Project who understand the benefits of the Project and solar development have come forward to voice their support. Support comes from the Mayor of the Village of Williamsport, the Ohio Chamber of Commerce, and many individual community members within the Project Area.

The following application is a compilation of Project details, studies, and commitments that demonstrate that the Project will meet or exceed the requirements of Ohio Revised Code (ORC) Chapter 4906.

4906-4-01 PURPOSE AND SCOPE

(A) REQUIREMENTS FOR FILING OF CERTIFICATE APPLICATIONS

Chipmunk Solar LLC (the Applicant or Chipmunk Solar) is proposing to construct the Chipmunk Solar Project (the Project), an up to 400 megawatt (MW) solar-powered electric generation facility (the Facility). The materials contained herein and attached hereto constitute the Applicant's submittal (the Application) for a Certificate of Environmental Compatibility and Public Need (the Certificate), prepared in accordance with the requirements for the filing of standard certificate applications for electric generation facilities, as prescribed in Chapter 4906-4 of the Ohio Administrative Code (OAC). This Application has been prepared by the Applicant, with support from Environmental Design & Research (EDR). EDR has more than 20 years of experience with siting and permitting renewable energy facilities.

(B) WAIVERS

The Ohio Power Siting Board (OPSB) may, upon an application or motion filed by a party, waive any requirement of this chapter other than a requirement mandated by statute. By motion filed separate from this Application, the Applicant requested a waiver, in part, from the provisions of OAC 4906-4-08(D), which requires the study of impacts to cultural resources within 10 miles of the Project Area. The waiver request seeks to reduce this study area to 2 miles, and the visual impact study area to 5 miles, due to the reduced visual impact of solar facilities in comparison to wind turbines or other tall facilities.

4906-4-02 PROJECT SUMMARY AND APPLICANT INFORMATION

(A) PROJECT SUMMARY

The Applicant is proposing to construct an up to 400 MW solar-powered electric generation Facility. The Facility will deliver power to a single point of interconnection (POI) on the Biers Run – Bixby 345 kilovolt (kV) circuit, owned by AEP Ohio Transmission Company, Inc. (AEP). The POI will consist of a new three circuit breaker 345 kV switching station and a gen-tie line of approximately 200 feet from the collector substation to the switching station (collectively, the POI). The POI is included in this Application.

(1) General Purpose of the Facility

The general purpose of the Facility is to maximize energy production from solar resources to deliver clean, renewable electricity to the Ohio bulk power transmission system. The electricity generated by the Facility will be transferred to the bulk electric system region of PJM Interconnection, LLC (PJM).

(2) Description of the Facility

The Facility will be located on approximately 3,684 acres of private land in Deer Creek, Jackson, and Monroe Townships and the Village of Williamsport in Pickaway County, Ohio (Project Area). The total generating capacity of the Facility will not exceed 400 MW. The Facility is expected to operate with an average annual capacity factor of 23% to 25%, generating a total of approximately 806,000 to 876,000 megawatt-hours (MWh) of electricity each year, depending on the final equipment models selected for the Facility. The Preliminary Site Plan is included in Exhibit A. A detailed description of the Facility, including each Facility component, can be found in Section 4906-4-03(B) of this Application.

(3) Description of the Suitability of the Site for the Proposed Facility

An analysis of the Project Area concluded that it meets all factors necessary to support a viable solar energy facility. The proposed site possesses strong solar resources, manageable access to the bulk power transmission system, willing landowners, agricultural land use, and few

environmentally sensitive areas. For more details regarding the suitability and selection of the site, refer to Section 4906-4-04(A).

(4) Project Schedule

Acquisition of land and land rights began in 2018 and was almost entirely completed prior to submittal of this Application. During this time, meetings were held with local stakeholders, and outreach was conducted to landowners near the Project Area. A public information meeting was held on December 7, 2021, to facilitate public interaction with the Applicant and expert consultants, and included information about the Applicant, the Facility, and solar technology. Final design will be completed prior to construction, as early as the first quarter of 2023. Construction is anticipated to be completed by the fourth quarter of 2025, at which point the Facility will be placed in service. Additional information about the Project schedule can be found in Section 4906-4-03(C)(1) of this Application.

(B) APPLICANT INFORMATION

(1) Plans for Future Generation Capacity at the Site

The Applicant currently has no future plans for additional generation at Chipmunk Solar. This POI has a maximum Facility output of 400 MW.

(2) Description of Applicant and Operator

Chipmunk Solar LLC is a wholly owned subsidiary of EDF Renewables Development, Inc. (EDFR). Chipmunk Solar LLC was originated by Geenex Solar, LLC, headquartered in Charlotte, North Carolina, with an additional office in Dublin, Ohio. Geenex develops solar projects that are ultimately transferred to other entities prior to construction and operation. EDFR purchased Chipmunk Solar LLC from Geenex in October, 2020.

EDFR is a leading North American renewable energy company, which has been operating since 1985. EDFR's corporate headquarters are located in San Diego, CA, and has satellite offices located throughout the United States where it develops, constructs, and operates renewable energy projects. EDFR has developed 20,000 MW of renewable energy projects and operates and maintains 11,000 MW of renewable energy projects. The EDFR development team responsible for

the development activities of Chipmunk is based in Minneapolis, Minnesota. The Applicant currently plans to develop, construct, and operate the Facility for the life of the Project.

4906-4-03 PROJECT DESCRIPTION AND SCHEDULE

(A) PROJECT AREA DESCRIPTION

The following sub-sections provide information on the Project Area's geography, topography, population centers, major industries, and landmarks.

(1) Geography and Topography Map

The Project Area and surrounding area is relatively flat. The elevation in the Project Area ranges between 710 and 720 feet above mean sea level. Figure 03-1 depicts the geography and topography of the Project Area and the surrounding area within a 2-mile radius. Additionally, Figure 03-1 shows features described in the following sections.

(a) *The Proposed Facility*

The preliminary Facility layout includes the fenceline, photovoltaic (PV) panel arrays, underground collection lines, inverters, access roads, collector substation, site for interconnection, and laydown yards, contained within the Project Area. While the Applicant expects that the final layout will remain substantially similar to the preliminary Facility layout, due to ongoing technological innovations in the solar industry, continuing detailed engineering and survey work, public feedback, and communications during the OPSB certification process, the precise location of these features within the Project Area is subject to change.

(b) *Population Centers and Administrative Boundaries*

The proposed Facility is in Deer Creek, Monroe, and Jackson Townships, Pickaway County, Ohio. The nearest population center is the Village of Williamsport, which overlays a portion of the southern Project Area boundary. The Project Area is located approximately 3 miles south of Darbyville, 7 miles east of New Holland, and 7 miles west of Circleville. The closest metropolitan area is Columbus, the center of which is approximately 21 miles north of the Project Area.

(c) *Transportation Routes and Gas and Electric Transmission Corridors*

The Project Area is bound by U.S. Route (US) 22 to the south, State Route (SR) 56 traverses through the northeast corner of the Project Area, and several local roads border and traverse through the Project Area. Roads running generally north-south within and around the Project Area include

Justus Road, Walston Road, Pherson Pike, Chillicothe Pike, and Stonerock Road. Roads running generally east-west within and around the Project Area include Grice Road, Yankeetown Pike, and Crownover Road.

Three overhead transmission lines are within 2 miles of the Project Area. One transmission line traverses through the northeast corner of the Project Area, in a north-south direction. The second transmission line traverses through the northwestern corner of the Project Area, in a north-south direction. The third transmission line is approximately 0.75 mile west of the Project Area and traverses in a north-south direction. Two natural gas pipelines pass through the Project Area, both operated by Columbia Gas Transmission. One runs parallel to US 56, and the other runs south from US 56 to Williamsport. In addition, there is a corridor of co-located natural gas and hazardous liquid pipelines that run east-west, approximately 0.8 mile north of the Project Area. The corridor includes natural gas pipelines operated by Texas Eastern Transmission and Rockies Express Pipeline LLC, and liquefied petroleum gas and ethane pipelines operated by Enterprise Products Operating LLC (Pipeline and Hazardous Materials Safety Administration, 2021). There are no airports or railways within 2 miles of the Project Area.

(d) *Named Rivers, Streams, Lakes, and Reservoirs*

Dry Run and Deer Creek bisect the western Project Area and flow from north to south. There are multiple named and unnamed tributaries that discharge to these streams within 2 miles of the Project. In addition, Yellowbud Creek and one unnamed tributary flow from north and northwest to south through portions of the eastern Project Area. Deer Creek Lake is approximately 4 miles west of the Project Area.

(e) *Major Institutions, Parks, and Recreation Areas*

There are two churches, two local parks, and three wildlife areas located within 2 miles of the Project Area. Williamsport Church of Christ in Christian Union and Williamsport Community Church are both located in Williamsport, approximately 0.1 mile and 0.5 mile south of the Project Area, respectively. Community Square Park is located 0.5 mile south of the Project Area in Williamsport. Ballard Park is also located in Williamsport, 0.8 mile south of the Project Area. Pickaway County Wildlife Production Area 65-1 and 65-4 are wildlife areas owned by ODNR and

located approximately 0.7 mile east and 1.7 miles west of the Project Area, respectively. The Charles O. Trump Wildlife Area is located adjacent to the Project's northeastern corner, off SR 56.

(2) Area of All Owned and Leased Properties

Table 03-1. Area of Property Used for Project

	Number of Properties	Area (acres)
Leased/Easement	41	3,667
Purchase Options	1	17

(B) DETAILED DESCRIPTION OF PROPOSED FACILITY

A detailed description of the Facility is provided in the subsections below. The equipment specifications presented in this Application are representative of the options that will be selected for the final procurement of Facility components and materials. Any changes in equipment specifications from what is presented here are not expected to increase potential impacts.

(1) Description Details for the Project

(a) *Type and Characteristics of Generation Equipment*

Generation equipment is anticipated to include approximately 893,000 PV panels installed in linear arrays. The actual type of panel chosen will be dependent on final procurement of equipment and equipment availability prior to construction.

Representative solar panels under consideration are provided in Exhibit B. Improving technologies could dictate the use of an alternative panel as identified during the final procurement process. The panels will operate continuously but will not produce electricity during nighttime hours. The annual net capacity factor for the Facility is estimated to be between 23% and 25%. Based on the total generating capacity of 400 MW and the annual capacity factor, the Facility will generate between approximately 806,000 and 876,000 MWh of electricity each year. Heat rate is not applicable to solar energy facilities.

(b) *Turbine Dimensions*

This section is not applicable to the Facility.

(c) *Fuel Quantity and Quality*

Solar panels generate electricity without burning fuels. Therefore, this section is not applicable to the Facility.

(d) *List of Pollutants Emissions and Quantities*

Solar panels generate clean, emission-free electricity without releasing airborne pollutants. Therefore, this section is not applicable to the Facility.

(e) *Water Requirement, Source, and Discharge Information*

Solar panels generate electricity without the use of water. Therefore, no water is treated or discharged, and this section is not applicable to the Facility.

(2) Description of Major Equipment

The primary steps for Facility construction include the following: (1) installation of storm water, erosion control, and resource protection measures, (2) securing the perimeter of the construction area, (3) vegetation clearing, (4) earthwork and grading, as necessary, (5) construction of access pathways, and (6) installation of equipment such as pilings, racking, panels, inverters, weather stations, and the collector substation.

In areas where vegetation removal is required, trees cleared from the work area will be cut into logs and either left for the landowner or removed, while limbs and brush will be buried, chipped, or otherwise disposed of as directed by the landowner and as allowed under federal, state, and local regulations. Disturbed soil will be de-compacted, erosion and sediment control features will be installed, and topsoil will be replaced and re-seeded. Additional details on construction, site preparation, and reclamation methods are included in the subsections below, and in Section 4906-4-07 and Section 4906-4-08 of this Application.

(a) *Electric Power Generation Equipment*

Once Project access roads are complete, construction and assembly of the trackers and mounting of the PV modules will commence. Some grading is anticipated to accommodate the PV arrays. In areas where grading is proposed, topsoil will be stripped and stockpiled and then re-spread over the subsoil once grading is complete. The construction activities could also result in some degree

of soil compaction. Following the completion of construction, soil compaction measurements will be performed to assess the extent of soil density in areas designated for revegetation. Soil decompaction will occur in seeding and planting areas where the soil density compaction level exceeds 80% of maximum dry weight according to ASTM 1557. The PV modules will be secured on a single-axis tracker racking system supported on metal piles that will be driven into the ground to a depth between 6 and 12 feet. Pile driving does not require excavation.

Single-axis tracker designs vary by manufacturer, but generally consist of a series of mechanically linked horizontal steel support beams. The number of rows within a tracker block is typically determined by multiple factors, including equipment capacity, site constraints, and the amount of desired solar electricity output to the inverters. Rows will be aligned north to south, and the PV panels will pivot, tracking the sun's motion from east to west throughout the day. Each panel will be approximately 7 feet by 4 feet, 1.4 inches thick, and made of smooth glass with an anti-reflective coating. The panels will be a maximum of 15 feet in height from the ground when tilted to their highest position and will be surrounded by fencing designed to blend in with the natural aesthetic of the area. For additional detail on PV panel specifications, see the manufacturer's equipment specifications (Exhibit B), which are representative of the PV panels that will be selected for the Facility.

(b) *Fuel, Waste, Water, and Other Storage Facilities*

PV panels generate electricity without the use of fuel or water, and without generating waste. However, during construction, contractors will likely be utilizing temporary fuel tanks at some laydown yards for refueling of construction equipment, and water potentially for activities such as dust control and road construction.

Oil utilized for the cooling and insulation of transformers at the collector substation may be stored within an aboveground storage tank, within the collector substation footprint. Oil that is removed from the transformers during maintenance activities will be disposed of per the applicable local, state, and federal regulations. Per federal regulations (40 CFR Part 112), should the aggregate aboveground storage exceed 1,320 gallons, a Spill Prevention Control and Countermeasures Plan (SPCC Plan) will be prepared for the Project prior to placement onsite.

(c) *Fuel, Waste, Water, and Other Processing Facilities*

No fuel, waste, water, or other processing facilities will be installed for the Project.

(d) *Water Supply, Effluent, and Sewage Lines*

Facility components will not use measurable quantities of water or discharge measurable quantities of wastewater. Therefore, no other water, effluent, or sewage lines will be installed for the Facility. Based on average rainfall in the area, cleaning of panels is not expected to be necessary.

(e) *Associated Electric Transmission and Distribution Lines and Gas Pipelines*

The Facility will interconnect to the existing AEP transmission system at the Biers Run – Bixby 345 kV transmission line. To accommodate the interconnection on the Biers Run – Bixby 345 kV line, a new three-circuit 345 kV circuit breaker switching station will be constructed and will be connected to the collector substation by a short gen-tie line. Because the switching station is adjacent to the collector substation, the gen-tie line is expected to be approximately 200 feet. The gen-tie line and existing electric transmission infrastructure are shown in Exhibit A.

(f) *Electric Collection Lines*

Each solar array will have a network of electric cable and associated communication lines that collect the electric power from the solar modules and transmit it to a centralized location through a DC combiner harness. A hybrid aboveground (DC) and belowground (medium-voltage AC) electrical system is being considered for several reasons, including ease of access for operations and maintenance, reduced ground disturbance and impacts to sensitive resources, and cost considerations. If aboveground DC cabling is used, the DC collection cables will be strung under each row of panels on steel arms and a steel cable attached to the piles. At the end of each row, hanging brackets would connect several racks/rows of cables to a common collection point near their assigned inverter skid, where the cables will be routed belowground, at a minimum depth of 36 inches below grade to the inverter.

Power from the DC collector will be transmitted through a series of related electrical components including a DC-to-AC inverter, a medium-voltage transformer that will increase the voltage to 34.5

kV, and a cabinet of power control electronics, all housed inside the power conversion station which will be mounted on a steel skid and set on a steel pile or concrete pad foundation.

Several power conversion stations will be connected in series to form a medium-voltage circuit. These circuits are commonly referred to as the medium-voltage collection system. Medium-voltage cables for each circuit will be buried underground in the Project Area. Approximately 32 miles of buried collection line corridors will be installed for the Facility. Multiple circuits will be installed within the same corridor in many locations, as shown in the Preliminary Site Plan (Exhibit A), thus reducing the total amount of surface disturbance.

The medium-voltage collection system will be installed using either the direct burial method or horizontal directional drilling (HDD). The majority of underground collection cables will be installed using the direct burial method. HDD is proposed for installation of collection lines beneath wetlands, streams, and some woodlots and may be used to cross roads.

The direct burial method relies on a trencher which uses a large blade or "saw" to excavate an open trench, generally 24 to 36 inches wide, with an adjacent sidecast area. Using the direct burial method, underground cable is buried to a minimum depth of 36 inches below the surface and requires up to a 20-foot width of clearing and surface disturbance for equipment access. Trenching or ploughing via these methods is the preferred method of installation for buried collection lines. If these methods are not feasible for installation due to site conditions, trenching via backhoe may be utilized in some circumstances. Installation of collection lines via backhoe would result in increased soil disturbance averaging approximately 15 feet in width to accommodate machinery and backfill/spoil storage, with the other methods disturbing a smaller area.

Topsoil within the work area will be stripped and segregated from excavated subsoil. Replacement of soil material will occur as soon as practicable following installation. Subgrade soil will be replaced around the cable, and topsoil will be replaced at the surface. If drain tile is damaged during this process, it will be assessed for repair per the Drain Tile Mitigation Plan in Exhibit E.

Revegetation of these areas will commence as outlined in the guidance within the Vegetation Management Plan (Exhibit D).

HDD is a widely used underground drilling technique to install buried utilities with minimal impact, by routing the utility under a road or a sensitive feature such as a stream, river, or wetland. More information on HDD can be found in Section 4906-4-08(B).

(g) *Substations, Switching Substations, and Transformers*

Each power conversion station includes a medium-voltage transformer that will increase the voltage from the panels to 34.5 kV. The power will be delivered from the conversion stations to the collector substation via the electrical collection lines described above.

The collector substation will be located just east of the existing Biers Run – Bixby 345 kV transmission line, on the northwestern corner of the Project Area. At the collector substation, the 34.5 kV collection voltage will be stepped up to 345 kV and transmitted to the POI via a short gen-tie line. The collector substation will occupy approximately 6 acres and will be enclosed by a chain-link fence. Additional features of the collector substation include a dead-end support structure for the 345 kV gen-tie, main power transformer, circuit breakers, surge arrestors, insulators, and a lightning mast. The tallest structure within the substation is the lightning mast, which is approximately 65 feet tall.

The interconnection at the POI would involve connecting to the Biers Run – Bixby 345 kV transmission line via a new switchyard, requiring the installation of three additional 345 kV circuit breakers. Installation of associated protection and control equipment, 345 kV line risers, SCADA, and 345 kV revenue metering will also be required.

Prior to construction of the collector substation, erosion and sediment control features such as silt fencing will be installed. Following the installation of erosion and sediment control features, topsoil will be stripped and stored and the site will be graded as necessary. After site preparation, permanent erosion and sediment control features will be installed and topsoil will be replaced and seeded.

(h) *Weather Stations*

The Project will include up to six permanent meteorological (met) stations that will be installed in the Project Area. Met stations will consist of a pole or similar structure, no taller than 15 feet, with attached monitoring equipment.

(i) *Transportation Facilities, Access Roads, and Crane Paths*

The Facility will require the construction of approximately 17.4 miles of new access roads within the Project Area. The roads will be gravel-surfaced and typically 20 feet in finished width.

Road construction will involve topsoil stripping and grubbing of stumps, if necessary. Stripped topsoil will be stockpiled along the road corridor for use in site restoration. Any grubbed stumps will be removed, chipped, or buried. Following removal of topsoil, subsoil will be graded, compacted, and surfaced with gravel or crushed stone at a depth to be determined by the final geotechnical analysis. If required, a geotextile fabric will be installed beneath the road surface to provide additional support. To the extent practicable, local sources will be used to obtain gravel and other construction materials that may be needed in support of Facility construction.

During construction, access road installation and use could result in temporary soil disturbance of a maximum width of 50 feet in some areas, to accommodate two-way traffic. Once construction is complete, temporarily disturbed areas will be restored and seeded.

(j) *Construction Laydown Areas*

Five laydown areas are currently proposed for the Facility. The laydown areas range in size from approximately 1.5 acres to approximately 19 acres. Laydown areas will provide storage of materials and equipment, parking for construction workers, and space for construction management trailers. The laydown areas will be equipped with temporary lighting, and temporary erosion and sediment control methods, most of which will be removed upon completion of Facility construction. Construction and reclamation of the laydown area will be similar to that for access roads. Following construction, laydown yards will be decompacted, topsoil redistributed, and reseeded per the specifications of the Vegetation Management Plan.

(k) *Security, Operations, and Maintenance Facilities or Buildings*

The collector substation and switching station will be surrounded by a 7-foot chain-link fence with a 1-foot section of barbed wire at the top. Agricultural-style fencing with wooden posts or similar fencing will be installed around the PV panel areas. The Project will utilize a shared O&M building associated with the Fox Squirrel Solar Project, which received a certificate of environmental compatibility and public need from the OPSB on July 15, 2021. The Fox Squirrel Solar Project is operated by the Applicant.

(l) *Other Pertinent Installations*

Permanent storm water treatment infrastructure will be installed for the Facility to meet all requirements of Ohio EPA Permit No. OHC000005 (Ohio EPA, 2018). Permanent storm water treatment infrastructure is anticipated to be minimal and will primarily consist of infiltration swales and ditches adjacent to access roads.

(3) Need for New Transmission Lines

The Facility will require construction of a gen-tie line, approximately 200 feet in length. The gen-tie line will transmit energy from the collector substation to the adjacent POI switchyard at the Biers Run – Bixby 345 kV transmission line, owned by AEP. No other new electric transmission lines or gas pipelines are needed for the Facility.

(4) Project Area Map

Prepared at a 1:1,200 scale, the Preliminary Site Plan (Exhibit A) illustrates the Facility layout. In addition, Figure 03-2 includes the following features at 1:12,000 scale:

(a) *Aerial Photograph*

Aerial photography is from the Ohio Statewide Imagery Program.

(b) *The Proposed Facility*

The preliminary Facility layout includes components described above in Section 4906-4-03(B)(2).

(c) *Road Names*

Road name data were obtained from the Ohio Geographically Referenced Information Program.

(d) *Property Lines*

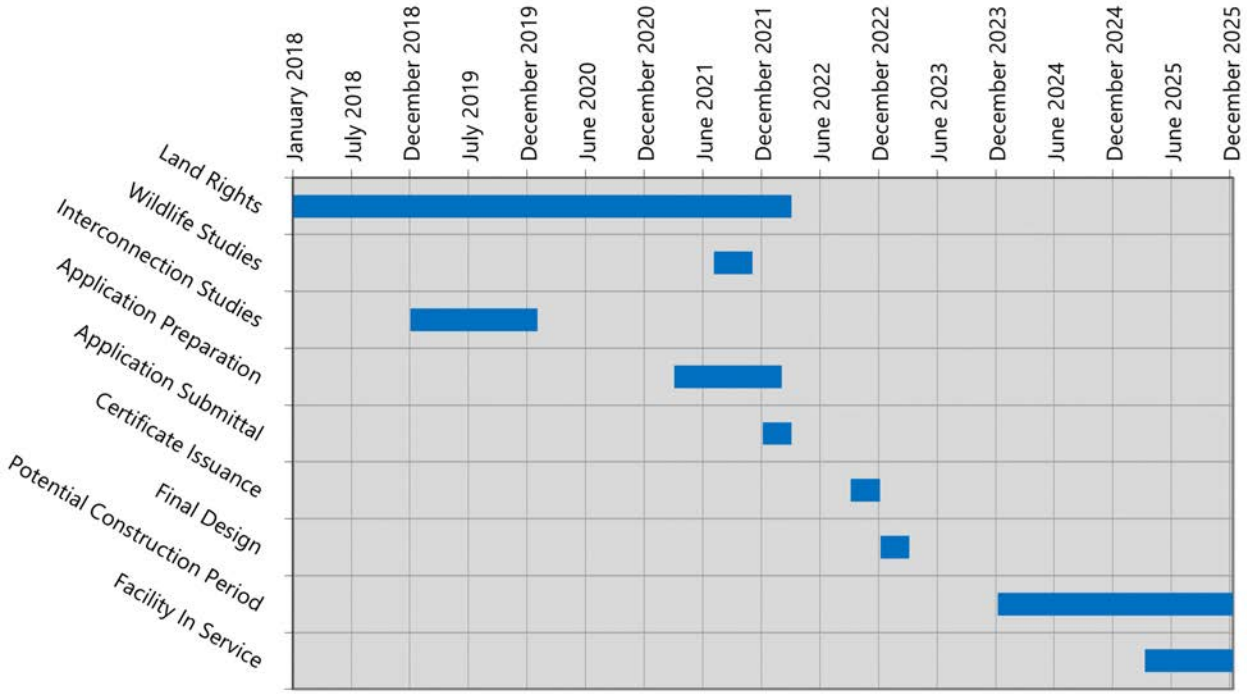
Property lines were obtained from the Pickaway County Auditor.

