Clearview Solar I, LLC

Clearview Solar

Exhibit I

Transportation Assessment

Case No. 20-1362-EL-BGN

TRANSPORTATION ASSESSMENT

FOR THE:
CLEARVIEW SOLAR PROJECT
CHAMPAIGN COUNTY, OHIO

OPSB CASE NO. 20-1362-EL-BGN

PREPARED FOR:
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HULL
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1.0 INTRODUCTION

1.1 Project Description and Purpose

This Transportation Assessment has been prepared for Clearview Solar I, LLC, which is planning development of the Clearview Solar Project (Project), an approximately 144-megawatt AC (MW_{AC}) utility-scale solar electric generation facility (Facility). The Facility will consist of large arrays of ground mounted solar panel modules, metal racking system and support piles, underground electric collection lines, inverters, transformers, a substation, pyranometers, an electrical interconnect transmission line, and associated roads. The Facility will be located in Adams Township in Champaign County, Ohio. The overall area in which the Facility will be constructed and operated is approximately 1,200 acres (Project Area). A map of the Project Area is included in Appendix A.

The objective of this assessment is to meet certain requirements of an application to the Ohio Power Siting Board (OPSB) for a Certification of Environmental Compatibility and Public Need (Certificate Application), as codified at Ohio Administrative Code (OAC) 4906, as follows:

1. OAC 4906-4-06(F)(3): The applicant shall evaluate and describe the anticipated impact to roads and bridges associated with construction vehicles and equipment delivery. Describe measures that will be taken to improve inadequate roads and repair roads and bridges to at least the condition present prior to the project.

2. OAC 4906-4-06(F)(4): The applicant shall list all transportation permits required for construction and operation of the project and describe any necessary coordination with appropriate authorities for temporary or permanent road closures, lane closures, road access restrictions, and traffic control necessary for construction and operation of the proposed facility.

For the purpose of this report, the following definitions have been used when describing the project (based on OAC 4906-1-01):

- **Project Area** means all land within a contiguous geographic boundary that contains the facility, associated setbacks, and properties under lease or agreement that contain any components of the facility.

- **Facility** means the proposed major utility facility and all associated facilities.

- **Associated Facility** means, for an electric power generation plant or wind farm: rights-of-way, land, permanent access roads, structures, tanks, distribution lines and substations necessary to interconnect the facility to the electric grid, water lines, pollution control equipment, and other equipment used for the generation of electricity.

1.2 Methodology

Access to the Project Area for construction will be from State, county and township roads and, where necessary, new private gravel access roads. Construction of the Facility will cause temporary increases in truck traffic on area roadways due to the delivery of materials and equipment.

This assessment identifies the probable public routes that will be used to construct and operate the Facility. It is assumed that vehicle traffic will originate from an Interstate or 4-lane divided State highway. From these routes, 2-lane State highways will be used to travel to the Project Area. State, county and township roads will be used for primary access to the Project Area.

For purposes of this assessment, Interstate, 4-lane and 2-lane State highways were not evaluated because it is assumed that these roadways are sufficient to accommodate the construction and operational traffic with respect to load capacity, geometry and condition.

For the county and township roads, this assessment includes a desktop study and on-site visual assessment of the probable routes, bridges and culverts leading to and in the Project Area. This assessment includes the general condition of the roads based on visual assessment of culverts and bridges, general pavement conditions, vertical changes in grade, and overhead height obstructions. If needed, this assessment will identify locations where improvements to the road are likely to accommodate the size of the delivery and construction vehicles. A pavement condition index (PCI) survey in accordance with ASTM D6433 was not completed. A PCI is a numerical index used to indicate the condition of pavement to measure its performance and level of service. If a PCI is required to establish the road condition prior to construction, it would be more appropriate to perform that survey after the project is permitted and closer to the start date of construction.

