



> **Application to the Ohio Power Siting Board
for a Certificate of Environmental Compatibility and Public Need
for the Circleville Solar Transmission Line**

June 2022

Prepared for:
Circleville Solar, LLC
Case Number 22-0117-EL-BTX

ECT

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List of Acronyms and Abbreviations

AC	Alternating current
ACEP	Agricultural Conservation Easement Program
AEP	American Electric Power
Applicant	Circleville Solar, LLC
BMP	Best Management Practice
CEDA	Comprehensive Economic Development Area
Certificate	Certificate of Environmental Compatibility and Public Need
COD	Commercial Operation Date
County	Pickaway County, Ohio
CWA	Clean Water Act
dBA	A-weighted decibels
DBH	Diameter at breast height
DC	Direct current
ECT	Environmental Consulting & Technology, Inc.
FAA	Federal Aviation Administration
Facility	Physical built components, machinery, and structures comprising the Project
FEMA	Federal Emergency Management Agency
Gen-Tie	Generation Tie-In
HDD	Horizontal directional drilling
Interconnection	Location of where the Project connects to the regional power grid
IPaC	Information for Planning and Consultation
kV	Kilovolt
MFO	Maximum Facility Output
MW	Megawatt
NEER	NextEra Energy Resources, LLC
NERC	North American Electric Reliability Corporation
NHD	National Hydrography Dataset
NLCD	National Land Cover Database
NWI	National Wetlands Inventory
OAC	Ohio Administrative Code
ODA	Ohio Department of Agriculture
ODNR	Ohio Department of Natural Resources
ODOT	Ohio Department of Transportation
OEPA	Ohio Environmental Protection Agency
OPSB	Ohio Power Siting Board
ORAM	Ohio Rapid Assessment Method
PEM	Palustrine emergent
PFO	Palustrine forested
PJM	PJM Interconnection LLC
POI	Point of Interconnection
Project	Circleville Solar Transmission Line
Project Area	The land area evaluated for Project siting
PV	Photovoltaic solar panel
ROW	Right-of-way

SHPO	State Historic Preservation Offices
SPCC	Spill Prevention, Control, and Countermeasures
Survey Area	Ecological Field Survey Area – approximately 212-acre area field surveyed for ecological resources
SWPPP	Stormwater Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

4906-5-01. Purpose and Scope

(A) General

Circleville Solar, LLC (Applicant) is proposing to construct an approximately 3.6-mile, 138 kilovolt (kV) generation tie (gen-tie) transmission line in Pickaway County, Ohio (Circleville Solar Transmission Line or "Project"). The enclosed materials have been prepared following the requirements within the Ohio Administrative Code (OAC) Rule 4906-5 – Certificate Applications for Electric Transmission Facilities, to obtain a Certificate of Environmental Compatibility and Public Need (Certificate) for the Circleville Solar Transmission Line.

The Applicant is proposing an Application for a Certificate for the Circleville Solar Transmission Line to transmit energy generated by the Circleville Solar generation facility to the Circleville 138-kV Substation (Circleville Substation or Substation) in Circleville, Ohio. The Certificate requirement is triggered because the Project exceeds two (2) miles in length, pursuant to Exhibit A(1)(c), 4906-1-01 OAC. The Project is between three (3) and four (4) miles in length and crosses through Jackson Township, Wayne Township, Circleville Township, and the City of Circleville to connect to the Substation and connect the Project to the regional electrical grid.

The Application has been prepared for the Applicant by Environmental Consulting & Technology, Inc. (ECT). ECT has greater than 15 years of experience siting and permitting renewable energy facilities and their associated transmission facilities and has supported more than 100 projects nationwide.

(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 contemporaneous with this Application, the Applicant requests a waiver, in part, from the provisions of OAC 4906-3-05, which requires that alternative(s) routes for transmission line projects must have not more than 20 percent of their length in common. The Alternate Route is approximately 68 percent common with the Preferred Route for the Project. No viable alternative routes were identified during the siting process for the transmission line that would meet the 20 percent commonality threshold without the potential of increasing impacts to land use,

environmental resources, or cultural resources. Additional details on the siting and route selection process for the Project are discussed in Section 4905-6-04.

4906-5-02. Project Summary and Applicant Information

(A) Project Summary

The applicant shall provide a summary of the proposed project. The summary should be suitable as a reference for state and local governments and for the public.

(1) General Purpose of the Facility

The Applicant is proposing an approximately 3.6-mile, 138-kV gen-tie line that will connect the Circleville Solar 70-megawatt (MW) alternating current (AC) photovoltaic (PV) solar generation facility, submitted under separate cover as case number 21-1090-EL_BGN, to the Circleville Substation in the City of Circleville. The Circleville Solar Transmission Line is constituent to the proposed Circleville Solar generation facility that is planned to be located in Jackson and Wayne Townships. The purpose of the Project is to transmit the electric current generated by the Circleville Solar generation facility to the existing Circleville Substation. The Project gen-tie line is proposed as a new (greenfield), primarily overhead line, with less than 0.1 mile of the line proposed as underground and does not share any easements or support structures with existing transmission or distribution infrastructure in the area.

(2) General Location, Size, and Operating Characteristics of the Proposed Facility

The Project is approximately 3.6 miles in length and originates at the planned collector substation located in Jackson Township on the south side of State Route 56 (SR-56), approximately three miles west of the City of Circleville. The gen-tie line crosses through northern Wayne Township and through a small portion of southern Circleville Township and terminates at the Circleville Substation that is mapped inside the western extent of the City of Circleville between northbound United States Highway 23 (US-23) and the railroad parallel with Canal Street. The Substation is bounded to the north by West Mound Street, while the planned gen-tie route would connect to the point-of-interconnection

(POI) from the south, crossing the field parallel to the railroad's meander. A Project Overview Map is presented as **Figure 2-1** in **Exhibit A**.

The Project will be constructed as a single-circuit 138-kV line with primarily wood single-pole structures requiring a 100-foot-wide permanent right-of-way (ROW). Steel single-pole structures will be used in several areas of the Project, specifically for crossing the Scioto River and railroad corridor and where there are large turn angles in the line. Direct embed installation of the wood poles will be used for the construction of the majority of the line, however, several concrete foundation and direct pier structures are anticipated to also be utilized as required by engineering standards in the final Project design. A small section of the line is proposed to be underground at the eastern end of the Project under US-23, while the remainder of the gen-tie line will be constructed overhead. The work at the Circleville Substation is primarily going to involve upgrades or additions to the existing infrastructure and is not anticipated to require an expansion of the substation footprint outside of the existing fenceline. The collector substation construction is not part of this Application and was included in the Application associated with the Circleville Solar generation facility, submitted under separate cover as case number 21-1090-EL_BGN.

(3) Suitability of the Preferred and Alternate Routes

A Route Selection Study (RSS) was conducted for the Project to identify a Preferred and Alternate Route for the gen-tie line; Section 4905-6-04 of this Application discusses this study in further detail. The siting process utilized during the RSS first identifies feasible conceptual routes in the study area that meet the Project need, which is largely driven by the Project endpoints and distance to these predetermined termini. These conceptual routes are then reviewed against land use, engineering, ecological, and cultural constraints identified by desktop and field review in the study area to select at least two alternate routes for the Project. Landowner interest was a key consideration for the siting criteria for the Project. The Project is sited entirely on land with voluntary landowner participation. The candidate alternate routes are then evaluated and compared through quantitative and qualitative measures to identify the final alternate routes to be presented as the final route options.

Based on the RSS process, the Preferred and Alternate Routes presented in this Application are constructible and were identified as optimal routes due to the balance of minimization of impacts on

sensitive land uses, cultural features, and ecological features in the Project Area, limitation of land available through voluntary landowner participation, and the constructability and technical engineering details and cost feasibility of these routes.

Preferred Route Description - The Preferred Route follows the path described in Section 4905-6-02(A)(2). This route originates from the Circleville Solar generation facility collector substation that is proposed on the south side of SR-56, then runs to the southeast parallel along SR-56 on the south side of the road before crossing to the north of SR-56 to the east of the intersection of SR-56 and SR-104. The route continues to parallel SR-56 on the north side until the intersection of SR-56 and US-22, where it turns slightly to the northeast and parallels US-22 on the north side, offset to the north of the existing 138-kV transmission line. The Preferred Route then crosses the Scioto River, adjacent land to the east of the river, and the railroad corridor before turning south and crossing US-22 and an entrance ramp onto US-23 south. The Preferred Route will traverse an underground alignment, via a horizontal directional drilling (HDD) method from west of US-23 to the POI at the existing substation within Circleville.

Alternate Route Description - The Alternate Route is approximately 3.9 miles long and diverts off the Preferred Route for approximately 1.6 miles. The Alternate Route diverts off the Preferred Route at the intersection of SR-56 and SR-104, where the Alternate Route crosses to the east side of SR-104, just south of the intersection. The Alternate Route then traverses south along the east side of SR-104 for approximately 0.5 mile before turning east and crossing agricultural fields along parcel lines before merging back as a common route with the Preferred Route on the north side of SR-56.

(4) Project Schedule

A Gantt chart is acceptable.

Planning for the Project began in early 2017, beginning with site determination and correspondence with state and federal agencies for coordination. Application of land rights for the Project began in early to mid-2021 and will be completed in mid-2022. A public information meeting, which included information about the Applicant, Project, and solar technology, was held on March 10, 2022, to encourage public interaction and feedback. A final design will be completed prior to construction, which is anticipated to begin in spring 2023, with an expected date of operation in late 2023. The

current Project schedule is illustrated in a Gantt schedule bar chart provided in Section 4906-5-03(F)(1).

(B) Applicant Information

The applicant shall provide a brief description of the applicant's history, affiliate relationships, and current operations, and a description of the company that will construct and operate the facility, if different from the applicant.

The Applicant is an indirect wholly owned subsidiary of NextEra Energy Resources, LLC (NEER), and was formed in 2021 for the purpose of developing the Circleville Solar generation facility and Project. NEER, through its affiliated entities, is the world's largest generator of renewable energy from the wind and sun. Nearly all of NEER's electricity comes from clean or renewable resources, including wind, solar, natural gas and nuclear energy facilities located in 37 states and Canada. NEER's success reflects the solid business practices of their parent company, NextEra Energy, Inc., which is a Fortune 200 company and one of the nation's leading clean energy companies. NEER has a portfolio of power-generating facilities, totaling approximately 21,900 megawatts of capacity in the U.S. and Canada. NEER has been involved in clean energy development since the 1980s and now has a cumulative investment of more than \$30 billion in wind and solar energy facilities. NEER has earned a reputation for excellence and experience in developing, constructing, and operating wind and solar projects across North America and operates dozens of utility scale and small-scale solar projects across the U.S., generating more than 2,600 MW. In Ohio, NEER has 13 operational distributed generation solar facilities ranging from 1 to 20 MW. This investment totals \$113.9 MM in total capital investment in the state with \$981k in annual property taxes paid.

NEER is primarily a wholesale power generator, operating power plants and selling the output to utilities, retail electricity providers, power cooperatives, municipal electric providers, and large industrial companies.

The Applicant intends to own and operate the Circleville Solar Transmission Line for the life of the Project. The Applicant has executed a renewable product agreement for the energy generated by the Circleville Solar generation facility to an Ohio-based energy provider.

4906-5-03. Review of Need and Schedule

(A) Need for the Proposed Facility

The applicant shall provide a statement explaining the need for the proposed facility, including a listing of the factors upon which it relied to reach that conclusion and references to the most recent long-term forecast report (if applicable).

The primary purpose of the Circleville Solar Transmission Line is to deliver up to 70 MW of electricity generated by the Circleville Solar generation facility to the regional electric grid, where it will serve the needs of electric utilities and their customers. The Project will begin at the collector substation for the Circleville Solar generation facility and terminate at the proposed Circleville Substation POI switchyard. The Circleville Substation POI Switchyard will allow the power to be distributed to the regional grid through the Circleville – Scippo 138kV, Circleville – Biers Run 138kV, and Circleville – Harrison 1EQ 138kV circuits. While other interconnection alternatives were investigated, the Preferred Route and Circleville Substation POI switchyard were determined to be the best option available based on internal injection analysis to determine where available capacity is on the grid followed by the formal PJM queue process and interconnection studies (**Exhibit B**).

(1) Purpose of the Proposed Facility

The applicant shall explain the purpose of the proposed facility.

The Applicant is proposing to construct the Circleville Solar Transmission Line to the Circleville Substation POI switchyard in Pickaway County, Ohio. This Project is associated with the Circleville Solar generation facility, located in Pickaway County, Ohio. The Project is designed to deliver power generated by the Circleville Solar generation facility to AEP's transmission grid, which is operated by PJM. The Project, in conjunction with the Circleville Solar generation facility, will be used to contribute renewable solar energy to the transmission grid. For example, the Project and Circleville Solar generation facility can be used:

- By an energy off-taking customer under a term power purchase agreement;
- As a pure energy resource either participating in the PJM day-ahead and hourly energy markets or as a Federal Energy Regulatory Commission (FERC) Qualifying Facility for avoided cost credit under a tariff; and/or
- As a resource that enables a mercantile customer to utilize renewable wind energy.

(2) System Conditions, Local Requirements, and Other Pertinent Factors

The applicant shall provide specific projections of system conditions, local requirements, or any other pertinent factors that impacted the applicant's opinion on the need for the proposed facility.

The Applicant filed an interconnection request on January 31, 2017 and was granted queue position AC2-029. PJM studies completed to date have indicated favorable results for delivery of energy from the Circleville Solar generation facility to the Circleville Substation POI.

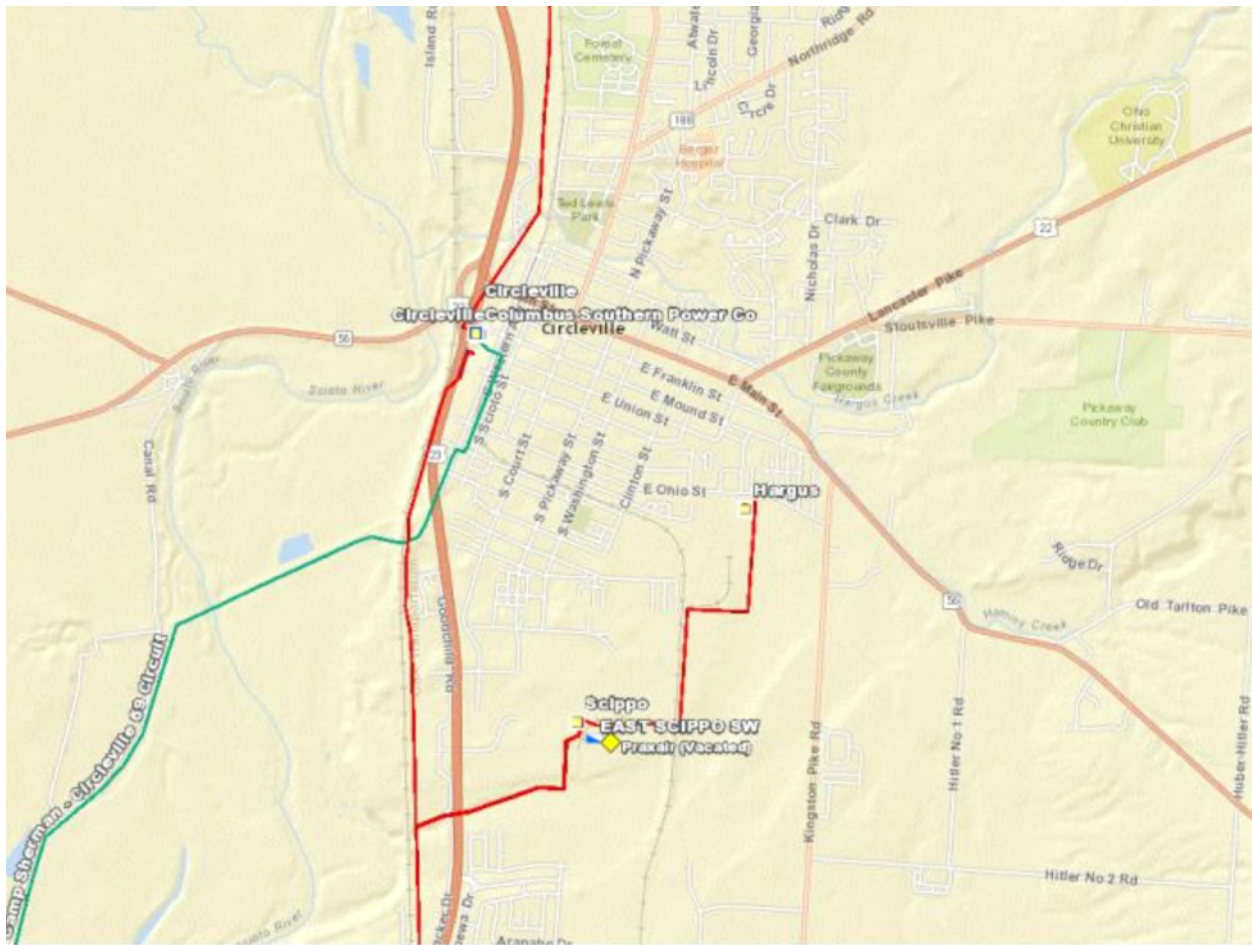
(3) Load Flow Studies and Contingency Analyses

The applicant shall provide relevant load flow studies and contingency analyses, if appropriate, identifying the need for system improvement.

Due to the Project transmission line and POI switchyard being used to connect the Circleville Solar generation facility to the regional power grid, there are no relevant load studies and contingency analyses existing that identify the need for system improvement.

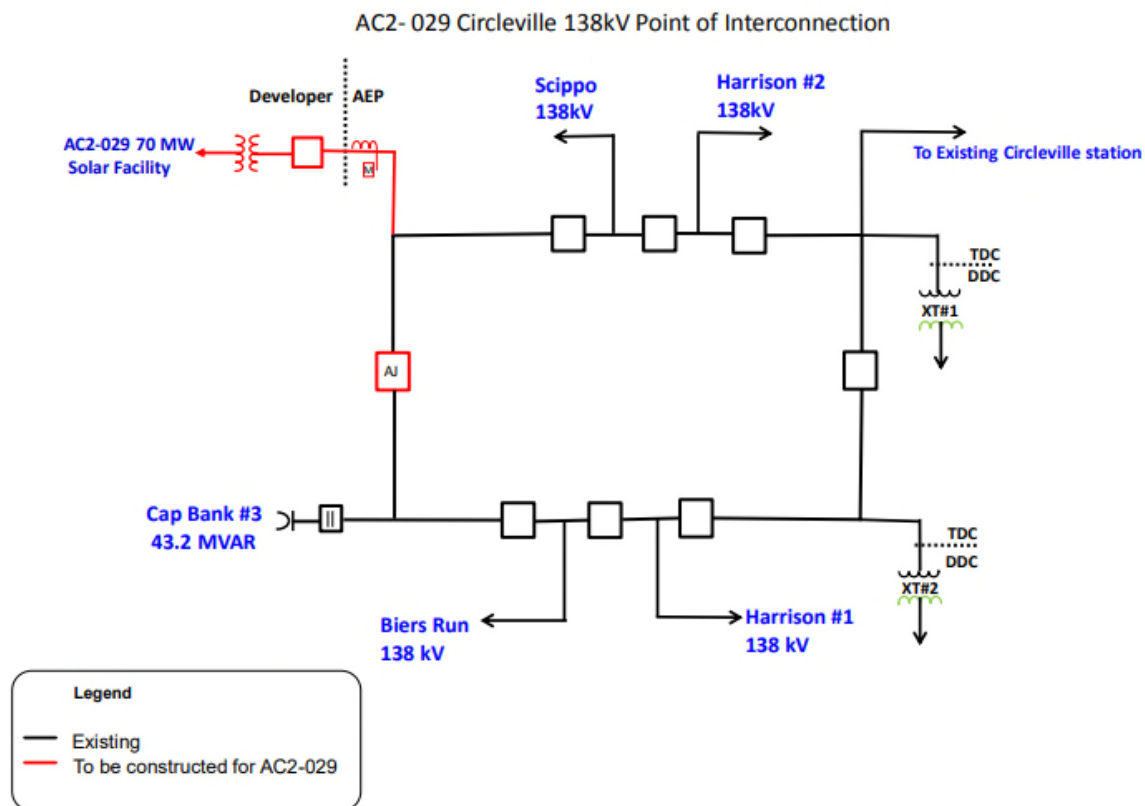
The Circleville Solar generation facility and Project will be engineered and constructed to comply with all applicable electrical safety codes and good engineering practices. The proposed method of service is to inject the output from the Circleville Solar generation facility into the existing Circleville Substation. **Diagram 3-1** shows the location of the proposed interconnection, with respect to existing transmission lines in the region.

Diagram 3-1. Proposed Interconnection Point Overview



The Circleville Solar generation facility collector substation will be located along OH-56, to the west-northwest of the intersection of OH-56 and OH-104, in Pickaway County, Ohio. The POI switchyard will connect to the existing Circleville Substation, as shown in **Diagram 3-2** below.

Diagram 3-2. Point of Interconnection



The Applicant filed an interconnection request on January 31, 2017 and was granted queue position AC2-029. Circleville Solar, LLC is a 70 MW Maximum Facility Output (MFO) with 26.6 MW Capacity Injection Rights (CIRs). The Feasibility Study was issued in July 2017 and System Impact Study issued in June 2018. Delivery of the facilities study is expected July 2022 with execution of the Interconnection Services Agreement (ISA) expected 60 days later. PJM interconnection studies completed to date can be found as in **Exhibit B**.