(C) DETAILED PROJECT SCHEDULE

(1) Schedule

The Project schedule in Gantt chart format is provided as Inset 03-1.

Inset 03-1. Project Schedule Gantt Chart



(a) *Acquisition of Land and Land Rights*

Acquisition of land and land rights began in 2018 and continued through the first quarter of 2022.

(b) *Wildlife Surveys/Studies*

Ecological surveys/studies began in August 2021 and were completed in November 2021.

(c) *Receipt of Grid Interconnection Studies*

Grid interconnection studies were initiated in 2019. The Feasibility Study was issued in July 2019.

The System Impact Study was issued in February 2020.

(d) *Preparation of the Certificate Application*

Preparation of the Application began in the second quarter of 2021.

(e) *Submittal of the Application for Certificate*

This Application was officially submitted in the first quarter of 2022.

(f) *Issuance of the Certificate*

It is anticipated that the Certificate will be issued in the fourth quarter of 2022.

(g) *Preparation of the Final Design*

It is expected that final designs and detailed construction drawings will be completed as early as the first quarter of 2023.

(h) *Construction of the Facility*

Construction is anticipated to begin no sooner than the first quarter of 2024. Construction will likely be completed no later than the fourth quarter of 2025.

(i) *Placement of the Facility in Service*

The Facility will be placed in service upon completion of construction, anticipated for no later than the fourth quarter of 2025.

(2) Construction Sequence

Project construction is anticipated to proceed in the following sequence, with multiple activities being performed concurrently:

- General clearing of the Project Area, particularly for PV arrays, access roads, laydown yards, and substation;
- Grading for laydown yards and substation area;
- Grading for access roads and PV arrays;
- Construction of access roads;
- Installation of piles for support of racking;
- Installation of the electrical collection system;
- Installation of power conversion stations;
- Installation of single axis tracker system (racking)
- Installation of PV modules;

- Construction and installation of substation;
- Facility commissioning and energization;
- Restoration activities.

Graded areas will be smoothed, compacted and freed from irregular surface changes, and sloped to drain. Final earth grade adjacent to equipment will be below the finished floor slab and sloped away from the structure to maintain proper drainage. Slopes of embankments will be protected against rutting and scouring during construction in a manner similar to that required for excavation slopes.

Construction of PV module foundations, assembly, access road construction, and installation of collection lines are described above in Section 4906-4-03(B)(2). Once construction is complete, exposed soils in the Project Area will be stabilized by seeding, mulching, and/or plantings.

(3) Impact of Critical Delays

Critical delays may have material, adverse effects on Facility financing, including the Applicant's ability to procure PV panels and other Facility components. Such delays may push the in-service date back. In addition, considerable costs would be incurred if the delays prevented the Facility from meeting deadlines for federal incentive programs such as the Investment Tax Credit.

4906-4-04 PROJECT AREA SELECTION AND SITE DESIGN

(A) PROJECT AREA SELECTION

The sub-sections below describe the Project Area selection process.

(1) Description and Rationale for Selecting Project Area

The availability and quality of solar resource, proximity to the bulk power transmission system, topography, and land use are the initial screening criteria evaluated in the site selection process for any solar power project. The Applicant's initial evaluation was based on publicly available data, such as the National Renewable Energy Laboratory's (NREL's) "National Solar Radiation Database," along with site visits and capacity analysis for nearby transmission lines. The data suggest a suitable solar resource in the southern region of Ohio, including Pickaway County.

Adequate access to the bulk power transmission system is also an important siting criterion, as the system must be able to accommodate the interconnection and accept and transmit power from the Facility. As depicted in Exhibit A, there are two overhead electric transmission lines that intersect the Project Area, one running northeast-southwest through the most northwestern section of the Project Area, and the other running northwest-southeast through the most northeastern section of the Project Area. The transmission lines are owned and operated by AEP and ATSI within the PJM Interconnect. A characteristic which makes the PJM Interconnect suitable for a solar power project is the ability to sell electricity to customers in the region without connecting directly to those customers' facilities. Additionally, the capacity of the Biers Run – Bixby 345 kV transmission line was evaluated to determine that the required network upgrades are within an acceptable range for a solar power project of approximately 400 MW.

Land use in Pickaway County is primarily agricultural and characterized by open spaces suitable for hosting a utility-scale solar power project. Initial site visits to the area provided visual verification that the predominate land use in the study area is agricultural with limited residential development, which is compatible with solar project development.

Proximity to major transportation routes is another consideration in identifying a site for the Facility. The Project Area is situated approximately 12 miles southeast of Interstate (I) 71, adjacent

to US 22 and SR 56. Additionally, several local roads surround and intersect the Project Area. These major roads provide access for transporting Facility components, construction equipment, and staff.

(2) Map of Study Area

Willing participants are essential to the success of any solar project. After a suitable geographic area was established, the Applicant identified a group of Project landowners adjacent to a suitable POI that met the various other siting criteria listed in this section. With a group of participants and access to a viable POI, the study area for the Facility was developed based on the POI. While additional properties were included in the study area at various times, those landowners decided not to participate. There were no additional sites considered for the Project. A map of the Project Area and 2-mile radius is included as Figure 03-1.

(3) List and Description of all Qualitative and Quantitative Siting Criteria

Siting criteria used for the selection of the Project Area is detailed in the following sections.

Adequate solar resource

The Applicant determined through an initial screening process, using a statewide solar resource map, that global horizontal irradiance was likely to be at a level of 4.0 kilowatt-hours (kWh)/m^2/day (Sengupta, et al., 2018). The Applicant is using measurements collected from a nearby project to confirm that the Project Area has an adequate solar resource.

Adequate access to the bulk power transmission system

The Applicant determined that the existing transmission infrastructure was adequately accessible from the standpoints of proximity and ability of the system to accommodate the interconnection at a reasonable cost. This determination was made through an initial internal preliminary assessment and subsequent interconnection requests filed with PJM. See Section 4906-4-05 of this Application for additional detail.

Willing land lease participants and host communities

Solar generation facilities can only be sited on property where the landowner has agreed to allow such construction. The Applicant obtained private lease agreements for contiguous areas of land

necessary to support the Facility. The Applicant engaged private landowners over a two-year period. The lease agreements in place are contiguous and not separated by wetlands, wooded areas or landowners not interested in participating. See Section 4906-4-06(A) of this Application for additional detail on property ownership and lease status. In addition, the Applicant has engaged local and state stakeholders and the local community to educate and share information. See Section 4906-4-06(F)(1) of this Application for additional detail on public interaction.

Site accessibility

The Project Area is served by an existing network of public roads, which will facilitate component delivery, construction, and operation and maintenance activities (Exhibit K).

Appropriate geotechnical conditions

The Applicant determined that significant geotechnical constraints, including but not limited to steep topography, potential for rockfalls and landslides, known karst geology, and sinkholes are not anticipated for the Facility (Exhibit C).

Distance from airports

The proposed Facility is sited approximately 8.8 miles northwest of the nearest public use airport of record, reducing potential impacts from glare. See Section 4906-4-07(E) of this Application for additional detail on aviation facilities.

Limited residential development

The Project Area has a low population and residential development density compared to surrounding areas and statewide averages. Areas with limited residential development generally have more available space for siting solar panels once site-specific constraints are taken into account. See Section 4906-4-08(C)(3)(e) and Exhibit I of this Application for additional detail on demographics in the vicinity of the Project Area.

Compatible land use

The Project Area is predominantly rural agricultural land, which is compatible with the proposed Facility. See Section 4906-4-08(C) of this Application for more information on land use.

Limited sensitive ecological resources

The Project Area has adequate open space available to avoid impacting sensitive ecological resources. See Section 4906-4-08(B) of this Application for more information on ecological resources.

Cultural resources

The Project Area is located so that direct impacts to any identified existing cultural resources will be avoided. For additional information on cultural resources, see Section 4906-4-08(D) of this Application.

Once the Applicant determined that the Project Area was suitable for development of a solar power facility, various siting factors and constraints were identified and evaluated to appropriately site the Facility components. These efforts are discussed in detail in 4906-4-04(B).

(4) Description of Process by Which Siting Criteria Were Used

As noted above, the selection of possible sites for development of solar power facilities is constrained. Particularly, projects must be located in areas with adequate solar resource, proximate to electric transmission lines with unused capacity sufficient to accept energy from the facility, and situated in locations that can accommodate land use and environmental restrictions imposed by state, and federal laws. Finally, willing land lease participants are also necessary to support the Project.

(5) Description of Project Area Selected for Evaluation

Based on the criteria listed in Section 4906-4-04(A)(3) of this Application, the Project Area site selection analysis concluded that the site presented herein meets all the factors necessary to support a viable solar energy facility. The proposed site possesses adequate solar resources, manageable access to the bulk power transmission system, relatively low population density, willing landowners, highly compatible land-use characteristics, and few environmentally sensitive areas. Siting of solar facilities relies on signing agreements with multiple landowners. Once a region is identified, it is not practical to evaluate multiple project areas in the same vicinity. Instead, the project area is determined by landowner interest.

(B) FACILITY LAYOUT DESIGN PROCESS

The Facility layout presented in this Application is considered preliminary. Due to ongoing technological innovations in the solar industry, it is not economically feasible to select specific panel model (or models) prior to certificate issuance. Accordingly, once a panel model is selected, final engineering and design of the Project will be completed to identity the final locations of the panels, select and locate inverters, and adjust other components including piles, collection lines, and roads. The Applicant commits to provide the final Facility layout to the Board's Staff at least 30 days prior to the preconstruction conference, which will include panel model, panel layout, and the final location of other ancillary components. The final Facility layout will: (1) not alter the boundaries of the Project Area, (2) comply with the Project setbacks set forth in this Application, and (3) not create any additional material adverse impact. The Facility layout could also be adjusted due to engineering constraints discovered during the final engineering design, to avoid alterations to stormwater flow, to refine panel locations for appropriate panel capacity, or to accommodate specific property characteristics. These types of changes would primarily consist of realignment of access roads and collection lines, and alterations to PV panel placement within the Project Area. These changes are not expected to alter the boundaries of the Project Area or the properties on which Facility components will be located.

(1) Constraint Map

A constraint map of the Project Area showing setbacks, public roads, and sensitive receptors is included as Figure 04-1. This illustrative graphic cannot appropriately show all the site-specific constraints and considerations, such as landowner preferences, PV panel engineering factors, and access road engineering requirements, all of which further limit siting alternatives within the participating parcels.

In addition to investigating the layout within the constraints discussed above, numerous expert analyses and field studies have been conducted to ensure that the PV panel arrays are sited to minimize environmental impacts to the maximum extent practicable, while still allowing for a successful project. The siting constraints identified in those studies are discussed in further detail below.

(2) Criteria Used to Determine Site Layout and Comparison of Alternative Site Layouts

The siting of project components within a given project area is governed by site-specific factors, including agricultural constraints, noise constraints, wetland and stream constraints, road and property setbacks, landowner considerations, glare considerations, and feedback from local officials and neighbors. Once it was determined that the general project site was adequate, the Applicant worked with various consultants to conduct detailed assessments, which identified and defined the siting factors and constraints discussed below. The Applicant performed numerous layout design iterations to develop the proposed Facility layout as presented and described in this Application. The criteria used in designing the Facility layout are discussed in additional detail below.

Agriculture

Agriculture is the predominant land use within the Project Area. The Applicant has designed the Facility footprint to minimize impacts to active agricultural land. These efforts included co-locating collection lines and access roads wherever practicable. For additional information on agricultural land, see Section 4906-4-08(E) of this Application.

Noise

No existing national, state, county, or local laws specifically limit noise levels produced by solar energy facilities. Previous OPSB certificates granted to solar projects have included a Facility-related noise limitation of 5 A-weighted decibels (dBA) over the daytime ambient average (L_{eq}) background level at non-participating residences. The Facility layout is designed to minimize noise impacts to nearby residences. For additional information on noise, see Section 4906-4-08(A)(3) and Exhibit O of this Application.

Wetlands and Streams

To avoid and minimize impacts to streams and wetlands, on-site investigations were conducted to establish the locations of streams and wetlands, and Facility components were sited in an effort to avoid impacts to these resources to the maximum extent practicable. For all identified stream crossing points, HDD techniques will be used to avoid impacts. As a result, no impacts to streams or jurisdictional ditches are anticipated. HDD will also be used to avoid impacts to most wetlands.

For additional information on wetlands and streams within the Project Area, see Section 4906-4-08(B)(2)(a) and Exhibit Q of this Application.

Glare

Although there are no airport approach paths within 2 miles of the Project, a glare study (Exhibit N) was completed to evaluate potential impacts on residences and roadways in the vicinity of the Project. This effort considered potential for glare impacts to 40 residences surrounding the Project Area. Additionally, potential glare impacts were evaluated for traffic along Pherson Pike, Yankeetown Pike, and Chillicothe Pike. No potentially sensitive receptors or roadways located within or adjacent to the Project will receive glare from the proposed PV arrays. For additional information regarding glare and aviation, see Section 4906-4-07(E).

Road and Property Setbacks

The Applicant applied a setback from PV panels of 100 feet from the centerline of public roads, and 75 feet from adjacent non-participating residential property lines. In addition, the fenceline will be set back at least 25 feet from the edge of the Project Area property boundaries.

Landowner Considerations

The Applicant has and will continue to meet with participating landowners to review the Facility footprint on their property. These meetings often involve field analyses to ensure that Facility components are sited in a manner that allows continued efficient use of land for agricultural purposes and avoids any site features of importance to the landowner.

Neighbor Considerations

The Applicant also incorporated feedback received during multiple conversations with officials and neighbors from Deer Creek, Jackson, and Monroe Townships, the Village of Williamsport, and Pickaway County to discuss preliminary layouts of the Facility. In response to feedback from the public, the Applicant altered preliminary layouts as follows:

- Removed panels from more than 30 acres within the southern Project Area targeted by Deer Creek Township for potential future development.
- Increased the setback from PV panels to adjacent residences to at least 200 feet for participating residences and 300 feet for non-participating residents.

- Designed an additional and significant visual screening module along the south side of the substation area.
- Incorporated existing vegetation areas into the Project design to further reduce visual impacts to neighbors.

(3) Description of Number and Type of Comments Received

The public was able to provide comments to the Applicant through the Applicant's website, by mail, at the virtual open house, held on December 1, 2021, and during the public information meeting, held on December 7, 2021. Exhibit G contains the written comments received by the Applicant at the public information meeting. In addition to comments received during the public information meeting and the virtual open house, the Applicant is continuing to accept comments through the Project's website,through the Project email address (chipmunksolar@edf-re.com), and via mail.

4906-4-05 ELECTRIC GRID INTERCONNECTION

(A) CONNECTION TO THE REGIONAL ELECTRIC GRID

To interconnect a new power generation source to the existing electric transmission grid, the Facility owner must obtain approval from PJM Interconnection (PJM). PJM is a regional transmission organization (RTO) that coordinates the movement of wholesale electricity in all of Ohio and all or parts of surrounding states. The interconnection process includes completion of studies by PJM that determine the transmission upgrades required for a project to interconnect reliably to the PJM grid. These studies are completed in a series. The Feasibility Study, the System Impact Study, and the Facilities Study are completed to provide developers with additional information regarding the scope of required upgrades, completion deadlines, and implementation costs. The Facilities Study, however, is not required for all projects (PJM, n.d.). The OPSB requires submission of only the Feasibility Study and System Impact Study with this Application. The OPSB also requires the Applicant to obtain and provide a signed Interconnection Service Agreement with PJM prior to construction.

The proposed Facility will connect to the AEP transmission system at the Biers Run – Bixby 345 kV transmission line. The interconnection would involve installation of three additional 345 kV circuit breakers, associated protection and control equipment, 345 kV line risers, SCADA, and 345 kV revenue metering will also be required. The Applicant will work with AEP to obtain any necessary permits for the Biers Run – Bixby transmission line improvements exclusive to the Facility and will be responsible for the construction costs. AEP will continue to own and operate the transmission line.

(B) INTERCONNECTION INFORMATION

(1) Generation Interconnection Request Information

The Applicant will use one PJM queue positions to interconnect the Facility, queue number AE2-149 with a queue date listed as March 14, 2019, capacity of 291.4 MW and maximum output of 400 MW. The website for the PJM queue is https://www.pjm.com/planning/services-requests/interconnection-queues.aspx. Find the queue position for this project by entering the queue number into the "Queue/OASIS ID" search field.

(2) System Studies

The Feasibility Study and System Impact Study for the queue position is complete, and the Facilities Study is in progress. The Feasibility Study for AE2-149 was issued in July 2019, and the System Impact Study was issued in February 2020. The completed PJM interconnection studies are included as Exhibit H to this Application.

4906-4-06 ECONOMIC IMPACT AND PUBLIC INTERACTION

(A) OWNERSHIP

The Applicant will construct, own, and operate all structures and equipment associated with the Facility, with the exception of the POI switchyard, which will be owned by AEP. Once construction of the POI switchyard is complete, the Applicant and AEP will request the OPSB to transfer the portion of the certificate associated with the POI switchyard to AEP. As depicted in Exhibit A, limited portions of the 34.5 kV electrical collection lines will be located within public road rights-of-way where the collection line route crosses Yankeetown Pike, Pherson Pike, Grice Road, and SR 56, from one participating parcel to another. With the exception of these road crossings, all other components of the Facility will be located entirely on privately owned land secured by lease, easement, and option to purchase agreements. All necessary permits will be obtained for public right-of-way crossings.

(B) CAPITAL AND INTANGIBLE COSTS

(1) Estimated Capital and Intangible Costs by Alternative

Due to the sensitive nature of economic data and the potential advantage it could provide to industry competition, capital and intangible costs are included in Part III, Section 2 of the confidential version of the Socioeconomic Report (Exhibit I), filed under seal with this Application. As described in Section 4906-4-04, the Applicant has not proposed alternative project areas. Therefore, no cost comparison between alternatives is available.

(2) Cost Comparison with Similar Facilities

Installed project costs compiled by the U.S. Department of Energy's (USDOE's) Lawrence Berkeley National Laboratory (Berkeley Laboratory) in October 2021 indicate that the capital costs of the Facility are lower than recent industry trends. The Berkeley Laboratory compilation shows that capacity weighted average installed costs in 2021 averaged roughly \$1,420/kW_{AC} (Bolinger, Seel, Warner, & Roberston, 2021).

By way of further comparison, a sample size of 12 solar facilities installed in 2020 with capacities from 100 to 500 MW had a median cost of around \$1,290/kW_{AC} (Bolinger, Seel, Warner, &

Roberston, 2021). These costs are consistent with the cost estimated for this Facility. The estimated cost of the Facility is not anticipated to be substantially different from other Facilities completed by the Applicant.

(3) Present Worth and Annualized Capital Costs

Capital costs include development costs, construction design and planning, equipment costs, and construction costs. These costs will be incurred within a year or two of start of construction. Therefore, a present worth analysis is essentially the same as the costs presented in the Socioeconomic Report. As alternative project areas and facilities were not considered in this Application, the capital cost information in this section is limited to the proposed Facility.

(C) OPERATION AND MAINTENANCE EXPENSES

(1) Estimated Annual Operation and Maintenance Expenses

Estimated annual operation and maintenance expenses are included in Part III, Section 2 of the confidential version of the Socioeconomic Report (Exhibit I), filed under seal with this Application.

(2) Operation and Maintenance Cost Comparisons

Operations and maintenance (O&M) costs are anticipated to be lower than the average costs complied by the Berkley Laboratory for similar solar energy facilities. The O&M costs for the Facility are not anticipated to be significantly different from other facilities the Applicant operates. A more detailed O&M cost discussion is included in Part III, Section 2 of the confidential version of the Socioeconomic Report (Exhibit I), filed under seal with this Application.

(3) Present Worth and Annualized Operation and Maintenance

The annual O&M costs will be subject to real and inflationary increases. Therefore, these costs are expected to increase with inflation after the first two years. Details are included in the confidential version of Exhibit I, filed under seal with this Application. Alternative project areas and facilities were not considered for this Application so the O&M cost information in this section is limited to the Facility.

(D) COST OF DELAYS

Monthly delay costs would depend on various factors. If the delay were to occur in the permitting stage, the losses would be associated with the time value of money resulting from a delay in the timing of revenue payments. These values can be subject to negotiation with potential counterparties and power purchase agreement discussions. If the delay were to occur during construction, costs would include lost construction days and those associated with idle crews and equipment. Attempting to prorate these costs would likely not provide an accurate estimate of the cost of delays, due to their highly specific and fluid nature.

(E) ECONOMIC IMPACT OF THE PROJECT

The information in this section was obtained from the Socioeconomic Report (Exhibit I), prepared by EDR. Local and statewide economic benefits are anticipated as a result of the proposed Facility. Solar power development can expand the local, regional, and statewide economies through direct and indirect ways, comparable to other commercial development projects. The income generated from the direct employment during construction and operation of the Project is used to purchase local goods and services, creating a ripple effect throughout the state and county.

The statewide economic impacts of the construction and operation of the Facility were quantified using the Job and Economic Development Impact (JEDI) photovoltaics model (version PV05.20.21).

(1) Construction and Operation Payroll

Results from the socioeconomic analysis are provided in Table 06-1, including construction and operation payroll estimates. For details of these estimates, see the Socioeconomic Report (Exhibit I) included with this Application.

Table 06-1. Estimated Statewide Jobs and Economic Impact Analysis

	Jobs (Full-Time Equivalent)	Earnings (Millions)	Output (Millions)
Construction			
Project Development and Onsite Labor Total	617.3	$40.2	$40.8
Construction Labor	*609.9*	*$39.5*	-
Construction Related Services	*7.4*	*$0.7*	-
Module & Supply Chain Impacts	71.8	$4.7	$14.5
Induced Impacts	131.0	$7.2	$22.6
Total Construction Impacts	**820.1**	**$52.1**	**$77.9**
Annual Operation			
Onsite Labor Impacts	8.9	$0.4	$0.4
Local Revenue & Supply Chain Impacts	4.4	$0.2	$0.7
Induced Impacts	15.2	$0.9	$2.9
Total Operation Impacts	**28.5**	**$1.6**	**$4.1**

Source: JEDI model (version PV05.20.21) (USDOE NREL, 2021). Cost values verified by the Applicant in October 2021.
Notes: Earnings and Output values are millions of dollars in 2021 dollars. Jobs are full-time equivalent for one year (1 FTE = 2,080 hours). Impact totals and subtotals are independently rounded, and therefore may not add up directly to the integers shown in this table.

Based upon JEDI model computations, it is anticipated that construction and development of the proposed Facility could directly generate an estimated 617.3 full-time equivalent (FTE) positions, with estimated earnings of approximately $40.2 million.

The impacts to module and supply chain industries could generate an additional 71.8 FTE jobs over the course of Facility construction. Additionally, construction could induce demand for 131.0 FTE jobs through the spending of additional household income. The total impact of 820.1 jobs could result in an estimated $52.1 million in earnings.