Research for state permits that are necessary for hauling the materials and equipment is also included in the assessment. Video was collected from all the reviewed probable routes as well as photographs of select features noted during the assessment.

1.3 Vehicle Types

The size and types of vehicles needed to deliver construction equipment, construction materials and Facility components include flatbed or tractor-trailer equipment delivery vehicles and multi-axle dump trucks. In addition, typical automobiles and pickup trucks will be used to transport construction staff and other incidental truck trips.

1.4 Design Vehicle Characteristics

Transportation of construction equipment and materials and Facility components will be completed using conventional transportation vehicles such as fixed-bed trucks or tractor-semi-trailers (AASHTO WB-50). Construction equipment such as excavators, bull dozers, and wheel tractor-scrapers will be transported to the site on fixed-bed or tractor-semi-trailer low-boy vehicles. Multi-axle dump trucks may also be used. The vast majority of vehicles will be below the maximum allowable size and weight for public roads. Only limited components such as switchgear or transformers for switchyards and substations may require the use of overweight/oversize vehicles.

2.0 PROBABLE ROUTE ASSESSMENT

2.1 Roadway Characteristics

A visual assessment of the probable routes in the Project Area was conducted on September 17 and 28, 2020 by traveling the roadways listed below (see Figure 1 in Appendix A for location of probable routes). Existing data on traffic volumes for the probable routes was obtained from the Ohio Department of Transportation (ODOT) Traffic Monitoring Management System (TMMS).[1] The Annual Average Daily Traffic (AADT) was obtained for each probable route road segment, if available. A detailed roadway capacity analysis was not completed for this study. Based on field observations and the AADT (which is relatively low and consistent with rural areas), we do not expect construction or operation of the Facility to create any significant delays to the traveling public. Table 1 summarizes the existing conditions of the roadways.

TABLE 1
ROADWAY CHARACTERISTICS

Road	From	To	Pavement Width (ft)	No. of Lanes	Pavement Condition	Surface Type	AADT	Speed Limit
Logan Champaign Road	SR235	Champaign Logan Shelby Road	Varies from 16'-6" to 19'-6"	2	Fair	Chip and Seal	115	NP
Champaign Logan Shelby Road	Logan Champaign Road	N. Elm Tree Road	17'-6"	2	Fair	Asphalt	N/A	NP
Snapptown Road	Logan Champaign Road	Project Boundary	17'-6"	2	Good	Chip and Seal	N/A	NP
N. Elm Tree Road	Champaign Logan Shelby Road	Project Boundary	12'-0"	1.5	Fair	Chip and Seal	N/A	NP

Notes:

AADT – Annual Average Daily Traffic (2020)

NP – not posted

N/A – not available

Lanes are assumed to be a minimum of 8.5 feet wide

Pavement Condition:

Excellent – recently paved.

Good – pavement appears stable with minor cracking and other pavement distress indicators.

[1] Ohio Department of Transportation, Traffic Monitoring Management System, http://odot.ms2soft.com/

Fair – pavement appears stable but may have a higher amount of transverse and longitudinal cracking and other distressed pavement indicators such as edge cracking, rutting, and weathering. Potholes may be present.

Poor – pavement is severely distressed with excessive cracks, potholes, rutting, and deterioration.

Logan Champaign Road

This road has a chip and seal surface and is in fair condition. It exhibits advanced aging with transverse and longitudinal pavement cracking along the entire road segment. This road has no striping. The road has relatively flat grades with no abrupt grade changes.

Champaign Logan Shelby Road

This road has an asphalt surface and is in fair condition. It exhibits advanced aging with transverse and longitudinal pavement cracking along the entire road segment. This road has no striping. The road has relatively flat grades with no abrupt grade changes.

Snapptown Road

This road has a chip and seal surface and is in good condition. There is minimal visual pavement distress. This road has no striping. The road has relatively flat grades with no abrupt grade changes.