(4) System Performance Transmission Diagrams

For electric power transmission facilities, the applicant shall present load flow data in the form of transcription diagrams depicting system performance with and without the proposed facility.

Diagrams 3-3 and 3-4 depict the system performance in the Project Area with and without the Facility, respectively.

Diagram 3-3. Transcription Diagram with Facility in Service

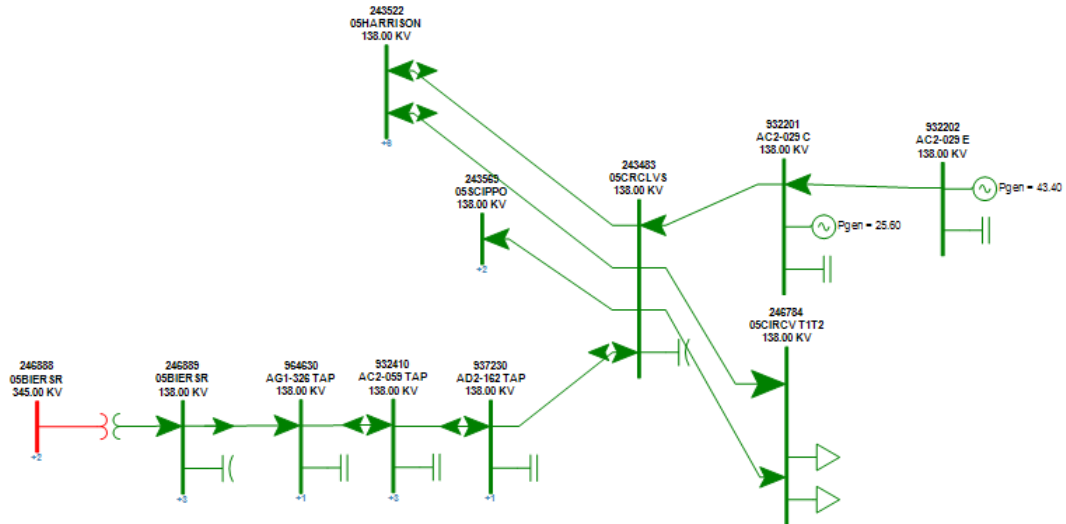
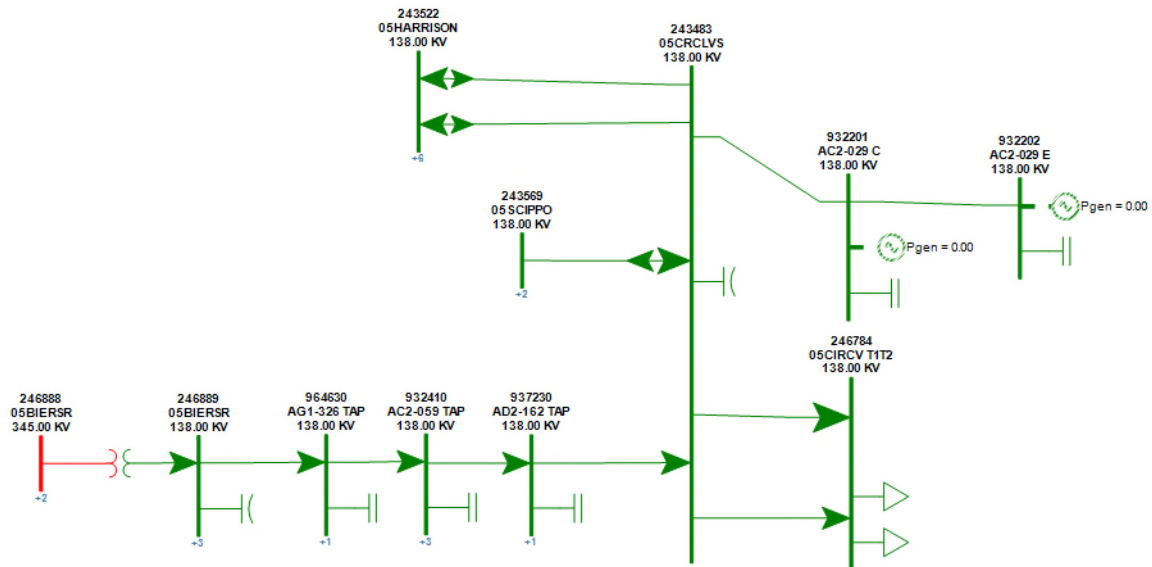


Diagram 3-4. Transcription Diagram without Facility in Service



(5) Base Case System Data for Gas Pipelines

No gas pipelines are proposed as part of the Project and therefore this section is not applicable.

(B) Regional Expansion Plans

The applicant shall explain how the facility fits into regional expansion plans.

(1) Proposed Facility in Long-Term Forecast and Regional Plans

For electric power transmission lines and associated facilities, the applicant shall provide a brief statement of how the proposed facility and site/route alternatives fit into the applicant's most recent long-term electric forecast report and the regional plans for expansion, including, but not limited to, the following (a) through (c).

(a) Facility Description in Long-Term Electric Forecast

Reference to any description of the proposed facility and site/route alternatives in the most recent long-term electric forecast report of the applicant.

The Applicant is neither an electric distribution company nor an electric distribution utility, and as such, does not have responsibility for planning for transmission and distribution for franchised service areas. Therefore, the Applicant does not maintain or file long-term electric forecast reports, and this section is inapplicable.

(b) Explanation for No Description in Long-Term Electric Forecast

If no description was contained in the most recent long-term electric forecast report, an explanation as to why none was filed in the most recent long-term forecast report.

Please see the response to 4906-5-03(1)(a).

(c) Regional Expansion Plans

Reference to regional expansion plans, when applicable (if the transmission project will not affect regional plans, the applicant shall so state).

As indicated above, PJM performed a System Impact Study on the Circleville Solar generation facility interconnection request in July 2017. This report was included as Exhibit G of the Circleville Solar

generation facility application (Case No. 18- 1607-EL-BGN). The System Impact Study concluded that no impacts exist for generator deliverability, contributions to previously identified overloads, short circuit, potential congestion due to local energy deliverability, and contribution to previously identified system reinforcements (PJM, 2017).

In summary, the Circleville Solar generation facility and the proposed Facility will have no adverse impacts on grid reliability. As such, the Facility will not affect regional plans.

(2) Long-Term Forecast for Gas Pipelines

No gas pipelines are proposed as part of the Project and therefore this section is not applicable.

(C) Impact on Electric Power System Economy and Reliability

For electric power transmission facilities, the applicant shall provide an analysis of the impact of the proposed facility on the electric power system economy and reliability. The impact of the proposed facility on all interconnected utility systems shall be evaluated, and all conclusions shall be supported by relevant load flow studies.

The Applicant filed an interconnection request on January 31, 2017 and participated on the deficiency review period leading to granting of queue position AC2-029. The Feasibility Study was issued on July 2017, showing required attachment facilities and non-direct connection cost totaling \$1.7 MM. A System Impact Study (SIS) report was issued on June 2018, revising the total interconnection costs to \$2.2 MM. As a result of PJM's retool, a revised SIS was issued on November 16, 2021, reducing the interconnection cost to \$2.0 MM. Details of studies conducted by PJM can be viewed in the complete SIS (**Exhibit B**).

The Applicant will be connecting the Project to the AEP system at the Circleville Substation in Pickaway County, Ohio via addition of a new 138-kV breaker position, associated protection and control equipment, revenue metering, etc. Project AC2-029 was evaluated for compliance with applicable reliability planning criteria of PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners, specifically AEP's "Requirements for Connection of New Facilities or Changes to Existing Facilities Connected to the AEP Transmission System" located at the following link:

<http://www.pjm.com/~media/planning/plan-standards/private-aep/aep-interconnection-requirements.ashx>.

(D) Evaluation of Options to Eliminate Need for New Transmission Line

For electric power transmission lines, the applicant shall provide an analysis and evaluation of the options considered which would eliminate the need for construction of an electric power transmission line, including electric power generation options and options involving changes to existing and planned electric power transmission substations.

The most viable interconnect position for the Circleville Solar generation facility is the Circleville Substation following injection analysis and study process through PJM. Queue position AC2-029 studied by the regional transmission operator has determined it is suitable for delivery of energy to the grid in studies completed to date. The Project siting process was driven by the Project endpoints and distance to these predetermined termini.

(E) Proposed Facility Selection

The applicant shall describe why the proposed facility was selected to meet the projected need. The applicant shall also describe how the facility will serve the public interest, convenience, and necessity.

The Circleville Solar Transmission line was selected in order to connect the Circleville Solar generation facility to the grid. Optimal siting of the generation facility required a location approximately 3.6 miles away from the point of interconnect, the Circleville Substation, necessitating the proposed transmission line to maintain ideal siting of the solar array. Construction of this transmission line will directly contribute to the ability for Circleville Solar, LLC to bring clean, renewable solar energy to Pickaway County while expected to contribute approximately \$560,000 in tax revenue to the county on an annual basis for the lifespan of the Circleville Solar generation facility.

(F) Facility Schedule

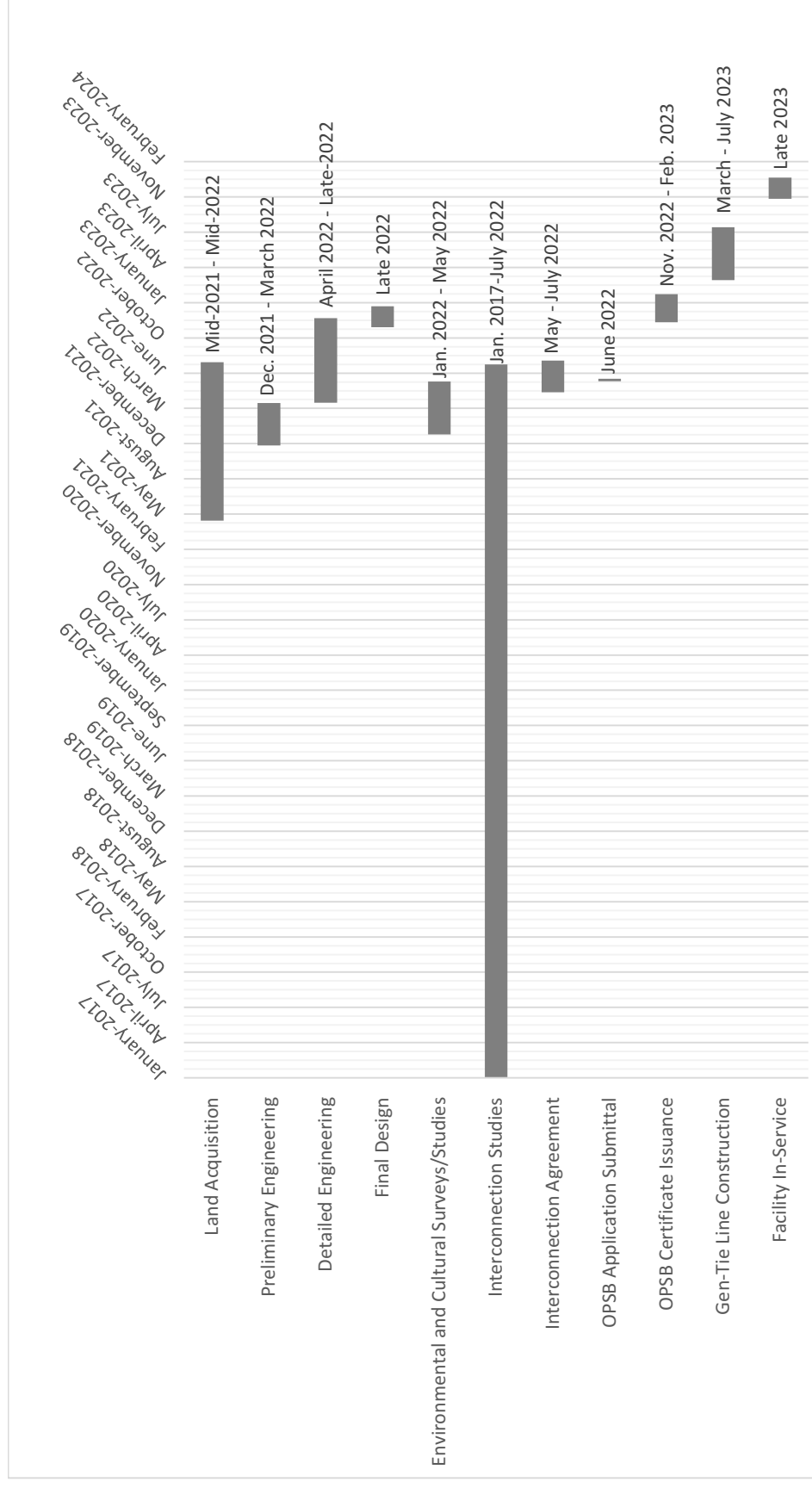
(1) Facility Schedule Gantt Chart

The applicant shall provide a proposed schedule in Gantt chart format covering all major activities and milestones, including:

- (a) Preparation of the Application*
- (b) Submittal of the Application for Certificate*
- (c) Issuance of the Certificate*
- (d) Receipt of Grid Interconnection Studies and Other Critical Path Milestones for Project Construction*
- (e) Acquisition of Rights-of-Way and Land Rights for the Certified Facility*
- (f) Preparation of the Final Design*
- (g) Construction of the Facility*
- (h) Placement of the Facility in Service*

A Gantt chart depicting all major activities and milestones for the Project is provided below as **Figure 3-1**.

Figure 3-1. Project Schedule



(2) Potential Impact of Critical Delays

The applicant shall describe the potential impact of critical delays on the in-service date.

Critical delays along any of the steps outlined above could result in material impact to the Project. Delays in steps such as Project permitting or procurement/shipment of Project components could push back the Project Commercial Operation Date (COD), preventing delivery of energy from the facility. Delays in the COD would have major impacts on the Project.

4906-5-04. Route Alternatives Analysis

(A) Route Selection Study

The applicant shall conduct a site and route selection study prior to submitting an application for an electric power transmission line or gas pipeline, and associated facilities. The study shall be designed to evaluate all practicable sites, routes, and route segments for the proposed facility within the study area.

The Applicant, in association with its siting consultant, ECT, conducted the gen-tie line RSS for the Project (**Exhibit C**). The goal of the RSS was to identify conceptual routes in the larger study area and choose several alternative routes from these conceptual routes that provide technically and economically feasible alignments that meet the Project need while also minimizing potential impacts to sensitive land uses (e.g., residences, businesses, schools, parks, places of worship, historical structures and districts, existing transportation corridors), cultural resources, and environmental and ecological resources (e.g., wetlands, streams, wooded areas, and threatened and endangered species).

Both qualitative (e.g., maintenance considerations, constructability, and public and landowner input) and quantitative (e.g., acreage of tree clearing, number of parcels crossed, number of residences within a specified distance) comparative evaluations were done on all the alternative routes to assist in the selection of the final Alternate and Preferred Route.

(1) Study Area Description and Selection Rationale

The applicant shall provide a description of the study area, or the geographic boundaries of the area considered for development of the project, including the rationale for the selection.

The Project is located in central Pickaway County, Ohio and is a proposed 3 to 4 mile greenfield 138-kV line to connect the collector substation of the Circleville Solar generation facility to the existing power grid. The Study Area size and extent for the RSS was driven by the location of the Project endpoints, specifically the generation facility planned collector substation located in Jackson Township, approximately three miles west of the City of Circleville, and the POI at the Circleville Substation, located in the western extent of the City of Circleville, east of the Scioto River.

The Study Area is approximately 5,323 acres in size and is bounded to the north by the Big Darby Creek, to the east generally by the POI at the Circleville Substation, to the south by the abandoned railroad corridor that runs generally east to west, and to the west by the Circleville generation facility and collector substation proposed locations to the west of SR-104. Existing land uses in the Study Area are primarily agricultural uses and low-density residential uses with the exception of the eastern edge where the City of Circleville intersects the Study Area. The major transportation corridors in the Study Area are SR-56 and US-22, which run generally east to west, and SR-104, which generally runs north to south. Existing transmission and distribution infrastructure is located along these major transportation corridors, including a 138-kV overhead electric transmission line along US-22. The terrain in the Study Area is relatively flat, gradually sloping towards the Scioto River that runs through the eastern portion of the Study Area, with elevation ranging from 650 to 700 feet above sea level.

(2) Study Area and Constraints Map

The applicant shall provide a map of suitable scale that depicts the boundary of the study area and all siting constraints and/or suitability analysis utilized for the study.

Figure 4-1 in **Exhibit A** depicts the Study Area boundary, Preferred and Alternate Routes, and Project endpoints on a Study Area Overview Map using aerial background (ESRI World Imagery, January 2021) at a scale of 1:24,000 (one-inch equals 2,000 feet). **Figures 4-1A** through **4-1F** in **Exhibit A** depict the Project Area, Preferred and Alternate Routes and associated 100-foot route ROWs and 2,000-foot corridor, transmission line pole locations, access roads, temporary laydown areas, Project endpoints,

and siting constraints using aerial background (ESRI World Imagery, January 2021) at a scale of 1:4,800 (one-inch equals 400 feet).

(3) Evaluated Routes Map

The applicant shall provide a map of suitable scale that depicts the boundary of the study area and the routes, route segments, and sites which were evaluated.

Figure 4-1 in Exhibit A and Figures 1 and 3A in the RSS (**Exhibit C**) depict the boundary of the Study Area and the Preferred Route and Alternate Route that were evaluated on a set of maps using aerial background (ESRI World Imagery, January 2021) at a scale of 1:24,000 (one-inch equals 2,000 feet).

(4) Qualitative and Quantitative Siting Criteria

The applicant shall provide a comprehensive list and description of all qualitative and quantitative siting criteria utilized by the applicant, including any weighting values assigned to each.

Both qualitative (e.g., maintenance considerations, constructability, and public and landowner input) and quantitative (e.g., acreage of tree clearing, number of parcels crossed, number of residences within a specified distance) comparative evaluations were done on all the alternative routes to assist in the selection of the final Preferred Route. These siting criteria, include, but are not limited to identifying routes that:

- Minimize length of/across or avoid:
 - access roads
 - steep slopes
 - waterbody crossings (lakes, rivers, wetland complexes)
 - conservation areas (protected local, state, national lands and parks)
 - critical and protected habitats for threatened and endangered species
 - areas of high-density development, specifically residential
 - flood zones
- Minimize or avoid impacts to occupied structures (residences, hospitals, schools, etc.) and other sensitive cultural features and land uses (cemeteries, historic resources, designated landmarks, recreational areas, etc.) by maximizing the separation distance

- Minimize or avoid negative impacts or conflict with future development in the Project Area with a proposed plan in place prior to the Project construction and existing designated public facilities (such as airports)
- Minimize or avoid visual impacts to scenic resources
- Evaluate the feasibility of paralleling potential existing infrastructure ROWs, such as roads, transmission lines, distribution lines, and pipelines and identify potential limitations, mitigation requirements, and reliability issues
- Evaluate the feasibility of paralleling existing land use breaks or parcel property lines
- Evaluate landowner input
- Evaluate the impact of route length, structure locations, number of structures, and types of structures on construction and maintenance costs to the Project
- Evaluate safety and construction implications of the Project, including potential outages, access roads, traffic control on surrounding roadways, and distance to and crossings of existing infrastructure (railroad, pipelines, fi-optic, electric transmission lines, distribution lines, etc.)
- Evaluate the local and state regulatory siting and permitting needs and standards

(5) Process of Determining Preferred and Alternate Routes

The applicant shall provide a description of the process by which the applicant utilized the siting criteria to determine the preferred and alternate routes and sites.

Publicly available data within the Study Area was collected and reviewed for environmental, land use, social, and engineering features. Generally, features in the Study Area can be classified as either a siting constraint or a siting opportunity. Constraints are features or areas that should be avoided or impacts should be minimized to during the route selection process. Opportunity features can include features such as existing infrastructure corridors and compatible land use corridors, and parcel boundaries in the Study Area. Siting opportunities for this Project include the existing transportation corridors associated with SR-56 and US-22 running east to west, an abandoned rail corridor along the southern boundary of the Siting Study that runs east to west, and the existing 138-kV electric transmission line that runs along US-22.

During the preliminary siting process, the high-level constraints are first considered, which typically include densely populated areas, NRHP locations, larger recreational areas or scenic resources, larger natural resource features (rivers, wetland complexes, and flood zones), critical habitat areas, larger conservation or designated federal and state parks, and any larger areas pre-designated for future land use development. Smaller, site-specific, constraints are identified later in the siting process to assist in the refinement of conceptual routes. These constraints typically include specific locations of occupied structures and other buildings in the Project Area, cemeteries, cultural resources, smaller natural resource features (streams and smaller wetlands), communication and radio towers, oil and gas wells, and drinking water wells. An overview of the Study Area and the high-level constraints are shown in **Figure 2** in the RSS (**Exhibit C**).

(6) Evaluated Routes and Selection Rationale

The applicant shall provide a description of the routes and sites selected for evaluation, and the factors and rationale used by the applicant for selecting the preferred and alternate routes and sites.

Conceptual routes considered during the preliminary siting process for the Project are depicted in **Figures 3A-3G** in the RSS (**Exhibit C**).

The east to west running transportation corridors were recognized as a major siting opportunity in the Study Area as discussed in Section 3.3. Conceptual routes were developed to consider the SR-104, SR-56, and US-22 corridors and also the abandoned railroad corridor that runs along the southern Study Area boundary. The three main conceptual routes identified for the Project included 1) a route that would traverse south on the SR-104 corridor and then east on US-22, 2) a route that would traverse east on the SR-56 corridor and then east on US-22, and 3) a route that would traverse south on the SR-104 corridor and then east on the abandoned railroad corridor.