Impacts on local employment will primarily benefit those in the construction trades, including laborers and electricians. Facility construction will require workers with specialized skills, such as panel assemblers, specialized excavators, and electrical workers with high-voltage experience. It is anticipated that many of the highly specialized workers will be brought in from outside the area and only for the duration of construction.

Based on results of the JEDI model computations, the operation and maintenance of the proposed Facility is estimated to generate 8.9 direct FTE jobs with estimated annual earnings of approximately $0.4 million. Further payroll details are included in the confidential version of Exhibit I, filed under seal with this Application.

(2) Construction and Operation Employment

A demand for new jobs associated with the Facility will be created during both the initial construction period and the years in which the Facility is in operation. The money injected into the statewide economy through the creation of these jobs will have long-term, positive impacts on individuals and businesses in Ohio. The results shown in Exhibit I and discussed above describe the potential impact of the Facility on industries throughout the state, including the direct labor impacts that occur specifically within the local economy.

For the purposes of JEDI analysis, the Applicant assumed that approximately 50% of the construction workforce would be filled by workers domiciled in Ohio. It is likely that the actual percentage of Ohio-domiciled workers will be higher, based on the requirements of the Ohio Department of Development's Qualified Energy Project program, which requires 80% of workers to be domiciled in Ohio. In addition, other jobs will be created that play a supportive role. The increased economic activity from jobs and spending will have a ripple effect in the local economy, thereby creating demand for additional jobs in the area as the wages of local workers go towards supporting households and local businesses.

(3) Local Tax Revenues

The proposed Facility will have a significant positive impact on the local tax base, including local school districts and other taxing districts in the area. Taxing districts within the Facility footprint include Westfall Local School District, Deer Creek Township, Jackson Township, and Monroe Township.

Solar energy projects in Ohio can be exempted from tangible personal property and real property tax payments if they meet certain conditions to be certified as a Qualified Energy Project, enumerated in Section 5725.75 of the ORC. If an applicant is granted exemption from taxation for

any of the tax years 2011 through 2025, the Qualified Energy Project will be exempt from taxation for tax year 2026 and all ensuing years, as long as the property was placed into service before January 1, 2026, and pays a Payment In Lieu Of Taxes (PILOT) to the county treasurer. The model assumed that the Applicant would execute a PILOT agreement, which would require annual PILOT payments to Pickaway County. These funds could then be apportioned to Westfall Local School District, the Village of Williamsport, Deer Creek Township, Jackson Township, and Monroe Township. The maximum payment of $9,000/MW was assumed. Based on the maximum Facility capacity of 400 MW_{AC}, the PILOT amount will total approximately $3.6 million annually for the lifespan of the Facility. The Facility is expected to achieve commercial operation as early as 2025 and have a lifespan of approximately 40 years.

(4) Economic Impacts on Local Commercial and Industrial Activities

The proposed Facility will have a beneficial impact on the local economy. In addition to jobs and earnings, the construction of the Facility is expected to have a positive impact on economic output, a measurement of the value of goods and services produced and sold by backward-linked industries. Economic output provides a general measurement of the amount of profit earned by manufacturers, retailers, and service providers connected to a given project. The value of economic output associated with Facility construction is estimated in the Socioeconomic Report to be $77.9 million. Between workers' additional household income and industries' increased production, the impacts associated with the Facility are likely to be experienced throughout many different sectors of the statewide economy.

(F) PUBLIC RESPONSIBILITY

The Applicant has made significant efforts to engage the local community and address its concerns. These efforts are described below and further detailed in the Public Interaction Summary and Plan (Exhibit G).

(1) Public Interaction

Information about the Project has been shared through multiple conversations with local government and community representatives and organizations, including the Pickaway County commissioners; Pickaway County engineer; Deer Creek, Jackson, and Monroe Township trustees;

Mayor John Elliot of the Village of Williamsport; Westfall Local School representatives; Westfall Board of Education, Superintendent Jeff Sheets; Southwest Pickaway Fire District; Pickaway County Soil and Water Conservation District; Pickaway-Ross Career and Technology Center; Pickaway Senior Center; Pickaway Progress Partnership (P3); Pickaway County Park District; Pickaway County Ohio State University Extension; Pickaway County Board of Developmental Disabilities; Pickaway Community Action Agency; and Pickaway Works. The Applicant made significant efforts to address questions and concerns, provide information, and hear feedback from the community by visiting Project neighbors at their residences, inviting landowners to a local Project informational dinner, maintaining a presence in the community, and answering and responding to phone calls, emails, and comments through social media. Additional details are included in the Public Interaction Summary and Plan (Exhibit G).

Additionally, a web-based open house was held on December 1, 2021, and an in-person public information meeting was held on December 7, 2021. Approximately 100 community members attended the in-person public information meeting. The Applicant solicited written comments at the public information meeting. All comments cards received at the meeting are provided in Exhibit G.

The Applicant continues to provide general information about solar power and specific information about the proposed Facility, to community members, elected officials, the media, and local civic organizations. A website and Facebook page was developed that includes information about the Project, the permitting process, how to contact Project representatives, and copies of materials presented at the web-based public meeting. This website will be updated prior to construction and is expected to remain online during construction and initial operation of the Project.

In addition, notices will be distributed to affected property owners and tenants at least seven days prior to construction and again prior to operation. The notifications will include the following information:

- Description of the Project

- How to find the Project on the OPSB website
- How to find the Chipmunk Solar website
- Construction activity time restrictions
- Construction schedule
- Information about the complaint resolution process
- Contact information for personnel familiar with the Project

These public engagement efforts will ensure that local residents are aware of upcoming construction activity and have access to a toll-free number to contact the Project.

A Complaint Resolution Plan will be implemented to ensure that any complaints regarding Facility construction or operation are adequately investigated and resolved. Once construction begins, the Project phone number will be provided to township trustees, county commissioners, and the county engineer. This phone number will also be posted on signage at the laydown yard and within township and county offices and can be used for receiving and documenting complaints. Additional methods for filling complaints include in-person at the temporary construction office or a written letter to the Applicant. These complaints will be fully investigated by onsite staff. At least seven days prior to the start of construction, the Applicant will notify affected property owners and tenants of the approved Complaint Resolution Plan and other sources of information about the Facility. A Complaint Resolution Plan is attached as Exhibit J. Any updates to the Complaint Resolution Plan will be provided to OPSB Staff before construction begins.

(2) Liability Insurance

The Applicant will acquire and maintain throughout the term of the Facility, at its sole cost, insurance against claims and liability for personal injury, death, and property damage arising from operation of the Facility. The insurance policy or policies will insure the Applicant to the extent of their interests. The limits of the insurance policy described will, at a minimum, insure against claims of $1,000,000 per occurrence and $2,000,000 in the aggregate. In addition, the Applicant shall acquire and maintain throughout the construction operation, and decommissioning period, at its sole cost, Umbrella Coverage against claims and liability for personal injury, death, and property damage arising from the operation of the Facility. The limits of the excess liability insurance will,

at a minimum, insure against claims of $10,000,000 per occurrence and $10,000,000 in the aggregate.

(3) Roads and Bridges

Information provided in this section was obtained from the Route Evaluation Study and the Traffic Control Plan, both prepared by Hull & Associates, Inc. (Hull) and attached as Exhibit K. The Route Evaluation Study identifies delivery vehicles and probable delivery routes; evaluates existing conditions of roadways, bridges, and culverts; identifies potential impacts to transportation infrastructure; proposes mitigation measures for potential impacts; and lists transportation permits that could be required. The Traffic Control Plan identifies safety measures and strategies to manage traffic associated with the Project.

Construction/Delivery Vehicles

During the construction phase, impacts to local traffic are anticipated to be minimal due to the low volume of existing traffic near the Project Area, and because limited oversized vehicles will be required for Facility construction. Traffic will primarily consist of vehicles such as flatbed or tractor-trailer equipment delivery vehicles, multi-axle dump trucks, and conventional pickup trucks or automobiles for workers. Most vehicles will be of standard weight and dimensions. However, some overweight/oversize vehicles may be required for the delivery of switchgear or transformers. No delays to local traffic should be experienced except where the delivery vehicles may need to travel on narrow roadways less than two lanes in width. When delivery vehicles are travelling narrow roadways, or when there is an occasional oversized vehicle, traffic control will be utilized to manage local traffic. Deliveries of equipment will generally occur during regular business hours. For additional information regarding equipment and deliveries, refer to Sections 2.0 and 4.0 of the Route Evaluation Study and Section 8.0 of the Traffic Control Plan in Exhibit K.

Delivery Route

Delivery routes have not been finalized, but it is likely that the delivery of Facility components to the Project Area will be from the east by way of US 23 to US 22, located along the southern portion of the Project Area, and SR 56, which is adjacent to the northern portion of the Project Area. Once at the Project Area, state, county, township, and new private access pathways will be used to

deliver equipment and materials. For additional information regarding delivery routes, refer to Sections 2.0 and 4.0 of the Route Evaluation Study in Exhibit K. A map of probable delivery routes is included in Appendix A of Exhibit K.

Road Conditions

Hull obtained information from the Ohio Department of Transportation (ODOT) and conducted a field analysis of the existing conditions of roads, bridges, and culverts along potential transportation routes serving the Project Area. Roadway conditions along potential transportation routes to the Project Area were all categorized as good to fair. Eight bridges were identified along potential transportation routes to the Project Area. There were no posted load restrictions on the probable routes in the Project Area. A summary of pavement conditions and average daily traffic counts is included in Section 2.0 of the Route Evaluation Study. Additional details regarding road conditions and photographs documenting the current conditions of roadways along likely delivery routes are provided in Exhibit K.

No permanent overhead structures that would restrict clearance for oversized vehicles were identified along potential transportation routes to the Project Area. For overhead cables, the national standard for minimum clearance over roads is 15.5 feet, and cables cross over the studied routes in numerous locations. The height of the cables was not measured; however, there were no overhead cables that appeared to be obstructive. In the event an overhead cable presents an obstruction, utility providers can temporarily or permanently raise the cables and/or move the poles. Therefore, overhead cables are not considered a limiting factor for roadway use.

Impacts and Mitigation

Based on traffic counts and site observations, traffic volume is considered low in the Project Area. Hull identified three schools, Westfall Elementary School, Westfall Middle School, and Westfall High School, within 1 mile of the Project Area. Due to the rural nature of the area, many students are transported by bus, increasing traffic along Pherson Pike and SR 56. Impacts to school related traffic are expected to be minimal due to no planned road closings, likelihood of deliveries occurring at midday, and negligible use of wide load vehicles.

Hull also assessed agricultural operations in the area and determined that heavier use of roadways by local farmers during planting and harvest seasons will occur. Traffic will increase during construction of the Project; however, traffic disruptions will be limited because there are no planned road closings, most deliveries will occur during normal business hours, and equipment delivery will require minimal oversize loads. The Traffic Control Plan included in Exhibit K describes procedures used to manage traffic during construction. Prior to construction, the Traffic Control Plan will be updated with the final delivery routes and more detailed information that describes the procedures that will be used to manage traffic during construction. This plan will be shared with local law enforcement, schools, and nearby landowners.

During operation and maintenance of the Facility, there will be very little increase in traffic, as solar electric generation facilities require minimal staffing to accommodate daily operations and maintenance. There will be occasional maintenance vehicles, but additional traffic will be negligible.

Roadway Impacts and Mitigation

Prior to construction, the contractor will obtain all necessary permits from ODOT and the County Engineer. The Applicant expects to enter into a Road Use and Maintenance Agreement with the Pickaway County Engineer. This agreement will include information such as procedures for road repairs, temporary road or lane closures, road access restrictions, and traffic control. All of the local roads can be used for equipment delivery and construction traffic in their current conditions. However, construction traffic may cause accelerated pavement deterioration or stress on drainage structures (Exhibit K). The mitigation measures, as outlined in Section 3.3 of the Route Evaluation Study (Exhibit K) will be implemented as needed to avoid or minimize transportation-related impacts and to provide long-term improvement to the local road system.

(4) Transportation Permits

Prior to construction, the selected transportation provider will obtain the necessary permits from ODOT and the Pickaway County Engineer. The majority of vehicles used for the construction and operation of the Facility are expected to meet current standard dimensions and weight (see Table 2 of the Route Evaluation Study, Exhibit K). Therefore, few transportation-related permits are

anticipated. Special Hauling Permits may be required for vehicles that will transport switchgear or transformers for the switchyard and substation. Each oversize vehicle must receive an individual Special Hauling Permit from the ODOT Central Office for travel on state routes, as the specifications of the permit depend on the characteristics of the vehicle, its cargo, and duration of the delivery schedule. Additional permits will be required for driveway access along county and township roads, and crossings of roads and county-maintained ditches by overhead collection lines. These permits will be obtained from the Pickaway County Engineer or ODOT, as required.

In addition to coordinating with state and local authorities to obtain transportation permits, the Applicant will also coordinate with applicable authorities regarding necessary traffic control during the construction of the Facility, as needed. A Traffic Control Plan is included in Exhibit K. The plan will be finalized upon completion of the final Facility design prior to construction.

(5) Decommissioning

Utility-scale solar facilities typically have a life expectancy of approximately 40 years. If panels or ancillary equipment were to fail before the useful lifetime of the Facility, they will be replaced with operational components. However, if not upgraded, or if large solar arrays are non-operational for an extended period of time, such that there is no expectation of their returning to operation, they will be decommissioned. The Applicant's plan for decommissioning is comprised of two primary components: removal of Facility components/improvements and financial assurance. Each of these is described in additional detail below.

Removal of Facility Improvements

At the termination of the lease, the Applicant will dismantle and remove Facility components and above-ground property owned or installed by the Applicant. At the time of decommissioning, panels may be reused, recycled, or disposed of, as appropriate. Solar panel recycling is increasingly available. The Applicant's parent company, EDFR, is a member of the Solar Energy Industries Association (SEIA). Members of this association are "committed to responsible end-of-life management and are proactively developing collection and recycling processes for the solar industry" (SEIA, n.d.). Members receive access to vetted recycling vendors, exclusive pricing, and engagement in recycling process improvement efforts.

Below-ground structures, such as buried collection lines, will be removed to a minimum depth of 36 inches. Any underground infrastructure installed to a greater depth may remain in place. If necessary, the Applicant will re-grade disturbed areas, restoring slopes and contours to their pre-decommissioning grade, to the extent practical and in coordination with landowners. Upon request of the landowner, the Applicant may consider allowing roads, foundations, buildings, structures, or other improvements to remain in place. However, the Applicant will not be obligated to leave any components or improvements and will only consider such action so long as it does not violate any permits or legal requirements.

Financial Assurance

Thirty days prior to the start of construction, the Applicant will retain an independent and registered professional engineer to calculate the decommissioning for the Facility as outlined in the plan. Cost estimates will be recalculated prior to construction and every five years thereafter over the life of the Project. This calculation will include the total cost estimate for implementing the decommissioning plan, accounting for any unanticipated contingencies. The Applicant will post and maintain a performance bond in that amount at the start of commercial operation to pay for the removal of the Project. If a subsequent calculation of the decommissioning cost increases or decreases, the financial assurance instrument will be adjusted to a reflective amount.

The draft Decommissioning Plan is provided as Exhibit L. The plan includes an estimate of Facility-specific decommissioning costs, which will be updated prior to construction using the final engineering specifications for the Facility, and the updated plan will be provided to the OPSB prior to construction.

4906-4-07 COMPLIANCE WITH AIR, WATER, SOLID WASTE, AND AVIATION REGULATIONS

(A) PURPOSE

This section provides information regarding air, water, solid waste, and aviation regulations, including potential impacts of the proposed Facility, and any proposed mitigation measures.

(B) AIR

(1) Pre-construction

The Facility does not require any pre-construction air permits. Therefore, this section does not apply.

(2) Plans to Control Air Quality During Site Clearing and Construction

Best management practices (BMPs) will be utilized to minimize dust generated by construction activities. Exposed/disturbed areas will be minimized at any one time to the extent practicable and restored/stabilized per the requirements of Ohio EPA Permit No. OHC000005. During construction activities, water or a dust suppressant such as calcium carbonate will be applied on as needed basis to suppress dust on Facility access roads and on unpaved transportation routes. Any unanticipated construction related dust problems will be identified and immediately reported to the construction manager and contractor. Should any complaints regarding dust generation be received via the complaint resolution process, the Applicant will work to resolve them as quickly as practicable. All construction vehicles will be maintained in good working condition to minimize construction related emissions.

(3) Plans to Control Air Quality During Facility Operation

Similar to a wind farm, this Facility will operate without producing any air pollution. Therefore, this section is not applicable.

(C) WATER

(1) Pre-construction

Preconstruction conditions of area waterbodies are discussed in Section 4906-4-08(A)(4).

(a) *List of Required Permits to Install and Operate the Facility*

Prior to the start of construction, the Applicant will obtain the following water-related permits. These permits are discussed in more detail in the Ecological Assessment (Exhibit Q):

- The Ohio National Pollutant Discharge Elimination System (NPDES) construction storm water general permit, Ohio EPA Permit No. OHC000005
- An individual permit or nationwide permit under Section 404 of the Clean Water Act, (if necessary, as determined after final engineering)
- A Water Quality Certification from the Ohio EPA (if necessary, as determined after final engineering)
- An Ohio Isolated Wetland Permit (if necessary, as determined after final engineering)

(b) *Water Quality Map*

The Facility will not discharge water or waste into streams or waterbodies, nor will Facility operation require the use of water for cooling or any other activities. The Facility will add only small areas of impervious surface in the form of access roads, gravel pads to accommodate inverters, and the substation, which will be dispersed throughout the Project Area. These will have a negligible effect on surface water runoff and groundwater recharge. Therefore, measurable impacts on the quality of surrounding water resources are not anticipated. Since there are no bodies of water likely to be affected by the proposed Facility, this section is not applicable.

(c) *Description of Water Monitoring and Gauging Stations*

As described previously, no waterbodies will be significantly affected by the proposed Facility. Therefore, this section is not applicable.

(d) *Existing Water Quality of Receiving Stream*

The Facility will not discharge water or waste into streams or waterbodies. Therefore, there will be no receiving streams and this section is not applicable.

(e) *Permit Application Data*

The Facility will not discharge any water. Therefore, this section is not applicable.

(2) Construction

(a) *Water Quality Map*

As described above in Section 4906-4-07(C)(1)(b), measurable impacts on the quality of surrounding water resources are not anticipated. Since there are no bodies of water likely to be affected by the proposed Facility, this section is not applicable.

(b) *Quantity/Quality of Construction Runoff*

The proposed Facility will not result in wide-scale conversion of land to impervious surfaces. While PV panels themselves are impervious, they are disconnected from the ground surface so rain can run off the panel and fall onto the pervious underlying surface. Access roads, gravel pads to accommodate inverters, and the collector substation/POI are the only sources of impervious surfaces within the Facility and are anticipated to generate minimal runoff. Therefore, no significant changes to the rate, make-up, or volume of storm water runoff are anticipated.

Construction of the proposed Facility will have minimal, localized impacts to groundwater. Soil compaction from the use of construction equipment could limit the efficiency of surface water infiltration to groundwater. When soils are compressed, the pore spaces within the soil are decreased, which reduces water percolation. Construction of access roads will result in minor increases in storm water runoff that otherwise would have infiltrated into the ground at the road locations.

(c) *Mitigation*

As described above, construction of the proposed Facility is not anticipated to have any significant impacts on water quality. However, the following mitigation measures will be taken to ensure that impacts to groundwater, surface waters, and wetlands are avoided or minimized to the maximum extent practicable during Facility construction.

As mentioned in Section 4906-4-07(C)(1)(a), the Facility will require a NPDES Construction Storm Water General Permit (OHC000005) from the Ohio EPA. This permit is required for all construction sites disturbing 1.0 or more acres of ground. To obtain this permit, the Applicant will develop a

Storm Water Pollution Prevention Plan (SWPPP) and file a Notice of Intent (NOI) letter with the Ohio EPA at least 21 days prior to the commencement of construction activities.

The SWPPP will address all minimum components of the NPDES permits and conform to the specifications of the Rainwater and Land Development manual, which describes Ohio's standards for storm water management, land development, and urban stream protection (ODNR, 2006). The SWPPP will identify potential sources of pollution that may reasonably be expected to affect the quality of storm water discharges associated with construction activities. If applicable, the SWPPP will clearly identify all activities that will be authorized under Section 401 of the Clean Water Act and be subject to an anti-degradation review. The SWPPP will also describe and ensure the implementation of best management practices that reduce pollutants in storm water discharges during construction.

As described below in Section 4906-4-08(E)(2)(c), topsoil removal and de-compaction will occur in agricultural areas for construction of access roads and the collector substation. These practices, will also mitigate any potential impacts that soil compaction could have on infiltration of rain and snowmelt, thereby further reducing any potential impact to groundwater recharge. The construction footprint will be minimized by defining/delineating the work area in the field prior to construction and adhering to work area limits during construction. These measures will limit potential impacts of soil compression on normal infiltration rates.

On-site investigations were conducted to establish the locations of streams, ditches, and wetlands, and Facility components were sited to avoid impacts to these resources to the maximum extent practicable. Impacts to surface waters will be minimized through the use of HDD. Equipment restrictions, herbicide use restrictions, and erosion and sediment control measures will also be implemented to reduce adverse impacts to water quality, surface water hydrology, and aquatic organisms. In addition, vegetation clearing along stream banks and in wetland areas will be kept to an absolute minimum. For more information on mitigation measures to protect wetlands and surface water, see Section 4906-4-08(B)(2)(b).

(d) *Changes in Flow Patterns and Erosion*

As a result of the limited impacts discussed in Section 4906-4-07(C)(2)(b) and the mitigation measures discussed above in Section 4906-4-07(C)(2)(c), changes to flow patterns are not anticipated.

(e) *Equipment for Control of Effluents*

Facility operation will not involve the discharge of effluents into streams or water bodies. Therefore, this section is not applicable.

(3) Operation

(a) *Water Quality Map*

As described above in Section 4906-4-07(C)(1)(b), measurable impacts on the quality of surrounding water resources are not anticipated. Since there are no bodies of water likely to be affected by the proposed Facility, this section is not applicable.

(b) *Water Pollution Control Equipment and Treatment Processes*

The Facility will not require any water pollution control equipment or treatment processes. Therefore, this section is not applicable.

(c) *NPDES Permit Schedule*

As mentioned above, Facility construction will require an Ohio NPDES construction storm water general permit, Ohio EPA Permit No. OHC000005. The Applicant anticipates full and complete compliance with this permit. The Notice of Intent (NOI) and associated fee for Permit No. OHC000005 will be filed at least 21 days prior to commencement of construction activities.

(d) *Quantitative Flow Diagram*

As explained in the following sub-sections, flow diagram information is not applicable to the proposed Facility.

(i) Sewage

The proposed Facility will not generate any sewage.

(ii) Blow-down

This section is not applicable, as PV panels do not utilize blow-down equipment.

(iii) Chemical and Additive Processing

The Facility will not require the use of chemical and/or additive processing. Therefore, this section is not applicable.

(iv) Waste Water Processing

The Facility will not process or generate wastewater. Therefore, this section is not applicable.

(v) Run-off and Leachates

The Facility is not expected to generate any run-off or leachates. Therefore, this section is not applicable.

(vi) Oil/water Separators

This section is not applicable because the Facility will not utilize any oil/water separators.

(vii) Run-off from Soil and Other Surfaces

Following completion of construction, temporarily impacted areas will be stabilized and restored and revegetated. Facility operation will not result in further soil disturbance, aside from occasional repair activities. Therefore, this section is not applicable.

(e) *Water Conservation Practices*

As noted above in Section 4904-04-03, panel cleaning on the site is not expected since normal precipitation will clean the panels. Overall, there are water conservation benefits of solar energy, as compared to conventional coal and nuclear power. According to a study supported by the U.S. Department of Energy and the National Renewable Energy Laboratory, the total life cycle water use is lower for PV panels than other generation technologies (Meldrum, Nettles-Anderson, Heath, & Macknick, 2013).