N. Elm Tree Road

This road has a chip and seal surface and is in fair condition. It exhibits advanced aging with transverse and longitudinal pavement cracking along the entire road segment. This road has no striping. The road has relatively flat grades with no abrupt grade changes. This road is narrow and less than two lanes wide.

Summary

All of these roads can be used for equipment delivery and construction traffic in their current condition. The use of N. Elm Tree Road may require additional traffic control due to its width.

Example areas of concern for all the roads were photographed and are included in Appendix B.

2.2 Bridge and Road Load Restrictions

There were no signs posting load restrictions for roads in the Project Area.

There is one bridge on the probable routes in the Project Area. Bridge No. 1130498 is a concrete structure on concrete abutments. The bridge and abutments are in good condition.

The Champaign County Engineer's office was contacted to determine if there are any restrictions on bridges and roadways on the routes that were evaluated. The Champaign County Engineer indicated the road and culvert limits are at legal loads. The only potential road work includes chip and seal that would occur in 2022.

Adams Township was contacted to determine if there are any restrictions on roadways on the routes that were evaluated. They did not provide any roadway restrictions but included a list of roadway improvements including:

1. Intersection widening of Champaign-Logan and Snapptown Roads (2019);
2. Intersection widening of Champaign-Shelby and N. Elmtree Roads (2020); and
3. Chip and seal of a portion of Snapptown Champaign-Shelby Roads (2020).

2.3 Culvert Characteristics

Culverts (where visible) were visually examined to determine their condition and if adequate cover is present. For purposes of this assessment, adequate cover means there is more than one foot of cover over the culvert (inclusive of the pavement). The condition of the culvert was limited to a visual review to determine if there is distortion in the shape (e.g., out of round) or evidence of corrosion (for steel culverts). The inspection of the condition of concrete culverts was limited to evidence of cracking or surface spalling.

Logan Champaign Road

There was one high-density polyethylene (HDPE) culvert noted on this road. The culvert was in good condition and the embankment was stable. The pavement was in fair condition (depressed pavement) over the culvert.

Champaign Logan Shelby Road

There was one HDPE culvert, one corrugated metal pipe (CMP) culvert and one reinforced concrete pipe (RCP) culvert noted on this road. All the culverts were in good condition. There was embankment erosion on the east side of the HDPE culvert. The pavement was in good condition over all three culverts.

Snapptown Road

There was one HDPE culvert and one CMP culvert noted on this road. All the culverts were in good condition. The HDPE culvert had some embankment erosion. The pavement was in good condition over these culverts.

N. Elm Tree Road

There was one CMP culvert noted on this road. The culvert was in fair condition, had stable embankments but had inadequate cover. The pavement was in fair condition (cracked and depressed) over this culvert.

2.4 Overhead and Width Restrictions

The roads were also investigated for height limitations. One permanent structure that crosses over the road and may restrict the clearance for oversized loads was found along the evaluated routes. A railroad bridge that crosses SR29 west of the Project Area and just west of Pasco, Ohio had a height of 13 feet, 6 inches at the pavement edge.

For overhead cables, the national standard for minimum clearance over roads is 15.5 feet, and cables cross over the studied routes in numerous locations. The height of the cables was not measured; however, there were no overhead cables that appeared to be obstructive. In the event a cable presents an obstruction, utility providers can temporarily or permanently raise the cables and/or move the poles. Therefore, cables should not be a limiting feature for use of the roads.

2.5 Posted Caution Signs

There were no posted caution signs on the roadways that were reviewed.