After further review of the SR-104 corridor, it was recognized that the existing distribution lines that run along SR-104 and the existing land uses create pinchpoints that reduce the feasibility of a potential route that utilizes the length of this corridor down to US-22. Two residences are mapped within less than 75 feet from the edge of road pavement on the west side of SR-104, south of SR-56. Building a transmission line through this corridor would require either the overbuild of the existing

distribution lines in the area or utilizing the east side of the road, which is feasible; however, further south on SR-104 on the east side of the road is a residence that is mapped approximately 100 feet off the edge of road pavement. A transmission line alignment in this area would either need to cross to the west side of the road in this area, which would require overbuilding the existing distribution or offsetting the distribution line and pushing further into the agricultural fields, or the ROW of the line would likely be within 20 to 30 feet of this residence due to the need to construct outside the existing road ROW as set forth by the Ohio Department of Transportation (ODOT). An existing piece of land enrolled in the wetland reserve program is located on the west side of SR-104 between the two residences, which the Project was designed to avoid. Another pinchpoint along this corridor is mapped further south along SR-104 at the intersection of US-22. Distribution lines are mapped on all four corners of the intersection of SR- 104 and US-22 with the exception of the northeast corner where a gas station is located. Traversing this intersection would either require overbuilding or offsetting existing distribution, cutting across the gas station property, or designing an alignment that crosses behind the gas station through an agricultural field.

The US-22 corridor between SR-104 and SR-56 was also reviewed for feasibility of a potential route. Existing overhead distribution and a 138-kV overhead transmission line runs along primarily the south side of US-22. The transmission line starts along US-22 approximately 0.75 mile east of the intersection of SR-104 and US-22, and the distribution appears to be underbuilt on this transmission line going east along US-22. Several potential structure encroachments were identified along this portion of US-22, including a commercial outbuilding on the south side that is mapped approximately 20 feet off edge of road pavement, a residence on the north side that is mapped approximately 50 feet off edge of road pavement, and another residence on the south side of US-22 that is mapped approximately 100 feet off edge of road pavement. A transmission line alignment in this stretch of US-22 where these structures are located would need to jump to the opposite side of the road as the existing 138-kV transmission line or offset the line, which are not feasible options with the commercial outbuilding and residence on the north side of the road being so close to road ROW. Two pinchpoints were identified along this corridor at the intersection of US-22 and Mill Road and to the south of the intersection of US-22 and SR-56. The existing 138-kV transmission line traverses the north side of US-22 and then crosses over SR-56, just west of the intersection of SR-56 and US-22 and continues on the north side of US-22. Numerous distribution lines are mapped in this

area of the Project, along portions of US-22, Canal Road, and Mill Road. Traversing this area, specifically along Mill Road, would either require overbuilding or offsetting existing distribution or utilizing the opposite side of the road where existing infrastructure isn't located. However, the existing commercial, residential, and associated outbuildings located in this area of the Project are mapped very close to the road ROW, in some cases less than 20 feet.

Due to the constraints discussed above, primarily existing overhead distribution and electric transmission lines and potential structure encroachments, any conceptual routes, including conceptual route one (1), that would utilize the entire length of SR-104 from SR-56 to US-22 and the length of US-22 from SR-104 to SR-56 were eliminated as they were deemed not feasible routes for the Project. Therefore, the third conceptual route that would utilize the SR-104 corridor going south to the abandoned railroad corridor going east was also eliminated, too. Moreover, the abandoned railroad corridor abuts the Fleming Bend Wetland Restoration Project Area. This wetland restoration area is contained to the south and east of the Scioto River, north of the abandoned railroad corridor, and generally to the east by the active CSX railroad corridor. The Project was designed to avoid this area, which is designated for protection and restoration of high-quality streams and wetlands in Ohio. Even if the potential Project route utilized the agricultural field to the south of this wetland restoration area to avoid impacts, the existing 69-kV overhead transmission line would cause a further offset into the agricultural field, causing difficulty finding an alignment to navigate back to the POI at the Circleville substation to the north. There are several existing overhead electric transmission lines traversing the area, along with the north to south running CSX railroad and US-23, and north of the abandoned railroad the density of residential development increases inside the City of Circleville boundaries.

The first and third conceptual routes that traverse SR-104 to US-22 and SR-104 to the abandoned railroad corridor were also significantly longer than the conceptual route that traverses SR-56 to US-22 at approximately 4.8 and 5.5 miles, respectively. The second conceptual route that follows SR-56 to US-22 is approximately 3.6 miles and was also reviewed for constructability during the preliminary siting process. Two potential encroachments were identified along the south side of SR-56 where a commercial outbuilding is mapped approximately 40 feet off the edge of road pavement and a residence is mapped approximately 50 feet off the edge of road pavement. Existing overhead

distribution lines run along the south side of SR-56 in this stretch of the Project. No existing infrastructure is located on the north side of the road, making the north side of the road a feasible option for a route alignment. The closest mapped structure on the north side of SR-56 between SR-104 and US-22 is a residence that is mapped approximately 160 feet off the edge of road pavement. As discussed previously, there is a pinchpoint to the south of the intersection of SR-56 and US-22. However, there are no structures located on the north side of SR-56 or US-22 in this area of the Project. An existing 138-kV transmission line is mapped on the north side of US-22, which would have to be offset further into the agricultural fields. This stretch of the conceptual route that would need to be offset from the existing transmission line is mapped on one landowner's parcel for approximately 0.75 miles.

The existing overhead electric transmission line alignments and National Register of Historic Places (NRHP)-eligible Ohio & Erie Canal Southern Descent Historic District, which is mapped crossing the Scioto River to the south of where this conceptual route crosses, make it difficult to potentially cross the Scioto River further south. The Elmon Richards Scioto River Fish Access point on the Elmon Richards Scioto River Wildlife Area, owned by the ODNR, is mapped to the north of where this conceptual route crosses. Based on the constraints to the north and south, crossing the Scioto River and the railroad corridor at the proposed location for this conceptual route appears to be least impactful to sensitive land uses in the Project Area. The Project team reviewed the potential to utilize a routing study segment that would jump to the south side of US-22, to the east side of the intersection of SR-56 and US-22, however, this option was eliminated as a feasible option due to the large amounts of tree clearing this option would require along with the engineering conflict of the existing overhead distribution line that runs along the south side of US-22 and the difficulties with crossing the Scioto River on the south side as described above with the existing overhead transmission lines and the NRHP-eligible historic district.

No other major siting opportunities were identified in the Study Area. The parcels in the area are generally made up of large, agricultural land uses that are contiguous fields owned by the same landowner. Therefore, following parcel lines for this Project, particularly where the adjacent parcel(s) are owned by the same landowner and the land use is agricultural uses, (that do not parallel existing roads) do not minimize impacts to land uses and would potentially result in more significant impacts

and conflicts with farming of cropland in the Project Area. Based on the Project team's conceptual route evaluations, the second conceptual route that runs from the collector substation along the north side of SR-56 primarily and then continues along the north side of US-22 was chosen as an Alternative Route, Alternative Route A, to move forward with in the Siting Study. The Project Team then reviewed the Study Area around this Alternative Route A to develop a second Alternative Route. There seemed to be few options to veer off of Alternative Route A in the eastern half of the Project, specifically starting at the intersection of SR-56 and US-22, due to the commercial and residential development to the south of the intersection and the large amounts of potential environmental and cultural impacts to the south of US-22 with the Scioto River and associated riparian corridors and wooded areas. Therefore, the Project team focused efforts on the western half of the Alternative Route A to develop another alternative.

To develop an Alternative Route to the north of Alternative Route A, along SR-56, would require veering off the route between the intersection of SR-56 and SR-104 and the residences mapped on the north side of SR-56 to avoid any impacts to these existing uses. There are no parcels lines that run east to west generally in this area, so an alignment through this portion of the Study Area would require bisecting agricultural fields off parcel lines, which would likely result in larger impacts to agricultural land uses, such as crop cultivation. There is also an unnamed tributary of the Scioto River mapped to the north of SR-56 that would have to be crossed or paralleled. The Project team reviewed the options to develop an Alternative Route to the south of Alternative Route A, north of US-22, and identified east to west running parcel lines through agricultural fields. Utilizing the SR-104 corridor south, from the intersection of SR-104 and SR-56, to then traverse east along these parcel lines provided another Alternative Route option, Alternative Route B, that does not impact any existing structures or result in additional stream impacts and appears to be the most feasible second Alternative Route option available in the Study Area given all the environmental, land use, social, and engineering constraints identified during the desktop and field reviews.

(B) Summary Table of Routes

The applicant shall provide a summary table comparing the routes, route segments, and sites, utilizing the technical, financial, environmental, socioeconomic, and other factors identified in the

study. Design and equipment alternatives shall be included where the use of such alternatives influenced the siting decision.

Comparison tables and discussions of the siting constraints for the two Alternative Routes, the Preferred Route (Alternative Route A) and Alternate Route (Alternative Route B), are presented in Section 3.6 of the RSS (**Exhibit C**).

(C) Public Involvement

The applicant shall describe all public involvement that was undertaken in the site/route selection process. The applicant shall provide a description of how many and what types of comments were received.

Detailed information on the public information program is provided in Section 4906-5-06(3). Landowner interest was a key consideration for the siting of the Project. The Project is sited entirely on land with voluntary landowner participation. Landowner considerations are accounted for in the leases for participating properties.

4906-5-05. Project Description

(A) Project Area Description

The applicant shall provide a description of the project area's geography, topography, population centers, major industries, and landmarks.

The Project Area is a smaller subset of the Study Area and covers all the Project infrastructure areas, including the Preferred and Alternate Routes, the associated 100-foot ROWs of these routes (50 feet on each side of the route centerlines), the collector substation and Circleville substation, 20-foot access road corridors, and laydown yards. The Project Area is approximately 76 acres.

The Project Area is generally flat, agricultural land with low-density residential uses along the major transportation corridors, including SR-56, SR-104, and US-22. The POI for the Project, the Circleville Substation, is located in the western extent of the City of Circleville, which is developed with high-density residential uses and commercial uses to the north and southeast of the intersection of Canal Street and West Mound Street. The Scioto River meanders through the eastern portion of the Project

Area with adjacent undeveloped, wooded areas adjacent to the river. Several existing distribution line and overhead electric transmission lines are also mapped in the Project Area and an active railroad, owned by CSX, is mapped running north to south to the east of the Scioto River and west of US-23.

(1) Project Area Map

The applicant shall provide a map of not less than at least 1:24,000 scale, including the area one thousand feet on each side of a transmission line or pipeline alignment, and the area within one thousand feet of a substation site or compressor station site, which shall include the following features:

- (a) Proposed Transmission Line Alignments*
- (b) Proposed Substation Locations*
- (c) Major Highway and Railroad Routes*
- (d) Publicly Identified and Owned Institutions, Parks, and Recreational Areas*
- (e) Utility Corridors*
- (f) Lakes, Ponds, Reservoirs, Streams, Canals, Rivers, and Swamps*
- (g) Population Centers and Legal Boundaries.*

Figure 5-1 in **Exhibit A** depicts the Project Area boundary, the Preferred and Alternate Routes, the collector substation and Circleville substation, access road corridors, laydown yards, a 2,000-foot corridor of the routes and substations (1,000 feet on each side of the route centerlines and 1,000 feet from the substations), existing infrastructure in the Project Area (transportation corridors, railroads, and utility corridors), parks and recreational areas, water resources, and city, township, and county boundaries using aerial background (ESRI World Imagery, January 2021) at a scale of 1:18,000 (one-inch equals 1,500 feet).

(2) Facility Acreage, Length and Properties Crossed

The applicant shall provide the area, in acres, of the proposed right-of-way for the facility, the length of the transmission line or pipeline, in miles, and the number of properties crossed by the facility.

The permanent ROW for both the Circleville gen-tie line is 100 feet wide (50 feet on each side of the centerline). **Table 5-1** summarizes ROW acreages, route lengths, and number of properties crossed by the Preferred and Alternate Routes

Table 5-1. Preferred Route and Alternate Route Length, ROW Acreage, and Properties Crossed

Route	Acreage of ROW	Length of Line (miles)	Number of Properties Crossed by ROW
Preferred	44.2	3.6	17
Alternate	47.4	3.9	18

(B) Facility Layout and Construction

The applicant shall provide information on the facility layout for each route/site alternative, and a description of the installation methods as detailed in this rule.

(1) Site Clearing, Construction Methods, and Reclamation Operations

The applicant shall describe the proposed site clearing, construction methods, and reclamation operations, including:

- (a) Surveying and Soil Testing*
- (b) Grading and Excavation*
- (c) Access Roads and Trenches*
- (d) Stringing of Cable*
- (e) Pole and Structure Installation*
- (f) Post-Construction Reclamation.*

The following paragraphs provide information on the proposed site clearing, construction methods, and reclamation operations for the Project.

(a) Surveying and Soil Testing

Several preliminary data sources, including Pickaway County Auditor data, aerial photographs, U.S. Geological Survey (USGS) topographic maps, ODOT construction plans, and publicly available Geographic Information System (GIS) data of existing infrastructure and sensitive resources data were all used to assist in developing the Preferred and Alternate Routes.

Surveys and field explorations that are being conducted for the Preferred Route include a topographic survey, American Land Title Association (ALTA) survey, and a geotechnical investigation. These surveys

will be conducted using conventional or aerial methods and will aid in the establishment of the final centerline alignment, ROW width and location, and structure locations by identifying any significant topographic and manmade features in the Project area that need to be avoided by the transmission line, pole locations, and outside ROW areas, such as access roads that extend outside of the ROW and laydown yard areas. Minimal tree clearing may be needed to conduct geotechnical preliminary investigations; however, areas to be surveyed near large trees or other large obstructions will be offset to avoid disturbance to these features. The geotechnical investigation will include soil testing and an analysis of soil characteristics.

Exploratory borings for the transmission line will be taken at locations along both the Preferred and Alternate routes. Each of these borings will be to a depth of 40 feet. Equipment used for borings typically include a drill rig using continuous-flight hollow-stem augers. Soil samples will be collected from the borings following the Standard Penetration Test (SPT) method using nominal 1.4-inch inside diameter split-barrel samplers. Soil and rock samples are physically removed for assessment and testing. Groundwater level measurements in the boreholes are recorded during and immediately after completion of each boring.

(b) Grading and Excavation

No significant grading is anticipated for construction of either the Preferred or Alternate Routes. The majority of both routes is relatively flat terrain. Excavation will be completed for the installation of the structures associated with the final route as described below in Section 4906-5-05(B)(1)(e). The excavation for the wood pole structures, on average, will be approximately 4 feet in diameter. Comparatively, the steel pole structures with concrete or direct pier foundations will require an approximately 8-foot diameter excavated area. Any excess excavated soils will be used onsite to backfill, placement around the structure, or will be hauled offsite.

(c) Access Roads and Trenches

Access roads will be required for the installation of structures and the stringing of the conductor cable or wire. Landowner's input and approval will be required for the installation of these gravel access roads. The preliminary access roads for the Preferred and Alternate Routes will occur from existing public roads and will primarily follow the transmission line ROW.

Preliminary access roads are identified in **Figures 4-1A – 4-1F** and **Figures 5-2A – 5-2B** in **Exhibit A**. These access road locations cannot be finalized until the final transmission line route design, including transmission pole locations, is approved and the Applicant has coordinated with the affected landowners. Construction matting or equivalent will be used to minimize disturbance at wetland or stream crossings and aggregate gravel access roads will be used with proper use of best management practices (BMPs) to minimize impacts to sensitive resources during construction. If finalized access road locations need to be modified during construction of the Project, landowner approval will be obtained, and any additional environmental field studies and permits will be conducted or updated and obtained.

(d) Stringing of Cable

The majority of the transmission line is overhead, with approximately less than 0.1 miles of the 3.6-mile route proposed to be underground from Structure 65 to the Circleville Substation. The tension stringing method will be utilized to install conductors for the Project once the transmission line poles have been erected. This process will involve the establishment of stringing setup areas and temporary guard structures, which are located at turns in the transmission line or along corridors of the ROW that are of significant length and at crossing of public roadways or other infrastructure corridors (such as railroads), respectively. These features aid in keeping the section of the line that is being pulled under sufficient tension to keep the conductor off the ground to avoid damage to the equipment and minimize hazards to the construction crews and public during the process of conductor installation.

A segment of the transmission line (up to approximately 340 feet) will be installed underground beneath US-23. The underground cables will be installed using HDD. The drilling rig will drill a pilot hole from the entry point to the exit point. The rig will be fitted with a larger drill head, which will be pulled back through the pilot hole to the entry point along with a casing. The conduits will then be pulled into the casing and the underground 138-kV cables will be pulled into the conduits. Ground disturbance for the proposed HDD installation is limited to the entry and exit points and associated work areas. Additional information on this segment is provided in Section (C)(1)(d) below.

(e) Pole and Structure Installation

The Project will be constructed primarily using direct embed wood poles. However, in some locations, including at the Scioto River and railroad corridor crossing, steel poles may be needed with either concrete foundations or drilled pier foundations. A machine-drilled hole for placement of the steel pole's concrete foundation will be used. It is anticipated that a four (4)-foot auger will be used to set the steel poles with concrete foundations and an eight (8)-foot diameter auger will be used for a drilled pier foundation at the pole locations on either side of the Scioto River.

The maximum pole height for the Project is expected to be approximately 115 feet.

(f) Post-Construction Reclamation

Post-construction reclamation will be completed in accordance with the Project's Stormwater Pollution Prevention Plan (SWPPP) and engineering drawings to restore temporarily disturbed areas to approximate pre-construction contours. This restoration includes the repair or replacement of any drainage ditches, field drainage tiles, or fencing damaged by the construction of the Project, stabilizing exposed soils in non-cultivated areas by fertilizing, seeding, and mulching and in cultivated areas by agricultural planting. Temporary soil erosion and sediment control controls will be removed after vegetative cover has been established post-construction.

Revegetation methods that minimize soil erosion and degradation of water quality will be utilized if any areas adjacent to streams or wetlands have been disturbed. The Applicant anticipates scheduled inspections of the Project ROW to look for sediment accumulation, areas of erosion, and inadequate re-vegetation conditions.

(2) Facility Layout

The applicant shall provide the layout of facilities.

No new associated facilities, with the exception of the collector substation for the Circleville solar generation facility, are proposed for the Project. The existing Circleville Substation, serving as the POI for the Project, will have upgrades to the existing infrastructure and is not anticipated to be expanded outside the existing fenceline. The collector substation was included in the Application submittal for the for the Circleville Solar generation facility under case number 21-1090-EL_BGN.

(a) Facility Layout Map

Provide a map of at least 1:12,000 scale of the transmission line or pipeline routes and associated facilities such as substations, compressor stations, and other stations, showing the following proposed features:

- (i) Temporary and permanent access roads, staging areas, and laydown yards.*
- (ii) Proposed location of major structures, including transmission line poles and structures, and buildings*
- (iii) Fenced-in or secure areas.*

Figures 5-2A and 5-2B in Exhibit A depict the Preferred and Alternate Routes and associated 100-foot ROW corridors and 2,000-foot corridors, the collector substation and Circleville substation, access road corridors, temporary laydown yards, and proposed transmission line pole locations for both the Preferred and Alternate Routes using aerial background (ESRI World Imagery, January 2021) at a scale of 1:9,600 (one-inch equals 800 feet). The location of these Project features will not be finalized until the final engineering design is complete and a construction contractor is onboarded. The Applicant will provide the final design and information on construction support features for the Project once completed and finalized.

(b) Facility Layout Rationale

Describe reasons for the proposed layout and any unusual features.

A detailed description of the proposed Project layout and rationale for this layout is presented in the RSS in **Exhibit C**. The siting team reviewed the opportunities and constraints in the Study Area and did not identify any unusual features.

(c) Future Modification Plans

Describe plans for any future modifications in the proposed layout, including the nature and approximate timing of contemplated changes.

Except as otherwise described in this Application, the Applicant has no plans for future modifications of the proposed Project.

(C) Transmission Equipment

The applicant shall provide a description of the proposed transmission lines or pipelines, as well as switching, capacity, metering, safety, and other equipment pertinent to the operation of the proposed electric power transmission lines and gas pipelines and associated facilities. Include any provisions for future expansion.

(1) Electric Transmission Lines

The applicant shall provide the following information for electric power transmission lines:

- (a) Design Voltage*
- (b) Pole, Conductor, and Insulator Design*
- (c) Base and Foundation Design*
- (d) Underground Cable*
- (e) Other Major Equipment or Special Structures*

(a) Design Voltage

The Project will be designed for 145-kV and operated at 138-kV.

(b) Pole, Conductor, and Insulator Design

Multiple pole types are anticipated to be used for the Project; however, the two most common types will be wood or steel monopole structures. The wood poles will be installed using direct embedment and the steel poles will be installed with concrete foundations. Direct pier foundations will also be utilized in several locations along the Project route where required. The current Project design estimates approximately 65 structure locations, with an average spacing of between 250 and 350 feet between structures. As previously discussed, preliminary surveys are still ongoing for the Project and the results of these surveys could alter the final location and spacing of the transmission line poles. Landowner preference is also considered in the pole locations and type of material used for final design. Once the Project design has been finalized, the Applicant will provide the OPSB with a detailed list of pole types and locations prior to the preconstruction meeting.

Waxwing aluminum conductors, steel reinforced (ACSR) conductors are anticipated to be used on the Project. The conductor size will be 266.8 thousands of circular mils (kcmil).