(D) SOLID WASTE

(1) Pre-construction

(a) *Nature and Amount of Solid Waste*

One abandoned agricultural storage building is proposed to be removed for construction of the Facility. This structure overlaps two adjacent parcels belonging to a single participating landowner, who has granted permission for the removal as part of the lease agreement. In addition, one wetland within the solar array area contains identifiable debris including old wire fencing, metal containers, and an old refrigerator, which will be removed prior to construction. The Applicant is not aware of any other debris or solid waste within the Project Area that would require removal for Facility development.

(b) *Plans for Waste Removal*

Preconstruction waste, if discovered, will be collected and disposed of in dumpsters. A private contractor will empty the dumpsters on an as-needed basis and dispose of the refuse at a licensed solid waste disposal facility. Waste materials will be recycled when possible. All waste will be handled, managed, and disposed of in accordance with federal, state, and local regulations.

(2) Construction

(a) *Nature and Amounts of Construction Waste*

Facility construction will generate some solid waste, primarily plastic, wood, cardboard, and metal packing/packaging materials, construction scrap, and general refuse. Materials such as cardboard and metal packaging will be recycled at an appropriate facility.

(b) *Methods for Storage and Disposal of Construction Waste*

Construction waste will be collected from PV panel installation sites and other Facility work areas and disposed of in dumpsters located at the laydown yard. A private contractor will empty the dumpsters on an as-needed basis and dispose of the refuse at a licensed solid waste disposal facility. Waste materials will be recycled when possible. Used oil, used antifreeze, and universal waste, if any, will be handled, managed, and disposed of in accordance with federal, state, and local regulations.

(3) Operation

(a) *Nature and Amounts of Waste*

For the most part, Facility operation will not result in significant generation of debris or solid waste.

(b) *Methods for Storage and Disposal of Waste*

As described above, Facility operation will not result in generation of significant quantities of debris or solid waste. Therefore, this section is not applicable.

(4) Licenses and Permits

Facility operation will not require acquisition of waste generation, storage, treatment, transportation, and/or disposal licenses or permits.

(E) COMPLIANCE WITH AVIATION REGULATIONS

(1) Aviation Facilities List and Map

No public use airports, helicopter pads, or landing strips were identified within 5 miles of the Project Area. The proposed Facility is approximately 8.8 miles from the nearest public airport (Pickaway County Memorial Airport). No private use aviation facilities were identified within or adjacent to the Project Area.

(2) FAA Filing Status and Potential Conflicts

The Federal Aviation Administration (FAA) requires notification for objects affecting navigable airspace per 14 CFR Part 77. Any person/organization who intends to sponsor any of the following construction or alterations must notify the Administrator of the FAA:

- Any construction or alteration exceeding 200 ft above ground level
- Any construction or alteration
  - within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with at least one runway more than 3,200 feet.
  - within 10,000 feet of a public use or military airport which exceeds a 50:1 surface from any point on the runway of each airport with its longest runway no more than 3,200 feet.
  - within 5,000 feet of a public use heliport which exceeds a 25:1 surface

- Any highway, railroad or other traverse way whose prescribed adjusted height would exceed that above noted standards
- When requested by the FAA
- Any construction or alteration located on a public use airport or heliport regardless of height or location

Because the proposed Facility does not meet any of the above criteria, the FAA does not need to be notified. However, Chipmunk Solar submitted locations of the substation and PV panels around the perimeter of the Project to the FAA for evaluation. All locations received a determination of no hazard (Exhibit M). In addition to obstruction, reflectivity or glare is a potential concern from the FAA regarding solar facilities. Given that no airports, helicopter pads, or landing strips are located within 2 miles of the Facility, impacts from glare are not anticipated. More information on potential glare from the Project can be found in the Solar Glare Analysis Report (Exhibit N).

4906-4-08 HEALTH AND SAFETY, LAND USE, AND ECOLOGICAL INFORMATION

(A) HEALTH AND SAFETY

(1) Equipment Safety and Reliability

(a) *Major Public Safety Equipment*

To prevent unauthorized entrance to the Project Area, safety measures will be employed during the construction and operation phases. Signage will be placed around the Project Area during construction, warning of potential dangers within the site and discouraging entrance by the public. Personnel exposed to public vehicular traffic shall be provided with and shall wear warning vests or other suitable reflective or high-visibility garments. Similar signage will be placed at the Facility during operation, along with perimeter fencing. During operation, security at the Facility will be maintained by a combination of perimeter security fencing, controlled access gates, electronic security systems, and potentially remote monitoring. Though the public will not have open access to the Facility, once construction is complete, the Facility may be available for guided tours at specified times.

(b) *Equipment Reliability*

Equipment reliability is an important criterion when selecting solar equipment. The Applicant will only select reliable, certified equipment for all Facility components, including but not limited to PV modules, inverters, racking systems, wiring, and transformers. All equipment will follow applicable industry codes and standards (e.g., Institute of Electrical and Electronics Engineers [IEEE], National Electrical Code [NEC], National Electric Safety Code [NESC], American National Standards Institute [ANSI]).

Although PV panels contain metals and other chemicals, the risk of potential negative health and safety impacts from utility-scale photovoltaic installations is very low. Much of the concern centers around the use of cadmium compounds in the semiconductor thin film. Cadmium (Cd) is a heavy metal that, at high levels, can have adverse effects on human health. Cadmium occurs naturally in soil, and certain human activities can release it into the environment; common sources include the application of commercial fertilizers for agriculture and the combustion of coal for power

generation. Thin film PV modules often contain cadmium telluride (CdTe), which is a stable compound that is insoluble in water and has an extremely high chemical and thermal stability. These properties limit CdTe's bioavailability and potential for exposure compared to elemental cadmium (Virginia Center for Coal and Energy Research, 2019). PV panels actually contain very little CdTe; the word "thin" in the term "thin film modules" refers to the semiconductor layer. For example, the thin film modules produced by Ohio-manufacturer First Solar have a semiconductor layer just a few microns thick, equivalent to 3% of the thickness of a human hair (First Solar, 2020).

Under normal operation, PV modules do not pose any threat to human health or the environment, because the semiconductor layer is fully encapsulated within the module. PV panels meet rigorous long-term durability and reliability testing standards. Manufactured mostly from aluminum and shatter-resistant glass, PV panels are designed and tested for safety during breakage, fire, flooding, and hailstorms. Module breakage is rare and occurs in ~1% of thin film modules over 25 years, with more than one-third of breakages occurring during shipping and installation (Sinha, Balas, Krueger, & Wade, 2012).

During operation, breakages typically consist of impact fractures where the module remains encapsulated by a glass-laminate-glass design with bond strength on the order of ~50 kg/cm^2, which makes it very difficult to separate the front and back of the module (Virginia Center for Coal and Energy Research, 2019). The plastic ethylene-vinyl acetate (EVA) commonly provides the cell encapsulation. This same material is used between layers of tempered glass to give car windshields and hurricane windows their great strength. In the same way that a car windshield cracks but stays intact, the EVA layers in PV panels keep broken panels intact (North Carolina Clean Energy Technology Center, 2017). Furthermore, system performance monitoring and routine visual inspections of solar facilities ensure that damaged modules are detected and promptly removed from the field, thereby preventing long-term exposure to rain (Virginia Center for Coal and Energy Research, 2019).

(c) *Generation Equipment Manufacturer's Safety Standards and Setbacks*

Generation equipment manufacturer's safety standards will be provided after PV solar module technology has been selected for the Project. All Project equipment is expected to be compliant

with applicable UL, IEEE, NEC, NESC, and ANSI listings. The Applicant will follow all safety and setback requirements as outlined in the manufacturer product manuals and specifications. Internal setbacks, defined by the Applicant, are discussed in Section 4906-4-04(B)(2) of this Application.

(d) *Measures to Restrict Public Access*

The public does not have access to the private land on which the Facility will be located; therefore, access by the public would only occur by trespassing. To further restrict public access, a 7-foot chain-link fence with a 1-foot section of barbed wire at the top will be constructed around the substation and POI and welded wire and agricultural-style fencing with wooden posts or similar fencing will be installed around the PV panel area. During operation, security of the Project Area will be maintained by a combination of perimeter security fencing, controlled access gates, electronic surveillance systems, and potentially remote monitoring. Additionally, "No Trespassing" and "High Voltage Equipment" signs will be placed around the fence perimeter, warning the public of the potential hazards within the fenced Project Area.

(e) *Fire Protection, Safety, and Medical Emergency Plans*

The Applicant will meet with Pickaway County Emergency Management and local fire and EMS officials to discuss safety plans and training protocol. The Applicant will work with emergency personnel to ensure appropriate access. An Emergency Action Plan will be finalized based on coordination with Pickaway County Emergency Management and will be submitted to the OPSB prior to Facility construction.

(2) Probable Impacts due to Failures of Pollution Control Equipment

Solar panels generate electricity without combusting fuel or releasing pollutants into the atmosphere. Therefore, this section is not applicable.

(3) Noise

Resource Systems Group, Inc (RSG) conducted a Noise Assessment to evaluate potential noise impacts from the proposed Facility. The study examines current background sound levels, modeled results of sound levels from the Facility on nearby residences, and sound levels from construction activities. The Noise Assessment is included as Exhibit O.

(a) *Construction Noise Levels at the Nearest Property Boundary*

Construction activities associated with the Facility include road construction, substation construction, trenching, inverter installation, piling, and racking. No blasting is anticipated during Facility construction. Construction at any specific location will be relatively short in duration, with construction of the substation lasting the longest.

Table 08-1 below presents the maximum sound pressure levels for various pieces of construction equipment at a reference distance of 15 meters (50 feet) and a distance of 90 meters (300 feet), the approximate closest distance between a solar array, where racking and piling will take place, and a non-participating receptor. As shown in Table 08-1, sound levels from construction activities at 15 meters (50 feet) from a solar array are between 74 dBA (flatbed truck and crane) and 88 dBA (forklift). Sound levels from construction activities at 90 meters (300 feet) from a solar array are between 58 dBA (flatbed truck and crane) and 72 dBA (forklift). The Applicant currently anticipates that HDD will be used only in specific locations to cross wetlands, streams, roads, or wooded areas.

Table 08-1. Maximum Sound Levels from Construction Equipment

Equipment	Maximum Sound at 90 meters (300 feet) (dBA)	Maximum Sound at 15 meters (50 feet) (dBA)
Excavator	60	76
Dozer	64	80
Grader	63	79
Roller	66	82
Dump Truck	66	82
Concrete Mixing Truck	65	81
Concrete Pumper Truck	68	84
Flatbed Truck	58	74
Crane	58	74
Trencher	64	80
Plate Compactor	59	75
Forklift	72	88
Small Pile Driver	68	84
HDD	71	87
Skid Steer	63	79

(i) Blasting activities

No blasting activities are anticipated for the construction or operation of the Facility and thus no noise emissions are anticipated.

(ii) Operation of earth moving equipment

Earth moving equipment is not anticipated to exceed 72 dBA at 90 meters (300 feet), the approximate distance from the nearest solar array to the nearest non-participating residence. Equipment could occasionally operate nearer to sensitive receptors but should generally be limited to equipment travel between work areas or grading activities for short durations of time. As panel locations are anticipated to be set back at least 300 feet from non-participating sensitive receptors, and earth moving in any one area is completed quickly, noise impacts from earth moving equipment are anticipated to be negligible.

(iii) Driving of piles, rock breaking or hammering, and horizontal drilling

Pile driving is not anticipated to exceed 68 dBA at 90 meters (300 feet), the approximate distance from the nearest solar panel to a non-participating receptor.

HDD equipment is anticipated to be used at locations where collection lines cross wetlands and streams, woodlots, or public roads. Sound levels emitted by HDD equipment would be 87 dBA at 15 meters (50 feet) and 71 dBA at 90 meters (300 feet). Sound disturbance due to HDD activities during construction is expected to be minimal.

(iv) Erection of structures

Erection of structures such as PV panels, inverters, and substation will use equipment such as pickup trucks, man lifts, cranes, and flatbed trucks. None of these are anticipated to exceed 58 dBA at 90 meters (300 feet), the approximate distance from the nearest solar panel to the nearest non-participating sensitive receptors. As panels, inverters, and the substation are set back at least 300 feet from non-participating sensitive receptors, and structure assembly and construction activities in any one area are completed in a relatively short duration, noise impacts are anticipated to be negligible.

(v) Truck traffic

Truck traffic will be necessary to accommodate delivery of Facility components during construction. Deliveries will occur relatively infrequently during regular working hours. Once delivery trucks have reached the Project Area, transportation of materials will follow access routes that are primarily set back from non-participating sensitive receptors. Noise impacts from deliveries are anticipated to be negligible.

(vi) Installation of equipment

As noted above, the equipment utilized for the installation of the Facility primarily will be set back at least 300 feet from non-participating sensitive receptors. Additionally, this equipment will only operate for the duration necessary to complete installation in any one area of the Project. Therefore, the noise impacts associated with construction activities are anticipated to be negligible.

(b) *Operational Noise Levels at the Nearest Property Boundary*

(i) Operational noise from generation equipment

Sound propagation modeling was performed in accordance with the standard ISO 9613-2 "Acoustics – Attenuation of sound during propagation outdoors, Part 2: General Method of Calculation" and used the CadnaA modeling software. A total of 575 receivers were modeled at sensitive receptors within 1 mile of the Project Area, at a height of 4 meters (13 feet) above ground level.

Sound sources in the existing soundscape include geophonic and biogenic sounds, local traffic noise, aircraft overflights, agricultural activity and trains. The average daytime ambient continuous equivalent sound level (L_{eq}) across the Project Area was 41 dBA. The average nighttime L_{eq} across the Project Area was 36 dBA. The design threshold for non-participating sensitive receptors used in the assessment of the Project is the measured L_{eq} plus 5 dB for daytime and nighttime periods. This sets the daytime design threshold at 46 dBA and the nighttime design threshold at 41 dBA for operational sound.

Results from sound modeling at each receptor are included in Appendix C of the Noise Assessment (Exhibit O). The highest modeled Project sound level at a non-participating receptor is 38 dBA for daytime and nighttime, which is below the respective design thresholds of 46 dBA and 41 dBA, respectively, and only 2 dBA above the average nighttime L_{eq}. Non-participating residences are anticipated to experience an average sound level from operation of the Facility of 20 dBA and 18 dBA during daytime and nighttime, respectively. The highest modeled sound levels at a non-participating property boundary are 45 dBA and 44 dBA during daytime and nighttime operation, respectively.

During the day, the substation is anticipated to produce the greatest amount of sound due to the transformer and associated cooling fans. At night, inverters are anticipated to produce the greatest amount of sound. The highest sound level of 38 dBA during the day and at night would be experienced at a non-participating residence located in the northern portion of the Project Area, approximately 110 meters (360 feet) from the nearest inverter. The modeled sound level at this residence is due primarily to the adjacent inverters. Sound levels at this location are lower at night without operation of the trackers but the difference is less than 1 dB. The closest receptor to the Facility substation is modeled to have a daytime sound level of 37 dBA with the operation of the transformer cooling fans and a nighttime sound level of 33 dBA without the cooling fans.

Sound modeling for the Facility conservatively assumed inverters to be consistently operational throughout the night; however, constant operation of the inverters is not anticipated. Nighttime operation of the inverters is only anticipated if providing volt-ampere reactive support.

(ii) Processing equipment

The Facility does not include processing equipment; therefore, this section is not applicable.

(iii) Associated road traffic

As stated in Section 4906-4-06(F)(3), traffic levels during construction will not increase significantly. Noise produced from construction equipment and vehicles is provided in Table 08-1 above. Post-construction traffic will be associated with operations personnel traveling to and from the Project Area and will not be a significant source of noise.

(c) *Location of Noise-Sensitive Areas within One-Mile of the Facility*

Noise-sensitive receptors, which includes residences, churches, cemeteries, and schools within the vicinity of the Facility are mapped with sound level data in Figures 11 (daytime) and 12 (nighttime) of the Noise Assessment (Exhibit O). Minimum, maximum and average daytime and nightime sound levels at non-participating residences, participating residences, schools, churches, and cemeteries within one mile of the Facility are provided in Table 3 of the Noise Assessment. The maximum noise level is at a non-participating residence (38 dBA) during the daytime and nighttime hours of operation.

(d) *Mitigation of Noise Emissions during Construction and Operation*

General construction activities will occur between 7:00 AM to 7:00 PM, or until dusk when sunset occurs after 7:00 PM. Construction activities that do not involve noise increases above ambient levels at sensitive receptors may occur outside of daylight hours, when necessary. Impact pile driving may occur outside these hours if the noise impact at non-participating receptors is not greater than daytime ambient Leq plus 10 dBA. Construction equipment will minimize the use of back-up alarms to the greatest extent practicable. Additionally, staging areas will be located away from sensitive receptors to the greatest extent practicable.

Setbacks have been implemented into Facility design which will help to mitigate sound impacts from the Facility. The final Facility design will include a 300-foot setback from the PV panels to non-participating residences.

(e) *Pre-construction Background Noise Study*

Continuous background noise was measured at four locations representative of the Project Area between August 4 and August 11, 2021. Sound level meters were mounted at a height of 1.5 meters (5 feet) and covered with a 7-inch weather-resistant windscreen to reduce influence of wind-induced noise. Data was summarized into 10-minute, overall day, overall night, and full monitoring period length durations. Anomalous data, or data that provided false readings or artificially high levels, was omitted from the sound dataset. Such events include high wind speeds, precipitation and thunderstorms, sound equipment interactions, and other anomalous events.

Table 1 of the Noise Assessment includes the average (Leq), upper 10th percentile (L10), median (L50), and lower 10th percentile (L90) background noise levels. The average nighttime Leq across the Project Area is 36 dBA and the average daytime Leq across the Project Area is 41 dBA.

Though the OAC does not define sound level limits for solar projects, a design goal of 5 dBA over average Project Area ambient level (Leq) was established based on precedent set by the OPSB. Given the ambient levels referenced above, 5 dBA over those values results in a nighttime Leq of 41 and a daytime Leq of 46 dBA. Comparatively, the maximum modeled operational sound level at a non-participating receptor for nighttime and daytime was 38 dBA. These anticipated sound levels are within the 5 dBA above ambient design goal for the Facility. See Section 4.0 of the Noise Assessment for a detailed description of the background noise study.

(4) Water Impacts

(a) *Impacts to Public and Private Water Supplies from Construction and Operation*

Construction and operation of the Project are not expected to impact the local private and public water supplies. As a solar facility, the Project does not produce wastewater, and storm water impacts will be mitigated through implementation of BMPs.

(b) *Impacts to Public and Private Water Supplies from Pollution Control Equipment Failures*

Solar panels generate electricity without combusting fuel or releasing pollutants. Therefore, this section is not applicable.

(c) *Water Resources Map*

Figure 08-1 depicts data from ODNR on aquifers, water wells, and drinking water source protection areas within and near the Project Area. The Project is within the Prairie Ground Moraine Aquifer, Deer Creek Buried Valley Aquifer, New Holland Thin Upland Aquifer, and the Prairie Complex Aquifer. ODNR records indicate 15 potential water supply wells within the Project Area. All water supply wells will be located prior to construction and avoided during construction; therefore, no impacts to these wells are anticipated.

No drinking water source protection areas are in the Project Area. The Westfall Elementary School Public Water System drinking water source protection area is approximately 0.72 mile north of

the Project Area. However, it is not expected to be directly affected by the Facility, as discussed in more detail in the next section.

(d) *Compliance with Local Water Source Protection Plans*

The Ohio Source Water Assessment and Protection (SWAP) program is intended to protect Ohio's streams, rivers, lakes, reservoirs, and ground water that are used for public drinking water from future contamination. To protect drinking water supplies, a protection area is delineated based on the area that supplies water to the well or surface water intake, and a plan is developed to protect the area. The Ohio EPA and other regulatory agencies restrict specific activities within drinking water source protection areas. These activities include concentrated animal feeding operations; sanitary, industrial, or residual waste landfills; land application of biosolids; and voluntary brownfield cleanups. The restrictions typically apply to source protection areas relying on groundwater as their drinking water source. Construction of the proposed solar farm facility will not constitute an activity that would be restricted within either a surface water or groundwater source protection area.

The Westfall Elementary School Public Water System drinking water source protection area is approximately 0.72 mile north of the Project Area. Given the proposed Project activity (construction and operation of a solar facility), minimal water usage requirements, implementation of Project storm water BMPs, and avoidance of riparian areas, the Project will not impact this protection area.

(e) *Prospects of Floods in the Area*

The Project is within the Lower Scioto Watershed, except for the northeastern most corner of the Project Area which is in the Upper Scioto Watershed. Portions of the Project Area are within a Federal Emergency Management Agency (FEMA) designated 100-year floodplain, where Deer Creek and Dry Run Creek converge and flow through the area. The Preliminary Hydrologic and Hydraulic Analysis provides a discussion of the flood potential in the Project Area that indicates overall minimal water depths and flow velocities based on a 100-year flood event simulation. The highest velocities and flood depths would occur in the FEMA 100-year floodplain along the

previously mentioned creeks but are still categorized as minimal flood impacts. All PV arrays have been sited outside of the floodplain.

(5) Geological Features Map

The Preliminary Geotechnical Engineering Report, Exhibit C, includes several figures depicting existing geological features in the Project Area. Included in the attachments of Exhibit C are the bedrock contour map, bedrock geology map, and a map of oil and gas well locations.

(a) *Geologic Suitability*

The surface elevation within the Project Area is approximately 734 feet to 786 feet above mean sea level. Groundwater was observed during drilling from 7.5 feet to 13 feet below ground surface (bgs). Area bedrock is reported as primarily dolomite and shale. Carbonate bedrock (limestone or dolomite) has been observed in the area. While ODNR data defines the area to be within bedrock geology susceptible to karst, the Preliminary Geotechnical Engineering Report indicates no known karst features are mapped within 17 miles of the Project Area.

No active oil or gas wells were found within the Project Area, only dry or plugged wells, as recorded in ODNR public data on oil and gas wells. The nearest active oil well is southeast of the Project Area. There are no active or abandoned mines within the Project Area. The nearest mine to the Project Area is the active Westfall Aggregate & Materials, Inc. quarry. Located 1.3 miles to the northeast, the Westfall Quarry produces sand and gravel. A second mine, located 1.6 miles to the west, is the active Williamsport limestone quarry operated by The Melvin Stone Company, LLC.

Based on results of the test borings to 41.5 feet and general knowledge of area geology, the Preliminary Geotechnical Engineering Report classified the Project Area as Seismic Site Classification D. The National Earthquake Hazard Reduction Program (NEHRP) defines site classifications using properties determined by studies of the ground surface to a depth of 100 feet. These classifications are used to inform design recommendations. The NEHRP describes site classification D as "medium dense sand or stiff clay" and thus suitable for the Project.

(b) *Soil Suitability*

Existing Conditions

Terracon provided a general characterization of the subsurface conditions based upon their review of the subsurface exploration, laboratory data, and geologic setting. Soils in the Project Area are described in the Preliminary Hydrologic and Hydraulic Analysis as soils with slow to very slow rates of water infiltration or drainage. Land cover has historically been agricultural or barren land.

Site Suitability

Some grading is anticipated for construction of the Project. Where little to no grading is required, trees and brush can be selectively removed to preserve existing topsoil and grass. Terracon's analyses of the soils in the area indicate low corrosive potential.

(c) *Plans for Test Borings*

For the Preliminary Geotechnical Engineering Report, Terracon completed test borings within and in the vicinity of the Project Area. Boring logs included in the report attachments detail sampling depths, subsurface soil properties as classifications and descriptions, static water level before and after drilling if encountered, percent recovery, and rock quality descriptions. Abandonment methods for the borings are described as back fill with auger cuttings post completion, following standard procedure. If bedrock was encountered before boring termination, depth to bedrock was noted and described. Additional information on the boring logs can be found in Exhibit C.

