Case No. 2025-00177
Barrelhead Solar, LLC
Response to Siting Board's Second Request for Information

Siting Board 2-1:

Provide, in detail, the communication and contact that Barrelhead Solar has had with the owners of the residential structures within 2,000 feet of the Project boundary line in regard to the construction of this project.

Response: The Applicant has engaged in various conversations with surrounding property owners regarding the Project. The following property owners have been spoken to directly via phone:

- Mr. Dennis Guffey – He had no initial concerns. He provided his contact information, and Barrelhead Solar is planning to meet with him in person.
- Mr. Brett Taylor – He is the son of the property owner. He had no initial concerns.
- Pleasant Ridge Amish Mennonite Church – Church representatives had no initial concerns. They provided contact information, and the Applicant is planning to meet with church representatives in person.

The Applicant has reached out to additional landowners and left messages with them. The Applicant plans to complete additional outreach to community members who have not been reached to date.

To provide additional Project information to nearby residences, churches, and interested parties, the Applicant is working on a Project website and anticipates it will be active in January 2026.

Witness: Trudie Grattan

Siting Board 2-2:

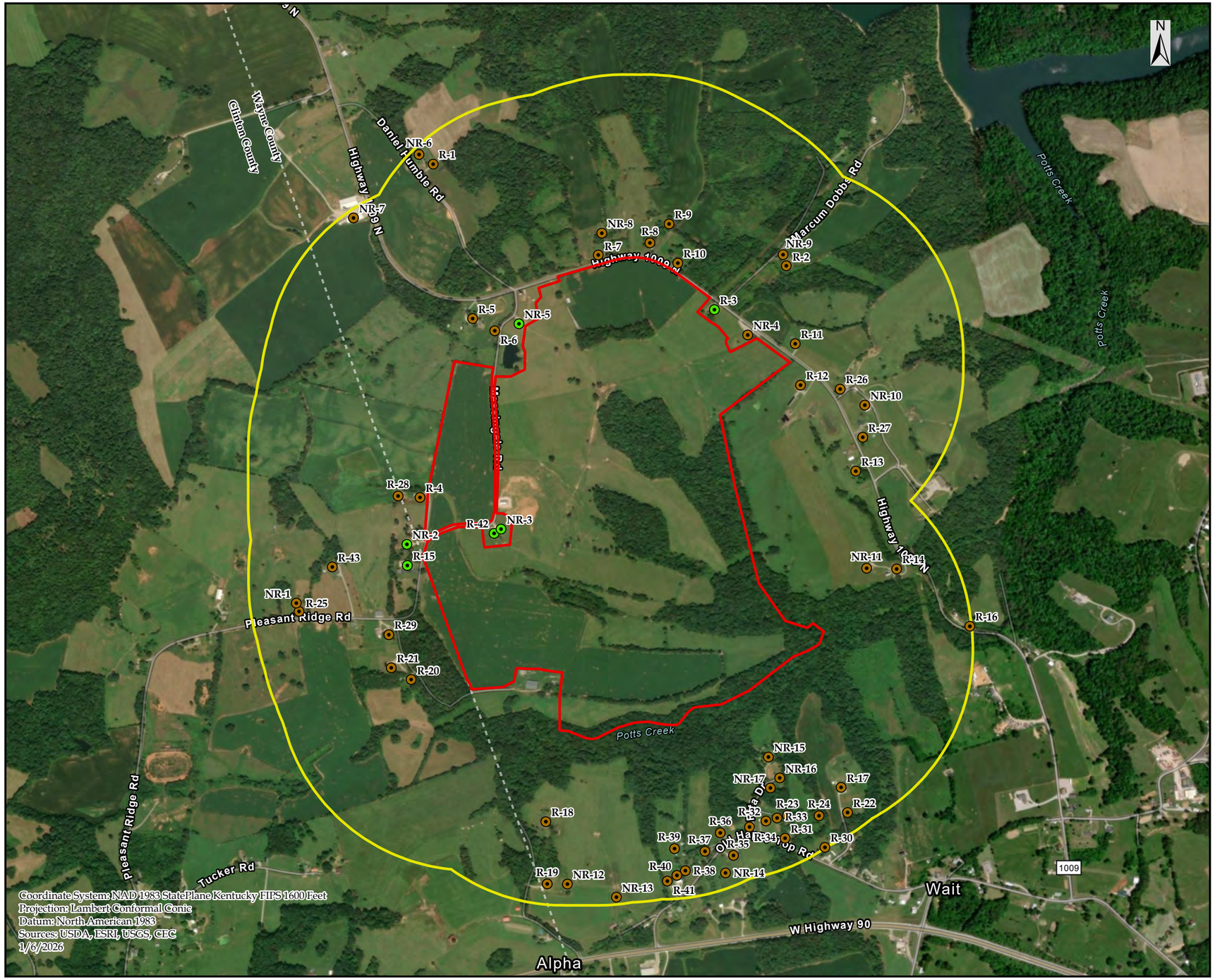
Provide the noise level for the residences during peak construction for those nearest nonparticipating residences identified as being nearest to the fencing, closest solar panel, closest inverter and both substations.

Response: The loudest engine available (the Deutz engine) for the Vermeer Pile Driver PD10 was used to model the maximum potential construction sound level (L_{max}). The L_{max} represents the maximum sound level that would be experienced while pile driving is occurring near the receptor. This provides a proxy for peak construction because any sound created by other construction equipment at the same distance would be at a lower level. Noise at the receptor location would decrease as pile driving, or any other construction activity, moves across the Project Area and away from the receptor. The table below provides the L_{max} for the nearest non-participating residences to the requested components.

The Applicant has developed a simplified numbering/labeling system across reports and maps, which is reflected in the Receptor IDs used throughout Staff's Second Request. See Attachment 2-2 for a map of the updated labeling and a corresponding crosswalk document showing the differences between the old and simplified labeling systems for reference, if needed.

Component	Receptor ID	Distance (feet)	Max. Sound Level (dBA)
Fence	R-4	77.97	66.7
Array	R-10	182.24	77.4
Substation	R-20	1,616.07	65.8
Inverter	R-4	529.50	66.7

Witness: Marty Marchaterre



COPPERHEAD
ENVIRONMENTAL CONSULTING

Prepared for:

Barrelhead Solar, LLC

FIGURE 2-2:
Participating and Non-participating
Receptors for the
Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

- Participating
- Not Participating
- Project Boundary
- 2,000-foot Buffer

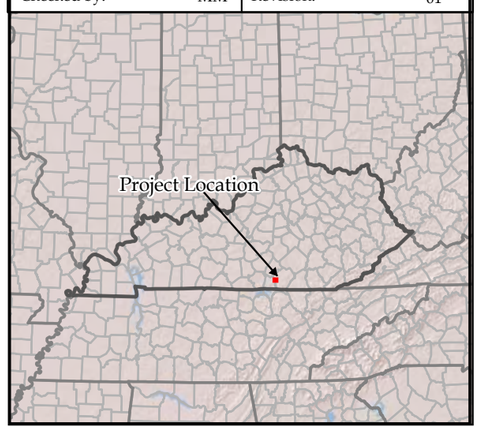
0 1,000 2,000
US Feet

Scale: 1 in = 1,000 ft

Prepared by :

Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	CM	Date:	1/6/2026
Checked by:	MM	Revision:	01



The following table is a crosswalk provided for Barrelhead RFI No. 2-2. The labeling for all receptors within 2,000 feet of the Project was revised to be consistent across studies. The old labeling is also provided in this table to crosswalk, if needed.

Revised Receptor Label	Receptor Type	Participating (Y/N)	Residential Neighborhood (if yes, which one)	Old Receptor Label (if applicable)	Glare Analysis Receptor Label (if applicable)
NR-4	Church	no		NR-4	24
R-25	Residence	no		R-20	
R-43	Residence	no		R-18	
R-28	Residence	no		R-14	
R-4	Residence	no		R-15	4
R-21	Residence	no		R-23	21
R-20	Residence	no		R-24	20
R-29	Residence	no		R-22	
R-5	Residence	no		R-7	5
R-6	Residence	no		R-8	6
R-1	Residence	no		R-1	
R-7	Residence	no		R-4	7
R-8	Residence	no		R-3	8
R-9	Residence	no		R-2	9
R-10	Residence	no		R-5	10
R-2	Residence	no		R-6	
R-11	Residence	no		R-9	11
R-12	Residence	no		R-10	12
R-26	Residence	no		R-11	26
R-27	Residence	no		R-12	27
R-13	Residence	no		R-13	13
R-14	Residence	no		R-19	14
R-16	Residence	no		R-21	
R-22	Residence	no		R-29	
R-17	Residence	no		R-27	17
R-30	Residence	no		R-39	
R-24	Residence	no		R-31	
R-31	Residence	no	East	R-37	
R-32	Residence	no	East	R-34	
R-33	Residence	no	East	R-32	
R-23	Residence	no	East	R-30	
NR-16	Barn	no		NR-26	16
NR-17	Barn	no		NR-28	
R-34	Residence	no	East	R-35	
R-35	Residence	no	West	R-42	
R-36	Residence	no	West	R-36	
R-37	Residence	no	West	R-41	
R-38	Residence	no	West	R-43	

R-39	Residence	no	West	R-40	
R-40	Residence	no	West	R-44	
R-41	Residence	no	West	R-45	
R-18	Residence	no		R-33	18
R-19	Residence	no		R-46	19
NR-6	Barn	no		Added 12-15-2025	
NR-7	Barn	no		Added 12-15-2025	
NR-8	Barn	no		Added 12-15-2025	
NR-9	Barn	no		Added 12-15-2025	
NR-10	Barn	no		Added 12-15-2025	
NR-11	Barn	no		Added 12-15-2025	
NR-15	Commercial	no		Added 12-15-2025	15
NR-14	Barn	no		Added 12-15-2025	
NR-13	Barn	no		Added 12-15-2025	
NR-12	Barn	no		Added 12-15-2025	
NR-1	Barn	no		Added 12-15-2025	

Siting Board 2-3:

Provide a chart with the expected noise level during pile driving at each noise receptor within 1,500 feet of the project boundaries.

Response: All receptors within 1,500 feet of the project boundary and the maximum noise level during pile driving are in the table below. The maximum noise level is a conservative estimate using the loudest engine (Deutz engine) for the Vermeer Pile Driver PD10 and would only reach this estimated level when pile driving is happening at the arrays nearest to that receptor. Noise levels would decrease as pile driving moves further away from the receptor.

Receptor ID	Receptor Type	Distance to Project Boundary (feet)	Participating (yes/no)	Maximum Noise Level (L_{max}) from Pile Driving (dBA)
NR-4	Church	75.26	no	76.7
R-25	Residence	1,403.19	no	56.0
R-43	Residence	950.88	no	59.3
R-15	Residence	182.06	yes	72.3
R-28	Residence	306.74	no	62.7
R-4	Residence	77.97	no	66.7
R-21	Residence	700.78	no	63.4
R-20	Residence	547.24	no	65.8
R-29	Residence	608.20	no	64.7
R-5	Residence	469.62	no	65.4
R-6	Residence	309.29	no	70.8
R-7	Residence	98.20	no	79.5
R-8	Residence	168.16	no	74.3
R-9	Residence	414.26	no	67.2
R-10	Residence	94.51	no	77.4
R-2	Residence	813.52	no	61.1
R-11	Residence	189.73	no	74.4
R-12	Residence	256.60	no	71.2
R-26	Residence	592.84	no	63.5
R-27	Residence	1,087.04	no	58.5
R-13	Residence	1,258.33	no	56.7
R-14	Residence	997.74	no	56.5
R-17	Residence	1,380.04	no	55.4
R-24	Residence	1,490.24	no	54.4

Receptor ID	Receptor Type	Distance to Project Boundary (feet)	Participating (yes/no)	Maximum Noise Level (L_{max}) from Pile Driving (dBA)
R-32	Residence	1,297.39	no	56.0
R-33	Residence	1,314.80	no	55.9
R-23	Residence	1,339.85	no	55.7
NR-16	Barn	954.47	no	59.1
NR-17	Barn	1,004.80	no	58.7
R-34	Residence	1,299.77	no	56.0
R-35	Residence	1,478.28	no	54.3
R-36	Residence	1,208.88	no	56.3
R-37	Residence	1,344.56	no	55.3
R-39	Residence	1,284.09	no	55.9
R-18	Residence	959.66	no	59.0
R-42	Residence	116.40	yes	76.5
NR-3	Barn	106.36	yes	79.3
NR-2	Barn	190.46	yes	70.0
NR-5	Barn	70.96	yes	77.7
NR-8	Barn	305.19	no	70.7
NR-9	Barn	882.09	no	60.1
R-3	Residence	116.11	yes	77.4
NR-10	Barn	897.64	no	59.9
NR-11	Barn	793.66	no	58.7
NR-15	Commercial	707.83	no	61.8
NR-1	Barn	1,399.64	no	55.8

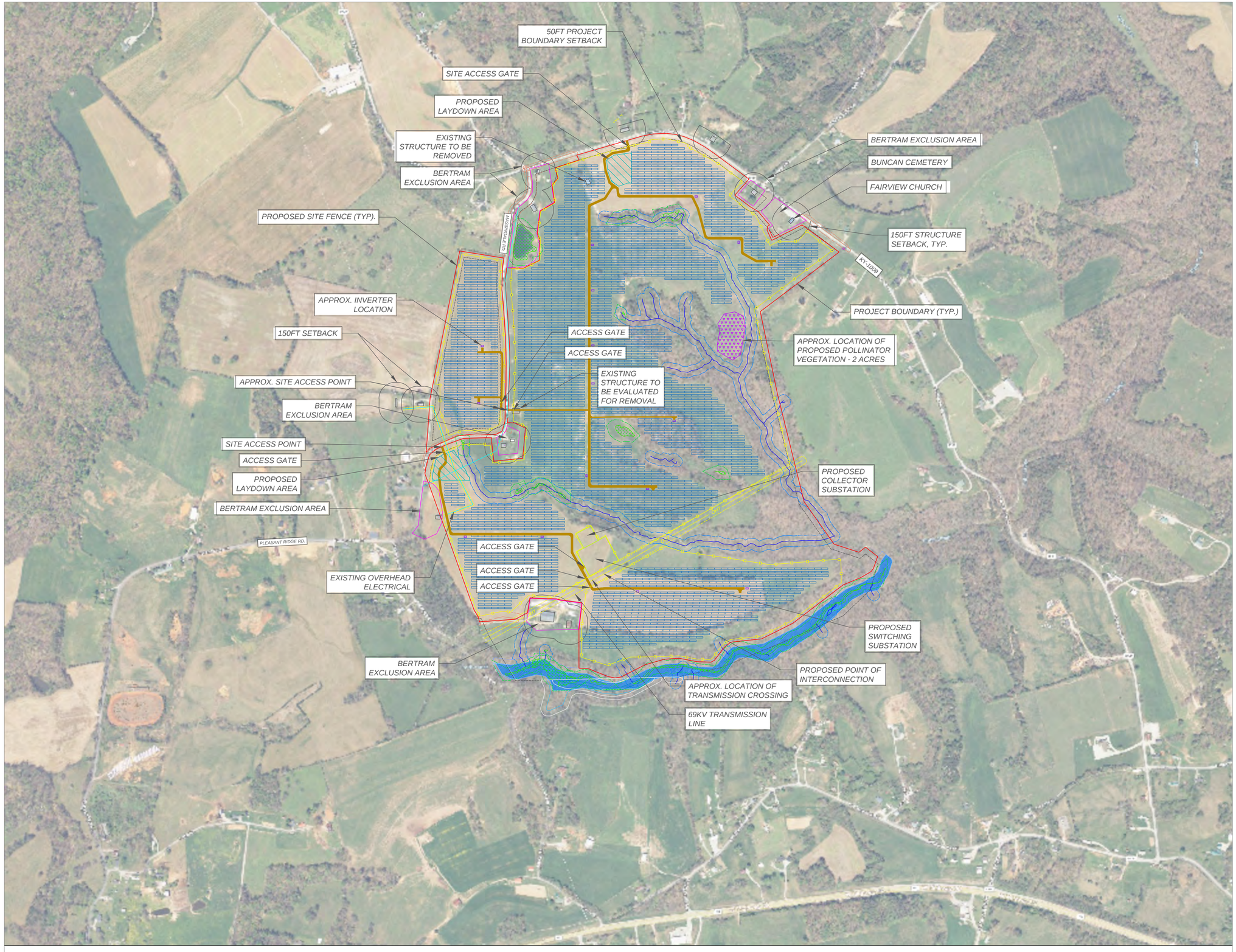
Witness: Marty Marchaterre

Siting Board 2-4:

Refer to Barrelhead Solar's response to Siting Board Staff's First Request for Information (Staff's First Request), Item, 49. During the site visit, it was confirmed that R-15 is a non-participating residence requiring a structure setback. The Applicant additionally noted that the proposed access road route near the southern laydown area was cut-off. Provide a revised preliminary site layout with corrections.

Response: A revised preliminary site layout is provided as Attachment 2-4.

Witness: Trudie Grattan



PROJECT INFORMATION	
UTILITY:	EKPC
UTILITY PROJECT NUMBER:	TBD
INTERCONNECTION VOLTAGE (kV):	69
IA AC GRID LIMIT (MW):	60
AC POI CAPACITY (MW):	54.0
AC INVERTER CAPACITY (MW):	66.0
DC CAPACITY (MW):	70.2
DC / AC:	1.3
PV MODULES	
MANUFACTURER:	CANADIAN SOLAR
MODEL:	CS7N-720TB-AG
RATING (W):	720
STRING LENGTH:	28
STRING QUANTITY:	2808
MODULE/PANEL QUANTITY:	97552
INVERTERS	
MANUFACTURER:	SUNGROW
MODEL:	SG-4400UD-MV-US
RATING (kVA):	4400
RATING (kW):	4400
QUANTITY:	15
AVERAGE IRL:	1.06
RACKING	
MANUFACTURER:	TERRASMART
MODEL:	GLIDE AGILE
TYPE:	2P FIXED
TILT (°):	60
AZIMUTH (°):	0
PITCH (FT):	31.5
GCR (%):	50%
SITE CONDITIONS	
LEASE ACREAGE:	307
LENGTH OF FENCELINE (FT):	25,114
LAT / LON (POI):	36.7743, -85.0077
TOTAL INTERNAL ROAD LENGTH (FT)	11,900

SHEET SYMBOLOGY

- PROJECT BOUNDARY
- EXCLUSION AREAS
- PARCEL BOUNDARY
- SECURITY FENCE
- 100 YEAR FLOOD PLAIN
- DELINEATED JURISDICTIONAL WETLAND
- LAYDOWN AREA
- PROPOSED POLLINATOR AREA

GENERAL NOTES:

1. ALL LOCATIONS BASED ON GIS DATA AND ARE APPROXIMATE AND SUBJECT TO CHANGE.
2. WETLAND DELINEATION DATA OBTAINED FROM COPPERHEAD ENVIRONMENTAL CONSULTANT REPORT 2/5/24.
3. PROJECT SPECS LISTED ARE PRELIMINARY AND SUBJECT TO CHANGE.
4. INVERTER LOCATIONS ARE PRELIMINARY AND SUBJECT TO CHANGE BASED ON FUTURE PROJECT CONSTRAINTS AND ELECTRICAL DESIGN.

N

0 400 800 Feet

BIRCH CREEK ENERGY
2650 LOCUST ST.
STE #100
ST. LOUIS, MO 63103

BIRCH CREEK

NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	
1	11/27/24	PRELIMINARY SITE PLAN WITH DESKTOP CONSTRAINTS	AGS
2	06/03/25	UPDATED PRELIMINARY SITE PLAN WITH DESKTOP CONSTRAINTS	MEC
3	07/11/25	UPDATED APPROX. LOCATIONS OF LAYDOWN AND SITE ROADS	MEC
4	08/05/25	UPDATED EXCLUSION AREAS AND FENCE LINE	DNN
5	11/24/25	SITING BOARD UPDATES	MEC

BARRELHEAD
ALPHA, KY
36.7743, -85.0077

SHEET TITLE
PRELIMINARY SITE PLAN

SHEET # E-001 | PAGE 01 OF 01

Siting Board 2-5:

Refer to the Site Assessment Report (SAR), Attachment G, Decommissioning Plan. Provide a revised Decommissioning Plan with all tables updated for currently proposed Project components, quantities, and lengths. Include the decommissioning changes discussed during the site visit, such as the removal of the collector substation (substation, fencing, and overhead line), changes to length of access roads, and non-removal of the East Kentucky Power Company owned switching substation and security fencing. Include in the response a revised Decommissioning cost estimate, as necessary.

Response: See revised Decommissioning Plan, provided as Attachment 2-5.

Witness: Marty Marchaterre

Decommissioning Plan
Barrelhead Solar Project
Wayne County, Kentucky

Stantec

Prepared for:
Barrelhead Solar
Birch Creek Development, LLC
2650 Locust Street, Suite 100,
St. Louis, MO 63103

Prepared by:
Stantec Consulting Services Inc.
1165 Scheuring Road
De Pere, Wisconsin 54115

Project No: 1720022100
January 7, 2026

DECOMMISSIONING PLAN
BARRELHEAD SOLAR PROJECT, WAYNE COUNTY, KENTUCKY

This document entitled Decommissioning Plan, Barrelhead Solar Project was prepared by Stantec Consulting Services Inc. ("Stantec") for the use of Barrelhead Solar, LLC a subsidiary of Birch Creek Development, LLC (the "Client"). The material in this document reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in this document are based on conditions and information existing at the time this document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others.

(signature)

Hannah Gilgus
Environmental Planner

(signature)

Steven Summerford
Civil Designer

(signature)

Michael Gerhart, PE (TX)
Project Manager

DECOMMISSIONING PLAN
BARRELHEAD SOLAR PROJECT, WAYNE COUNTY, KENTUCKY

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DECOMMISSIONING PLAN
BARRELHEAD SOLAR PROJECT, WAYNE COUNTY, KENTUCKY

1.0 INTRODUCTION

Barrelhead Solar, LLC (Barrelhead) a subsidiary of Birch Creek Development, LLC (the "Client"), is proposing to construct the Barrelhead Solar Project (the "Project") located to the north of Alpha in Wayne County, Kentucky. The Project will occupy approximately 304 acres of land which will be surrounded by perimeter fencing and will have a generating capacity of up to 54.0 megawatts (MW) alternating current (AC). Major components of the Project include bi-facial solar modules, a racking system, inverter stations, access roads, perimeter fence, a Project substation, and an overhead transmission line.

This Decommissioning Plan (Plan) provides a description of the decommissioning and restoration phase of the Project. Start-of-construction is planned for late 2027, with a projected Commercial Operation Date in late 2028. The decommissioning phase is assumed to include the removal of Project facilities as listed in Section 1.1 and shown in Figure 1. This Plan complies with requirements stated within the Kentucky Revised Statutes (KRS) Chapter 278, Section 706.

This Plan includes an overview of the primary decommissioning Project activities, including the dismantling and removal of facilities, and subsequent restoration of land. A summary of estimated costs and revenues associated with decommissioning the Project are included in Section 4.0. The summary statistics and estimates provided are based on a 54.0-$MW_{[AC]}$ Project array design.

1.1 SOLAR PROJECT COMPONENTS

The main components of the Project include:

- Solar modules and associated above ground cabling
- Racking system and steel piles
- Inverter/transformer stations
- Site access and internal roads
- Perimeter fencing
- Below ground electrical cabling and conduits to a depth of three feet (36 inches)
- Project substation
- Overhead transmission line

1.2 TRIGGERING EVENTS AND EXPECTED LIFETIME OF PROJECT

Per the KRS, Project decommissioning activities must be completed within eighteen (18) months of the date that the facility ceases to produce electricity for sale. Monitoring and site restoration will extend beyond this period to ensure successful revegetation and rehabilitation.

If properly maintained, the expected lifetime of a utility-scale solar module is approximately 40 years with an opportunity for a project lifetime of more than 40 years with equipment replacement and repowering. Depending on market conditions and project viability, solar arrays may be retrofitted with updated components (e.g., modules, racking system, etc.) to extend the life of a project. In the event that the facility

is not retrofitted, or at the end of the Project's useful life, the solar arrays and associated components will be decommissioned and removed from the Project site. During the Project's useful life, solar modules that are replaced or discarded will be removed from the site within 90 days, unless an extension has been granted by the secretary of the Kentucky Energy and Environment Cabinet ("Secretary").

The value of the individual components of the solar facility will vary with time. In general, the highest component value would be expected at the time of construction with declining value over the life of the Project. Over most of the life of the Project, components such as the solar modules could be sold in the wholesale market for reuse or refurbishment. As efficiency and power production of the modules decreases due to aging and/or weathering, the resale value will decline accordingly. Secondary markets for used solar components include other utility scale solar facilities with similar designs that may require replacement equipment due to damage or normal wear over time; or other buyers (e.g., developers, consumers) that are willing to accept a slightly lower power output in return for a significantly lower price point when compared to new equipment.

Components of the facility that have resale value may be sold in the wholesale market. Components with no wholesale value will be salvaged and sold as scrap for recycling or disposed of at an approved offsite licensed solid waste disposal facility. Decommissioning activities will include removal of the solar arrays and associated components as listed in Section 1.1 and described in Section 2.0.

1.3 DECOMMISSIONING SEQUENCE

The KRS 224.10-285 states that decommissioning activities will be completed within 18 months of the Project ceasing to produce electricity for sale unless the deadline has been extended by the secretary. Monitoring and site restoration may extend beyond this period to ensure successful revegetation and rehabilitation. The anticipated sequence of decommissioning and removal is described below; however, overlap of activities is expected.

- Reinforce access roads, if needed, and prepare site for component removal
- Install temporary erosion control fencing and best management practices (BMPs) to protect sensitive resources
- De-energize solar arrays
- Dismantle modules and above ground wiring
- Remove racking equipment and piles
- Remove inverter stations, along with support piers and piles
- Remove above and below-ground electrical cables to a depth of 36 inches
- Remove perimeter fencing
- Remove access and internal roads and grade site, as needed
- Remove substation and overhead transmission, if decommissioned
- De-compact subsoils (if required), and restore to allow for a substantially similar land use as it was prior to commencement of Project construction.

2.0 PROJECT COMPONENTS AND DECOMMISSIONING ACTIVITIES

2.1 OVERVIEW OF SOLAR FACILITY SYSTEM

Barrelhead anticipates utilizing approximately 97,552 Canadian Solar modules, with a total generating capacity of approximately 70.2 MW direct current (DC) converting to 54.0 $MW_{[AC]}$ at the Point of Interconnection (POI). The Project area encompasses approximately 304 acres surrounded by perimeter fencing. The land within the perimeter fencing is predominantly rolling hills located on agricultural land with some forest land.

Foundations, steel piles, electric cabling, and conduit will be removed up to a minimum depth of 36 inches (3 feet) beneath the surface. Access roads and fence may be left in place if requested and/or agreed to by the landowner; however, for purposes of this assessment, all access roads and fencing are assumed to be removed. Barrelhead will communicate with the appropriate local agency to coordinate the repair of public roads that are damaged or modified during the decommissioning and reclamation process. Barrelhead will coordinate with appropriate federal, state, and local agencies for necessary permit approvals prior to decommissioning activities.

Estimated quantities of materials to be removed and salvaged or disposed of are included in this section. Most of the materials described have salvage value, although there are some components that will likely have none at the time of decommissioning. All recyclable materials, salvaged and non-salvage, will be recycled to the extent possible. All other non-recyclable waste materials will be disposed of in accordance with state and federal law in a licensed solid waste facility. Table 1 presents a summary of the primary components of the Project included in this decommissioning plan.

Table 1 Primary Components of Project to be Decommissioned

Component	Quantity	Unit of Measure
Solar modules (approximate)	97,552	Each
Racking system (112-module equivalent rack)	436	Each
Steel piles (solar module racks)	3,924	Each
Inverter/transformer stations	15	Each
Steel piles (Inverter stations)	180	Each
Perimeter fencing (approximate)	25,114	Linear Foot
Access roads (approximate)	11,900	Linear Foot
Electrical cables and conduits	13,057	Linear Foot
Overhead transmission line	0.02	Linear Mile

2.2 SOLAR MODULES

Statistics and estimates provided in this Plan are based on the Canadian Solar CS7N-720TB-AG 720-watt or similar bifacial module for the Project. The module assembly (with frame) has a total weight of approximately 83.3 pounds and are approximately 93.9 inches by 51.3 inches in size. The modules are

mainly comprised of non-metallic materials such as silicon, tempered glass, plastic, and epoxies, with an anodized aluminum alloy frame.

At the time of decommissioning, module components in working condition may be refurbished and sold in a secondary market yielding greater revenue than selling as salvage material. The estimates in this report have been calculated using a conservative approach, considering revenue from salvage only, rather than resale of the modules.

2.3 RACKING SYSTEM AND SUPPORT

The solar modules will be mounted on a two-in-portrait racking system. Each full rack is expected to be approximately 245 feet in length and will support approximately 112 solar modules. Smaller racks may be employed at the edges of the layout to efficiently utilize available space. The racking system is mainly comprised of galvanized steel; steel piles that support the system are assumed to be comprised of structural steel.

The solar arrays will be deactivated from the surrounding electrical system and made safe for disassembly. Electronic components, and internal electrical wiring will be removed and salvaged. The steel piles will be removed to a minimum depth of three (3) feet below the surface. The supports, racking system, and piles contain salvageable materials which can be sold to provide revenue to offset the decommissioning costs.

2.4 INVERTER STATIONS

The Inverter stations are located within the array and will sit on skids with concrete piers or steel piles. be supported using steel pile. The inverter and transformer stations will be deactivated, disassembled, and removed. Depending on its condition, the equipment may be sold for refurbishment and re-use. If not re-used, they will be salvaged or disposed of at an approved solid waste management facility. Piers and piles will be removed to a minimum depth of three feet below the surface. Oils and lubricants will be collected and disposed of at a licensed facility.

2.5 ELECTRICAL CABLING AND CONDUITS

The Project's underground electrical collection system will be placed at a depth of three feet (36 inches) or less below the ground surface. Cabling and conduit above ground and up to three feet below the ground surface will be removed and salvaged, while cable located greater than three feet below the surface will be abandoned in place. If the salvage value of cable exceeds the removal cost, cable buried deeper than three feet may be removed in decommissioning.

2.6 PROJECT SUBSTATION AND ABOVE GROUND TRANSMISSION TIE-IN LINE

A substation will be constructed as part of the Project with a footprint of approximately 0.52 acres. The substation will contain within its perimeter a gravel pad, one power transformer and footings, electrical control house and concrete foundations, as needed. A dedicated 69 kV overhead transmission tie-in line connects the Project substation to the proposed switching substation to be owned by East Kentucky Power Company.

The Project substation and transmission line are considered “interconnection and other facilities” as described in 2023 KRS 278.706 and thus, will remain in place following Project decommissioning unless otherwise requested by the landowner. If the landowner requests that the facilities be removed, the land will be restored to a substantially similar state as it was prior to commencement of construction of the Project. The switching substation is to be owned by the East Kentucky Power Company and therefore, will remain in place after Project decommissioning.

2.7 PERIMETER FENCING AND ACCESS ROADS

The Project site will include an approximately seven-foot-high chain link fence surrounding the perimeter of each array site. The fence will be approximately 25,114 feet (4.76 miles) in length. Near the end of the decommissioning process, the fence fabric, poles, and foundations will be removed and sold for salvage or recycled.

A network of access roads will allow access to solar facility equipment. The internal access roads will be composed of aggregate approximately eight inches in depth and 11,900 feet (2.25 miles) in length. The internal access road lengths may change with the final Project design. Access roads may be left in place if requested and/or agreed to by the landowner. To be conservative, the decommissioning estimate assumes that all internal access roads will be removed.

During installation of the Project site access roads, the native subgrade will be compacted, and geogrid will be placed beneath the gravel for the entire length of the access road. This plan assumes installation of up to eight inches of aggregate base materials over geogrid. The estimated quantity of these materials is provided in Table 2.

Table 2 Typical Access Road Construction Materials

Item	Quantity	Unit
Gravel or granular fill; eight-inch thick	3,526	Cubic Yards
Geogrid	15,867	Square Yards

Decommissioning activities include the removal and stockpiling of aggregate materials on site for salvage preparation. Underlying geogrid will also be removed during the decommissioning process. Geogrid that is easily separated from the aggregate during excavation will be disposed of in an approved solid waste disposal facility. Geogrid that remains with the aggregate will be sorted out at the processing site and properly disposed of. Following removal of aggregate and geogrid, the access road areas will be graded, de-compacted with deep ripper or chisel plow (ripped to 18 inches), backfilled with native subsoil and topsoil, as needed, and the land returned to a substantially similar state as it was prior to the commencement of construction of the Project.

3.0 LAND USE AND ENVIRONMENT

3.1 AGRICULTURAL LAND USE

The Project site topography is gently rolling and is predominantly located on land currently utilized for agricultural purposes. The Project area will be returned to a substantially similar state as it was prior to the commencement of construction.

3.2 RESTORATION AND REVEGETATION

Soils compacted during de-construction activities will be de-compacted, as necessary. County drains will be avoided. If present, private drain tiles that affect drainage of multiple parcels that were not avoided, rerouted, or repaired during construction and have been damaged will be repaired or replaced, as needed, in order to maintain appropriate drainage. Topsoil will be placed on disturbed areas, as needed, and seeded with appropriate vegetation in coordination with landowners. Restored areas will be revegetated in compliance with applicable laws and regulations in place at the time of decommissioning.

3.3 SURFACE WATER DRAINAGE AND CONTROL

As previously described, the proposed Project area is predominately agricultural land with gently rolling topography. The Project facilities are being sited to avoid wetlands, waterways, and drainage ditches to the extent practicable.

Surface water conditions at the Project site will be reassessed prior to the decommissioning phase. Barrelhead will obtain the required water quality permits from the Kentucky Energy and Environment Cabinet (KEEC) and the U.S. Army Corps of Engineers (USACE), as needed, prior to decommissioning the Project. Required construction stormwater permits will also be obtained, and a Stormwater Pollution Prevention Plan (SWPPP) prepared describing the protection needed to reflect conditions present at the time of decommissioning. Best Management Practices (BMPs) may include enhancement of construction entrances, temporary seeding, permanent seeding, mulching (in non-agricultural areas), erosion control matting, silt fence, filter berms, and filter socks.

3.4 MAJOR EQUIPMENT REQUIRED FOR DECOMMISSIONING

The activities involved in decommissioning the Project include removal of the Project components, including but not limited to solar modules, racking system, foundations and piles, inverters, perimeter fence, access roads, and electrical cabling and conduits located at three feet or less below the surface grade of the land. Restoration activities include back-filling of pile and foundation sites; de-compaction of subsoils; grading of surfaces to pre-construction land contours; and revegetation of the disturbed areas.

Equipment required for the decommissioning activities is similar to what is needed to construct the solar facility and may include, but is not limited to: small cranes, low ground pressure (LGP) track mounted excavators, backhoes, LGP track bulldozers and dump trucks, front-end loaders, deep rippers, water trucks,

disc plows and tractors to restore subgrade conditions, and ancillary equipment. Standard dump trucks may be used to transport material removed from the site to disposal facilities.

4.0 DECOMMISSIONING COST ESTIMATE SUMMARY

Expenses associated with decommissioning the Project will be dependent on labor costs at the time of decommissioning. For the purposes of this report approximate 2025 market values were used to estimate labor expenses. Fluctuation and inflation of the labor costs were not factored into the estimates.

The value of the individual components of the solar facility will vary with time. In general, the highest component value would be expected at the time of construction with declining value over the life of the Project. Over most of the life of the Project, components such as the solar modules could be sold in the wholesale market for reuse or refurbishment. As efficiency and power production of the modules decrease due to aging and/or weathering, the resale value will decline accordingly. Secondary markets for used solar components include other utility scale solar facilities with similar designs that may require replacement equipment due to damage or normal wear over time; or other buyers (e.g., developers, consumers) that are willing to accept a slightly lower power output in return for a significantly lower price point when compared to new equipment.

4.1 DECOMMISSIONING EXPENSES

During decommissioning, the Project will incur costs associated with disposal of components not sold for salvage, including materials which will be disposed of at a licensed facility, as required. Decommissioning costs also include backfilling, grading, and restoration of the proposed Project site as described in Section 3.0. Table 3 summarizes the estimates for decommissioning activities associated with the major components of the Project. Costs are based on an approximately 70.2 $MW_{[DC]}$ site design, converting to 54.0 $MW_{[AC]}$.

Table 3 Estimated Decommissioning Expenses

Activity	Unit	Quantity	Cost per Unit	Total
Overhead and management (includes estimated permitting required)	Lump Sum	1	$126,600	$126,600
Solar modules; disassembly and removal	Each	97,552	$5.30	$517,026
Tracking system disassembly and removal	Each	436	$700	$305,200
Steel pile/post removal (trackers)	Each	3,924	$14.60	$57,290
Steel pile/post removal (inverter stations)	Each	180	$54.20	$9,756
Inverter/transformers stations	Each	15	$1,930	$28,950
Remove buried cable	Linear Foot	13,057	$0.93	$12,143
Overhead transmission line	Linear Mile	0.02	$209,000	$4,180
Perimeter fence removal	Linear Foot	25,114	$4.70	$118,036
Access road excavation and removal	Lump Sum	1	$58,400	$58,400

Activity	Unit	Quantity	Cost per Unit	Total
Topsoil replacement and rehabilitation of site	Lump Sum	1	$154,850	$154,850
Total Estimated Decommissioning Cost				**$1,392,431**

4.2 POTENTIAL DECOMMISSIONING REVENUES

Revenue from decommissioning the Project will be realized through the sale of the facility components and construction materials. As previously described, the value of the decommissioned components will be higher in the early stages of the Project and decline over time. Resale of components such as solar modules is expected to be greater than salvage (i.e., scrap) value for most of the life of the Project, as described below. For the purposes of this Plan, only estimated salvage values were considered in net revenue calculations, as this is the more conservative estimate strategy. Modules and other solar facility components can be sold within a secondary market for re-use. A current sampling of reused solar modules indicates a wide range of pricing depending on age and condition ($0.10 to $0.30 per watt). Future pricing of solar modules is difficult to predict at this time, due to the relatively young age of the market, changes to solar panel technology, and the ever-increasing product demand. A conservative estimation of the value of solar modules at $0.10 per watt would yield approximately $7,020,000. Increased costs of removal, when preparing for resale versus salvage, would be expected in order to preserve the integrity of the modules; however, the net revenue would be substantially higher than the estimated salvage value, thus offsetting higher removal cost.

The resale value of components such as the module racks may decline more quickly; however, the salvage value of the steel that makes up a large portion of the racks is expected to stay at or above the value used in this report.

The market value of steel and other materials fluctuates daily and has varied widely over the past five years. Salvage value estimates were based on an approximate five-year-average price of steel and copper derived from sources including on-line recycling companies and United States Geological Survey (USGS) commodity summaries. The price used to value the steel used in this report is $273 per metric ton; aluminum at $0.40 per pound; silicon at $0.40 per pound; and glass at $0.05 per pound.

The main material of the racking system and piles is assumed to be salvageable steel. The main components of the solar modules are glass and silicon with aluminum framing. A 50 percent recovery rate was assumed for all module components, due to the processing required to separate the module components. Alternative and more efficient methods of recycling solar modules are anticipated before this Project is decommissioned, given the large number of solar facilities that are currently being developed. Table 4 summarizes the potential salvage value for the solar array components and construction materials.

Table 4 Estimated Decommissioning Revenues

Item	Unit of Measurement	Quantity per Unit	Salvage Price per Unit	Total Salvage Price per Item	Number of Items	Total
Modules - Silicon	Pounds per Module	2.1	$0.40	$0.840	97,552	$81,944
Modules – Aluminum	Pounds per Module	3.3	$0.40	$1.320	97,552	$128,769
Modules – Glass	Pounds per Module	31.3	$0.05	$1.565	97,552	$152,669
Racking System and Posts	Metric tons per $MW_{[DC]}$	32.0	$273	$8,736	70.2	$613,267
Total Potential Revenue (considering salvage values)						**$976,649**

* Revenue based on salvage value only. Revenue from used modules at $0.10 per watt could raise $7,020,000 as resale versus the estimated salvage revenue.

4.3 DECOMMISSIONING COST SUMMARY

Table 5 provides a summary of the net estimated cost to decommission the Project, using the information detailed in Sections 4.1 and 4.2. Estimates are based on early 2025 prices, with no market fluctuations or inflation considered.

Table 5 Net Decommissioning Cost Summary

Item	(Cost)/Revenue
Decommissioning Expenses	**($1,392,431)**
Potential Revenue – salvage value of module components and recoverable materials	**$976,649**
Net Decommissioning (Cost)/Revenue	**($415,782)**

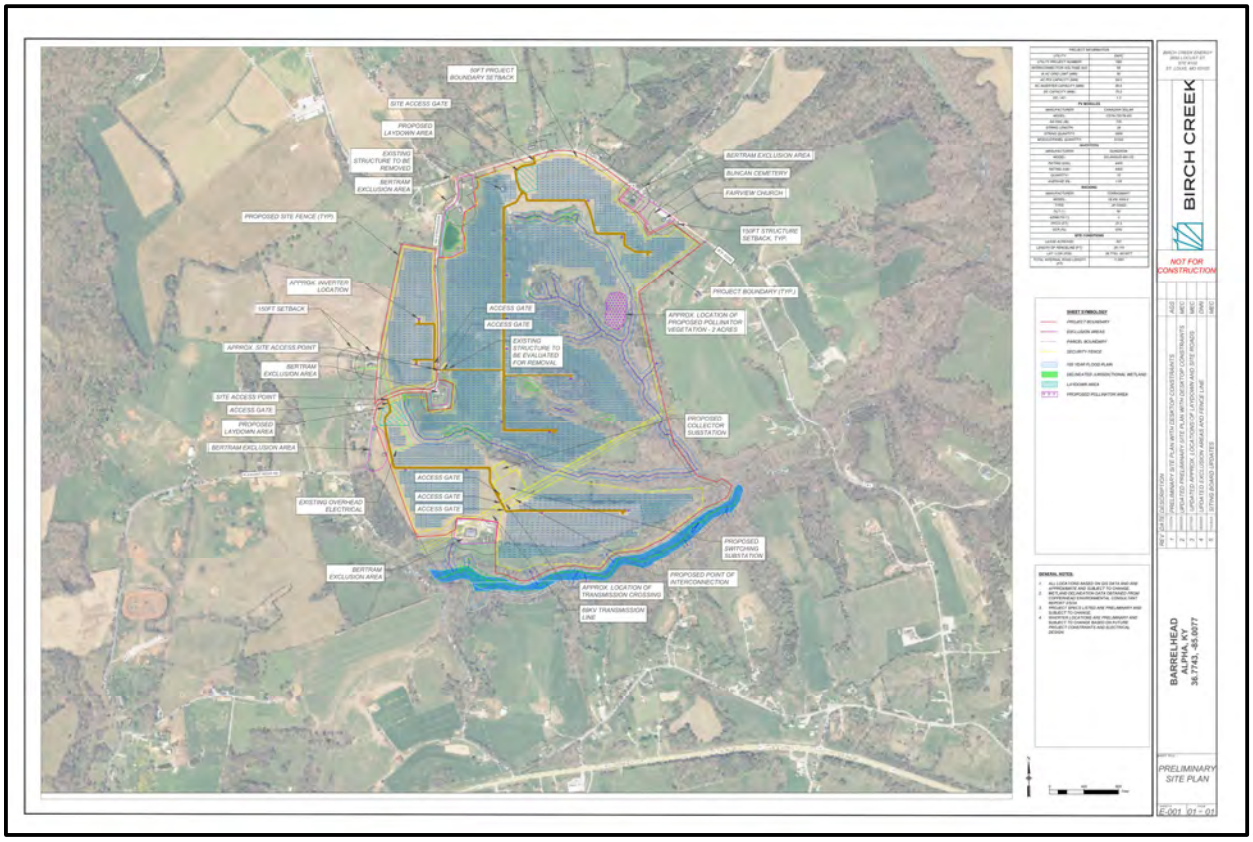
4.4 FINANCIAL ASSURANCE

In compliance with the Kentucky Revised Statues 278.706, Barrelhead Solar, LLC is providing this decommissioning plan. A bond or other similar security for the net present value of the total estimated cost of completing the decommissioning plan shall be provided to the Kentucky Energy and Environment Cabinet as the primary beneficiary. The bond or other similar security shall provide that at least thirty (30) days prior to its cancellation or lapse, the surety shall notify the applicant, its successor or assign, each landowner, the Kentucky Energy and Environment Cabinet, and the county or city in which the facility is located of the impending cancellation or lapse. The notice shall specify the reason for the cancellation or

lapse and provide any of the parties, either jointly or separately, the opportunity to cure the cancellation or lapse prior to it becoming effective. The applicant, its successor, or its assign shall be responsible for all costs incurred by all parties to cure the cancellation or lapse of the bond. Each landowner, or the Kentucky Energy and Environment Cabinet with the approval of each landowner, may make a demand on the bond and initiate and complete the decommissioning plan. The decommissioning plan and cost estimate shall be reviewed and updated every five years, submitted to the Kentucky Energy and Environment Cabinet and Wayne County for approval, and the security revised as appropriate based upon the revised cost estimate at Barrelhead Solar, LLC expense.

DECOMMISSIONING PLAN
BARRELHEAD SOLAR PROJECT, WAYNE COUNTY, KENTUCKY

Figure 1 Project Layout



Siting Board 2-6:

Provide the estimated maximum construction sound level or the maximum potential construction sound for all receptors that are 500 feet away from project components (i.e., fence, panel, inverter, substation, BESS).

Response: The loudest engine available (the Deutz engine) for the Vermeer Pile Driver PD10 was used to model the maximum potential construction sound level (L_{max}). The L_{max} represents the maximum instantaneous sound level that would be experienced while pile driving is occurring near the receptor. On average, the actual sound level would be lower. Additionally, any sound created by other construction equipment at the same distance would be at a lower level. Noise at the receptor location would decrease as pile driving, or any other construction activity, moves across the Project Area and away from the receptor. The table below provides the maximum sound level for all receptors within 500 feet of the Project. Note that the Applicant is not proposing BESS for this Project.

Receptor ID	Participating (Y/N)	Distance to Project Boundary (feet)	Distance to Nearest Array (feet)	Distance to Substation (feet)	Distance to Nearest Inverter (feet)	Maximum Potential Construction Sound (L_{max})
NR-4	no	75.26	207.50	3,356.75	524.76	76.4
R-15	yes	182.06	353.07	1,629.87	739.22	72.3
R-28	no	306.74	442.02	2,043.78	757.55	62.7
R-4	no	77.97	213.74	1,854.09	529.50	66.7
R-5	no	469.62	533.94	3,140.34	1,098.99	65.4
R-6	no	309.29	371.53	2,951.66	839.81	70.8
R-7	no	98.20	204.65	3,646.00	907.60	79.5
R-8	no	168.16	252.45	3,850.62	744.26	74.3
R-9	no	414.26	502.04	4,088.42	929.58	67.2
R-10	no	94.51	182.24	3,722.56	542.22	77.4
R-11	no	189.73	277.46	3,569.75	986.37	74.4
R-12	no	256.60	352.74	3,280.06	1,086.27	71.2
R-42	yes	116.40	194.51	1,043.95	456.77	76.2

Receptor ID	Participating (Y/N)	Distance to Project Boundary (feet)	Distance to Nearest Array (feet)	Distance to Substation (feet)	Distance to Nearest Inverter (feet)	Maximum Potential Construction Sound (L_{max})
NR-3	yes	106.36	172.13	1,036.59	464.68	79.3
NR-2	yes	190.46	445.02	1,711.33	834.14	70.0
NR-5	yes	70.96	198.28	2,966.57	640.43	77.7
NR-8	no	305.19	397.02	3,874.73	1,048.82	70.7
R-3	yes	116.11	177.60	3,413.49	479.17	77.4

Witness: Marty Marchaterre

Siting Board 2-7:

Describe any specific measures to be taken to reduce noise impacts for nearby residents during construction.

Response: The following mitigation measures will be applied during and after the construction phase to reduce and minimize noise impacts. These measures were also provided in SAR, Appendix E, Noise Analysis:

- Construction activities, processes, and deliveries will be limited to the hours between 7:00 a.m. and 7:00 p.m., Monday through Saturday; construction activities that create a higher level of noise, such as pile-driving, will be limited to 8 a.m. to 5 p.m. local time, Monday through Friday. Non-noise-causing and non-construction activities can take place on the site between 6 a.m. and 10 p.m. local time, Monday through Sunday, including field visits, arrival, departure, planning, meetings, mowing, surveying, etc.