(c) Base and Foundation Design

The majority of the transmission line poles for the Project will be direct embed wood poles. A number of steel structures with concrete and rebar foundations or direct pier foundations will be installed in areas along the line where required by engineering standards (i.e., at a large turn angle or for crossing the Scioto River and existing railroad). The excavation for the concrete foundations of these steel structures will be approximately eight (8) feet in diameter.

(d) Underground Cable

As previously described, a segment of the transmission line will be installed underground beneath US-23 via HDD. 145-kV, 650-kV BIL, XLPE laminated sheath cable is anticipated to be used in this underground section of the Project. The size will be determined later upon completion of cable thermal analysis. The final type and size of cabling, conduits, and casing for the underground section of the Project is dependent on final design specifications and will also require coordination with ODOT. Additional information regarding the underground section of the transmission line will be provided to OPSB once the cable thermal analysis is completed and the transmission line design has been finalized. The transition to underground cable at the terminal structure will use 38-kV composite bushing cable termination kits.

(e) Other Major Equipment or Special Structures

No other major equipment or special structures are required for the Project.

(2) Electric Transmission Substation

The applicant shall provide a single-line diagram of electric power transmission substations and a description of the proposed major equipment, such as:

- (a) Breakers.*
- (b) Switchgear.*
- (c) Bus arrangement and structures.*
- (d) Transformers.*

(e) Control buildings.

(f) Other major equipment.

No new electric power transmission substations are proposed as part of the Project. The collector substation construction is not part of this Application and was included in the Application associated with the Circleville Solar generation facility, submitted under separate cover as case number 21-1090-EL_BGN. The existing Circleville Substation will be upgraded as part of the Project; however, the current substation footprint is not anticipated to be expanded outside the existing fence.

(a) Breakers and Switchgear

The Applicant will install one 145-kV, 1200 ampere (A), 40 kilo amps (kA) and one 38-kV, 1200 A, 40-kA switchgear at the existing Circleville Substation (POI).

(b) Bus Arrangement and Structures

The POI will be in the Circleville Substation switchyard. The switchyard has a ring bus configuration and the modifications of the switchyard due to the Project will maintain the same ring bus configuration.

(c) Transformers

One 80 megavolt ampere (MVA), 138/34.5 kV transformer will be installed at the POI.

(d) Control Buildings

The control building will be located in the collector substation associated with the Circleville Solar generation facility, submitted under separate cover as case number 21-1090-EL_BGN. The approximate dimensions of the control house are 14 feet by 27 feet.

(e) Other Major Equipment

No additional equipment, outside of what is discussed in this Application, is anticipated for the Project.

(3) Gas Pipeline Data

No gas pipelines are proposed as part of the Project and therefore this section, including subsections (a) through (f), is not applicable.

4906-5-06. Economic Impact and Public Interaction

(A) Current and Proposed Ownership

The applicant shall state the current and proposed ownership status of the proposed facility, including leased and purchased land, rights-of-way, structures, and equipment.

The Applicant anticipates that it will develop, design, permit, construct, and operate the Project and sell the electrical output of the Circleville Solar generation facility delivered to the grid by the Circleville Solar Transmission Line to customers pursuant to one or more power purchase agreements. The Applicant is currently contracted with NOPEC, a nonprofit energy supplier in Ohio that provides competitive energy cost savings to residents and small businesses. In the alternative, the Applicant could sell some or all of the Project to one or more public utilities, with the Applicant constructing and potentially remaining as the operator of the Project. This structure is more thoroughly described below.

The Applicant anticipates that it, directly or in connection with its affiliates, will cause the Project to be developed, designed, permitted, and constructed under one of two general scenarios.

- Under the first scenario, the Applicant will, directly or indirectly through its affiliates, construct and operate the Project by selling the power using one or more long term power purchase agreements. The Applicant is currently contracted with NOPEC, a nonprofit energy supplier in Ohio that provides competitive energy cost savings to residents and small businesses. The Applicant would reserve the right to sell or assign the Project, or a portion thereof, to another qualified entity at any time before, during or after the Project is constructed. Any future buyer or assignee will be required to meet all permit conditions and any power purchase agreement obligations associated with the Project or portion thereof.
- Under the second scenario, the Applicant will sell the project to one or more Ohio utilities and build the Project.

The Applicant maintains all agreements with landowners to develop the Project. These agreements do not change the ownership status of the private lands in the Project Area.

(B) Capital and Intangible Costs

The applicant shall submit estimates of applicable capital and intangible costs for the various components of electric power transmission facility alternatives. The data submitted shall be classified according to the federal energy regulatory commission uniform system of accounts prescribed by the public utilities commission of Ohio for the utility companies, unless the applicant is not an electric light company, a gas company or a natural gas company as defined in Chapter 4905 of the Revised Code (in which case, the applicant shall file the capital costs classified in the accounting format ordinarily used by the applicant in its normal course of business). The estimates shall include:

- (1) Land and land rights*
- (2) Structures and improvements*
- (3) Substation equipment*
- (4) Poles and fixtures*
- (5) Towers and fixtures*
- (6) Overhead conductors*
- (7) Underground conductors and insulation*
- (8) Underground-to-overhead conversion equipment*
- (9) Right-of-way clearing and roads, trails, or other access.*

Table 6-1. Estimated Capital and Intangible Costs

Description	Preferred Route	Alternate Route
(1) Land and Land Rights		
(2) Structures and Improvements		
(3) Substation Equipment ¹		
(4) Poles and Fixtures		
(5) Towers and Fixtures		
(6) Overhead Conductors & Devices		
(7) Underground Conductors and Insulation		
(8) Underground-to-Overhead Conversion Equipment		
(9) ROW Clearing and Roads, Trails or Other Access		
TOTAL		

¹ Estimates are inclusive of the costs for the collector substation proposed under the Circleville Solar generation facility (21-1090-EL_BGN) and for improvements within the existing Circleville Substation.

(C) Gas Pipeline Capital and Intangible Costs

No gas pipelines are proposed as part of the Project and therefore this section is not applicable.

(D) Public Interaction and Economic Impact

The applicant shall provide information regarding public interaction and the economic impact for each of the site/route alternatives.

(1) Counties, Townships, Villages, and Cities within 1,000 Feet

The applicant shall provide a list of counties, townships, villages, and cities within 1,000 feet on each side of the centerline or facility perimeter.

Both the Preferred and Alternate Routes are within 1,000 feet of the City of Circleville and Circleville, Jackson, and Wayne Townships in Pickaway County.

(2) Public Officials Contacted

The applicant shall provide a list of the public officials contacted regarding the application, their office addresses, and office telephone numbers.

Table 6-2. Public Officials Contacted

Name, Title, and Agency	Office Address	Office Phone Number
Ian Fausnaugh Jackson Township Trustee	20010 Fox Road, Circleville, OH 43113	N/A
Paul Thompson Jackson Township Trustee	20010 Fox Road, Circleville, OH 43113	N/A
Barbara Knox Jackson Township Fiscal Officer	20010 Fox Road, Circleville, OH 43113	N/A
Kenny Davis Wayne Township Trustee	25418 SR 104, Circleville, OH 43113	N/A
William Hamman Wayne Township Trustee	25418 SR 104, Circleville, OH 43113	N/A
Brenna Gibson Wayne Township Trustee	25418 SR 104, Circleville, OH 43113	N/A
John Hoffman Wayne Township Fiscal Officer	25418 SR 104, Circleville, OH 43113	N/A
Harold (Champ) Henson County Commissioner Pickaway County	139 West Franklin Street, Circleville, OH 43113	740-474-6093
Gary Scherer County Commissioner Pickaway County	139 West Franklin Street, Circleville, OH 43113	740-474-6093
Jay Wippel County Commissioner Pickaway County	139 West Franklin Street, Circleville, OH 43113	740-474-6093
Gary Cameron Director, Pickaway County Emergency Management Agency (EMA)	139 West Franklin Street, Circleville, OH 43113	740-477-1165
Michael Sherron Plans and Exercises Officer, Pickaway County Emergency Management Agency (EMA)	139 West Franklin Street, Circleville, OH 43113	740-477-1165
Anthony Turowski Deputy Director, District 6 Ohio Department of Transportation (ODOT)	400 East William Street, Delaware, OH 43015	740-833-8000

(3) Public Information Programs

The applicant shall provide a description of the public interaction planned for during the siting, construction, and operation of the proposed facility. This description shall include detailed information regarding the applicant's public information and complaint resolution programs as well as how the applicant will notify affected property owners and tenants about these programs at least seven days prior to the start of construction.

Informal outreach has been conducted on behalf of the Project since January 2017 through the Applicant's land agents. Since that time, project representatives have been discussing the Circleville Solar Transmission Line with the public by way of phone call, email, door-to-door contact and in-person meetings.

The Applicant began outreach with state and local elected officials and economic development organizations in March 2018. This included discussions with elected officials and local economic development officials. Outreach completed in 2021 has included discussions and meetings with elected officials at the state, county, and township level in addition to local economic development and land use organizations.

Elected officials at the state, county, and township level and leadership of the local economic development organization received personal invitations to the open house on November 18, 2021. The electronic invitations included maps of the proposed project footprint, an overview of the economic impact and a copy of the legal notice that had been posted. All of this was made readily available for them to provide to constituents. All elected officials have also been provided with e-mail and cell phone contact points and have been encouraged to call, text or e-mail with any questions and/or concerns.

The Applicant launched a dedicated project website at www.circlevillesolar.com, which was included in the pre-application notification letters mailed to affected property owners and tenants. A social media site for the project was also created on Facebook to provide additional outlets to reach the community with project updates. Both sites provide opportunity to reach the Circleville Solar team with questions and comments.

Pursuant to OAC 4906-3-03(B), the Applicant hosted a public informational meeting on March 10, 2022, from 6:00 to 8:00 PM at the Pickaway Country Club located in Circleville, Ohio. The meeting included posterboards, visual simulations, project fact sheets, access to subject matter experts and a preliminary layout of the Preferred and Alternate Routes. This event gave local residents an opportunity to learn more about the proposed Circleville Solar Transmission Line, ask questions, and provide comments to address any concerns regarding the project.

The Applicant will actively communicate with the public in and around the Circleville Solar Transmission Line to keep the community informed of the Project and its development. The Applicant will facilitate the submission of any complaints through use of a dedicated contact and will document all complaints, in accordance with the Complaint Resolution Plan provided in Exhibit I of the Circleville Solar generation facility application (21-1090-EL-BGN). The Complaint Resolution Plan will be distributed to affected property owners and tenants at least seven (7) days prior to construction.

(4) Insurance

The applicant shall describe any insurance or other corporate program for providing liability compensation for damages, if such should occur, to the public resulting from construction or operation of the proposed facility.

The Applicant will maintain a liability insurance policy for the duration of development, construction, and operation of the Circleville Solar Transmission Line. The Applicant, an indirect wholly owned subsidiary of NEER, will utilize insurance carriers that maintain a A.M. Best's Key Rating Guide rating of at least "A- VII", or such carriers that are otherwise acceptable to Applicant, and are permitted to do business in the United States. Provided insurance will include coverage of worker's compensation, commercial general liability, and business automobile liability with limits to One Million Dollars (US \$1,000,000). Excess liability insurance with a limit of Five Million Dollars (US \$5,000,000) will also be maintained.

(5) Tax Revenues

The applicant shall provide an estimate of the increase in tax revenues as a result of facility placement.

The Applicant anticipates entering into a PILOT with Pickaway County in which real property and tangible personal property taxes would be abated and a payment based on the nameplate capacity of the Project would be paid to the County. The amount of PILOT to be paid annually to the County treasurer is assessed per MW of nameplate capacity, at the rate of \$7,000/MW. County commissioners may require an additional service payment if the total of the additional payment and the PILOT does not exceed \$9,000/MW.

In absence of an executed agreement with the County, the model provided in Exhibit H of the Circleville Solar generation facility application (21-1090-EL-BGN), 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 Jackson Township, Wayne Township, Pickaway County, Circleville City School District, Westfall Local School District, and the Pickaway-Ross Career and Technology Center. An annual payment of \$8,000/MW was assumed. Based on the maximum Project capacity of 70 MW_{AC}, the PILOT amount will total approximately \$560,000 annually for the lifespan of the Project. The Project is expected to achieve commercial operation as early as 2023 and have a lifespan of approximately 35 years.

4906-5-07. Health and Safety, Land Use, and Regional Development

(A) Health and Safety Information

The applicant shall provide health and safety information for each site/route alternative.

(1) Compliance with State and Federal Safety Regulations

The applicant shall provide a description of how the facility will be constructed, operated, and maintained to comply with the requirements of applicable state and federal statutes and regulations, including the national electrical safety code, applicable occupational safety and health administration regulations, U.S. department of transportation gas pipeline safety standards, and Chapter 4901:1-16 of the Administrative Code.

The construction and operation of the Project will comply with the requirements of applicable Federal and State statutes and regulations related to safety, including requirements specified in the North

American Electric Reliability Corporation (NERC) Mandatory Reliability Standards and the National Electrical Safety Code (NESC), as well as those adopted by the Public Utilities Commission of Ohio (PUCO). The Project will also meet all applicable safety standards established by the Occupational Safety and Health Administration (OSHA). The Applicant runs a regional Operations and Maintenance (O&M) strategy. There will be a regional O&M provider assigned to the Project. The Project will be monitored remotely through the Applicant's headquarters renewable operations control center. Any on-site issue is almost immediately identified.

Approximately 2.2 miles of the Preferred Route parallels SR-56 and approximately 1.3 miles of the Preferred Route parallels US-22/US-23 (0.2 mile parallels the entrance ramp onto US-23 South from US-22). These transportation corridors are maintained by the ODOT. The eastern end of the route crosses a railroad, US-22, and an entrance ramp onto US-23 South. The Preferred Route crosses the north to south running CSX railroad tracks on the east side of the Scioto River and then turns south-southeast and crosses US-22 between an entrance ramp onto US-23 South and exit ramp off US-23 South. The route then crosses the entrance ramp onto US-23 South. The transmission line will cross US-23 via an underground segment, as discussed in Sections 4906-5-02(A)(3), 4906-5-05(B)(1)(d), and 4906-5-05(C)(1)(d).

The Applicant has coordinated with ODOT since January 2022 regarding the Project. During a call on January 25, 2022, the Project team introduced the proposed transmission line route. ODOT informed the Applicant that the transmission pole supports would need to be placed outside the "clear zone", which is typically a 30-foot offset from the edge of road ROW. ODOT also indicated that permanent access drives are not allowed in the limited-access ROW areas and that they do not allow open cut along US-23 ROW. The Applicant will provide a general footprint of bore pits for the transition point of overhead to underground transmission line just west of US-23 South, along with a description of installation methodology of this underground segment and considerations for anticipated accessibility and maintenance of the transmission line and structures with the ODOT ROW application for review and approval.

The Preferred and Alternate Routes cross a parcel owned by the ODNR, the Elmon Richards Scioto River Fishing Access area. The Applicant began coordination with the ODNR in December of 2021 to

obtain access to the land to conduct preliminary surveys and to pursue a utility crossing license agreement required for siting the Project ROW easement through ODNR land. The Applicant sent a map of the preliminary Project design to an ODNR representative in mid-February and the response from ODNR is that they provided unofficial, preliminary approval of proposed Preferred Route, and they are working on moving forward with assisting on official and formal Division approval to move forward with execution of the license agreement.

The Applicant is also in the process of coordinating with the CSX railroad to obtain the necessary permits and authorization to have a permanent easement to cross the railroad corridor on the east side of the Scioto River with the transmission line.

The Project also requires authorization from the United States Army Corps of Engineers (USACE), Huntington District Regulatory Program, for impacts to Waters of the U.S. and for crossing the Scioto River, a Section 10 water. The Applicant held a pre-application meeting with the USACE on March 7, 2022. The Applicant will prepare and submit a Pre-Construction Notification (PCN) to the USACE for authorization under the Nationwide Permit (NWP) 57 for electric utility facilities in order to comply with Sections 404 and 401 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. The USACE determined that the Ohio Environmental Protection Agency (OEPA) waived its right to condition the Section 401 Water Quality Certification associated with the set of NWPs reissued in 2021, which include NWP 57. Project activities that meet the NWP conditions are therefore compliant with Section 401 and additional coordination with the OEPA is not required.

Portions of the Project are located within Federal Emergency Management Agency (FEMA) Special Flood Hazard Areas (SFHAs), including both the 1% annual chance floodplain and the regulatory floodway of the Scioto River. Structures along the common segment of the Preferred and Alternate Routes will be installed within the SFHAs. The Applicant will obtain a Flood Hazard Area Development Permit from Pickaway County to ensure Project compliance with floodplain regulations.

The Applicant will not conduct any construction activities without the necessary state and federal permits in place, including, but not limited to the approved ODOT ROW permit, the executed ODNR

license agreement, the CSX railroad authorization and permit, USACE Nationwide Permit authorization, and a Pickaway County Flood Hazard Area Development Permit.

(2) Electric and Magnetic Fields

For electric power transmission facilities where the centerline of the facility is within one hundred feet of an occupied residence or institution, and for electric substations where the boundary of the footprint is within one hundred feet of an occupied residence or institution, the applicant shall discuss the production of electric and magnetic fields during operation of the preferred and alternate site/route. If more than one conductor configuration is to be used on the proposed facility, information shall be provided for each configuration that constitutes more than ten per cent of the total line length, or more than one mile of the total line length being certificated. Where an alternate structure design is submitted, information shall also be provided on the alternate structure.

There are no occupied residences or institutions within one hundred (100) feet of the Preferred or Alternate Routes. The closest mapped residence is 108 feet south of the Preferred Route, on the south side of SR-56.

(a) Calculated Electric and Magnetic Fields

Calculated electric and magnetic field strength levels at one meter above ground, under the conductors and at the edge of the right-of-way for:

- (i) Winter normal conductor rating*
- (ii) Emergency Line Loading*
- (iii) Normal maximum loading. Provide corresponding current flows, conductor ground clearance for normal maximum loading and distance from the centerline to the edge of the right-of-way. Estimates shall be made for minimum conductor height. The applicant shall also provide typical cross-section profiles of the calculated electric and magnetic field strength levels at the normal maximum loading conditions.*
- (iv) Where there is only one occupied residence or institution within one hundred feet of the centerline, only one set of field strength values are to be provided. Where there are two or more occupied residences or institutions within one hundred feet of the centerline, field strength values shall be provided for each configuration that includes*

these occupied residences and institutions, and constitutes more than ten percent of the total line length, or more than one mile of the total line length being certificated.

The Preferred and Alternate Routes do not have any occupied structures within 100 feet of the route centerlines; therefore this section is not applicable to the Project and there was no need to conduct an electromagnetic field (EMF) study.

(b) Current State of EMF Health Knowledge

References to the current state of knowledge concerning possible health effects of exposure to electric and magnetic field strength levels.

The Preferred and Alternate Routes do not have any occupied structures within 100 feet of the route centerlines; therefore, this section is not applicable to the Project and there was no need to conduct an EMF study.

(c) Consideration of EMF Strength

Description of the company's consideration of electric and magnetic field strength levels, both as a general company policy and specifically in the design and siting of the transmission line project including: alternate conductor configurations and phasing, tower height, corridor location, and right-of-way width.

The Preferred and Alternate Routes do not have any occupied structures within 100 feet of the route centerlines; therefore, this section is not applicable to the Project and there was no need to conduct an EMF study.

(d) EMF Public Inquiry Policy

Description of the company's current procedures for addressing public inquiries regarding electric and magnetic field strength levels, including copies of informational materials and company procedures for customer electric and magnetic field strength level readings.

The Preferred and Alternate Routes do not have any occupied structures within 100 feet of the route centerlines; therefore, this section is not applicable to the Project and there was no need to conduct an EMF study.

(3) Radio, Television, and Communications Interference

For electric power transmission facilities, the applicant shall provide an estimate of the level of radio, television, and other communication system interference from operation of the proposed facility, identify the most severely impacted areas, if any, and discuss methods of mitigation.

Noise originating from a transmission line is caused by corona, which is the electrical ionization of the air that occurs near the surface of the energized conductor and suspension hardware due to very high electric field strength. Corona effects are manifested as television interference, radio interference, and audible noise. The amount of corona levels emitted from a transmission line varies depending on the voltage of the line, the diameter of the conductors and location of the conductors in relation to one another, the condition of the conductors and hardware, the elevation of the line above sea level, and local weather conditions. Typically, corona is a design concern for transmission lines at 345-kV and above. The Project is designed to operate at 138-kV.

As far as radio interference, corona typically affects the amplitude modulation (AM) radio broadcast band (535 to 1,605 kilohertz) and frequency modulation is less likely to be affected. Television interference is not anticipated due to the lower voltage of the proposed Circleville Solar Transmission Line (less than 345-kV). As digital television broadcasting has evolved and become more popular in household residences, the complaints of interference from electric lines is becoming increasingly rare. The Applicant searched for registered communication tower and antenna locations through the Federal Communications Commission (FCC) search for the Project Area and found one feature within 1-mile of the Project. A communication tower, owned by the State of Ohio, identified under Antenna Structure Registration Number (ASRN) 1220584 is mapped approximately 0.75 mile north of the eastern end of the Project. Due to the proposed Project voltage and the tower distance from the Project, the Applicant does not expect this tower to be impacted by Project development.