(6) Wind Velocity

The 50-year wind hazard speed for the Project Area is 85 mph (Applied Technology Council, n.d.). Wind speeds correspond to an approximately 15% probability of exceedance in 50 years for the wind speeds shown on the Risk Category I ASCE 07-16 wind map. The tracker system and supporting structures are designed to withstand 3 second wind gusts of up to 100 mph under ASCE 07-16. In addition, the trackers under consideration have a stow mode for instances of high wind. The stow mode puts the PV panels in a horizontal position, which minimizes the wind loading on the structures.

The Facility will be engineered and installed to withstand typical high-wind occurrences. The Project will contract with a licensed structural engineering firm to complete the structural design

and engineering of the Facility. A licensed Ohio Professional Engineer (PE) will be the Engineer of Record (EOR) for the structural drawings and calculations and include PE stamping for the final issued for construction drawings. The EOR completes their design to comply with standard ASCE 07-16, taking into account design wind speed and operation design speed conditions for the specific site, pile load testing data, and geotechnical results/data for the Project.

The final Facility design will factor in wind speeds based on building code wind speed maps for the Project Area. The Facility will be designed using basic wind speeds for Risk Category I buildings with Exposure Category C, as provided in ASCE 07-16. The risk category of solar panels and structures of the Facility will fall under the definition of Risk Category I, as they are unoccupied structures. Other structures in Risk Category I include agricultural and storage facilities. All other risk categories include occupied structures. The site location and surrounding area conservatively falls in the definition of Exposure Category C, which is described as having a prevailing ground surface roughness of open terrain with scattered obstructions having heights generally less than 30 feet. The final Facility design will identify the necessary pile type and pile depth across the Project Area to account for site specific structural loading requirements and inputs, including wind. As such, there are no likely adverse consequences of high wind speeds.

Snowdrifts caused by solar panels was examined to determine potential impacts to adjacent roadways. Snowdrifts are deposits of snow accumulated by wind in unobstructed areas such as open agricultural fields. There is no evidence to suggest that solar arrays increase snowdrifts and/or snow accumulation on roadways. To the contrary, solar arrays may reduce snowdrifts. Because solar arrays are not complete obstructions (i.e., solar panels assembled on racks in multiple rows), solar arrays act similar to snow fencing by disrupting the snow patterns in areas that would otherwise be open fields.

(7) Blade Shear

Given the nature of the Facility, this section is not applicable.

(8) Ice Throw

Given the nature of the Facility, this section is not applicable.

(9) Shadow Flicker

Given the nature of the Facility, this section is not applicable.

(10) Radio and Television Reception

The Applicant is not aware of any research conducted to date that indicates utility-scale solar generation facilities interfere with radio or TV reception. PV arrays generate weak electromagnetic fields (EMFs) during the day that dissipate at short distances. These EMFs are "generated in the same extremely low frequency range as electrical appliances and wiring found in most homes and buildings" (Massachusetts Department of Energy Resources, 2015). In a study of three solar projects in Massachusetts, electric field levels measured along the boundary of each project did not exceed background levels (Guldberg, 2012). Accordingly, the Applicant does not anticipate interference with radio or television reception due to weak electric fields produced by the proposed solar facility.

(11) Radar Interference

As stated above, solar facilities produce weak EMF signals that quickly dissipate off-site. Additionally, according to the FAA, PV systems represent little risk of interfering with radar transmission due to their low profile (Lawrence & Magnotta, 2018). As a result, the Facility is not anticipated to interfere with radar communication systems.

(12) Navigable Airspace Interference

Due to the low profile of the Facility, where the tallest structure will be the lightning mast, with a height of no more than 65 feet, impacts to navigable airspace are not anticipated. See Section 4906-4-07(E) of this Application for a discussion of potential aviation impacts from glare.

(13) Microwave Communication Interference

Interference in microwave communication signals occurs when the line-of-sight between two microwave transmitters is blocked (Polisky, 2005). Microwave communication interference is a common concern in development of a wind facility due to the presence of large structures. However, components of this Facility are low in profile with the tallest structure being the overhead gen-tie line. Due to the lack of tall structures that may interfere with the line-of-sight of

microwave transmitters, interference with microwave communications from the Facility is not anticipated.

(B) ECOLOGICAL IMPACT

(1) Ecological Resources in the Project Area

In support of this Application, Hull & Associates, LLC (Hull) completed on-site ecological surveys and prepared an Ecological Assessment Report, attached hereto as Exhibit Q. The assessment includes a review of applicable literature and desktop information, summarizes consultations with the ODNR and the USFWS, provides results of field studies in the Project Area, and reports anticipated Facility impacts.

(a) *Open Spaces and Facility Map*

(i) The proposed Facility and Project Area boundary

The preliminary Facility layout and Project Area boundary are depicted in Exhibit A.

(ii) Undeveloped or abandoned land such as wood lots or vacant tracts of land subject to past or present surface mining activities

Undeveloped land is mapped in Figure 4 of Exhibit Q and includes mixed forest, open water, deciduous forest, herbaceous land, and evergreen forest. Undeveloped land data was derived from the USGS National Land Cover Database (NLCD).

(iii) Wildlife areas, nature preserves, and other conservation areas

One wildlife area, Charles O. Trump Wildlife Area, is adjacent to the northeastern Project Area. Additional information about this wildlife area is discussed below in section 4960-08-(D)(3). No other wildlife areas, nature preserves, or other conservation areas are located within 0.5 mile of the Project Area. Wildlife areas, nature preserves, and other conservation areas within 10 miles of the Project Area are illustrated in Figure 08-3.

(iv) Surface bodies of water

Surface waterbodies within the 0.5-mile study area are illustrated on Figure 10 of the Ecological Assessment (Exhibit Q).

(v) Highly erodible soils and steep slopes

Highly erodible and potentially-highly erodible soils, as well as steep slopes, are illustrated on Figure 8 of the Ecological Assessment (Exhibit Q).

(b) *Field Survey and Map of Vegetative Communities and Surface Waters within 100 Feet of Construction*

Vegetative Communities

Vegetative communities are characterized in Sections 3.5.1 and 4.1 of the Ecological Assessment (Exhibit Q). Vegetative communities were identified via a desktop analysis of aerial photography, and then later verified during field surveys. The primary communities identified include agricultural fields, woodlots, and maintained residential yards. Agricultural land, consisting primarily of corn and soybeans, is the predominant land cover in the Project Area. Developed land is present in low densities and consists of residences with lawns or landscaped areas, driveways, and roads. A map of the land cover is included as Figure 4 of the Ecological Assessment (Exhibit Q).

Wetland and Stream Delineations

Surface water delineations were completed within the Project Area. A Surface Water Delineation Report is provided as Attachment C to the Ecological Assessment (Exhibit Q). A map of delineated wetlands and streams is included as Figure 10 in the Ecological Assessment.

A total of 3 palustrine forested (PFO) wetlands, 23 palustrine emergent (PEM) wetlands, and three palustrine scrub-shrub (PSS) wetlands were identified and delineated within the Project Area. Forty-two of the 59 delineated wetlands could potentially be jurisdictional, based on potential hydrologic connectivity to a potential Waters of the U.S. (WOTUS). The remaining 17 delineated wetlands are non-adjacent to permanent waters and are therefore likely non-jurisdictional under current federal guidelines. However, isolated wetlands are regulated in Ohio, and it is expected that the one potentially isolated wetland proposed to be impacted would fall under the jurisdiction of the state of Ohio. Additionally, a total of 19 stream segments and five ditches were identified and delineated within the Project Area. There is one named water body, Dunlap Pond Number 1, within the Project Area; however, this waterbody will not be impacted by construction or operation of the Facility.

The Applicant has designed the Facility layout to avoid wetlands to the extent practicable, and proposes to use HDD drilling techniques during Project construction to avoid impacts to all but one wetland and all streams.

(c) *Literature Review of Plant and Animal Life within 0.25 Mile of Construction*

A literature review of plant and animal life within 0.25 mile of the Project Area is included in the Ecological Assessment Report (Exhibit Q). This information is summarized below.

Plants

Aside from crops, there are no known plant species of commercial or recreational value within 0.25 mile of the Project Area. The Applicant consulted with the ODNR regarding state and federally listed plant species that may occur in the vicinity of the Project Area. The ODNR indicated that there are records of one state endangered plant (Leiberg's panic grass [*Dichanthelium leibergii*]) and one state potentially threatened plant (inland rush [*Juncus interior*]) at or within a 1-mile radius of the Project Area. No rare or protected plant species were identified during the field surveys (Exhibit Q).

Animals

The most frequently observed wildlife in the agricultural portions of the Project Area were common bird species, including red-tailed hawk (*Buteo jamaicensis*), common grackle (*Quiscalus quiscula*), European starling (*Sturnus vulgaris*), mourning dove (*Zenaida macroura*), pigeon (*Columba livia*), and American crow (*Corvus brachyrhynchos*).

Most of the observations of native species made during the field survey occurred within non-maintained edge habitat and forested areas. Species observed within non-maintained edge habitat included white-tailed deer (*Odocoileus virginianus*), eastern coyote (*Canis latrans*), groundhog (*Marmota monax*), great blue heron (*Ardea herodias*), Canada goose (*Branta canadensis*), and house sparrow (*Passer domesticus*).

Species observed within the forested portions of the Project Area included fox squirrel (*Sciurus niger*), white-tailed deer, eastern gray squirrel (*Sciurus carolinensis*), eastern chipmunk (*Tamias striatus*), evidence of coyote, evidence of raccoon (*Procyon lotor*), green heron (*Butorides*

virescens), American goldfinch (*Spinus tristis*), northern cardinal (*Cardinalis cardinalis*), wood duck (*Aix sponsa*), mallard duck (*Anas platyrhynchos*), unidentified turtle species, monarch butterfly (*Danaus plexippus*), spice bush butterfly (*Papilio troilus*), tiger swallow-tail butterfly (*Papilio glaucus*), various bumblebees (*Bombus impatiens, B. griseocollis, B. bimaculatus, and B. fervidus*), marbled orb weaver (*Araneus marmoreus*), daddy long legs (*Opiliones* spp.), and mosquitoes (*Culicinae* spp.).

Species observed within Deer Creek and Dry Run include smallmouth bass (*Micropterus dolomieu*), largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), river chub (*Nocomis micropogon*), and unidentified mussel species.

Federally Listed Species

Correspondence from the USFWS indicated that the Project Area is within the vicinity of multiple known location records for the Indiana bat (*Myotis sodalis*; endangered) and northern long-eared bat (*Myotis septentrionalis*; threatened). In addition, the USFWS noted that the Project Area is within the known range of the recently de-listed running buffalo clover (*Trifolium stoloniferum*, species of concern). The response from the USFWS indicated that due to the project, type, size, and location, they do not anticipate adverse effects to any other federally endangered, threatened, proposed, or candidate species (Exhibit Q).

Potential roost trees that could be used by Indiana and northern long-eared bats were identified in woodlot areas during the field survey. Subsurface openings that could provide winter hibernaculum for bats were not observed within the Project Area. To avoid direct impacts to these species, the preliminary Facility layout avoids the woodlot areas to the extent practicable, and necessary tree clearing will adhere to the recommended dates of October 1 through March 31. Impacts to these species during operation of the Facility are not expected.

USFWS correspondence also indicated the presence of a bald eagle (*Haliaeetus leucocephalus*) nest within the Project Area. To avoid take of bald eagles, USFWS recommends that no tree clearing occur within 660 feet of a bald eagle nest or within any woodlot supporting a nest tree, and that work within 660 feet of a nest or within the direct line-of-site of a nest be restricted from

January 15 through July 31. The bald eagle nest was not observed during multiple field surveys of the identified vicinity, review of recent, high-resolution aerial imagery, and coordination with the USFWS and ODNR. However, if a bald eagle nest is located within the Project Area any time before or during construction, applicable state and agency guidelines will be adhered to.

State Listed Species

Correspondence from the ODNR indicated that records of 19 state-listed rare, threatened, or endangered species were found within a 1-mile radius of the Project Area, including two plants (Leiberg's panic grass and inland rush; discussed above), 12 mussels (elktoe [*Alasmidonta marginata*], purple wartyback [*Cyclonaias tuberculate*], elephant-ear [*Elliptio crassidens*], northern riffleshell [*Epioblasma rangiana*], snuffbox [*Epioblasma triquetra*], wavy-rayed lampmussel [*Lampsilis fasciola*], round pigtoe [*Pleurobema sintoxia*], kidneyshell [*Ptychobranchus fasciolaris*], rabbitsfoot [*Theliderma cylindrica*], fawnsfoot [*Truncilla donaciformis*], deertoe [*Truncilla truncata*], rayed bean [*Villosa fabalis*]), four fish (western creek chubsucker [*Erimyzon claviformis*], spotted darter [*Etheostoma maculatum*], Tippecanoe darter [*Etheostoma tippecanoe*], northern madtom [*Noturus stigmosus*]), and one mammal (Indiana bat; discussed above). Because no in-water work is proposed in perennial streams, the Project is not likely to impact aquatic species, including rare, threatened, and endangered fish and mussels. However, if in-water work becomes necessary, no in-water work in perennial streams will be conducted from March 15 through June 30 to reduce the potential for impacts to indigenous aquatic species and their habitats, as recommended by ODNR.

Game Species

Common game species that are typically found in Ohio could occur in the Project Area. These species are mobile and therefore incidental injury or mortality to these species are not anticipated.

(d) *Results of Field Surveys for Plant and Animal Life Identified in Literature Review*

No additional wildlife surveys are anticipated for the Facility. Based on adherence to agency avoidance and mitigation guidelines, consultation with the ODNR and USFWS did not result in the suggestion of additional surveys. Those guidelines, along with other avoidance and minimization techniques, are provided below in Section 4906-4-08(B)(2)(b).

(e) *Summary of Additional Ecological Impact Studies*

All ecological impact studies are discussed above in Section 4906-4-08(B)(1)(b) and (d).

(2) Construction Impacts

(a) *Estimation of Impact of Construction on Undeveloped Areas, Plants, and Animals*

Because the Facility is located entirely on leased private land, there will be no construction-related impacts to recreational areas, parks, wildlife areas, nature preserves, or other conservation areas. Potential impacts to undeveloped areas, plants, and animals may occur during construction as a result of the installation of PV panels, access roads, and electrical interconnects; development and use of the laydown yards; and the construction of the collection substation. Additional details, including acreage of potential impacts, are included in the Ecological Assessment (Exhibit Q).

Impacts to Plants

Construction activities that may result in impacts to vegetation include site preparation, earth-moving, excavation, and backfilling activities associated with construction of the laydown yards, access roads, substation, and buried electrical interconnection cables. As described in the Ecological Assessment, the majority of the plant communities that will be impacted will be agricultural crops (corn and soybeans). It is not anticipated that any native plant species occurring in the Project Area will be significantly reduced in abundance as a result of construction activities.

Impacts to Wildlife Species

Construction-related impacts to wildlife are anticipated to be very limited. Based on the studies conducted to date, none of the construction-related impacts will be significant enough to affect local populations of any resident or migratory wildlife species. Potential impacts from construction are described below.

Incidental Injury and Mortality: Because most Facility components are sited in active agricultural land that provides limited wildlife habitat, and which currently and historically experiences frequent agricultural-related disturbances, such impacts are anticipated to be very minor.

Siltation and Sedimentation: To prevent adverse effects to water quality and aquatic habitat during construction, runoff will be managed under a NPDES construction storm water permit and the

associated SWPPP. An erosion and sediment control plan will be developed prior to construction that will use appropriate runoff diversion and collection devices. Also, because the majority of Facility components are being sited in active agricultural land, soil disturbance or exposure due to Facility construction will generally occur in areas already subject to regular plowing, tilling, and harvesting activities. Therefore, impacts are anticipated to be very minor.

Habitat Loss: The Facility will be built on or adjacent to agricultural land, which generally provides habitat for only a small number of wildlife species. In addition, most of these areas are already subject to periodic disturbance in the form of mowing, plowing, and harvesting. Forested communities will experience limited construction-related disturbance.

Forest Fragmentation: As stated above, impacts to forest habitat will be avoided.

Disturbance/Displacement: Some wildlife displacement may also occur due to increased noise and human activity as a result of Facility construction. The significance of this impact will vary by species and the seasonal timing of construction activities. Because most of the Facility components will be placed on agricultural land, species utilizing those habitats are most likely to be temporarily disturbed or displaced by Facility construction. As species utilizing this land experience disturbance from agricultural activities, impacts from the construction of the Facility are anticipated to be negligible.

Impacts to Upland Habitat

Tree clearing is discussed in the Ecological Assessment Report (Exhibit Q). The Project will have limited environmental impacts, in part due to the minimization of potential impacts to habitats that may support significant wildlife by avoiding woodlots. The vast majority of upland impacts will be to agricultural areas, which provide little habitat for floral and faunal communities. The Vegetation Management Plan, included as Exhibit D to this Application, discusses measures to minimize clearing of woody vegetation.

Impacts to Wetland and Surface Water Habitats

The Applicant has designed the Facility layout to avoid wetlands to the extent practicable. A total of approximately 0.25 acre of one delineated wetland would be impacted by the placement of

solar array piles. Wetland HD is a potentially isolated, Category 1, emergent wetland located in the middle of a tilled agricultural field. Wetland data sheets indicate that this wetland exhibits extensive coverage by invasive species, and that it contains identifiable debris including old wire fencing, metal containers, and an old refrigerator. Interviews with the landowner and historical imagery indicate that the area was a former hog wallow that became deeper and wider over time.

All other surface water resources will be avoided by the Project. Construction boring methodologies will be used for collection line installation to avoid impacts to all other wetlands, as well as to all streams and potentially jurisdictional ditches. No permanent or temporary impacts to streams are currently proposed.

(b) *Description of Short-term and Long-term Mitigation Procedures*

(i) Site restoration and stabilization of disturbed soils

Restoration activities are anticipated to include the following:

- Underground electrical interconnect routes will be restored to pre-construction contours as necessary and allowed to regenerate naturally.
- Disturbed soils within the Facility's fence line will be re-seeded with a low-growth, native or naturalized seed mix to stabilize exposed soils and control sedimentation and erosion.
- The laydown yards will be removed post-construction, including gravel removal and soil decompaction, and revegetated.

All removed material and debris will be stockpiled in designated locations. Each stockpile will be transported off-site to either a recycling center, when feasible, or to an approved landfill depending on the material type. Debris will be broken down into manageable sizes to aid in transportation.

The objectives of reclamation and revegetation are to return the disturbed areas to approximately pre-construction condition. This involves the treatment of soil as necessary to preserve approximate pre-construction capability and the stabilization of the work surface in a manner consistent with the initial land use.

(ii) Frac out contingency plan

Facility construction will include the use of trenchless excavation methods known as HDD. This widely used technique accomplishes the installation of buried utilities with minimal impact, by routing the utility under a sensitive feature such as a stream or wetland. HDD operations have the potential to inadvertently release drilling fluids into the surface environment. This inadvertent release is referred to as a "frac out" and occurs due to pressurization of the drill hole beyond the containment capability of the overburden soil material, or through fractured bedrock into the surrounding rock. The HDD procedure uses a bentonite slurry, a fine clay material, as a drilling lubricant. Although bentonite is non-toxic and non-hazardous, it has the potential to adversely impact aquatic species if released into waterbodies. Seepage of drilling fluid is most likely to occur near the bore entry and exit points where the drill head is shallow. Frac outs can occur, however, in any location along a directional bore.

An Inadvertent Release of Drilling Fluid Contingency Plan is included as Attachment D to the Ecological Assessment (Exhibit Q) and sets forth response measures for inadvertent returns and containment methods for various locations (e.g., inland, wetlands, or streams), notification procedures, and clean-up activities.

(iii) Methods to demarcate surface waters and wetlands during construction

The boundaries of jurisdictional streams and wetlands within and immediately adjacent to the construction limits of disturbance will be demarcated with highly visible flagging, staking, or fencing prior to construction. These sensitive areas will also be depicted on construction drawings. All contractors and subcontractors working on-site will be provided with training to understand the significance of the types of flagging used, and the importance of staying within defined limits of work areas, especially in and adjacent to marked sensitive resource areas such as wetlands.

(iv) Inspection procedures for erosion control measures

The Applicant will seek coverage for the Facility under the Ohio EPA construction stormwater general NPDES permit. The NPDES permit requires development of a SWPPP for erosion control and stormwater management.

To avoid and minimize impacts to aquatic resources resulting from construction-related siltation and sedimentation, an approved SWPPP will be implemented. To protect surface waters, wetlands, groundwater, and stormwater quality, erosion and sediment control measures will be installed and maintained throughout site development. Such measures might include silt fence, hay bales, and/or temporary siltation basins. Examples of best management practices (BMPs) for erosion and sedimentation control are provided in Exhibit U. The location of these features will be detailed on the construction drawings, approved by the Ohio EPA as part of the NPDES review, and reviewed by the contractor prior to construction.

Erosion and sediment control measures will be inspected by a qualified individual throughout the construction phase to assure that they are functioning properly until completion of all restoration work. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Locations where vehicles enter or exit the site shall be inspected for evidence of off-site vehicle tracking. Inspections will be conducted at least once every seven calendar days, and within 24 hours after any storm event with 0.5 inch or greater of rain. This inspection frequency may be reduced to once every month if the entire site is temporarily stabilized and runoff is unlikely due to weather conditions such as snow, ice, or frozen ground.

Following each inspection, the qualified inspector will complete and sign a checklist and inspection report. At a minimum, the inspection report shall include:

- the inspection date;
- names, titles, and qualifications of personnel making the inspection;
- weather information for the period since the last inspection (or since commencement of construction activity if the first inspection) including a best estimate of the beginning of each storm event, duration of each storm event, approximate amount of rainfall for each storm event (in inches), and whether any discharges occurred;
- weather information and a description of any discharges occurring at the time of the inspection;
- locations of any BMPs that need to be maintained; and
- any corrective actions recommended.

For three years following the submittal of a notice of termination form, the Applicant will maintain a record summarizing the results of the SWPPP inspections described above, including the names(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the SWPPP, and a signed certification as to whether the Facility is in compliance with the SWPPP.

As described above, a qualified individual will also inspect these features throughout the construction phase to assure that they are functioning properly until completion of all restoration work.

(v) Measures to protect vegetation

Protection of vegetation will primarily be accomplished through careful site planning. Nearly all Facility components have been sited on agricultural land, thus avoiding significant impacts to successional grassland, shrubland, forested, and wetland areas. In addition to siting, measures to protect vegetation include: identifying sensitive areas such as streams and ditches where no disturbance or vehicular activities will be allowed; limiting areas of disturbance to the smallest size practicable; preserving mature trees to the maximum extent practicable; educating the construction workforce on respecting and adhering to the physical boundaries of off-limit areas; employing BMPs during construction; and maintaining a clean work area within the designated construction sites. Following construction activities, temporarily disturbed areas will be seeded to reestablish vegetative cover in these areas. Other than in active agricultural fields, native species will be allowed to revegetate all temporarily disturbed areas.

Vegetation/Seed Mix Selection

Species selection for site revegetation will be based on an evaluation of available state, regional and local resources, as well as a site inventory of natural and physical resources. Resources also considered to guide species selection alternatives will include Level III Ohio Eco-Region mapping, the Ohio Pollinator Habitat Initiative, United States Department of Agriculture Natural Resources Conservation Service (USDA NRCS) soil survey data, site topographic survey and GIS mapping, and U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) mapping.

Vegetation/Seed Mix Type

The seed mix to be utilized will be compatible for use within the solar panel arrays and all operational areas of the Facility site. Any proposed modifications or exceptions to the recommended seed mix must be submitted by the Contractor in writing to the Owner. All exceptions must be authorized in writing in accordance with Plan procedures and prior to installation.

Seed Source and Certification

A reasonable effort will be made to procure seed stock of regionally local genetic provenance. Species must be true to scientific name. Further details regarding seeding and vegetation establishment are provided in the Vegetation Management Plan (Exhibit D).