  Although non-noise-causing construction activities can take place from 6 a.m. – 10 p.m., Monday through Sunday (i.e., field visits, arrival/departure), select non-noise-causing activity and non-construction work may be required during night hours when equipment is not energized.
- Based on previous experience constructing solar projects, the Applicant believes that noise concerns resulting from pile driving activities are most effectively managed through limiting pile driving activities within a certain radius to certain hours during the day to avoid potentially impacting nearby receptors. To this end, the Applicant proposes to limit pile driving activities within 1,000 feet of potentially impacted receptors to a reduced period.

- Based on previous experience constructing solar projects, the Applicant believes that noise concerns resulting from pile driving activities are most effectively managed through limiting pile driving activities within a certain radius to certain hours during the day to avoid potentially impacting nearby receptors. To this end, the Applicant proposes to limit pile driving activities within 1,000 feet of potentially impacted receptors to a reduced period.
- If the pile-driving activity occurs within 1,500 feet of a noise-sensitive receptor, the Applicant will implement a construction method that will suppress the noise generated during the pile-driving process (i.e., semi-tractor and canvas method, sound blankets on fencing surrounding the solar site, or any other comparable method). The Applicant may forego using noise suppression measures if it employs a panel installation method that does not use pile driving, so long as that method does not create noise levels similar to pile driving.
- The Applicant plans to notify residents and businesses within 2,400 feet of the project boundary about the construction plan, the noise potential, any mitigation plans, and its Complaint Resolution Program, at least one month prior to the start of construction.
- Barrelhead Solar will place panels, inverters, and substation equipment consistent with the distances to noise receptors to which it has committed in its maps and site plans.

For additional information, see response to RFI No. 1-82.

Witness: Marty Marchaterre

Siting Board 2-8:

Provide the anticipated start date and end date of construction.

Response: The table below, provided in RFI No. 1-10, outlines a tentative schedule for the Project. At this time, construction is anticipated to begin in the first quarter of 2028. Once the Engineering, Procurement, and Construction (EPC) contractor is selected, a more detailed timeline will be developed.

Task	Estimated Duration	Anticipated Timeframe
Construction Certificate Application	180 days	October 3, 2025 – April 1, 2026
EPC Selection	300 days	February – November 2027
Final Engineering	330 days	February – December 2027
Site preparation	60 days	February – March 2028
Pile Installation*	150 days	April – August 2028
Racking Installation*	150 days	May – September 2028
Module Installation*	170 days	June – November 2028
Project Substation	150 days	June – October 2028
Transmission Line	30 days	November 2028
Mechanical Completion	60 days	November-December 2028
Commissioning	150 days	January 2029

*Denotes peak construction

Witness: Trudie Grattan

Siting Board 2-9:

All other qualifications for the positions being equal, explain whether Barrelhead Solar intends to hire as many local workers for the construction and operation phases of the project as possible. If so, include how Barrelhead Solar intends to accomplish that.

Response: The Applicant will encourage the EPC contractor to hire as many qualified local workers as feasible to perform work during the construction phase for the Project. The Applicant plans to work with the county and community members to seek and educate qualified workers on any upcoming construction related to the solar facility. Also, the Applicant will hire as many qualified local workers as feasible to perform work during the operational phase of the Project.

Witness: Trudie Grattan

Siting Board 2-10:

Detail any communications with members of the public, including neighboring landowners, regarding construction noise.

Response: The Applicant has discussed construction noise with the Pleasant Ridge Amish Mennonite Church. The Applicant outlined planned measures such as no construction activities on Sundays. In addition, the Applicant plans to have additional conversations with Pleasant Ridge Amish Mennonite Church regarding any concerns regarding construction noise as they arise in the future.

The Applicant is continuing outreach to nearby landowners.

Witness: Trudie Grattan

Siting Board 2-11

Explain, in detail any communication that have occurred with the nonparticipating landowners who are in close proximity to any of the proposed access roads.

Response: The Applicant has attempted to make contact with nonparticipating landowners in close proximity to the main access/entrance on the north. To date, the Applicant has not been able to reach any of these nonparticipating landowners. The Applicant is continuing outreach to these nearby nonparticipating landowners.

The participating landowner owns additional parcels not being used as part of the Project. These parcels are the closest to the other three proposed access roads.

Witness: Trudie Grattan

Siting Board 2-12:

Explain any plans to coordinate with local landowners or others in case of complaints or other issues that might arise during the construction or operations.

Response: As detailed in RFI No. 1-67, and provided as Attachment 1-67, the Applicant has developed a Complaint Resolution Plan for the Project. As described in the Plan, the Applicant will regularly check the phone number, email address, and online contact forms to determine whether any complaints have been received and will reach out to the complainant within 72 hours to obtain any additional information needed about the complaint. After receiving the necessary information, the Applicant will investigate the complaint, document the details, and determine whether any federal, state, or local laws or permits have been violated. After these steps, the Applicant will determine how best to address the complaint and the conditions causing the complaint and work in good faith to resolve reasonable requests as soon as practicable. The Complaint Resolution Plan has been provided as Attachment 2-12.

Witness: Marty Marchaterre

Barrelhead Solar

Complaint Resolution Plan

Barrelhead Solar, LLC

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Barrelhead Solar Complaint Resolution Plan—Introduction

Barrelhead Solar, LLC (Barrelhead Solar) is proposing to construct and operate an approximately 54 megawatt (MW) solar energy facility, the Barrelhead Solar Project (Project). It is located on KY 1009 and Massingale Road, southwest of the city of Monticello in Wayne County, Kentucky. The Project, which will be located on leased private land, will include a commercial-scale solar power project and the associated solar photovoltaic panels, racking systems, electric equipment, a project substation and transformer, and underground electrical connection lines.

Barrelhead Solar endeavors to ensure the Project is constructed and operated in a responsible manner to minimize the Project's impact on nearby residents or those passing through the area.

Barrelhead Solar will construct and operate the Project in accordance with all applicable federal, state, and local laws and permits. However, to address concerns of residents that might occur during construction, operation, or decommissioning, a Complaint Resolution Plan (Plan) has been established. The Plan defines a process for receiving, investigating, and addressing complaints.

Purpose of Complaint Resolution Plan

The purpose of this Complaint Resolution Plan is to establish a process and procedures for the public to notify Barrelhead Solar if concerns arise during the construction, operation, or decommissioning of the proposed Project. This Plan includes commitments for addressing public complaints. It includes procedures for dispute resolution during Project activities.

The Complaint Resolution Plan includes steps for informing the public about the complaint process, the process for registering a complaint, protocols for gathering and analyzing information regarding complaints, and procedures that may be unique for certain types of complaints (e.g., noise) or for different stages of the Project (e.g., construction and operation). The Plan also describes actions Barrelhead Solar would take if a complaint were to remain unresolved after all these steps are followed.

Complaint Filing Process

Individuals wishing to file a complaint can do so by one of the following means:

- Phone: _____
- Email: _____(Preferred)
- Online Contact Form: _____

When filing a complaint, please provide the following information to ensure Barrelhead Solar can accurately and thoroughly address the complaint:

- Name and contact information of the complainant
- Date of complaint
- Detailed description of the complaint, including, if possible, the location, date(s), and time that the situation occurred, photographs, and any other details that can help identify and resolve the situation.

Complaint Review Process

Complaint Identification: Barrelhead Solar will regularly check the phone number, email address, and online contact forms to determine whether any complaints have been received. In the event that Barrelhead Solar receives a complaint, a representative of Barrelhead Solar will reach out to the complainant within 72 hours to obtain additional information about the complaint.

Complaint Investigation: After receiving the necessary information regarding a complaint, Barrelhead Solar will investigate the complaint to determine whether the complaint has merit. Investigations will identify and characterize the nature of the complaint (e.g., traffic, dust, noise, etc.) and to the extent possible, the source (e.g., construction vehicles and equipment, environmental conditions, etc.).

Barrelhead Solar will enter a complaint into a complaint log, document the details of the complaint, and assign a point of contact to investigate the complaint. The Site Project Manager will be responsible for initiating the review of complaints received during the construction process. The Site Project Manager and/or Operation and Maintenance (O&M) staff will be responsible for initiating the review of complaints reported during the operational and decommissioning phases.

Barrelhead Solar will first determine whether complaints violate federal, state, or local laws or permit conditions, and whether there are notifications or required steps to address those violations. Barrelhead Solar will also determine whether outside resources are necessary to address situations.

Response: After enough information has been obtained to fully understand the nature of the complaint, Barrelhead Solar will work with appropriate personnel and/or parties to determine how to best address the complaint and the conditions that are causing the complaint. If the complainant or other parties seek additional information related to the complaint, Barrelhead Solar will work with those parties to obtain the necessary information to move forward.

Barrelhead Solar will work in good faith to address and/or resolve reasonable complaints as soon as practicable. Barrelhead Solar is committed to resolving reasonable complaints within 30 days unless extenuating circumstances necessitate a longer time period or it is determined that the complaint is unresolvable. Barrelhead Solar will provide an explanation for the complainant concerning the extended period and the timeline for addressing the complaint should complaint resolution take longer than 30 days. Safety and good community relations are among the highest priorities to Barrelhead Solar; as such, speedy resolution of legitimate complaints is essential.

Documentation: Barrelhead Solar will keep records of complaints received. The complaint log will include, if available, the date of the complaint, the name of the complainant, contact information for the complainant (including address and phone number), and a detailed description of the complaint. The complaint log will also include a description of the subsequent actions taken to resolve each complaint and complaint resolution if resolution is feasible. Barrelhead Solar will maintain the complaint log. This log will be available to Wayne County Fiscal Court for inspection upon request (see Complaint Log Sheet at the end of this Plan).

In the event that Kentucky state agencies, Wayne County Fiscal Court, or County Departments receive complaints directly about unanticipated effects of Project construction or operation, the respective

State or County representatives will notify Barrelhead Solar as soon as practicable and provide details of such a complaint in writing. Wayne County and Barrelhead Solar will designate appropriate officials for such communications. Barrelhead Solar will then investigate the complaint as outlined above.

Public Notification of Complaint Process: At least (2) weeks prior to the commencement of construction, Barrelhead Solar will publish a summary of the Complaint Resolution Plan on the Project's website, and the Plan will be available at the temporary construction office.

Barrelhead Solar Complaint Log Sheet

Compliant Log Sheet

Project Personnel Receiving the Complaint:
Method of Receiving Complaint (circle one): Phone Email Mail Other (describe)
Date Complaint Received (MM/DD/YY):
Time Complaint Received:

Compliant Information

Name of Complainant:
Address of Complainant: Phone Number of Complainant: Date/Time of Bothersome Activity: Construction or Operation Complaint? (circle one) Nature of Complaint (describe in detail):

Resolution and Follow-up

Definition of problem after investigation by Project personnel:
Description of corrective measures taken: Date corrective measure(s) completed: Date first letter sent to complainant: (copy attached) Date second letter sent to complainant: (copy attached) Follow-up actions if correctives measure(s) unsuccessful or unavailable:

This information is certified to be correct: _____
(Attach additional pages and supporting documentation, as required.)

Siting Board 2-13:

Provide the expected percentage of construction traffic that will utilize each of the construction site entrances. Include in the response separate percentages for delivery traffic and commuting worker traffic by entrance. If this is expected to change during different phases of construction, break the percentages down by construction phase.

Response: The EPC contractor will identify the haul routes and construction site entrances to be used during construction, which will include a determination of viable routes for the expected weight and dimensions of delivery vehicles, construction equipment, and materials. The haul route plan is anticipated to be completed in the fourth quarter of 2027. Even though the haul routes are not known at this time, the Applicant agrees to comply with all state and local requirements for road use and obtain any permits necessary. The Applicant will work with Wayne and Clinton Counties to develop road use agreements. At this time, it is not possible to identify expected percentage of construction traffic that will use each construction entrance. Similarly, the Applicant cannot identify percentages for delivery traffic and commuting work traffic. The EPC contractor will identify the use of construction entrances for deliveries and commuting worker traffic. The Applicant anticipates that the majority of commuting worker traffic will use the main entrance off of KY 1009.

Witness: Marty Marchaterre

Siting Board 2-14:

Refer to SAR Appendix I, Traffic Impact Study. During the site visit, it was confirmed that Pleasant Ridge Road will likely be utilized for Project deliveries, including the substation transformer. Provide a revised Traffic Impact Study inclusive of Pleasant Ridge Road.

Response: A revised Traffic Impact Study that includes information about Pleasant Ridge Road is provided as Attachment 2-14. As explained in RFI No. 2-13, once selected, the EPC contractor will determine haul routes and coordinate with either or both Wayne and Clinton County Road Departments.

Witness: Marty Marchaterre

COPPERHEAD
ENVIRONMENTAL CONSULTING

Traffic Impact Analysis

BARRELHEAD SOLAR, LLC

WAYNE COUNTY, KENTUCKY

Kim Rhodes
Environmental Planner
Copperhead Environmental Consulting, Inc.

Revised

22 December 2025

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INTRODUCTION

Barrelhead Solar, LLC (the Applicant) proposes to construct an approximately 54 megawatt (MW) alternating current (AC) solar energy facility in Wayne County. The project would be situated on approximately 307 acres of private land and is located on KY 1009 and Massingale Road, southwest of the city of Monticello, Kentucky.

The purpose of this traffic impact study is to characterize project-related traffic, assess potential impacts on roads and traffic, and identify best practices to avoid or minimize those impacts.

CURRENT CONDITIONS

Regional and Local Access

The Project Area is bordered by KY 1009, Massingale Road (CR 1249), and Massengale Road (CR 1018). A brief description of the surrounding roadways follows. A map of the proposed entrances and the roadways is shown in Figure 1.

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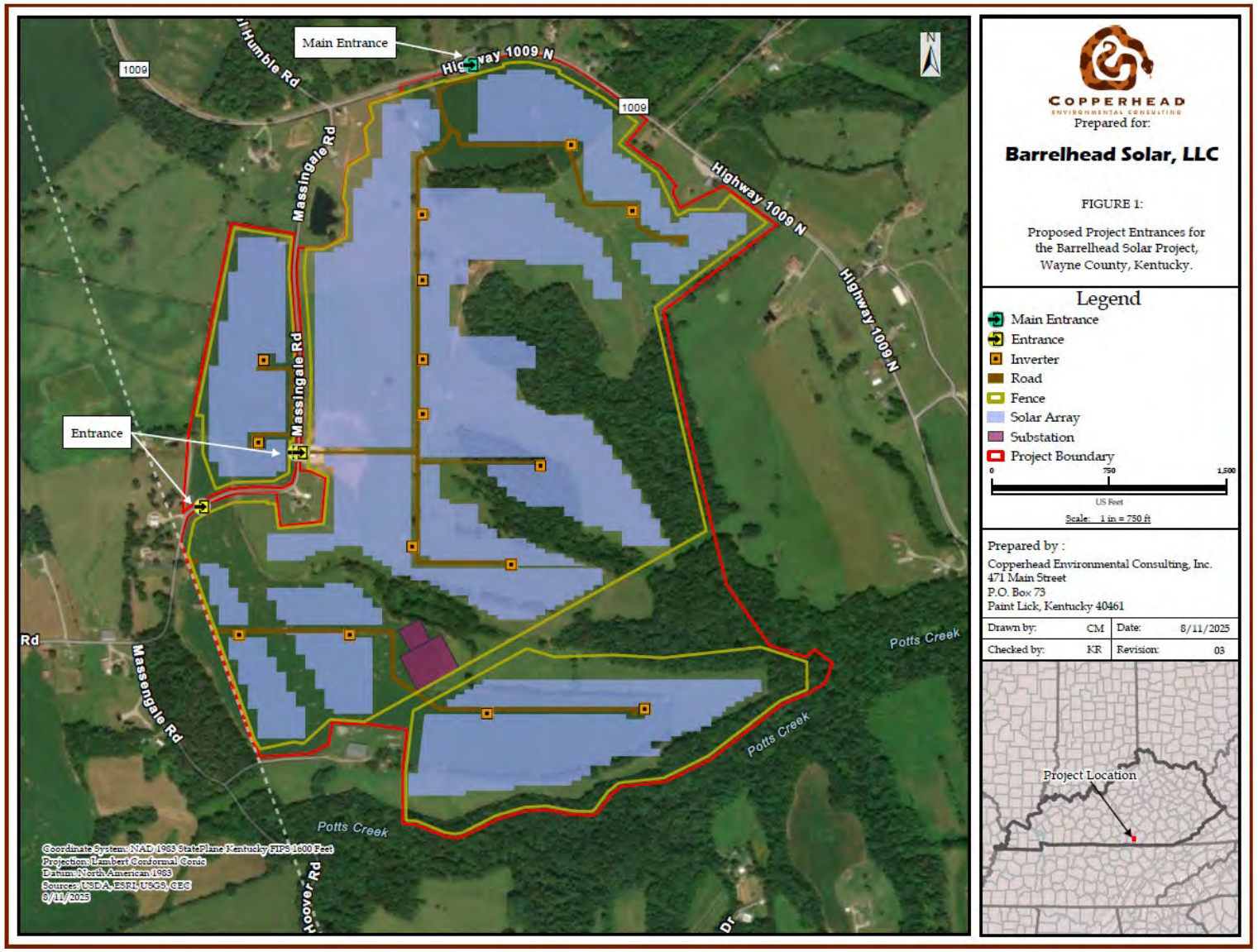


Figure 1. Overview of surrounding roadways and proposed entrances to the Project Area.

KY 1009 – KY 1009 is a paved two-lane public road that extends north-south on the northern and eastern sides of the Project Area. It is approximately 19-20 feet wide. A representative photo of KY 1009 is in Figure 2. The posted speed limit for KY 1009 is 55 mph. This route is considered a *minor collector*, meaning it gathers traffic from local roads and funnels it into the arterial network. In rural areas, these roads generally serve primarily intra-county travel of shorter distances. Travel speeds are typically more moderate than their urban counterparts (FWHA 2023). The truck weight class is A, or 44,000 lbs maximum.

The majority of the Project Area would be accessible from a proposed access point on KY 1009, which would be between mileposts 10.3 and 10.4.

Figure 2. Representative photo of KY 1009 taken at the northern side of the Project Area, looking west.

Massingale/Pleasant Ridge Road (CR 1249) – The name of this road changes to Pleasant Ridge Road at the Wayne-Clinton County line. In Clinton County, the road is called Pleasant Ridge Road, and in Wayne County, it is called Massingale Road. In both counties, the road is a single lane (approximately 13 feet wide), mixed bituminous surfaced (also known as "chip and seal") road. In Wayne County, the road intersects with KY 1009, which extends north to south on the northwestern side of the Project Area. A representative photo of Massingale Road within Wayne

County is in Figure 3. Massingale Road bisects the main Project Area and a small western portion of the Project Area. There is no posted speed limit on this route. The Kentucky Transportation Cabinet (KYTC) does not assign a Functional Class to county roads. In Clinton County, the road is off of KY 90, which is to the south of the Project Area.

There are three proposed access points on Massingale Rd within Wayne County: one would provide access to the western portion of the Project Area that is separated from the main area by Massingale Rd; one would be a secondary access point to the main portion of the Project Area, which also would be accessible from KY 1009; and one access point would provide access to the southern portion of the Project Area, including the substation.

Figure 3. Representative photo of Massingale Road (CR 1249) taken at the western side of the Project Area, looking northeast.

Massengale Road (CR 1018) – Massengale Road is a single lane asphalt surfaced road off Pleasant Ridge Road in Clinton County (Figure 4). It is approximately 11 feet wide for about 0.10 miles, but transitions to gravel and becomes approximately 8 feet wide after that (Figure 5). The road extends north to south on the southwestern side of the Project Area before turning east toward the Project Area. This road can currently be used to access the Project Area, but would not be used in the future for either construction or maintenance purposes. There is no posted speed limit

on this route. The Kentucky Transportation Cabinet (KYTC) does not assign a Functional Class to county roads.

Figure 4. Representative photo of the paved portion of Massengale Road (CR 1018) taken at the southwestern side of the Project Area, looking south.

Figure 5. Massengale Road (CR 1018) becomes a narrow gravel road after approximately 0.10 miles.

Bridges

Information for existing bridges within two miles of the Project was collected using the KYTC Bridge Data Miner application. Bridges are given ratings of good, fair, and poor, which are defined per the Pavement and Bridge Condition Performance measures final rule. The Bridge Condition is based on condition ratings within the National Bridge Inventory for Item 58 (deck), Item 59 (superstructure), Item 60 (substructure), or Item 62 (culvert). If the lowest rating is greater than or equal to 7, the bridge is classified as good. If the rating is between 1 and 4, the classification is poor. Ratings of 5 or 6 are classified as fair. Using the application, eight bridges were identified within two miles of the Project Area. Seven are classified as fair, and one is classified as poor. The approximate width for one bridge was not available (Table 1).

Where posted, weight limits are defined by four different truck types. As defined by Kentucky Administrative Regulations (KAR), 603 KAR 5:066 Section 1(2): Type 1 is a single unit truck with two single axles; Type 2 is a single unit truck with one steering axle and two axles in tandem arrangement; Type 3 is a single unit truck with one steering axle and three axles in tridem arrangement; Type 4 is a tractor-semitrailer combination truck with five or more axles.

Table 1. Bridges within two miles of the Project Area.

Bridge ID	Route ID	Approx. Width (feet)	Weight Limit/Posting	Bridge Classification
116B00036N	116-KY-0090-000	20	No posting	Fair
116C00021N	116-CR-1272-000	23.8	Gross Tons: 22	Fair
116C00018N	116-CR-1285-000	18.8	Gross Tons: 16	Fair
116B00022N	116-KY-1009-000	20	No posting	Fair
116C00045N	116-CR-1242-000	22.5	No posting	Fair
116B00037N	116-KY-1009-000	-	No posting	Fair
116C00056N	116-CR-1265-000	11.3	Gross Tons: 3	Poor
116B00027N	027-KY-0696 -000	20	No posting	Fair

Base Traffic Volumes

Existing traffic volumes on roadways in the Project vicinity were determined by querying the KYTC interactive Statewide Traffic Counts tool. This online map displays the most recent average annual daily traffic (AADT) for selected roads throughout the Commonwealth. Note that traffic volumes are not provided for Massingale/Pleasant Ridge Rd because KYTC does not have traffic

count stations on county routes. Traffic volume available for KY 1009, and the most recent collection year, is provided in Table 2. Also provided is the AADT data for KY 90 because it is recognized as a potential delivery route for Project equipment. However, the exact haul routes, road use agreements, and permits will be developed by the Engineering, Procurement, and Construction (EPC) contractor for the Project, once selected.

Based on correspondence with KYTC District 8, in place of assigning a Level of Service (LOS) letter grade that characterizes operating conditions on roadways, a combination of AADT, Functional Class of the roadway, and other factors to characterize congestion is used to make decisions for roadway projects. Where data is available, the Functional Class is listed for each roadway in Table 2.

Table 2. Available traffic counts for roadways in the Project vicinity.

Route	Station ID	Mileposts	AADT (year)	Functional Class
116-KY-1009-000	116536	8.224 – 11.567	253 (2022)	Minor Collector
116-CR-1249-000	N/A	--	N/A	N/A
116-KY-0090-000	027032	0 – 0.6810	5,205 (2023)	Minor Arterial

Data source: (KYTC n.d., KYTC Various)

Historic Traffic Volumes

Although there was a slight increase in traffic volumes along KY 1009 in 2019, they have declined overall since 2010. Prior to 2010, recorded traffic volumes along this roadway were similar to present-day volumes.

ASSUMPTIONS

Site preparation and construction traffic would use existing roadway systems to access one of the four proposed entrances to the Project Area. Contingent on other factors, construction is anticipated to begin in 2027 and last approximately 8 to 12 months. During peak construction periods, approximately 50-100 laborers may be entering the site from any of the four available Project Area entrances on KY 1009 or Massengale Road. However, the main access for traffic will be on KY 1009. Approximately 50 to 100 passenger vehicles, pickup trucks, or other types of employee vehicles may be onsite for the majority of the construction phase. Site preparation would take place prior to any construction activities and would include approximately 3-4 months or less of timber removal. Timber removal activities would require a small work crew, approximately 5-10 workers with associated vehicles and equipment (tractor trailer log trucks, track cutters, skidders, service trucks, dozers, excavator/log loaders). The southernmost

proposed access point on Massengale Road would be used to access the substation and transformer delivery.

Another route option for equipment delivery is Pleasant Ridge/Massingale Road via KY 90. However, the exact haul routes, road use agreements, and permits will be developed by the Engineering, Procurement, and Construction (EPC) contractor for the Project, once selected.

During construction, a temporary increase in traffic volume associated with travel of construction laborers, delivery of construction equipment and material, and delivery of solar panel components and equipment is anticipated. Laborers would commute daily with passenger vehicles and trucks, and traffic peaks would occur in the morning, at lunch, and at the end of the workday.

Equipment deliveries will occur on trailers, flatbeds, and other large vehicles at various times during the day. Approximately 10 to 15 semi-trucks per day could be used to deliver facility components during peak periods. Delivery vehicles would use any of the proposed entrances on both KY 1009 and Massengale Road, and the substation would be delivered to the entrance on Massengale Road. Other construction and worker traffic will be split among the four access points to the Project Area. Maximum expected load limits are: cement truck, 80,000 lbs; water truck, 40,000 lbs; tractor trailer, 80,000 lbs; and general delivery trucks, 20,000 lbs.

During the operations and maintenance phase, a small maintenance crew will regularly drive through the area to monitor and maintain the facilities as needed. Crews will primarily utilize light trucks or pickup trucks for operation and maintenance. Occasional and infrequent flatbed trucks may be used to haul equipment to the Project Area to perform maintenance activities. The majority of operations and maintenance traffic will use the main access off KY 1009.

MITIGATION MEASURES

The following measures will be implemented by the Applicant during and after the construction phase to reduce impacts to local traffic. A separate traffic management plan for the Project will be developed in coordination with the Wayne County Road Department (WCRD), Wayne County Fiscal Court, and the Kentucky Transportation Cabinet (KYTC), which will discuss traffic and staging onsite during construction to minimize the impact on traffic flow and keep traffic safe. If delivery routes within Clinton County are determined to be more desirable by the EPC contractor, the Applicant and contractor will develop a traffic management plan in coordination with the Clinton County Road Department.

- The Applicant will develop a road use agreement with the WCRD and the Wayne County Fiscal Court. Such an agreement might include special considerations for overweight loads, routes utilized by heavy trucks, road weight limits, and bridge weight limits. It also might include the use of a flag person during heavy commute periods, prioritizing access for nearby residents, and implementing staggered work shifts during daylight hours to

manage construction traffic flow near the Project Area. If necessary, the Applicant will develop a road use agreement with the Clinton County Road Department.

- Construction activities, processes, and deliveries will be limited to the hours between 7:00 am and 7:00 pm, Monday through Saturday; construction activities that create a higher level of noise, such as pile-driving, will be limited to 8 a.m. to 5 p.m. local time, Monday through Friday. Non-noise-causing and non-construction activities can take place on the site between 6 a.m. and 10 p.m. local time, Monday through Sunday, including field visits, arrival, departure, planning, meetings, mowing, surveying, etc.
- Appropriate signage and traffic signaling will be used as needed to aid construction traffic and prevent severe traffic issues.
- Four access points will spread construction and worker vehicles entering and leaving the Project Area.
- The Applicant will fix or pay for repairs for damage to roads and bridges resulting from any transport to the site, according to the road use agreement. For damage resulting from vehicle transport in accordance with all permits, those permits will control.
- The Applicant will comply with laws and regulations regarding use of roadways.
- The Applicant will consult with KYTC regarding truck and other construction traffic and obtain necessary permits from KYTC, including any permits needed for commercial vehicle classes used for transporting equipment and materials to the Project Area.
- The Applicant will consult with the WCRD regarding truck and other construction traffic and obtain any necessary permits from the WCRD, including any permits needed for commercial vehicle classes used for transporting equipment and materials to the Project Area. If necessary, the Applicant would involve the Clinton County Road Department.
- The Applicant will develop special plans and obtain necessary permits before transporting heavy loads, especially the substation transformer, onto state or county roads.
- The Applicant will develop and implement a traffic management plan to minimize the impact on traffic flow and keep traffic safe. Any such traffic management plan will also identify any traffic-related noise concerns during the construction phase and develop measures that would address those noise concerns.
- The Applicant will implement ridesharing between construction workers when feasible, use appropriate traffic controls, or allow flexible working hours outside of peak hours to minimize potential traffic delays during AM and PM peak hours.
- The Applicant will properly maintain construction equipment and vehicles and follow best management practices related to fugitive dust through the construction process, including the use of water trucks. Dust impacts shall be kept at a minimum level in compliance with 401 KAR 63:010.
- Activities that disturb land during the construction of the Project may temporarily add airborne materials. To reduce the contribution of airborne materials, the application of water to unpaved on-site roadways may occur. Vegetative buffer and revegetation

measures along fencerows and property boundaries will help mitigate fugitive dust impacts to adjacent areas. Dust impacts will be kept at a minimal level to comply with 401 KAR 63:010.

TRAFFIC IMPACTS

Construction Phase

Site preparation and construction traffic would use existing roadway systems to access one of the four entrances to the Project Area. Site preparation would take place prior to any construction activities. This would include timber removal, which would occur for 3-4 months or less. It is estimated that a small work crew (approximately 10 workers) would perform these activities, and equipment could include tractor-trailer log trucks, track cutters, skidders, service trucks, dozers, and excavators/log loaders. All equipment would be removed after site preparation and before construction begins.

Project construction is expected to take 8 to 12 months. While the number of construction workers will vary, it is anticipated that the Project may have 50 to 100 workers onsite during peak construction activity (four to six months). A temporary increase in traffic volume associated with the travel of construction workers, the delivery of construction equipment and materials, and the delivery of solar panel components and equipment is anticipated. The increased traffic may be perceptible to neighboring residents and commuters, especially given the relatively low AADT counts on KY 1009 (Appendix A).

Slow-moving construction vehicles may also cause delays on smaller roads. However, these delays should be like those experienced by farm equipment and will only occur during a relatively short construction delivery period.

Permanent road or lane closures are not anticipated for the construction of the proposed solar facility. However, the presence of signage, signaling, personnel flagging traffic, and temporary lane closures may be employed to reduce risk of collision on the roadway. For instance, the presence of a flag person to temporarily stop traffic to allow for a delivery truck and trailer to safely turn into the site may be necessary at times of large equipment deliveries. Appropriate signage of trucks entering the highway or slow-moving vehicles would be used to warn oncoming traffic of potential risk.

In coordination with WCRD and KYTC, the Applicant will develop and implement a traffic management plan to minimize the impact on traffic flow and keep traffic safe. Should a route within Clinton County be chosen for construction deliveries, the Applicant will develop and implement a plan accordingly.

Operational and Maintenance Phase

Long-term impacts to traffic will be negligible because the project would require minimal staff during the operations and maintenance phase. The facility would be managed remotely and monitored by a small number of employees or contractors. Operations workers are expected to commute to and from the project site individually during the peak AM and PM hours. Work can also be conducted at night for up to thirty days a year. The operations and maintenance work is anticipated to require primarily the use of light trucks. The primary access point would be the proposed entrance on KY 1009. Entrances on Massengale Road would also be used to access the western and southern portions of the Project Area.

For vegetation management, periodic truck traffic will occur to deliver and move sheep as part of solar grazing activities or for mowing equipment.

During the operation phase, the additional volume to daily traffic is considered negligible, and it would have no measurable impact on the traffic and/or transportation infrastructure.

Impact on Road Infrastructure

Significant degradation of the existing roadways during or after the construction phase is not anticipated for the proposed Project. The temporary increase in localized traffic and the continued entry and exit of heavy trucks or equipment during the construction phase may result in some additional wear of the existing roadway or shoulder of the four planned entrances to the Project Area. A road use agreement with WCRD and Wayne County Fiscal Court will be implemented to address construction traffic, access, and restoration/maintenance of county roads. Should a route through Clinton County be chosen, the Applicant will develop an agreement with the Clinton County Road Department. Oversize/overweight vehicle permits will be obtained from the State for travel on state roadways. The only delivery anticipated to be in this category is for the transformer, while all other vehicles will be typical construction size.

Access drives and internal roads will be constructed or improved as needed to accommodate vehicles and equipment necessary to construct the proposed solar facility. Internal roads would be compacted gravel or earthen, which may increase airborne dust particles. During construction, water may be applied to the internal road system to reduce fugitive dust.

During facility operation and maintenance, there would be no significant increase in traffic. Long-term impacts to the road infrastructure and vehicle traffic are not anticipated as daily traffic to the site will be minimal. For example, employees would generally contribute less to vehicle traffic than a typical single-family home would.

Railroad Effects

Based on KYTC Active Rail Lines and historical data, there are no active or abandoned rail lines in Wayne County.

CONCLUSION

Traffic in the vicinity of the Project Area is likely to increase temporarily during the construction phase of the Project. This includes daily morning, midday, and evening peaks for construction laborers entering and exiting the Project Area and periodic delivery of construction materials and equipment. Appropriate signage and traffic directing would occur as necessary to increase driver safety and reduce risk of collisions for approaching traffic. The Applicant will develop and implement a traffic management plan to reduce traffic impacts and keep traffic safe.

In addition, the Applicant will develop a road use agreement with WCRD and the Wayne County Fiscal Court to repair or pay for wear and tear or damages to county roadways.

Construction traffic is not expected to cause significant operational changes to existing roadways. The implementation of mitigation measures such as multiple access points, ridesharing between construction workers, appropriate traffic controls, or allowing flexible working hours outside of peak hours could be implemented to minimize any potential for delays during the AM and PM peak hours. All roadways within the Project area should continue to operate at an acceptable level of service.

During the operation phase, the additional volume to daily traffic from maintenance crews is considered negligible, and it will have no measurable impact on the traffic and/or transportation infrastructure.

SOURCE CITATIONS

Federal Highway Administration. 2023. "Highway Functional Classification Concepts, Criteria and Procedures 2023 Edition". Available at: https://gis.penndot.pa.gov/BPR_pdf_files/Documents/Traffic/Highway_Statistics/2023_FHWA_Functional_Classification_Guidelines.pdf.

KYTC. 2024. Kentucky Active Rail Lines. Accessed May 2025.

KYTC. (n.d.). "Highway Information View and Extract Interface (HIVEi)." Accessed May 2025.

KYTC. (Various). "Traffic Counting Reporting System." Accessed May 2025.

APPENDIX A.

Average Annual Traffic Count Data

Historical Traffic Volume Summary

Station Details:

Sta ID:	116536
Sta Type:	Full Coverage
Map:	MapIt
District:	8
County:	Wayne
Route:	116-KY-1009 -000
Route Desc:	KY-1009

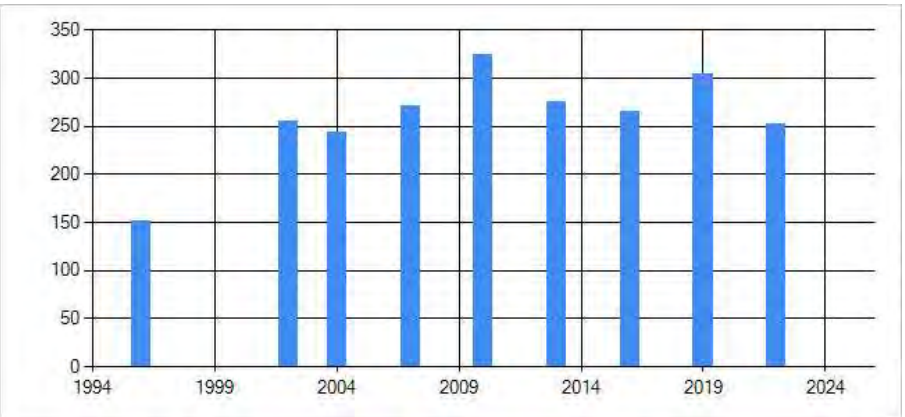
Begin MP:	8.2240
Begin Desc:	KY 90 (MONTICELLO-ALBANY RD)
End Mp:	11.5680
End Desc:	CLINTON COUNTY LINE
Impact Year:	
Year Added:	

Newest Count:

AADT:	253
Year:	2022
% Single:	
% Combo:	
K Factor:	12.30
D Factor:	58

Definitions:
Sta. ID - Three digit county number + station number
MP - milepoint
Impact Year – year of significant change to traffic pattern within station segment
AADT – Annual Average Daily Traffic – the annualized average 24-hour volume of vehicles on a segment of roadway
% Single – single unit truck volume as a percentage of the AADT
% Combo – combination truck volume as a percentage of the AADT
K Factor – peak hour volume as a percentage of the AADT
D Factor – percentage of peak hour volume flowing in the peak direction

Year	AADT	Year	AADT	Year	AADT
2025		2015		2005	
2024		2014		2004	244
2023		2013	275	2003	
2022	253	2012		2002	255
2021		2011		2001	
2020		2010	325	2000	
2019	304	2009		1999	
2018		2008		1998	
2017		2007	271	1997	
2016	266	2006		1996	152



Historical Traffic Volume Summary

Station Details:

Sta ID:	027032
Sta Type:	In Adjacent County
Map:	MapIt
District:	8
County:	Wayne
Route:	116-KY-0090 -000
Route Desc:	KY-90

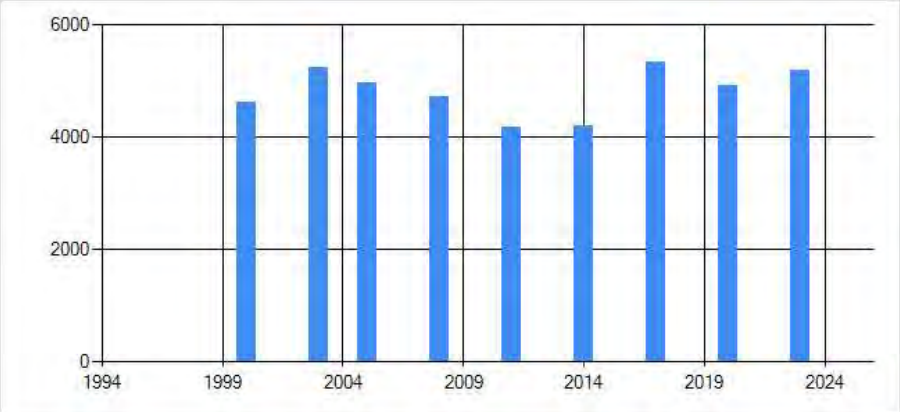
Begin MP:	0
Begin Desc:	CLINTON COUNTY LINE
End Mp:	0.6810
End Desc:	KY 1009 (WAIT-POWERBURG)
Impact Year:	
Year Added:	

Newest Count:

AADT:	5205
Year:	2023
% Single:	12.2370
% Combo:	12.1090
K Factor:	9.20
D Factor:	59

Definitions:
Sta. ID - Three digit county number + station number
MP - milepoint
Impact Year – year of significant change to traffic pattern within station segment
AADT – Annual Average Daily Traffic – the annualized average 24-hour volume of vehicles on a segment of roadway
% Single – single unit truck volume as a percentage of the AADT
% Combo – combination truck volume as a percentage of the AADT
K Factor – peak hour volume as a percentage of the AADT
D Factor – percentage of peak hour volume flowing in the peak direction

Year	AADT	Year	AADT	Year	AADT
2025		2015		2005	4970
2024		2014	4211	2004	
2023	5205	2013		2003	5240
2022		2012		2002	
2021		2011	4190	2001	
2020	4928	2010		2000	4630
2019		2009		1999	
2018		2008	4730	1998	
2017	5339	2007		1997	
2016		2006		1996	



Siting Board 2-15:

Provide Sight Distance Studies for the following intersections:

a. Massingale Rd and KY 1009/Walnut Grove Road.

b. The main Project entrance (on KY 1009) and KY 1009;

c. Pleasant Ridge Rd and Massengale Rd (near R-22).

Response: No site distance studies have been conducted to date. The Applicant will work with the Kentucky Transportation Cabinet (KYTC) and the Wayne County Road Department to determine if site distance studies are appropriate and the scope of such studies during the KYTC access/entrance permit process and the Wayne County road use and access process.

Witness: Marty Marchaterre

Siting Board 2-16:

Confirm whether the residence at 1689 Massingale Road (R-17) is a nonparticipating home. If not confirmed, provide a corrected list of participating parcels.

Response: The residence at 1689 Massingale Road is a participating structure. Based on the Applicant's simplified labeling, the new ID for this property is R-15 (see Attachment 2-2). The following is a list of properties that are participating:

- 1689 Massingale Road (R-15, including barn NR-2)
- 475 Massingale Road (R-42, including barn NR-3)
- Barn, NR-5, located at 36.783889, -85.009810
- 1837 KY 1009 (R-3)

Witness: Marty Marchaterre

Siting Board 2-17:

Confirm whether the agricultural barn to the north of that residence are owned by the Bertrams. If not confirmed, provide the name of the landowner.

Response: The agricultural barn (NR-2) north of 1689 Massingale Road is owned by the Bertrams.

Witness: Marty Marchaterre

Siting Board 2-18:

Explain whether a power purchase agreement has been finalized. If not, provide a timeline for drafting and finalizing a power purchase agreement.

Response: At this time, a power purchase agreement has not been finalized. The Applicant anticipates that the drafting and finalizing of the power purchase agreement will occur in 2026.

Witness: Trudie Grattan

Siting Board 2-19:

Provide information on the anticipated impact that fugitive dust will have on the project.

Response: Construction activities will result in temporary fugitive air pollutant emissions (e.g., small particles suspended in the air or dust). Vehicles and construction equipment traveling over unpaved roads and the construction site will result in the emission of fugitive dust. Most fugitive emissions from vehicle traffic in unpaved areas will be deposited near the unpaved areas. To minimize fugitive dust impacts, the Project will require all contractors to keep construction equipment properly maintained and to use BMPs, such as covered loads and wet dust suppression (i.e., water trucks), if needed, which can reduce fugitive dust emissions by as much as 95 percent. Re-vegetation of disturbed areas in compliance with the Kentucky Division of Water (KDOW) Construction Storm Water Discharge General Permit will also help minimize the emission of fugitive dust. No air quality impacts from fugitive dust are anticipated.

Witness: Marty Marchaterre

Siting Board 2-20:

Provide any updates to vegetative screening plans.

Response: No changes to the vegetative screening in the previously provided landscape plan have been made.

Witness: Marty Marchaterre

Siting Board 2-21

State the number of years it will take for planted trees and shrubs to reach mature height.

Response: The Applicant anticipates that the planted vegetation proposed in its landscape plan would reach at least six feet within four years (maturity) (see SAR Section 2 for additional information). Proposed trees in the landscape plan may reach final heights ranging from 15 feet to 60 feet.

Witness: Marty Marchaterre

Siting Board 2-22:

Provide information on whether there will be an erosion and sedimentation control plan for the project. If so, provide the plan.

Response: The Applicant will obtain a KYR10 Stormwater General Permit for Stormwater Discharges Associated with Construction Activities. This permit establishes several requirements to avoid or minimize stormwater runoff into Waters of the Commonwealth. Requirements include development and implementation of a Stormwater Pollution Prevention Plan (SWPPP), minimizing the size and duration of construction disturbance, initiating stabilization practices, and adhering to stormwater control measures and best management practices to protect Waters of the Commonwealth.

A SWPPP will be prepared for the Project and best management practices utilized to mitigate risk of surface runoff into wetland features, including physical best management practices (BMPs) (e.g., vegetative filter strips, sediment traps and basins, silt fence, rock check dams, temporary and permanent vegetation) and good management/planning BMPs (e.g., construction sequencing to minimize open areas, rapid application of temporary stabilization measures, planning around forecasted weather events, etc.). The Applicant's EPC would conduct regular inspections of erosion control and stormwater control measures.

Before vegetation clearing, sediment and erosion control measures would be established as per the SWPPP and topsoil set aside from areas of disturbance for re-distribution in applicable areas after sub-grade preparation. Erosion prevention measures would be implemented on disturbed areas within 24 hours or as soon as practical after completion of disturbance/grading or following cessation of activities.

The Applicant would follow stormwater best management practices such as those identified in the BMPs for Controlling Erosion, Sediment, and Pollutant Runoff from Construction Sites (University of Kentucky Transportation Center (2009)) and Kentucky Erosion Prevention and Sediment Control Field Guide.

The Applicant is also committing to 25-foot buffers around all perennial and intermittent streams as well as jurisdictional wetlands to further minimize the potential for stormwater runoff.

Additionally, a stormwater management design would be developed as part of the civil design package to ensure that stormwater runoff would not be increased during operation.

Witness: Marty Marchaterre

Siting Board 2-23:

Explain any commitments regarding infrastructure removal or land restoration during decommissioning, including in the landowner lease agreements.

Response: Under Section 13: End of Term of the lease agreement, the Applicant will completely remove all of its property, vacate the premises, and restore the premises to substantially the same condition in which it existed as of the Construction Commencement Date, which shall leave the premises free of any conditions created by the Applicant which present a current unreasonable risk of harm to Landlord or members of the public.

The Applicant also will comply with the decommissioning requirements of any applicable state or local government authority securing removal of Applicant's property. Currently, the Applicant is subject to Kentucky decommissioning requirements. Wayne County does not have any local ordinance or requirements for decommissioning.

Witness: Marty Marchaterre

Siting Board 2-24:

Provide the name of the company that will employ the individuals that are or will be responsible for ensuring compliance with the statements in the Application, as well as any conditions imposed by the Siting Board during construction and operation of the project.

Response: The Applicant and the EPC contractor will be responsible for compliance with the statements in the Application, as well as any conditions imposed by the Siting Board during the Project's construction phase. The Applicant will be responsible for compliance during the Project's operational phase.

Witness: Trudie Grattan

Siting Board 2-25:

Explain whether Barrelhead Solar will pursue an Industrial Revenue Bond or PILOT with Wayne County.

Response: As discussed in the response to RFI No. 1-79, the Applicant is pursuing an IRB and Payment in Lieu of Taxes (PILOT) agreement with Wayne County. The IRB would provide the Project with savings on state property taxes. It would provide an opportunity for the Applicant to increase net benefit and tax revenues paid to Wayne County via PILOT.

The Applicant has had preliminary discussions with Wayne County Judge Executive Scott Gehring about the IRB/PILOT process and is scheduling follow up discussions with County officials.

Witness: Trudie Grattan

Siting Board 2-26:

Provide a parcel map for the proposed site. Include all residences within 500 feet of the proposed project site. Include whether the residences are participating or non-participating homes.

Response: A parcel map of the proposed site with all residences within 500 feet of the proposed project site and identification of whether residences are participating or non-participating is included as Attachment 2-26.

Witness: Marty Marchaterre

COPPERHEAD
ENVIRONMENTAL CONSULTING

Prepared for:

Barrelhead Solar, LLC

FIGURE 2-26:
Project Parcels with Residences
within 500 feet for the
Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

- Participating
- Not Participating
- Project Boundary
- Parcel
- 500 foot Buffer

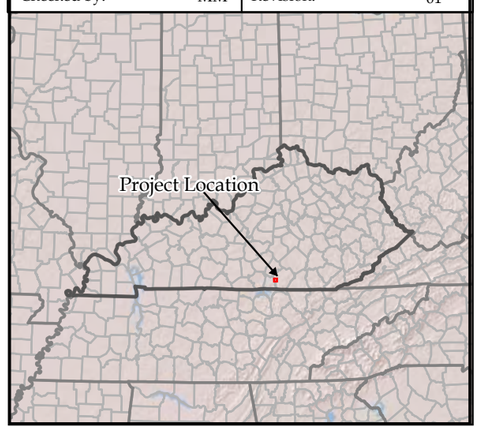
0 600 1,200
US Feet

Scale: 1 in = 600 ft

Prepared by :

Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	CM	Date:	1/6/2026
Checked by:	MM	Revision:	01



Siting Board 2-27:

Refer to Barrelhead Solar's motion for deviation from setback requirements (motion for deviation). Provide a parcel map for each Neighborhood 1 and Neighborhood 2 that were discussed in Barrelhead Solar's motion for deviation. For each parcel identified provide the total acreage and whether the parcel has a residential structure on the land. If there is a structure on the parcel explain the structure's design, historical use, and current condition.

Response: The following information for each receptor in Neighborhoods 1 and 2 was obtained by searching the Wayne County Property Valuation Administrator (PVA) website. No details on historical property use were available. A parcel map of the residential neighborhoods is provided as Attachment 2-27.