(4) Noise from Construction, Operations, and Maintenance

The applicant shall provide an estimate of the effect of noise generation due to the construction, operation, and maintenance of the transmission line or pipeline and associated facilities. The applicant shall describe any equipment and procedures designed to mitigate noise emissions during site clearing, construction, operation, and maintenance of the facility to minimize noise impact, including limits on the time of day at which construction activities may occur. The applicant shall

estimate the nature of any intermittent, recurring, or particularly annoying sounds from the following sources:

- (a) Blasting activities*
- (b) Operation of earth moving and excavating equipment*
- (c) Driving of piles, rock breaking or hammering, and horizontal directional drilling*
- (d) Erection of structures*
- (e) Truck traffic*
- (f) Installation of equipment.*

(a) Blasting Activities

Blasting activities are not anticipated during construction of the Project.

(b) Operation of Earth Moving and Excavating Equipment

A temporary increase in noise will result from the equipment used to excavate, install transmission line poles, install the underground section of the line under US-23 South, and clearing woody brush, where necessary. This noise will occur during typical work hours, from 7:00 AM to 7:00 PM, or until sunset when sunset occurs after 7:00 PM. The anticipated duration of construction for the Project is approximately five (5) to six (6) months. Direct noise impacts would result from construction activities occurring adjacent to sensitive receptors, such as occupied structures. The closest occupied structure is approximately 108 feet south of the Preferred Route, across the street on the south side of SR-56. **Table 7-1** shows the sound levels, in decibels, for typical construction equipment. For reference, the average sound level from traffic along a highway is approximately 72-75 decibels (dBA) between 50-100 feet from the receptor. The average sound level of a hairdryer ranges from 60-95 dBA and an air conditioner generally produces sound levels between 50-75 dBA.

Table 7-1. Typical Construction Equipment Sound Levels

Construction Activity	Decibel Level – dB(A) at 50 ft From Receptor
Roller	74
Pump	76
Backhoe	80
Compressor	81
Compactor	82
Concrete Pump	82
Crane, Mobile	83
Bulldozer	85
Concrete Mixer	85
Loader	85
Pavement Breaker	88
Truck	88
Paver	89
Pile Driver, Impact	101

Source: Federal Transit Administration, April 1995

(c) Pile-Driving, Rock Breaking or Hammering, and Horizontal Directional Drilling

Pile-driving is not anticipated during construction of the Project. The underground crossing of US-23 will be installed via HDD. As discussed above in Section 4906-5-07(4)(b), the construction equipment to be used for this installation will result in temporary noise increases in the Project Area. The closest occupied structure to the eastern portion of the Project where the underground crossing will be installed is approximately 900 feet away.

(d) Erection of Structures

The direct embed wood poles will be installed by vehicle-mounted cranes or equivalent equipment. Excavation will be required for the concrete and direct pier foundations utilized for the steel pole structures. The construction equipment to be used for the installation and erection of the transmission line poles will result in temporary noise levels between 70-90 dBA, as summarized in **Table 7-1**.

(e) Truck Traffic

During the construction of the Project, an increase in truck traffic is anticipated for the delivery of equipment and supplies and access.

(f) Installation of Equipment

Standard practices and equipment will be utilized during installation of equipment, which will result in a temporary increase in noise during daylight hours for the duration of construction of the Project as discussed above.

(B) Land Use

(1) Existing Land Use Map

The applicant shall provide, for each of the site/route alternatives, a map of at least 1:24,000 scale, including the area one thousand feet on each side of a transmission line or pipeline alignment, and the area within one thousand feet of a substation site, which map shall include the following features:

- (a) Centerline and right-of-way for each transmission line or pipeline alternative being pro-posed.*
- (b) Proposed substation or compressor station locations.*
- (c) Land use, depicted as areas on the map. Land use, for the purposes of this rule, refers to the current economic use of each parcel. Categories should include residential, commercial, industrial, institutional, recreational, agricultural, and vacant, or as classified by the local land use authority.*
- (d) Road names.*
- (e) Structures, depicted as points on the map. Identified structures should include residences, commercial centers or buildings, industrial buildings and installations, schools, hospitals, churches, civic buildings, and other occupied places.*
- (f) Incorporated areas and population centers.*

Figures 7-1A and 7-1B in Exhibit A depict the Preferred and Alternate Routes and associated 100-foot ROW and 2,000-foot corridors, the collector substation and Circleville substation, and land uses and structures, including residences, commercial uses, churches, and other occupied places in the Project Area using aerial background (ESRI World Imagery, January 2021) at a scale of 1:9,600 (one-inch equals 800 feet). The land use categories were derived from the land use codes identified in the Pickaway County Auditor's parcel data, downloaded in January 2022.

(2) Land Use Impacts

The applicant shall provide, for each of the site/route alternatives, a description of the impact of the proposed facility on each land use identified in paragraph (B)(1) of this rule. Include, for each land use type, the potential disturbance area during construction and the permanent impact area in acres, in total and for each project component (e.g., transmission line or pipeline right-of-way, substation site), and the explanation of how such estimate was calculated.

The Project Area is predominantly agricultural land use with low-density residential development along the major transportation corridors, including SR-56, SR-104, and US-22. Higher density residential and commercial development is mapped to the east of the Project Area in the City of Circleville.

Potential land use impacts for both the Preferred and Alternate Routes within the Project limits of disturbance (LOD), broken down into the 100-foot ROW, off-ROW access road areas, and off-ROW laydown yard areas, are summarized in **Tables 7-2** and **7-3** below. Potential disturbance for construction activities for the Project will include vegetation clearing and pole installation in the 100-foot ROW and 20-foot-wide temporary access roads. The operational access road width will be approximately 12-16 feet; however, a 20-foot corridor was used to calculate potential disturbance to account for temporary grading during construction. Operational activity (permanent) impacts will generally be the same as the construction activity impacts for the Project since the operational activity impacts include maintaining the operational 100-foot ROW once the initial tree and vegetative clearing occurs to prep for construction of the line. The potential disturbance associated with the laydown areas are temporary impacts during construction activities and are not factored into the total operational impacts.

Table 7-2. Preferred Route Land Use Impacts

Land Use ¹	Preferred Route LOD				
	100-foot ROW - Construction and Operational Impacts (acres)	Off-ROW Access Roads - Construction and Operational Impacts (acres)	Off-ROW Laydown Areas - Construction Impacts (acres)	Total Construction Impacts (acres)	Total Operational Impacts (acres)
Agricultural	29.1	0.1	13.9	43.1	29.2
Residential	2.4	<0.1	0	2.4	2.4
Industrial / Commercial	0.1	0	0	0.1	0.1
Public Utility	0.5	0.3	0	0.8	0.8
State of Ohio owned land (ODNR in this case)	0.2	0	0	0.2	0.2
Township owned land (Village of Williamsport in this case)	1.4	0	0	1.4	1.4
Road / Railroad / Road Right-of-Way	9.9	0.1	0	10.0	10.0
Scioto River ²	0.6	0	0	0.6	0.6
Total:	44.2	0.5	13.9	58.6	44.7

¹ Land use type was derived from the land use codes of the parcel data downloaded from the Pickaway County Auditor in January 2022

² The acreage shown crossing the Scioto River is the total 100-foot ROW corridor acreage that is associated with the length of transmission line that crosses the river; however, no impacts are anticipated to the Scioto River from construction, operation, or maintenance activities.

Table 7-3. Alternate Route Land Use Impacts

Land Use ¹	Alternate Route LOD				
	100-foot ROW - Construction and Operational Impacts (acres)	Off-ROW Access Roads - Construction and Operational Impacts (acres)	Off-ROW Laydown Areas - Construction Impacts (acres)	Total Construction Impacts (acres)	Total Operational Impacts (acres)
Agricultural	35.5	<0.1	13.9	49.4	35.5
Residential	1.3	<0.1	0	1.3	1.3
Industrial / Commercial	0.1	0	0	0.1	0.1
Public Utility	0.5	0.3	0	0.8	0.8

Land Use ¹	Alternate Route LOD				
	100-foot ROW - Construction and Operational Impacts (acres)	Off-ROW Access Roads - Construction and Operational Impacts (acres)	Off-ROW Laydown Areas -Construction Impacts (acres)	Total Construction Impacts (acres)	Total Operational Impacts (acres)
State of Ohio owned land (ODNR in this case)	0.2	0	0	0.2	0.2
Church	1.1	0	0	1.1	1.1
Road / Railroad / Road Right-of-Way	8.1	0.1	0	8.2	8.2
Scioto River ²	0.6	0	0	0.6	0.6
Total:	47.4	0.4	13.9	61.7	47.8

¹ Land use type was derived from the land use codes of the parcel data downloaded from the Pickaway County Auditor in January 2022

² The acreage shown crossing the Scioto River is the total 100-foot ROW corridor acreage that is associated with the length of transmission line that crosses the river; however, no impacts are anticipated to the Scioto River from construction, operation, or maintenance activities.

(3) Impact on Nearby Structures

The applicant shall provide, for the types of structures identified in paragraph (B)(1) of this rule, the following:

- (a) For all structures within two-hundred feet of the proposed facility right-of-way, the distance between the nearest edge of the structure and the proposed facility right-of-way.*
- (b) Any buildings that will be destroyed, acquired, or removed as the result of the planned facility and criteria for owner compensation.*
- (c) A description of the mitigation procedures to be used during the construction, operation, and maintenance of the proposed facility to minimize impact to structures near the facility.*

(a) Structures within 200 Feet of Facility Right-of-Way

Structures within 200 feet of the Preferred and Alternate Routes edge of ROW are shown in **Table 7-4** below. There are three (3) occupied structures within 200 feet of both the Preferred and Alternate Route ROWs. Two of the three residences mapped within 250 feet of the Preferred Route centerline

are approximately 108 feet to the south of the route, on the south side of SR-56, and approximately 150 feet to the north of the route on the north side of SR-56, respectively. The third residence is mapped approximately 235 feet to the southeast of the common portion of the Preferred and Alternate Routes, to the east of the intersection of US-22 and Canal Road. The remaining two (2) residences mapped within 250 feet of the Alternate Route centerline are approximately 110 feet and 135 feet to the west of the route, on the west side of SR-104.

There are two (2) commercial structures mapped approximately 135 feet and 155 feet south of the common portion of the Preferred and Alternate Routes, on the south side of SR-56 to the west of the intersection of SR-56 and US-22. A commercial outbuilding is mapped approximately 100 feet south of the Preferred Route, on the south side of SR-56 and two (2) agricultural outbuilding is mapped approximately 50 feet and 125 feet south of the Alternate Route on the east side of SR-104.

Table 7-4. Structures within 200 Feet of Facility Right-of-Way

	Route Alternatives	
	Preferred Route	Alternate Route
Occupied Structures within 200-feet of Edge of ROW		
Residences	3	3
Schools	0	0
Hospitals	0	0
Churches	0	0
Other Structures within 200-feet of Edge of ROW		
Commercial	2	2
Commercial outbuilding	1	0
Agricultural outbuilding	0	2

Source: The Microsoft buildings file was clipped to the Study Area in GIS to obtain all structures in the Project Area and then these structures were field verified during a windshield survey for type and occupancy.

(b) Structures to be Destroyed, Acquired, or Removed

The Applicant mitigated the need to destroy, acquire, or remove any structures during the RSS of the Preferred and Alternate Routes and does not anticipate the need to remove any structures to construct the Project.

(c) Mitigation Procedures

The Project is not anticipated to impact any existing structures as stated above. The Applicant is obtaining landowner leases from the landowners who are crossed by the route 100-foot ROW corridor. The Project is primarily sited on agricultural land, which has already been disturbed by crop production. The Applicant will minimize land use impacts when feasible by utilizing existing farm roads and public road ROWs where available to decrease the disturbance to crops during construction. Temporary workspaces, such as laydown areas, will be seeded and stabilized post-construction activities to re-establish pre-construction conditions.

(C) Agricultural Land and Districts

(1) Agricultural Land and Districts Map

The applicant shall provide, for each of the site/route alternatives, a map of at least 1:24,000 scale, including the potential disturbance area for the transmission or pipeline alignment, and the substation site, which map shall include the following features:

- (a) Agricultural land use. Where visible and distinguishable, distinguish between agricultural uses such as cultivated land, permanent pasture land, managed woodlots, orchards, nurseries, livestock and poultry confinement areas, and agricultural-related structures.*
- (b) Agricultural district land existing at least sixty days prior to submission of the application located within each transmission line or pipeline right-of-way or within each site boundary.*

Figure 7-2A through **7-2D** in **Exhibit A** depict the Preferred and Alternate Routes and associated 2,000-foot corridors, the collector substation and Circleville substation, agricultural land uses, including cultivated land, pastureland, woodlots, orchards, nurseries, etc. and agricultural district land in the Project Area using aerial background (ESRI World Imagery, January 2021) at a scale of 1:4,800 (one-inch equals 400 feet). The agricultural district land parcels were obtained from the Pickaway County Auditor on June 7, 2022.

(2) Impacts to Agricultural Land and Districts

(a) Acreage

The applicant shall provide, for all agricultural land, and separately for agricultural uses and agricultural districts identified under paragraph (C)(1) of this rule a quantification of the acreage impacted.

Potential agricultural land use impacts for both the Preferred and Alternate Routes within the Project limits of disturbance (LOD), broken down into the 100-foot ROW, off-ROW access road areas, and off-ROW laydown yard areas, are summarized in **Tables 7-5** and **7-6**. Approximately 66 percent of the Preferred Route ROW is cultivated cropland and approximately 79 percent of the Alternate Route ROW is cultivated cropland. Note that approximately 22 percent of the Preferred Route ROW and approximately 17 percent of the Alternate Route ROW are comprised of overlapping areas with public road ROW. If those overlapping areas of road ROW are removed from the total ROW acreage, the Preferred Route ROW is approximately 85 percent cultivated cropland and the Alternate Route ROW is approximately 95 percent cultivated cropland.

Table 7-5. Preferred Route Agricultural Land Use Impacts

Agricultural Land Use	Preferred Route LOD				
	100-foot ROW -Construction and Operational Impacts (acres)	Off-ROW Access Roads - Construction and Operational Impacts (acres)	Off-ROW Laydown Areas - Construction Impacts (acres)	Total Construction Impacts (acres)	Total Operational Impacts (acres)
Cultivated Land	29.1	<0.1	13.9	43.0	29.1
Pastureland	0	0	0	0	0
Woodlots ¹	1.7	0	0	1.7	1.7
Orchards	0	0	0	0	0
Nurseries	0	0	0	0	0
Livestock and Poultry Confinement Areas	0	0	0	0	0
Non-agricultural land use ²	13.4	0.5	0	13.9	13.9
Total:	44.2	0.5	13.9	58.6	44.7
Agricultural District Land	0	0	0	0	0

¹ The woodlot clearing acreage does not include the isolated tree clearing in the residential landscaped areas and agricultural hedgerows, which total less than <0.1 acres.

² This acreage includes public road ROW overlap. The Preferred Route ROW includes 9.9 acres of public road ROW.

Table 7-6. Alternate Route Agricultural Land Use Impacts

Agricultural Land Use	Preferred Route LOD				
	100-foot ROW -Construction and Operational Impacts (acres)	Off-ROW Access Roads - Construction and Operational Impacts (acres)	Off-ROW Laydown Areas -Construction Impacts (acres)	Total Construction Impacts (acres)	Total Operational Impacts (acres)
Cultivated Land	37.4	<0.1	13.9	51.3	37.4
Pastureland	0	0	0	0	0
Woodlots ¹	1.7	0	0	1.7	1.7
Orchards	0	0	0	0	0
Nurseries	0	0	0	0	0
Livestock and Poultry Confinement Areas	0	0	0	0	0

Agricultural Land Use	Preferred Route LOD				
	100-foot ROW -Construction and Operational Impacts (acres)	Off-ROW Access Roads - Construction and Operational Impacts (acres)	Off-ROW Laydown Areas -Construction Impacts (acres)	Total Construction Impacts (acres)	Total Operational Impacts (acres)
Non-agricultural land use ²	8.3	0.4	0	8.7	8.7
Total:	47.4	0.4	13.9	61.7	47.8
Agricultural District Land	0	0	0	0	0

¹ The woodlot clearing acreage does not include the isolated tree clearing in the residential landscaped areas and agricultural hedgerows, which total less than <0.1 acres.

² This acreage includes public road ROW overlap. The Alternate Route ROW includes 8.1 acres of public road ROW.

(b) Evaluation of Construction, Operation, and Maintenance Impacts

The applicant shall provide, for all agricultural land, and separately for agricultural uses and agricultural districts identified under paragraph (C)(1) of this rule, an evaluation of the impact of the construction, operation, and maintenance of the proposed facility on the land and the following agricultural facilities and practices within the project area:

(i) *Field operations such as plowing, planting, cultivating, spraying, harvesting*

During construction of the Project, which is expected to take approximately five (5) months from March 2023 to July 2023, agricultural field operations such as plowing, planting, cultivating, spraying, and harvesting may be interrupted. Potential temporary impacts to agricultural land caused by construction activities include damage to crops during the growing season, minor disturbance to drainage patterns, and disruptions of harvest/plow patterns in the 100-foot ROW and associated temporary laydown yard areas. The permanent impacts to agricultural land from the Project will be minimal and limited to the small footprints of the transmission line pole structures. Landowners who are crossed by the route ROW would be compensated for crop damages resulting from the Project's construction activities. The ROW area may continue to be used for agricultural purposes after construction is complete (IE. crop cultivation) contingent upon the use having no adverse impact on the reliable and safe

operation of the transmission line; this includes crop production adjacent to the transmission line pole structures and guy wires if applicable.

(ii) *Irrigation*

No known irrigation systems are present within the proposed ROW of the Preferred or Alternate Routes. The Applicant will coordinate with the landowners once the final route design is approved to identify any potential impacts to existing irrigation systems and will work with the landowners to minimize impacts to any irrigation system's operation.

(iii) *Field drainage systems*

Minor damage to field drainage tiles may occur as a result of the installation of transmission line poles. The Applicant will coordinate with the landowners once the final route design is approved to identify any potential impacts to existing drainage systems and will work with the landowners to minimize impacts and resolve conflicts with field drainage systems crossed by the Project.

(iv) *Structures used for agricultural operations*

No agricultural structures or outbuildings are mapped within 200 feet of the Preferred Route 100-foot ROW. Two (2) agricultural outbuildings are mapped approximately 50 feet and 125 feet south of the Alternate Route on the east side of SR-104; neither of these two buildings are mapped within the Alternate Route 100-foot ROW corridor. No impacts to agricultural structures are anticipated as a result of the Project.

(v) *The viability as agricultural land of any land Identified as an agricultural district*

No agricultural district land is crossed by the Preferred and Alternate Route ROWs.

(c) Mitigation Procedures

A description of mitigation procedures to be utilized by the applicant during construction, operation, and maintenance to reduce impacts to agricultural land, structures, and practices. The description shall illustrate how avoidance and mitigation procedures will achieve the following:

(i) *Avoidance or minimization to the maximum extent practicable of any damage to field tile drainage systems and soils in agricultural areas.*

The Applicant will coordinate with the agricultural landowners and review public records to make an effort to determine the location of subsurface drainage tiles potentially along

the Project route and use this information, if available, to assist in finalizing the route design and transmission line pole locations. In an effort to minimize impacts to field drainage systems and soils in the agricultural areas, the Applicant sited the majority of the transmission line as an overhead line, rather than an underground line. The Applicant also considered the transmission line pole placement when crossing agricultural fields and tried to locate the poles as close to the edge of the fields where feasible. Existing distribution and electric transmission lines along portions of the transportation corridors in the Project Area had to be taken into account during the design of the route centerline and transmission line pole proposed locations, resulting in the Circleville Solar Transmission Line being pushed further into agricultural fields in several areas.

(ii) Timely repair of damaged field tile systems to at least original conditions, at the applicant's expense.

The Applicant will address damaged field tile systems on a case-by-case basis with the affected landowner if this issue arises as a result of construction, operational, or maintenance activities of the Project. In general, the Applicant will either repair or replace the damaged areas of the drainage system as necessary.

(iii) Segregation of excavated topsoil, and decompaction and restoration of all topsoil to original conditions unless otherwise agreed to by the landowner.

Excavated topsoil will be segregated and stockpiled to be used during post construction restoration activities, unless otherwise agreed to by the landowner.

To the extent feasible, the Applicant will utilize farm roads or existing public roads during construction activities to minimize the disturbance of crop area. If the Project construction results in damage to any drainage ditches, field drainage tiles, fencing, or other agricultural structures, the Applicant will repair the damage or provide payment to the landowner as part of the easement negotiations. Mitigation for compaction of soils and damage to existing crops will be provided by the Applicant to the landowner as compensation, which is specified in the lease agreements for the ROW. Post construction activities the Applicant will restore any disturbed agricultural fields by de-compacting soils, removing rocks, and re-spreading topsoil as needed.

(D) Land Use Plans and Regional Development

(1) Impacts to Regional Development

The applicant shall provide a description of the impact of the facility on regional development, referring to pertinent formally adopted regional development plans.

The proposed Facility will not be constructed unless the Circleville Solar generation facility, submitted under separate cover as case number 21-1090-EL_BGN, is also approved and constructed. The sole purpose of the Facility is to deliver electricity generated by the Circleville Solar generation facility to the regional electric grid. As discussed in the Circleville Solar generation facility application, construction and operation of the solar generation facility is anticipated to contribute to regional growth and development by increasing local tax revenues, contributing to the local economy, and improving electrical grid reliability to adequately scale with the growth in electrical demand. Aside from these benefits, the Circleville Solar generation facility and the Circleville Solar Transmission Line are not expected to significantly impact housing, transportation system development, or other public services and facilities.