2.6 Local School and Public Transportation Information

The Facility is located in Champaign County and the Graham Local School District. The following information was obtained from the Ohio Educational Directory System (OEDS) Website: [2]

Graham Local School District (updated as of January 2013):

Graham Elementary
9464 US Highway 36
St. Paris, Ohio 43072
K-5 – enrollment 953 students

Graham Middle School
9644 US Highway 36
St. Paris, Ohio 43072
6-8 – enrollment 505 students

[2] Ohio Educational Directory System (OEDS) Website, http://education.ohio.gov/Topics/Data/Ohio-Educational-Directory-System-OEDS

Graham High School
7800 US Highway 36
St. Paris, Ohio 43072
9-12 – enrollment 722 students

All of these school buildings are at least 10 miles from the Project Area. Due to the rural area, many of the students are transported by bus. The number of buses and stops within the Project Area would be limited due to the total number of students and low density of homes. Impacts to school bus routes would be minimal based on:

1. No planned road closings;
2. Many project deliveries would occur in the middle of the day; and
3. Wide loads requiring escorts are negligible.

There are no rail or bus public transit systems in the Project Area.

3.0 POTENTIAL IMPACTS TO ROADWAYS

The development of a solar electric generating facility has the potential to create transportation impacts because of short-term construction activities. The following sections estimate the traffic for construction vehicles during the project, summarize the expectations for permitting and a local road use agreement, and outline steps for mitigating potential impacts to roadways.

3.1 Estimated Future Traffic

A final delivery route has not yet been finalized, but it is likely that delivery of Facility components to the Project Area will be from the west by way of I-75 to SR29 to SR706 to SR235 that is adjacent to the east side of the Project Area. An alternate route would be from the north by way of US33 to SR47 to SR235. Within the Project Area, county and township roads and new private gravel access roads will likely be used to deliver equipment and materials. The probable routes to the Project Area are shown on Figure 2 in Appendix A.

To deliver the construction equipment, materials and construction workers during the construction of the Facility, the probable routes will experience increased truck traffic. Historic data for construction of solar electric generating facilities indicate that there are approximately 17 to 18 vehicles per MW of power. This project is projected to be 144 MW; therefore, an estimated 2,448 to 2,592 vehicles for the project.

The vast majority of vehicles will be below the maximum allowable size and weight. Only limited components such as switchgear or transformers for switchyards and substations may require the use of overweight/oversize vehicles.

For the delivery vehicles that are below the maximum allowable size and weight, no delays to local traffic should be experienced except where the delivery vehicles may need to travel on narrow roadways (less than 2 lanes in width). When delivery vehicles are travelling on narrow roadways or when there is an occasional oversized vehicle, traffic control will be utilized to manage local traffic. However, the delays to local traffic should be minimal due to the low traffic volume in the Project Area. Because this is an agricultural area, heavier use of roadways by local farmers during planting and harvest seasons will occur. Prior to construction, a Traffic Control Plan will be prepared that describes the procedures that will be used to manage traffic during construction.

Project entrances along the probable routes were identified during the assessment (see Figure 1 in Appendix A). These locations are based on the location of existing driveways on the parcels. In the event existing driveways were not present, the potential project entrances were noted where a driveway could be located

based on lack of obstructions and relatively flat topography. Due to the relatively flat topography in the Project Area, many other locations are possible along the probable routes. Final Project Entrance locations in the final Facility layout should take into consideration the location with respect to other driveways and roadways, topography and vertical and horizontal sight distance.

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

3.2 Permits and Agreements

Prior to construction, Clearview will obtain all necessary permits from ODOT and the County Engineer. It is expected that Clearview and the County Engineer will enter into a Road Use and Maintenance Agreement (RUMA) for construction activities relating to the Project. This agreement would include procedures for temporary road closures, lane closures, road access restrictions and traffic control. For driveway access on County roads, a permit will be required from the County Engineer.

Road and County-maintained ditch crossings (e.g., underground or overhead collection and transmission lines) will require a permit from ODOT or the County Engineer.

Special Hauling Permits are required when loads exceed maximum dimensions or weights. Table 2 summarizes the characteristics of vehicle characteristics without Special Hauling Permits for State of Ohio highways.

For construction of the Facility, the vast majority of the vehicles will be below current maximum dimensions and weights. Therefore, Special Hauling Permits are only anticipated for a few vehicles that may exceed these criteria such as switchgear or transformers.