(vi) Options for clearing methods and disposing of brush

Although the Facility is located almost exclusively on agricultural land, some vegetative and tree clearing may be required. Trees cleared from the work area will be cut into logs and either left for the landowner or removed, while limbs and brush will be buried, chipped, or otherwise disposed of as directed by the landowner and as allowed under federal, state, and local regulations. Using these methods avoids the need for and movement of heavy vehicles, further limiting the impact of construction at the Project Area.

(vii) Avoidance measures for state or federally listed and protected species and their habitats

The Facility has been sited to avoid most areas that provide quality habitat, including woodlots, wetlands, and streams. Aside from a 0.25-acre impact to one low quality wetland, there will be no impacts to jurisdictional wetlands, streams, or ditches, thus avoiding impacts to state and federally listed aquatic species and their habitats. This will be accomplished through the use of low-impact methods, such as HDD, for installation of buried collection lines, and through the use of BMPs, as previously discussed, to reduce risks of erosion and sedimentation. Required tree clearing will be conducted between October 1 and March 31, per USFWS guidelines, to avoid potential impacts to Indiana and northern long-eared bats. If a bald eagle nest is located before or during construction, no tree clearing or other work will occur from January 15 through July 31 within 660 feet of the nest, within any woodlot supporting a nest tree, or within the direct line-of-site of the

nest. As a result of these avoidance measures, impacts to state and federally listed species and their habitats are not anticipated.

(3) Operational Impacts

(a) *Estimation of Impact of Operation on Undeveloped Areas, Plants, and Animals*

Aside from minor disturbances associated with routine maintenance and occasional repair activities, no additional disturbance to plants, vegetative communities, wetlands, or surface waters are anticipated from Facility operation. As previously indicated, the Facility is located entirely on leased private land. Therefore, the Facility will not result in physical disturbance or impacts to recreational areas, parks, wildlife areas, nature preserves, or other conservation areas as identified in Section 4906-4-08(B)(1)(a).

(b) *Procedures to Avoid/Minimize/Mitigate Short-term and Long-term Operational Impacts*

The Applicant has sited the Facility to minimize impacts to wetlands and avoid impacts to streams. Once operational, the Facility is not anticipated to result in additional impacts to wetlands and streams.

Forested areas that may contain mature trees will be avoided to the maximum extent practicable, minimizing impacts of forest fragmentation and suitable wildlife habitat. While additional tree clearing is not expected during the operational phase of the Facility, if required due to shading, tree clearing activities will be conducted between October 1 and March 31 to avoid impacts to bat species. Additional vegetation management practices may include the application of herbicide, as necessary, around fence lines or to control noxious weeds. Applications will be made by a licensed professional and in accordance with manufacturer instructions. A Vegetation Management Plan is included as Exhibit D.

During the Project operation phase, site vegetation will be managed by mowing and occasional herbicide usage as necessary. Mowing frequency will vary depending on time of year and rainfall. The primary objective of mowing is to maintain the vegetation to avoid panel shading. Onsite vegetation will be monitored for the establishment of noxious weeds. If noxious weeds are identified within the Project's fenceline during operation, herbicide may be used. Herbicide use

will be conducted by a licensed professional and will be applied in accordance with manufacturer instructions. Project site vegetation maintenance will be conducted by an experienced contractor with all required certifications to perform the work described above. Regular vegetation maintenance will ensure that the Project functions well and has pleasing aesthetics.

Erosion and sediment control features such as silt fencing will be installed, topsoil will be stripped and stored, and gravel will be installed around each concrete foundation. After site preparation, permanent erosion and sediment control features will be installed and topsoil will be replaced and seeded.

Reseeding will be done with a low-growth, native or naturalized grass seed mix under the solar array and a pollinator-friendly seed mix in select areas outside of the array and within the Project perimeter fence line. Native species that have germinated naturally will be retained. The seeded areas will be uniform, free of ruts, erosion, and/or bare and dead spots. Prior to any area being seeded, Chipmunk Solar will require seed mix approval. A visual inspection will be performed to ensure that the disturbed soil has been properly reestablished.

Direct impacts to wildlife from an operational solar facility in Ohio are not expected. Solar facilities do not have the same collision risk for avian and bat species as wind facilities due to their low profile and lack of rapidly moving parts. Because no significant operational impacts to these resources are anticipated, no mitigation measures are proposed.

(c) *Post-Construction Monitoring Plans*

The Applicant has no plans for post-construction monitoring of wildlife impacts because no significant impacts from the construction or operation of the Facility are anticipated. The Facility does not include any rapidly moving parts and will not result in environmental discharges during operation that may impact wildlife and their habitat.

(C) LAND USE AND COMMUNITY DEVELOPMENT

(1) Land Use

(a) *Land Use Map*

Land uses within 1 mile of the Facility are shown on Figure 08-2. Among other information, Figure 08-2 shows the following features:

(i) The proposed Facility

The proposed Facility layout includes PV panels, collection lines, access roads, inverters, laydown yard, fenceline, substation, and gen-tie line.

(ii) Land use

Land use was mapped within 1 mile of the Project Area. A majority of land use is agricultural, with some residential parcels and more diverse land use near the Village of Williamsport.

(iii) Structures

Structures within 1 mile of the Project Area primarily include residences and commercial buildings. Additional structures include industrial buildings, churches, schools, and public service facilities, primarily associated with the Village of Williamsport. Structures were digitized based on aerial imagery and confirmed through existing databases and field review, and include residences and other buildings people congregate for extended periods of time.

(iv) Incorporated areas and population centers

Only one population center, the Village of Williamsport, is located within 1 mile of the Facility.

(b) *Structures Table*

(i) Structures and Property Lines within 1,500 Feet of PV Panels

Table 08-2 identifies structures within 1,500 feet of a PV panel and the lease status of the underlying parcel (i.e., participating or non-participating). There are 65 structures within 1,500 feet of a PV panel.

Table 08-2. Structures Within 1,500 Feet of a PV Panel

Structure Type	Distance to PV Panel (Feet)	Lease Status of Underlying Parcel[1]
Residential	237	Participating
Residential	261	Participating
Residential	281	Participating
Residential	350	Participating
Residential	368	Participating
Residential	447	Participating
Residential	323	Non-Participating
Residential	323	Non-Participating
Residential	325	Non-Participating
Residential	327	Non-Participating
Residential	328	Non-Participating
Residential	330	Non-Participating
Residential	335	Non-Participating
Residential	339	Non-Participating
Residential	344	Non-Participating
Residential	346	Non-Participating
Residential	347	Non-Participating
Residential	347	Non-Participating
Residential	361	Non-Participating
Residential	387	Non-Participating
Residential	394	Non-Participating
Residential	424	Non-Participating
Residential	425	Non-Participating
Residential	449	Non-Participating
Residential	450	Non-Participating
Residential	471	Non-Participating
Residential	482	Non-Participating
Residential	503	Non-Participating
Residential	504	Non-Participating
Residential	505	Non-Participating
Residential	516	Non-Participating
Residential	534	Non-Participating
Residential	536	Non-Participating
Residential	538	Non-Participating
Residential	540	Non-Participating
Residential	577	Non-Participating
Residential	579	Non-Participating
Residential	583	Non-Participating
Residential	638	Non-Participating
Residential	713	Non-Participating
Residential	720	Non-Participating
Residential	728	Non-Participating
Residential	781	Non-Participating
Residential	791	Non-Participating
Residential	810	Non-Participating
Residential	880	Non-Participating
Exempt	892	Non-Participating
Residential	895	Non-Participating

Structure Type	Distance to PV Panel (Feet)	Lease Status of Underlying Parcel[1]
Residential	896	Non-Participating
Residential	912	Non-Participating
Residential	1,023	Non-Participating
Residential	1,068	Non-Participating
Residential	1,112	Non-Participating
Residential	1,115	Non-Participating
Residential	1,127	Non-Participating
Residential	1,226	Non-Participating
Residential	1,232	Non-Participating
Residential	1,244	Non-Participating
Residential	1,252	Non-Participating
Residential	1,260	Non-Participating
Residential	1,341	Non-Participating
Residential	1,391	Non-Participating
Residential	1,439	Non-Participating
Residential	1,455	Non-Participating
Residential	1,459	Non-Participating

[1] Landowners with parcels anticipated to be under a lease or easement agreement at the time of Facility construction are identified as participating residences for the purposes of this Application.

Table 08-3 identifies parcels within 1,500 feet of a PV panel and the lease status of each parcel (i.e., participating or non-participating). There are 223 parcels within 1,500 feet of a PV panel. This evaluation was conducted using digital parcel data from the Pickaway County Auditor. Publicly available digital parcel data is not sufficiently accurate for precise measurement of distances. As such, these distance measurements may change if reevaluated using a property survey of parcels in the Project Area. In addition, this data inaccuracy may account for the two non-participating shown parcels in Table 08-3 that are less than the Project setback of 75 feet from PV panels. The final Facility layout will adhere to the 75-foot setback from the surveyed boundaries of non-participating properties.

Table 08-3. Parcels Within 1,500 Feet of a PV Panel

Parcel ID	Distance to PV Panel (Feet)[1]	Lease Status[2]
C0900010003301	0	Participating
C0900010002600	0	Participating
C0900010059900	0	Participating
E1500010004200	0	Participating
E1500010004400	0	Participating
E1500010012201	0	Participating
E1500010004600	0	Participating

Parcel ID	Distance to PV Panel (Feet)[1]	Lease Status[2]
E1500010005301	0	Participating
E1500010005302	0	Participating
E1500010012300	0	Participating
E1500010012200	0	Participating
E1500010012400	0	Participating
E1500010012400	0	Participating
E1500010002300	0	Participating
E1500010002200	0	Participating
E1500010002000	0	Participating
E1500010002000	0	Participating
E1500010002100	0	Participating
E1500010002100	0	Participating
E1500010002108	0	Participating
E1500010013300	0	Participating
E1500010002104	0	Participating
E1500010001200	0	Participating
E1500010004300	0	Participating
G1700010062402	0	Participating
G1700010063402	0	Participating
G1700010063400	0	Participating
G1700010063401	0	Participating
G1700010063500	0	Participating
G1700010063502	0	Participating
G1700010063600	0	Participating
G1700010063606	0	Participating
G1700010062404	0	Participating
G1700010062403	0	Participating
G1700010062405	0	Participating
G1700010063503	0	Participating
E1500010004801	73	Participating
E1500010002800	77	Participating
E1500010012205	81	Participating
G1700010063501	87	Participating
E1500010012207	87	Participating
E1500010012206	107	Participating
E1500010012204	111	Participating
E1500010012202	129	Participating
E1500010012203	172	Participating
G1700010063602	283	Participating
E1500010002700	723	Participating
C1100010000100	725	Participating
C1100010001400	897	Participating
E1500010000700	71	Non-Participating
E1500010005600	74	Non-Participating
E1500010011500	75	Non-Participating
E1500010013601	75	Non-Participating
E1500010003900	76	Non-Participating
E1500010001300	76	Non-Participating
E1500010002102	76	Non-Participating

Parcel ID	Distance to PV Panel (Feet)[1]	Lease Status[2]
E1500010013700	76	Non-Participating
E1500010001901	77	Non-Participating
G1700010065000	77	Non-Participating
E1500010013500	77	Non-Participating
E1500010003100	77	Non-Participating
G1700010065500	78	Non-Participating
G1700010063603	78	Non-Participating
E1500010002103	79	Non-Participating
E1500010002500	79	Non-Participating
E1500010013200	79	Non-Participating
E1500010003800	79	Non-Participating
E1500010004405	79	Non-Participating
G1700010063900	80	Non-Participating
E1500010012500	80	Non-Participating
G1700010063701	80	Non-Participating
G1700010064001	80	Non-Participating
E1500010001100	83	Non-Participating
C0900010003202	85	Non-Participating
E1500010013301	86	Non-Participating
C0900010002900	86	Non-Participating
E1500010003904	86	Non-Participating
E1500010004404	94	Non-Participating
E1500010004403	94	Non-Participating
E1500010004402	105	Non-Participating
E1500010004201	108	Non-Participating
E1500010002105	116	Non-Participating
E1500010004401	116	Non-Participating
E1500010013400	116	Non-Participating
G1700010058900	117	Non-Participating
G1700010059000	117	Non-Participating
E1500010013501	120	Non-Participating
C0900010060100	120	Non-Participating
G1700010062401	120	Non-Participating
G1700010061700	123	Non-Participating
C0900010059500	124	Non-Participating
C0900010001501	124	Non-Participating
C0900010003304	125	Non-Participating
E1500010003804	125	Non-Participating
C0900010059202	125	Non-Participating
C0900010059300	126	Non-Participating
C0900010003303	126	Non-Participating
C0900010003300	129	Non-Participating
G1700010061600	132	Non-Participating
E1500010012000	137	Non-Participating
E1500010002101	142	Non-Participating
C0900010001400	146	Non-Participating
E1500010001201	146	Non-Participating
E1500010001203	154	Non-Participating
E1500010011900	156	Non-Participating

Parcel ID	Distance to PV Panel (Feet)[1]	Lease Status[2]
C0900010003302	156	Non-Participating
C0900010060000	160	Non-Participating
E1500010011600	166	Non-Participating
G1700010058800	171	Non-Participating
C1100040000100	171	Non-Participating
G1700010062500	174	Non-Participating
C0900010003209	175	Non-Participating
G1700010061900	179	Non-Participating
G1700010062501	190	Non-Participating
E1500010012600	190	Non-Participating
C0900010003600	194	Non-Participating
G1700010062502	195	Non-Participating
G1700010062201	197	Non-Participating
E1500010012000	204	Non-Participating
E1500010001202	209	Non-Participating
E1500010002400	214	Non-Participating
E1500010004100	219	Non-Participating
E1500010002401	225	Non-Participating
E1500010003803	255	Non-Participating
C0900010003305	257	Non-Participating
E1500010001101	282	Non-Participating
E1500010002103	294	Non-Participating
E1500010012100	308	Non-Participating
C0900010001500	325	Non-Participating
C0900010059800	325	Non-Participating
G1700010063800	330	Non-Participating
E1500010012501	335	Non-Participating
G1700010058500	338	Non-Participating
C0900010003208	362	Non-Participating
G1700010062001	387	Non-Participating
E1500010013100	393	Non-Participating
G1700010063300	394	Non-Participating
C1100220001500	414	Non-Participating
C1100010002001	415	Non-Participating
C0900010059201	426	Non-Participating
C0900010059600	428	Non-Participating
E1500010004700	431	Non-Participating
C1100040000200	446	Non-Participating
C0900010059902	500	Non-Participating
C1100220001000	567	Non-Participating
C0900010001700	570	Non-Participating
G1700010063605	571	Non-Participating
C0900010003201	580	Non-Participating
E1500010001400	596	Non-Participating
E1500010004501	599	Non-Participating
E1500010004501	614	Non-Participating
C0900010003207	626	Non-Participating
C0900010007100	654	Non-Participating
C1100220000900	670	Non-Participating

Parcel ID	Distance to PV Panel (Feet)[1]	Lease Status[2]
G1700010063604	695	Non-Participating
E1500010013600	716	Non-Participating
G1700010063601	720	Non-Participating
C1100220001100	776	Non-Participating
C1100220000800	782	Non-Participating
E1500010003905	785	Non-Participating
G1700010062101	787	Non-Participating
C0900010059200	787	Non-Participating
G1700010061701	790	Non-Participating
E1500010001000	808	Non-Participating
G1700010061901	813	Non-Participating
E1500010002106	835	Non-Participating
C0900010001300	854	Non-Participating
C1100010002005	858	Non-Participating
C0900010003205	891	Non-Participating
C0900010001100	895	Non-Participating
C1100040001400	898	Non-Participating
E1500010011000	900	Non-Participating
E1500010001900	906	Non-Participating
C1100220001601	925	Non-Participating
E1500010014500	926	Non-Participating
C1100220001600	932	Non-Participating
G1700010061500	937	Non-Participating
E1500010003903	953	Non-Participating
C1100220001200	1,002	Non-Participating
C1100220000700	1,002	Non-Participating
E1500010002600	1,016	Non-Participating
E1500010003001	1,023	Non-Participating
E1500010011701	1,026	Non-Participating
E1500010002900	1,027	Non-Participating
E1500010005700	1,035	Non-Participating
C1100220001300	1,045	Non-Participating
C1100220001400	1,084	Non-Participating
E1500010002801	1,090	Non-Participating
E1500010012800	1,125	Non-Participating
G1700010060600	1,130	Non-Participating
G1700010061400	1,141	Non-Participating
E1500010004000	1,145	Non-Participating
C1100220000600	1,152	Non-Participating
C0900010001104	1,164	Non-Participating
E1500010005200	1,166	Non-Participating
E1500010003400	1,177	Non-Participating
E1500010003500	1,177	Non-Participating
E1500010003600	1,177	Non-Participating
E1500010003700	1,177	Non-Participating
E1500010003802	1,177	Non-Participating
E1500010013003	1,186	Non-Participating
G1700010063700	1,191	Non-Participating
C1100010001900	1,211	Non-Participating

Parcel ID	Distance to PV Panel (Feet)[1]	Lease Status[2]
G1700010060700	1,229	Non-Participating
E1500010012601	1,244	Non-Participating
C0900010059100	1,246	Non-Participating
G1700010063700	1,248	Non-Participating
E1500010003801	1,259	Non-Participating
C1100010001402	1,263	Non-Participating
C1100220000500	1,266	Non-Participating
G1700010058600	1,272	Non-Participating
G1700010058700	1,272	Non-Participating
E1500010011700	1,272	Non-Participating
E1500010003002	1,299	Non-Participating
C0900010007200	1,324	Non-Participating
C1100220000400	1,381	Non-Participating
C0900010001800	1,404	Non-Participating
E1500010005800	1,415	Non-Participating
E1500010013004	1,427	Non-Participating
C1100010000201	1,432	Non-Participating
C0900010001102	1,450	Non-Participating
C1100220000300	1,497	Non-Participating
E1500010011400	1,498	Non-Participating

[1] Distances that equal zero represent parcels that contain PV panels.
[2] Landowners with parcels anticipated to be under a lease or easement agreement at the time of Facility construction are identified as participating for the purposes of this Application.
N/A – parcel number not provided by the county.

(ii) Structures and Property Lines within 250 Feet of Facility Components

Table 08-4 identifies existing structures within 250 feet of a Facility component and the lease status of the underlying parcel (i.e., participating or non-participating). There are 12 residences within 250 feet of Facility components.

Table 08-4. Structures within 250 Feet of a Facility Component

Structure Type	Distance to Facility Component (Feet)	Facility Component	Lease Status of Underlying Parcel[1]
Residential	230	Collection Line	Participating
Residential	240	Laydown Yard	Participating
Residential	250	Collection Line	Participating
Residential	146	Collection Line	Non-Participating
Residential	147	Laydown Yard	Non-Participating
Residential	185	Access Road	Non-Participating
Residential	197	Access Road	Non-Participating
Residential	197	Access Road	Non-Participating
Residential	201	Collection Line	Non-Participating
Residential	231	Collection Line	Non-Participating

Structure Type	Distance to Facility Component (Feet)	Facility Component	Lease Status of Underlying Parcel[1]
Residential	238	Laydown Yard	Non-Participating
Residential	242	Laydown Yard	Non-Participating

[1] Landowners with parcels anticipated to be under a lease or easement agreement at the time of Facility construction are identified as participating for the purposes of this Application.

Table 08-5 identifies parcels within 250 feet of a Facility component and the lease status of the parcel (i.e., participating or non-participating). There are 109 parcels within 250 feet of a Facility component. This total includes 63 parcels that are within 250 feet of multiple Facility components.

Table 08-5. Parcels Within 250 Feet of a Facility Component

Parcel ID	Distance[1]	Associated Facility Component	Lease Status
C0900010003301	0 0 0 0	Access Road Collection Line Inverter Laydown Yard	Participating
C0900010002600	0 0 0	Access Road Collection Line Inverter	Participating
C0900010059900	0 0 0 0	Access Road Collection Line Inverter Laydown Yard	Participating
C1100010001400	0	Laydown Yard	Participating
E1500010004200	0 0 0	Access Road Collection Line Inverter	Participating
E1500010004400	0 0 0	Access Road Collection Line Laydown Yard	Participating
E1500010012201	0 38 38	Access Road Collection Line Inverter	Participating
E1500010012206	93	Collection Line	Participating
E1500010012202	129	Laydown Yard	Participating
E1500010004600	0 0 0 10	Access Road Collection Line Inverter Laydown Yard	Participating
E1500010005302	0 0 0	Access Road Collection Line Inverter	Participating
E1500010012300	0 0 0	Access Road Collection Line Inverter	Participating

Parcel ID	Distance[1]	Associated Facility Component	Lease Status
E1500010012200	0 0 0	Access Road Collection Line Inverter	Participating
E1500010004801	34 0	Access Road Collection Line	Participating
E1500010012400	0 0 0 0	Access Road Collection Line Inverter Laydown Yard	Participating
E1500010012400	0 0 0	Access Road Collection Line Inverter	Participating
E1500010002800	26 0 136	Access Road Collection Line Laydown Yard	Participating
E1500010002700	0	Collection Line	Participating
E1500010002300	0 0 0	Access Road Collection Line Inverter	Participating
E1500010002200	97	Collection Line	Participating
E1500010002000	0 0 0	Access Road Collection Line Inverter	Participating
E1500010002000	0 0 0	Access Road Collection Line Inverter	Participating
E1500010002100	0 0 171	Access Road Collection Line Inverter	Participating
E1500010002100	0 0 0	Access Road Collection Line Inverter	Participating
E1500010002108	0 0 20	Access Road Collection Line Inverter	Participating
E1500010013300	0 0 0	Access Road Collection Line Inverter	Participating
E1500010002104	0 0 0	Access Road Collection Line Inverter	Participating
E1500010001200	0 0 0	Access Road Collection Line Inverter	Participating
E1500010004300	0 0 179	Access Road Collection Line Inverter	Participating
E1500010012204	130	Laydown Yard	Participating
E1500010012203	233	Collection Line	Participating
G1700010062402	0 0 0	Access Road Collection Line Inverter	Participating

Parcel ID	Distance[1]	Associated Facility Component	Lease Status
G1700010063402	0 0 0 65	Access Road Collection Line Inverter Laydown Yard	Participating
G1700010063400	0 0 0 120	Access Road Collection Line Inverter Laydown Yard	Participating
G1700010063401	0 0 0	Access Road Collection Line Inverter	Participating
G1700010063500	0 0 0 0	Access Road Collection Line Inverter Laydown Yard	Participating
G1700010063502	0 0	Access Road Collection Line	Participating
G1700010063501	60	Collection Line	Participating
G1700010063600	0 0 0	Access Road Collection Line Inverter	Participating
G1700010063606	192	Access Road	Participating
G1700010062404	0 0 0 0 0	Access Road Collection Line Inverter Laydown Yard Substation and POI Switchyard	Participating
G1700010062403	0 0 0	Access Road Collection Line Inverter	Participating
G1700010062405	0 0 0	Access Road Collection Line Inverter	Participating
G1700010063503	98 0 0 120	Access Road Collection Line Inverter Laydown Yard	Participating
C0900010059202	15	Access Road	Non-Participating
C0900010059500	17	Access Road	Non-Participating
C0900010060000	17	Access Road	Non-Participating
C0900010060100	22	Access Road	Non-Participating
C0900010003300	145	Laydown Yard	Non-Participating
C0900010003302	29	Access Road	Non-Participating
C0900010003304	34 119	Access Road Laydown Yard	Non-Participating
C0900010059800	82	Laydown Yard	Non-Participating
C0900010001400	89 220 221	Access Road Collection Line Inverter	Non-Participating
C0900010001500	24	Access Road	Non-Participating
C0900010001501	24	Access Road	Non-Participating
C0900010002900	58	Access Road	Non-Participating