Receptor ID	Parcel ID	Parcel Acres	Structure Type	Year Built	Structure Condition
R-41	006-00-00-070.00	0.89	Mobile Home, Single Family	1996	Fair
R-40	006-00-00-069.00	0.78	Mobile Home, Single Family	1991	Good/Average
R-38	006-00-00-068.00	1.17	Mobile Home, Single Family	2011	Good/Average
R-39	006-00-00-071.00	8	House, Single Family	1955	Poor
R-37	006-00-00-067.00	0.5	Mobile Home, Single Family	1996	New
R-35	007-00-00-004.00	3.33	House, Single Family	1998	New
R-36	006-00-00-066.00	0.33	House, Single Family	2006	Good/Average
R-34	006-00-00-060.00	-	House, Single Family	1985	Fair
R-32	006-00-00-059.00	1	-	-	-
R-33	006-00-00-061.00	1.29	Detached Structure	-	Good/Average
R-23	006-00-00-058.00	4.75	Mobile Home, Single Family	1999	Very Good/Excellent

R-31	006-00-00-057.00	0.78	Mobile Home, Single Family	1988	Good/Average

Witness: Marty Marchaterre

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ENVIRONMENTAL CONSULTING

Prepared for:

Barrelhead Solar, LLC

FIGURE 2-27:
Neighborhood Parcels for the
Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

- Barn
- Residence
- Project Boundary
- 2000 foot Buffer
- Residential Neighborhood
- Neighborhood Parcel

0 200 400
US Feet

Scale: 1 in = 200 ft

Prepared by :

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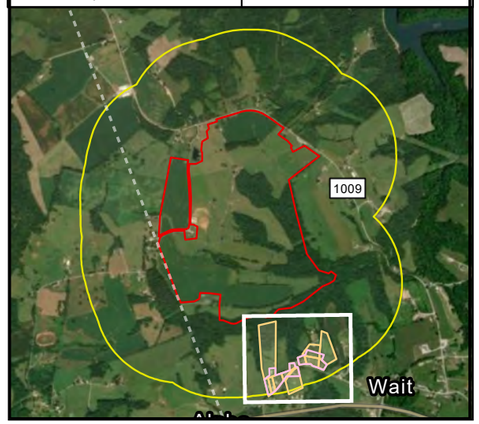
Drawn by:	CM	Date:	1/6/2026
Checked by:	MM	Revision:	01



Siting Board 2-28:

Refer to Barrelhead Solar's response to Staff's First Request, Item 27. Provide a detailed table for each of the parcels stating the distance measurement in feet (not meters) from each structure to the items listed below:

a. The distance to the boundary line.

b. The distance to the closest solar panel.

c. The distance to the nearest inverter.

d. The distance to the substations.

Response: The nature of RFI No. 1-27 was a detailed construction timeline by activity. Below is a detailed table of all receptors within 2,000 feet of the Project boundary and distances to each component requested in feet (not meters).

Receptor ID	Receptor Type	Participating (Y/N)	Distance to Project Boundary (feet)	Distance to Nearest Array (feet)	Distance to Substation (feet)	Distance to Nearest Inverter (feet)
NR-4	Church	no	75.26	207.50	3,356.75	524.76
R-25	Residence	no	1,403.19	1,502.21	2,683.20	1,663.20
R-43	Residence	no	950.88	1,129.65	2,383.13	1,406.27
R-15	Residence	yes	182.06	353.07	1,629.87	739.22
R-28	Residence	no	306.74	442.02	2,043.78	757.55
R-4	Residence	no	77.97	213.74	1,854.09	529.50
R-21	Residence	no	700.78	741.22	1,779.90	898.01
R-20	Residence	no	547.24	592.16	1,616.07	841.32
R-29	Residence	no	608.20	663.60	1,756.65	760.28
R-5	Residence	no	469.62	533.94	3,140.34	1,098.99
R-6	Residence	no	309.29	371.53	2,951.66	839.81
R-1	Residence	no	1,689.24	1,750.22	4,793.49	2,457.44
R-7	Residence	no	98.20	204.65	3,646.00	907.60
R-8	Residence	no	168.16	252.45	3,850.62	744.26
R-9	Residence	no	414.26	502.04	4,088.42	929.58
R-10	Residence	no	94.51	182.24	3,722.56	542.22
R-2	Residence	no	813.52	939.92	4,177.98	1,274.20
R-11	Residence	no	189.73	277.46	3,569.75	986.37
R-12	Residence	no	256.60	352.74	3,280.06	1,086.27

Receptor ID	Receptor Type	Participating (Y/N)	Distance to Project Boundary (feet)	Distance to Nearest Array (feet)	Distance to Substation (feet)	Distance to Nearest Inverter (feet)
R-26	Residence	no	592.84	749.99	3,549.00	1,493.51
R-27	Residence	no	1,087.04	1,192.06	3,437.65	1,893.41
R-13	Residence	no	1,258.33	1,384.13	3,198.62	2,020.38
R-14	Residence	no	997.74	1,431.12	3,214.13	2,172.14
R-16	Residence	no	1,516.52	1,981.04	3,901.54	2,739.57
R-22	Residence	no	1,628.59	1,795.99	3,211.04	2,147.62
R-17	Residence	no	1,380.04	1,545.56	3,011.00	1,913.22
R-30	Residence	no	1,809.84	1,991.82	3,255.01	2,295.18
R-24	Residence	no	1,490.24	1,675.59	2,994.00	1,987.50
R-31	Residence	no	1,540.44	1,705.83	2,893.68	2,018.61
R-32	Residence	no	1,297.39	1,464.89	2,627.28	1,779.26
R-33	Residence	no	1,314.80	1,479.86	2,684.54	1,792.46
R-23	Residence	no	1,339.85	1,505.59	2,744.64	1,815.12
NR-16	Barn	no	954.47	1,130.96	2,429.81	1,434.40
NR-17	Barn	no	1,004.80	1,169.62	2,421.20	1,480.09
R-34	Residence	no	1,299.77	1,475.72	2,562.48	1,789.53
R-35	Residence	no	1,478.28	1,707.52	2,706.29	2,050.03
R-36	Residence	no	1,208.88	1,437.10	2,434.76	1,803.14
R-37	Residence	no	1,344.56	1,562.42	2,521.76	1,990.82
R-38	Residence	no	1,515.69	1,718.00	2,602.79	2,204.87
R-39	Residence	no	1,284.09	1,478.39	2,347.94	1,994.13
R-40	Residence	no	1,561.77	1,757.26	2,607.19	2,264.52
R-41	Residence	no	1,623.14	1,811.22	2,620.47	2,339.07
R-18	Residence	no	959.66	1,144.82	1,812.39	1,789.62
R-19	Residence	no	1,568.79	1,785.03	2,453.57	2,396.23
R-42	Residence	yes	116.40	194.51	1,043.95	456.77
NR-3	Barn	yes	106.36	172.13	1,036.59	464.68
NR-2	Barn	yes	190.46	445.02	1,711.33	834.14
NR-5	Barn	yes	70.96	198.28	2,966.57	640.43
NR-6	Barn	no	1,861.17	1,923.58	4,933.85	2,625.16
NR-7	Barn	no	1,821.35	1,918.72	4,604.82	2,677.01
NR-8	Barn	no	305.19	397.02	3,874.73	1,048.82
NR-9	Barn	no	882.09	1,049.30	4,258.25	1,337.80
R-3	Residence	yes	116.11	177.60	3,413.49	479.17
NR-10	Barn	no	897.64	1,046.65	3,643.70	1,785.47
NR-11	Barn	no	793.66	1,183.16	2,912.35	1,900.18
NR-15	Commercial	no	707.83	886.21	2,206.67	1,187.97
NR-14	Barn	no	1,618.22	1,842.64	2,820.58	2,221.97
NR-13	Barn	no	1,662.99	1,923.55	2,626.68	2,439.03
NR-12	Barn	no	1,528.27	1,778.97	2,444.80	2,348.10
NR-1	Barn	no	1,399.64	1,516.30	2,712.97	1,695.28

Witness: Marty Marchaterre

Siting Board 2-29:

Provide a table with the distances from the nearest nonparticipating residence (dwelling not property line) to the following:

a. Fencing.

b. Closest solar panel.

c. Closest inverter.

d. Substations.

Response: The table below provides the distances from the nearest non-participating residence (dwelling) to each component:

Component	**Nearest Non-participating Residence**	**Distance (feet)**
Project	R-4	77.97
Solar Panel	R-10	182.24
Inverter	R-4	529.5
Substation	R-20	1,616.07

Witness: Marty Marchaterre

Siting Board 2-30:

Provide a narrative description of the proposed transmission line and alternate route, including the number of poles to be installed, the height of the poles and the length and width of the transmission line corridor.

Response: As East Kentucky Power Cooperative (EKPC) owns, operates, and maintains the existing 69 kV transmission line corridor and eventually the interconnection transmission line along with the new switching substation, all design work will be completed by EKPC.

Based on the Facilities Study Report for Physical Interconnection included as part of the Phase III report and provided as Attachment 2-30, the transmission line tie-in for the new interconnection substation will consist of two (2) direct embed guyed steel 3-pole dead-end structures (6 poles total will be installed). The height of the poles has not been disclosed by EKPC at this time. However, typical pole heights range from 70 to 95 feet above ground with 10-15% of pole length embedded in the ground.

Based on Attachment 2 "Substation General Arrangement" (page 10 in the Facilities Study Report (Attachment 2-30)), the width of the transmission line corridor between the new substation and the existing EKPC line right-of-way (ROW) will be approximately 60 feet wide. The same figure on page 10 of the Report shows that the length of the transmission line corridor between the new switching substation and the existing EKPC line right-of-way (ROW) will be approximately 55 feet long. It is anticipated that the complete interconnection transmission line will be approximately 100 – 150 feet in length.

All new connections, or modifications to existing connections, to the EKPC transmission system, including EKPC self-built facilities, must be in compliance with all applicable EKPC

and PJM connection requirements. Such connections must also comply with all applicable Planning, Operations, and Critical Infrastructure Protection Reliability Standards of the Federal Energy Regulatory Commission's (FERC) approved Electric Reliability Organization (ERO), which is currently the North American Electric Reliability Corporation (NERC), and with all SERC Reliability Corporation (SERC) Guidelines to the NERC Reliability Standards.

Given the proximity between the existing 69 kV transmission line and the switching substation, few alternate routes exist for the interconnection transmission line.

Witness: Trudie Grattan

Facilities Study Report

For

Physical Interconnection of

PJM Generation Interconnection Request

Project ID AG1-471

"Upchurch-Wayne County 69kV"

Revision 0: December 2024

Introduction

This Facilities Study has been prepared in accordance with the PJM Open Access Transmission Tariff. The Transmission Owner (TO) is East Kentucky Power Cooperative ("EKPC").

A. Transmission Owner Facilities Study Summary

1. PROJECT DESCRIPTION

The Project Developer (PD) has proposed a solar generating facility located in Clinton County, Kentucky with a designated PJM Project ID of AG1-471. The installed facilities will have a total Maximum Facility Output (MFO) of 60 MW with 36 MW of this output being recognized by PJM as Capacity.

2. POINT OF INTERCONNECTION (POI)

The Generating Facility will interconnect with the EKPC transmission system via a newly constructed 69 kV Main and Transfer substation, Massingale Road substation, tapping the Upchurch - Wayne County 69kV line, approximately 6.77 miles from Upchurch Tap and 1.37 miles from Wayne County.

The construction of the new interconnection substation will split the existing Summer Shade – Wayne County 69kV line into two lines on the transmission system. These two lines will connect the new Massingale Road substation to the Summer Shade and Wayne County substations.

The proposed generation interconnection is shown on the single-line diagram in Attachment #1.

3. POINT OF CHANGE IN OWNERSHIP

The Point in Change of Ownership (PCO) will be located at the Project Developer (PD) side of a 69 kV disconnect switch to be installed by EKPC at the interface between the PD-owned substation facilities and EKPC's substation facilities at the Massingale Road 69 kV Substation. The switch shall be installed on a steel transmission line monopole structure located outside the substation fence. The exact location will be determined during project detailed design and EKPC will install, own, operate, and maintain the switch.

4. SCOPE OF PROJECT DEVELOPER INTERCONNECTION FACILITIES

Project Developer will design, build, own, operate and maintain the Project Developer Interconnection Facilities on Project Developer's side of the Point of Change in Ownership (PCO). This includes, but is not limited to:

- Main Power Transformer(s) (MPT), Generation step-up (GSU) transformer(s) or final transformation, as applicable.
- Circuit breakers and associated equipment located between the high side of the MPT(s) or GSU(s) and the Point of Change in Ownership
- Generator lead line from the Generating Facility to the Point of Change in Ownership
- Relay and protective equipment, telecommunications equipment, and Supervisory Control and Data Acquisition (SCADA) to comply with EKPC's Applicable Technical Requirements and Standards

The proposed facility must meet EKPC's published facility connection requirements. The latest version of these requirements can be accessed via the following link:

https://www.pjm.com/planning/design-engineering/to-tech-standards/ekpc.aspx

Reference section 5.9 for inverter-based generating facilities.

B. Transmission Owner Facilities Study Results

The following is a description of the planned Transmission Owner facilities for the physical interconnection of the proposed AG1-471 project to the EKPC transmission system. These facilities shall be designed according to EKPC Applicable Technical Requirements and Standards. Once built, EKPC will own, operate, and maintain these Facilities.

1. TRANSMISSION OWNER INTERCONNECTION FACILITIES:

A 69 kV transmission line monopole dead-end structure and foundation outside the fence of the Interconnection Substation, to terminate the Project Developer's generator lead line will be considered Transmission Owner Interconnection Facilities (TOIF). A 69 kV 3-pole disconnect switch will also be mounted to this monopole dead-end structure serving as the PCO.

The TOIF will also include the line conductor from the dead-end structure to the bus position in the switchyard of the Massingale Roadsubstation.

Installation of fiber cable circuits

EKPC shall use telecommunications equipment that matches its current network and equipment requirements.

Two 48-strand fiber optic cables will be installed between the EKPC substation control house at the new Massingale Road substation and the PD facility for relaying, metering, and SCADA circuit requirements. The exact details and installation plans for this fiber will be developed during project scoping.

2. STAND ALONE NETWORK UPGRADES

Massingale Road Interconnection Substation

A new Main and Transfer substation, Massingale Road 69kV, will be constructed along the Upchurch-Wayne County 69 kV transmission line to interconnect the project with the East Kentucky Power Cooperative ("EKPC") transmission system.

Scope of Work

The major equipment and material associated with the new substation is listed below:

QTY	Unit	DESCRIPTION
1	Each	69 kV High Profile Substation Structure
4	Each	69 kV, 1200 Amp Circuit Breakers
16	Each	69 kV GOAB Switches
1	Lot	Electrical Material (insulators, terminals, etc.)
1	Each	Station Service Transformer, 100 KVA (39.9 kV-120/240V)
9	Each	Arresters, Lightning 69 kV Station 48 MCOV Polymer
3	Each	CT's, 69 kV
3	Each	PT's, 69 kV

The PD shall be responsible for acquiring all property required for this new EKPC interconnection substation and shall deed that property to EKPC. EKPC will have no responsibility to acquire any property associated with the substation, either initially or if it is determined later that additional property is required.

System Protection

The following system protection scope of work applies for this project. All system protection equipment described in this section will be owned, operated, and maintained by EKPC.

Control House: EKPC shall procure and install a drop-in style control building fully furnished and complete with one bus differential panel, one PD line panel, two transmission line panels, one transfer breaker panel, one SCADA panel, two 125V DC battery banks, and all required operating equipment.

Relay Panels: EKPC shall install a standard bus panel complete with P1 SEL-587Z and P2 SEL-487B relays tripping P1 & P2 lock out relays.

Line Transfer Panel – EKPC shall install a standard transfer line panel with P1 & P2 SEL-411L relays. A SEL-451 relay shall be utilized for breaker control, breaker failure, and reclosing. The line panel shall have the capability to transfer the other circuit breaker terminals.

Panel for protection of the Project Developer (PD) facility connection– EKPC shall install a standard line panel with P1 & P2 SEL-411L relays. Line option relays shall utilize line current differential. A SEL-451 relay shall be utilized for breaker control, breaker failure, and reclosing.

Line Panel for the Wayne County 69kV Line Exit (1.4 miles) – EKPC shall install standard line panel with P1 & P2 SEL-411L relays for each line exit. The P1 & P2 relays shall utilize a Line Current Differential tripping scheme over fiber. SEL-451 relays shall be utilized for breaker control, breaker failure, and reclosing.

Line Panel for the Summer Shade 69kV Line Exit (42.78 miles) – EKPC shall install standard line panel with P1 & P2 SEL-411L relays for each line exit. The P1 & P2 relays shall utilize a high-speed com-assisted tripping scheme over fiber.

SCADA Panel – EKPC shall install standard SCADA panel with an Orion LX+ and dual metering for the PD. P1 Meter to be an ION8650A and P2 Meter to be a SEL-735.

EKPC requires the PD to utilize all Schweitzer Engineering Laboratories (SEL) relays and related protective equipment for facilities that will be interconnecting or communicating with EKPC relaying. EKPC reserves the right to specify relays or other protective equipment utilized in the PD substation as required based on the protection schemes utilized. All protection system designs shall be reviewed by EKPC System Protection or its designer during the design phase to ensure proper clearing times, coordination, and compliance with applicable NERC regulations.

Control cables shall be pulled from new breakers and other required equipment to the control house.

Commissioning: Each relay panel shall be fully commissioned prior to being placed in service. Commissioning shall include AC current and potential circuits, DC functional, relay testing, and end-to-end testing where required. Each of the remote line ends (Wayne County and Summer Shade Substations) shall be commissioned using end-to-end testing prior to energizing the POTT scheme to the Massingale Road substation.

3. NETWORK UPGRADES

Transmission Line Tie-in for new interconnection substation:

The Upchurch Tap – Wayne County 69 kV line section will be cut and looped into the new interconnection substation.

The new transmission line loop-in facilities will be owned, operated, and maintained by EKPC. The tap from the existing transmission line into the new switching station will consist of (2) direct embed guyed steel 3-pole dead-end structures. All existing wires or structures on the Upchurch – Wayne County line in between the two tie-in structures will be removed. Each end of the tie-in is assumed to extend no longer than 250'.

Upgrades to neighboring facilities:

Wayne County Substation

Relay settings shall be reviewed for the Wayne County-Summer Shade 69 kV line to accommodate the new Massingale Road substation, and relay files will be updated accordingly. New modern SEL-411L relays shall be installed for communication with the Massingale Road substation.

Summer Shade Substation

Relay settings shall be reviewed for the Wayne County-Summer Shade 69 kV line to accommodate the new Massingale Road substation, and relay files will be updated accordingly. New modern SEL-411L relays shall be installed for communication with the Massingale Road substation.

Installation of fiber cable circuits:

Overhead optical ground wire ("OPGW") installation will be required to meet communications requirements for the new EKPC Massingale Road Substation. New OPGW will need to be installed on the Wayne County-Massingale Road and the Massingale Road-Summer Shade 69 kV line sections (a total of 44.2 miles).

5. MILESTONE SCHEDULE FOR COMPLETION OF EKPC WORK

Facilities outlined in this report are estimated to take 25 months to construct, from the time the Generation Interconnection Agreement is fully executed. This schedule may be impacted by the timeline for procurement and installation of long lead items, and the ability to obtain outages to construct and test the proposed facilities.

Description	Start month	Finish month
Detailed Design	1	8
Procurement	2	14
Construction	14	25

6. ASSUMPTIONS IN DEVELOPING SCOPE/COST/SCHEDULE

Transmission Line Assumption:

1. The new substation will be constructed on the north side of EKPC's line right-of-way. This estimate will need to be re-evaluated if it is located on the south side of the right-of-way.
2. The PD is responsible for either providing deeded property or obtaining any new ROW/easements on behalf of EKPC for routing the looped-in transmission line to the new substation.
3. Any required tree / vegetation clearing for the new substation and the transmission line loop-in work will be the responsibility of the PD.
4. It is assumed that standard drilled piers can be used. If geotechnical assessment reveals poor soil conditions or contamination, additional measures may be required.
5. Required transmission line outages can be scheduled as planned. Transmission line outages are:
    a. typically, not taken in the summer (June-August) or winter (December-February),
    b. cancelled during extreme weather conditions, and
    c. In some cases, required to be scheduled twelve (12) or more months in advance.
6. No delays due to equipment or material delivery, environmental, regulatory, permitting, real estate, extreme weather, or similar events.
7. No significant sub-surface rock encountered during construction, and soil conditions are suitable for standard foundation installations.
8. No structure replacements are required for the installation of fiber circuits.
9. All outages required for installation of fiber circuits will be able to be taken.

The following engineering assumptions have been included for the transmission line information provided:

1. Neither foundation nor transmission pole structural analyses have been performed. Information provided assumes that no significant foundation or structural issues are present.
2. Construction will be scheduled to avoid winter peak load periods (December -February).
3. The preliminary schedule assumes that transmission line outages can be obtained as necessary.
4. Material and equipment costs are based on current pricing at the time of this study.
5. Environmental permits and reviews shall be completed by EKPC and can be completed in a timely manner.

Substation & System Protection Assumptions:

The following general assumptions have been included for the substation information provided:

1. No delays due to equipment or material delivery, environmental, regulatory, permitting, property/easement acquisitions, extreme weather, or similar events.
2. No significant sub-surface rock encountered during construction, and soil conditions suitable for standard ground-grid and foundation installations.
3. PD shall acquire an adequate and suitable site and grant ownership to EKPC to accommodate EKPC's interconnection substation, as mentioned above.
4. The PD will provide all necessary easements for a permanent road to provide substation access. This substation access shall be from an existing county or state road. The IC will convey these rights to EKPC if they own the property on which the substation access road will be located. Otherwise, EKPC will need to acquire the access rights from the owner of the property.

The following engineering assumptions have been included for the substation information provided:

1. Neither foundation nor structural analyses have been performed. Information provided assumes that no significant foundation or structural issues are present.
2. The schedule assumes no issues related to scheduling outages of existing transmission lines to terminate into the new substation.
3. Material and equipment-related costs are based on current pricing at the time of this study.
4. Environmental permits and reviews will be completed by EKPC and can be completed in a timely manner.
5. No relay coordination issues exist outside of the remote end stations. Further coordination will be studied during detailed design.

Metering Assumptions:

The following assumptions have been included for the metering information provided:

1. No delays due to equipment or material delivery, environmental, regulatory, permitting, real estate, extreme weather, or similar events.
2. Fiber-optic cable and associated equipment installation is completed as scheduled.
3. Material and equipment-related costs are based on current pricing at the time of this study.
4. Once fiber-optic cable installation is complete, the fiber will not be damaged.

Communications Assumptions:

The following assumptions have been included for the telecommunications information provided:

1. No delays due to equipment or material delivery, environmental, regulatory, permitting, real estate, extreme weather, or similar events.
2. Material and equipment-related costs are based on current pricing at the time of this study.
3. Once fiber-optic cable installation is complete, the fiber will not be damaged.

Environmental Assumptions:

The following general assumptions have been included for environmental permitting requirements:

1. For the PD's project, there are no "federal actions" (i.e., federal financial assistance or grants; or federal permit, license, or approval) present that would trigger NEPA compliance obligations for the EKPC facilities as a connected action.
2. Substation location will remain in the currently identified location. Relocation of the substation site may require a re-evaluation of the permitting obligations.

7. REVENUE METERING REQUIREMENTS

All metering needed for this interconnection project must meet the metering requirements stated in Appendix 2, section 8 of the AG1-471 GIA, and in PJM Manuals M01 and M14D. The details of applicable revenue metering requirements are given in EKPC's Facility Connection Requirements Document posted on PJM website.

The revenue metering will be installed on the EKPC side of the PCO, and will be installed, owned and maintained by EKPC. Metering requirements for this facility include the installation of EKPC's standard revenue quality metering package, including potential transformers and current transformers.

The cost for installation of the metering facilities contained in the new EKPC substation are included in the substation costs provided.

8. LAND REQUIREMENTS FOR INTERCONNECTION SUBSTATION

Land requirements for the Interconnection Substation needed for this interconnection project must meet the requirements in the EKPC Facility Connection Requirements Document posted on PJM website. The PD shall be responsible for acquiring all property required for this new EKPC interconnection substation and shall deed that property to EKPC. EKPC will have no responsibility to acquire any property associated with the substation, either initially or if it is determined later that additional property is required.

9. ENVIRONMENTAL AND PERMITING

EKPC or its representative will perform all necessary environmental assessments and obtain all necessary permits/approvals associated with construction of all EKPC facilities required to facilitate the interconnection of the new generating facility. This includes the Storm-water Pollution Prevention Plan ("SWPPP"), obtaining KYR 10 storm-water permit, and conducting the necessary SWPPP inspections prior to all construction activities.

C. APPENDICES

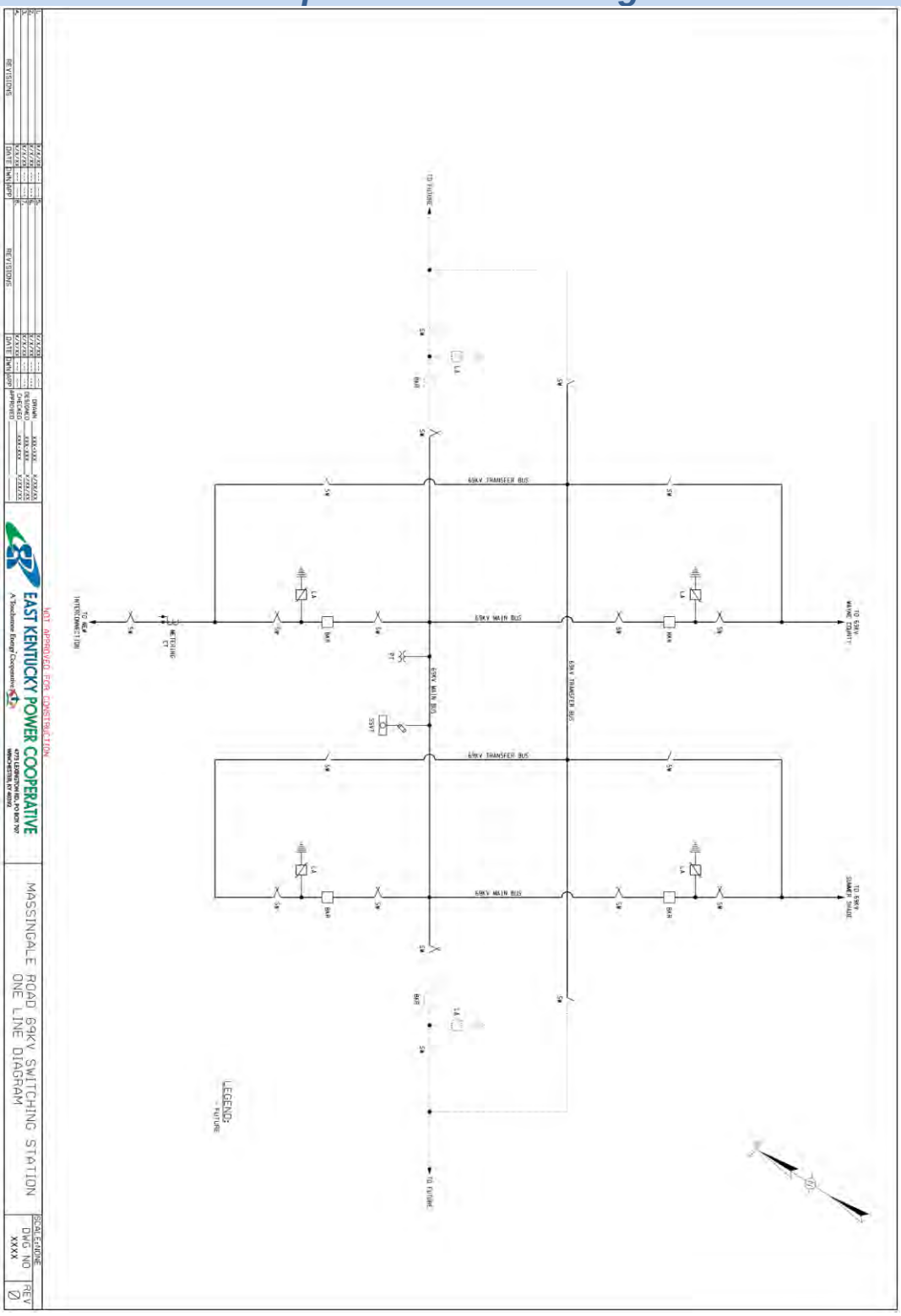
Attachment #1: Conceptual Single line Diagram

Attachment #2: Substation General Arrangement

Attachment #3: Preliminary Site Layout Plan

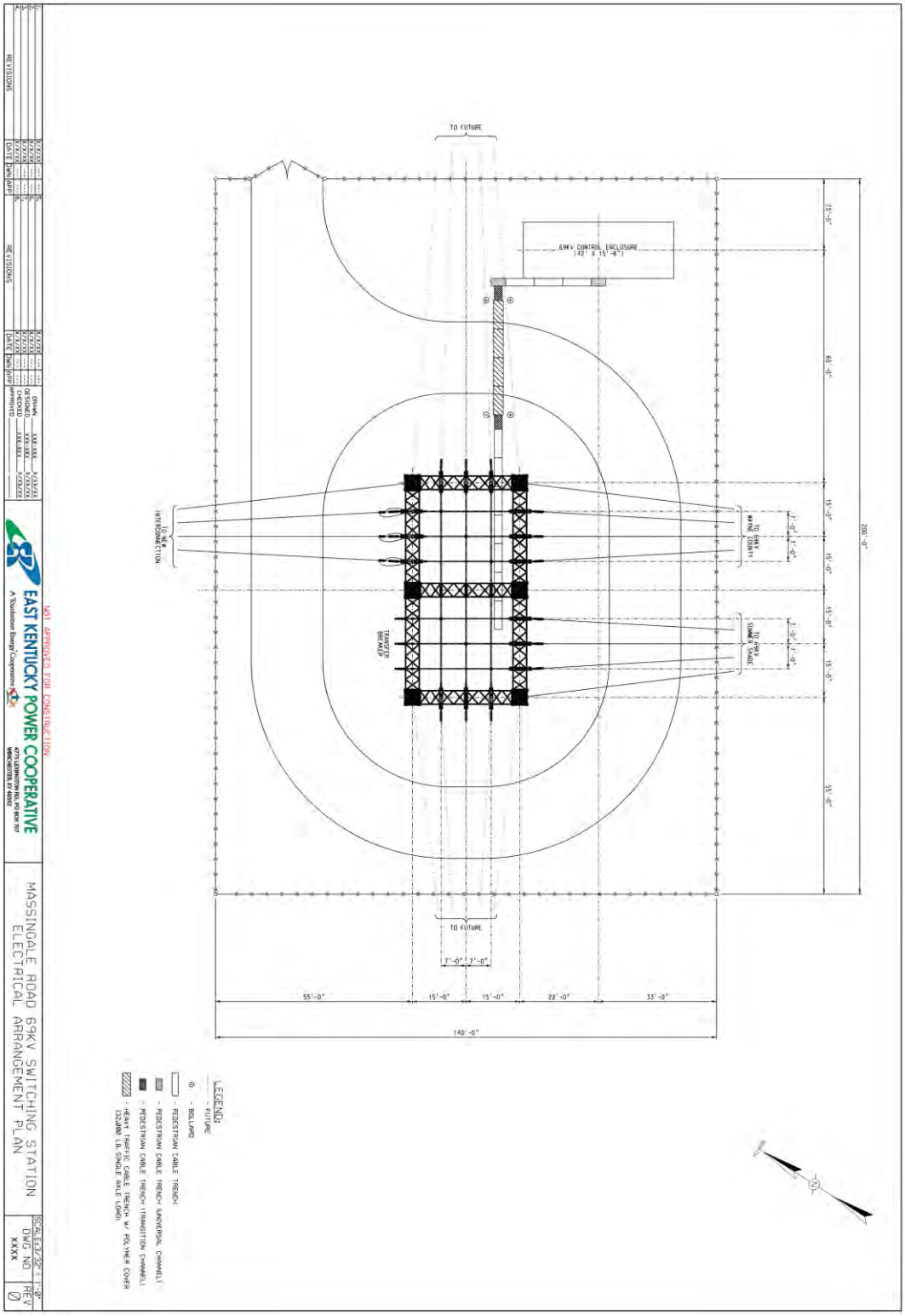
Attachment 1:

Conceptual One Line Diagram



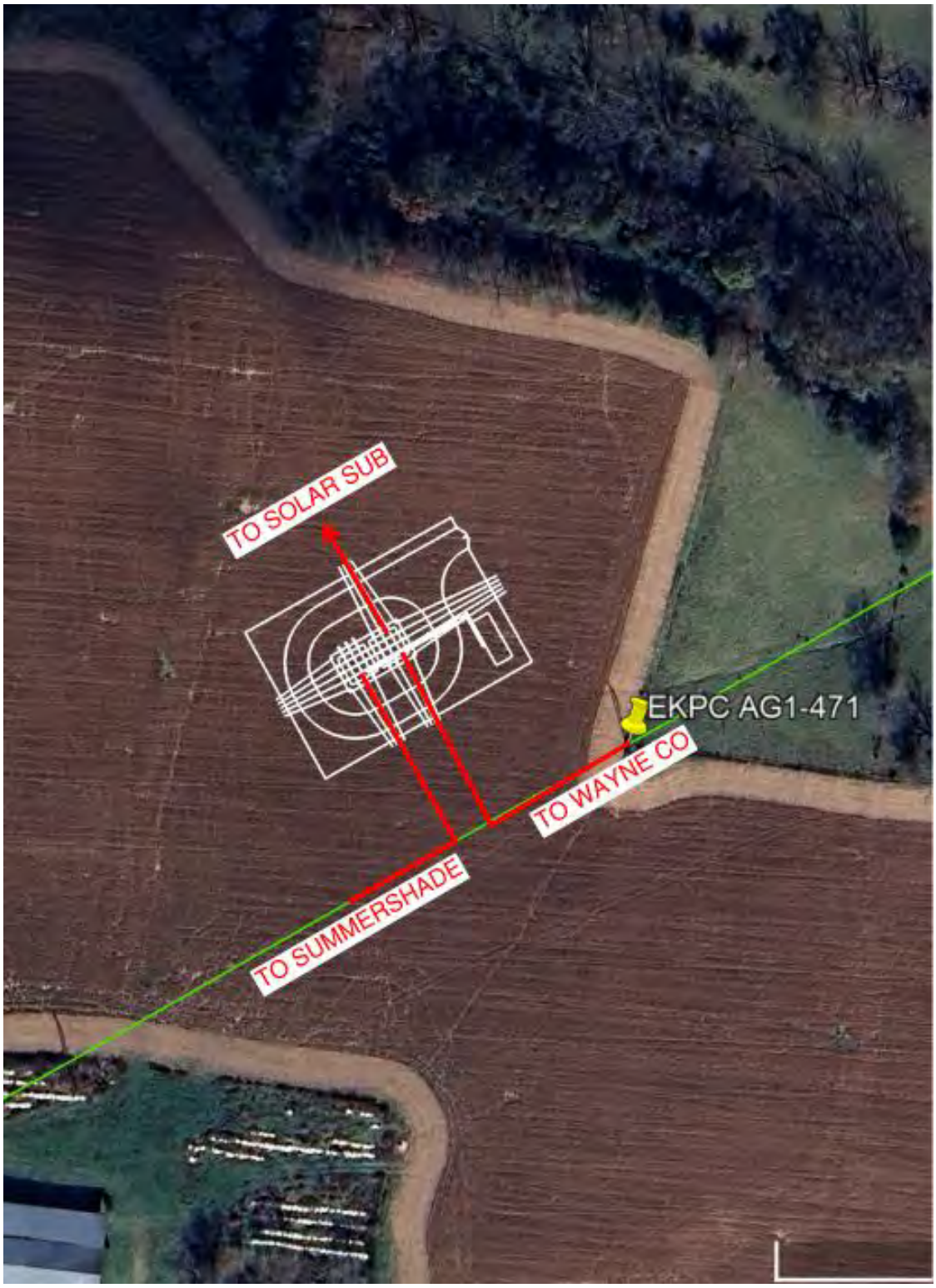
Attachment 2:

Substation General Arrangement



Attachment 3:

Preliminary Site Layout Plan



Siting Board 2-31

Explain how the proposed transmission route was determined.

Response: EKPC selected the transmission route based on available land as part of the interconnection study process. Given the proximity of the interconnection switching substation and existing 69 kV transmission line, not many "alternative" interconnection/transmission routes are available.

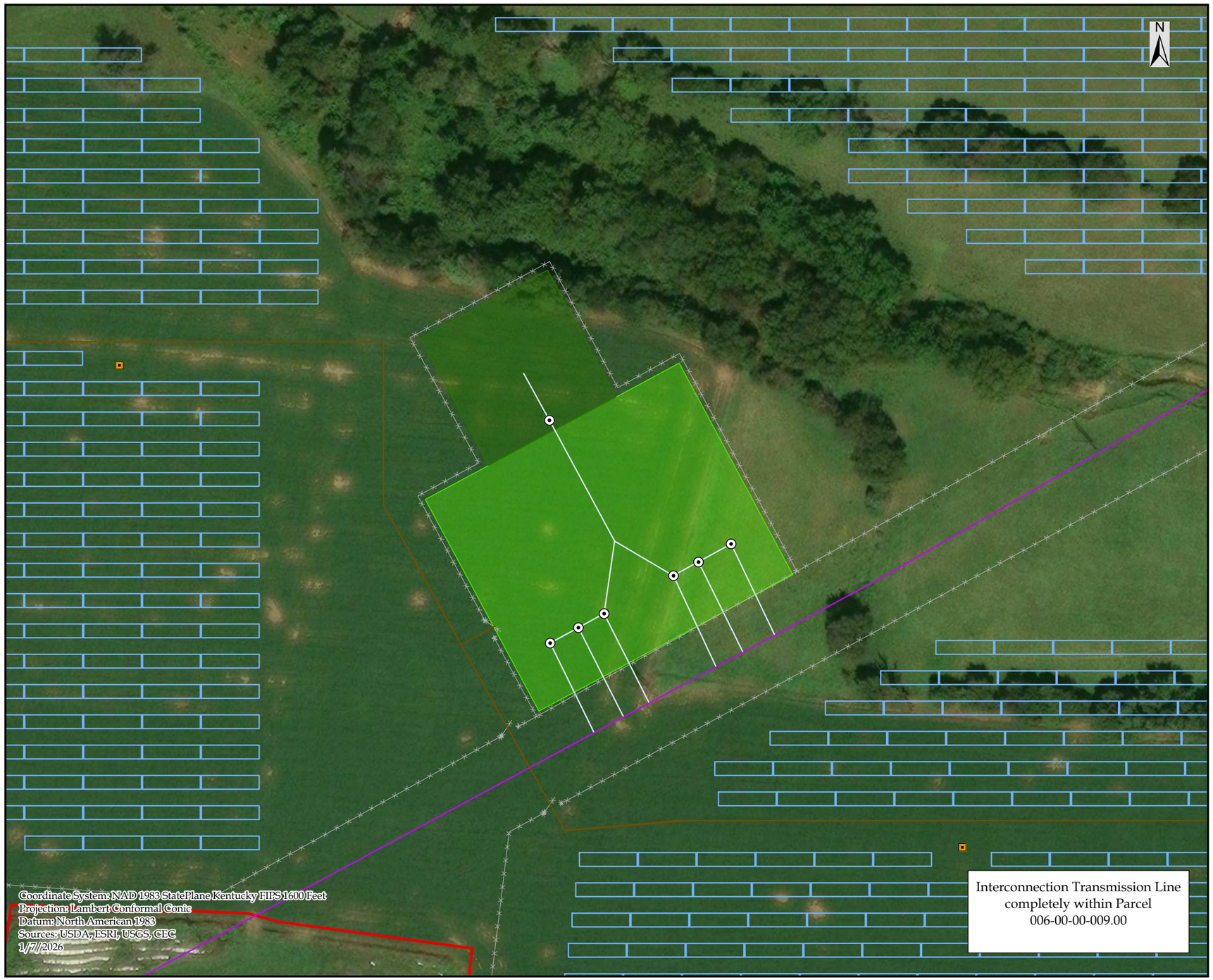
Witness: Trudie Grattan

Siting Board 2-32:

Provide a map showing the existing property lines that the proposed transmission line is proposed to cross.

Response: The proposed transmission line interconnection will occur within the Bertram property (see Attachment 2-32).

Witness: Marty Marchaterre



COPPERHEAD
ENVIRONMENTAL CONSULTING

Prepared for:

Barrelhead Solar, LLC

FIGURE 2-32:
Interconnection Transmission Line
for the Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

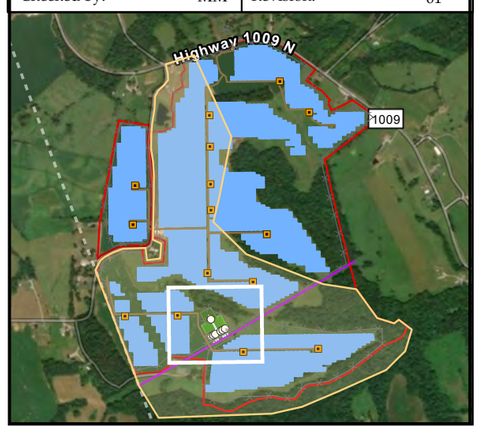
- Pole
- Inverter
- Interconnection Transmission Line
- EKPC 69 Transmission Line
- Fencing
- Solar Array
- Road
- Project Boundary
- Barrelhead Solar Substation
- EKPC Switching Substation
- Parcel Boundary

0 100 200
US Feet

Scale: 1 in = 100 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	CM	Date:	1/7/2026
Checked by:	MM	Revision:	01



Siting Board 2-33:

Provide information on all electric transmission lines that intersect the project. Include in the response the owner, voltage, status, and right-of-way (ROW) setbacks.

Response: As discussed in RFI No. 1-91, please see below table identifying ROW owners, estimated widths, and voltages. These values will be verified prior to construction.

ROW Owner	ROW Width	ROW Voltage (Estimated)
Kentucky Rural Electric Cooperative Corporation (now East Kentucky Power Cooperative)	100 feet	69 kV
Kentucky Rural Electric Cooperative Corporation (now East Kentucky Power Cooperative)	100 feet	69 kV
Kentucky Rural Electric Cooperative Corporation (now East Kentucky Power Cooperative)	50 feet	34.5 kV or 12 kV

Witness: Trudie Grattan

Siting Board 2-34:

Detail any communication with the residences closest to the proposed substation location.

Response: The nearest residence to the substation is R-20 (see Attachment 2-2), approximately 1,616 feet away from the substation. To date, efforts have been made to reach out to this landowner but have not been successful. The Applicant is continuing outreach efforts.

Witness: Trudie Grattan

Siting Board 2-35:

Explain whether vegetative clearing will be required to accommodate the proposed 100-foot-long transmission line. If yes, provide the anticipated acreage of vegetative clearing and any permits that will be required.

Response: No vegetative clearing will be required to accommodate the proposed 100 to 150-foot interconnection transmission line.

Witness: Marty Marchaterre

Siting Board 2-36:

Explain how the proposed route of the electric transmission line will minimize significant adverse impact to the scenic assets of Kentucky.

Response: The Applicant is proposing an electric transmission interconnection line in the Project Area where none of the following occur:

• Wild, scenic, or recreational rivers

• Scenic districts or roads, including areas that may be under a scenic easement or locally designated historic or scenic districts and scenic overlooks

• Parks (federal, state, or local), Recreation Areas, or Wildlife Management Areas

• Historic resources listed or eligible for listing on National or State Registers of Historic Places

The presence of the Project will not further detract from this rural or natural character and would be consistent with the existing character within the vicinity of the Project. An existing EKPC 69 kV transmission line as well as electrical distribution lines occur in and near the Project Area.

The proposed 100 to 150-ft interconnection transmission line from the Applicant substation to the interconnection with the existing EKPC 69 kV transmission line is in the southern-central location of the Project Area. It is anticipated that 7 poles of approximately 70 to 95 feet in height will be constructed in the electric interconnection transmission line.
The nearest residences are located along Massingale Road (CR 1018) and each is more 1,600 feet from the electric transmission interconnection line. A forested area (370-489 feet in width) occurs along the western edge of the Project area and will provide a buffer screening the electric transmission interconnection line.

Witness: Marty Marchaterre

Siting Board 2-37:

Provide a detailed map of the proposed transmission line route and the alternate route, including proposed pole locations, access roads and nearby residences.

Response: See Attachment 2-32. Based on preliminary discussions with EKPC, there is no alternate route for the transmission line interconnection. For further information, see response to RFI No. 2-31.

Witness: Marty Marchaterre

Siting Board 2-38:

Provide any sketches of the proposed transmission line support structure.

Response:

The following is an example of a 3-pole dead-end structure. Please note that final equipment selection is subject to EKPC design and installation.

Witness: Trudie Grattan

Siting Board 2-39:

Provide a table showing the distance between transmission line structures (poles) and nearby residences, for the proposed route and the alternate route.

Response: Final location of poles will be determined by EKPC. Based on preliminary plans, the following are the five nearest residences to any of the 7 transmission line interconnection poles.

Receptor ID	**Distance to the Nearest Transmission Line Pole (feet)**
R-20	1,691
R-42	1,191
R-15	1,776
R-21	1,858
R-29	1,888

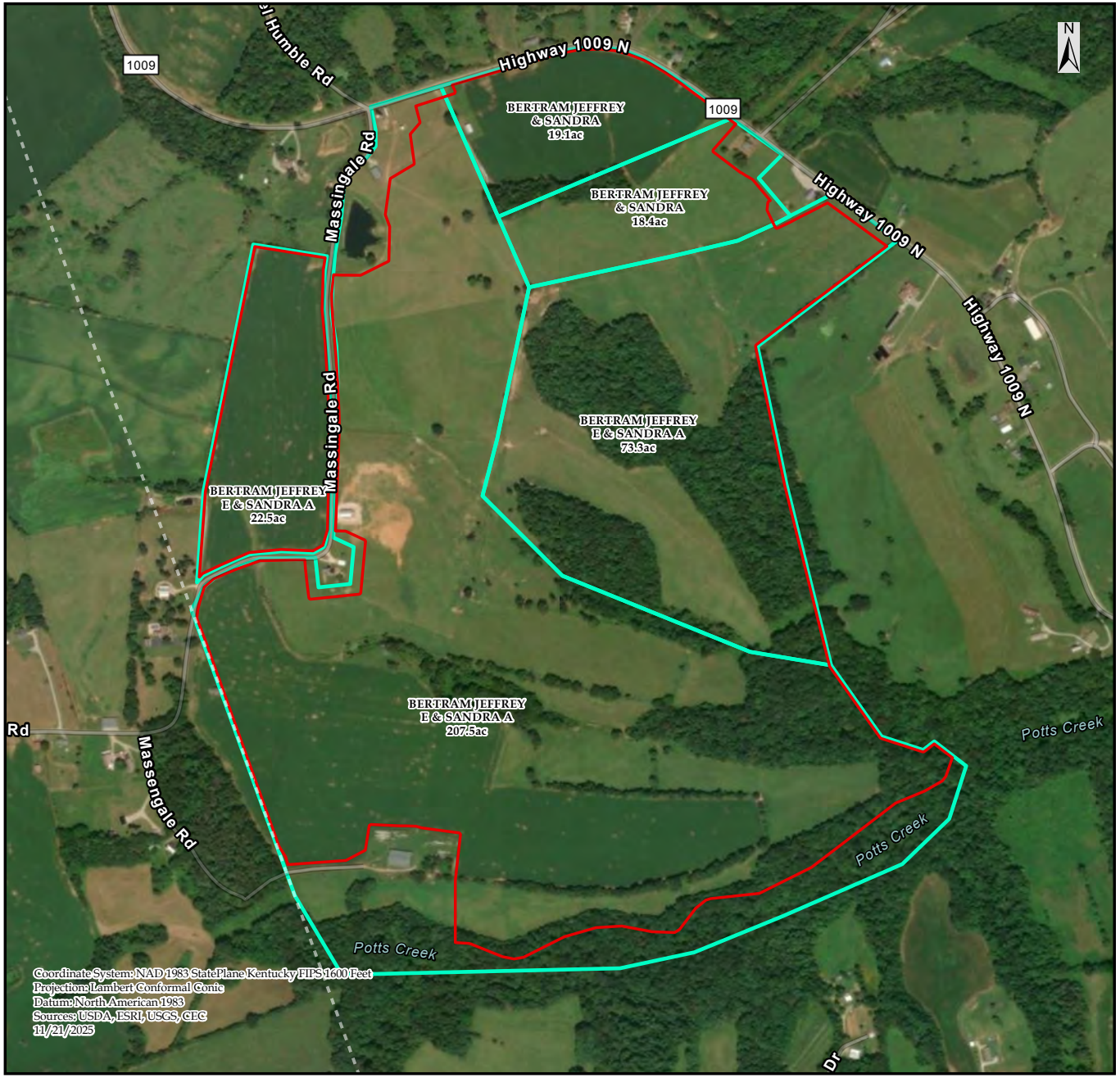
Witness: Marty Marchaterre

Siting Board 2-40:

State the number of individual parcels and landowners participating in the Project, including the transmission line.

Response: Five parcels owned by the Bertrams are participating in the Project (see Attachment 2-40), including the transmission line interconnection, which is within the Project Area. The Bertrams are the only landowners participating in the Project.