TABLE 2
DIMENSIONAL CRITERIA FOR VEHICLES WITHOUT SPECIAL HAULING PERMITS

Vehicle Characteristic	State Highway Limit
Width of vehicle, inclusive of load	8.5 Feet
Height of vehicle, inclusive of load	13.5 Feet
Length of vehicle, inclusive of load and bumpers	85 Feet
Total Weight of vehicle with 3 or more axles	80,000 Pounds

3.3 Proposed Mitigation

This study has determined that very little impact to roads associated with construction vehicles and material delivery is anticipated during the project. Final civil engineering design will be necessary prior to construction to ensure all transportation related activities are accounted for and reviewed by the County Engineer.

All roads should be monitored during construction for deterioration to ensure they are safe for local traffic. The volume and/or weight of construction traffic may cause accelerated pavement deterioration or stress on drainage structures that could necessitate temporary repairs. After completion of construction activities, there may be improvements required to return the roadways and drainage structures to pre-construction conditions. These requirements will be outlined in the RUMA with the County Engineer.

In the event impacts do occur, the following mitigation techniques will be utilized to avoid or minimize transportation-related impacts and/or to provide long-term improvement to the local road system:

3.3.1 Insufficient Roadway Width

- Rerouting over-width vehicles to wider roadways.

3.3.2 Insufficient Vertical Clearance

- Temporarily raising overhead utility lines.
- Rerouting over-height vehicles to roadways with sufficient vertical clearance.

3.3.3 Poor Pavement Condition or Insufficient Pavement Durability

- Roadside drainage improvements
- Pavement Patching
- Replacing pavement prior to construction (may include subgrade improvements).
- Replacing pavement during or after construction if damaged by construction traffic (may include subgrade improvements).
- Rerouting heavy-loaded vehicles to avoid insufficient pavement.

3.3.4 Insufficient Cover over Drainage Structures

- Adding temporary gravel and/or asphalt cover over structures.
- Using bridge jumpers to clear structures.
- Replacing structures during or after construction if damaged by construction traffic.
- Rerouting heavy-loaded vehicles to avoid structures.

3.3.5 Poor Structure Condition

- Replacing structure during or after construction if damaged by construction traffic.
- Using bridge jumpers to clear structures.
- Rerouting heavy-loaded vehicles to avoid structures.

3.3.6 Inadequate Bridge Capacity

- Using bridge jumpers to clear bridges.
- Rerouting heavy-loaded vehicles to avoid bridges.

3.3.7 Insufficient Roadway Geometry

- Rerouting over-sized vehicles to avoid insufficient roadway geometry.
- Profile adjustments to roadways with insufficient vertical geometry.
- Permanent or temporary plan adjustments to roadways with insufficient horizontal geometry.

4.0 CONCLUSIONS

Based on information collected during the field investigation, vehicle and traffic data, and information available from ODOT and the County Engineer, sufficient infrastructure exists via Interstate, State and local roads to construct the Facility. The vast majority of the vehicles transporting construction equipment, materials and workers are expected to be below load and dimensional limits. Only limited components such as switchgear or transformers for switchyards and substations may require overweight and/or oversize vehicles.

In the event overweight and/or oversized loads are necessary for construction, Special Hauling Permits will be obtained from the Ohio Department of Transportation (ODOT). All work will be coordinated and approved by the appropriate regulatory agencies prior to delivery.

For the delivery vehicles that are below the maximum allowable size and weight, no delays to local traffic should be experienced except where the delivery vehicles may need to travel on narrow roadways. When delivery vehicles are travelling on narrow roadways or when there is an occasional oversized vehicle, traffic control will be utilized to manage local traffic. However, the delays to local traffic should be minimal due to the low traffic volume in the Project Area. Because this is an agricultural area, heavier use of roadways by local farmers during planting and harvest seasons will occur. Prior to construction, a Traffic Control Plan will be prepared that describes the procedures that will be used to manage traffic during construction, and it will be shared with local law enforcement, schools and local landowners.