Parcel ID	Distance[1]	Associated Facility Component	Lease Status
C0900010003202	57	Access Road	Non-Participating
C0900010003209	107	Access Road	Non-Participating
C1100040000100	119	Laydown Yard	Non-Participating
C1100040001400	75	Laydown Yard	Non-Participating
C1100010001402	94	Laydown Yard	Non-Participating
C0900010059902	75	Laydown Yard	Non-Participating
C1100010001900	44	Laydown Yard	Non-Participating
E1500010004201	109 39	Access Road Collection Line	Non-Participating
E1500010005600	35	Access Road	Non-Participating
E1500010011500	47 193 242	Access Road Collection Line Inverter	Non-Participating
E1500010003900	107	Access Road	Non-Participating
E1500010003800	115 156	Access Road Collection Line	Non-Participating
E1500010012500	184 234 234	Access Road Collection Line Inverter	Non-Participating
E1500010002600	91	Collection Line	Non-Participating
E1500010002500	96 83	Access Road Collection Line	Non-Participating
E1500010002400	204	Access Road	Non-Participating
E1500010003100	38 57 140	Access Road Collection Line Inverter	Non-Participating
E1500010013301	130	Access Road	Non-Participating
E1500010013200	148 240	Access Road Collection Line	Non-Participating
E1500010012000	74 166	Access Road Laydown Yard	Non-Participating
E1500010012000	27 136	Access Road Laydown Yard	Non-Participating
E1500010011900	229	Laydown Yard	Non-Participating
E1500010002105	12 129	Access Road Collection Line	Non-Participating
E1500010001901	51	Access Road	Non-Participating
E1500010001201	86 102 138	Access Road Collection Line Inverter	Non-Participating
E1500010001203	66 78 149	Access Road Collection Line Inverter	Non-Participating
E1500010001300	70	Access Road	Non-Participating
E1500010004401	4	Collection Line	Non-Participating
E1500010004402	99	Collection Line	Non-Participating
E1500010004403	87 89	Access Road Collection Line	Non-Participating
E1500010004404	60 78	Access Road Collection Line	Non-Participating

Parcel ID	Distance[1]	Associated Facility Component	Lease Status
E1500010004405	60 66 104	Access Road Collection Line Laydown Yard	Non-Participating
E1500010004501	68 135	Access Road Laydown Yard	Non-Participating
G1700010058800	152 117 213	Access Road Collection Line Inverter	Non-Participating
G1700010058900	92 134 166	Access Road Collection Line Inverter	Non-Participating
G1700010059000	92 134 166	Access Road Collection Line Inverter	Non-Participating
G1700010058500	125 6	Collection Line Substation and POI Switchyard	Non-Participating
G1700010058501	6	Substation and POI Switchyard	Non-Participating
G1700010058502	6	Substation and POI Switchyard	Non-Participating
G1700010065500	18 80 53	Access Road Collection Line Laydown Yard	Non-Participating
G1700010057500	23 149 52	Access Road Laydown Yard Substation and POI Switchyard	Non-Participating
G1700010065000	52 220	Access Road Collection Line	Non-Participating
G1700010065800	29 170	Access Road Laydown Yard	Non-Participating
G1700010062401	14 92	Access Road Collection Line	Non-Participating
G1700010063300	91	Collection Line	Non-Participating
G1700010062502	89	Collection Line	Non-Participating
G1700010062500	85	Collection Line	Non-Participating
G1700010061600	29	Access Road	Non-Participating
G1700010064001	80	Access Road	Non-Participating
G1700010061700	29	Access Road	Non-Participating
G1700010063603	12	Access Road	Non-Participating

[1] Distances that equal zero represent parcels that contain PV panels.
[2] Landowners with parcels anticipated to be under a lease or easement agreement at the time of Facility construction are identified as participating for the purposes of this Application.
N/A – parcel number not provided by the county.

(iii) Lease Status of Each Structure

The participation status for each structure and property within 1,500 feet of a PV panel and each structure and property within 250 feet of a Facility component is presented in the tables above. Landowners with parcels anticipated to be under a lease or easement agreement at the time of Facility construction are identified as participating.

(c) *Land Use Impacts*

Table 08-6 presents the total, temporary, and permanent land use impacts associated with the Facility. For the purposes of this evaluation, "permanent" refers to the lifespan of the Facility, estimated to be approximately 40 years. At the end of its useful life, the Facility will be decommissioned, and the land can be returned to its current use. A Decommissioning Plan is included with this Application (Exhibit L).

Land use impacts are evaluated separately for areas within and outside the fenceline. Land within the fenced area is restricted and unavailable for landowner use; therefore, land use impacts are calculated within the entire fenced area. Project components within the fenceline consist of the PV panels, inverters, access roads, temporary laydown yard, collection lines, and Facility substation. Temporary land use impacts outside the fenceline consist of the construction disturbance area for collection lines. Permanent land use impacts outside the fenceline consist of small portions of access roads and the gen-tie line.

Table 08-6. Land Use Impacts

Facility Component	Temporary Impact (acres)[5]	Permanent Impact (acres)	Total Impact (acres)
Agricultural			
Area Inside Fenceline[1]	0.0	2,242.5	2,242.5
Area Outside Fenceline			
Access Roads[2]	2.2	4.2	6.4
Laydown Yards	12.3	0.0	12.3
Collector Substation/POI[3]	0.0	17.2	17.2
Underground Collection Lines[4]	49.4	0.0	49.4
Total Agricultural	**63.9**	**2,263.9**	**2,327.8**
Residential			
Area Outside Fenceline			
Underground Collection Lines	0.1	0.0	0.1
Total Residential	**0.1**	**0.0**	**0.1**

Facility Component	Temporary Impact (acres)[5]	Permanent Impact (acres)	Total Impact (acres)
Unknown			
Area Outside Fenceline			
Access Roads	0.2	0.3	0.5
Underground Collection Lines	0.5	0.0	0.5
Total Unknown	**0.7**	**0.3**	**1.0**
Total Land Use Impact	**65.5**	**2,264.2**	**2,329.7**

1. As the entire fenced area is anticipated to be unavailable to landowners, permanent land use impacts include the entire area within fenceline.
2. Access roads will have a temporary width of 30 feet, and a permanent width of 20 feet.
3. The gen-tie line is included within the collector substation/POI area.
4. A temporary, 30-foot-wide area will be required for underground collection line installation.
5. Temporary impact areas represent only the additional impact area during construction and do not include the permanent impact area. The temporary and permanent impact areas are added together in the total impact column.

Changes in land use are anticipated within the Project Area as a result of Facility construction and operation, and no changes are predicted outside the Project Area. The long term maintenance within the fenced area, including the presence of the PV panels and other ancillary structures, will result in the cumulative conversion of approximately 2,243 acres of land from agricultural use, which represents approximately 61% of the 3,684-acre Project Area.

Table 08-7 presents the total, temporary, and permanent land use impacts by Facility components. Facility components were overlain with parcel data, resulting in quantifiable impacts associated with each component. The impact areas for all Facility components were aggregated using GIS software and recorded in a spreadsheet, which was used to calculate temporary and permanent impact areas. For linear features such as access roads and collection lines, the appropriate impact widths, as described in the table footnotes, were applied to the centerline of each linear component using GIS. In areas where features, or the subsequent impact areas, overlap (e.g., co-location of access roads and collection lines), analyses using GIS were conducted to eliminate overlap in order to avoid significant overestimations of impacts. Finally, using the spreadsheet, the separate areas of impact for each Facility component were added together, resulting in the temporary, permanent, and total areas of impact associated with each component.

Table 08-7. Land Use Impacts by Facility Components

Facility Components	Temporary Impact[6] (Acres)	Permanent Impact (Acres)	Total Impact (Acres)
Agricultural (100s)			
Access Roads[1]	21.1	42.1	63.2
Inverters[2]	0.0	0.8	0.8
Laydown Yards	18.9	0.0	18.9
PV Panels[3]	0.0	1,696.0	1,696.0
Collector Substation/POI[4]	0.0	17.2	17.2
Underground Collection Lines[5]	85.9	0.0	85.9
Total Agricultural	**125.9**	**1,756.1**	**1,882.0**
Residential (500s)			
Underground Collection Lines	0.1	0.0	0.1
Total Residential	**0.1**	**0.0**	**0.1**
Unknown			
Access Roads	0.2	0.3	0.5
Underground Collection Lines	0.5	0.0	0.5
Total Unknown	**0.7**	**0.3**	**1.0**
Land Use Total from Components	**126.7**	**1,756.4**	**1,883.1**

1. Access roads will have a temporary width of 30 feet, and a permanent width of 20 feet.
2. Includes 119 inverter pads, with an area of approximately 277 ft^2 each
3. Permanent impacts to solar arrays include the entire area underneath and between the panels because that area will be taken out of its current use for approximately 40 years.
4. The gen-tie line is included within the collector substation/POI area.
5. A temporary, 30-foot-wide area will be required for underground collection line installation.
6. Temporary impact areas represent only the additional impact area during construction and do not include the permanent impact area. The temporary and permanent impact areas are added together in the total impact column.

Construction land use impacts will be temporary in nature and confined to the properties of participating landowners. As described in Section 4906-4-08(E)(2)(b), the Applicant has developed construction specifications for construction activities occurring partially or wholly on privately owned agricultural land. These specifications, along with special siting considerations, will minimize impacts to agricultural land uses in the Project Area.

(d) *Structures That Will Be Removed or Relocated*

One abandoned agricultural storage building is proposed to be removed for construction of the Facility. This structure overlaps two adjacent parcels belonging to a single participating landowner, who has granted permission for the removal as part of the lease agreement. No other structures are currently proposed for removal or relocation.

(2) Parcel Status Map

This requirement is not applicable to this Facility because the Facility is not a wind farm.

(3) Setback Waiver

This requirement is not applicable to this Facility because the Facility is not a wind farm.

(4) Land Use Plans

(a) *Formally Adopted Plans for Future Use of Site and Surrounding Lands*

The Facility will be in Monroe Township, Jackson Township, Deer Creek Township, and the Village of Williamsport in Pickaway County, Ohio. No plans were available for any of the jurisdictions within the 5-mile study area. As described in the Socioeconomic Report (Exhibit I), each jurisdiction was researched individually, and local offices were contacted in an effort to locate any available plans.

(b) *Applicant's Plans for Concurrent or Secondary Uses of the Site*

The Applicant may implement an environmental management plan (EMP) to enhance biodiversity within the Facility, providing a secondary use for the Project Area. The EMP may include increased pollinator habitat, sheep grazing, creating a habitat with increased carbon sequestration, or another secondary use in addition to the generation of electricity.

(c) *Impact on Regional Development*

Housing

The Facility is not anticipated to adversely impact local housing. The Facility is not expected to result in a significant increase in demand for rental properties, and given the availability of vacant housing, the Facility is not anticipated to have a destabilizing effect on current rental properties. The Applicant intends to commission a study on property values within the vicinity of the Project prior to construction. For additional information on housing within the 5-mile study area, see Exhibit I.

Commercial and Industrial Development

The impact of the proposed Facility on local commercial and industrial development is discussed in Section 4906-4-06(E) of this Application. The Project will generate employment opportunities

during construction and operation. Employee earnings, spending on accommodations, food, and activities during construction, and direct payments to landowners participating in the Project are expected to increase spending in the local economy. This spending would support commercial development in the region.

Schools

The Facility location is within the Westfall Local School District. Development of the Facility will result in substantial positive economic benefits to the school district in the form of PILOT payments, discussed in detail in Section 4906-4-06(E)(3). The Project will bring jobs to the region, primarily during construction. It is expected that most of these workers that come from outside the area will travel to the area rather than relocating permanently; therefore, the Project is not expected to increase the need for services from the school district.

Transportation System Development

Transportation routes within the 5-mile study area include numerous state, county, and local roads, two US routes, and three private airports. The Project is not anticipated to impact roadway traffic, given the existing roadway capacities. Construction vehicles and material deliveries are anticipated to have very little impact to local roads. For more information on roadway impacts, see Exhibit K and Section 4906-4-06(F)(4). Adverse impacts to air navigation are also not anticipated from Facility construction due to the large distance between the Facility and the nearest airports. Additional discussion on impacts to air navigation is provided in Section 4906-4-07(D).

Other Public Services and Facilities

The Facility is not expected to have significant growth-inducing effects on the surrounding locales. Therefore, no significant impact on local public services and facilities is expected. Workers will commute to the work site daily. Local employees will be hired to the extent possible. Hiring of non-resident workers would occur only when local residents with the required skills were not available or competitive. It is expected that non-resident workers would commute or stay in regional transient housing or motels, and not require new housing. It is also assumed that non-resident workers would not bring families that might require family healthcare or additional school

facilities. The principal impact on public services in the site locale would be a temporary increase in traffic on roads leading to the Project Area, due to deliveries of equipment and materials during construction.

(d) *Regional Plan Compatibility*

There would be no impacts to regional plans or regional growth as a result of this Facility. As discussed in Section 4906-4-08(C)(3)(a), no entity within 5 miles of the Project Area has adopted comprehensive land use plans, strategic downtown plans, and/or economic development plans.

(e) *Current and Projected Population Data*

Table 08-8 presents the population trends for the communities within 5 miles of the Project Area, including annual percent change in population from 2000 to 2019. The population of Pickaway County increased an annual rate of 0.5% between 2000 and 2019. Most communities within the 5-mile study area increased moderately in population during the period of 2000-2019. Jackson Township's population increased the most during that period, at an annual rate of 3.1%, while the Village of Darbyville's population declined the most, at -2.1% annually. The projected populations are based on the respective 2000-2019 growth rates for each community. For more information on population trends, see the Socioeconomic Report (Exhibit I).

Table 08-8. Population of Jurisdictions within 5 Miles

Jurisdiction	2000 Population	2019 Population	Annual Growth Rate (2000-2019)	Projected 2030 Population	Projected Total Growth (2019-2030)	2019 Population Density (people per square mile)
State of Ohio	**11,353,140**	**11,655,397**	**0.1%**	**11,836,311**	**1.6%**	**285**
Pickaway County	**52,727**	**57,762**	**0.5%**	**61,037**	**5.7%**	**109**
Darby Township	3,447	3,495	0.1%	3,523	0.8%	100
Village of Darbyville	289	175	-2.1%	139	-20.6%	307
Deer Creek Township	1,566	1,358	-0.7%	1,257	-7.4%	39
Jackson Township	813	1,289	3.1%	1,800	39.6%	37
Monroe Township	1,232	1,349	0.5%	1,425	5.6%	39
Muhlenberg Township	942	879	-0.4%	846	-3.8%	25
Perry Township	1,333	1,414	0.3%	1,465	3.6%	41
Scioto Township	9,210	10,351	0.7%	11,118	7.4%	297
Wayne Township	629	658	0.2%	676	2.7%	19
Village of Williamsport	1,010	959	-0.3%	931	-2.9%	554

Source: Decennial Census (U.S. Census Bureau, 2000), ACS 5-year estimates (U.S. Census Bureau, 2015-2019), population projections based on respective 2000-2019 growth rates. Tables S0101 and P001.

(D) CULTURAL AND ARCHAEOLOGICAL RESOURCES

(1) Landmarks of Cultural Significance Map

Figure 08-3 depicts formally adopted land and water recreation areas, recreational trails, scenic byways, and registered landmarks of historic, religious, scenic, natural, or other cultural significance in Ohio within 10 miles of the Project Area.

Initial consultation with the Ohio State Historic Preservation Office (SHPO) was submitted by Terracon on February 19, 2020 (SHPO Project No. 2020-PIC-47573). On December 7, 2020, Terracon submitted an additional Phase I correspondence letter to SHPO relating to planned survey methodologies for historic architectural resources and archaeological resources. Terracon's December 7, 2020, correspondence detailed a reduction in the Project size, noting that a probability model for archaeological potential was no longer being utilized. Rather, the entirety of the Project Area would be treated as high probability for archaeological resources and all areas with potential to receive ground disturbance during Project construction would undergo Phase I archaeological survey. Phase I archaeological survey was planned to consist of pedestrian reconnaissance methodologies in plowed agricultural fields with ground surface visibility greater

than 50%, with additive subsurface reconnaissance in the form of shovel testing in areas with less than 50% ground surface visibility. Additionally, geomorphological investigations would be completed by Seramur and Associates at collection pathways crossing the Deer Creek floodplain.

SHPO responded to Terracon's additional Phase I correspondence letter on January 4, 2021, with a request for review of available aerial imagery of the Project Area for mound and earthwork remnants, as well as concurring with the proposed Phase I archaeological survey methodology. SHPO requested that Terracon complete a GIS analysis for areas of visibility based on topography to establish an Area of Potential Effects (APE) for historic architecture and a base APE for historic architecture measuring 2 miles from the Project Area. Additionally, SHPO requested inclusion of a list of all National Register of Historic Places (NRHP) resources, Ohio Historic Inventory (OHI) resources, and National Historic Landmark (NHL) resources within 5 miles in an architectural history report, OHI forms for each contributing property to district resources in Williamsport, and updated OHI forms for any existing OHI resources that have seen significant alteration since recording. Lastly, SHPO advised that Terracon request access for any historic architecture resources within the APE for historic architecture that were not visible from a public right-of-way. Terracon submitted a revised APE map for historic architecture to SHPO on July 6, 2021, incorporating SHPO's requests. SHPO concurred with Terracon's APE for historic structures in correspondence dated August 4, 2021, in addition to accepting Terracon's survey methodology for historic architecture.

Terracon completed a Phase I archaeological survey for the Chipmunk Solar Project in January of 2022, filed under seal as Exhibit S to this Application. The Phase I archaeological survey report summarized previously recorded archaeological sites and previously completed archaeological investigations within 2 miles of the Project Area. In addition, the Phase I archaeological survey report summarized newly recorded archaeological sites from Terracon's investigations within portions of the Project Area that are anticipated to be subjected to ground disturbing activities during Project construction, also known as the APE for direct effects. Concurrence from Ohio SHPO for the Phase I archaeological survey report is expected during the completeness review period for this Application.

The literature review component of Terracon's Phase I archaeological report summarized existing archaeological research within 2 miles of the Project Area. Terracon reviewed numerous sources of information relating to archaeological resources, including cultural resource management reports, historic maps and atlases, and the Ohio Archaeological Inventory (OAI).

As a result of the literature review, Terracon identified 63 previously recorded OAI sites and 6 previously completed archaeological investigations within 2 miles of the Project Area. None of the previously identified OAI sites were found to be located within the boundaries of the Project Area. Additionally, none of the previously completed archaeological investigations were completed within the boundaries of the Project Area.

Terracon's Phase I archaeological survey within the Project Area was completed intermittently from January 14 through January 21, March 29 through April 17, and November 15 through December 8, 2022, following Ohio SHPO guidelines for archaeological investigations. This included controlled pedestrian surface survey within areas of greater than 50% ground surface visibility, accounting for approximately 2,851 acres of the Project Area, as well as systematic shovel testing within areas of less than 50% ground surface visibility, accounting for approximately 148 acres of the Project Area. The remaining 688 acres are not anticipated to undergo ground disturbing activities during Project construction and were not subjected to Phase I archaeological survey.

Terracon's Phase I archaeological survey resulted in the identification of 34 archaeological sites and 40 isolated finds. Terracon recommended that no archaeological resources identified within the APE for direct effects are eligible for inclusion on the National Register of Historic Places (NRHP) due to lack of integrity. As such, Terracon recommended that the approximately 3,000 acres surveyed are unlikely to contain significant archaeological sites and that additional archaeological investigations are not recommended.

In addition to Terracon's Phase I archaeological survey, associated geomorphological investigations were completed by Seramur and Associates to evaluate the potential for deeply buried archaeological resources portions of the Project Area that occupy areas of the Deer Creek

and Dry Run floodplains. Seramur's investigations identified no evidence of buried cultural deposits and further deep testing was not recommended.

(2) Impact to Landmarks and Mitigation Plans

As discussed previously, no impacts to archaeological resources are anticipated. The architecture survey is complete, and the report is anticipated to be provided to SHPO and the OPSB approximately 30 days after the filing of this Application. Initial survey results found 7 potentially eligible historic resources within the APE for indirect effects. Vegetative screening between these resources and the Facility is included in the Landscape Mitigation Plan for the Project (Exhibit T). The Applicant will enter into a Memorandum of Understanding with SHPO, if deemed to be required, to avoid or mitigate any potential impacts to these resources.

(3) Impact to Recreational Areas and Mitigation Plans

Existing scenic and recreational areas within a 5-mile radius of the proposed Facility are depicted on Figure 08-3 and listed in Table 08-9 below. Recreational areas were identified using the following resources: ODNR, Esri Topographic Map, Ohio Statewide Imagery Program, and local municipal websites.

Table 08-9. Scenic and Recreational Areas within 5 Miles

Recreational Area	Location	Distance from Project Area (Miles)
Deer Creek	Deer Creek, Monroe, and Perry Townships, & the Village of Williamsport, Pickaway County	0.00
Deer Creek Canoe Launch	Deer Creek Township, Pickaway County	<0.01
Charles O. Trump Wildlife Area	Jackson Township, Pickaway County	<0.01
Community Square Park	Village of Williamsport, Pickaway County	0.09
Ballard Park	Village of Williamsport, Pickaway County	0.40
Metzger Preserve	Village of Williamsport, Pickaway County	0.66
Pickaway County Wildlife Production Area 65-1	Jackson Township, Pickaway County	0.68
Big Darby Creek	Jackson and Muhlenberg Townships, & Darbyville, Pickaway County	0.83
Lick Run	Jackson and Wayne Townships, Pickaway County	1.44
Pickaway County Wildlife Production Area 65-4	Monroe Township, Pickaway County	1.66
Pickaway County Wildlife Production Area 65-7	Deer Creek Township, Pickaway County	2.11
Pickaway County Wildlife Production Area 65-8	Deer Creek Township, Pickaway County	2.83
Monroe Township Park	Monroe Township, Pickaway County	3.02

Recreational Area	Location	Distance from Project Area (Miles)
Pickaway County Wildlife Production Area 65-9	Deer Creek Township, Pickaway County	3.13
Deer Creek State Park	Monroe and Perry Township, Pickaway County	3.65
Big Darby Creek Canoe Launch	Jackson Township, Pickaway County	3.71
Pickaway County Wildlife Production Area 65-10	Monroe Township, Pickaway County	3.73
Jackson Township Park	Jackson Township, Pickaway County	3.81
State Bike Route 47	Jackson Township, Pickaway County	4.12
Pickaway County Wildlife Production Area 65-2	Wayne Township, Pickaway County	4.51
Calamus Swamp	Wayne Township, Pickaway County	4.62
Clark Run	Monroe Township, Pickaway County	4.94

As listed in Table 08-9 above, 22 scenic and recreational areas occur within 5 miles of the Facility. Each of these recreational sites is described below, along with an assessment of potential impacts from the Facility. Additional information regarding the results of the viewshed analysis is provided in Section 4906-4-08(D)(4).

Deer Creek is located in Pickaway County and flows through the southern portion of the Project Area, with a canoe launch located on the southern boundary of the Project Area. Although the stream is within the Project Area, visibility will be limited due to dense riparian vegetation along the stream bank. Intermittent visibility is possible in areas with breaks in the vegetation, based on the viewshed. There is no visibility anticipated at the canoe launch site.

Charles O. Trump Wildlife Area is a 128-acre wildlife are located in Jackson Township, Pickaway County, and is directly adjacent to the Project Area. The wildlife area is designated for hunting (Ohio Department of Natural Resources, 2022), and consists mostly of open fields, except for a small, wooded area in the southwestern corner. Due to its proximity, views of the project will be available across open agricultural fields within the majority of the wildlife area, expect for within the small, wooded portion.

Community Square Park is an approximately 3.49-acre park located in the Village of Williamsport, 0.09 mile east of the Project Area. Community Square Park contains a shelter house, an outdoor gym, and a playground (Village of Williamsport, 2022). Visibility within the park will be limited to

narrow corridors, with the majority of visibility occurring on the east and west boundaries along School Street and Main Street. Partial screening will be provided by development within the Village of Williamsport, and by a maintenance building located in the northern portion of the park.