Witness: Marty Marchaterre



COPPERHEAD
ENVIRONMENTAL CONSULTING

Prepared for:

Barrelhead Solar, LLC

FIGURE 2-40:
Parcel Map for the
Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

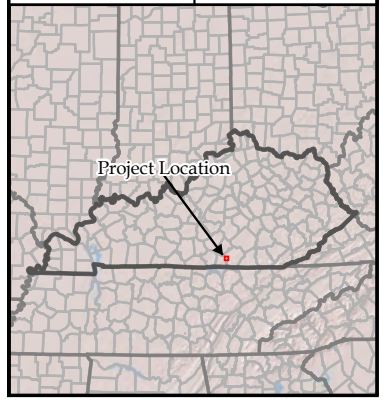
- Parcel Boundary
- Project Boundary

0 750 1,500
US Feet

Scale: 1 in = 750 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	TC	Date:	11/21/2025
Checked by:	KR	Revision:	03



Siting Board 2-41

Provide the entity that will employ the individuals responsible for compliance with a certificate of construction during construction and operation of the project if granted.

Response: Barrelhead Solar and the EPC contractor will be responsible for compliance with the certificate of construction during the Project's construction phase. Barrelhead Solar will be responsible for compliance with the certificate of construction during the Project's operational phase. For additional information, see response to RFI No. 2-24.

Witness: Trudie Grattan

Siting Board 2-42:

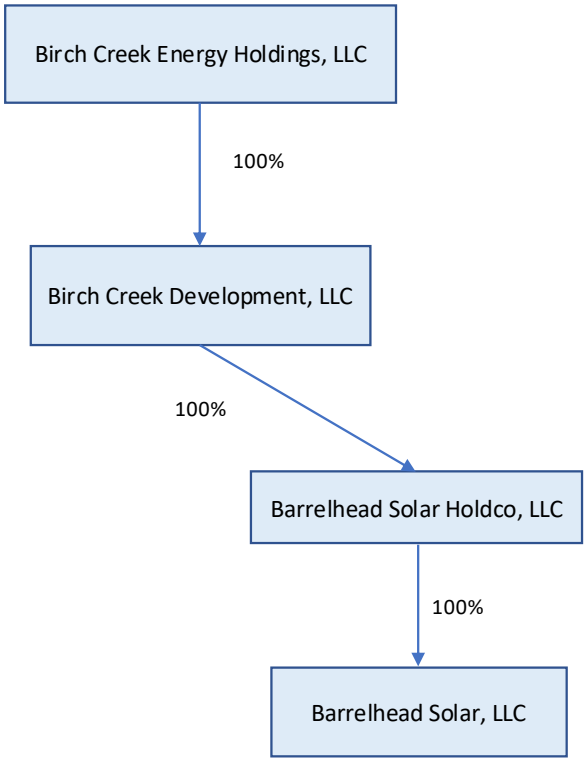
Provide the entire corporate structure, or membership interests, of Barrelhead Solar.

Response: See Barrelhead Solar corporate structure in Attachment 2-42.

Witness: Trudie Grattan

BIRCH CREEK

Barrelhead Organization (Pre-NTP Construction)



Siting Board 2-43:

Provide the entire corporate structure of Recurrent Energy, LLC, including the corporate parent of Recurrent Energy, LLC.

Response: Barrelhead Solar is not associated with Recurrent Energy, LLC.

Witness: Trudie Grattan

Siting Board 2-44:

Of the residential homes that may have a view of the project, provide the number of them that are participating landowners.

Response: Of the 17 residential homes that may have a view of the Project, one (R-15) is a participating structure.

Witness: Marty Marchaterre

Siting Board 2-45:

Provide a detailed table listing all residential structures within 2,000 feet of the Project boundary line. Indicate whether the residential structures are participating or non-participating.

Response: The table below shows all residential structures within 2,000 feet of the Project boundary and indicates whether they are participating or non-participating.

Receptor ID	Participating (Y/N)	Distance to Project Boundary (feet)
R-1	no	1,689.24
R-10	no	94.51
R-11	no	189.73
R-12	no	256.60
R-13	no	1,258.33
R-14	no	997.74
R-15	yes	182.06
R-16	no	1,516.52
R-17	no	1,380.04
R-18	no	959.66
R-19	no	1,568.79
R-2	no	813.52
R-20	no	547.24
R-21	no	700.78
R-22	no	1,628.59
R-23	no	1,339.85
R-24	no	1,490.24
R-25	no	1,403.19
R-26	no	592.84
R-27	no	1,087.04
R-28	no	306.74
R-29	no	608.20
R-3	yes	116.11
R-30	no	1,809.84
R-31	no	1,540.44
R-32	no	1,297.39
R-33	no	1,314.80
R-34	no	1,299.77
R-35	no	1,478.28
R-36	no	1,208.88
R-37	no	1,344.56

Receptor ID	Participating (Y/N)	Distance to Project Boundary (feet)
R-38	no	1,515.69
R-39	no	1,284.09
R-4	no	77.97
R-40	no	1,561.77
R-41	no	1,623.14
R-42	yes	116.40
R-43	no	950.88
R-5	no	469.62
R-6	no	309.29
R-7	no	98.20
R-8	no	168.16
R-9	no	414.26

Witness: Marty Marchaterre

Siting Board 2-46:

See Barrelhead Solar's response to Staff's First Request, Item 15. Indicate whether the residential structures are participating or non-participating.

Response: The nature of RFI No. 1-15 was non-residential structures. All residential structures within 2,000 feet of the Project boundary, whether they are participating or non-participating, have been provided in the response to RFI No. 2-45.

Witness: Marty Marchaterre

Siting Board 2-47:

Refer to the motion for deviation. For each neighborhood provide a table with the distance to the following:

a. Fencing;

b. Closest solar panel;

c. Closest inverter;

d. Substation.

Response: The table below includes all residences within each neighborhood and their distances to each component (a through d).

Neighborhood	Receptor ID	Participating (Y/N)	A. Distance to Project (Fence) (feet)	B. Distance to Nearest Array (feet)	C. Distance to Nearest Inverter (feet)	D. Distance to Substation (feet)
East	R-31	no	1,540.44	1,705.83	2,018.61	2,893.68
East	R-32	no	1,297.39	1,464.89	1,779.26	2,627.28
East	R-33	no	1,314.80	1,479.86	1,792.46	2,684.54
East	R-23	no	1,339.85	1,505.59	1,815.12	2,744.64
East	R-34	no	1,299.77	1,475.72	1,789.53	2,562.48
West	R-35	no	1,478.28	1,707.52	2,050.03	2,706.29
West	R-36	no	1,208.88	1,437.10	1,803.14	2,434.76
West	R-37	no	1,344.56	1,562.42	1,990.82	2,521.76
West	R-38	no	1,515.69	1,718.00	2,204.87	2,602.79
West	R-39	no	1,284.09	1,478.39	1,994.13	2,347.94
West	R-40	no	1,561.77	1,757.26	2,264.52	2,607.19
West	R-41	no	1,623.14	1,811.22	2,339.07	2,620.47

Witness: Marty Marchaterre

Siting Board 2-48:

Refer to the motion for deviation. For the closest residence (dwelling not property line) in each neighborhood provide a table with the distance to the following:

a. Fencing;

b. Closest solar panel;

c. Closest inverter;

d. Substation.

Response: The following table provides the closest receptor (dwelling) within each neighborhood to each of the requested components.

Neighborhood	Receptor ID	Participating (Y/N)	A. Distance to Fence (feet)	B. Distance to Nearest Array (feet)	C. Distance to Nearest Inverter (feet)	D. Distance to Substation (feet)
East	R-32	no	1,297.39	1,464.89	1,779.26	-
East	R-34	no	-	-	-	2,562.48
West	R-36	no	1,208.88	1,437.10	1,803.14	-
West	R-39	no	-	-	-	2,347.94

Witness: Marty Marchaterre

Siting Board 2-49:

Provide a table with the distances from the nearest nonparticipating residence (dwelling not property line) to the following:

a. Fencing;

b. Closest solar panel;

c. Closest inverter;

d. Substation.

Response: See response to RFI No. 2-29.

Witness: Marty Marchaterre

Siting Board 2-50:

Refer to the motion for deviation. This motion does not align with other Project filings and statements during the site visit regarding screening plan for the southern part of the Project (see page 9), total vegetation clearing (see page 10), or description of public outreach (see page 13), and contains discrepancies in stated construction times (see pages 11 and 16). Explain whether the Applicant will be submitting a revised motion for deviation.

Response: Barrelhead Solar will submit a revised motion for deviation.

Witness: Marty Marchaterre

Siting Board 2-51

Provide which road is anticipated to be use for delivery of the project transformer and other substation equipment.

Response: The EPC contractor will identify the haul routes to be used during construction to determine viable routes for the expected weight and dimensions of the project transformer and other substation equipment. The haul route plan is anticipated to be completed in 2027. Even though the haul routes are not known at this time, Barrelhead Solar agrees to comply with all state and local requirements for road use and obtain any permits necessary.

Witness: Marty Marchaterre

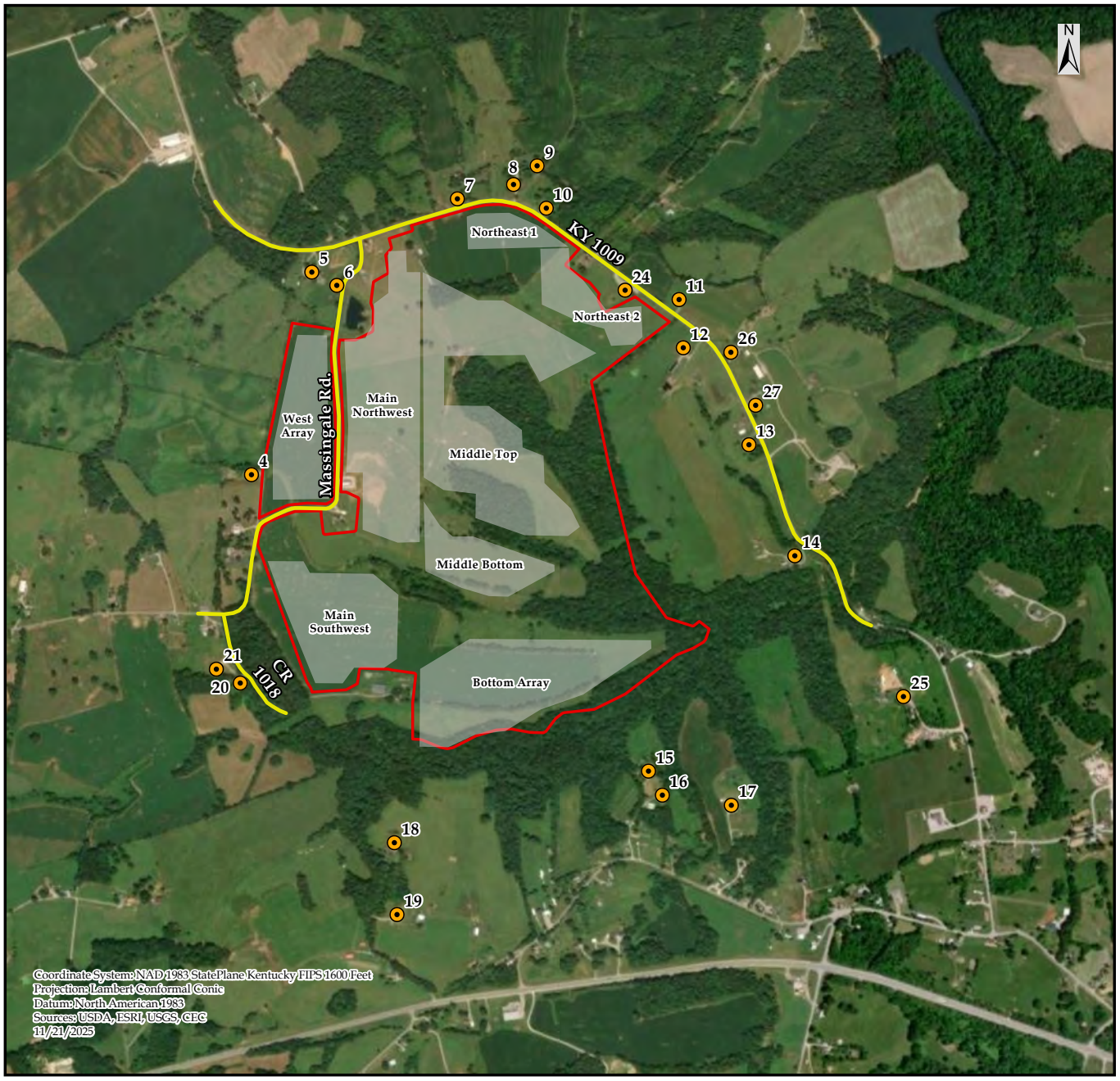
Siting Board 2-52:

Provide the average gradient for areas where panels will be placed.

Response: The average gradient (percent slope) was determined using GIS for each panel area and is in the table below. Panel areas are shown in the figure provided as Attachment 2-52.

Panel Area	**Average Gradient (percent slope)**
West Array	12.0%
Main Northwest	16.4%
Middle Top	21.2%
Middle Bottom	15.7%
Northeast 1	13.6%
Northeast 2	22.9%
Main Southwest	13.3%
Bottom Array	12.0%

Witness: Marty Marchaterre



COPPERHEAD
ENVIRONMENTAL CONSULTING

Prepared for:

Barrelhead Solar, LLC

FIGURE 2-52:
Glare Analysis Components
for the Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

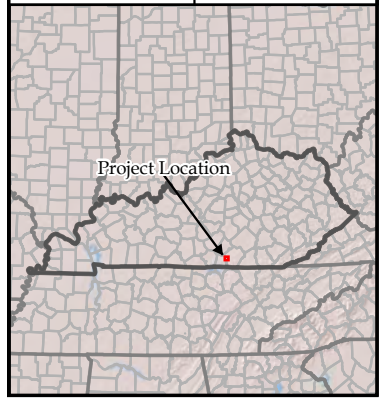
- Observation Point
- Road Segment
- Panel Area
- Project Boundary

0 1,250 2,500
US Feet

Scale: 1 in = 1,250 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	TC	Date:	11/21/2025
Checked by:	KR	Revision:	01



Siting Board 2-53:

Refer to the SAR, Appendix G, Glare Analysis. Explain how the three identified road segments were evaluated, given the length of each roadway, i.e. at specific locations along each roadway or by individual small segments of roadway along the full length of the road.

Response: The entire length of the roadway segment adjacent to the Project Area was evaluated using the ForgeSolar Glare Analysis tool. The roadways used in the analysis were selected because they are adjacent to the Project Area, and therefore, it is assumed that they would be the most impacted roadways. These segments of the three roadways were selected because they run the approximate length or width of the Project Area, again assumed to be potentially the most impacted segment of the roadway.

The ForgeSolar tool does not go into detail about how the tool analyzes the roadways, whether it is by segments or specific roadways. The entire length of the roadway that is drawn within the tool is evaluated, and the results identify specific areas where green, yellow, or red glare might occur. More information from ForgeSolar on route receptors can be found here: https://www.forgesolar.com/help/#route

Witness: Marty Marchaterre

Siting Board 2-54:

Refer to the SAR, Appendix G, Glare Analysis. Refer to Table 2. Explain whether the glare modeled for KY 1009 from the Middle Top and Northeast 2 panel areas would impact the same location on KY 1009 at the same time (i.e., about 1,500 minutes of total yellow glare coming from the two different panel locations), or whether glare from the two panel locations would impact different areas along KY 1009.

Response: According to the ForgeSolar tool, there would be some overlap in the portion of KY 1009 that could be affected by yellow glare from both panel areas. The tool suggests that portions of KY 1009 could experience, ANNUALLY, around 1,623 minutes (about 2 days) of yellow glare from the Middle Top section of the arrays and around 1,602 minutes (about 2 days) of yellow glare from the Northeast 2 section of the arrays. However, this is not cumulative, as the tool suggests that glare would occur from these panel areas at around the same time on a portion of KY 1009.

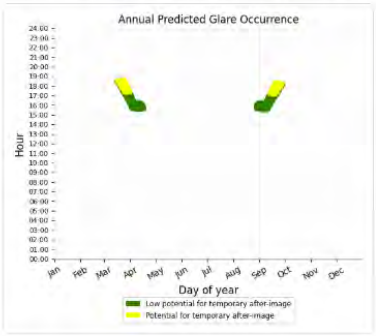
KY 1009 could be affected by yellow glare from the Middle Top section of the arrays from approximately 5 to 7 p.m. in March to April and September, with peak yellow glare occurring at the end of March and mid-September (daily duration could be up to 100 minutes (about 3 hours) per day). KY 1009 could also be affected by yellow glare from the Northeast 2 section of arrays from approximately 5 to 7 p.m. in March-April and September, with peak glare potentially occurring at the beginning of April and beginning of September (daily duration could be up to 100 minutes (about 3 hours) per day).

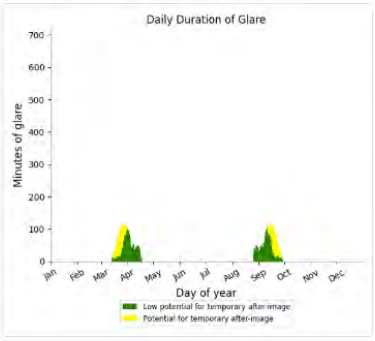
The graphics below are from the ForgeSolar results summary (included in full as Attachment 2-54) and highlight the results for the two sections of arrays on KY 1009.

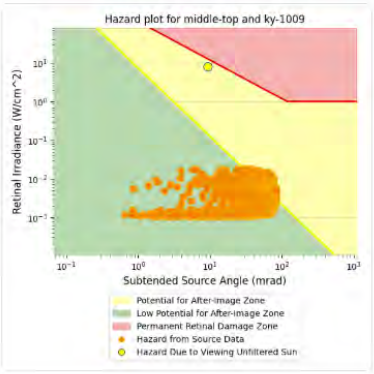
Middle Top: KY 1009

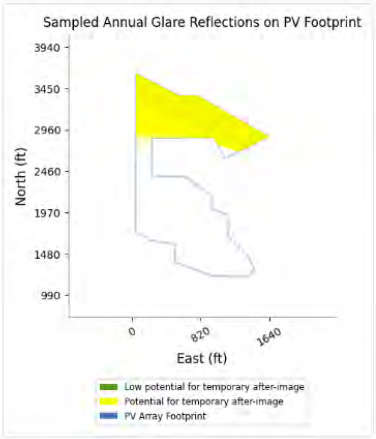
PV array is expected to produce the following glare for this receptor:

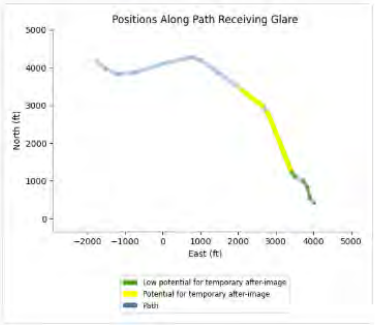
- 3,056 minutes of "green" glare with low potential to cause temporary after-image.
- 1,623 minutes of "yellow" glare with potential to cause temporary after-image.







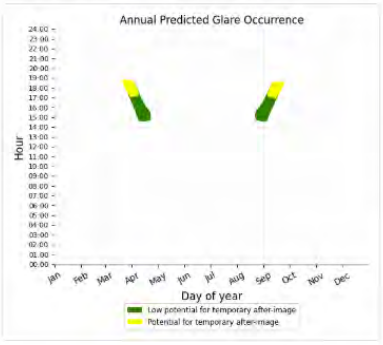


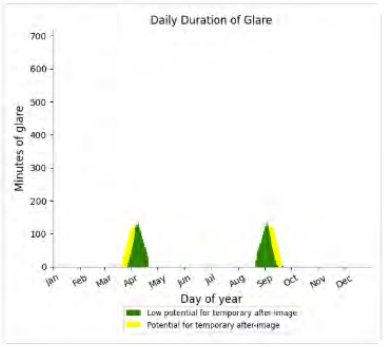


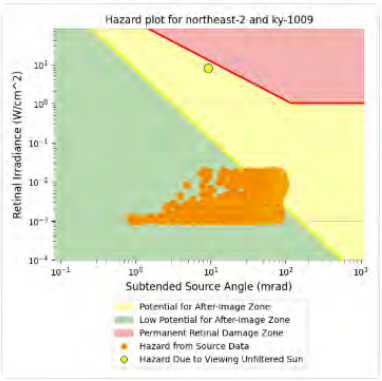
Northeast 2: KY 1009

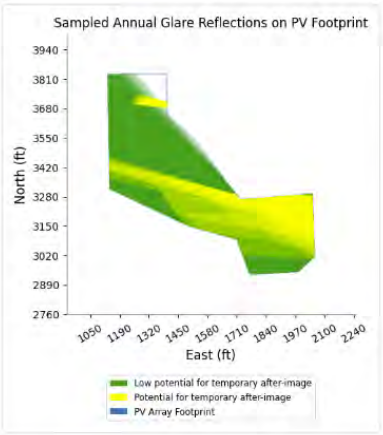
PV array is expected to produce the following glare for this receptor:

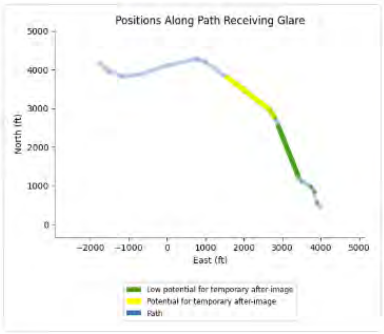
- 3,616 minutes of "green" glare with low potential to cause temporary after-image.
- 1,602 minutes of "yellow" glare with potential to cause temporary after-image.











Witness: Marty Marchaterre

ForgeSolar Glare Analysis Results – Fixed Panels

FORGESOLAR GLARE ANALYSIS

Project: **Barrelhead Solar**
Site configuration: **5 - with landscape plan**

Created 24 Jul, 2025
Updated 13 Aug, 2025
Time-step 1 minute
Timezone offset UTC-5
Minimum sun altitude 0.0 deg
DNI peaks at 1,000.0 W/m^2
Category 10 MW to 100 MW
Site ID 155729.25673

Ocular transmission coefficient 0.5
Pupil diameter 0.002 m
Eye focal length 0.017 m
Sun subtended angle 9.3 mrad
PV analysis methodology V2

Summary of Results

Glare with potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
Bottom	60.0	180.0	498	8.3	0	0.0	-
Main Northwest	60.0	180.0	26,018	433.6	2,119	35.3	-
Main Southwest	60.0	180.0	1,691	28.2	0	0.0	-
Middle bottom	60.0	180.0	809	13.5	0	0.0	-
Middle Top	60.0	180.0	12,222	203.7	3,546	59.1	-
Northeast 1	60.0	180.0	4,908	81.8	0	0.0	-
Northeast 2	60.0	180.0	13,523	225.4	2,045	34.1	-
West Array	60.0	180.0	294	4.9	0	0.0	-

Total glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
CR 1018	0	0.0	0	0.0
KY 1009	11,685	194.8	3,225	53.8
Massingale Rd	10,524	175.4	2,119	35.3
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 4	221	3.7	0	0.0
OP 5	1,593	26.6	0	0.0
OP 6	4,312	71.9	0	0.0

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	594	9.9	0	0.0
OP 12	5,567	92.8	1,300	21.7
OP 13	4,846	80.8	0	0.0
OP 14	3,294	54.9	0	0.0
OP 15	0	0.0	0	0.0
OP 16	299	5.0	0	0.0
OP 17	1,552	25.9	0	0.0
OP 18	1,199	20.0	0	0.0
OP 19	2,244	37.4	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 24	230	3.8	0	0.0
OP 25	4,400	73.3	0	0.0
OP 26	2,328	38.8	658	11.0
OP 27	5,075	84.6	408	6.8

Component Data

PV Arrays

Name: Bottom
Axis tracking: Fixed (no rotation)
Tilt: 60.0°
Orientation: 180.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.774043	-85.008190	943.39	10.00	953.39
2	36.772093	-85.008233	910.63	10.00	920.63
3	36.772067	-85.007342	909.30	10.00	919.30
4	36.772376	-85.006484	909.29	10.00	919.29
5	36.772462	-85.005545	919.07	10.00	929.07
6	36.772986	-85.004456	900.91	10.00	910.91
7	36.773356	-85.003115	904.55	10.00	914.55
8	36.774499	-85.000980	915.81	10.00	925.81
9	36.774705	-85.000991	915.48	10.00	925.48
10	36.774783	-85.006645	928.83	10.00	938.83

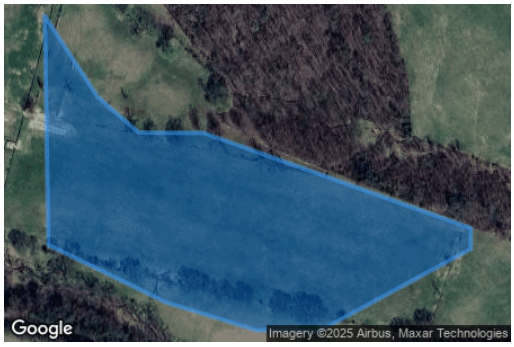
Name: Main Northwest
Axis tracking: Fixed (no rotation)
Tilt: 60.0°
Orientation: 180.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.778980	-85.010442	992.84	10.00	1002.84
2	36.780138	-85.010367	978.25	10.00	988.25
3	36.782314	-85.010474	982.09	10.00	992.09
4	36.782344	-85.009809	991.10	10.00	1001.10
5	36.782473	-85.009747	994.28	10.00	1004.28
6	36.782709	-85.009555	995.33	10.00	1005.33
7	36.783204	-85.009541	997.21	10.00	1007.21
8	36.783470	-85.009087	1011.10	10.00	1021.10
9	36.784518	-85.009082	998.90	10.00	1008.90
10	36.784531	-85.008532	1019.82	10.00	1029.82
11	36.783986	-85.008511	1012.27	10.00	1022.27
12	36.783988	-85.008092	1013.38	10.00	1023.38
13	36.777222	-85.008173	950.34	10.00	960.34
14	36.777213	-85.008857	942.66	10.00	952.66
15	36.777536	-85.009954	956.40	10.00	966.40
16	36.778978	-85.009927	990.45	10.00	1000.45

Name: Main Southwest
Axis tracking: Fixed (no rotation)
Tilt: 60.0°
Orientation: 180.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.776773	-85.012924	976.87	10.00	986.87
2	36.775746	-85.012474	978.30	10.00	988.30
3	36.773705	-85.011457	953.18	10.00	963.18
4	36.773687	-85.010612	949.61	10.00	959.61
5	36.774085	-85.010250	953.72	10.00	963.72
6	36.774070	-85.009319	949.15	10.00	959.15
7	36.774289	-85.008912	947.76	10.00	957.76
8	36.775905	-85.008853	955.72	10.00	965.72
9	36.776429	-85.009625	957.09	10.00	967.09
10	36.776468	-85.011599	952.85	10.00	962.85
11	36.776760	-85.011800	955.87	10.00	965.87

Name: Middle bottom
Axis tracking: Fixed (no rotation)
Tilt: 60.0°
Orientation: 180.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.778244	-85.008037	964.29	10.00	974.29
2	36.776495	-85.008003	922.02	10.00	932.02
3	36.776057	-85.006881	914.52	10.00	924.52
4	36.775846	-85.006026	917.58	10.00	927.58
5	36.775833	-85.005433	914.00	10.00	924.00
6	36.776465	-85.003979	925.55	10.00	935.55
7	36.776624	-85.003979	926.40	10.00	936.40
8	36.777350	-85.006522	945.26	10.00	955.26
9	36.777354	-85.007144	956.13	10.00	966.13
10	36.777625	-85.007533	960.72	10.00	970.72

Name: Middle Top
Axis tracking: Fixed (no rotation)
Tilt: 60.0°
Orientation: 180.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.778837	-85.008033	950.88	10.00	960.88
2	36.783987	-85.008015	1013.10	10.00	1023.10
3	36.783273	-85.006310	994.81	10.00	1004.81
4	36.783259	-85.005507	978.47	10.00	988.47
5	36.781925	-85.002621	952.24	10.00	962.24
6	36.781213	-85.004391	967.43	10.00	977.43
7	36.781888	-85.004852	971.02	10.00	981.02
8	36.781884	-85.007363	981.32	10.00	991.32
9	36.780642	-85.007379	984.02	10.00	994.02
10	36.780616	-85.005984	982.34	10.00	992.34
11	36.780015	-85.004965	972.34	10.00	982.34
12	36.779568	-85.004941	971.88	10.00	981.88
13	36.779362	-85.004290	944.63	10.00	954.63
14	36.778674	-85.004271	948.27	10.00	958.27
15	36.778025	-85.003462	929.09	10.00	939.09
16	36.777566	-85.003179	924.01	10.00	934.01
17	36.777342	-85.003549	905.50	10.00	915.50
18	36.777368	-85.004901	913.20	10.00	923.20
19	36.777815	-85.006429	928.12	10.00	938.12
20	36.778416	-85.006413	956.41	10.00	966.41
21	36.778520	-85.007416	936.22	10.00	946.22

Name: Northeast 1
Axis tracking: Fixed (no rotation)
Tilt: 60.0°
Orientation: 180.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.785369	-85.006633	1012.24	10.00	1022.24
2	36.785451	-85.006336	1012.86	10.00	1022.86
3	36.785461	-85.005303	1019.74	10.00	1029.74
4	36.785001	-85.004141	1007.26	10.00	1017.26
5	36.784603	-85.003467	1001.55	10.00	1011.55
6	36.784553	-85.006605	1015.80	10.00	1025.80

Name: Northeast 2
Axis tracking: Fixed (no rotation)
Tilt: 60.0°
Orientation: 180.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

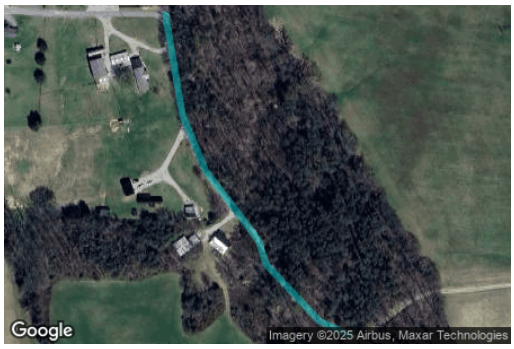
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.784553	-85.004340	994.36	10.00	1004.36
2	36.783148	-85.004308	958.78	10.00	968.78
3	36.782697	-85.003111	968.98	10.00	978.98
4	36.782532	-85.002366	966.19	10.00	976.19
5	36.782102	-85.002164	972.84	10.00	982.84
6	36.782132	-85.001432	983.49	10.00	993.49
7	36.782317	-85.001180	985.62	10.00	995.62
8	36.783086	-85.001210	989.88	10.00	999.88
9	36.783017	-85.002317	985.66	10.00	995.66
10	36.783755	-85.003019	985.48	10.00	995.48
11	36.784044	-85.003420	987.27	10.00	997.27
12	36.784563	-85.003452	1000.22	10.00	1010.22

Name: West Array
Axis tracking: Fixed (no rotation)
Tilt: 60.0°
Orientation: 180.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.778311	-85.012742	976.38	10.00	986.38
2	36.778315	-85.010993	984.66	10.00	994.66
3	36.782423	-85.011014	977.90	10.00	987.90
4	36.782444	-85.011932	985.35	10.00	995.35
5	36.779589	-85.012731	977.16	10.00	987.16

Route Receptors

Name: CR 1018
Path type: Two-way
Azimuthal view angle: 50.0°
Downward view angle: 10.0°

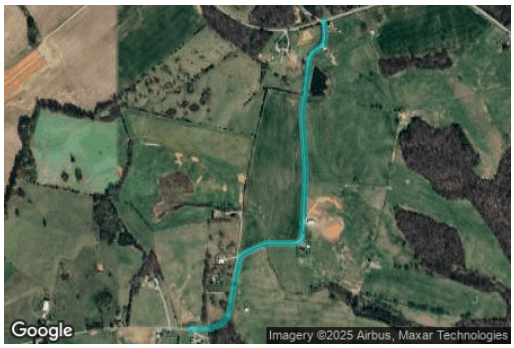


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.775466	-85.014300	969.37	5.00	974.37
2	36.774705	-85.014139	961.58	5.00	966.58
3	36.774280	-85.013919	952.41	5.00	957.41
4	36.773927	-85.013581	938.67	5.00	943.67
5	36.773743	-85.013409	935.41	5.00	940.41
6	36.773571	-85.013345	932.09	5.00	937.09
7	36.773137	-85.012835	924.57	5.00	929.57
8	36.773029	-85.012546	920.40	5.00	925.40

Name: KY 1009
Path type: Two-way
Azimuthal view angle: 50.0°
Downward view angle: 10.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.785499	-85.014201	987.06	5.00	992.06
2	36.784915	-85.013321	962.82	5.00	967.82
3	36.784554	-85.012227	956.86	5.00	961.86
4	36.784674	-85.010660	979.59	5.00	984.59
5	36.785361	-85.007957	1003.51	5.00	1008.51
6	36.785774	-85.005596	1017.07	5.00	1022.07
7	36.785602	-85.004845	1017.11	5.00	1022.11
8	36.784622	-85.003064	1001.99	5.00	1006.99
9	36.782234	-84.999138	988.25	5.00	993.25
10	36.781581	-84.998580	985.62	5.00	990.62
11	36.777473	-84.996541	893.76	5.00	898.76
12	36.777121	-84.996252	887.19	5.00	892.19
13	36.776734	-84.995415	871.73	5.00	876.73
14	36.776339	-84.995114	845.38	5.00	850.38
15	36.775522	-84.994857	836.89	5.00	841.89
16	36.775204	-84.994514	854.92	5.00	859.92

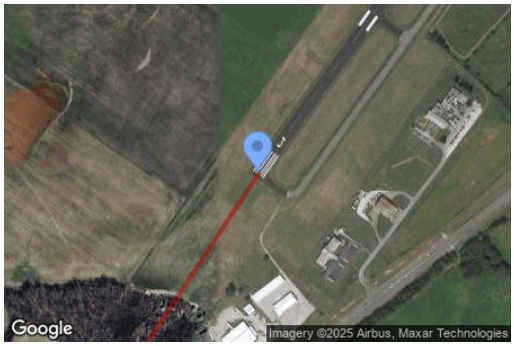
Name: Massingale Rd
Path type: Two-way
Azimuthal view angle: 50.0°
Downward view angle: 10.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.775471	-85.015038	947.88	5.00	952.88
2	36.775514	-85.014233	970.83	5.00	975.83
3	36.775660	-85.013825	967.40	5.00	972.40
4	36.775952	-85.013579	967.82	5.00	972.82
5	36.777705	-85.013149	991.70	5.00	996.70
6	36.777877	-85.012795	978.84	5.00	983.84
7	36.778100	-85.012152	964.47	5.00	969.47
8	36.778100	-85.011004	979.25	5.00	984.25
9	36.778212	-85.010811	980.33	5.00	985.33
10	36.780042	-85.010660	979.28	5.00	984.28
11	36.781091	-85.010714	979.03	5.00	984.03
12	36.782079	-85.010789	985.31	5.00	990.31
13	36.783772	-85.010499	988.49	5.00	993.49
14	36.783944	-85.010328	994.41	5.00	999.41
15	36.784124	-85.009984	1003.00	5.00	1008.00
16	36.784416	-85.009909	995.20	5.00	1000.20
17	36.784863	-85.009952	981.40	5.00	986.40

Flight Path Receptors

Name: Wayne County Airport 1
Description:
Threshold height: 50 ft
Direction: 33.3°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	36.850878	-84.860109	958.82	50.00	1008.82
Two-mile	36.826723	-84.879991	978.21	584.04	1562.25

Name: Wayne County Airport 2
Description:
Threshold height: 50 ft
Direction: 216.4°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	36.859681	-84.852219	961.50	50.00	1011.50
Two-mile	36.882956	-84.830755	971.79	593.13	1564.93

Discrete Observation Point Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 4	4	36.778958	-85.013388	976.81	6.00
OP 5	5	36.784044	-85.011476	983.24	6.00
OP 6	6	36.783674	-85.010699	985.33	6.00
OP 7	7	36.785835	-85.006938	1015.26	6.00
OP 8	8	36.786188	-85.005184	1023.03	6.00
OP 9	9	36.786617	-85.004390	1018.42	6.00
OP 10	10	36.785595	-85.004170	1009.45	6.00
OP 11	11	36.783234	-85.000026	1007.48	6.00
OP 12	12	36.782029	-84.999922	994.71	6.00
OP 13	13	36.779627	-84.997921	961.61	6.00
OP 14	14	36.776800	-84.996537	918.89	6.00
OP 15	15	36.771432	-85.001128	956.50	6.00
OP 16	16	36.770861	-85.000689	964.59	6.00
OP 17	17	36.770612	-84.998545	982.64	6.00
OP 18	18	36.769677	-85.009146	963.89	6.00
OP 19	19	36.767932	-85.009028	988.25	6.00
OP 20	20	36.773743	-85.013766	934.10	6.00
OP 21	21	36.774125	-85.014579	949.33	6.00
OP 24	24	36.783509	-85.001733	999.21	6.00
OP 25	25	36.773265	-84.993164	963.05	6.00
OP 26	26	36.781929	-84.998435	995.67	6.00
OP 27	27	36.780593	-84.997667	974.05	6.00

Obstruction Components

Name: Landscape 1
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.783064	-85.002266	986.72
2	36.783419	-85.001252	994.88
3	36.782791	-85.000174	998.04

Name: Landscape 2
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.784196	-85.003355	994.03
2	36.784480	-85.003012	1002.54
3	36.785090	-85.004144	1009.92
4	36.785464	-85.004777	1016.29
5	36.785670	-85.005522	1018.57
6	36.785665	-85.005930	1013.52
7	36.785515	-85.006740	1012.49

Name: Landscape 3
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.783866	-85.009639	1008.07
2	36.784068	-85.009204	1013.42
3	36.784914	-85.009231	989.51
4	36.785442	-85.007021	1013.89

Name: Landscape 4
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.783724	-85.009896	1001.50
2	36.783582	-85.010057	994.84
3	36.783303	-85.009671	995.94
4	36.783140	-85.009617	996.69
5	36.782929	-85.009596	994.32
6	36.782710	-85.009628	994.27
7	36.782401	-85.009864	990.27
8	36.782242	-85.010615	982.85
9	36.780098	-85.010502	979.26
10	36.778929	-85.010583	991.54

Name: Landscape 5
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.778632	-85.010175	986.34
2	36.777670	-85.010454	962.36
3	36.777614	-85.011028	965.96

Name: Landscape 6
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.777988	-85.011076	975.42
2	36.777979	-85.011956	962.70

Name: Landscape 7
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.777954	-85.012208	962.05
2	36.777627	-85.013008	985.28
3	36.776952	-85.013185	984.37
4	36.774228	-85.011940	966.23

Name: Landscape 8
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.782426	-85.010846	980.16
2	36.781876	-85.010915	985.85
3	36.780072	-85.010819	978.96
4	36.778327	-85.010899	985.02
5	36.778207	-85.011023	981.16
6	36.778207	-85.012981	985.78

Name: Landscape 9
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.778265	-85.013015	988.04
2	36.779498	-85.012881	976.20
3	36.780207	-85.012720	990.69

Name: Landscape - for church
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.783064	-85.002306	986.95
2	36.783324	-85.002488	989.22
3	36.783631	-85.002736	989.10
4	36.784136	-85.003327	992.83

Name: Obstruction 1
Top height: 45.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.772301	-85.011993	917.80
2	36.771665	-85.007519	921.84
3	36.771708	-85.005781	926.86
4	36.771974	-85.003893	963.05
5	36.773453	-85.000234	905.72
6	36.774166	-84.999537	894.94
7	36.775223	-84.999097	886.84
8	36.775610	-85.000213	910.85
9	36.776606	-85.001640	909.46
10	36.781092	-85.002670	933.85

Name: Obstruction 2
Top height: 45.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.775575	-85.013917	968.65
2	36.774883	-85.013675	961.50
3	36.774131	-85.013176	948.96
4	36.773379	-85.012602	933.63
5	36.773065	-85.012216	923.59
6	36.772863	-85.012200	911.91

Glare Analysis Results

Summary of Results

Glare with potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
Bottom	60.0	180.0	498	8.3	0	0.0	-
Main Northwest	60.0	180.0	26,018	433.6	2,119	35.3	-
Main Southwest	60.0	180.0	1,691	28.2	0	0.0	-
Middle bottom	60.0	180.0	809	13.5	0	0.0	-
Middle Top	60.0	180.0	12,222	203.7	3,546	59.1	-
Northeast 1	60.0	180.0	4,908	81.8	0	0.0	-
Northeast 2	60.0	180.0	13,523	225.4	2,045	34.1	-
West Array	60.0	180.0	294	4.9	0	0.0	-

Total glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
CR 1018	0	0.0	0	0.0
KY 1009	11,685	194.8	3,225	53.8
Massingale Rd	10,524	175.4	2,119	35.3
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 4	221	3.7	0	0.0
OP 5	1,593	26.6	0	0.0
OP 6	4,312	71.9	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	594	9.9	0	0.0
OP 12	5,567	92.8	1,300	21.7
OP 13	4,846	80.8	0	0.0
OP 14	3,294	54.9	0	0.0
OP 15	0	0.0	0	0.0
OP 16	299	5.0	0	0.0
OP 17	1,552	25.9	0	0.0
OP 18	1,199	20.0	0	0.0
OP 19	2,244	37.4	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 24	230	3.8	0	0.0
OP 25	4,400	73.3	0	0.0
OP 26	2,328	38.8	658	11.0
OP 27	5,075	84.6	408	6.8

PV: Bottom low potential for temporary after-image

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
CR 1018	0	0.0	0	0.0
KY 1009	0	0.0	0	0.0
Massingale Rd	0	0.0	0	0.0
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 17	68	1.1	0	0.0
OP 19	133	2.2	0	0.0
OP 25	297	5.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0

Bottom and Route: CR 1018

No glare found

Bottom and Route: KY 1009

No glare found

Bottom and Route: Massingale Rd

No glare found

Bottom and FP: Wayne County Airport 1

No glare found

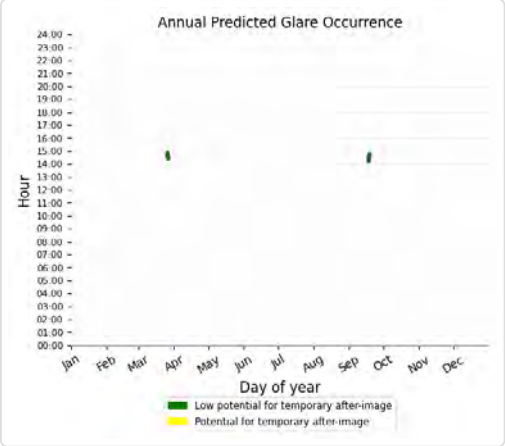
Bottom and FP: Wayne County Airport 2

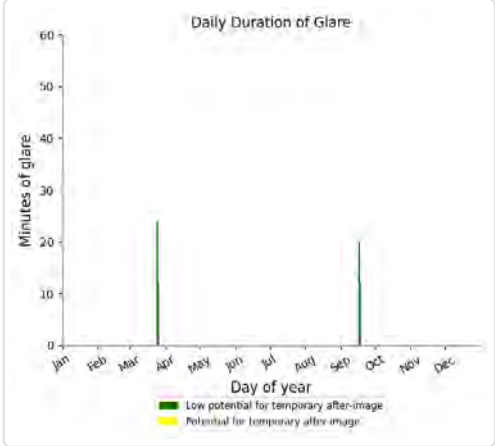
No glare found

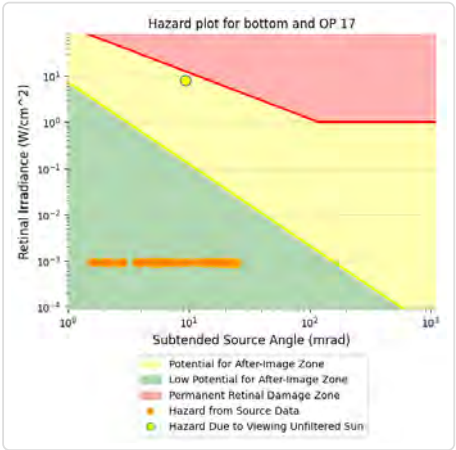
Bottom and OP 17

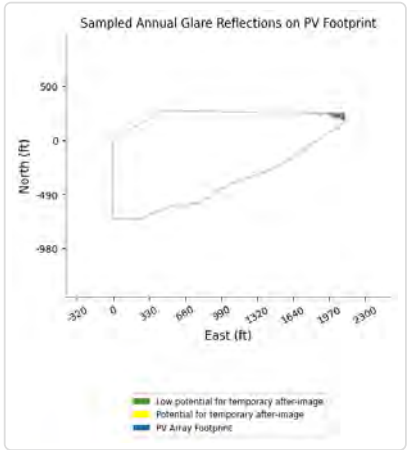
Yellow glare: none

Green glare: 68 min.





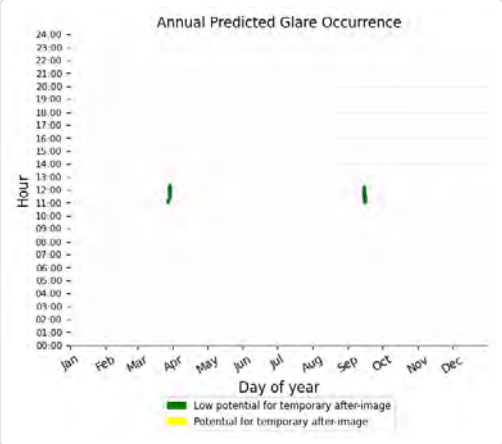


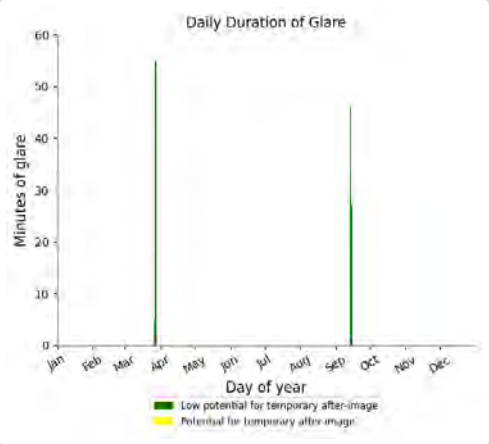


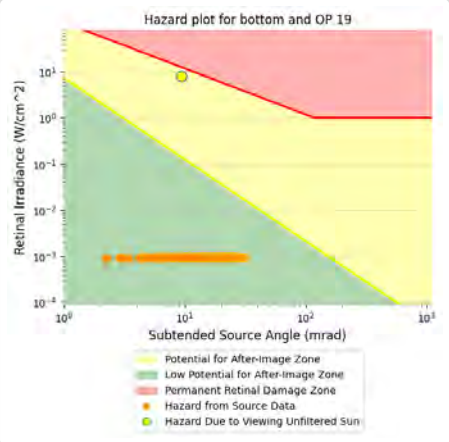
Bottom and OP 19

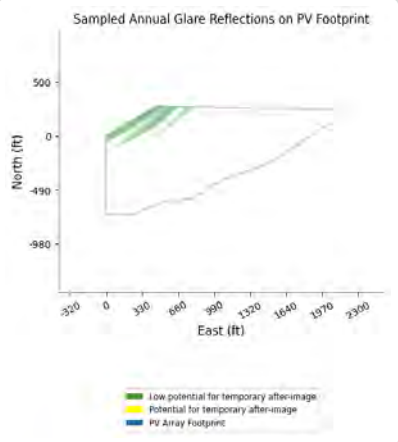
Yellow glare: none

Green glare: 133 min.