A final delivery route has not yet been finalized, but it is likely that delivery of Facility components to the Project Area will be from the west by way of I-75 to SR29 to SR706 to SR235 that is adjacent to the east side of the Project Area. An alternate route would be from the north by way of US33 to SR47 to SR235. Within the Project Area, county and township roads and new private gravel access roads will likely be used to deliver equipment and materials.

All of these roads can be used for equipment delivery and construction traffic in their current condition. The use of N. Elm Tree Road may require additional traffic control due to its width.

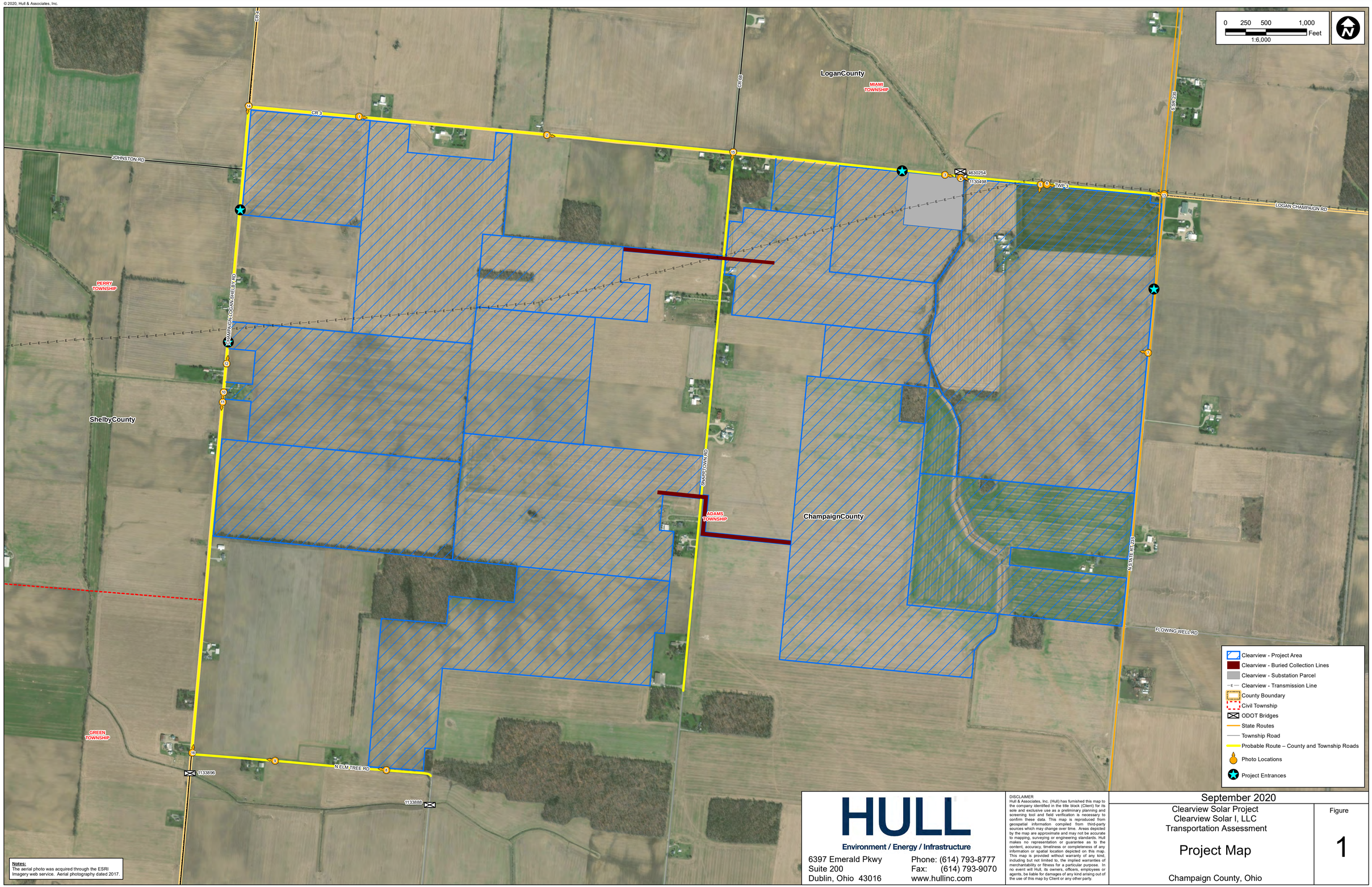
Once the final Facility layout is complete and the final vehicle characteristics can be determined, the final delivery routes will be finalized.