At the time of submittal of this Application, there have been no formally adopted comprehensive plans or future land use plans from Circleville Township, Jackson Township or Wayne Township. Pickaway County has developed a Comprehensive Economic Development Area (CEDA) Land Use Plan, which was adopted in 2013. However, this land use plan only pertains to a region comprising Harrison Township and the Villages of Asheville and South Bloomfield.

While local land use plans were not available, the Applicant reviewed the Jackson Township Zoning Resolution and Wayne Township Zoning Ordinance to identify any local zoning regulations pertaining to the Project. A tabulated list of these documents is located in **Table 7-7**.

Table 7-7. Formally Adopted Land Use Plans and Ordinances

Community	Name of Plan	Year Adopted/ Updated
Jackson Township	Jackson Township Zoning Resolution	1998
City of Circleville/Circleville Township	Circleville Land Use Plans	2008
Wayne Township	Wayne Township Zoning Ordinance	2011
Pickaway County	CEDA/Land Use Plan	2013
City of Circleville	City of Circleville Zoning Code	2022

(2) Compatibility with Regional Land Use Plans

The applicant shall provide an assessment of the compatibility of the proposed facility and the anticipated resultant regional development with current regional land use plans.

Jackson Township, Wayne Township, and Pickaway County (as a whole) currently do not have comprehensive land use plans in place, although all three townships are zoned. The City of Circleville and Circleville Township adopted a joint Land Use Plan in 2008. The Gen-Tie Line and interconnection infrastructure with the existing substation are not associated with the designated development areas within this plan. The Project will still meet the stated agreements in the Plan by fostering improvements public welfare and economic development by providing energy into the local grid. This will increase grid reliability by increasing the amount of energy to meet local demands in the present, as well as accommodating future energy demand onset by local growth in Circleville and surrounding townships.

Pickaway County has developed a joint comprehensive land use plan with Harrison Township and the Villages of Ashville and South Bloomfield specific to the areas within those Villages and Township. As proposed, the Project is consistent with the Overall Community Goals laid out in the county land use plan. In particular, the Project is congruent with the plan's goals to "protect the rural character, small town charm, and agricultural character of the community." Solar facilities, in general, are compatible with rural landscapes because they preserve farmland for future use and are low-profile and produce no air or water pollution, and negligible sound and light pollution. The proposed Circleville Solar Transmission Line is in an area where there are existing transmission lines and distribution lines that run parallel to the transportation corridors and as such will not create any additional impacts that would affect the rural landscape or appeal of the local area outside of Circleville.

Solar facilities also contribute to the local economy by providing supplemental income to local property owners who lease their land for the development, and construction and tax revenues help contribute to the local economy. The proposed transmission line poles have a small footprint that will not significantly disturb the land where they are installed, and the land will remain agriculturally viable after the end of the Project's operational lifespan. Construction and operation of the Project will not interfere with any planned land uses within Jackson, Wayne, or Circleville Townships. The Applicant designed the Project to respect local zoning and development regulations to the extent practicable.

(E) Cultural and Archaeological Resources

(1) Cultural and Archaeological Resources Map

The applicant shall indicate on a map of at least 1:24,000 scale, within one-thousand feet of each of the site/route alternatives, any formally adopted recreational areas, recreational trails, scenic rivers, scenic routes or byways, and registered landmarks of historic, religious, archaeological, scenic, natural, or other cultural significance. Landmarks to be considered for purposes of paragraph (E) of this rule are those districts, sites, buildings, structures, and objects that are recognized by, registered with, or identified as eligible for registration by the national registry of natural landmarks, the Ohio historical society, or the Ohio department of natural resources.

Figure 7-3 in **Exhibit A** depicts the Preferred and Alternate Routes and associated 2,000-foot corridors, the collector substation and Circleville substation, recreational areas and trails, and registered landmarks of historic, religious, archaeological, scenic, natural, or other cultural significance in the Project Area using aerial background (ESRI World Imagery, January 2021) at a scale of 1:18,000 (one-inch equals 1,500 feet).

(2) Cultural and Archaeological Studies and SHPO Coordination

The applicant shall describe studies used to determine the location of cultural resources within the study corridor. Correspondence with the Ohio historical preservation office shall be included.

Note that the Area of Potential Effects (APE) for both the architectural and archaeological surveys cover a larger footprint than the Project Area. The Project Area is approximately 76 acres and includes the footprint of both the alternate and preferred route 100-foot ROW corridors, two laydown yards,

20-foot-wide access road corridors, and a portion of the Circleville Substation. Note that the collector substation footprint is not included in the Project Area because the collector substation is part of the Circleville Solar generation facility project and was included in the OPSB application for the generation facility.

The APE for the architectural survey includes an area within 0.25-mile of the Preferred and Alternate Routes, except it doesn't extend east of US-23. The APE was previously surveyed for historical and architectural resources by Gray and Pape in 2018 and 2021 during the Circleville Solar generation facility studies; ECT field-reviewed approximately 75 acres of the total 76-acre Project Area in early 2022, stopping at US-23. The archaeological survey APE generally includes a 200-foot-wide corridor along the portion of the Alternate Route that is not included in the Common Preferred/Alternate Route and a 200-foot-wide corridor along OH-56, measuring from the edge of road pavement, in the Project Area where the Preferred Route is sited, and between 250 to 300 feet from the edge of pavement along US-22. Portions of the Alternate Route that is not included in the Common Preferred/Alternate Route were previously surveyed by Gray and Pape in 2018 and 2021 during the Circleville Solar generation facility studies and the remainder acreage of the archaeological survey APE, generally along the Preferred Route and the Common Preferred/Alternate Route, was surveyed by ECT in early 2022. A literature review, which included a check of the Ohio Historic Preservation Office (OHPO) Online Mapping System (OMS) was also completed for historical and architectural resources within 0.5-mile of the Project and for archaeological resources within one mile of the Project.

The architectural survey APE does not extend east of US-23, because East of the Scioto River, the Project is a combination of overhead transmission line that will be largely visually obscured by the CSX railroad and US-23, both of which are elevated between Circleville and the Scioto River. The majority of the Project east of US-23, will be underground transmission line such that there will be no views of the Project. Therefore, ECT has proposed an architectural APE that is 0.25-mile on either side of the Project except that it does not extend east of US 23. The APE for the archaeological survey stops at the railroad corridor due to access limitations. This portion of the Project Area was previously disturbed for the development of the existing infrastructure including the railroad, ramp to US-23, US-23, overhead distribution lines, and overhead electric transmission lines.

The results from the Phase I archaeological and architectural resource surveys performed for the Preferred Route and Alternate Route are included in **Exhibit D**.

The architectural survey identified and documented 23 properties that contain historic architectural resources along the Preferred Route (this contains the common portion of the Alternate and Preferred Route, too). These include: one NRHP-listed property, the Ohio & Erie Canal Southern Descent Historic District that is NRHP-eligible; one previously recorded historic architectural resource, the Circleville Williamsport Bridge Abutment that was determined not NRHP-eligible; one historic cemetery, the Van Meter Cemetery that was determined not NRHP-eligible, and 20 newly identified architectural resources 50 years of age or more that were previously determined not NRHP-eligible.

The archaeological survey investigations resulted in the identification of two previously unrecorded archaeological resources along the Preferred Route, one of which is within the Project Area, and two previously unrecorded archaeological resources along the portion of the Alternate Route within the Project Area. Site 33Pi1814, mapped on the north side of SR-56 along the Preferred Route corridor, is a small scatter of historical artifacts near the former location of a house and is partially within the Project Area. Site 33Pi1815, mapped on the north side of SR-56 and adjacent to the north of the Preferred Route ROW, contained two cores of Delaware chert. Two additional archaeological sites, Site 33Pi1459 and Site Pi1463, were identified in the Alternate Route corridor during previously conducted surveys. ECT recommends that none of the four sites are eligible for the NRHP and that the Project will have no effect to NRHP-eligible archaeological sites.

Both reports for the architectural and archaeological surveys conducted for the Project Area were submitted to the SHPO in May and June of 2022, respectively, for the archaeological surveys and the architectural surveys. Agency responses will be submitted to OPSB upon receipt.

(3) Impacts to Cultural and Archaeological Resources

The applicant shall provide an evaluation of the probable impact of the construction, operation, and maintenance of the proposed facility on the preservation and continued meaningfulness of cultural resources.

The majority of the Project Area lies within previously disturbed land use areas, including existing utility ROW, road ROW, and cultivated agricultural fields. No direct impact to above ground cultural resources, such as cemeteries and historic structures, are anticipated from Project construction, operation, or maintenance activities. As previously stated, no archaeological resources eligible for listing on the NRHP were identified during field surveys and ECT recommended that the project will have no effect on NRHP-eligible archaeological sites. Archaeological and architectural history reports were submitted to the SHPO for concurrence in May and June of 2022, respectively.

(4) Mitigation Procedures for Cultural Resources

The applicant shall describe the plans to avoid or mitigate any adverse impacts to cultural resources. Mitigation procedures to be used during the operation and maintenance of the proposed facility shall be developed in consultation with the Ohio historical society. The plans shall detail procedures for flagging and avoiding all landmarks in the project area. The plans shall also contain measures to be taken should previously-unidentified landmarks be discovered during construction of the project.

No mitigation is proposed at this time. No impacts to cultural resources from the Project are anticipated based on the historic/architectural and archaeological literature reviews and field surveys results.

(5) Aesthetic Impact

The applicant shall evaluate the aesthetic impact of the proposed facility.

(a) Visibility from Sensitive Receptors

The applicant shall evaluate the visibility of the proposed facility from such sensitive vantage points as residential areas, lookout points, scenic highways, waterways, and landmarks identified in paragraph (E)(1) of this rule.

Generally, the impacts to visual resources from the Project can be categorized as either temporary or permanent due to the different types of construction, operational, and maintenance activities. Most construction and maintenance activities are going to be associated with more temporary visual impacts that are a result of increased traffic, primarily construction vehicles and equipment, that can result in temporary ground disturbance. Operational impacts, such as the introduction of the Facility

infrastructure (transmission line and poles) visually on the Project landscape, are generally longer term.

The Facility infrastructure, including the transmission line wires and wood and steel poles, can be a stark contrast to a project landscape. However, for the Circleville Solar Transmission Line, there are existing overhead distribution and electric transmission lines in the Project vicinity along the transportation corridors where the Preferred Route is proposed. The primary vantage points of the Project are along SR-56 and US-22 where the routes parallel the road ROWs. These transportation corridors in the Project Area are primarily agricultural land with few residences in close proximity to the Project. Existing distribution lines run along the southern side of SR-56 for approximately half of the length of the portion of the Preferred Route that runs along SR-56 and existing distribution or electric transmission lines run the entire length of US-22 where the Preferred Route parallels the highway.

(b) Aesthetic Quality of the Site and Surrounding Area

The applicant shall evaluate how the proposed facility will likely affect the aesthetic quality of the site and surrounding area.

The existing land that comprises the Project Area is a mixture of natural and manmade features, consisting primarily of flat, even terrain used for growing crops such as corn and soybeans. The landscape is permeated with straight lines of trees that divide agricultural land as well as more densely forested areas of deciduous trees and open irrigation drains. The man-made features consist of buildings consistent with agricultural land uses: residences and farm outbuildings, barns, and silos, as well as existing utilities such as roads and electrical transmission infrastructure.

The Project Area and surrounding vicinity is decidedly rural with a very low population density. The vast majority of the affected viewshed area falls within unoccupied agricultural lands and other undeveloped places where few people are likely to visit. The Project components are proposed to be built almost entirely within agricultural land, which makes up the vast majority (66%) of the Project Area. Note that approximately 22 percent of the Preferred Route ROW and approximately 17 percent of the Alternate Route ROW are comprised of overlapping areas with public road ROW. If those overlapping areas of road ROW are removed from the total ROW acreage, the Preferred Route ROW

is approximately 85 percent cultivated cropland and the Alternate Route ROW is approximately 95 percent cultivated cropland. The open character of agricultural land typically offers the greatest potential for long-distance views. However, extended views can be limited during the growing season as crops (e.g., corn) reach maturity and restrict views.

Affected local roads are moderate to lightly traveled and generally serve local residences and farmsteads. US-22 and US-23 are the most heavily travelled roads within the Project Area. US-22 is an east/west regional transportation corridor that connects the City of Circleville with the Village of Williamsport. US-23 is a north/south regional transportation corridor that connects the City of Circleville to Columbus to the north and Chillicothe to the south. SR-56 is another east/west regional transportation corridor that parallels the western and central portions of the Facility. SR-104 is a north/south regional transportation corridor that parallels the Alternate Route. Local roads in the vicinity of the Project include Mill Road and Canal Road. The eastern end of the Project at the existing Circleville Substation will be visible from the western extent of the City of Circleville. There is a higher density of commercial and residential uses around the intersection of SR-56 and US-22 in the central portion of the Project Area. However, the western extent of the City of Circleville and the intersection of SR-56 and US-22 are already developed with existing infrastructure, such as the Circleville Substation and overhead electric transmission lines and distribution lines. Since the Project is not introducing new human-made elements on the landscape where they do not already exist, the new gen-tie line is not anticipated to result in a significant aesthetic impact to nearby residences or commercial uses in these areas because its only creating a minor incremental visual change in the existing visual setting.

Three (3) visual simulation photos are presented in **Exhibit E**. Note that for the visual photo simulations wood poles were used throughout the Project Area; however, the design of the transmission line, including transmission pole locations and structure type, have not been finalized to date.

(c) Visual Impact Minimization

Measures that will be taken to minimize any visual impacts created by the proposed facility, including, but not limited to, facility location, lighting, structure design, visual screening, and facility coloration. In no event shall these measures conflict with relevant safety requirements.

The flat topography in the Project Area, Project need constraints (primarily the location of the Circleville Solar generation facility and POI), and engineering constraints limit the degree of visual impact minimalization for the Project. Approximately 70 percent of the Preferred Route is designed along transportation corridors that already are visually impacted by existing overhead distribution or electric transmission lines. The design choice of utilizing single-pole structures versus larger lattice towers also reduces the visual impacts. Siting the transmission line through areas that are primarily open agricultural land, minimizes the need to clear trees in the ROW and it also avoids medium to higher density areas of development, both of which limit the change to existing landscape and impacts to sensitive aesthetic resources.

4906-5-08. Ecological Information and Compliance

(A) Ecological Resources Map

The applicant shall provide for each of the site/route alternatives a map of at least 1:24,000 scale, including the area one thousand feet on each side of the transmission line or pipeline alignment and the area within one thousand feet of a substation site or compressor station site. The map shall include the following:

- (1) Proposed transmission line or pipeline alignments.*
- (2) Proposed substation or compressor station locations.*
- (3) All undeveloped or abandoned land, including:*
 - (a) Streams and drainage channels.*
 - (b) Lakes, ponds, and reservoirs.*
 - (c) Wetlands, including the entire area of the wetland if it extends outside of the study corridor.*
 - (d) Woody and herbaceous vegetation land.*
- (4) Highly-erodible soils and slopes of twelve per cent or greater.*

(5) Wildlife areas, nature preserves, and publicly identified conservation areas that are managed by a public body or a recognized nonprofit organization.

Figures 8-1A and 8-1B (Exhibit A) provide maps at 1:9,600 (1-inch equals 800 feet) that depicts the following:

- i. The proposed Project Area boundary, including the Preferred and Alternate Routes and associated 100-foot ROW corridors, the collector substation, and the POI (Circleville Substation) and the associated 2,000-foot corridors around these features
- ii. The Ecological Field Survey Area (Survey Area), showing the areas surveyed for ecological features. Note that the Survey Area covers the entirety of the Project Area footprint, which is described above.
- iii. Undeveloped or abandoned land such as wood lots or vacant tracts of land subject to past or present surface mining activities, not used as a registered game preserve or in agricultural production.
- iv. Wildlife areas, nature preserves, and other conservation areas
The Elmon Richards Scioto River Wildlife Area is crossed by the Project Area, to the west of the Scioto River. The Applicant has coordinated with the ODNR regarding this Project since January 2022, as discussed in Section 5906-5-07(A)(1). An Agricultural Conservation Easement Program (ACEP) Wetland Reserve Easement (WRE) is mapped adjacent to the west of the Project Area on the west side of SR-104. The Fleming Bend Wetland Restoration Project area is mapped to the south of the Project Area. No Project facilities are sited within the WRE area or the wetland restoration area. A Conservation Reserve Program (CRP) easement is mapped in the eastern portion of the Project Area, west of the Scioto River on the north side of US-22.
- v. Surface bodies of water, including wetlands, ditches, streams, lakes, reservoirs, and ponds
Figures 8-1A and 8-1B depict delineated features (wetlands, streams, and waterbodies) within the Survey Area and National Wetlands Inventory (NWI) features, including riverine, pond, and emergent wetlands, and riverine features in the National Hydrography Dataset (NHD) database are mapped outside of the Survey Area where a field delineation was not conducted. Field delineations identified a total of 5 wetlands and two streams within the Project Area (see the Delineation Report enclosed as **Exhibit F, Appendix A: Figures 7a-7f** for a more detailed view of the delineated features in the Project Area).
- vi. Highly-erodible soils and slopes of twelve percent or greater

Small areas totaling approximately six (6) percent of soils within the Survey Area are comprised of representative slopes of 12% or greater. No areas of highly-erodible soils are mapped within the Survey Area. The areas of slopes of 12% or greater are primarily located along riparian corridors, wetlands, wooded areas, and along the edges of US-22 and the railroad corridor. No Project facilities have been sited on highly-erodible lands or critically steep slopes.

(B) Ecological Resources Survey

The applicant shall provide for each of the site/route alternatives the results of a field survey of the vegetation and surface waters within one hundred feet of the potential disturbance area of the facility.

ECT conducted an initial desktop water resource review of the proposed areas being considered for the Project. Following the desktop review, ECT conducted a field review of approximately 212-acres of the Project (Ecological Field Survey Area or Survey Area) to identify, delineate, and characterize wetlands and stream features as well as assess their potential regulatory status and to evaluate the potential for listed or rare species habitat. The Survey Area encompasses a 200-foot corridor of the two potential transmission routes, the Preferred Route and the Alternate Route, being considered for the Project and temporary staging and laydown areas outside the route ROWs. The area to the south of US-22, west of the Scioto River, was included in the Survey Area because there were discussions of a route alignment on the south side of US-22 during preliminary siting of conceptual routes. Field reviews of the Survey Area were conducted on December 15 and December 22, 2021, as well as February 22 and 23, 2022. Additionally, portions of the Alternate Route and collector substation were previously delineated with parts of the Circleville Solar generation facility in May 2021. The results of field surveys are discussed within the Wetland and Stream Delineation Report (**Exhibit F**) and the Biological Habitat Assessment (**Exhibit G**).

(1) Vegetative Communities, Wetlands, and Streams

The applicant shall provide a description of the vegetative communities present within the study area, and delineations of wetlands and streams.

Land Use, Land Cover, and Vegetative Communities

The Project is located within a largely rural landscape dominated by agricultural and undeveloped land. Field surveys in 2021 and 2022 confirmed that the majority of the Survey Area is dominated by agricultural fields, road right-of-way, and rural residential properties. Remaining undeveloped natural habitat (e.g., woodlots, grassy areas/old fields, wetlands, ponds/waterbodies) within the vicinity of the Survey Area is primarily limited to the edges of agricultural fields and near the eastern terminus of the Survey Area along the Scioto River corridor.

Grassland habitat within the Project Area is primarily limited to maintained (e.g., mowed) grasslands within the Elmon Richards Scioto River Wildlife Area and rural residential properties as well as grassy swales along the edges of agricultural fields. The majority of these maintained grasslands are dominated by yellow foxtail (*Setaria pumila*), ground ivy (*Glechoma hederacea*), smooth brome (*Bromus inermis*), reed canary grass (*Phalaris arundinacea*), and Morrow's honeysuckle (*Lonicera morrowii*). These areas are not of exceptional habitat quality. However, a grassland area, identified as part of a CRP easement, adjacent to the Elmon Richards Scioto River Fishing Access was identified as having higher quality grassland species such as yellow Indian grass (*Sorghastrum nutans*), big bluestem (*Andropogon gerardii*), and little false bluestem (*Schizachyrium scoparium*). No other high-quality grasslands, such as prairies, were observed during the on-site field surveys.

In general, forested habitat found within the Survey Area is concentrated near the eastern terminus of the Project. The wooded areas identified during the field surveys of the Survey Area are composed primarily of common hackberry (*Celtis occidentalis*), pignut hickory (*Carya glabra*), silver maple (*Acer saccharinum*), Morrow honeysuckle (*Lonicera morrowii*), eastern cottonwood (*Populus deltoides*), and slippery elm (*Ulmus rubra*) in the canopy and shrub layers. Common herbaceous species in forested wetland areas were reed canary grass, calico aster (*Symphyotrichum lateriflorum*), and shallow sedge (*Carex lurida*). Common herbaceous species in upland forested areas were tree seedlings, Canadian goldenrod (*Solidago canadensis*), riverbank wild rye (*Elymus riparius*), elephant panic grass (*Panicum elephantipes*), red fescue (*Festuca rubra*), and common teasel (*Dipsacus fullonum*).