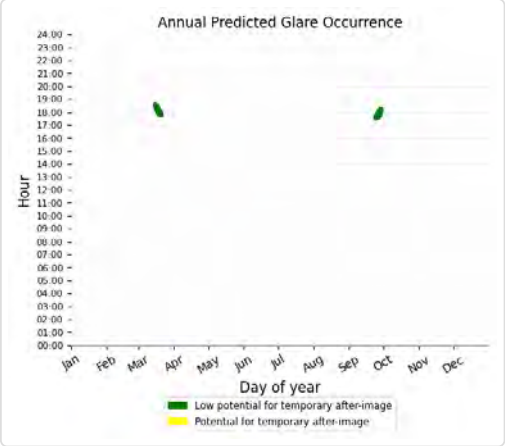


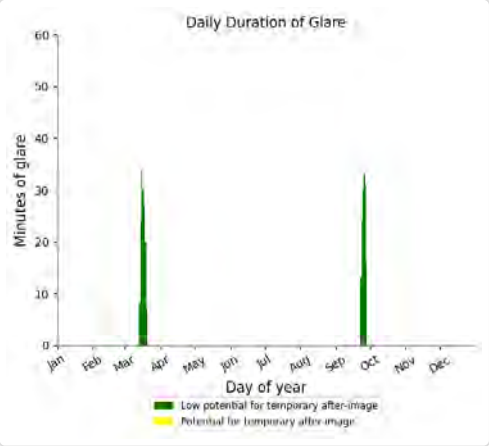


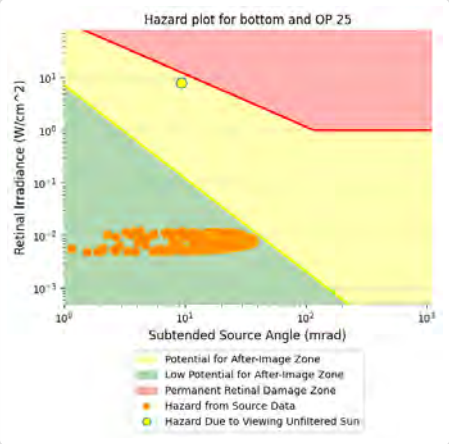
Bottom and OP 25

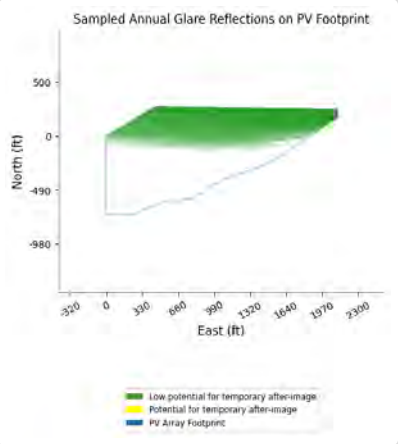
Yellow glare: none

Green glare: 297 min.









Bottom and OP 4

No glare found

Bottom and OP 5

No glare found

Bottom and OP 6

No glare found

Bottom and OP 7

No glare found

Bottom and OP 8

No glare found

Bottom and OP 9

No glare found

Bottom and OP 10

No glare found

Bottom and OP 11

No glare found

Bottom and OP 12

No glare found

Bottom and OP 13

No glare found

Bottom and OP 14

No glare found

Bottom and OP 15

No glare found

Bottom and OP 16

No glare found

Bottom and OP 18

No glare found

Bottom and OP 20

No glare found

Bottom and OP 21

No glare found

Bottom and OP 24

No glare found

Bottom and OP 26

No glare found

Bottom and OP 27

No glare found

PV: Main Northwest potential temporary after-image

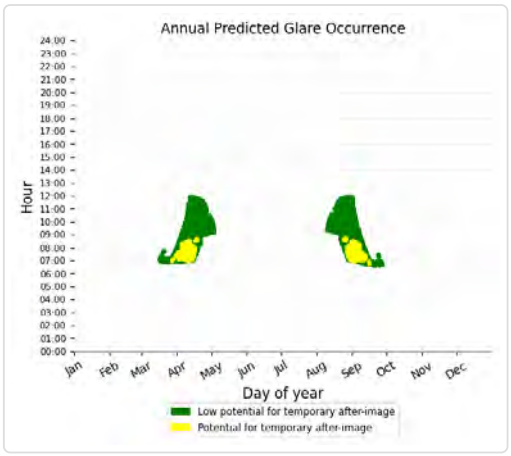
Receptor results ordered by category of glare

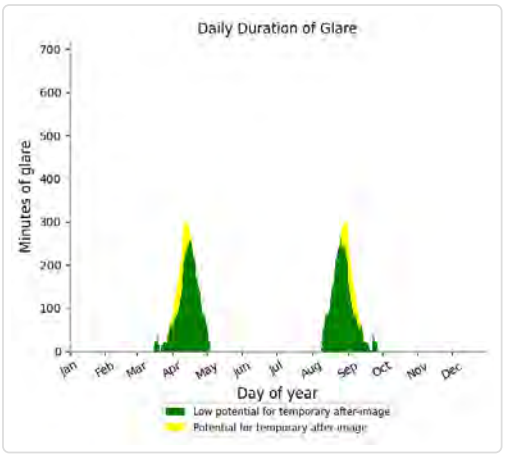
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Massingale Rd	10,343	172.4	2,119	35.3
KY 1009	2,924	48.7	0	0.0
CR 1018	0	0.0	0	0.0
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 5	1,593	26.6	0	0.0
OP 6	4,312	71.9	0	0.0
OP 12	1,781	29.7	0	0.0
OP 13	1,220	20.3	0	0.0
OP 18	116	1.9	0	0.0
OP 19	253	4.2	0	0.0
OP 26	1,548	25.8	0	0.0
OP 27	1,928	32.1	0	0.0
OP 4	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	0	0.0	0	0.0

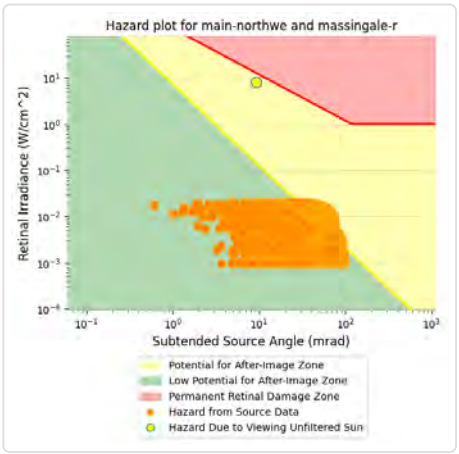
Main Northwest and Route: Massingale Rd

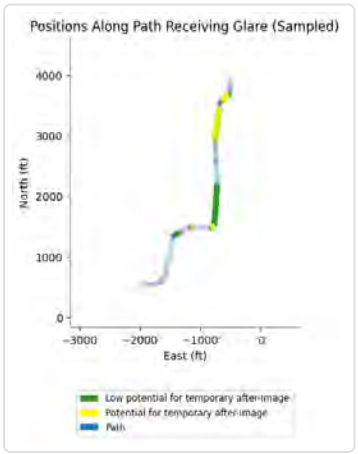
Yellow glare: 2,119 min.

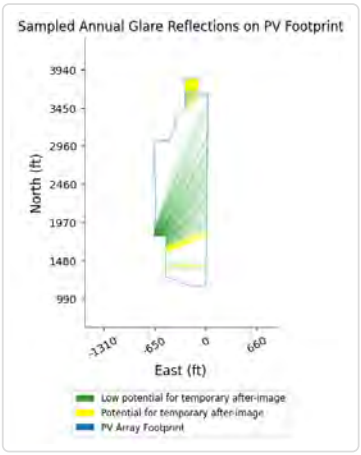
Green glare: 10,343 min.







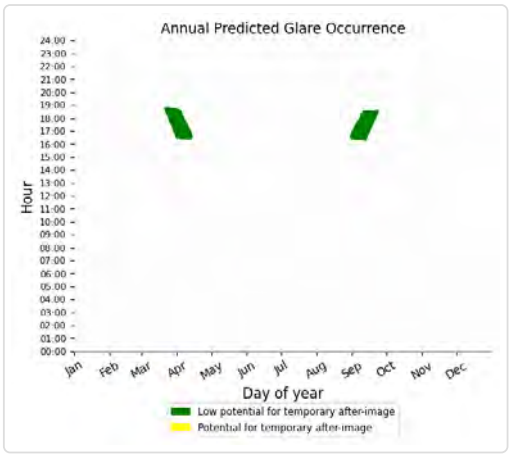


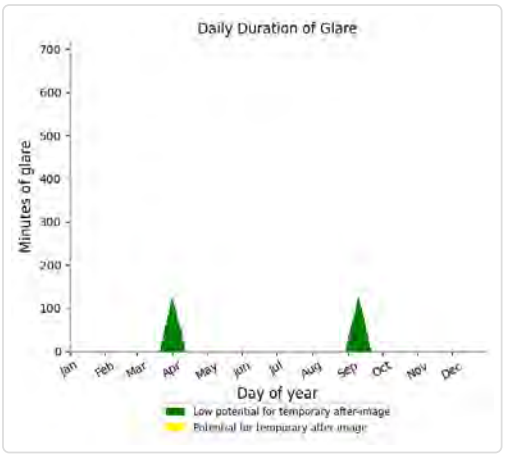


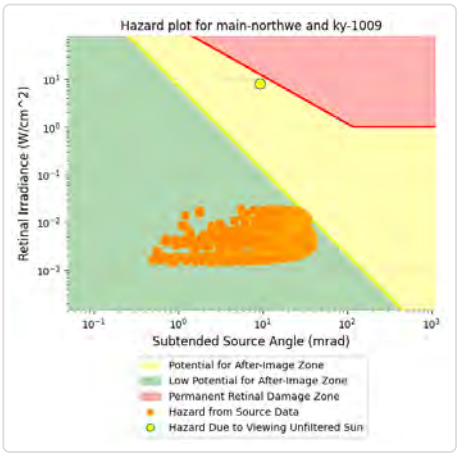
Main Northwest and Route: KY 1009

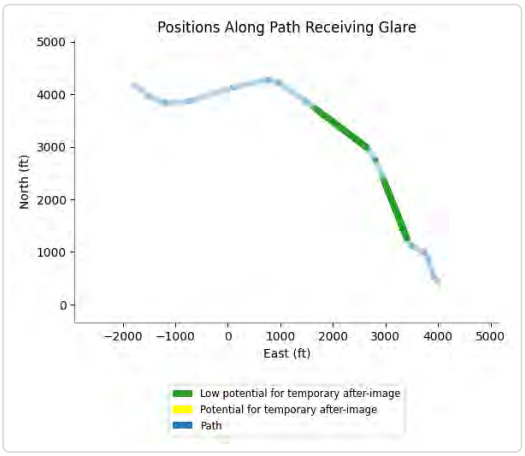
Yellow glare: none

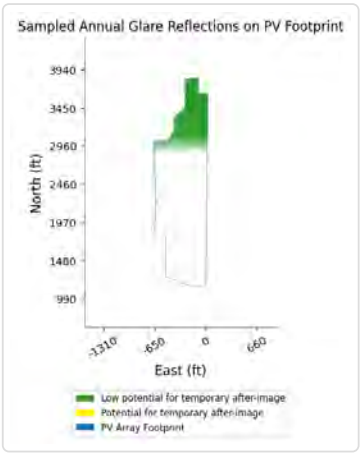
Green glare: 2,924 min.











Main Northwest and Route: CR 1018

No glare found

Main Northwest and FP: Wayne County Airport 1

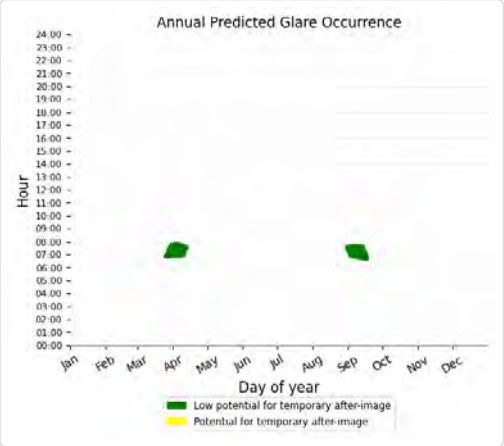
No glare found

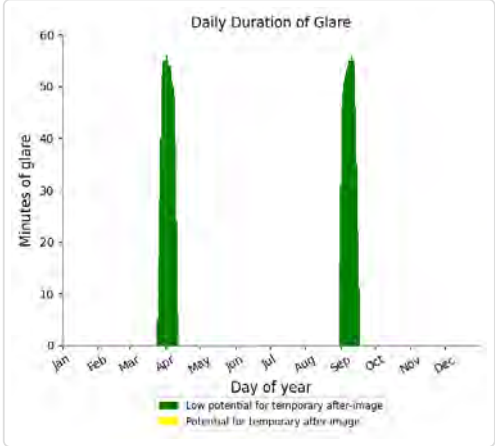
Main Northwest and FP: Wayne County Airport 2

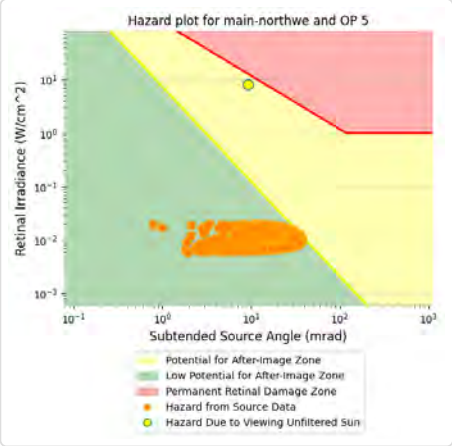
No glare found

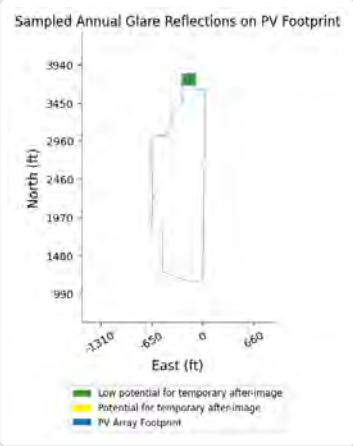
Main Northwest and OP 5

Yellow glare: none
Green glare: 1,593 min.





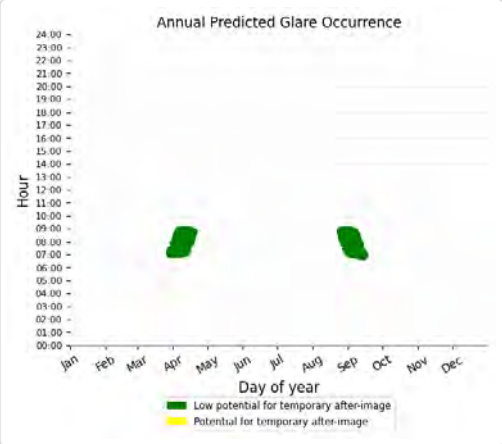


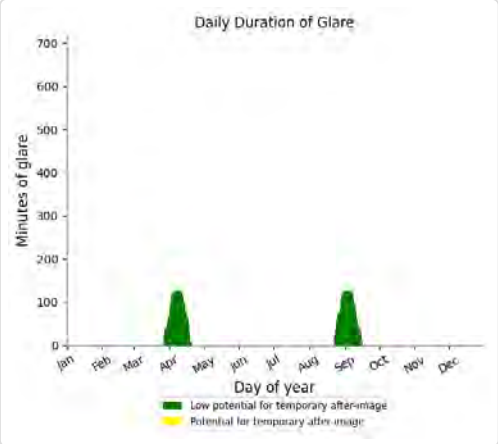


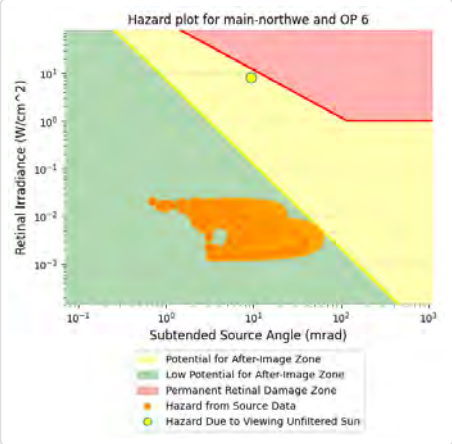
Main Northwest and OP 6

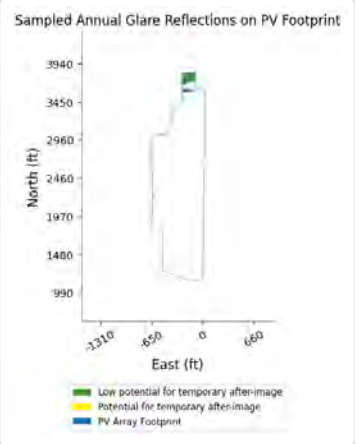
Yellow glare: none

Green glare: 4,312 min.





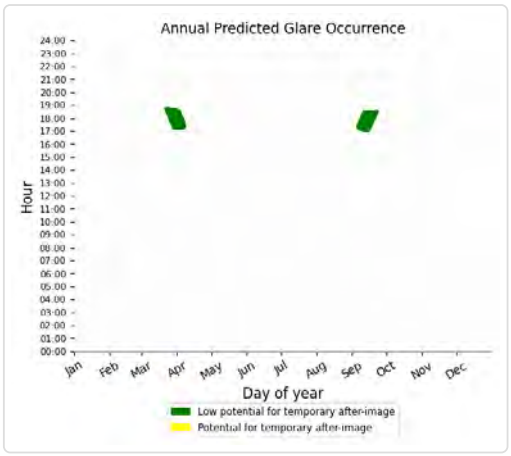


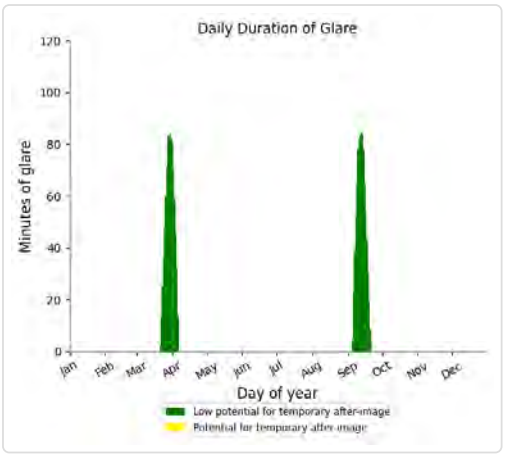


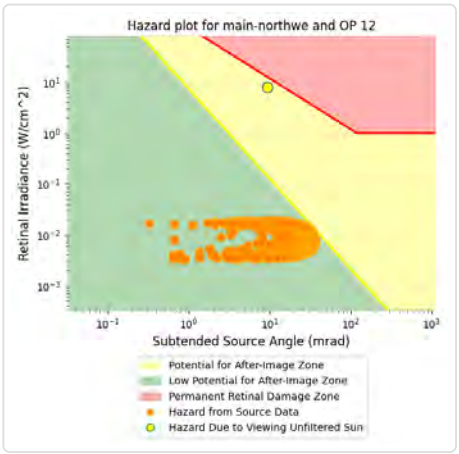
Main Northwest and OP 12

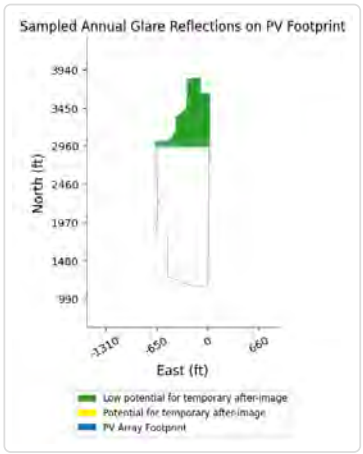
Yellow glare: none

Green glare: 1,781 min.





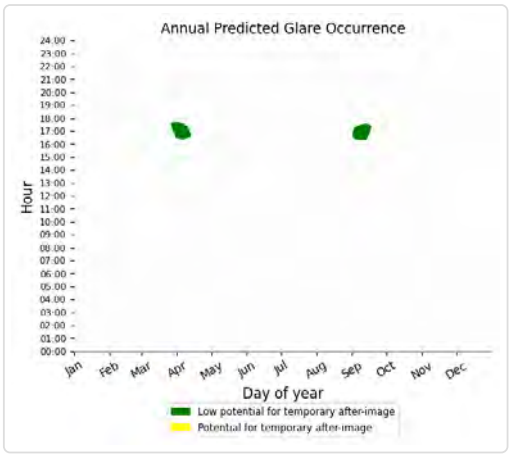


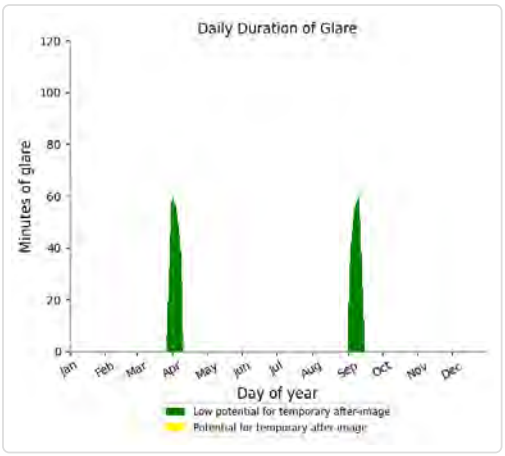


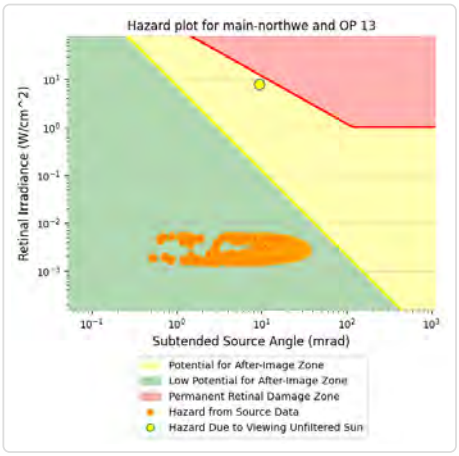
Main Northwest and OP 13

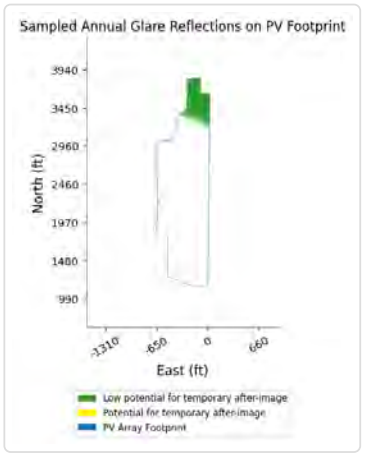
Yellow glare: none

Green glare: 1,220 min.





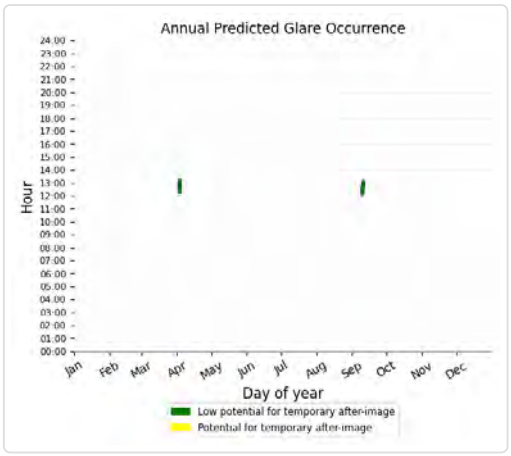


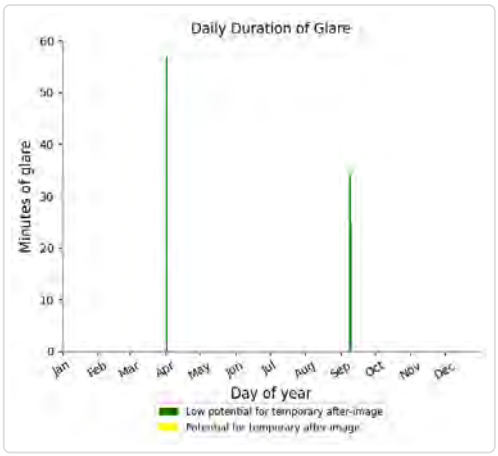


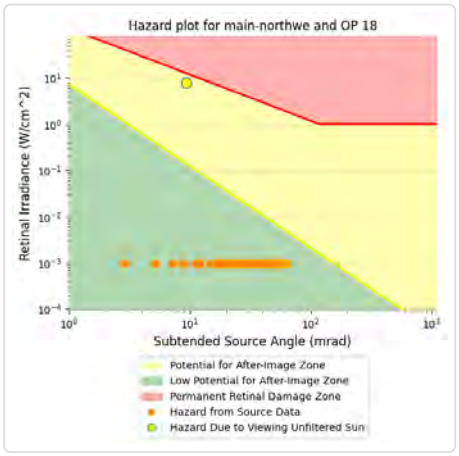
Main Northwest and OP 18

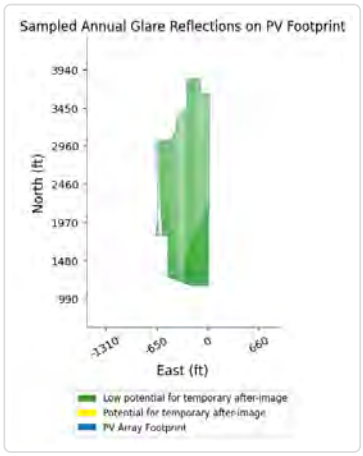
Yellow glare: none

Green glare: 116 min.





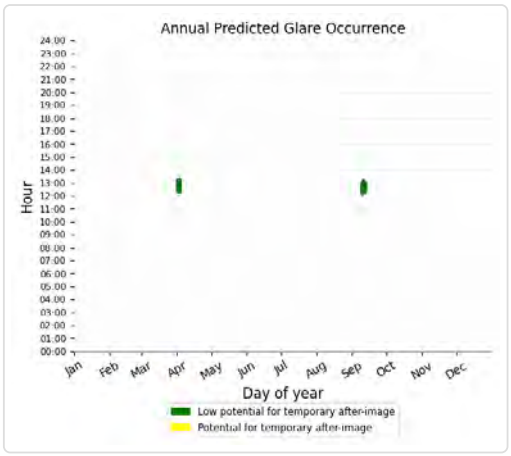


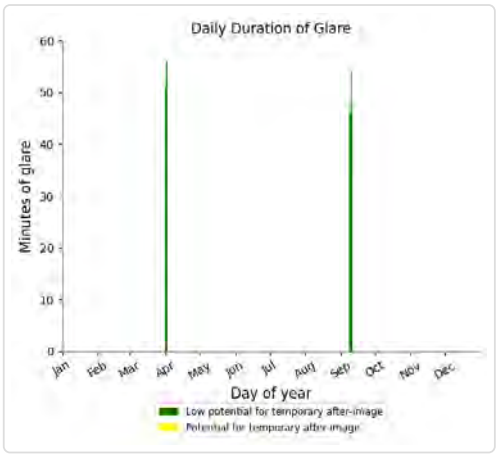


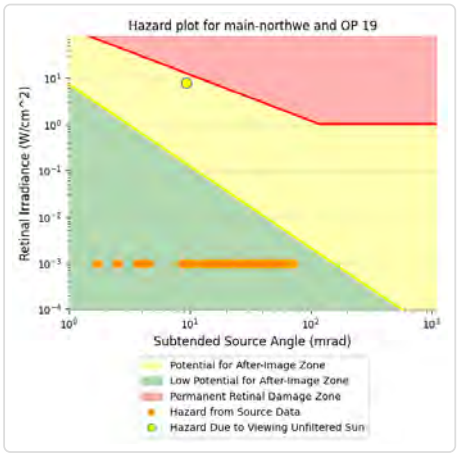
Main Northwest and OP 19

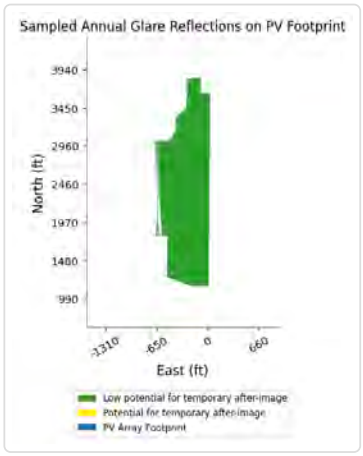
Yellow glare: none

Green glare: 253 min.





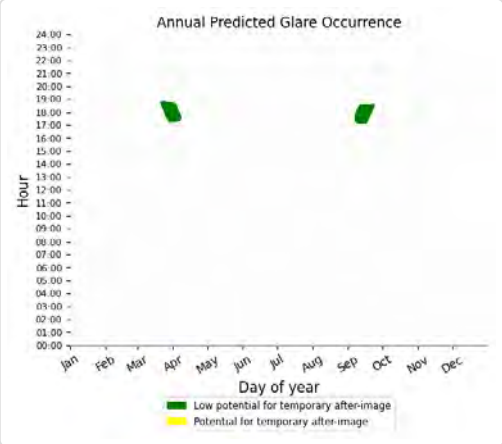


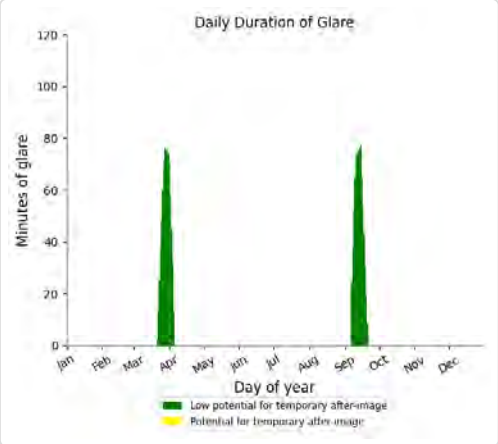


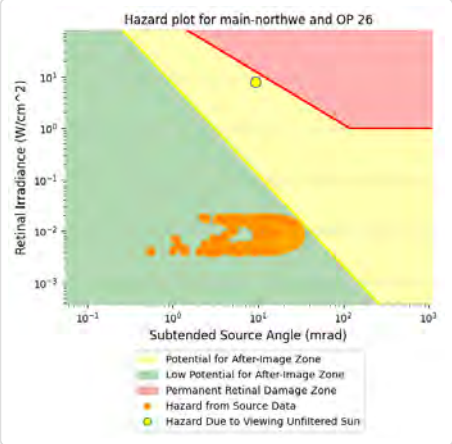
Main Northwest and OP 26

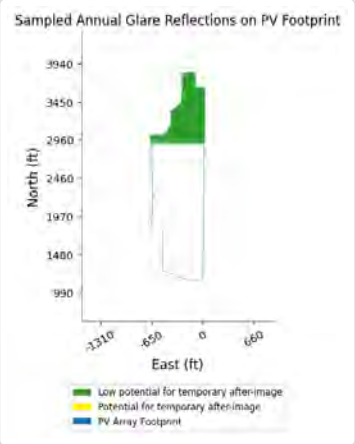
Yellow glare: none

Green glare: 1,548 min.





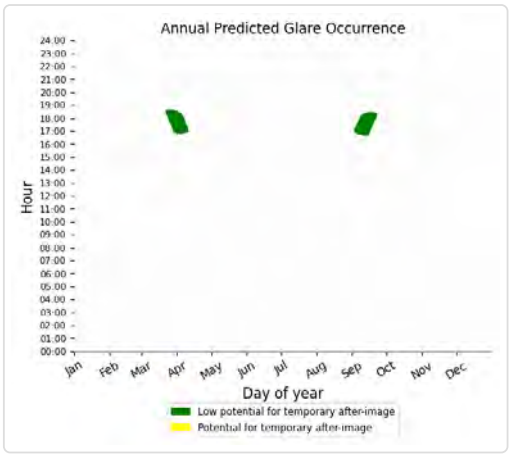


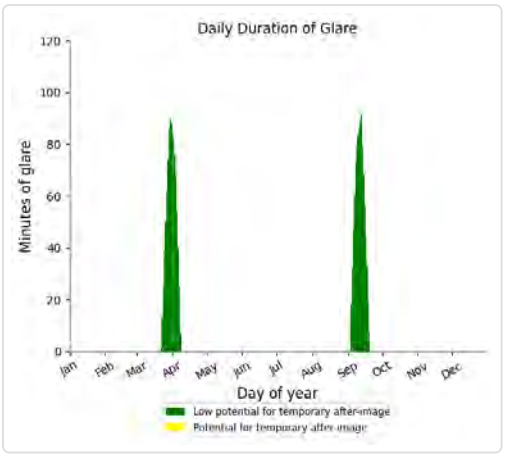


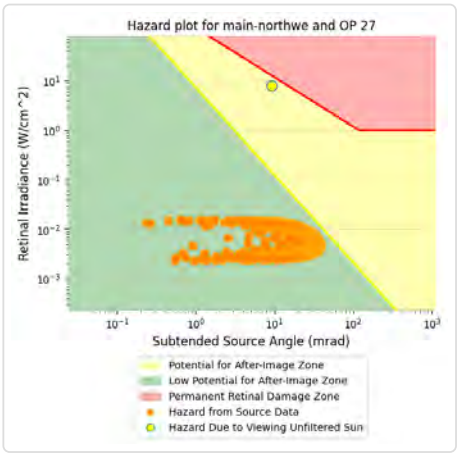
Main Northwest and OP 27

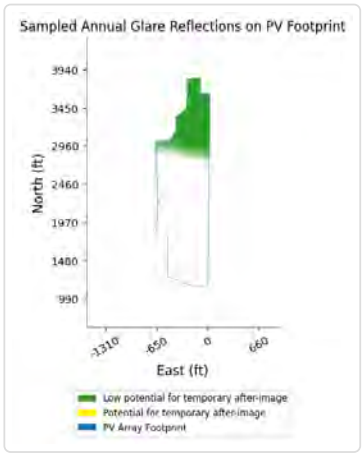
Yellow glare: none

Green glare: 1,928 min.









Main Northwest and OP 4

No glare found

Main Northwest and OP 7

No glare found

Main Northwest and OP 8

No glare found

Main Northwest and OP 9

No glare found

Main Northwest and OP 10

No glare found

Main Northwest and OP 11

No glare found

Main Northwest and OP 14

No glare found

Main Northwest and OP 15

No glare found

Main Northwest and OP 16

No glare found

Main Northwest and OP 17

No glare found

Main Northwest and OP 20

No glare found

Main Northwest and OP 21

No glare found

Main Northwest and OP 24

No glare found

Main Northwest and OP 25

No glare found

PV: Main Southwest low potential for temporary after-image

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
CR 1018	0	0.0	0	0.0
KY 1009	0	0.0	0	0.0
Massingale Rd	0	0.0	0	0.0
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 18	677	11.3	0	0.0
OP 19	851	14.2	0	0.0
OP 25	163	2.7	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0

Main Southwest and Route: CR 1018

No glare found

Main Southwest and Route: KY 1009

No glare found

Main Southwest and Route: Massingale Rd

No glare found

Main Southwest and FP: Wayne County Airport 1

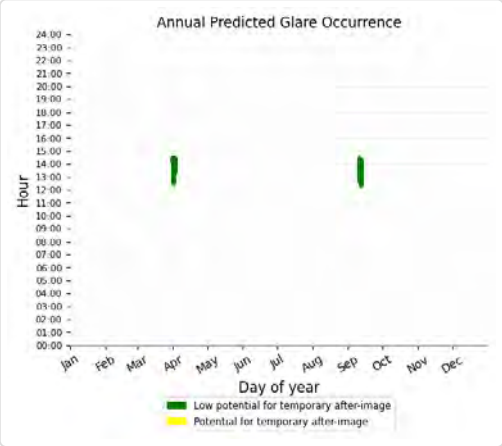
No glare found

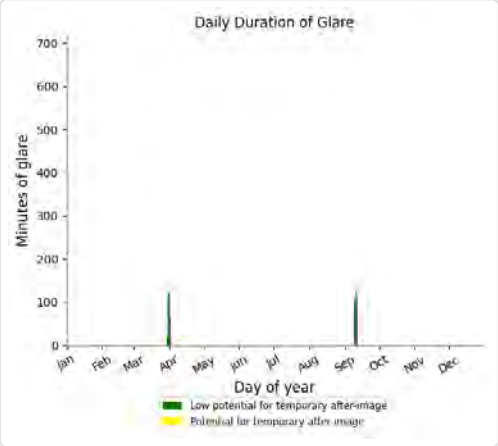
Main Southwest and FP: Wayne County Airport 2

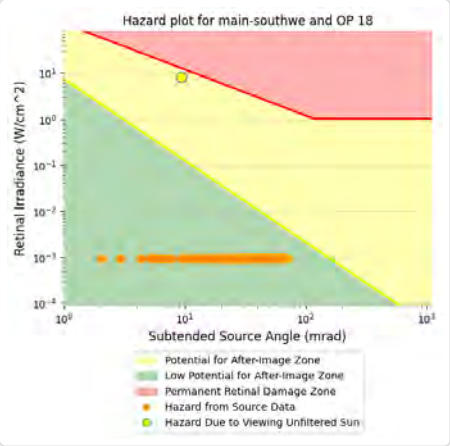
No glare found

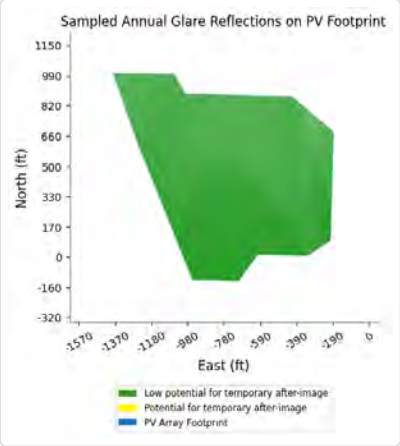
Main Southwest and OP 18

Yellow glare: none
Green glare: 677 min.





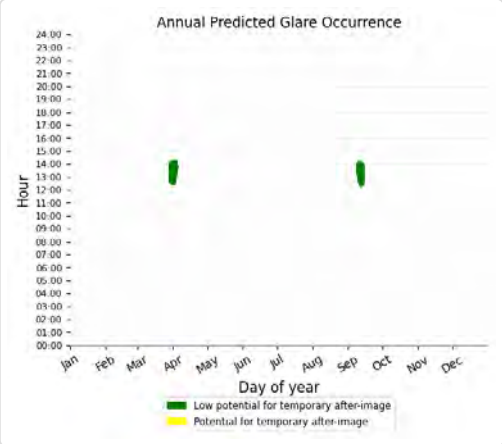


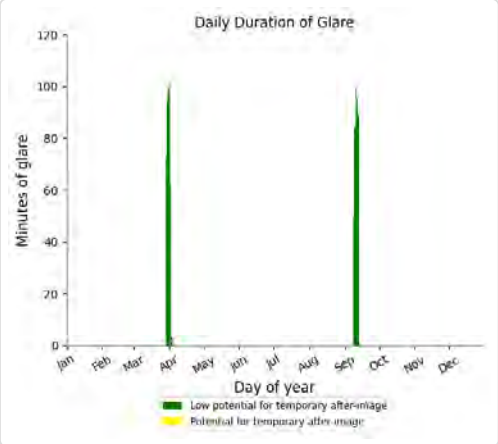


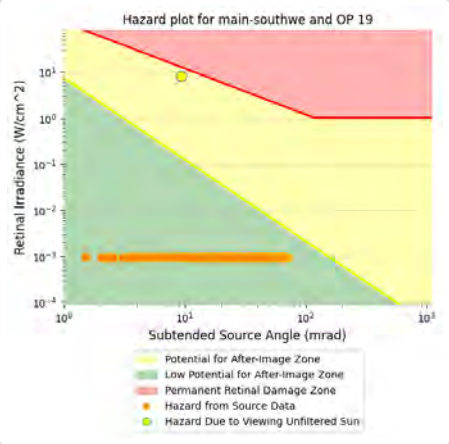
Main Southwest and OP 19

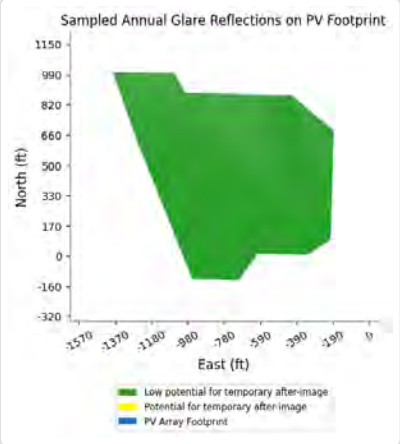
Yellow glare: none

Green glare: 851 min.





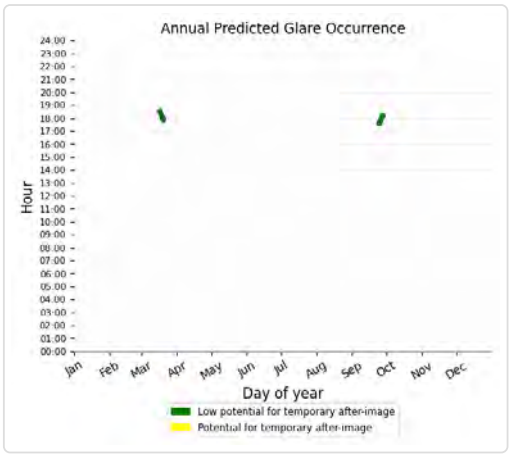


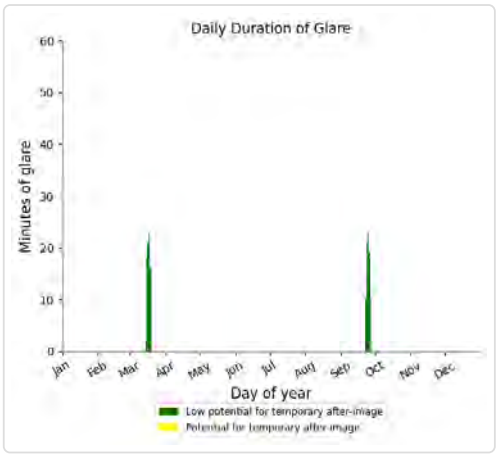


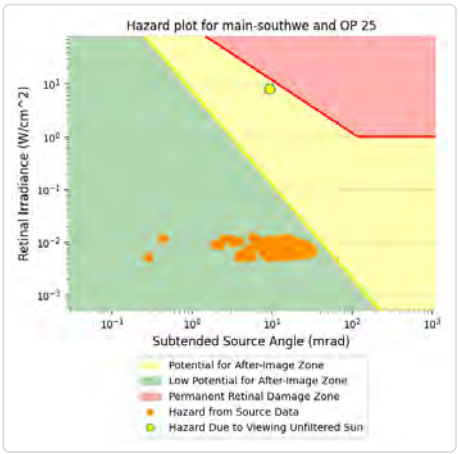
Main Southwest and OP 25

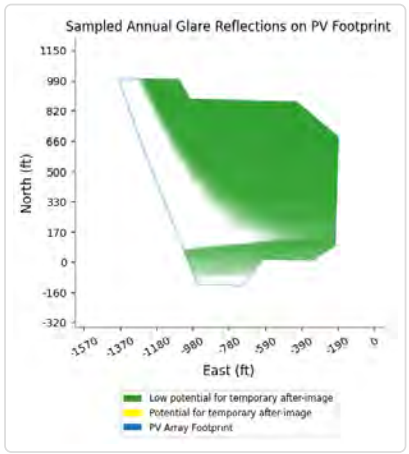
Yellow glare: none

Green glare: 163 min.









Main Southwest and OP 4

No glare found

Main Southwest and OP 5

No glare found

Main Southwest and OP 6

No glare found

Main Southwest and OP 7

No glare found

Main Southwest and OP 8

No glare found

Main Southwest and OP 9

No glare found

Main Southwest and OP 10

No glare found

Main Southwest and OP 11

No glare found

Main Southwest and OP 12

No glare found

Main Southwest and OP 13

No glare found

Main Southwest and OP 14

No glare found

Main Southwest and OP 15

No glare found

Main Southwest and OP 16

No glare found

Main Southwest and OP 17

No glare found

Main Southwest and OP 20

No glare found

Main Southwest and OP 21

No glare found

Main Southwest and OP 24

No glare found

Main Southwest and OP 26

No glare found

Main Southwest and OP 27

No glare found

PV: Middle bottom low potential for temporary after-image

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
CR 1018	0	0.0	0	0.0
KY 1009	0	0.0	0	0.0
Massingale Rd	0	0.0	0	0.0
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 14	52	0.9	0	0.0
OP 17	194	3.2	0	0.0
OP 18	44	0.7	0	0.0
OP 19	282	4.7	0	0.0
OP 25	237	4.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0

Middle bottom and Route: CR 1018

No glare found

Middle bottom and Route: KY 1009

No glare found

Middle bottom and Route: Massingale Rd

No glare found

Middle bottom and FP: Wayne County Airport 1

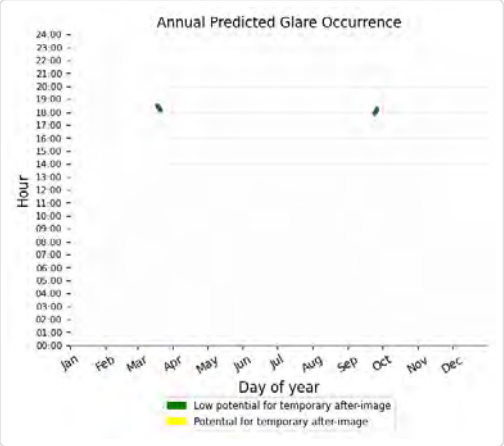
No glare found

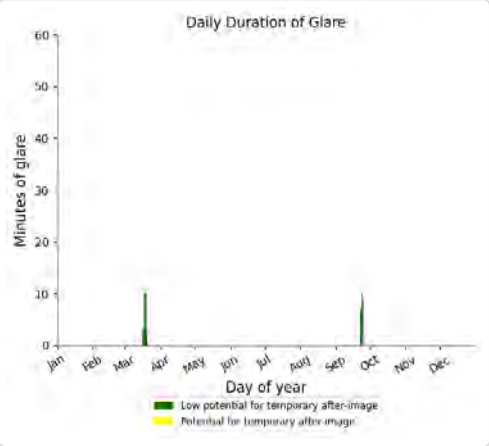
Middle bottom and FP: Wayne County Airport 2

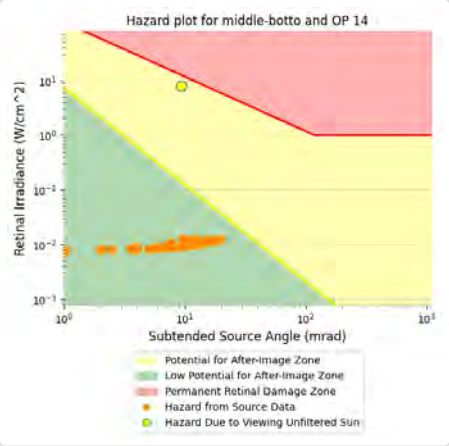
No glare found

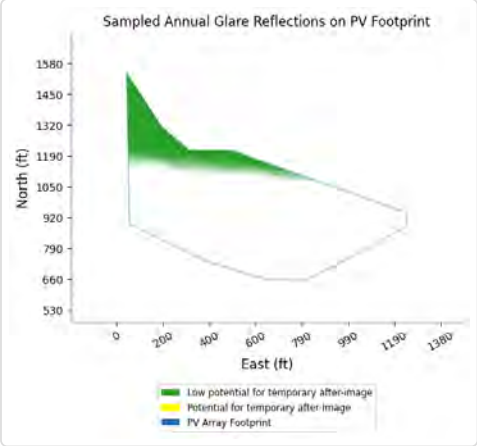
Middle bottom and OP 14

Yellow glare: none
Green glare: 52 min.





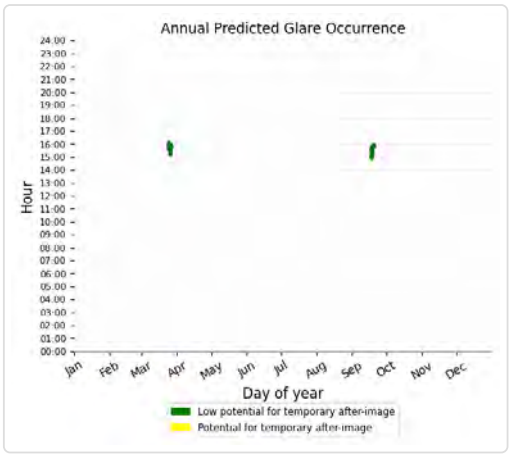


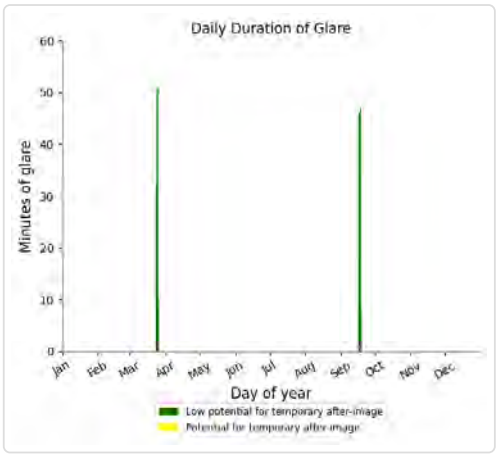


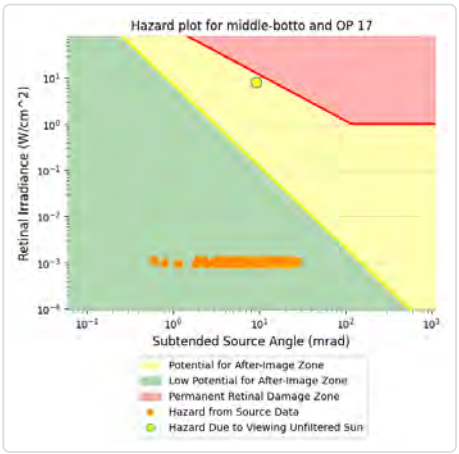
Middle bottom and OP 17

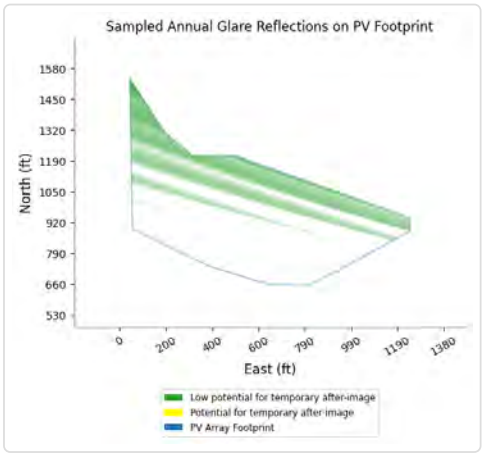
Yellow glare: none

Green glare: 194 min.