All roads should be monitored during construction for deterioration to ensure they are safe for local traffic. The volume and/or weight of construction traffic may cause accelerated pavement deterioration or stress on drainage structures that could necessitate temporary repairs. After completion of construction activities,

there may be improvements required to return the roadways and drainage structures to pre-construction conditions.

APPENDIX A

Project and Vicinity Maps



Notes:
The aerial photo was acquired through the ESRI Imagery web service. Aerial photography dated 2017.

Produced using ArcGIS 10.7

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Clearview Solar Project
Clearview Solar I, LLC
Transportation Assessment

Project Map

Champaign County, Ohio

Figure 1

File Name: ORR023_02_Fig01_Transportation.mxd

Edited: 9/28/2020 By: rkaip

0 0.5 1 2 Miles
1:63,360

Notes:
The aerial photo was acquired through the ESRI Imagery web service. Aerial photography dated 2017.

Clearview - Project Area
County Boundary
US Routes
State Routes
County Road
Township Road
Probable Route - US and State Highways

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Vicinity Map

Champaign County, Ohio

Figure 2

Produced using ArcGIS 10.7

File Name: ORR023_02_Fig02_Vicinity.mxd

Edited: 9/2/2020 By: rkaip

APPENDIX B

Photo Pages

PHOTO 1: Pavement distress (cracked and depressed pavement) over culvert on Logan Champaign Road, looking east.

PHOTO 2: Typical pavement distress (transverse cracking) on Logan Champaign Road, looking east.

PHOTO 3: View of pavement transition on Logan Champaign Road, looking east.

PHOTO 4: View of east bridge (1130498) abutment on Logan Champaign Road.

PHOTO 5: Underground petroleum pipeline marker on Logan Champaign Road, looking south.

PHOTO 6: Pavement distress (transverse cracking) on Logan Champaign Road, looking east.

PHOTO 7: Underground petroleum pipeline marker on SR235, looking west.

PHOTO 8: Pavement distress (cracked and depressed pavement) over culvert on N. Elm Tree Road, looking west.

PHOTO 9: Typical pavement distress (transverse and longitudinal cracking) on N. Elm Tree Road, looking west.

PHOTO 10: Embankment erosion at culvert on Champaign Logan Shelby Road, looking south.

PHOTO 11: View of pavement transition on Champaign Logan Shelby Road, looking south.

PHOTO 12: Typical pavement distress (transverse and longitudinal cracking) on Champaign Logan Shelby Road, looking north.

PHOTO 13: Intersection of SR235 and Logan Champaign Road, looking west.

PHOTO 14: Intersection of Logan Champaign Road and Champaign Logan Shelby Road, looking south.

PHOTO 15: Intersection of Logan Champaign Road and Snapptown Road, looking south.

PHOTO 16: Intersection of Champaign Logan Shelby Road and N. Elm Tree Road, looking north.

Summary: Application - Part 11 of 31 Ex. I Transportation Assessment electronically filed by Christine M.T. Pirik on behalf of Clearview Solar I, LLC