Ballard Park is an approximately 29.8-acre park located in the Village of Williamsport, 0.4 miles south of the Project Area. Ballard Park consists of several baseball diamonds and open green space. Based on the viewshed analysis, there are no anticipated visual impacts on those recreating within the park.

Metzger Preserve is a 52-acre preserve located in Deer Creek Township, Pickaway County, 0.66 miles south of the Project Area. The land for the preserve was purchased by the county in 2019 and features trails through prairie and woodlands, with a focus on native plants (Pickaway County Park District, 2022). Based on the viewshed analysis, no visual impact those recreating at the preserve is anticipated.

Pickaway County Wildlife Production Areas 65-1, 65-2, 65-4, 65-7, 65-8, 65-9, and 65-10 are all located in Pickaway County between 0.68 and 4.51 from the Project Area. All of these wildlife areas are designated as public hunting areas by ODNR (Ohio Department of Natural Resources, 2022). Area 65-1, located 0.68 mile east of the Project is indicated as having project visibility in the majority of the area, except for a patch of wooded area to the east. Areas 65-7 and 65-9 are located 2.1 and 3.13 miles south of the Project Area respectively and are both indicated as having very limited views of the project, which will likely be screened by existing woodlots and riparian vegetation. No other Pickaway County Wildlife Production Areas are indicated as having views of the Project, based on the viewshed analysis.

Big Darby Creek is an 82-mile long designated Scenic River that begins on the Champaign-Union County line and ends where it joins Little Darby Creek and flows into the Scioto River (Ohio Department of Natural Resources, 2022). At its closest point, the creek is 0.83 miles northeast of the Project Area. Big Darby Creek Boat Launch is located 3.71 miles northeast of the Project along SR 104. Due to distance from the Project and dense riparian vegetation, there is no anticipated visual impact on those recreating along the creek, or at the boat launch.

Lick Run is a stream located in Pickaway County, 1.44 miles east of the Project at it closest point. Lick Run has points of public fishing access and is not indicated as having any visual impact based on the viewshed analysis.

Monroe Township Park is a an approximately 13.5-acre park located in Monroe Township, Pickaway County, 1.44 miles east of the Project Area. The park features three baseball diamonds, a tennis court, a basketball course, as well as open space for other recreational activities (Pickaway County Park District, 2022). Visibility is possible within the park based on the viewshed analysis; however, partial screening will be provided by residential development between the park and the Facility.

Deer Creek state Park is located in Monroe and Perry Townships, Pickaway County, 3.65 miles west of the Project Area. Deer Creek State Park is an approximately 2,300-acre park offering camping, lodging, boating, hunting, hiking, fishing, golfing, and other recreational activities year-round (Ohio Department of Natural Resources, 2022). There are several recreational facilities located within and associated with the park, including: a canoe launch (3.65 miles west of the Project Area), a swim area (4.84 miles west of the Project Area), a fishing access site (4.40 miles west of the Project Area), and a boat ramp (4.64 miles west of the Project Area). Additionally, there are four scenic overlooks, Deer Creek State Park Scenic Overlooks 1,2,3 & 4, located between 4.40 and 4.94 miles west of the Project Area. The park also includes one wildlife area, Deer Creek Wildlife Area, located 3.76 miles west of the Project Area, and one stream, Clark Run, located 4.94 miles west of the Project Area. Based on the viewshed analysis, there are limited corridors of possible visibility in the north section of the park, which will likely be fully screened due to the distance from the Project and intervening vegetation and development. There is no anticipated visibility from any of the recreational resources located with the park.

Jackson Township Park is an approximately 8.5-acre park located in Jackson Township, Pickaway County, 3.81 miles east of the Project Area. The park features a playground, sheltered picnic area, and open space for other recreational activities (Pickaway County Park District, 2022). There will be no anticipated visual impact on those recreating at the park, based on the viewshed analysis.

State Bike Route 47 begins in Portsmouth and follows the Scioto River Valley north to Columbus (Ohio Department of Transportation, 2022). Approximately 4 miles of the bike route run through the study area, 4.12 miles northeast of the Project Area at its closest point. Based on the viewshed analysis, no visual impacts on those utilizing the bike route are anticipated.

Calamus Swamp is a Preserve located in Wayne Township, Pickaway County, 4.62 miles southeast of the Project Area. The swamp is a 19-acre public preserve, and offers trails, boardwalks, and views of native flora and fauna (Columbus Audubon, 2022). Based on the viewshed analysis, no visual impact on those recreating at the swamp are anticipated.

(4) Visual Impact

EDR prepared a Visual Resource Assessment (VRA) for the proposed Facility (Exhibit T). EDR staff who contributed to the report include licensed landscape architects, GIS professionals, and environmental specialists with experience preparing visual resource assessments, including several for applications to the OPSB. OAC 4906-4-08(D)(4) requires that visual impacts to recreational, scenic, and historic resources be evaluated within a 10-mile radius. However, based on the low profile of the proposed equipment, and the results of the visibility analysis presented herein, it was determined that 10 miles would be an excessive study area for this Facility. To define an appropriately sized VSA, a viewshed analysis was conducted to better understand the Facility's area of potential effect. This viewshed analysis indicates that the number of PV panels that are potentially visible diminishes rapidly at distance beyond 1.5 miles. Though widely-spaced areas of potential visibility extend out to 5 miles, less than 10% of PV panels will be visible from a vast majority of the VSA outside of the foreground distance zone (i.e., beyond 1.5 miles from the site). Based on the results of the viewshed analysis, and the relatively flat terrain surrounding the Project, it was determined that a 5-mile radius from the Project would be a sufficient VSA for the purposes of this study. Beyond the distance of 5 miles, the PV panels will generally be either fully screened by existing vegetation and topography, or indistinguishable due to the limits of human visual acuity. The area covered in the VSA encompasses a total of approximately 151.5 square miles.

(a) *Project Visibility and Viewshed Analysis*

The viewshed analysis conducted for the Facility incorporated screening effects of topography, structures, and vegetation. A digital surface model (DSM) of the VSA was created from lidar data, which include the elevations of buildings, trees, and other objects large enough to be resolved by lidar technology. Areas within the panel array fenceline were cleared of any vegetation in the model, as were small stands of tree and hedgerows that will be cleared during construction of the Facility, in order to reflect the bare-earth elevation in these locations. From the DSM, a viewshed analysis was conducted for the PV panels and the collection/POI substation.

Based on the results of the viewshed analysis, the Facility will be screened from approximately 79.1% of the VSA. Above ground electrical components (collection substation and POI switchyard) will be screened from approximately 90.8% of the VSA. Screening of these components is attributed to intervening landforms, vegetation, and structures. The viewshed analysis also suggests that panel visibility is concentrated in the area out to 0.5 mile of the Project Area, while views from 0.5 mile to 1.5 miles are more well screened, and visibility is further reduced at distances beyond 1.5 miles. Visibility of the above ground electrical components is anticipated to be largely concentrated within 1.5 miles of the Project Area. Based on the viewshed analysis, some areas past 1.5 miles could experience views due to the height of Facility components. However, it is important to keep in mind that the substation viewshed analysis presents theoretical visibility. It ignores the narrow profile and neutral color of the lightning masts, is based on a lightning mast height that is significantly taller than most of the internal substation structures. Additional information on methods and results of the viewshed analysis is provided in the VRA.

(b) *Description of Scenic Quality of Existing Landscape*

Landscape types within the VSA were categorized based on the similarity of the various features, including landform, vegetation, water, and/or land use patterns, in accordance with established visual assessment methodologies. Agricultural/Open is the dominant landscape within the VSA (87.5%) and comprises most of the area that will host Facility components. This landscape type is likely to provide the greatest opportunities for views of the Facility.

Forest land is the second most predominant landscape, comprising 8.1% of the VSA. Forested areas occur in small distinct locations throughout the VSA, including discrete locations within the Project Area. Views of the Project from this landscape type are typically limited by the presence of dense vegetation.

Developed landscape consists of approximately 3.3% of the VSA and includes the Villages of Williamsport and Darbyville, unincorporated areas of development along rural roadways within Monroe and Jackson Townships, and recreational development associated with Deer Creek State These areas typically find outward views across landscaped yards and planted vegetation but may be limited due to the presence of closely situated buildings, utility poles, or other visual clutter. The remaining portions of landscape types in the VSA are comprised of Open Water at 1.1% and Barren Land at 0.1%.

In addition to these landscape types, the VRA included a review of visually sensitive resources within the VSA, including historic properties, scenic resources, public lands, recreational resources, and high use public areas. Additional information on these visually sensitive resources is included in paragraph (d) below and in the VRA.

(c) *Landscape Alterations and Impact on Scenic Quality of the Landscape*

The Project will result in varying levels of visual alteration when viewed from adjected roads and residences. The impact may be somewhat mitigated by the presence of seasonal crops in actively farmed fields, but during the rest of the year the Project will introduce structures that will alter the scenic quality and/or existing agricultural character of the landscape. However, this visibility and potential visual impact diminishes rapidly as the Project is viewed from greater distances. Therefore, it is anticipated that changes in the landscape will largely be limited to areas directly adjacent to the Project.

The use of mitigation plantings at select locations along the perimeter of the PV arrays will lessen the visual impact of the Project when viewed from non-participating residences with a direct line of sight of the Facility from near-foreground distances.

(d) *Visual Impacts to Landmarks of Cultural Significance*

In total, 213 visually sensitive resources were identified within the VSA, including 161 properties of historic significance, 28 public lands and recreational resources, 18 high-use public areas, and five designated scenic resources. Figure 1.5 in the VRA shows the location of visually sensitive resources relative to the Project Area. Of the 213 resources identified within the VSA, 81 have the potential for PV array visibility. Additional information on visually sensitive resources is provided as Appendix E in the VRA (Exhibit T), which includes a list of all identified resources, their distance from the Facility, and estimated visibility of the Facility from the identified resource.

(e) *Photographic Simulations*

To illustrate anticipated visual changes associated with the proposed Facility, photographic simulations of the Facility were developed from four selected viewpoints. These simulations allow the viewer to better evaluate visibility, appearance, and contrast with the existing landscape. The simulations show panels mounted on a tracking system that would result in a maximum panel height of 15 feet in a fully-tilted position. The visual simulations are included as Appendix D to the VRA (Exhibit T) along with detailed discussions of each simulation. Viewpoints were selected to show representative locations at various distances from the Facility from public vantage points near the Project Area.

(f) *Impact Minimization Measures*

<u>Project Area Location and Facility Layout</u>

The proposed Facility is located in a rural, sparsely populated area. To further reduce impacts to those living in the area, the Applicant designed the Facility to account for setbacks to the PV Panels from non-participating residences (300 feet), participating residences (200 feet), non-participating property boundaries (75 feet), and public road centerlines (100 feet).

<u>Lighting</u>

Security lighting will be installed near the switchyard, collector substation, and access points. A final lighting plan will be provided to the OPSB with the final Facility design, no later than 30 days prior to construction.

Visual Screening

The installation of vegetative mitigation at select locations along the perimeter may be used to help screen portions of the Facility to lessen potential visual impact, as applicable. Visual screening introduces natural, vertical elements that break up the horizontal lines created by the PV arrays and fenceline. This helps the Facility fall into the background vegetation rather than stand out as a foreground element. Representations of potential vegetative mitigation is included in the Landscape Mitigation Plan (Appendix C to Exhibit T).

Facility Materials and Coloration

PV modules will use anti-reflective glass coating and are designed to absorb the light that hits the panels, reducing potential for glare. As described in Section 4906-4-07(C), the Project is not anticipated to result in glare for approaches to airport runways, residences or roadways. Additionally, the racking system for the panels allows panel rows to follow some variation in topography, limiting the landscape alteration needed for installation. Agricultural-style fencing with wooden posts or similar fencing will be installed around the perimeter of the Project, with the exception of the substation. The fencing will be selected to blend with the aesthetic character of the area and allow passage of small wildlife through the Project. Visual simulations of fencing that is representative of the styles under consideration for the Project are included in Exhibit T.

(E) AGRICULTURAL LAND

(1) Agricultural Land and Agricultural District Land Map

Agricultural land is the dominant land use in Pickaway County, consisting of approximately 281,900 acres of land. Similarly, the Project Area consists almost exclusively of agricultural land. Figure 08-4 depicts agricultural districts, current agricultural use value (CAUV) parcels, and crop cover within and surrounding the Project Area.

(2) Potential Impacts and Proposed Mitigation

The Facility is sited on mostly agricultural land. This land will be taken out of production for approximately 40 years and replaced with native or naturalized grasses. Grasslands can improve soil with organic material, reduce water runoff, and provide habitat for native species, especially

pollinators. After the useful life of the Facility, it will be decommissioned, and the site will be restored to pre-construction conditions.

(a) *Acreage Impacted*

The National Agriculture Statistics Service of the USDA publishes annual updates of the CropScape dataset. CropScape is a nation-wide, crop-specific dataset that is created using satellite imagery and agricultural ground truthing (USDA National Agricultural Statistics Service, 2022). One of the layers produced annually as a part of CropScape identifies cultivated areas using the last five years of CropScape data. Areas are classified as cultivated if they were listed as cultivated for at least two of the previous five years, or if they were listed as cultivated in the most recent CropScape dataset.

According to the 2021 CropScape cultivated area dataset, 228,605 acres of Pickaway County, or approximately 70.5% of the county's area, was classified as cultivated. As shown in Table 08-10, cultivated areas within the Facility fenceline make up approximately 2,178 acres of this total, or only 0.95% of the county's cultivated area. At a more local level, the Facility fenceline contains 3.54% of the total cultivated area of Deer Creek Township, 4.85% of the total cultivated area of Jackson Township, and 2.35% of the cultivated area within Monroe Township.

Table 08-10. Cultivated Land Area in Pickaway County and Project Fenceline

Area	Total Cultivated Area (Acres)	Cultivated Area Within Fenceline (Acres)	Percentage of Total Cultivated Area within Fenceline
Pickaway County	**228,605**	**2,178**	**0.95%**
Deer Creek Township	18,458	635	3.54%
Jackson Township	22,165	1,075	4.85%
Monroe Township	19,931	468	2.35%

Source: USDA National Agricultural Statistics Service 2021 Cultivated Layer (USDA National Agricultural Statistics Service, 2021).

Table 08-11 quantifies total impacts to agricultural land uses. Impacts of the small segments of Facility components that are proposed to be located outside the fenceline were calculated separately and added to the total. Table 08-12 presents agricultural land use impacts by Facility components. Agricultural land use data was derived from land use codes included in parcel data obtained from the Pickaway County Auditor's office. Impacts to CAUV parcels and agricultural

districts land are presented in subsequent tables. For the purposes of this evaluation, "permanent" refers to the lifespan of the Facility, estimated to be approximately 40 years. At the end of its useful life, the Facility will be decommissioned, and the land can be returned to its current use. A Decommissioning Plan is included with this Application (Exhibit L).

Table 08-11. Total Agricultural Land Use Impacts

Facility Component	Temporary Impact (Acres)[5]	Permanent Impact (Acres)	Total Impact (Acres)
Agricultural Vacant (100)			
Area Inside Fenceline[1]	0.0	1,280.0	1,280.0
Area Outside Fenceline			
Access Roads[2]	1.8	3.4	5.2
Laydown Yards	10.6	0.0	10.6
Collector Substation/POI[3]	0.0	17.2	17.2
Underground Collection Lines[4]	35.7	0.0	35.7
Total Agricultural Vacant	**48.1**	**1,300.6**	**1,348.7**
Agricultural Cash – Grain or General Farm (101)			
Area Inside Fenceline[1]	0.0	962.6	962.6
Area Outside Fenceline			
Access Roads	0.4	0.8	1.2
Laydown Yards	1.7	0.0	1.7
Underground Collection Lines	13.8	0.0	13.8
Total Agricultural Cash – Grain or General Farm	**15.9**	**963.4**	**979.3**
Total Agricultural	**64.0**	**2,264.0**	**2,328.0**

1. As the entire fenced area is anticipated to be unavailable to landowners, permanent land use impacts include the entire area within fenceline.
2. Access roads will have a temporary width of 30 feet, and a permanent width of 20 feet.
3. The gen-tie line is included within the collector substation/POI area.
4. A temporary, 30-foot-wide area will be required for underground collection line installation.
5. Temporary impact areas represent only the additional impact area during construction and do not include the permanent impact area. The temporary and permanent impact areas are added together in the total impact column.

Table 08-12. Agricultural Land Use Impacts by Facility Component

Agricultural Land Use	Temporary Impact (Acres)[6]	Permanent Impact (Acres)	Total Impact (Acres)
Agricultural Vacant (100)			
Access Roads[1]	12.6	25.1	37.7
Inverters[2]	0.0	0.4	0.4
Laydown Yards	17.2	0.0	17.2
PV panels[3]	0.0	927.1	927.1
Collector Substation/POI[4]	0.0	17.2	17.2
Underground Collection Lines[5]	58.6	0.0	58.6
Total Agricultural Vacant	**71.2**	**969.8**	**1,041.0**
Agricultural Cash – Grain or General Farm (101)			
Access Roads	8.5	17.0	25.5
Inverters	0.0	0.3	0.3
Laydown Yards	1.7	0.0	1.7
PV Panels	0.0	768.9	768.9

Agricultural Land Use	Temporary Impact (Acres)[6]	Permanent Impact (Acres)	Total Impact (Acres)
Underground Collection Lines	27.3	0.0	27.3
Total Agricultural Cash – Grain or General Farm	**37.5**	**786.2**	**823.7**
Total Impact	**108.7**	**1,756.0**	**1,864.7**

1. Access roads will have a temporary width of 30 feet, and a permanent width of 20 feet.
2. Includes 119 inverter pads, with an area of approximately 277 ft^2 each
3. Permanent impacts to solar arrays include the entire area underneath and between the panels because that area will be taken out of its current use for approximately 40 years.
4. The gen-tie line is included within the collector substation/POI area.
5. A temporary, 30-foot-wide area will be required for underground collection line installation.
6. Temporary impact areas represent only the additional impact area during construction and do not include the permanent impact area. The temporary and permanent impact areas are added together in the total impact column.

Table 08-13 provides total impacts to CAUV parcels based on the fenced area of the Facility. Impacts of the small segments of Facility components that are proposed to be located outside the fenceline were calculated separately and added to the total. Table 08-14 quantifies impacts to CAUV land by component.

Table 08-13. Total CAUV Parcel Impacts

Facility Component	Temporary Impact (Acres)[4]	Permanent Impact (Acres)	Total Impact (Acres)
Area Inside Fenceline[1]	0.0	1,992.0	1,992.0
Area Outside Fenceline			
Access Roads[2]	0.9	1.6	2.4
Laydown Yards	1.6	0.0	1.6
Underground Collection Lines[3]	20.5	0.0	20.5
Total CAUV Land Impact	**23.0**	**1,993.6**	**2,016.6**

1. As the entire fenced area is anticipated to be unavailable to landowners, permanent land use impacts include the entire area within fenceline.
2. Access roads will have a temporary width of 30 feet, and a permanent width of 20 feet.
3. A temporary, 30-foot-wide area will be required for underground collection line installation
4. Temporary impact areas represent only the additional impact area during construction and do not include the permanent impact area. The temporary and permanent impact areas are added together in the total impact column.

Table 08-14. CAUV Parcel Impacts by Component

Facility Components	Temporary Impact (Acres)[5]	Permanent Impact (Acres)	Total Impact (Acres)
Access Roads[1]	17.3	34.5	51.8
Inverters[2]	0.0	0.7	0.7
Laydown Yards	8.2	0.0	8.2
PV Panels[3]	0.0	1,502.5	1,502.5
Underground Collection Lines[4]	47.7	0.0	47.7
Total	**73.2**	**1,537.7**	**1,610.9**

1. Access roads will have a temporary width of 30 feet, and a permanent width of 20 feet.
2. Includes 119 inverter pads, with an area of approximately 277 ft^2 each
3. Permanent impacts to solar arrays includes the entire area underneath and between the panels, because that area will be taken out of its intended current use for approximately 40 years.
4. A temporary, 30-foot-wide area will be required for underground collection line installation.
5. Temporary impact areas represent only the additional impact area during construction and do not include the permanent impact area. The temporary and permanent impact areas are added together in the total impact column.

The only impact to agricultural districts is a small area of collection line outside of the fenceline. Construction of the segment of collection line within the agricultural district parcel will temporarily impact approximately 7.4 acres. No agricultural district land will be permanently impacted by the Facility.

(b) *Impacts on Agricultural Facilities and Practices*

(i) Field operations

Plowing, planting, cultivating, spraying, aerial applications, and harvesting will be halted on land occupied by the Facility during the lifetime of the Facility. Once the Facility has reached the end of its useful life, Facility components will be removed, and the underlying Project Area will be restored for potential agricultural use.

(ii) Irrigation

Irrigation systems are not in widespread use in the Project Area. Potential interference to irrigation operations is very limited and coordination with affected landowners will alleviate potential for significant long-term disruption.

(iii) Field drainage systems

Construction of the Facility could result in damage to subsurface drainage systems. Avoidance and mitigation of damage to drainage systems will be incorporated into the final Facility design.

Additional information regarding the identification of field drainage systems, as well as avoidance and mitigation measures to repair potential damage, is detailed below in Section 4906-4-08(E)(2)(c).

(iv) Structures used for agricultural operations

The Project proposes no impacts to agricultural related structures during construction, operation, or maintenance of the Project, except for one storage structure planned for removal as requested by the landowner.

(v) Viability as agricultural district land

Figure 08-3 depicts parcels within the Project Area that are enrolled in the agricultural district program. The only impact to agricultural districts is a small area of collection line outside of the fenceline. Construction of the segment of collection line within the agricultural district parcel will temporarily impact approximately 7.4 acres. No agricultural district land will be permanently impacted by the Facility.

(c) *Proposed Mitigation Procedures*

(i) Avoidance/minimization of damage to field tile drainage systems

Drainage tiles were identified through consultations with participating landowners, the Pickaway County Soil and Water Conservation District, and the Pickaway County Engineer. No county-maintained drainage tiles or mains within the Project Area were identified. Additional efforts to locate known drainage tile locations are ongoing. The Applicant will make commercially reasonable efforts to avoid impacting any other drainage tile systems within the Project boundary to the extent practicable throughout development, construction, and operations. Mitigation measures such as grading and drainage routing will be included in a grading plan for the Facility. The detailed grading and drainage plan will include any necessary mitigation for neighboring properties as well as participating landowners. More detail can be found in the attached Drain Tile Maintenance Plan (Exhibit E).

(ii) Timely repair of damaged field tile systems

If Chipmunk Solar becomes aware during construction or operation of circumstances indicating that the Project has damaged functioning drain tile that are adversely affecting adjacent landowners or public drains, then Chipmunk Solar will promptly investigate the matter and use commercially reasonable efforts to promptly address and mitigate any such negative impacts to adjacent landowners or public drains. Mitigation efforts may include drainage routing or corrections in stormwater flow through retention facilities.

(iii) Topsoil segregation, decompaction, and restoration

Topsoil movement will occur during installation of foundations for the collection substation and inverters, trenching of collection lines, installation of the laydown yard, and the installation of access roads. In areas where grading is proposed, topsoil will be stripped where required by federal, state, and/or local environmental regulations. Any topsoil that is to be stripped prior to site grading will be stockpiled on-site in a manner that meets all federal, state and/or local requirements. After construction in an area, topsoil will be re-spread over the subsoil once grading is complete.

The construction activities could also result in some degree of soil compaction. Following the completion of construction, soil compaction measurements will be performed to assess the extent of soil density in areas designated for revegetation. Soil decompaction will occur in seeding and planting areas where the soil density compaction level exceeds 80% of maximum dry weight according to ASTM 1557.

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Summary: Application Application including Cover Letter and Affidavit electronically filed by Mr. Michael J. Settineri on behalf of Chipmunk Solar LLC