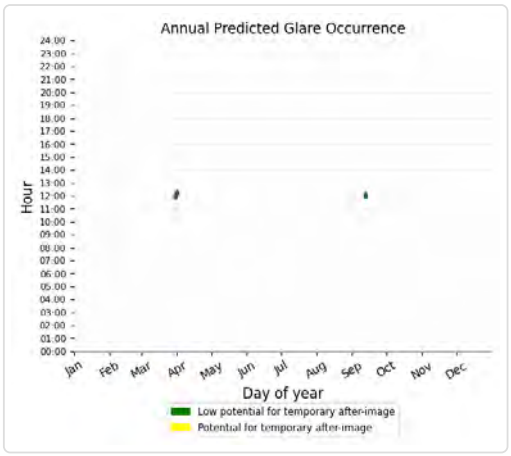


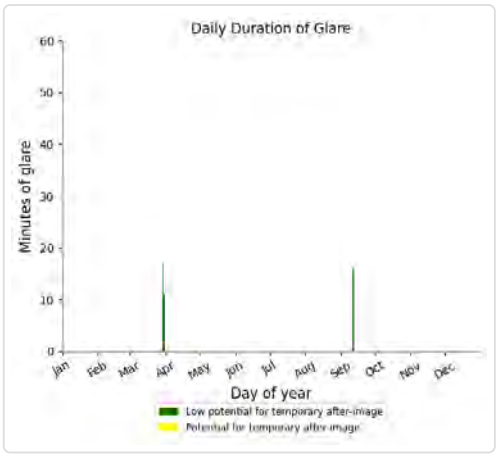


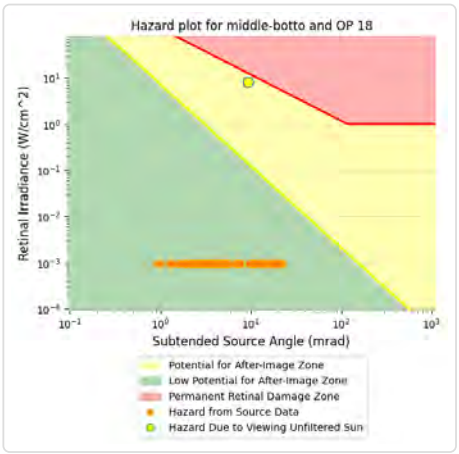
Middle bottom and OP 18

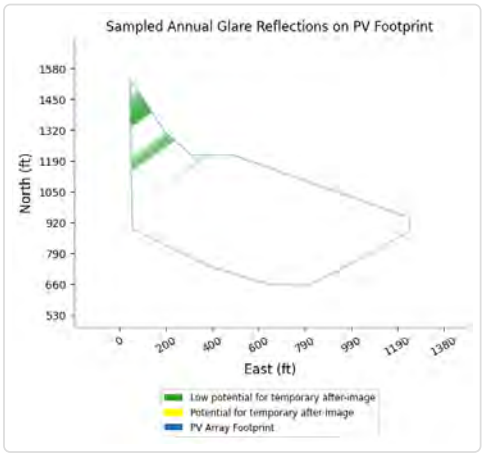
Yellow glare: none

Green glare: 44 min.





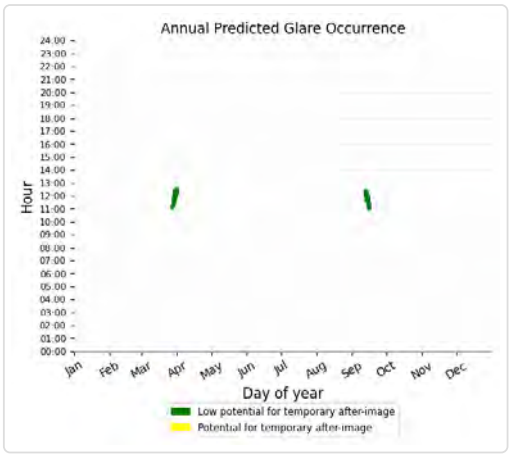


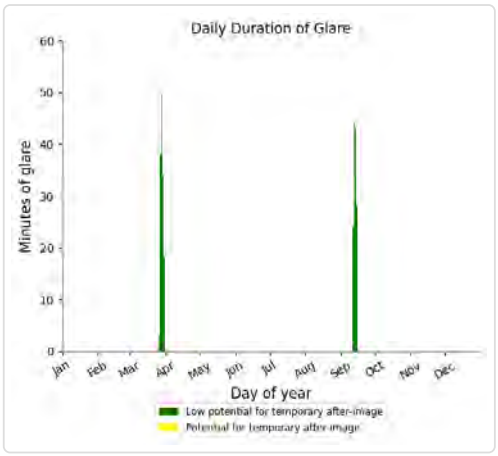


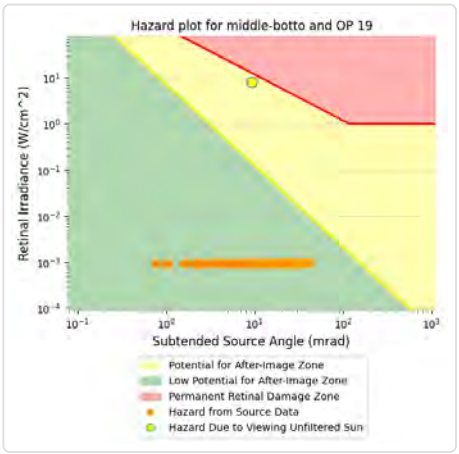
Middle bottom and OP 19

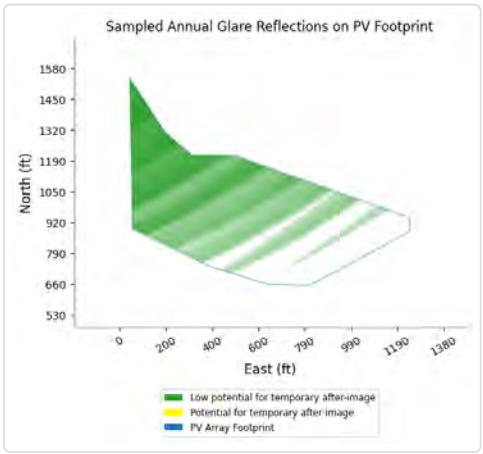
Yellow glare: none

Green glare: 282 min.





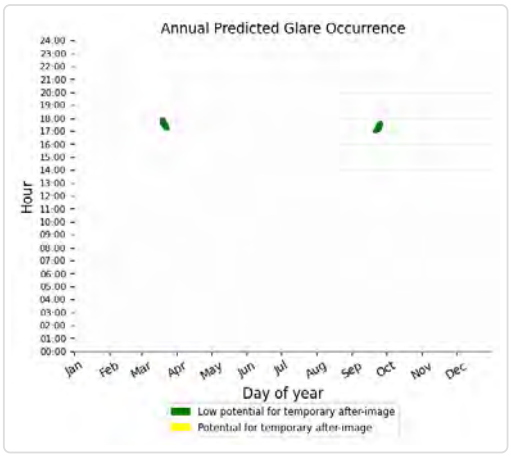


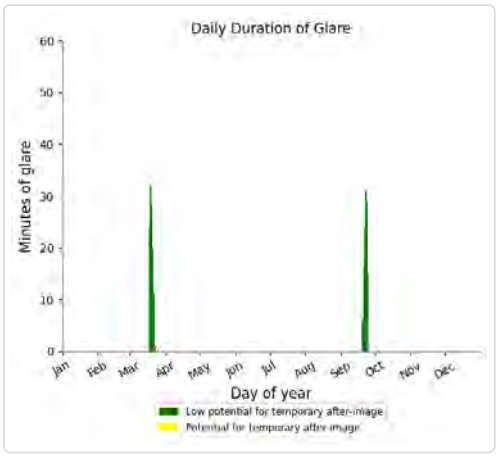


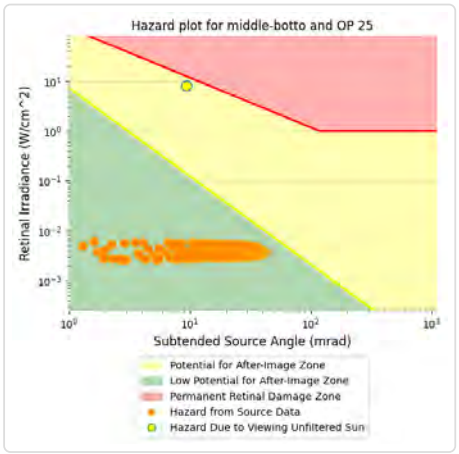
Middle bottom and OP 25

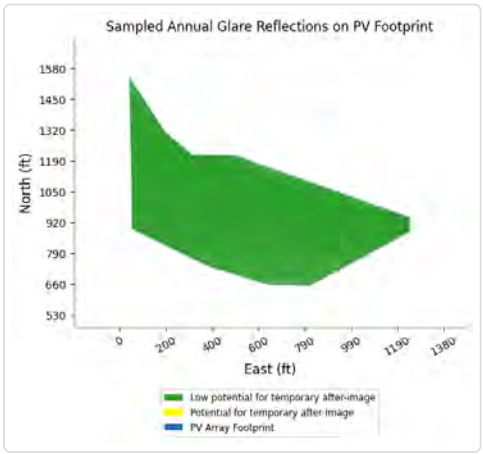
Yellow glare: none

Green glare: 237 min.









Middle bottom and OP 4

No glare found

Middle bottom and OP 5

No glare found

Middle bottom and OP 6

No glare found

Middle bottom and OP 7

No glare found

Middle bottom and OP 8

No glare found

Middle bottom and OP 9

No glare found

Middle bottom and OP 10

No glare found

Middle bottom and OP 11

No glare found

Middle bottom and OP 12

No glare found

Middle bottom and OP 13

No glare found

Middle bottom and OP 15

No glare found

Middle bottom and OP 16

No glare found

Middle bottom and OP 20

No glare found

Middle bottom and OP 21

No glare found

Middle bottom and OP 24

No glare found

Middle bottom and OP 26

No glare found

Middle bottom and OP 27

No glare found

PV: Middle Top potential temporary after-image

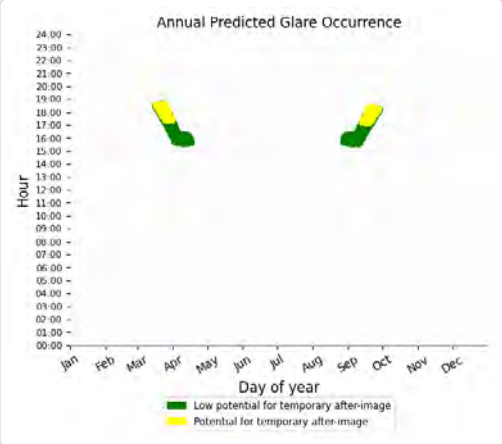
Receptor results ordered by category of glare

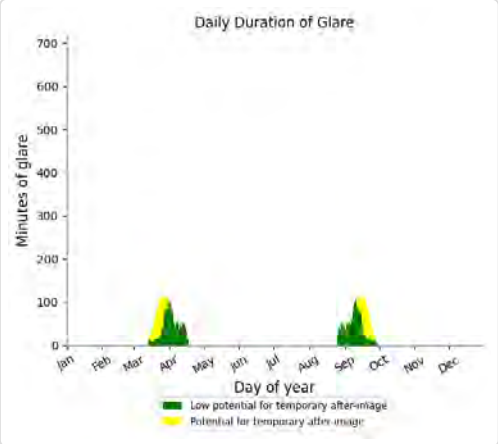
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
KY 1009	3,056	50.9	1,623	27.1
Massingale Rd	108	1.8	0	0.0
CR 1018	0	0.0	0	0.0
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 12	773	12.9	857	14.3
OP 26	780	13.0	658	11.0
OP 27	1,504	25.1	408	6.8
OP 13	1,511	25.2	0	0.0
OP 14	878	14.6	0	0.0
OP 16	131	2.2	0	0.0
OP 17	835	13.9	0	0.0
OP 18	281	4.7	0	0.0
OP 19	502	8.4	0	0.0
OP 25	1,863	31.1	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 24	0	0.0	0	0.0

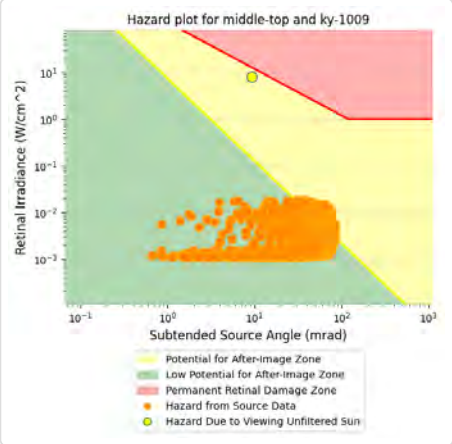
Middle Top and Route: KY 1009

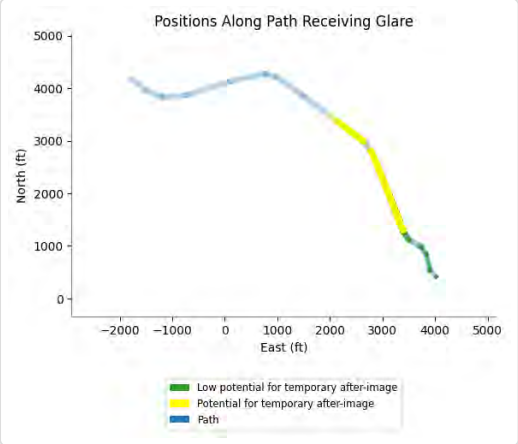
Yellow glare: 1,623 min.

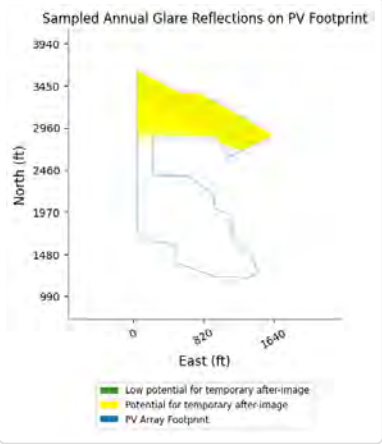
Green glare: 3,056 min.







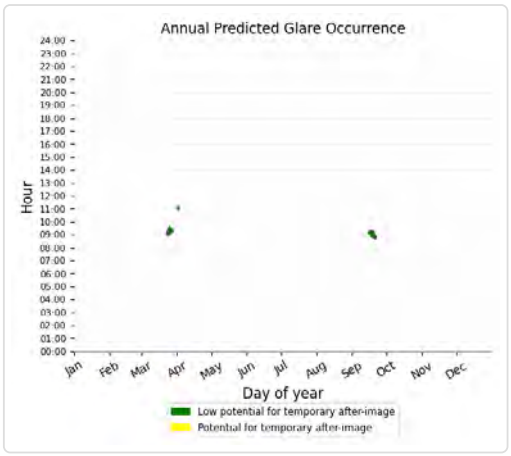


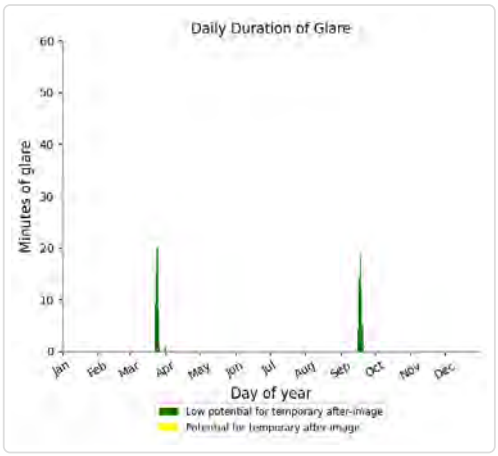


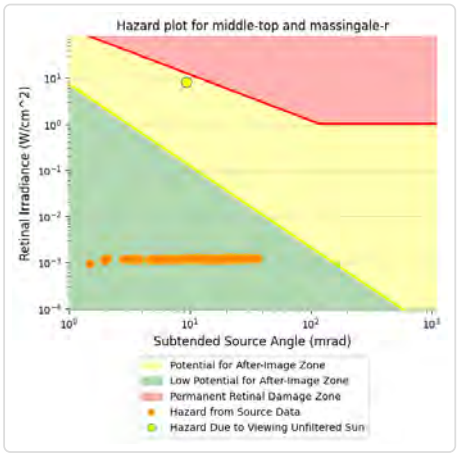
Middle Top and Route: Massingale Rd

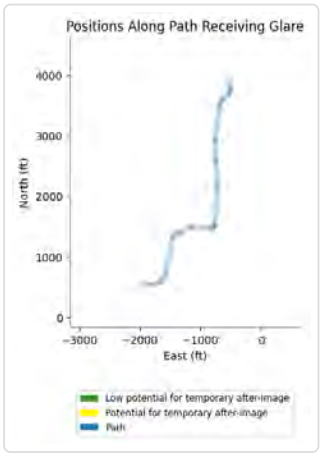
Yellow glare: none

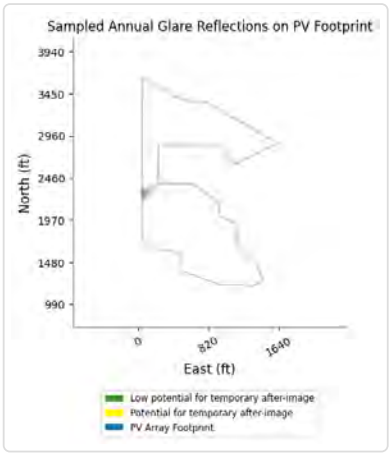
Green glare: 108 min.











Middle Top and Route: CR 1018

No glare found

Middle Top and FP: Wayne County Airport 1

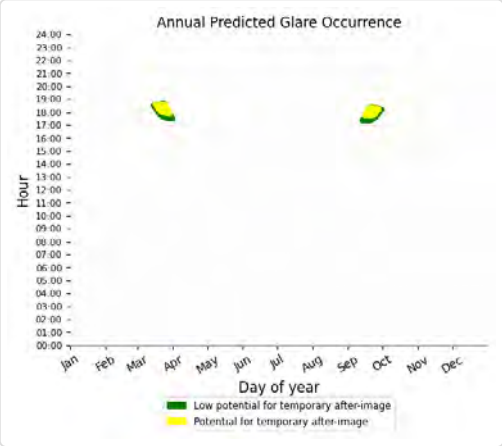
No glare found

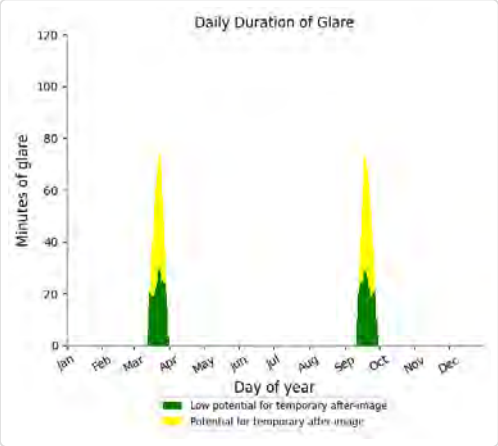
Middle Top and FP: Wayne County Airport 2

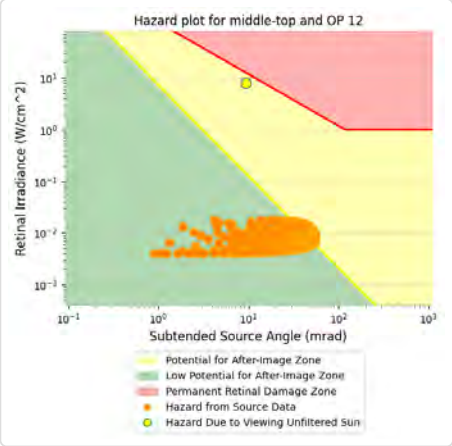
No glare found

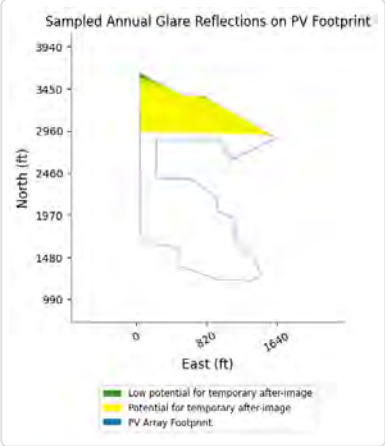
Middle Top and OP 12

Yellow glare: 857 min.
Green glare: 773 min.





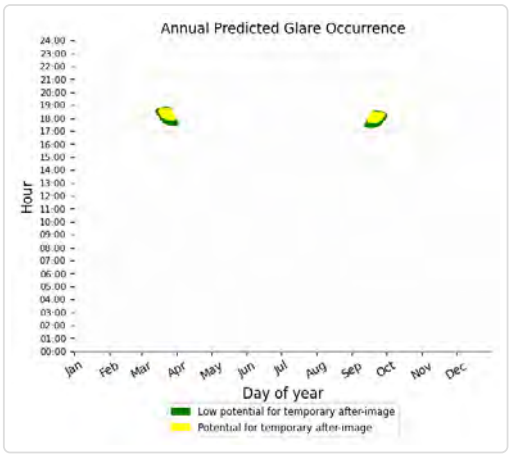


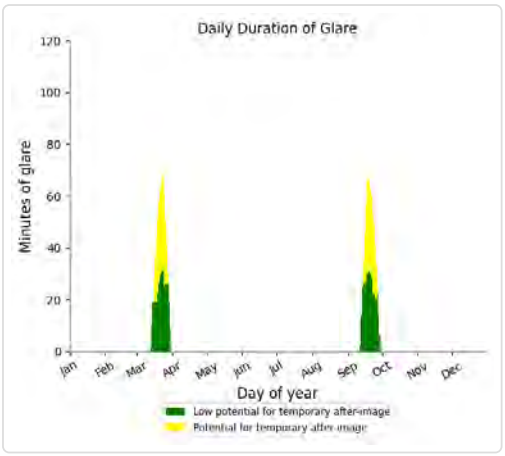


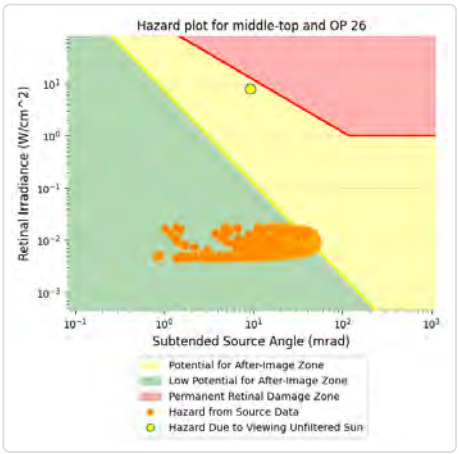
Middle Top and OP 26

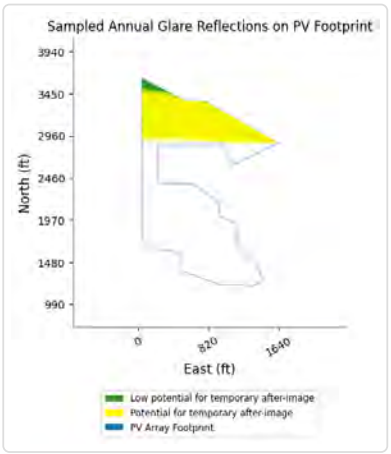
Yellow glare: 658 min.

Green glare: 780 min.





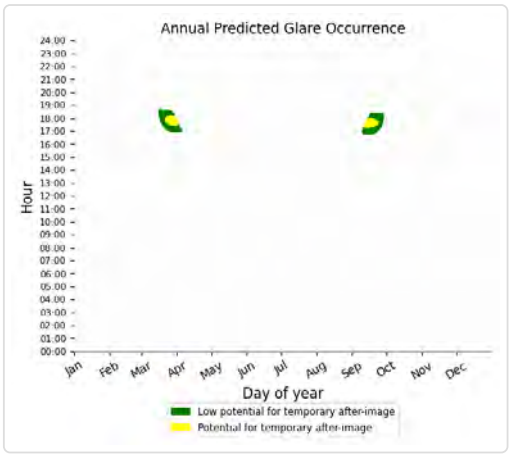


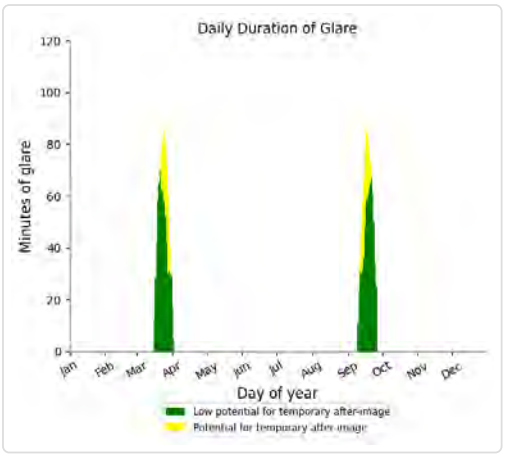


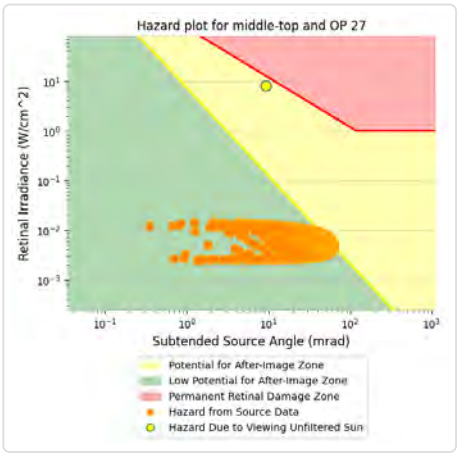
Middle Top and OP 27

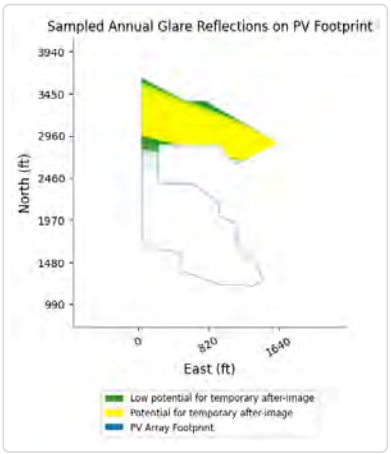
Yellow glare: 408 min.

Green glare: 1,504 min.





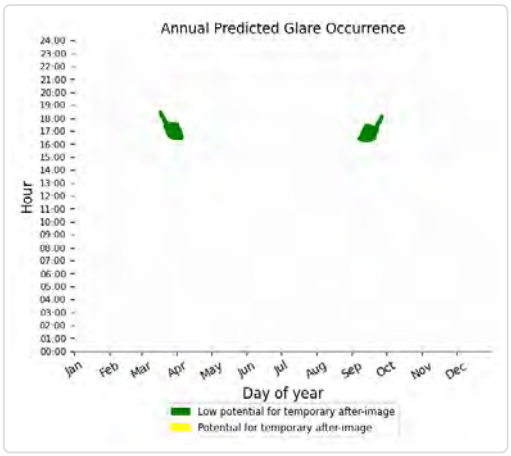


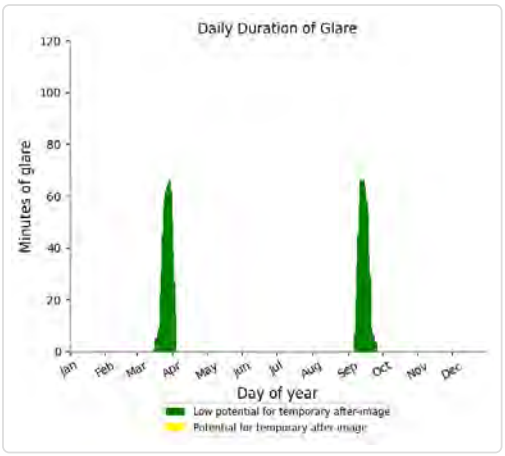


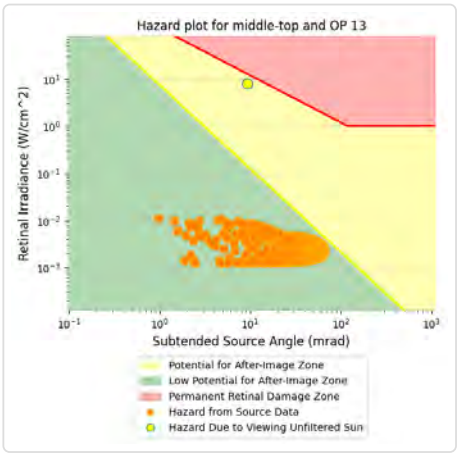
Middle Top and OP 13

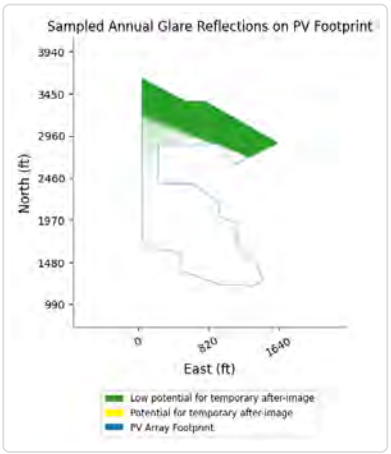
Yellow glare: none

Green glare: 1,511 min.





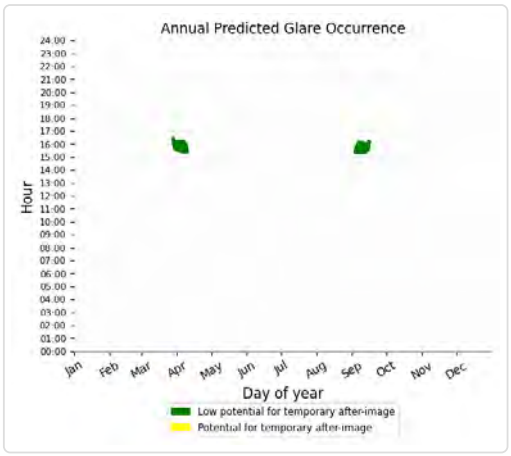


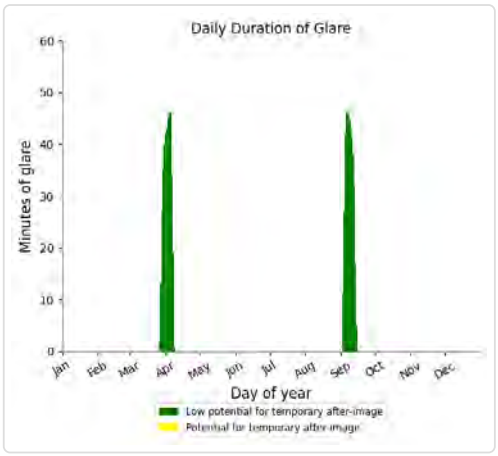


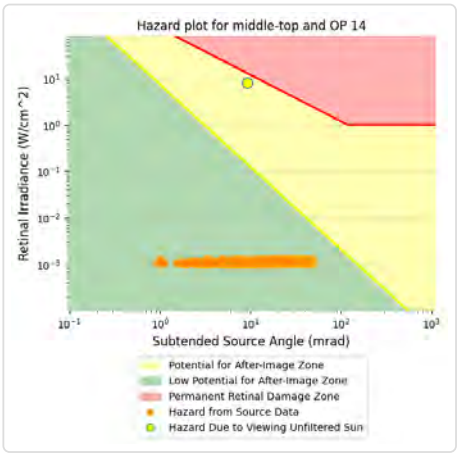
Middle Top and OP 14

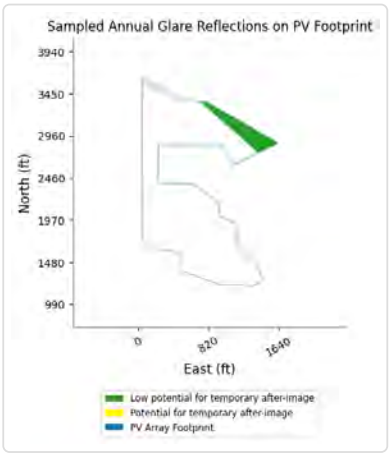
Yellow glare: none

Green glare: 878 min.





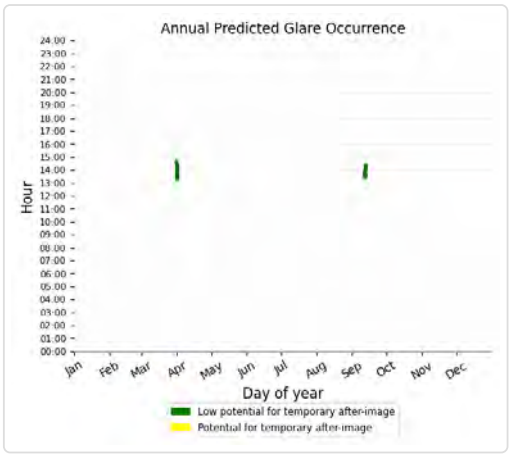


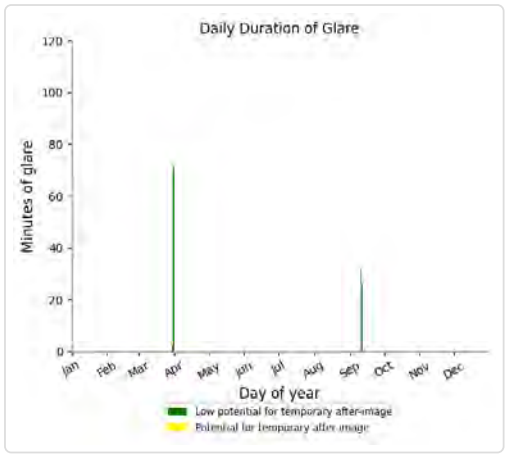


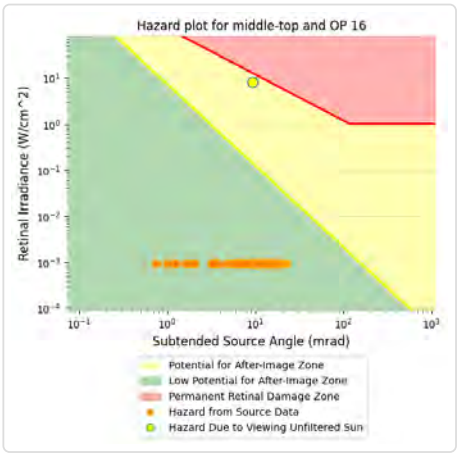
Middle Top and OP 16

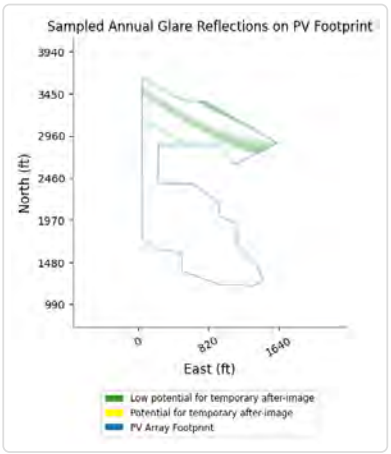
Yellow glare: none

Green glare: 131 min.





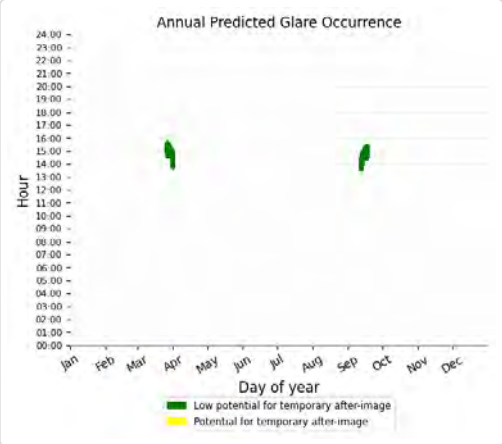


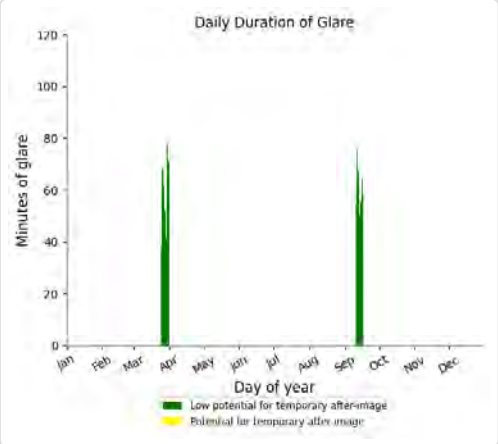


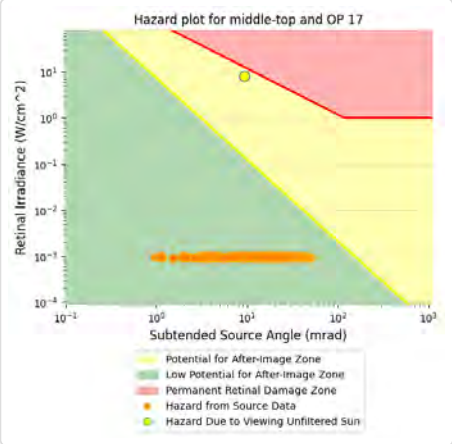
Middle Top and OP 17

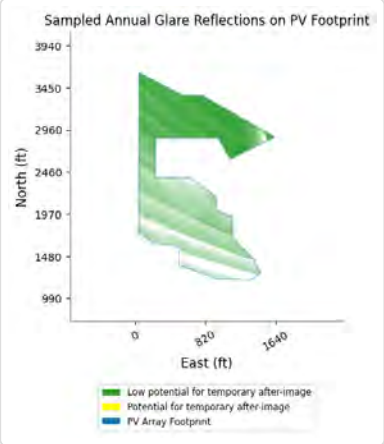
Yellow glare: none

Green glare: 835 min.





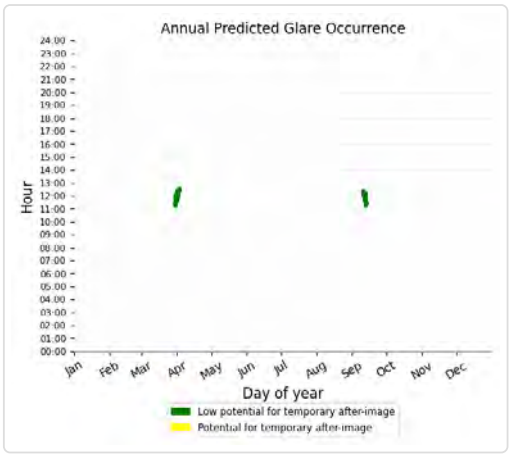


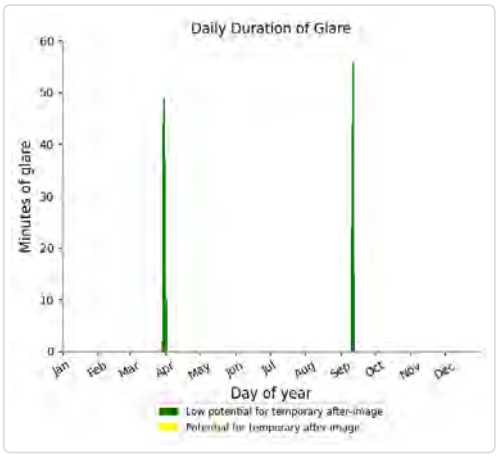


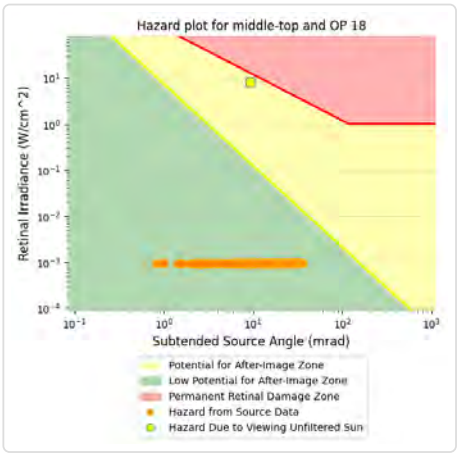
Middle Top and OP 18

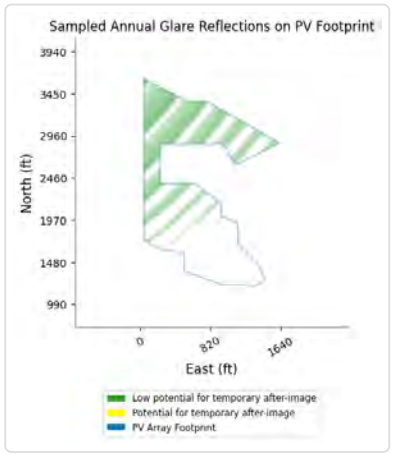
Yellow glare: none

Green glare: 281 min.





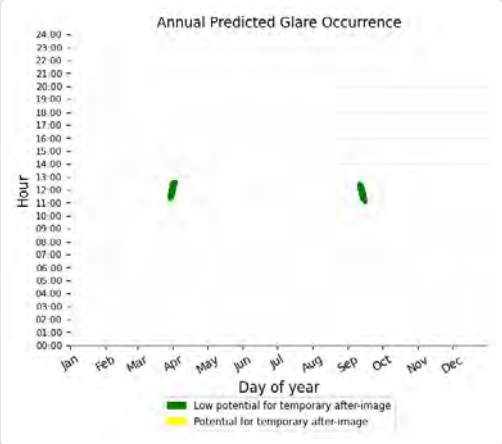


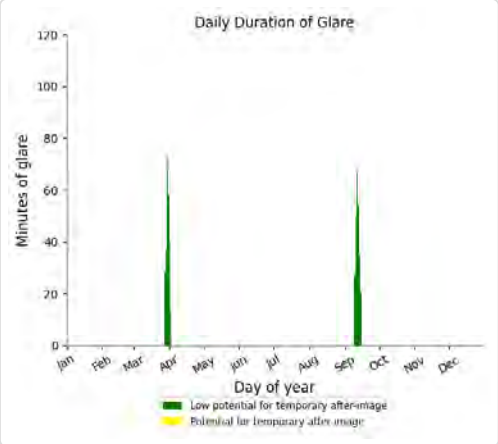


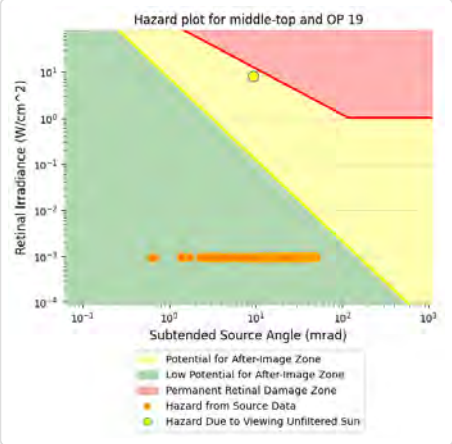
Middle Top and OP 19

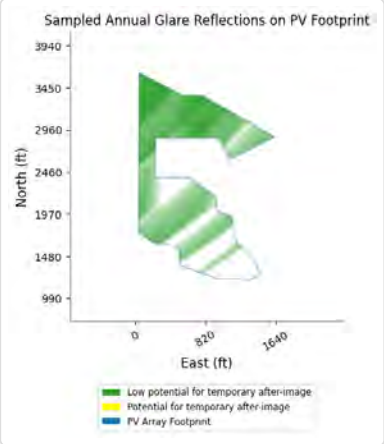
Yellow glare: none

Green glare: 502 min.





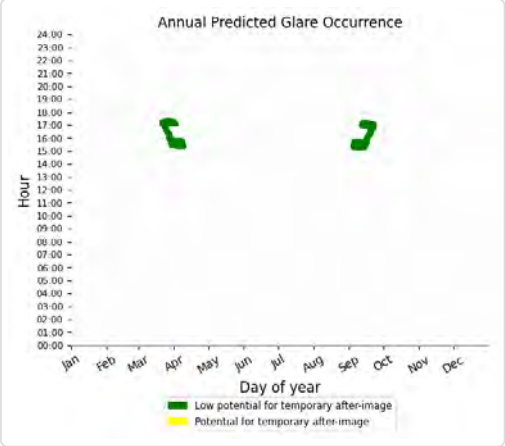


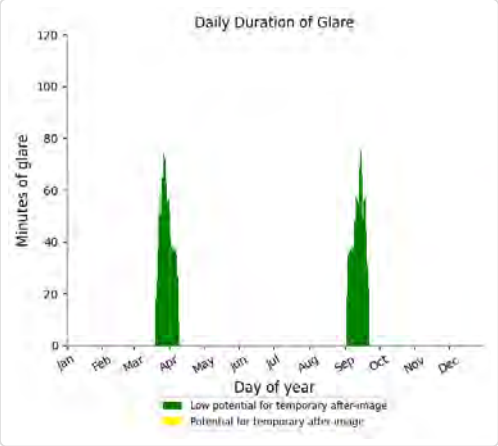


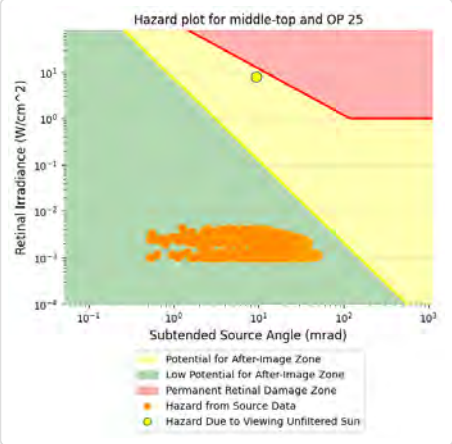
Middle Top and OP 25

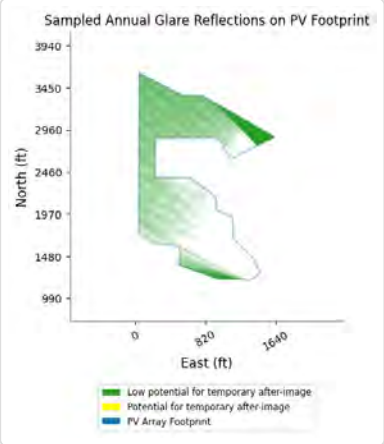
Yellow glare: none

Green glare: 1,863 min.