Wetlands, Streams, and Waterbodies

ECT completed aquatic resource delineations of the 212-acre Survey Area on December 15 and 22, 2021 and February 22, and 23, 2022. Additionally, portions of the Alternate Route and collector

substation were previously delineated with parts of the Circleville Solar generation facility study area on May 3-7 and May 12-14, 2021. The delineations identified a total of eight wetlands and four streams within the Survey Area for the Circleville Solar Transmission Line. Four of the wetlands identified within the Survey Area are depressional palustrine emergent (PEM) wetlands, totaling 16.59 acres, and occur within agricultural fields and a portion of the Elmon Richards Scioto River Fishing Access area that overlaps eastern portions of the Survey Area. The remaining four wetlands within the Survey Area are palustrine forested (PFO) wetlands, totaling 11.24 acres, and are located along the Scioto River corridor in the eastern portions of the Survey Area. Vegetation commonly found in PEM wetlands consists of the invasive species reed canary grass, wand panic grass (*Panicum virgatum*), the invasive species narrowleaf cattail (*Typha angustifolia*), and calico aster. PFO wetlands were dominated by silver maple, slippery elm, and eastern cottonwood. Understory and herbaceous vegetation typically consisted of typically consisted of reed canary grass, calico aster, and shallow sedge.

The four streams identified within the Survey Area included one intermittent stream and three perennial streams, one of which is the Scioto River. Stream quality assessments were conducted following the Quantitative Habitat Evaluation Index (QHEI) or Headwater Habitat Evaluation Index (HHEI) methodology, dependent upon stream size and/or maximum pool depth. Small streams (evaluated using the HHEI) typically scored low and were designated as Class II Primary Headwater (PHW) Streams. The Ohio Environmental Protection Agency (OEPA) has designated the portion of Scioto River, located in the eastern portion of the Survey Area, with the potential to attain Warmwater Habitat (WWH) per the OAC Chapter 3745-1 Water Quality Standards. The nearest OEPA monitoring station, Station #660960 at US-22 immediately south of the Project Area, indicates that the Scioto River was in full attainment of WWH per the 2020 Integrated Water Quality Monitoring and Assessment Report (OEPA 2020a). Based on the quality assessments and OEPA monitoring, the Scioto River is the only high-quality stream delineated within the Survey Area.

(2) Delineation Map

The applicant shall provide a map of at least 1:12,000 scale showing the facility, the right-of-way, and all delineated resources.

The results of field surveys, including maps of at least 1:12,000 scale is presented within the Wetland and Stream Delineation Report (**Exhibit F, Appendix A, Figures 7a-7f**).

(3) Ecological Impacts from Construction

The applicant shall provide a description of the probable impact of the construction of the proposed facility on vegetation and surface waters. This shall include the impacts from route/site clearing and grading, and disposal of vegetation. Include the linear feet and acreage impacted, and the proposed crossing methodology of each stream and wetland that would be crossed by any part of the facility or construction equipment. Specify the extent of vegetation clearing, and describe how such clearing work will be done so as to minimize removal of woody vegetation.

The majority of the Project infrastructure is proposed within previously disturbed areas including cultivated cropland and road right-of-way. The permanent construction impacts on herbaceous and woody vegetation for both the Preferred and Alternate Routes is primarily limited to the initial clearing of vegetation in the 100-foot corridor ROW, which will occur in the wooded areas adjacent to the Scioto River and is estimated to be approximately 1.7 acres for the Project. Additional isolated tree clearing may be completed within residential and agricultural properties. The tree clearing in the ROW corridor will be done by both hand-clearing and mechanized methods. Preliminary access roads have been developed for the Project and are almost entirely located within the proposed ROW corridor and are not anticipated to require any additional tree clearing. Clearing of any trees will be completed between October 1 and March 31, following United States Fish and Wildlife Service (USFWS) seasonal clearing restrictions to avoid potential adverse effects to listed bats. If construction activities are needed to take place during the recommended avoidance window, further coordination with wildlife agencies (ODNR and USFWS) and/or species-specific studies will be completed.

The herbaceous and woody vegetation removed during the initial ROW clearing will either be chipped and disposed of onsite or disposed of as requested by the landowner, in accordance with the applicable local regulations.

The current Project design shows five (5) transmission line poles, Structures 57 to 61, to be installed in two (2) delineated wetlands, including one (1) PEM wetland W4A and one (1) PFO wetland W13B. The anticipated permanent impacts to these wetlands will be limited to the structure footprint and is estimated to be a total of less than 0.01 acres for all five (5) structures. Approximately 1.21 acres of the PFO wetland area to the east of the Scioto River will need to be cleared and maintained for the

100-foot ROW corridor. Access through the Project ROW in the vicinity of Structures 45 and 46 will likely involve the crossing of a culverted field-delineated perennial stream that is located in an agricultural field. The Applicant may need to improve this stream crossing to allow for construction vehicles and equipment to utilize this crossing during construction.

The Project requires the overhead crossing of the Scioto River, a river listed under Section 10 of the Rivers and Harbors Act of 1899.

Temporary impacts to vegetation and delineated surface waters will be limited to the installation and use of temporary access roads, work pads, and pull pads during construction activities, which will all be primarily located in the Project ROW. Additionally, two (2) laydown areas will also be utilized for the Project and are anticipated to be placed on agricultural land in the western portion of the Project Area. Timber matting or an equivalent material will be used to cross the wetland areas when necessary to minimize impacts to these sensitive ecological resources. No in-water work in the Scioto River is required during the Facility construction and operation activities.

The Applicant has coordinated with the USACE regarding the Scioto River overhead crossing as well as for the previously described impacts to wetlands and streams, as documented in Section 4906-5-07(A)(1). Authorization from the USACE for compliance under Sections 404 and 401 of the Clean Water Act and Section 10 of the Rivers and Harbors Act will be obtained prior to construction.

A summary of the anticipated vegetation impacts to natural resources based on the current Project design is presented below in **Table 8-1**. The approximate stream and wetland impacts along the Preferred and Alternate Route ROWs are provided in **Table 8-2**.

Table 8-1. Approximate Vegetation Impacts along the Preferred and Alternate Routes

Land Use Type	Length of Route Crossed (feet)	Acreage within ROW	Percentage of Total ROW Acreage
Preferred Route			
Non-Forested Uplands (agricultural, residential, road ROW, etc)	16,948 (3.2 miles)	38.41	87
Forested Uplands	141 (< 1 mile)	0.53	1
Wetlands (sub-types broken out below)	1,866 (0.4 mile)	4.68	11
<i>Emergent</i>	1,336	3.47	8
<i>Forested</i>	530	1.21	3
Scioto River	250 (< 1 mile)	0.58	1
TOTAL	19,205 feet (3.6 miles)	44.2	100
Alternate Route			
Non-Forested Uplands (agricultural, residential, road ROW, etc)	18,327 (3.5 miles)	41.57	88
Forested Uplands	141 (< 1 mile)	0.53	1
Wetlands (sub-types broken out below)	1,866 (0.4 mile)	4.72	10
<i>Emergent</i>	1,336	3.51	7
<i>Forested</i>	530	1.21	3
Scioto River	250 (< 1 mile)	0.58	1
TOTAL	20,584 feet (3.9 miles)	47.4	100

Table 8-2. Approximate Stream Impacts from Transmission Line ROW Construction

Stream ID	Flow Regime	Ohio Class/ Designation	Length (lf) within Ecological Field Survey Area	Route	Length (lf) within ROW	Temporary Impacts (lf)	Permanent Impacts (lf)
S1A	Perennial	Warm Water Habitat	329	Common	83 ¹	0 ¹	83 ¹
S2A	Intermittent	Class II PHW	4,398	NA – not in ROW of either route	0	0	0

Stream ID	Flow Regime	Ohio Class/ Designation	Length (lf) within Ecological Field Survey Area	Route	Length (lf) within ROW	Temporary Impacts (lf)	Permanent Impacts (lf)
S1B	Perennial	Class II PHW	113	NA – not in ROW of either route	0	0	0
Scioto River	Perennial	Warm Water Habitat	1,030	Common	250	0	0 ²

¹ Stream S1A has an existing culverted farm road in the Common Route ROW where an access road crossing would be located. Listed impacts represent maximum impact scenario to improve/replace the existing culvert crossing for construction and O&M access.

² No impacts within the channel of the Scioto River are proposed to complete the overhead crossing for the Project.

Table 8-3. Approximate Wetland Impacts from Transmission Line ROW Construction

Wetland ID	ORAM Category	Cowardin Class	Acreage within Ecological Field Survey Area	Route	Acreage within ROW	Number of Poles in Wetland ¹	Temporary Impacts (ac)	Permanent Impacts (ac)
W1A	1	PEM	0.78	NA – not in ROW of either route	0	0	0	0
W2A	1	PEM	0.31	Common	0.07	0	0 ²	0.07 ²
W4A ³	1 or 2 Gray Zone	PEM	15.25	Common	3.40	4	3.4	<0.01
W5A	2	PFO	0.42	Common	0.10	0	0.1	0 ⁴
W6A	2	PFO	6.11	NA – not in ROW of either route	0	0	0	0
W1B	2	PFO	2.60	NA – not in ROW of either route	0	0	0	0
W7B	1 or 2 Gray Zone	PEM	0.25	Alternate	0.05	0	0.05	0
W13B	2	PFO	2.11	Common	1.11	1	1.11	<0.01 ⁴

¹ Note that the transmission line pole locations are preliminary and the Project design has not been finalized to date.

² Wetland W2A runs along S1A and has an existing culverted crossing within the Common Route ROW. Listed impacts represent maximum impact scenario to improve/replace the existing culvert crossing for construction and O&M access.

³Nonsequential numbering of wetlands is due to some wetlands having been delineated as part of the previous Circleville Solar generation facility study area.

⁴ Areas within the ROW will be permanently converted from PFO to PEM. Compensatory mitigation will be completed in accordance with USACE permitting.

(4) Ecological Impacts from Operation and Maintenance

The applicant shall provide a description of the probable impact of the operation and maintenance of the proposed facility on vegetation and surface waters. This shall include the permanent impacts from route clearing.

Vegetation and surface water impacts resulting from operation and maintenance activities will be minor and primarily will involve periodic maintenance within the 100-foot ROW corridor to maintain safe and reliable operations of the transmission line. No significant wetland impacts are anticipated from the operation and maintenance of the transmission line. Maintenance activities that could have a potential impact on wetlands are limited to minimal woody vegetation clearing in wetland areas within the 100-foot ROW, adjacent to the Scioto River, that will be initially cleared during construction. This clearing will use both hand-clearing and mechanized techniques and is not anticipated to result in water quality degradation or erosion issues.

(5) Mitigation Procedures for Surface Waters

The applicant shall provide a description of the mitigation procedures to be used during construction, operation, and maintenance of the proposed facility to minimize the impact on vegetation and surface waters.

In an effort to reduce sediment runoff and soil erosion, the Project SWPPP, in combination with best management practices (BMPs), will be implemented during all phases of construction.

The permanent conversion of approximately 1.21 acres of PFO wetland to PEM wetland within the utility easement will require compensatory wetland mitigation for authorization under the Nationwide Permits. The Applicant anticipates satisfying this mitigation through the purchase of credits from a mitigation bank or in-lieu fee program. The Applicant will coordinate with the USACE to identify and approve wetland mitigation for the Project. Any purchase of wetland mitigation will be completed prior to construction in wetland areas.

(a) Restoration and Stabilization

The applicant shall describe plans for post-construction site restoration and stabilization of disturbed soils, especially in riparian areas and near wetlands. Restoration plans should include details on the removal and disposal of materials used for temporary access roads and construction staging areas, including gravel.

Post-construction restoration plans will provide guidelines to assist in restoring the temporarily impacted areas of the Project back to their pre-construction condition, to the extent practicable. These plans include the removal of aggregate from temporary laydown areas and temporary access roads, decompacting the soil in disturbed agricultural fields and respreading of stockpiled topsoil, cleaning out of temporary stormwater management practices, and conversion of any temporary features into permanent practices, depending on the final Project design and landowner preferences. Erosion control methods specified in the Project SWPPP will be utilized along riparian areas to stabilize and restore vegetation.

Any fencing, field drainage tiles, or drainage ditches damaged during construction activities will be repaired or replaced.

(b) Frac-Out Contingency Plan

The applicant shall provide a detailed frac out contingency plan for stream and wetland crossings that are expected to be completed via horizontal directional drilling.

No HDD crossings of wetlands or streams are proposed for the Project. However, a Frac-Out Contingency Plan was submitted in Exhibit R with the Circleville Solar generation facility application under separate cover as case number 21-1090-EL_BGN to address the response measures to potential inadvertent returns associated with the Project. These measures include mitigation and agency notifications, in the event of an inadvertent release of drilling fluid into surface waters. The Applicant will implement this Frac-Out Contingency Plan if final Project design for the transmission line includes the use of HDD to cross a surface water.

(c) Demarcation of Surface Waters During Construction

The applicant shall describe methods to demarcate surface waters and wetlands and to protect them from entry of construction equipment and material storage or disposal.

The boundaries of delineated surface waters, including wetlands, streams, waterbodies, and any other environmentally sensitive areas, will be clearly staked or flagged prior to construction. Appropriate BMPs, such as silt fence and/or filter sock perimeter controls, will be implemented during construction to protect water resources in accordance with the Project-specific SWPPP.

(d) Erosion Control Inspection and Repair

The applicant shall describe procedures for inspection and repair of erosion control measures, especially after rainfall events.

A Project-specific SWPPP will be developed, and authorization obtained under the OEPA Construction Stormwater General Permit for stormwater discharges associated with construction activity. Design and installation of sediment and erosion control measures will be detailed within the SWPPP. The Applicant will follow the procedures included in the SWPPP to actively inspect and repair sediment and erosion control measures throughout construction to ensure that they are functioning properly. With the implementation of the SWPPP, no significant degradation of avoided or off-site waters will occur from the development of the Project. Inspections will follow the requirements of the OEPA Construction Stormwater Permit to ensure soil and erosion control measures are maintained in good working condition.

The owner or operator of each proposed construction activity will have a trained contractor inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor will begin implementing corrective actions within a reasonable time frame. At a minimum, the qualified inspector will inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, any post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved final stabilization, all points of discharge to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site, and all points of discharge from the construction site.

(e) Stormwater Diversion Methods

The applicant shall describe measures to divert storm water runoff away from fill slopes and other exposed surfaces.

Stormwater diversion methods, such as the utilization of silt fence or filter socks, will be documented in the Project SWPPP and used during construction to minimize runoff and sedimentation of wetlands, streams, and waterbodies.

(f) Methods to Protect Vegetation

The applicant shall describe methods to protect vegetation in proximity to any project facilities from damage, particularly mature trees, wetland vegetation, and woody vegetation in riparian areas.

Tree and vegetation clearing will be limited to the minimum necessary for Project construction. Construction limits will be flagged and staked prior to any site disturbance through the use of orange construction netting, flagged stakes, or other method as detailed in the Project SWPPP.

(g) Disposal of Cleared Vegetation

The applicant shall describe options for disposing of downed trees, brush, and other vegetation during initial clearing for the project, and clearing methods that minimize the movement of heavy equipment and other vehicles within the project area that would otherwise be required for removing all trees and other woody debris off site.

The Applicant is conducting both hand-clearing and mechanized clearing within the wetlands that are located within the Project ROW. A reasonable attempt will be made to make one pass through the Project ROW with the equipment being used to clear vegetation during the construction phase of the Project and with the equipment used to clear debris after the cutting is complete. Tree limbs, trunks, and any other woody vegetation cleared will be chipped and disposed of appropriately depending on landowner requests.

(h) Herbicide Use for Maintenance

The applicant shall describe any expected use of herbicides for maintenance.

Vegetation within the footprint of the Project will be maintained primarily through mowing and through targeted herbicide applications. These applications will only be conducted as needed. If herbicide is required, it will be sprayed in a manner that targets the invasive/noxious species and

minimizes incidental impacts to native and desirable species. Any herbicide applications will be led by a certified professional holding a valid Commercial Pesticide Applicator license with the Ohio Department of Agriculture (ODA).

(C) Plant and Animal Surveys

The applicant shall provide for each of the site/route alternatives the results of a literature survey of the plant and animal life that may be affected by the facility. The literature survey shall include aquatic and terrestrial plant and animal species of commercial or recreational value, or species designated as endangered or threatened. The applicant shall provide the results of field surveys of the plant and animal species identified in the literature survey.

(1) Plant and Animal Species

The applicant shall provide a list of the species identified in the surveys, including their federal and state protection status.

Exhibit G provides a Biological Habitat Assessment for the Circleville Solar Transmission Line. This report includes both a literature review and field survey results of plant and animal species that are potentially present within a 0.25-mile radius of the Survey Area .

Plants

Vegetative communities within the Survey Area are dominated by cultivated croplands planted with corn (*Zea mays*) and soybean (*Glycine max*). Agricultural fields are surrounded by mostly disturbed/maintained grassland swales dominated by yellow foxtail, ground ivy, smooth brome, and the invasive species reed canary grass. One property within the Survey Area is registered as a CRP easement and appears to have been previously planted with higher quality grassland species including yellow Indian grass, big bluestem, and little false bluestem. A few remnant woodlands are located near the eastern terminus of the Survey Area mainly along the riparian corridor of the Scioto River. Given the dominant agricultural landscape, plant species of recreational and commercial value, aside from crops, are unlikely to occur within the Survey Area or surrounding 0.25-mile area. No federally or state-listed plant species were identified as potentially occurring in the Survey Area.

Wildlife

Based on 2019 National Land Cover Database (NLCD) data, over half of the Survey Area contains cultivated cropland (approximately 62%) and pastures (approximately 4%) as depicted on **Figure 3** within **Exhibit G**. A few smaller tracts of grassland/herbaceous cover that are not actively farmed remain in the landscape scattered throughout the Project, but do not represent a dominant feature in the landscape. Rare wildlife species are unlikely to use these portions of the Survey Area, however, wildlife common to agricultural regions of Ohio may use remnant grasslands, woodlands, and riparian areas of the Project. Wildlife of commercial and recreational value, such as for hunting, fishing, and birding, are mobile and impacts from Project development are not anticipated.

Federally Listed Species

Based on currently available information from the U.S. Fish and Wildlife Service (USFWS)'s Information for Planning and Consultation (IPaC) tool accessed on April 29, 2021, and March 4, 2022, there are no USFWS-designated critical habitats within the vicinity of the Survey Area.

The unofficial TES list from IPaC indicates that the Project is within the range (i.e., are known to or are believed to occur) of two (2) bat species, one (1) fish species, one (1) insect species, and five (5) freshwater mussel species (**Table 8-4** below). Potential for the Project to provide suitable habitat for these federally listed species is summarized in Section (d) below and detailed within **Exhibit G**.

Table 8-4. Federally Listed Species within the Vicinity of the Facility

Common Name	Scientific Name	General Habitat	Federal Status ¹	State Status ²
Bats				
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	Forested regions. Forages in upland and lowlands woods and along floodplain forests.	LT	SE
Indiana Bat	<i>Myotis sodalis</i>	Forested regions. Forages on hillsides, ridge forests, and riparian and floodplain forests.	LE	SE
Fish				
Scioto Madtom	<i>Noturus trautmani</i>	Stream riffles of moderate flow over sandy gravel bottom.	LE	SE
Insects				

Common Name	Scientific Name	General Habitat	Federal Status ¹	State Status ²
Monarch Butterfly	<i>Danaus plexippus</i>	Grasslands with variety of flowering plants and milkweeds, the larval host plant.	C	-
Mussels				
Northern Riffleshell	<i>Epioblasma torulosa rangiana</i>	A variety of streams (from large to small) with bottoms of firmly packed sand or gravel.	LE	ST
Snuffbox Mussel	<i>Epioblasma triquetra</i>	Small to medium creeks or rivers, inhabiting areas with a swift current.	LE	SE
Clubshell	<i>Pleurobema clava</i>	Small streams and rivers, often below the sediment surface.	LE	ST
Rabbitsfoot	<i>Quadrula cylindrica</i>	Small to medium streams and larger rivers, often in shallow areas along the bank.	LE	SE
Rayed Bean	<i>Villosa fabalis</i>	Lakes and small to large streams.	LE	SE

¹ Federal Status Key: LT=federally threatened; LE=federally endangered; C= Candidate.

²State Statue Key: SE=state-endangered ST=state-threatened

State-listed Species

The ODNR Natural Heritage Database (OH NHD) indicated that the Project is within range of documented occurrences of 19 freshwater mussel species, nine (9) fish species, and one (1) plant species as listed in **Table 8-5** below. The identified plant species, the pale umbrella sedge (*Cyperus acuminatus*), was identified as occurring within the vicinity of the Project in the OH NHD review but was confirmed as having been delisted from Ohio's rare plant species list in 2020, per consultation with ODNR in April 2022. The ODNR indicated that no surveys are recommended for this delisted species. Potential for the Project to provide suitable habitat for the other identified state-listed species is summarized in Section (d) below and detailed within **Exhibit G**.