Middle Top and OP 4

No glare found

Middle Top and OP 5

No glare found

Middle Top and OP 6

No glare found

Middle Top and OP 7

No glare found

Middle Top and OP 8

No glare found

Middle Top and OP 9

No glare found

Middle Top and OP 10

No glare found

Middle Top and OP 11

No glare found

Middle Top and OP 15

No glare found

Middle Top and OP 20

No glare found

Middle Top and OP 21

No glare found

Middle Top and OP 24

No glare found

PV: Northeast 1 low potential for temporary after-image

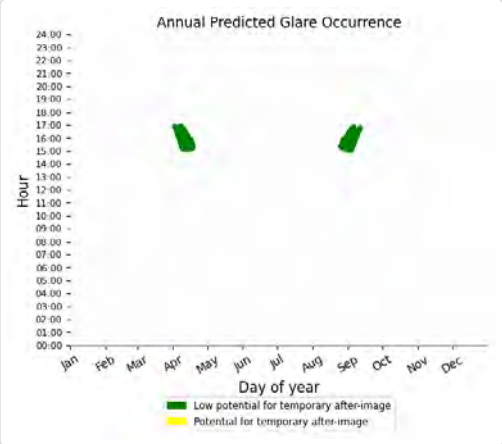
Receptor results ordered by category of glare

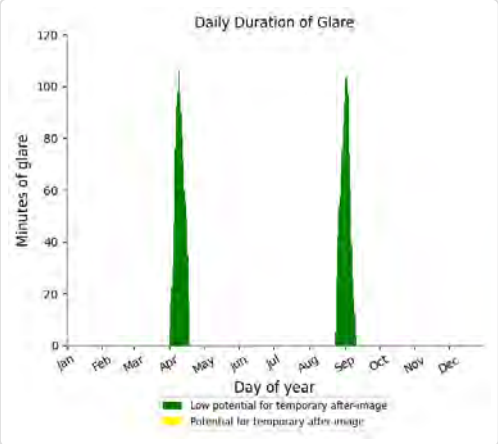
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
KY 1009	2,089	34.8	0	0.0
CR 1018	0	0.0	0	0.0
Massingale Rd	0	0.0	0	0.0
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 12	172	2.9	0	0.0
OP 13	510	8.5	0	0.0
OP 14	949	15.8	0	0.0
OP 16	51	0.8	0	0.0
OP 17	171	2.9	0	0.0
OP 18	21	0.3	0	0.0
OP 19	101	1.7	0	0.0
OP 25	844	14.1	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0

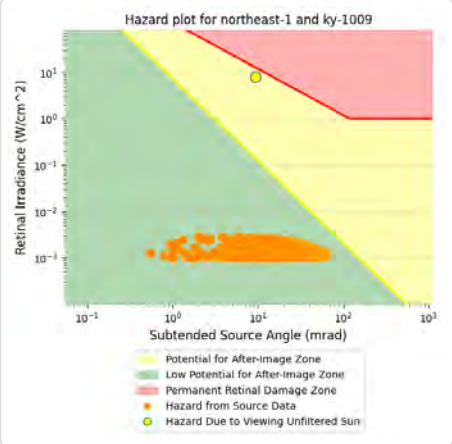
Northeast 1 and Route: KY 1009

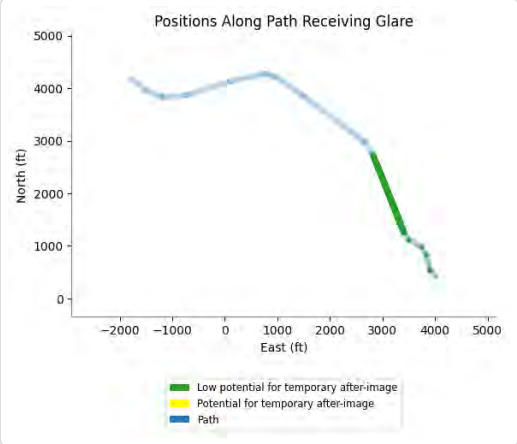
Yellow glare: none

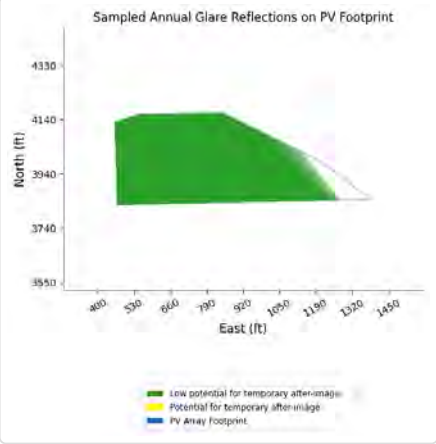
Green glare: 2,089 min.











Northeast 1 and Route: CR 1018

No glare found

Northeast 1 and Route: Massingale Rd

No glare found

Northeast 1 and FP: Wayne County Airport 1

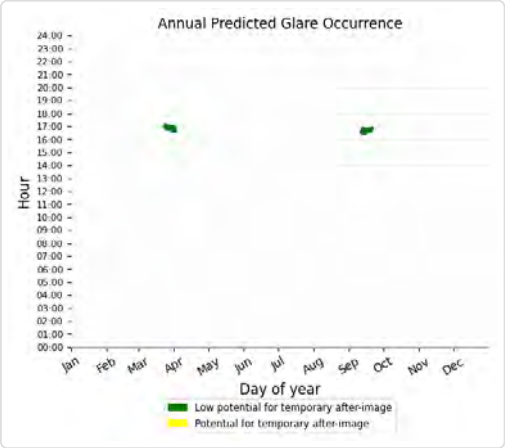
No glare found

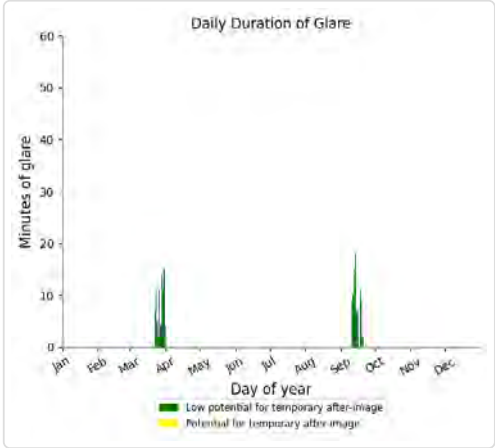
Northeast 1 and FP: Wayne County Airport 2

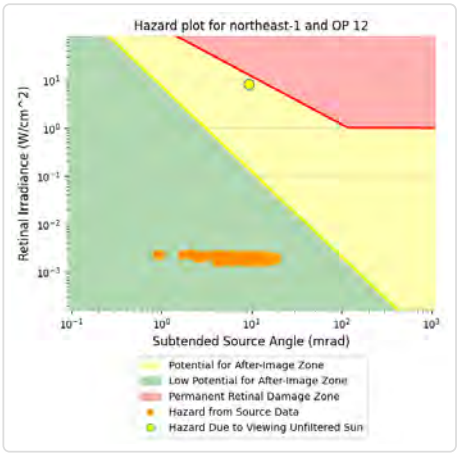
No glare found

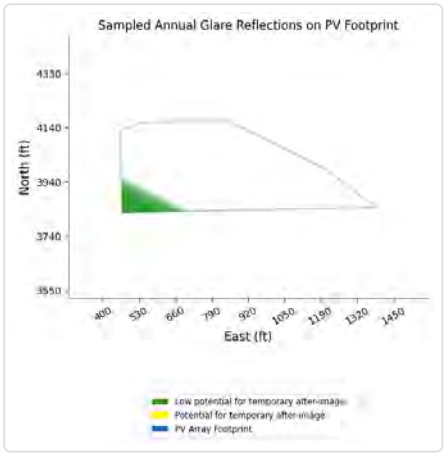
Northeast 1 and OP 12

Yellow glare: none
Green glare: 172 min.





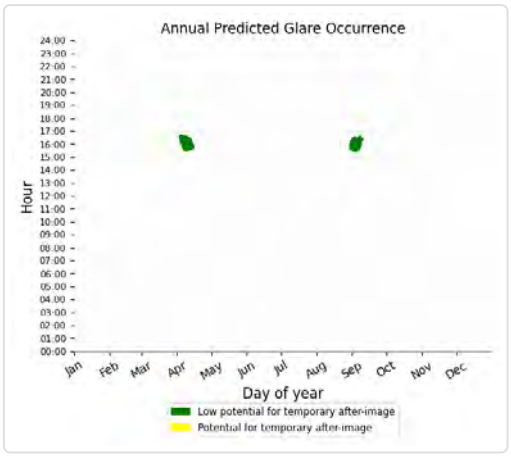


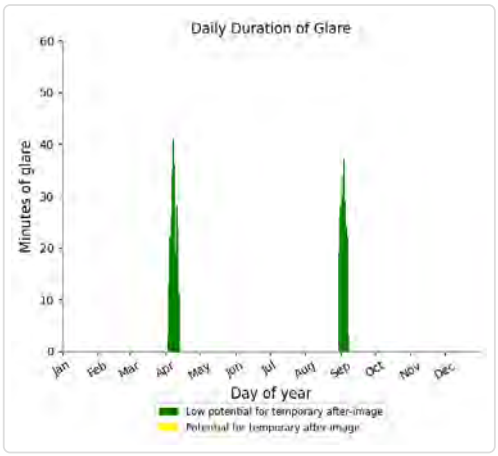


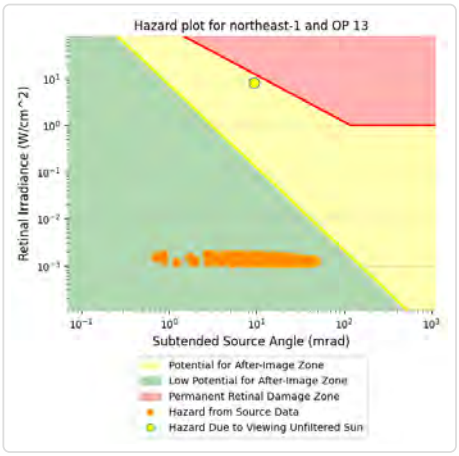
Northeast 1 and OP 13

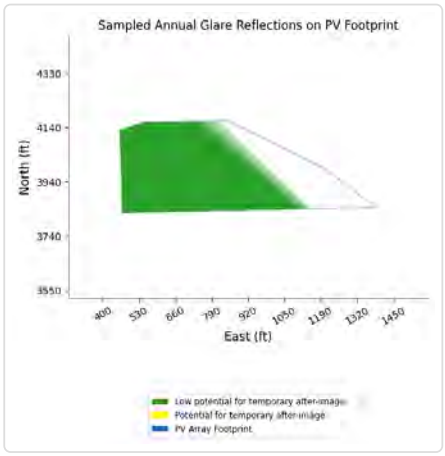
Yellow glare: none

Green glare: 510 min.





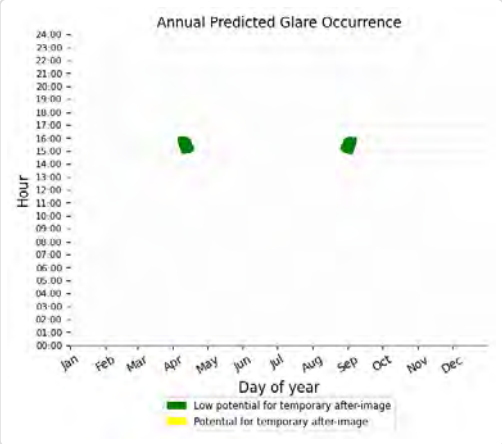


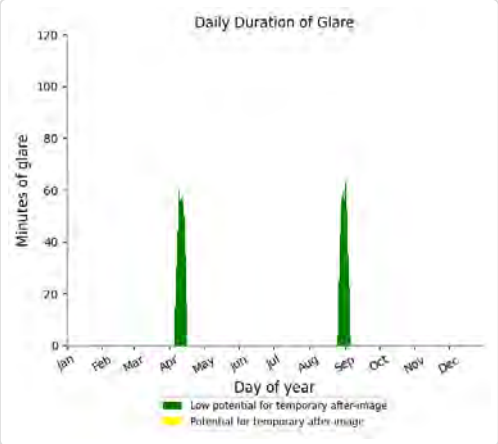


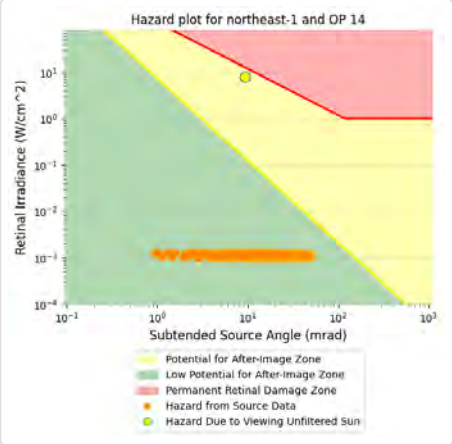
Northeast 1 and OP 14

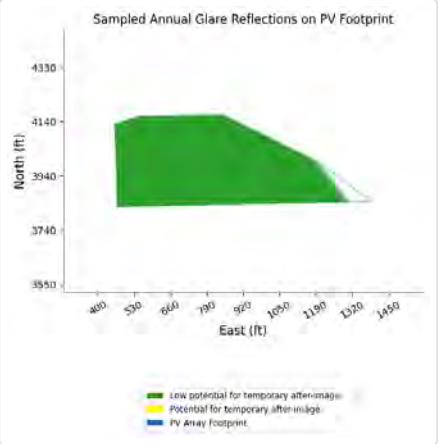
Yellow glare: none

Green glare: 949 min.





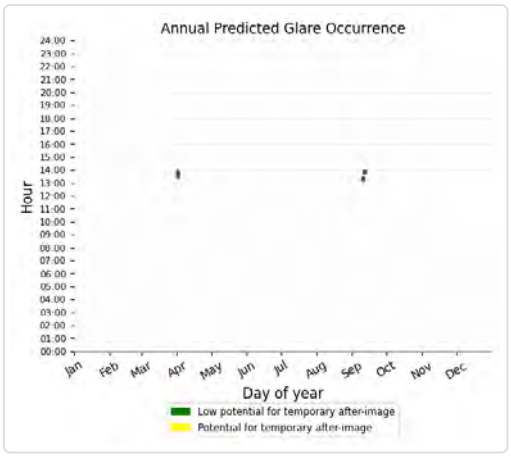


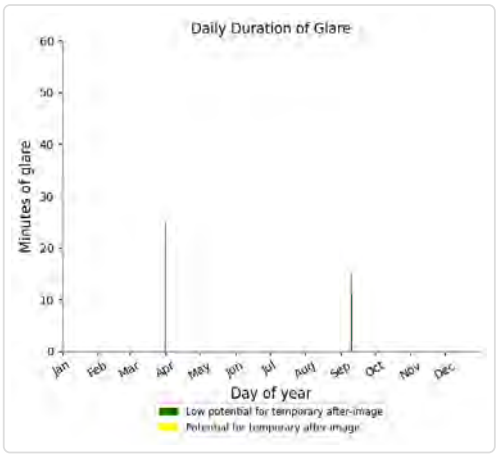


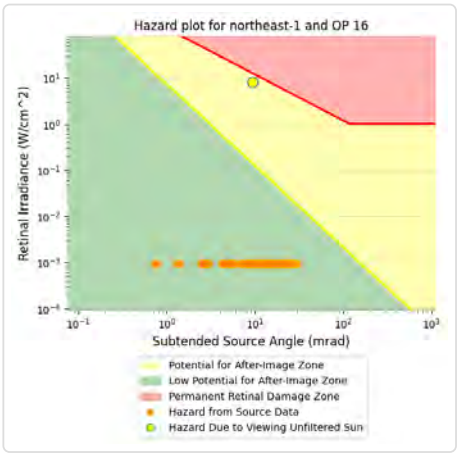
Northeast 1 and OP 16

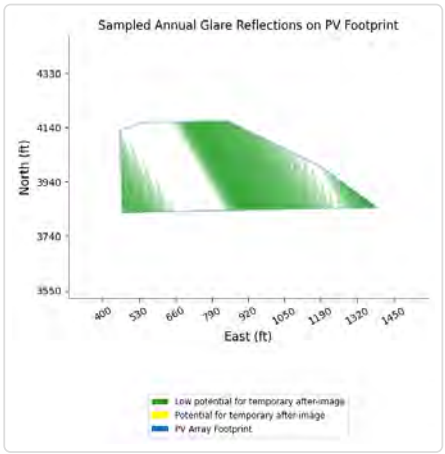
Yellow glare: none

Green glare: 51 min.





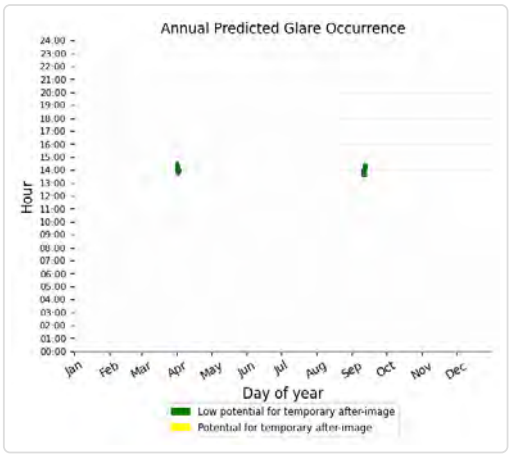


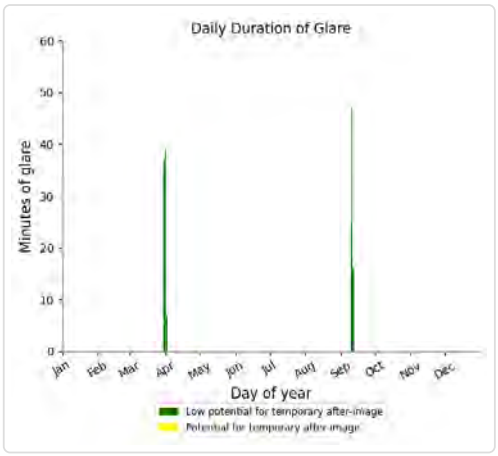


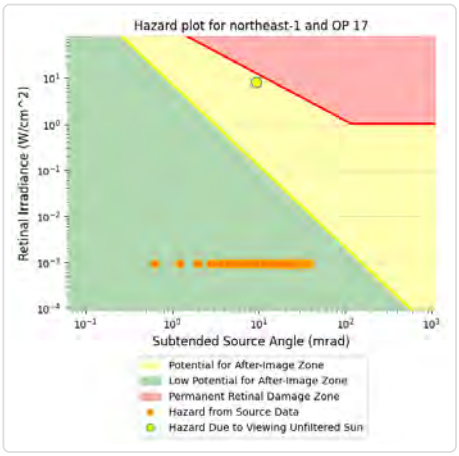
Northeast 1 and OP 17

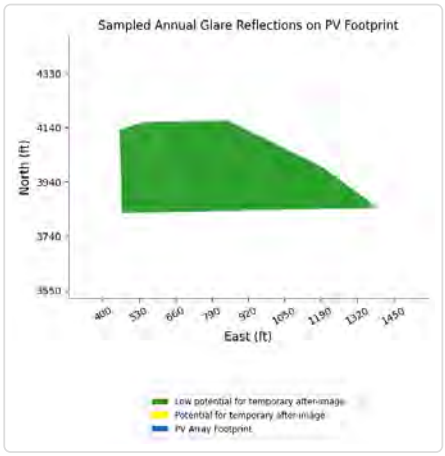
Yellow glare: none

Green glare: 171 min.





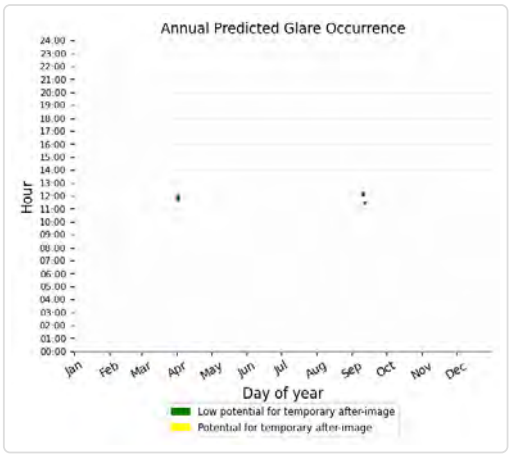


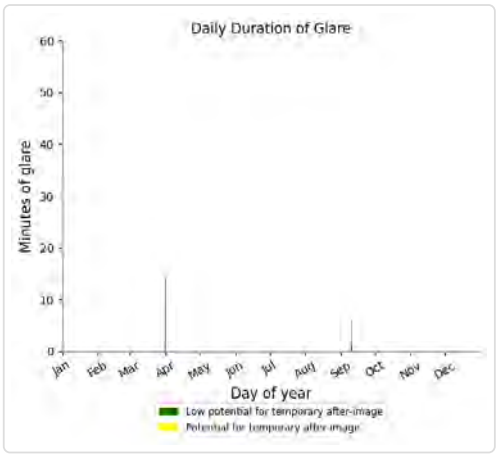


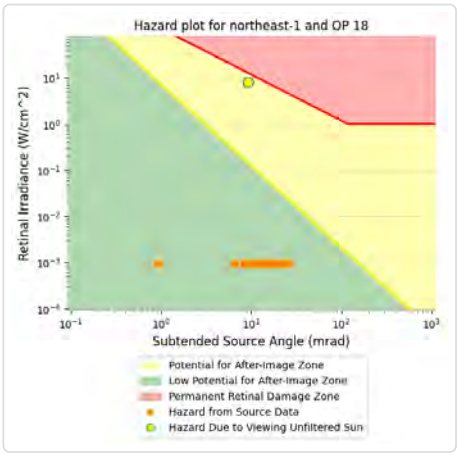
Northeast 1 and OP 18

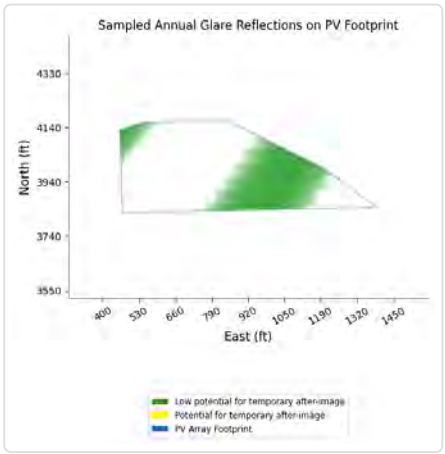
Yellow glare: none

Green glare: 21 min.





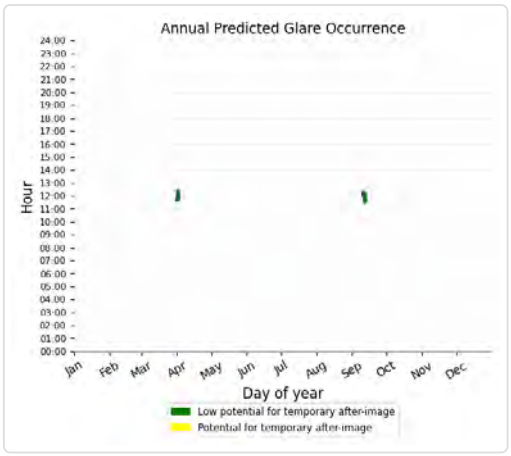


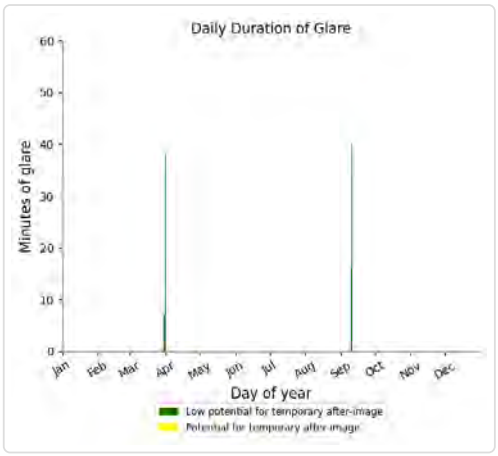


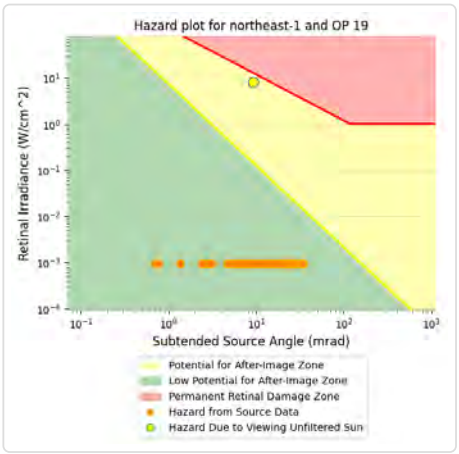
Northeast 1 and OP 19

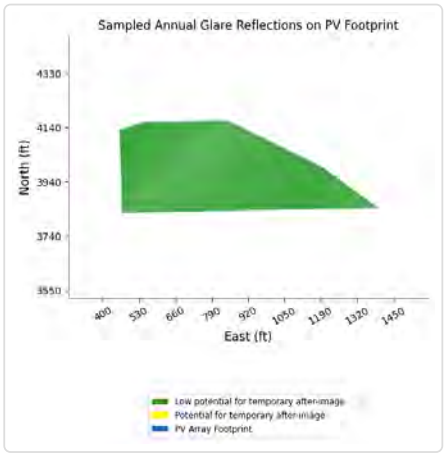
Yellow glare: none

Green glare: 101 min.





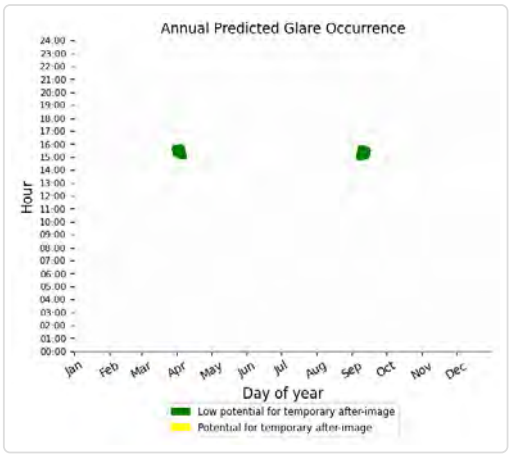


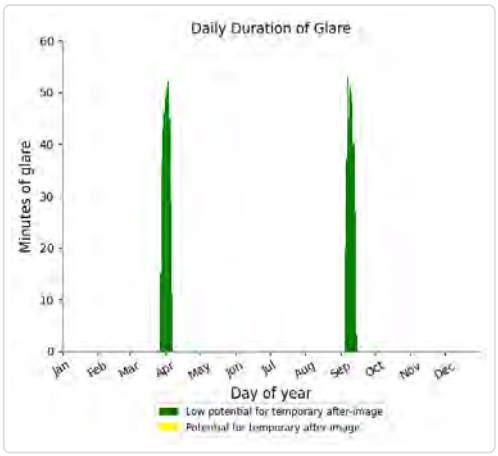


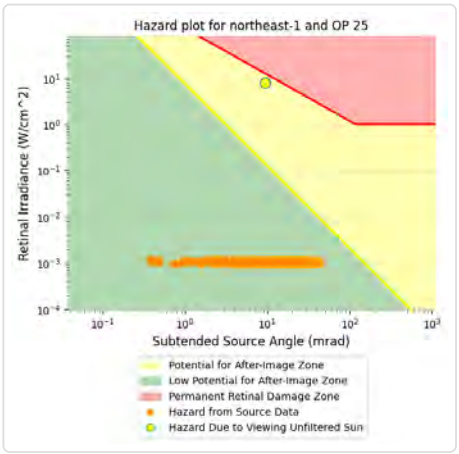
Northeast 1 and OP 25

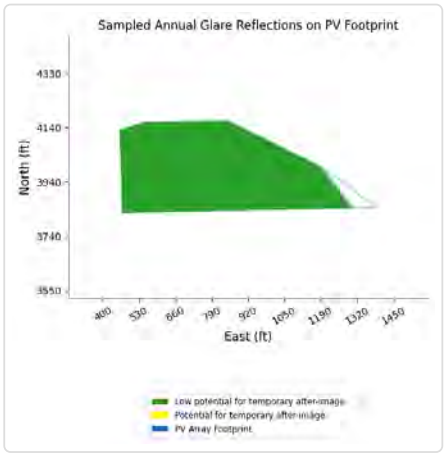
Yellow glare: none

Green glare: 844 min.









Northeast 1 and OP 4

No glare found

Northeast 1 and OP 5

No glare found

Northeast 1 and OP 6

No glare found

Northeast 1 and OP 7

No glare found

Northeast 1 and OP 8

No glare found

Northeast 1 and OP 9

No glare found

Northeast 1 and OP 10

No glare found

Northeast 1 and OP 11

No glare found

Northeast 1 and OP 15

No glare found

Northeast 1 and OP 20

No glare found

Northeast 1 and OP 21

No glare found

Northeast 1 and OP 24

No glare found

Northeast 1 and OP 26

No glare found

Northeast 1 and OP 27

No glare found

PV: Northeast 2 potential temporary after-image

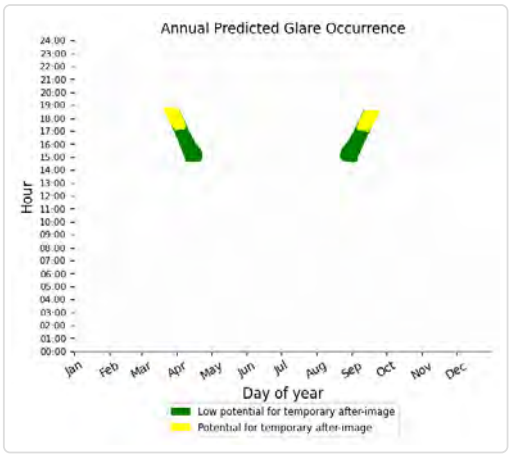
Receptor results ordered by category of glare

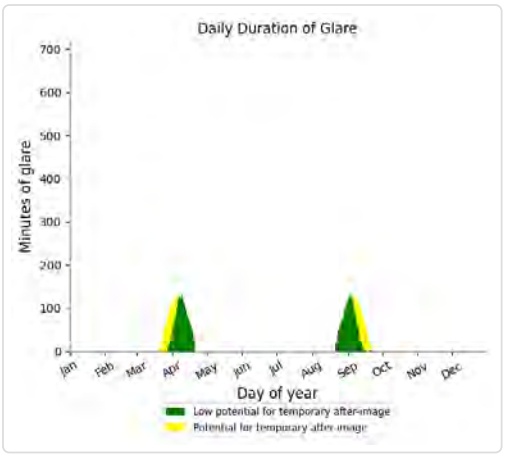
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
KY 1009	3,616	60.3	1,602	26.7
CR 1018	0	0.0	0	0.0
Massingale Rd	0	0.0	0	0.0
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 12	2,841	47.4	443	7.4
OP 11	594	9.9	0	0.0
OP 13	1,605	26.8	0	0.0
OP 14	1,415	23.6	0	0.0
OP 16	117	1.9	0	0.0
OP 17	284	4.7	0	0.0
OP 18	60	1.0	0	0.0
OP 19	122	2.0	0	0.0
OP 24	230	3.8	0	0.0
OP 25	996	16.6	0	0.0
OP 27	1,643	27.4	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 26	0	0.0	0	0.0

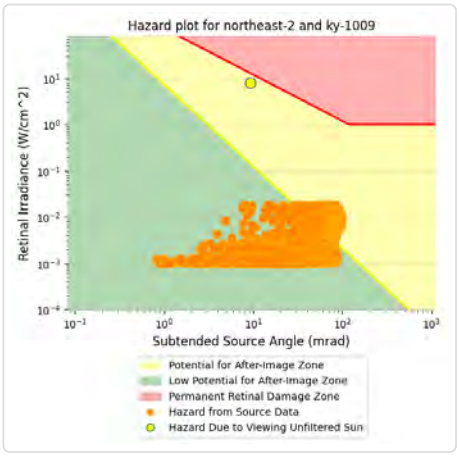
Northeast 2 and Route: KY 1009

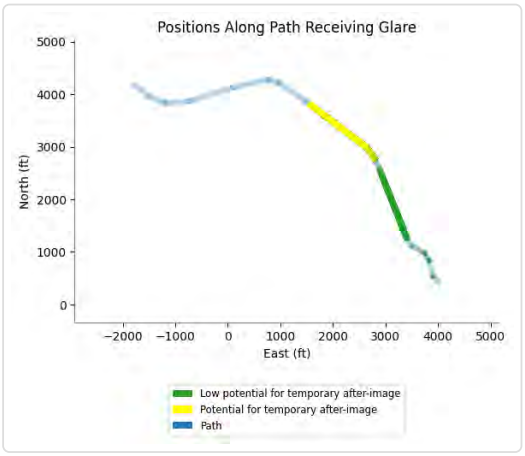
Yellow glare: 1,602 min.

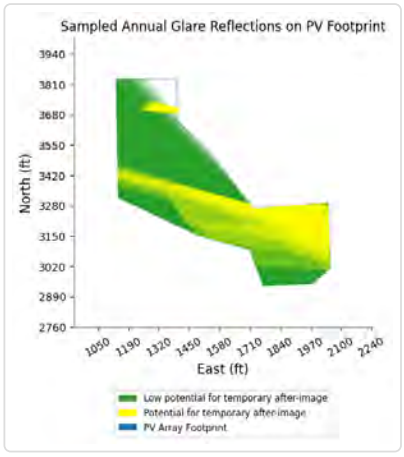
Green glare: 3,616 min.











Northeast 2 and Route: CR 1018

No glare found

Northeast 2 and Route: Massingale Rd

No glare found

Northeast 2 and FP: Wayne County Airport 1

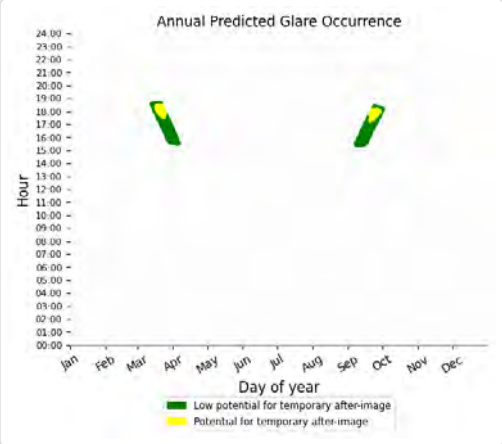
No glare found

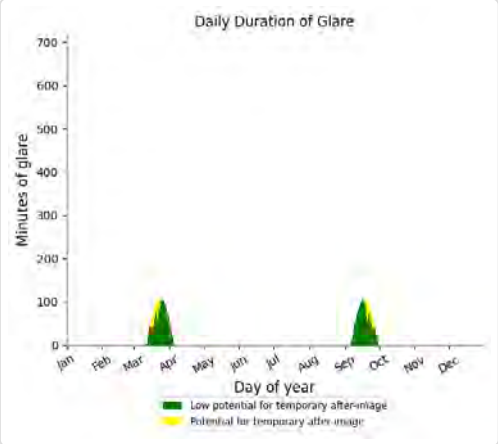
Northeast 2 and FP: Wayne County Airport 2

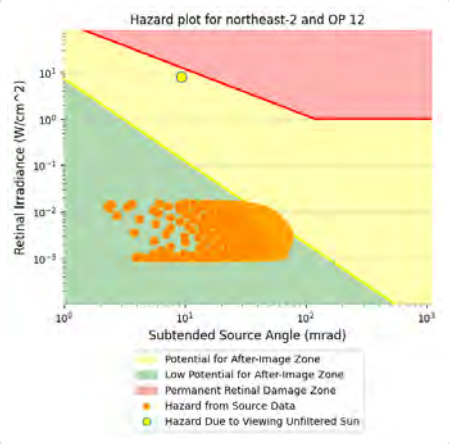
No glare found

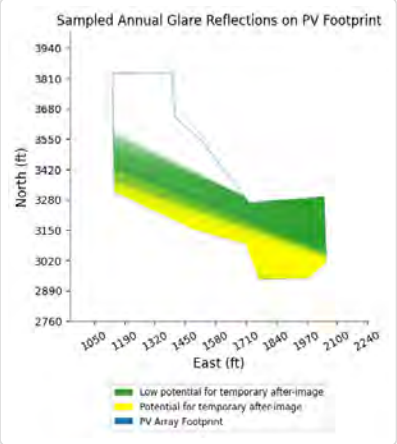
Northeast 2 and OP 12

Yellow glare: 443 min.
Green glare: 2,841 min.





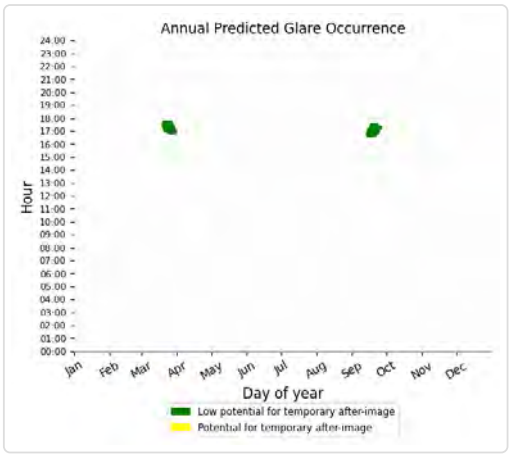


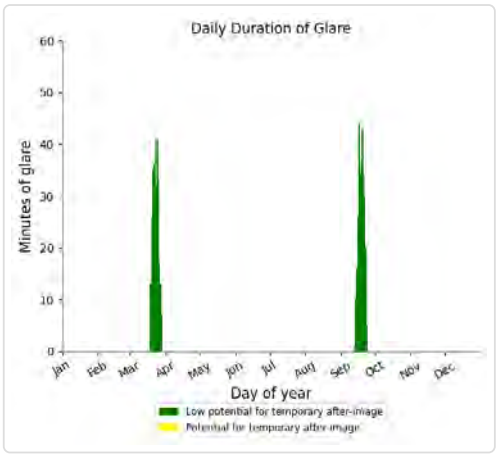


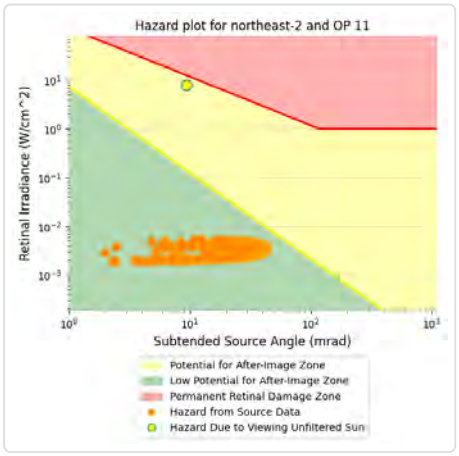
Northeast 2 and OP 11

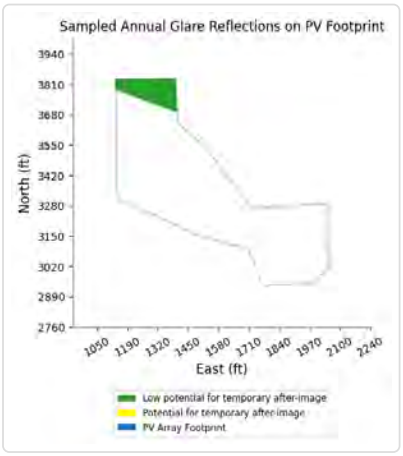
Yellow glare: none

Green glare: 594 min.





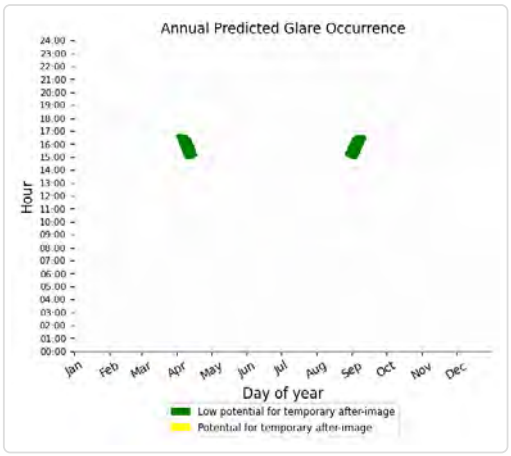


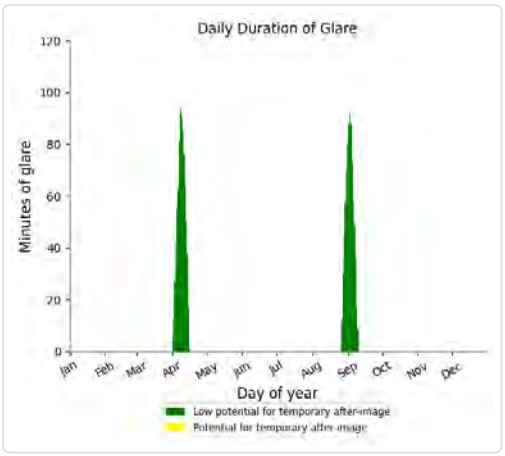


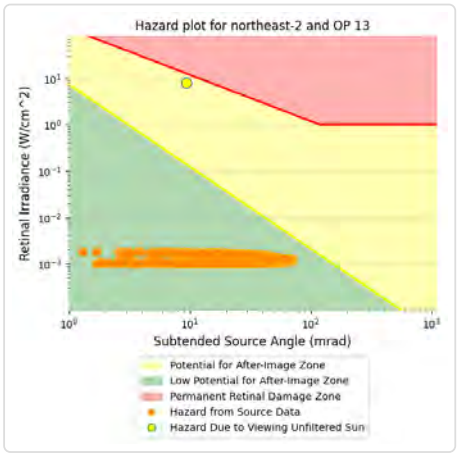
Northeast 2 and OP 13

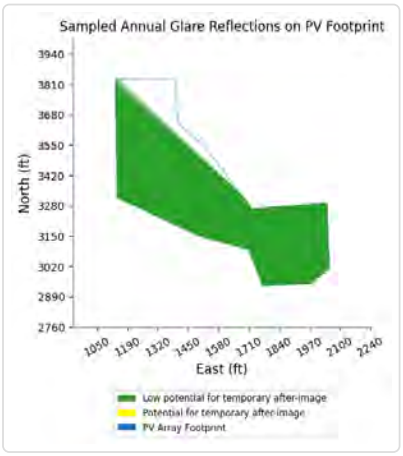
Yellow glare: none

Green glare: 1,605 min.





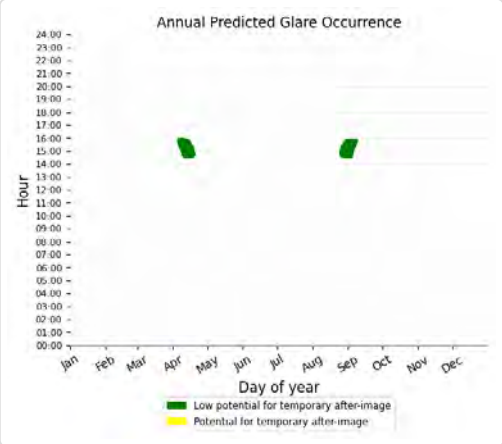


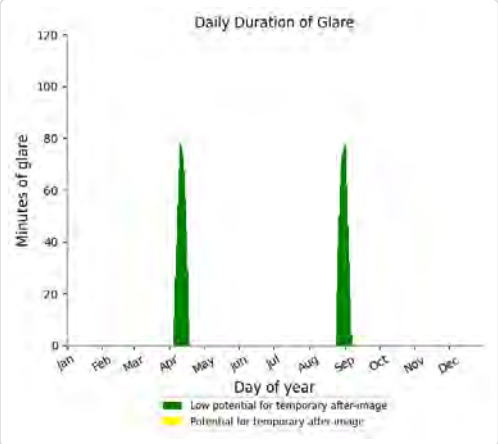


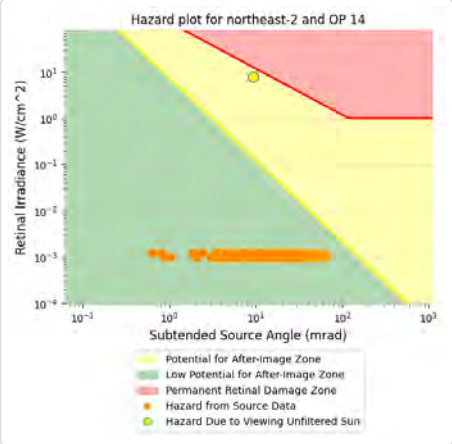
Northeast 2 and OP 14

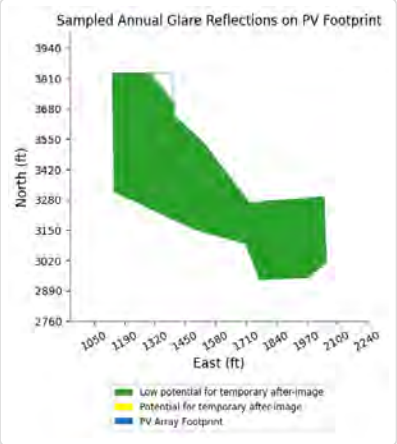
Yellow glare: none

Green glare: 1,415 min.





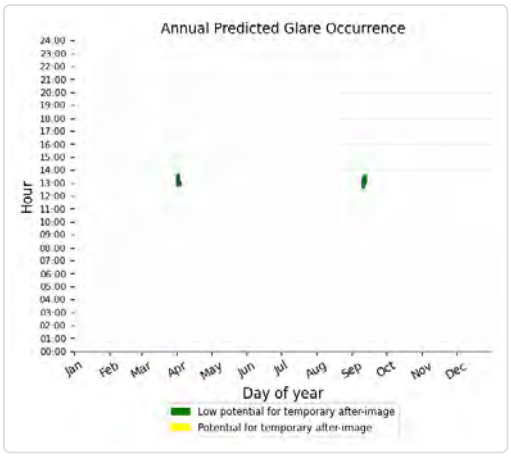


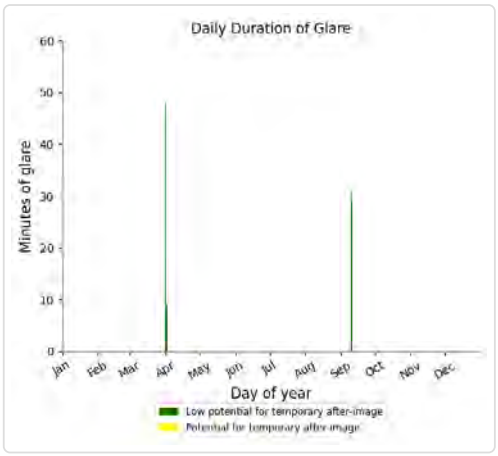


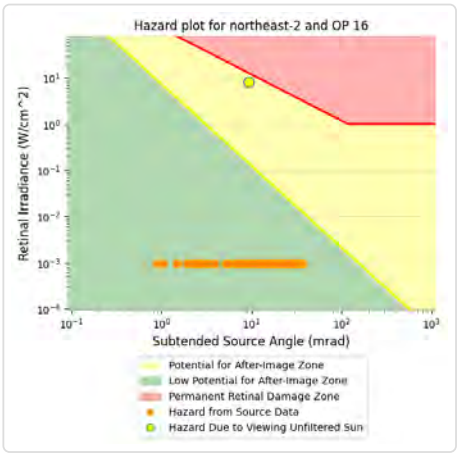
Northeast 2 and OP 16

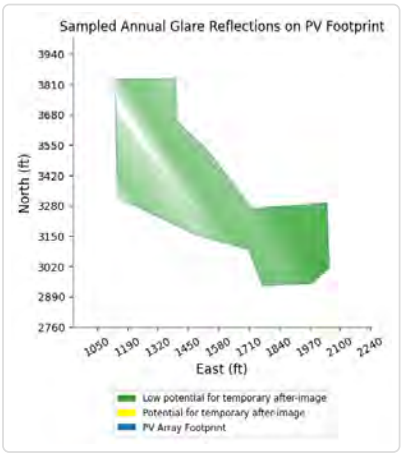
Yellow glare: none

Green glare: 117 min.





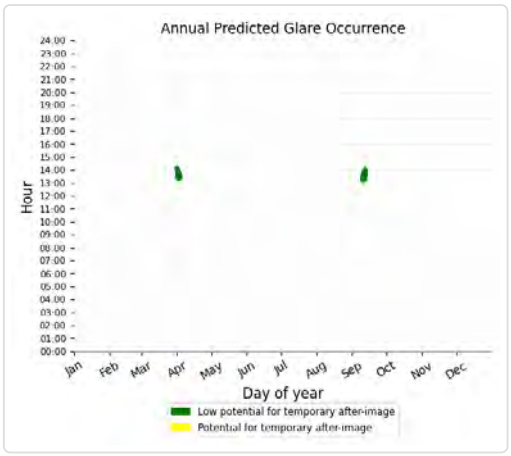


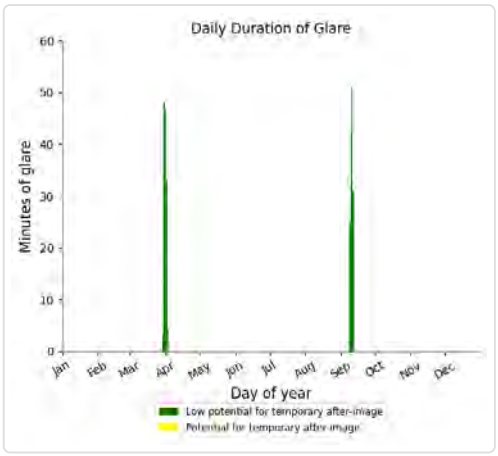


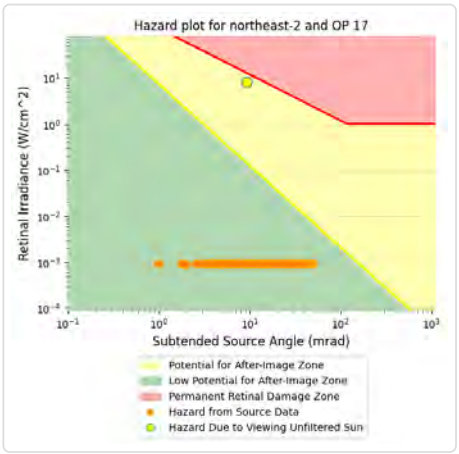
Northeast 2 and OP 17

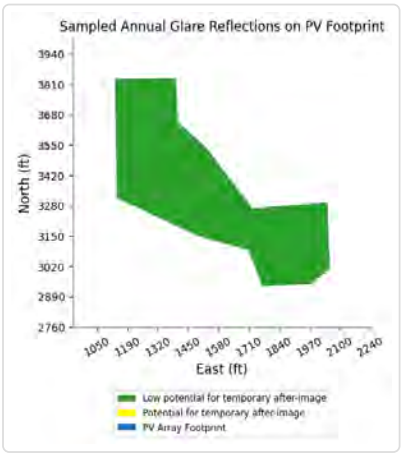
Yellow glare: none

Green glare: 284 min.