Table 8-5. State-Listed Species within the Vicinity of the Facility

Common Name	Scientific Name	General Habitat	State Status ¹	Federal Status ²
Mussels				
Elephant Ear	<i>Elliptio crassidens</i>	Large rivers in mud, sand, or fine gravel.	SE	-
Northern Riffleshell	<i>Epioblasma rangiana</i>	A variety of streams (from large to small) with bottoms of firmly packed sand or gravel.	SE	LE

Common Name	Scientific Name	General Habitat	State Status ¹	Federal Status ²
Snuffbox	<i>Epioblasma triquetra</i>	Small to medium creeks or rivers, inhabiting areas with a swift current.	SE	LE
Long solid	<i>Fusconaia subrotunda</i>	Streams and small rivers with clear water and sand or gravel substrates; may also be found in coarse gravel and cobble in larger rivers.	SE	-
Pink Mucket	<i>Lampsilis abrupta</i>	Mud and sand and in shallow riffles and shoals swept free of silt in major rivers and tributaries.	SE	LE
Pocketbook	<i>Lampsilis ovata</i>	Small to large rivers with gravel and coarse sand substrates mixed with some silt or mud; usually found in moderate to strong current, but can survive in standing water.	SE	-
Washboard	<i>Megaloniais nervosa</i>	Large rivers with slow current and muddy to coarse gravel substrates; may also be found in medium to small rivers.	SE	-
Clubshell	<i>Pleurobema clava</i>	Clean, loose sand and gravel in medium to small rivers and streams.	SE	LE
Rabbitsfoot	<i>Theliderma cylindrica</i>	Small to medium sized rivers of moderate current with clear, relatively shallow water and a mixture of sand and gravel substrates.	SE	LE
Fanshell	<i>Cyprogenia stegaria</i>	Medium to large rivers, with sand or gravel substrates.	SE	LE
Black Sandshell	<i>Ligumia recta</i>	Varying sizes of creeks, rivers, and lakes with sand and gravel bottoms and moderate current.	ST	-
Threehorn Wartyback	<i>Obliquaria reflexa</i>	Medium to large rivers with slackwater conditions to swift currents and substrates of gravel to muddy sand.	ST	-
Fawnsfoot	<i>Truncilla donaciformis</i>	Small to large rivers and lakes with gravel or sand substrates.	ST	-
Elktoe	<i>Alasmidonta marginata</i>	Small to large streams and small to medium rivers with swifter currents over packed sand and gravel substrates.	SC	-
Purple Wartyback	<i>Cyclonaias tuberculata</i>	Medium to large rivers with gravel or mixed sand and gravel substrates.	SC	-
Wavy-rayed Lampmussel	<i>Lampsilis fasciola</i>	Small-medium sized shallow streams, in and near riffles, with good current. Prefers sand or gravel substrates.	SC	-
Round Pigtoe	<i>Pleurobema sintoxia</i>	Mud, sand, or gravel substrates of medium to large rivers.	SC	-
Kidneyshell	<i>Ptychobranhus fasciolaris</i>	Creeks, rivers, and lakes with moderate to swift currents, high water quality, and sand or gravel substrates.	SC	-

Common Name	Scientific Name	General Habitat	State Status ¹	Federal Status ²
Deertoe	<i>Truncilla truncata</i>	Rivers and lakes with a moderately swift current and firm sand or gravel substrates.	SC	-
Fish				
Spotted Darter	<i>Etheostoma maculatum</i>	Medium-sized rivers and streams, typically in areas of swift current at the end of a riffle where there are many very large boulders.	SE	-
Northern Madtom	<i>Noturus stigmosus</i>	Deep swift riffles of large rivers, usually found in and around cobbles and boulders.	SE	-
Northern Brook Lamprey	<i>Ichthyomyzon fossor</i>	Adults found in clear brooks with fast flowing water and either sand or gravel bottoms. Juveniles found in slow moving water buried in soft substrate of medium to large streams.	SE	-
Goldeye	<i>Hiodon alosoides</i>	Large rivers, often with turbid waters from clay silts. Often found in areas with swift currents, including below dams.	SE	-
Tippecanoe Darter	<i>Etheostoma tippecanoe</i>	Medium to large streams and rivers in riffles of moderate current with a substrate of gravel and small cobble-sized rocks.	ST	-
Blue Sucker	<i>Cycleptus elongatus</i>	Deep, swift water in channels of large rivers with sand, gravel, or rubble bottoms.	ST	-
Lake Chubsucker	<i>Erimyzon sucetta</i>	Moderately clear lakes, oxbow lakes, sloughs of weedy lakes and their associated marshy streams dense with organic debris over bottoms of cobble, sand, boulders, mud, or silt.	ST	-
Paddlefish	<i>Polyodon spathula</i>	Large, deep, slow-moving rivers, lakes, and reservoirs.	ST	-
Western Creek Chubsucker	<i>Erimyzon claviformis</i>	Clear headwaters, creeks, and small rivers of prairies; typically streams with sand and gravel.	SC	-

¹State Status Key: ST=state-threatened; SE=state-endangered; SC=state species of concern

²Federal Status Key: FE=federally endangered; FT=federally threatened;

Exhibit G provides a Biological Habitat Assessment for the Survey Area of the Project. As stated in Section 4906-4-08(B)(c), this report includes data on field surveys of plant and animal species that were first identified in the literature review conducted prior.

Plants

ECT conducted field reviews of the Survey Area in May 2021, December 2021, and February 2022. These field surveys confirmed that the majority of the Survey Area is active agricultural land surrounded by disturbed/maintained grassland swales. Although a higher quality grassland was observed as part of a CRP easement within the eastern Survey Area, rare and unique plant species, including federally or state-listed plant species, were not observed within the CRP or elsewhere within the Survey Area.

Wildlife

ECT reviewed remnant fallow field/pastures and the CRP area within the Survey Area for suitability for breeding grassland birds. Most observed grasslands were maintained drainages and lawns that would not be suitable to grassland birds. Although the Elmon Richards Scioto River Wildlife Area, managed by the ODNR- Department of Wildlife (DOW) is located near the eastern Project Area, grasslands within the conservation area appear to be frequently disturbed from mowing and are dominated by ruderal species that would not be suitable for grassland birds. The grassland area that was identified as part of a CRP easement in the eastern Survey Area has low potential to provide nesting habitat for grassland dependent TES within the vicinity of the Survey Area based on its location and habitat constraints such as patch size, frequent mowing for existing ROWs, location within the floodplain, and visitation for fishing access at the Elmon Richards Scioto River Fishing Access.

The Survey Area was reviewed for raptor nests, including bald eagle nests, during on-site surveys in May 2021, December 2021, and February 2022. Although the majority of the Survey Area is comprised of open areas, forested areas exist within the Survey Area along the Scioto River Corridor. These areas included woodlots and hedgerows bordered by crop fields. As the identified forested areas are in close proximity to large bodies of water, as is preferred by bald eagles and other raptors when nesting, there is potential for eagles and other raptors to breed within the Survey Area. However, no bald eagles or bald eagle nests were observed within the Survey Area during the field surveys.

Federally Listed Species

Forested areas within the Survey Area were surveyed for potential Indiana and northern long-eared bat habitat in May 2021, December 2021, and February 2022. The field assessment confirmed approximately 23.25 acres of potential bat habitat within the Survey Area. The forested areas on-site

included mixed early successional/second growth deciduous forest adjacent to or in the vicinity of water (e.g., the Scioto River) for foraging bats.. The majority of assessed areas were rated as moderate overall habitat quality for bats.

The streams and waterbodies identified within the Survey Area were evaluated for their potential to support federally listed fish and mussel species during on-site surveys in May 2021, December 2021, and February 2022. While most streams and ditches have been heavily channelized/straightened with no areas of riffle/pool complexes, the Scioto River likely provides suitable habitat for federally listed aquatic species.

Habitats suitable for foraging, non-breeding, and potentially breeding monarch butterflies were not observed during the desktop or field reviews. Additionally, the heavy use of herbicides in agricultural areas like the Project Area precludes the occurrence of milkweeds (*Asclepias* spp.), the monarch's larval host plant. The monarch butterfly is unlikely to occur within the Survey Area.

State-listed Species

ECT conducted on-site field surveys in May 2021, December 2021, and February 2022 to determine if suitable habitat exists within the Survey Area for the species listed in the OH NHD with occurrences within a one-mile radius.

As previously described, most streams identified within the Survey Area are heavily channelized and exhibited high amounts of sedimentation and siltation. These areas are not suitable for state-listed aquatic species including mussels and fish. However, the Scioto River is known to have documented occurrences of state-listed mussel and fish species.

(2) Impacts to Ecological Resources During Construction

The applicant shall provide a description of the probable impact of the construction of the proposed facility on the identified species and their habitat. This would include the impacts from route clearing and any impact to natural nesting areas.

As previously discussed in Section 4906-5-08(B)(3), the majority of the Project infrastructure is proposed within previously disturbed areas including cultivated cropland and road ROW. The

permanent construction impacts on herbaceous and woody vegetation for both the Preferred and Alternate Routes is primarily limited to the initial clearing of vegetation in the 100-foot corridor ROW, which is largely in the wooded areas adjacent to the Scioto River and is estimated to be approximately 1.7 acres for the Project.

Limited portions of the Project Area may contain suitable habitat for two federally listed bat species. The Indiana bat and the northern long-eared bat (NLEB) have the potential to occur in the Project Area, particularly in the forested woodlots near the eastern terminus of the Project. Scheduling cutting following seasonal guidelines (October 1 through March 31) consistent with USFWS and ODNR guidance will be implemented to minimize or avoid impacts to federally listed bats potentially onsite. Twenty-two federally and state-listed aquatic species including five federally listed mussel species and one federally listed fish species have moderate to high potential to occur within the Project Area; some streams within the Project Area are disturbed agricultural streams and lack appropriate habitat to support these mussel and fish species. However, the Scioto River, located at the eastern terminus of the Project Area, may support these aquatic species. No in-water work within the Scioto River is planned for the Project and BMPs will be implemented during construction to minimize erosion and sedimentation. Therefore, impacts to federally and state-listed aquatic species are not anticipated.

Suitable habitat for the federal candidate monarch butterfly was not identified within the Project Area as part of field surveys. Impacts to the monarch butterfly are not anticipated as part of the Project activities.

Impacts to TES and wildlife within the Project Area are anticipated to be minimized through the avoidance of suitable habitat to the extent practicable and through the implementation of BMPs. The Applicant will coordinate with wildlife agencies if clearing of trees greater than three inches DBH is required outside of the seasonal clearing window for listed bats. Preliminary agency consultation with the ODNR and USFWS began in May and June of 2021, as documented in the Biological Habitat Assessment (**Exhibit G**).

Following preliminary Project design, ECT coordinated with USFWS regarding the proposed tree clearing and impacts to federally listed bat species. The USFWS responded on March 31, 2022,

recommending that removal of any trees greater than three inches in diameter at breast height (DBH) only occur between October 1 and March 31 to avoid adverse effects to Indiana bats and NLEB. The supplemental agency coordination is included in **Exhibit G**.

(3) Impacts to Ecological Resources During Operation and Maintenance

The applicant shall provide a description of the probable impact of the operation and maintenance of the proposed facility on the species described above. This would include the permanent impact from route clearing and any impact to natural nesting areas.

Impacts to TES are not anticipated during the operation and maintenance of the Project. The Preferred and Alternate Routes are sited primarily through active agricultural land. The routine maintenance clearing of any trees or vegetation greater than three inches DBH in the 100-foot ROW corridor adjacent to the Scioto River will be completed between October 1 and March 31, following USFWS seasonal clearing restrictions to avoid potential adverse effects to listed bats. The Applicant will coordinate with wildlife agencies if clearing of trees greater than three inches DBH is required outside of the seasonal clearing window for listed bats. No in-water work is anticipated during the operation and maintenance phases of the Project.

(4) Mitigation Procedures for Ecological Resources

The applicant shall provide a description of the mitigation procedures to be used during construction, operation, and maintenance of the proposed facility to minimize the impact on species described in this rule.

No significant impacts to threatened, endangered, or rare species are anticipated as a result of the construction, operation, or maintenance of the Project. Therefore, no mitigation measures are proposed. If any species or areas are identified during additional coordination with the ODNR and USFWS or during additional field studies, the Applicant will coordinate with these agencies to develop appropriate mitigation measures prior to beginning construction.

(D) Site Geology

The applicant shall provide for each of the site/route alternatives a description of the site geology, suitability of the soils for foundation construction, and areas with slopes that exceed twelve percent and/or highly erodible soils (according to the natural resource conservation service and county soil surveys) that may be affected by the proposed facility. The applicant shall describe the probable impact to these areas. The applicant shall include any plans for test borings, including a timeline for providing the test boring logs and the following information in items (1) to (5) to the board.

The Project Area has elevations ranging from 650 to 700 feet above sea level. The Preferred and Alternate Routes are located within the Southern Ohio Loamy Till Plain physiographic province, which consists of moderate relief silt to clay, loamy till from end and recessional moraines from past glaciations and is commonly associated with boulder belts and outwash-filled valleys and floodplains. The restrictive feature of the Southern Ohio Loamy Till Plain region is generally lithic bedrock. The bedrock along the Preferred and Alternate Routes consists of primarily Devonian-aged sedimentary rocks that are mainly shale according to the USGS data.

According to the USDA Web Soil Survey, the majority of the Project Area consists of loam soils with areas of silt loam mapped in the eastern portion of the Project Area to the north of US-22. Several small pockets that consist of gravelly loam, gravelly sand loam, and silty clay loam are also mapped in the Project Area. A typical soil profile in the Project Area will transition from loam to gravelly sandy clay loam, to stratified very gravelly coarse sand to sand. The majority of the soils in the Project Area are well-drained and generally range from 0 to 6 percent slopes.

The Applicant will conduct a geotechnical investigation, which will include borings along the Preferred and Alternate Routes. Results and analysis will be provided in a separate report following the completion of the field work associated with the geotechnical investigation.

Small areas totaling approximately 1% of soils within the Project Area are comprised of representative slopes of 12% or greater. No areas of highly-erodible soils are mapped within the Project Area. The areas of slopes of 12% or greater are primarily located along riparian corridors, wetlands, wooded areas, and along the edges of US-22 and the railroad corridor. No Project facilities have been sited on highly-erodible lands or critically steep slopes.

Information on the following will be included within the geotechnical investigation report:

- (1) Subsurface soil properties
- (2) Static water level
- (3) Rock quality description
- (4) Percent recovery
- (5) Depth and description of bedrock contact

(E) Environmental and Aviation Compliance

The applicant shall provide information regarding compliance with environmental and aviation regulations.

(1) Required Licenses, Permits, and Authorizations for Construction

The applicant shall provide a list and brief discussion of all licenses, permits, and authorizations that will be required for construction of the facility.

The Applicant has begun coordination with the necessary entities regarding the licenses, permits, and authorizations that will be required for construction of the Project, as discussed in Section 4906-5-07(A)(1). **Table 8-6** below lists anticipated permits, licenses, and authorizations for the Project.

Table 8-6. Permits, Licenses, and Authorizations for Project Construction

Regulatory Authority	Permit / Approval	Status of Application
Federal		
U.S. Army Corps of Engineers (USACE)	Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act – Nationwide Permit 57	Not yet submitted
U.S. Fish and Wildlife Service (USFWS)	Voluntary coordination on Endangered Species Act	USFWS comments received July 2021 and March 2022
State		
Ohio Power Siting Board	Certificate of Environmental Compatibility and Public Need	Filed June 8, 2022
Ohio Environmental Protection Agency (OEPA)	Section 401 Water Quality Certification (WQC)	USACE authorization under NWP 57 constitutes WQC and separate coordination with OEPA is not required
	Construction Stormwater General Permit (No. OHC000005) Notice of Intent	To be submitted at least 21 days prior to construction
Ohio Department of Natural Resources	Environmental Review	Received September 2021
	Utility Crossing License	Coordination started December 2021
Ohio Department of Transportation	Right-of-Way / Utility Permit	Not yet submitted
Local (Pickaway County)		
Pickaway County Building Department	Flood Hazard Area Development Permit	Not yet submitted

(2) Debris Description and Disposal

The applicant shall provide a description, quantification and characterization of debris that will result from construction of the facility, and the plans for disposal of the debris.

Construction of the Project will generate minimal amounts of non-hazardous solid waste, and no hazardous waste. This material will consist primarily of pallets, building materials, plastic packaging, cardboard, and general refuse. All waste will be removed from the site and disposed of in accordance with local, state, and federal regulations. Roll-off dumpsters or similar containers will be acquired from waste disposal contractor(s) and placed within laydown yards/staging areas for disposal of general

trash, debris, and non-hazardous materials. The waste disposal contractor(s) will be responsible for emptying the containers and proper disposal of the waste offsite.

(3) Stormwater Management During Construction

The applicant shall provide a discussion of the process that will be used to control storm water and minimize erosion during construction and restoration of soils, wetlands, and streams disturbed as a result of construction of the facility.

The Applicant will implement BMPs throughout construction to reduce stormwater runoff and manage sedimentation in accordance with the Project SWPPP, thereby minimizing potential impacts to receiving waters. Depending on site-specific needs, BMPs may include but are not limited to tree and natural area preservation, seasonal construction scheduling, stabilized construction entrances and access roads, silt fence/filter sock, temporary seeding, temporary stormwater management facilities (e.g., sediment traps/basins), and phasing construction activities to minimize soil exposure. BMPs will remain in place until the affected area is stabilized.

(4) Contaminated Soil and Hazardous Material During Construction

The applicant shall provide a discussion of plans for disposition of contaminated soil and hazardous materials generated from clearing of land, excavation or any other action that would adversely affect the natural environment of the project site during construction. Responsibility for removal of contaminated soil shall be limited solely to soil and material from clearing of land, excavation or any other action that would adversely affect the natural environment of the project site for the project, and shall not include additional remediation of measures beyond the scope of the project.

The Applicant will develop and implement a SPCC plan to outline the procedures and preventative measures for handling on-site chemicals during construction and operation. The plan will identify the following:

- Typical fuels, chemicals, lubricants, and paints to be used or stored in Project areas;
- Methods and locations of storage;
- Locations designated for lubrications and refueling;
- Preventative measures to be used during refueling;
- Mitigation measures to be employed in the event of a spill;

- Locations of construction spill kits and contents of kits (gloves, boom, sorbents, barrier material, etc.);
- Emergency notification procedures and forms;
- Contact information for individuals requiring notification if a spill should occur; and
- Procedures for handling contaminated and spill response materials.

The SPCC plan will be maintained on-site during construction and operation and will meet all agency requirements.

(5) Structure Height and FAA Coordination

The applicant shall provide the height of tallest anticipated above ground structures. For construction activities within five miles of public use airports or landing strips, the applicant shall provide the maximum possible height of construction equipment, as well as all installed above ground structures, and include a list of air transportation facilities, existing or proposed, and copies of any coordination with the federal aviation administration and the Ohio office of aviation.

Notification to the Federal Aviation Administration (FAA) is required per 14 CFR Part 77.9 for the following construction or alteration activities:

- Any construction or alteration that is more than 200 feet above ground level
- Any construction or alteration:
 - Within 20,000 feet from the nearest runway of a public use, military, or federally operated airport that exceeds an imaginary surface with a slope of 100:1 extending from the longest runway more than 3,200 feet in length
 - Within 10,000 feet from the nearest runway of a public use, military, or federally operated airport that exceeds an imaginary surface with a slope of 50:1 extending from the longest runway more than 3,200 feet in length
 - Within 5,000 feet of a public use, military, or federally operated airport that exceeds an imaginary surface with a slope of 25:1 extending from the nearest landing and takeoff area of each heliport
- Any highway, railroad, or other traverse way whose adjusted height exceeds the prescribed standards of 14 CFR Part 77.9 (c)
- Any construction or alteration on a public use, military, or federally operated airport, or airport or heliport with at least one FAA-approved instrument approach procedure

- Requested by the FAA

No public use, military or federally operated airports are within 20,000 feet (3.8 miles) of the Project Area. The closest mapped aviation feature is the heliport associated with the Berger Hospital in Circleville, located approximately 1.1 miles to the northeast of the eastern end of the Project in Circleville. This heliport is denoted as private use in the FAA data. A historic airport, Clark's Dream Strip, mapped at 3490 McLean Mill Road, is approximately 2.1 miles north-northwest of the western end of the Project as shown in the FAA data. Based on review of prior Google Earth imagery, it appears this airport was in operation until between 2014 and 2016. By 2018, the former unpaved runway area was converted to cultivated cropland. The [Abandoned & Little-Known Airfields: Central Ohio \(airfields-freeman.com\)](http://Abandoned & Little-Known Airfields: Central Ohio (airfields-freeman.com)) website confirms that Clark's Dream Strip was closed by 2016. Thomas Airfield is mapped on the ESRI topographic map (Circleville quadrangle) to the south of the Project Area, to the west of Canal Road and south of US-22. However, in reviewing the online topographic map viewer through the USGS website, it appears that Thomas Airfield was mapped on the 1961 7.5-minute quadrangle and was showing as removed by the 2010 7.5-minute quadrangle. This airfield is not visible in the 1994 Google Earth historic aerial imagery. The closest operational, public use airport is Pickaway County Airport, which is mapped approximately 5.7 miles south of the eastern portion of the Project.

Project structures will not exceed heights prescribed within 14 CFR Part 77.9 (c) as the tallest transmission pole structure is anticipated to be approximately 115 feet tall from ground surface to the top of the structure. Since the Project does not meet FAA filing criteria necessary for objects affecting navigable airspace FAA notification is not required.

(6) Construction Plan During Excessively Dusty or Muddy Conditions

The applicant shall provide a description of the plans for construction during excessively dusty or excessively muddy soil conditions.

Personnel vehicles and construction equipment traveling over unpaved roads and the construction site may provide sources of dust and tracking mud. The Project will implement BMPs, such as construction phasing, temporary stabilization, and applying water for dust suppression, to minimize potential impacts of dust and mud. While natural factors such as precipitation, soil moisture, and wind

along with the intensity of construction activities have the potential to influence dispersal across the Project and offsite, the use of BMPs is expected to reduce air quality impacts greatly. As a result, impacts to offsite air quality will be minor and transient and ambient air quality standards will not be exceeded.

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Case No(s). 22-0117-EL-BTX

Summary: Application Narrative of Circleville Solar, LLC for the Circleville Solar
Transmission Line - Public electronically filed by Teresa Orahood on behalf of Dylan
F. Borchers