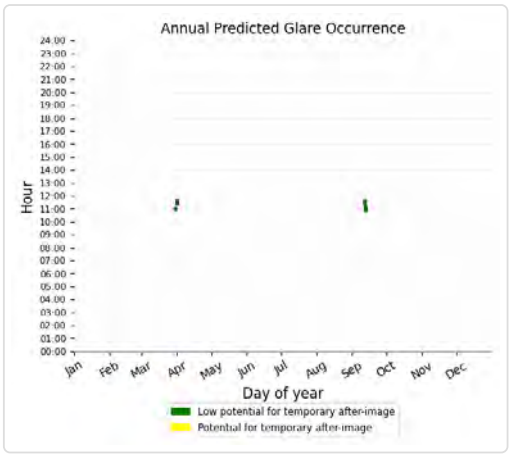


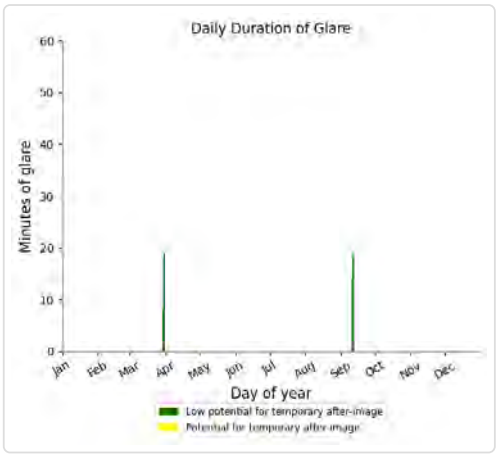


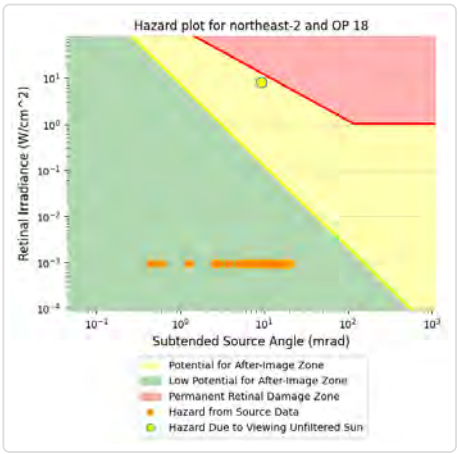
Northeast 2 and OP 18

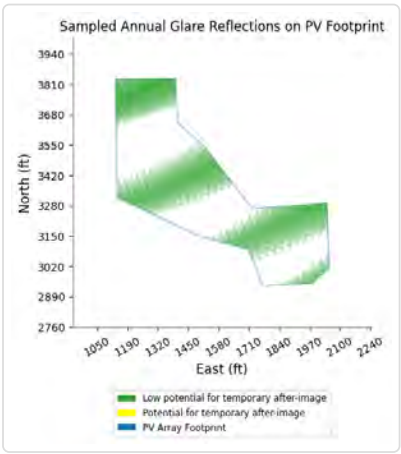
Yellow glare: none

Green glare: 60 min.





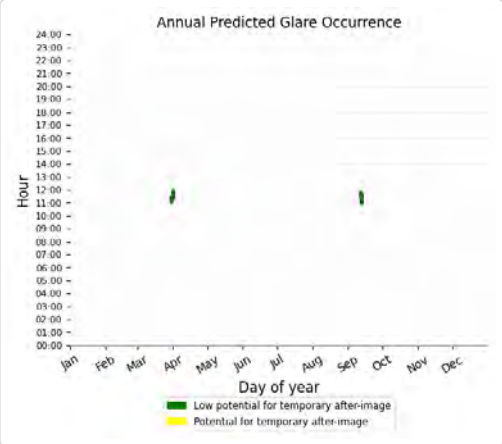


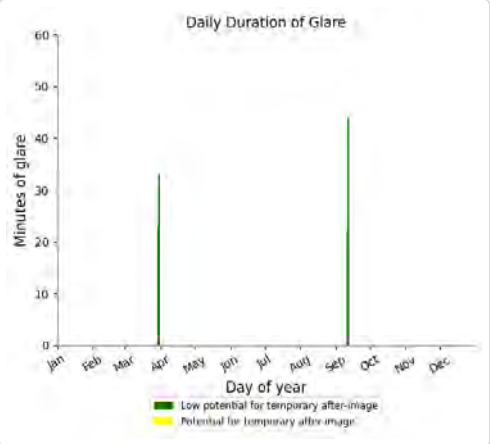


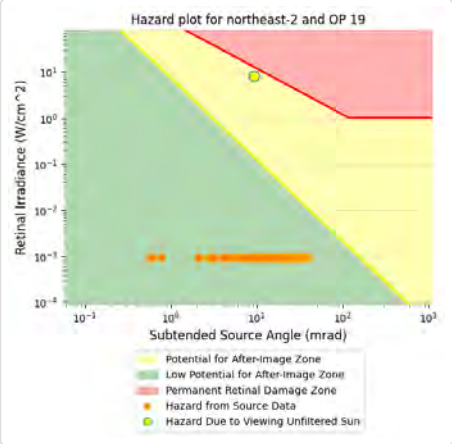
Northeast 2 and OP 19

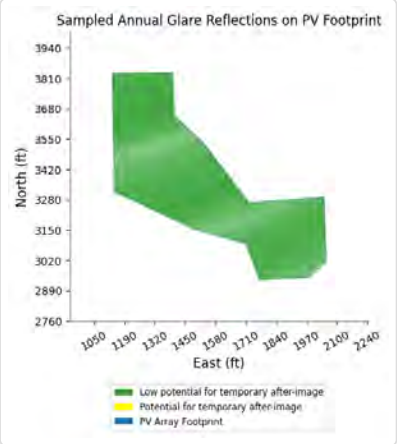
Yellow glare: none

Green glare: 122 min.





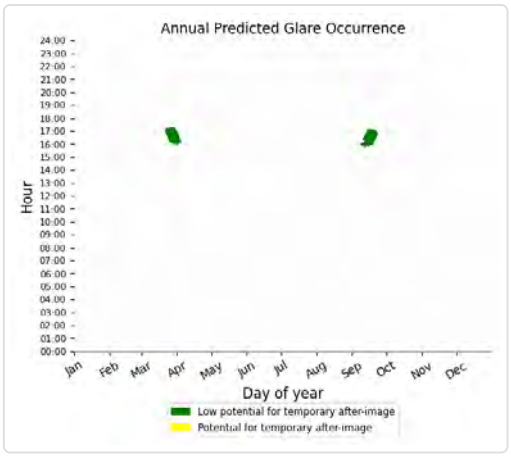


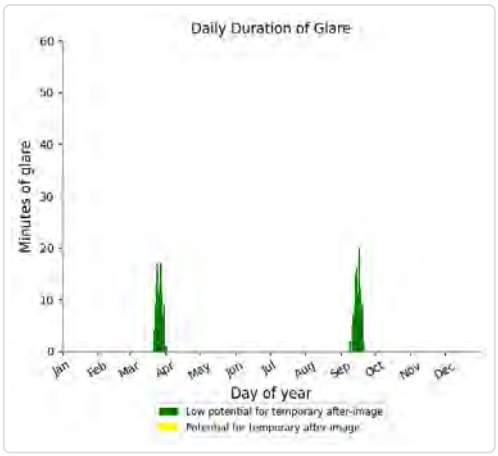


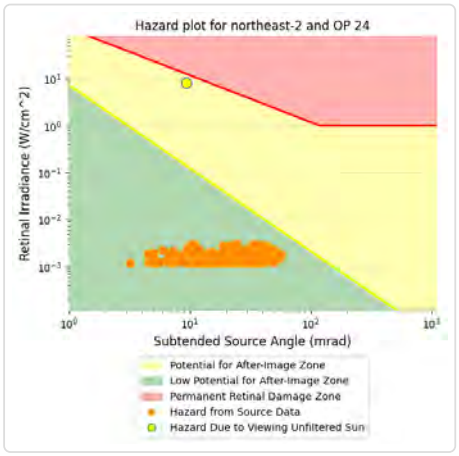
Northeast 2 and OP 24

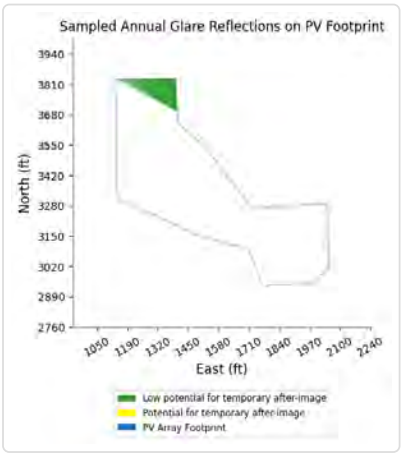
Yellow glare: none

Green glare: 230 min.





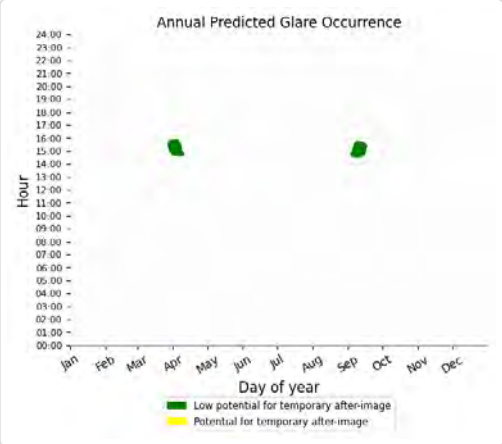


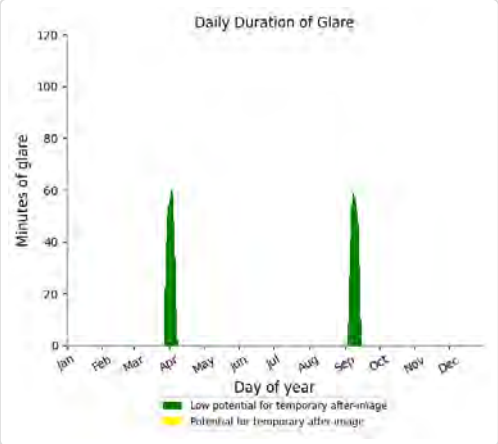


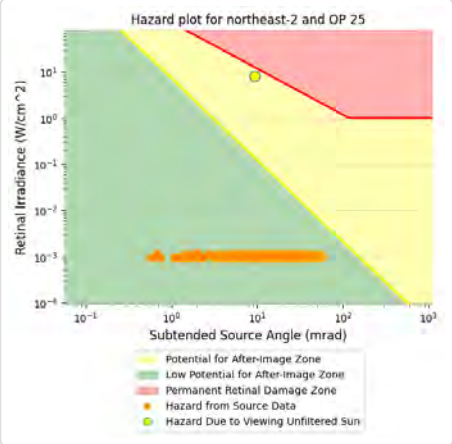
Northeast 2 and OP 25

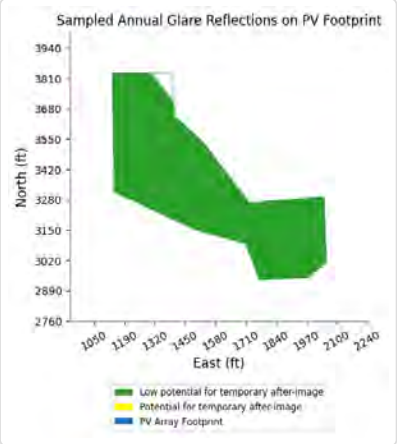
Yellow glare: none

Green glare: 996 min.





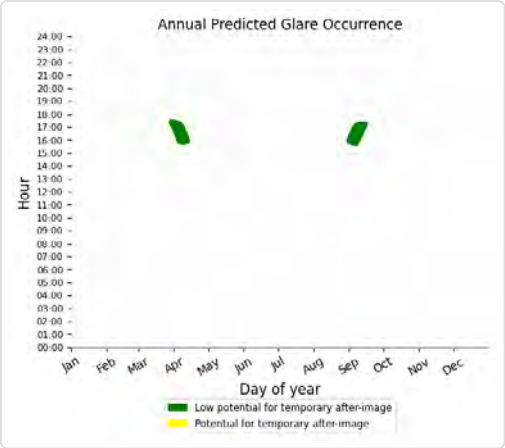


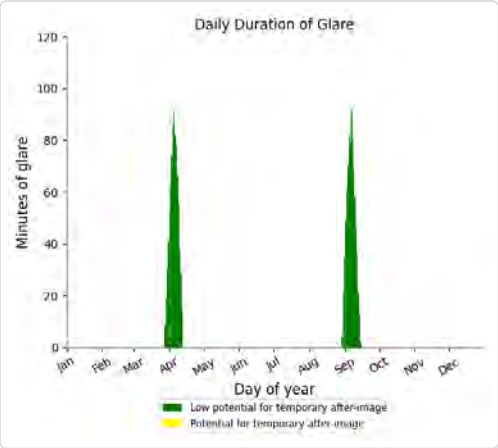


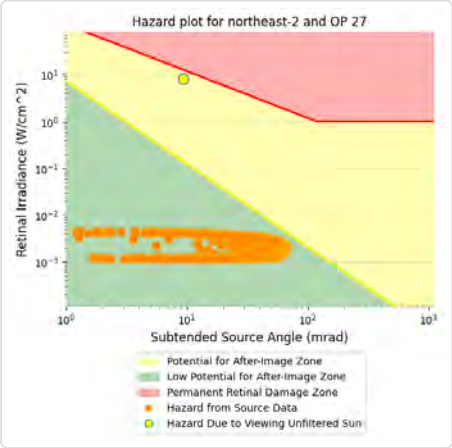
Northeast 2 and OP 27

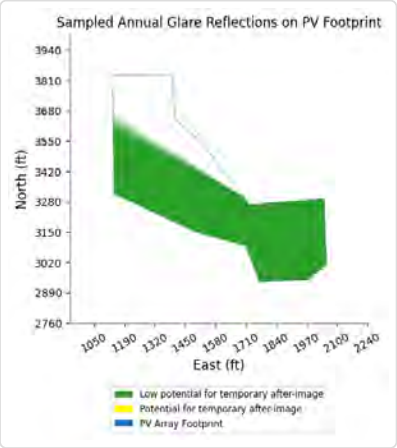
Yellow glare: none

Green glare: 1,643 min.









Northeast 2 and OP 4

No glare found

Northeast 2 and OP 5

No glare found

Northeast 2 and OP 6

No glare found

Northeast 2 and OP 7

No glare found

Northeast 2 and OP 8

No glare found

Northeast 2 and OP 9

No glare found

Northeast 2 and OP 10

No glare found

Northeast 2 and OP 15

No glare found

Northeast 2 and OP 20

No glare found

Northeast 2 and OP 21

No glare found

Northeast 2 and OP 26

No glare found

PV: West Array low potential for temporary after-image

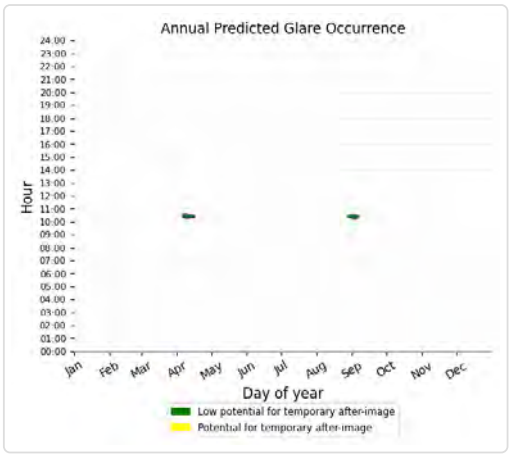
Receptor results ordered by category of glare

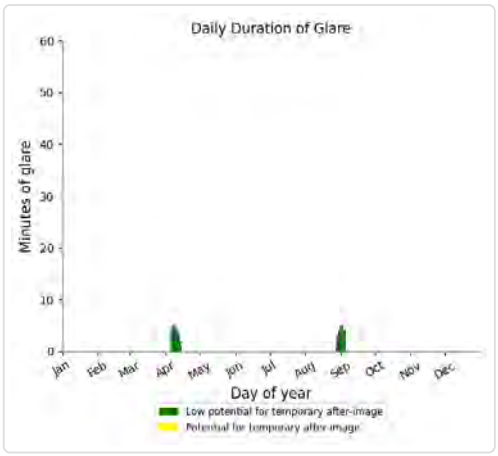
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Massingale Rd	73	1.2	0	0.0
CR 1018	0	0.0	0	0.0
KY 1009	0	0.0	0	0.0
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 4	221	3.7	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0

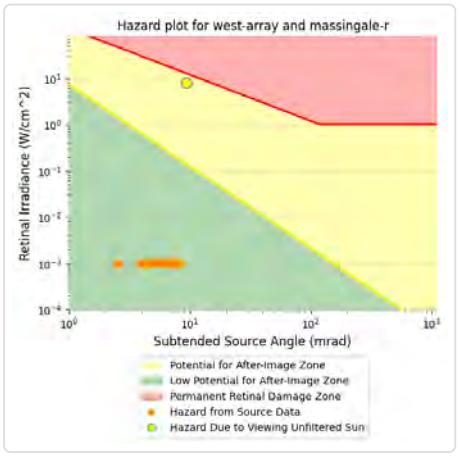
West Array and Route: Massingale Rd

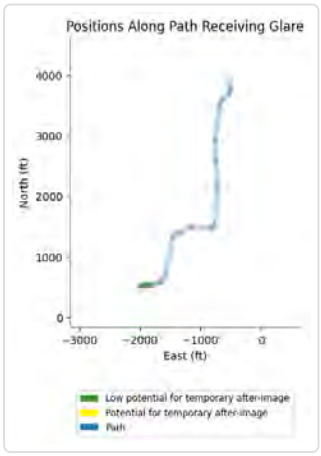
Yellow glare: none

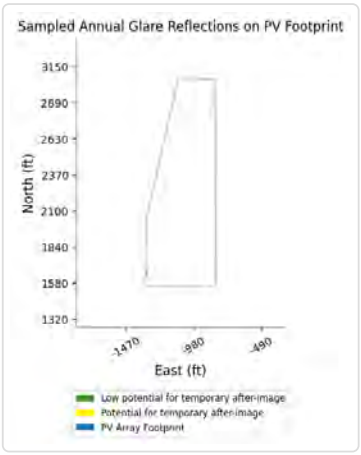
Green glare: 73 min.











West Array and Route: CR 1018

No glare found

West Array and Route: KY 1009

No glare found

West Array and FP: Wayne County Airport 1

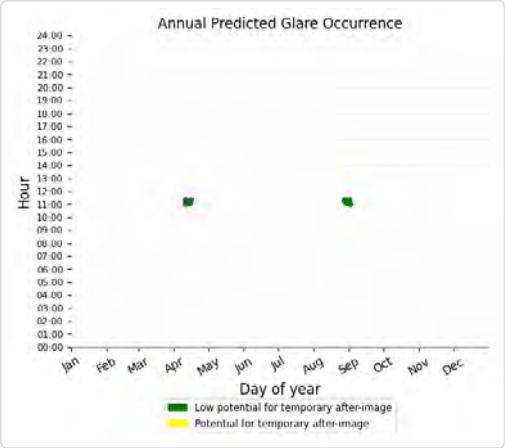
No glare found

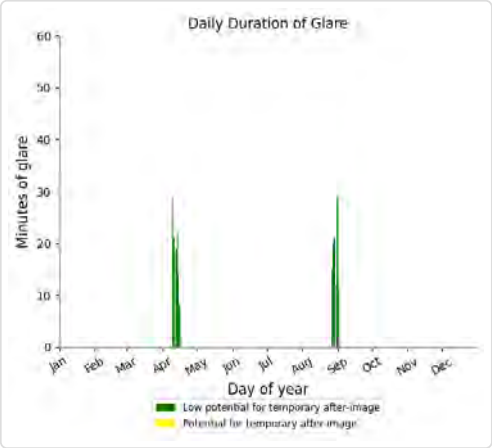
West Array and FP: Wayne County Airport 2

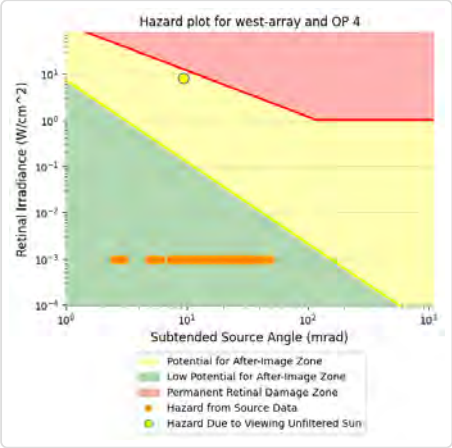
No glare found

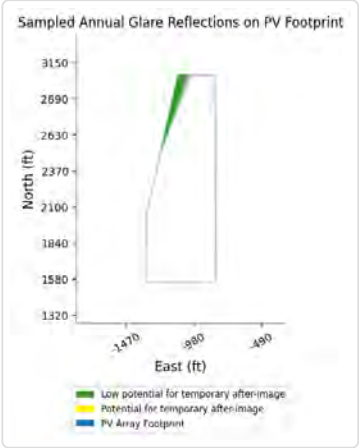
West Array and OP 4

Yellow glare: none
Green glare: 221 min.









West Array and OP 5

No glare found

West Array and OP 6

No glare found

West Array and OP 7

No glare found

West Array and OP 8

No glare found

West Array and OP 9

No glare found

West Array and OP 10

No glare found

West Array and OP 11

No glare found

West Array and OP 12

No glare found

West Array and OP 13

No glare found

West Array and OP 14

No glare found

West Array and OP 15

No glare found

West Array and OP 16

No glare found

West Array and OP 17

No glare found

West Array and OP 18

No glare found

West Array and OP 19

No glare found

West Array and OP 20

No glare found

West Array and OP 21

No glare found

West Array and OP 24

No glare found

West Array and OP 25

No glare found

West Array and OP 26

No glare found

West Array and OP 27

No glare found

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, we have validated our models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque, and the tool accurately predicted the occurrence and intensity of glare at different times and days of the year.
Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare. This primarily affects V1 analyses of path receptors.
Random number computations are utilized by various steps of the annual hazard analysis algorithm. Predicted minutes of glare can vary between runs as a result. This limitation primarily affects analyses of Observation Point receptors, including ATCTs. Note that the SGHAT/ ForgeSolar methodology has always relied on an analytical, qualitative approach to accurately determine the overall hazard (i.e. green vs. yellow) of expected glare on an annual basis.
The analysis does not automatically consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
The variable direct normal irradiance (DNI) feature (if selected) scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors.
The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain. We provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results. The speed of SGHAT allows expedited sensitivity and parametric analyses.
The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

ForgeSolar Glare Analysis Results – Tracking Panels

FORGESOLAR GLARE ANALYSIS

Project: **Barrelhead Solar**
Site configuration: **5 - changed panels to tracking**

Created 03 Dec, 2025
Updated 03 Dec, 2025
Time-step 1 minute
Timezone offset UTC-5
Minimum sun altitude 0.0 deg
DNI peaks at 1,000.0 W/m^2
Category 10 MW to 100 MW
Site ID 166302.25673

Ocular transmission coefficient 0.5
Pupil diameter 0.002 m
Eye focal length 0.017 m
Sun subtended angle 9.3 mrad
PV analysis methodology V2

Summary of Results

Glare with potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
Bottom	SA tracking	SA tracking	64	1.1	0	0.0	-
Main Northwest	SA tracking	SA tracking	0	0.0	0	0.0	-
Main Southwest	SA tracking	SA tracking	0	0.0	0	0.0	-
Middle bottom	SA tracking	SA tracking	0	0.0	0	0.0	-
Middle Top	SA tracking	SA tracking	1,503	25.1	2,689	44.8	-
Northeast 1	SA tracking	SA tracking	126	2.1	0	0.0	-
Northeast 2	SA tracking	SA tracking	0	0.0	0	0.0	-
West Array	SA tracking	SA tracking	0	0.0	0	0.0	-

Total glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
CR 1018	0	0.0	0	0.0
KY 1009	409	6.8	2,302	38.4
Massingale Rd	0	0.0	0	0.0

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	454	7.6	96	1.6
OP 13	193	3.2	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	205	3.4	0	0.0
OP 26	237	4.0	55	0.9
OP 27	195	3.2	236	3.9

Component Data

PV Arrays

Name: Bottom
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.45
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.774043	-85.008190	943.39	10.00	953.39
2	36.772093	-85.008233	910.63	10.00	920.63
3	36.772067	-85.007342	909.30	10.00	919.30
4	36.772376	-85.006484	909.29	10.00	919.29
5	36.772462	-85.005545	919.07	10.00	929.07
6	36.772986	-85.004456	900.91	10.00	910.91
7	36.773356	-85.003115	904.55	10.00	914.55
8	36.774499	-85.000980	915.81	10.00	925.81
9	36.774705	-85.000991	915.48	10.00	925.48
10	36.774783	-85.006645	928.83	10.00	938.83

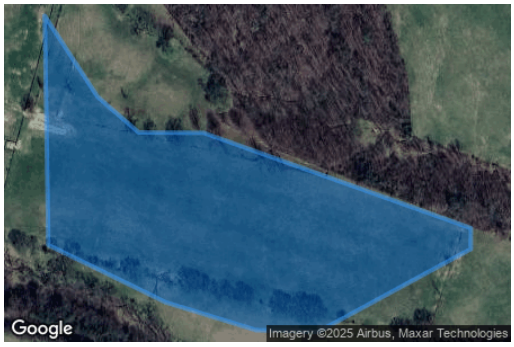
Name: Main Northwest
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.45
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.778980	-85.010442	992.84	10.00	1002.84
2	36.780138	-85.010367	978.25	10.00	988.25
3	36.782314	-85.010474	982.09	10.00	992.09
4	36.782344	-85.009809	991.10	10.00	1001.10
5	36.782473	-85.009747	994.28	10.00	1004.28
6	36.782709	-85.009555	995.33	10.00	1005.33
7	36.783204	-85.009541	997.21	10.00	1007.21
8	36.783470	-85.009087	1011.10	10.00	1021.10
9	36.784518	-85.009082	998.90	10.00	1008.90
10	36.784531	-85.008532	1019.82	10.00	1029.82
11	36.783986	-85.008511	1012.27	10.00	1022.27
12	36.783988	-85.008092	1013.38	10.00	1023.38
13	36.777222	-85.008173	950.34	10.00	960.34
14	36.777213	-85.008857	942.66	10.00	952.66
15	36.777536	-85.009954	956.40	10.00	966.40
16	36.778978	-85.009927	990.45	10.00	1000.45

Name: Main Southwest
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.45
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.776773	-85.012924	976.87	10.00	986.87
2	36.775746	-85.012474	978.30	10.00	988.30
3	36.773705	-85.011457	953.18	10.00	963.18
4	36.773687	-85.010612	949.61	10.00	959.61
5	36.774085	-85.010250	953.72	10.00	963.72
6	36.774070	-85.009319	949.15	10.00	959.15
7	36.774289	-85.008912	947.76	10.00	957.76
8	36.775905	-85.008853	955.72	10.00	965.72
9	36.776429	-85.009625	957.09	10.00	967.09
10	36.776468	-85.011599	952.85	10.00	962.85
11	36.776760	-85.011800	955.87	10.00	965.87

Name: Middle bottom
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.45
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.778244	-85.008037	964.29	10.00	974.29
2	36.776495	-85.008003	922.02	10.00	932.02
3	36.776057	-85.006881	914.52	10.00	924.52
4	36.775846	-85.006026	917.58	10.00	927.58
5	36.775833	-85.005433	914.00	10.00	924.00
6	36.776465	-85.003979	925.55	10.00	935.55
7	36.776624	-85.003979	926.40	10.00	936.40
8	36.777350	-85.006522	945.26	10.00	955.26
9	36.777354	-85.007144	956.13	10.00	966.13
10	36.777625	-85.007533	960.72	10.00	970.72

Name: Middle Top
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.45
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.778837	-85.008033	950.88	10.00	960.88
2	36.783987	-85.008015	1013.10	10.00	1023.10
3	36.783273	-85.006310	994.81	10.00	1004.81
4	36.783259	-85.005507	978.47	10.00	988.47
5	36.781925	-85.002621	952.24	10.00	962.24
6	36.781213	-85.004391	967.43	10.00	977.43
7	36.781888	-85.004852	971.02	10.00	981.02
8	36.781884	-85.007363	981.32	10.00	991.32
9	36.780642	-85.007379	984.02	10.00	994.02
10	36.780616	-85.005984	982.34	10.00	992.34
11	36.780015	-85.004965	972.34	10.00	982.34
12	36.779568	-85.004941	971.88	10.00	981.88
13	36.779362	-85.004290	944.63	10.00	954.63
14	36.778674	-85.004271	948.27	10.00	958.27
15	36.778025	-85.003462	929.09	10.00	939.09
16	36.777566	-85.003179	924.01	10.00	934.01
17	36.777342	-85.003549	905.50	10.00	915.50
18	36.777368	-85.004901	913.20	10.00	923.20
19	36.777815	-85.006429	928.12	10.00	938.12
20	36.778416	-85.006413	956.41	10.00	966.41
21	36.778520	-85.007416	936.22	10.00	946.22

Name: Northeast 1
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.45
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.785369	-85.006633	1012.24	10.00	1022.24
2	36.785451	-85.006336	1012.86	10.00	1022.86
3	36.785461	-85.005303	1019.74	10.00	1029.74
4	36.785001	-85.004141	1007.26	10.00	1017.26
5	36.784603	-85.003467	1001.55	10.00	1011.55
6	36.784553	-85.006605	1015.80	10.00	1025.80

Name: Northeast 2
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.45
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

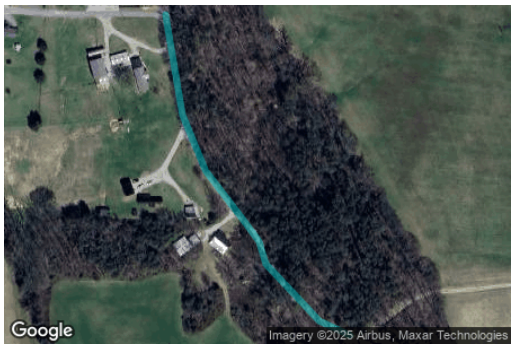
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.784553	-85.004340	994.36	10.00	1004.36
2	36.783148	-85.004308	958.78	10.00	968.78
3	36.782697	-85.003111	968.98	10.00	978.98
4	36.782532	-85.002366	966.19	10.00	976.19
5	36.782102	-85.002164	972.84	10.00	982.84
6	36.782132	-85.001432	983.49	10.00	993.49
7	36.782317	-85.001180	985.62	10.00	995.62
8	36.783086	-85.001210	989.88	10.00	999.88
9	36.783017	-85.002317	985.66	10.00	995.66
10	36.783755	-85.003019	985.48	10.00	995.48
11	36.784044	-85.003420	987.27	10.00	997.27
12	36.784563	-85.003452	1000.22	10.00	1010.22

Name: West Array
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.45
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.778311	-85.012742	976.38	10.00	986.38
2	36.778315	-85.010993	984.66	10.00	994.66
3	36.782423	-85.011014	977.90	10.00	987.90
4	36.782444	-85.011932	985.35	10.00	995.35
5	36.779589	-85.012731	977.16	10.00	987.16

Route Receptors

Name: CR 1018
Path type: Two-way
Azimuthal view angle: 50.0°
Downward view angle: 10.0°

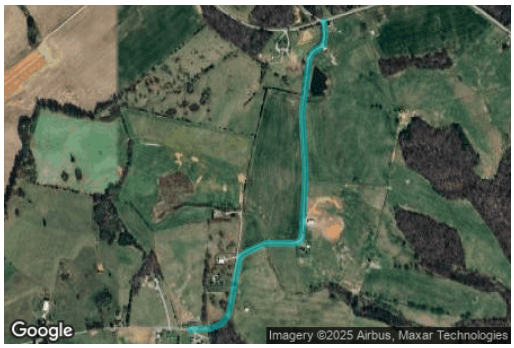


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.775466	-85.014300	969.37	5.00	974.37
2	36.774705	-85.014139	961.58	5.00	966.58
3	36.774280	-85.013919	952.41	5.00	957.41
4	36.773927	-85.013581	938.67	5.00	943.67
5	36.773743	-85.013409	935.41	5.00	940.41
6	36.773571	-85.013345	932.09	5.00	937.09
7	36.773137	-85.012835	924.57	5.00	929.57
8	36.773029	-85.012546	920.40	5.00	925.40

Name: KY 1009
Path type: Two-way
Azimuthal view angle: 50.0°
Downward view angle: 10.0°

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.785499	-85.014201	987.06	5.00	992.06
2	36.784915	-85.013321	962.82	5.00	967.82
3	36.784554	-85.012227	956.86	5.00	961.86
4	36.784674	-85.010660	979.59	5.00	984.59
5	36.785361	-85.007957	1003.51	5.00	1008.51
6	36.785774	-85.005596	1017.07	5.00	1022.07
7	36.785602	-85.004845	1017.11	5.00	1022.11
8	36.784622	-85.003064	1001.99	5.00	1006.99
9	36.782234	-84.999138	988.25	5.00	993.25
10	36.781581	-84.998580	985.62	5.00	990.62
11	36.777473	-84.996541	893.76	5.00	898.76
12	36.777121	-84.996252	887.19	5.00	892.19
13	36.776734	-84.995415	871.73	5.00	876.73
14	36.776339	-84.995114	845.38	5.00	850.38
15	36.775522	-84.994857	836.89	5.00	841.89
16	36.775204	-84.994514	854.92	5.00	859.92

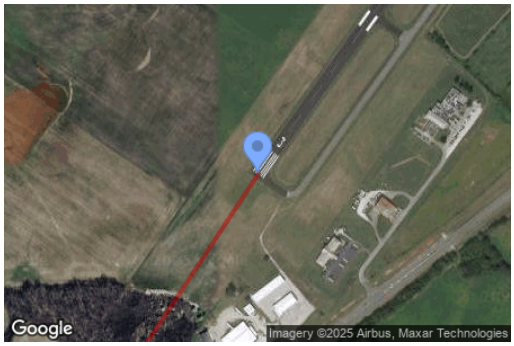
Name: Massingale Rd
Path type: Two-way
Azimuthal view angle: 50.0°
Downward view angle: 10.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	36.775471	-85.015038	947.88	5.00	952.88
2	36.775514	-85.014233	970.83	5.00	975.83
3	36.775660	-85.013825	967.40	5.00	972.40
4	36.775952	-85.013579	967.82	5.00	972.82
5	36.777705	-85.013149	991.70	5.00	996.70
6	36.777877	-85.012795	978.84	5.00	983.84
7	36.778100	-85.012152	964.47	5.00	969.47
8	36.778100	-85.011004	979.25	5.00	984.25
9	36.778212	-85.010811	980.33	5.00	985.33
10	36.780042	-85.010660	979.28	5.00	984.28
11	36.781091	-85.010714	979.03	5.00	984.03
12	36.782079	-85.010789	985.31	5.00	990.31
13	36.783772	-85.010499	988.49	5.00	993.49
14	36.783944	-85.010328	994.41	5.00	999.41
15	36.784124	-85.009984	1003.00	5.00	1008.00
16	36.784416	-85.009909	995.20	5.00	1000.20
17	36.784863	-85.009952	981.40	5.00	986.40

Flight Path Receptors

Name: Wayne County Airport 1
Description:
Threshold height: 50 ft
Direction: 33.3°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°



Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	36.850878	-84.860109	958.82	50.00	1008.82
Two-mile	36.826723	-84.879991	978.21	584.04	1562.25

Name: Wayne County Airport 2
Description:
Threshold height: 50 ft
Direction: 216.4°
Glide slope: 3.0°
Pilot view restricted? Yes
Vertical view: 30.0°
Azimuthal view: 50.0°

Point	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
Threshold	36.859681	-84.852219	961.50	50.00	1011.50
Two-mile	36.882956	-84.830755	971.79	593.13	1564.93

Discrete Observation Point Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 4	4	36.778958	-85.013388	976.81	6.00
OP 5	5	36.784044	-85.011476	983.24	6.00
OP 6	6	36.783674	-85.010699	985.33	6.00
OP 7	7	36.785835	-85.006938	1015.26	6.00
OP 8	8	36.786188	-85.005184	1023.03	6.00
OP 9	9	36.786617	-85.004390	1018.42	6.00
OP 10	10	36.785595	-85.004170	1009.45	6.00
OP 11	11	36.783234	-85.000026	1007.48	6.00
OP 12	12	36.782029	-84.999922	994.71	6.00
OP 13	13	36.779627	-84.997921	961.61	6.00
OP 14	14	36.776800	-84.996537	918.89	6.00
OP 15	15	36.771432	-85.001128	956.50	6.00
OP 16	16	36.770861	-85.000689	964.59	6.00
OP 17	17	36.770612	-84.998545	982.64	6.00
OP 18	18	36.769677	-85.009146	963.89	6.00
OP 19	19	36.767932	-85.009028	988.25	6.00
OP 20	20	36.773743	-85.013766	934.10	6.00
OP 21	21	36.774125	-85.014579	949.33	6.00
OP 24	24	36.783509	-85.001733	999.21	6.00
OP 25	25	36.773265	-84.993164	963.05	6.00
OP 26	26	36.781929	-84.998435	995.67	6.00
OP 27	27	36.780593	-84.997667	974.05	6.00

Obstruction Components

Name: Landscape 1
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.783064	-85.002266	986.72
2	36.783419	-85.001252	994.88
3	36.782791	-85.000174	998.04

Name: Landscape 2
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.784196	-85.003355	994.03
2	36.784480	-85.003012	1002.54
3	36.785090	-85.004144	1009.92
4	36.785464	-85.004777	1016.29
5	36.785670	-85.005522	1018.57
6	36.785665	-85.005930	1013.52
7	36.785515	-85.006740	1012.49

Name: Landscape 3
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.783866	-85.009639	1008.07
2	36.784068	-85.009204	1013.42
3	36.784914	-85.009231	989.51
4	36.785442	-85.007021	1013.89

Name: Landscape 4
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.783724	-85.009896	1001.50
2	36.783582	-85.010057	994.84
3	36.783303	-85.009671	995.94
4	36.783140	-85.009617	996.69
5	36.782929	-85.009596	994.32
6	36.782710	-85.009628	994.27
7	36.782401	-85.009864	990.27
8	36.782242	-85.010615	982.85
9	36.780098	-85.010502	979.26
10	36.778929	-85.010583	991.54

Name: Landscape 5
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.778632	-85.010175	986.34
2	36.777670	-85.010454	962.36
3	36.777614	-85.011028	965.96

Name: Landscape 6
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.777988	-85.011076	975.42
2	36.777979	-85.011956	962.70

Name: Landscape 7
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.777954	-85.012208	962.05
2	36.777627	-85.013008	985.28
3	36.776952	-85.013185	984.37
4	36.774228	-85.011940	966.23

Name: Landscape 8
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.782426	-85.010846	980.16
2	36.781876	-85.010915	985.85
3	36.780072	-85.010819	978.96
4	36.778327	-85.010899	985.02
5	36.778207	-85.011023	981.16
6	36.778207	-85.012981	985.78

Name: Landscape 9
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.778265	-85.013015	988.04
2	36.779498	-85.012881	976.20
3	36.780207	-85.012720	990.69

Name: Landscape - for church
Top height: 30.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.783064	-85.002306	986.95
2	36.783324	-85.002488	989.22
3	36.783631	-85.002736	989.10
4	36.784136	-85.003327	992.83

Name: Obstruction 1
Top height: 45.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.772301	-85.011993	917.80
2	36.771665	-85.007519	921.84
3	36.771708	-85.005781	926.86
4	36.771974	-85.003893	963.05
5	36.773453	-85.000234	905.72
6	36.774166	-84.999537	894.94
7	36.775223	-84.999097	886.84
8	36.775610	-85.000213	910.85
9	36.776606	-85.001640	909.46
10	36.781092	-85.002670	933.85

Name: Obstruction 2
Top height: 45.0 ft

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)
1	36.775575	-85.013917	968.65
2	36.774883	-85.013675	961.50
3	36.774131	-85.013176	948.96
4	36.773379	-85.012602	933.63
5	36.773065	-85.012216	923.59
6	36.772863	-85.012200	911.91

Glare Analysis Results

Summary of Results

Glare with potential for temporary after-image predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
Bottom	SA tracking	SA tracking	64	1.1	0	0.0	-
Main Northwest	SA tracking	SA tracking	0	0.0	0	0.0	-
Main Southwest	SA tracking	SA tracking	0	0.0	0	0.0	-
Middle bottom	SA tracking	SA tracking	0	0.0	0	0.0	-
Middle Top	SA tracking	SA tracking	1,503	25.1	2,689	44.8	-
Northeast 1	SA tracking	SA tracking	126	2.1	0	0.0	-
Northeast 2	SA tracking	SA tracking	0	0.0	0	0.0	-
West Array	SA tracking	SA tracking	0	0.0	0	0.0	-

Total glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
CR 1018	0	0.0	0	0.0
KY 1009	409	6.8	2,302	38.4
Massingale Rd	0	0.0	0	0.0
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	454	7.6	96	1.6
OP 13	193	3.2	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	205	3.4	0	0.0
OP 26	237	4.0	55	0.9
OP 27	195	3.2	236	3.9

PV: Bottom low potential for temporary after-image

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
CR 1018	0	0.0	0	0.0
KY 1009	0	0.0	0	0.0
Massingale Rd	0	0.0	0	0.0
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 25	64	1.1	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0

Bottom and Route: CR 1018

No glare found

Bottom and Route: KY 1009

No glare found

Bottom and Route: Massingale Rd

No glare found

Bottom and FP: Wayne County Airport 1

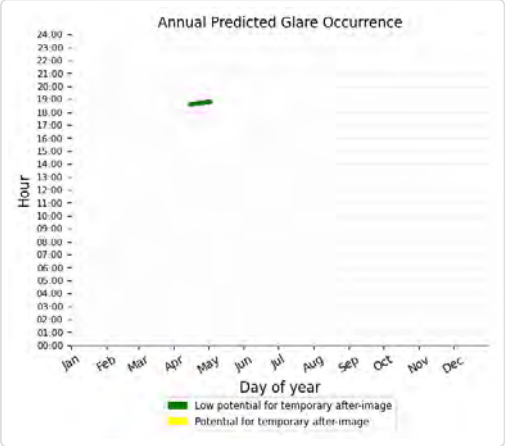
No glare found

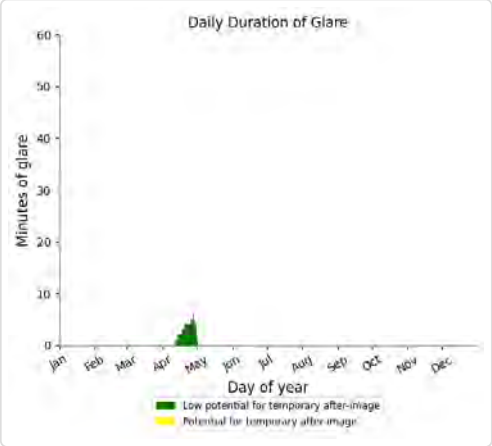
Bottom and FP: Wayne County Airport 2

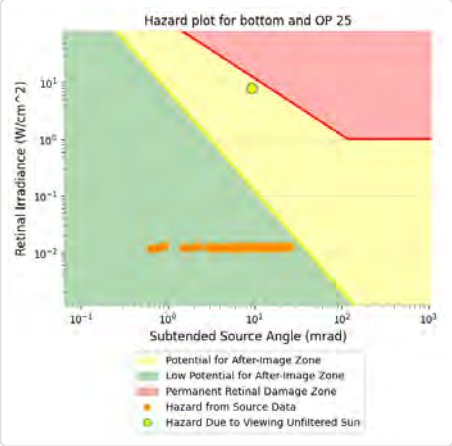
No glare found

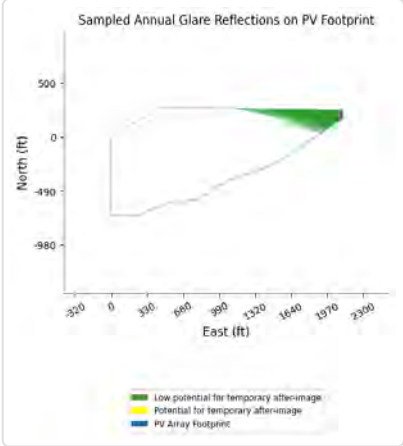
Bottom and OP 25

Yellow glare: none
Green glare: 64 min.









Bottom and OP 4

No glare found

Bottom and OP 5

No glare found

Bottom and OP 6

No glare found

Bottom and OP 7

No glare found

Bottom and OP 8

No glare found

Bottom and OP 9

No glare found

Bottom and OP 10

No glare found

Bottom and OP 11

No glare found

Bottom and OP 12

No glare found

Bottom and OP 13

No glare found

Bottom and OP 14

No glare found

Bottom and OP 15

No glare found

Bottom and OP 16

No glare found

Bottom and OP 17

No glare found

Bottom and OP 18

No glare found

Bottom and OP 19

No glare found

Bottom and OP 20

No glare found

Bottom and OP 21

No glare found

Bottom and OP 24

No glare found

Bottom and OP 26

No glare found

Bottom and OP 27

No glare found

PV: Main Northwest no glare found

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
CR 1018	0	0.0	0	0.0
KY 1009	0	0.0	0	0.0
Massingale Rd	0	0.0	0	0.0
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0

Main Northwest and Route: CR 1018

No glare found

Main Northwest and Route: KY 1009

No glare found

Main Northwest and Route: Massingale Rd

No glare found

Main Northwest and FP: Wayne County Airport 1

No glare found

Main Northwest and FP: Wayne County Airport 2

No glare found

Main Northwest and OP 4

No glare found

Main Northwest and OP 5

No glare found

Main Northwest and OP 6

No glare found

Main Northwest and OP 7

No glare found

Main Northwest and OP 8

No glare found

Main Northwest and OP 9

No glare found

Main Northwest and OP 10

No glare found

Main Northwest and OP 11

No glare found

Main Northwest and OP 12

No glare found

Main Northwest and OP 13

No glare found

Main Northwest and OP 14

No glare found

Main Northwest and OP 15

No glare found

Main Northwest and OP 16

No glare found

Main Northwest and OP 17

No glare found

Main Northwest and OP 18

No glare found

Main Northwest and OP 19

No glare found

Main Northwest and OP 20

No glare found

Main Northwest and OP 21

No glare found

Main Northwest and OP 24

No glare found

Main Northwest and OP 25

No glare found

Main Northwest and OP 26

No glare found

Main Northwest and OP 27

No glare found

PV: Main Southwest no glare found

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
CR 1018	0	0.0	0	0.0
KY 1009	0	0.0	0	0.0
Massingale Rd	0	0.0	0	0.0
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0

Main Southwest and Route: CR 1018

No glare found

Main Southwest and Route: KY 1009

No glare found

Main Southwest and Route: Massingale Rd

No glare found

Main Southwest and FP: Wayne County Airport 1

No glare found

Main Southwest and FP: Wayne County Airport 2

No glare found

Main Southwest and OP 4

No glare found

Main Southwest and OP 5

No glare found

Main Southwest and OP 6

No glare found

Main Southwest and OP 7

No glare found

Main Southwest and OP 8

No glare found

Main Southwest and OP 9

No glare found

Main Southwest and OP 10

No glare found

Main Southwest and OP 11

No glare found

Main Southwest and OP 12

No glare found

Main Southwest and OP 13

No glare found

Main Southwest and OP 14

No glare found

Main Southwest and OP 15

No glare found

Main Southwest and OP 16

No glare found

Main Southwest and OP 17

No glare found

Main Southwest and OP 18

No glare found

Main Southwest and OP 19

No glare found

Main Southwest and OP 20

No glare found

Main Southwest and OP 21

No glare found

Main Southwest and OP 24

No glare found

Main Southwest and OP 25

No glare found

Main Southwest and OP 26

No glare found

Main Southwest and OP 27

No glare found

PV: Middle bottom no glare found

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
CR 1018	0	0.0	0	0.0
KY 1009	0	0.0	0	0.0
Massingale Rd	0	0.0	0	0.0
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0

Middle bottom and Route: CR 1018

No glare found

Middle bottom and Route: KY 1009

No glare found

Middle bottom and Route: Massingale Rd

No glare found

Middle bottom and FP: Wayne County Airport 1

No glare found

Middle bottom and FP: Wayne County Airport 2

No glare found

Middle bottom and OP 4

No glare found

Middle bottom and OP 5

No glare found

Middle bottom and OP 6

No glare found

Middle bottom and OP 7

No glare found

Middle bottom and OP 8

No glare found

Middle bottom and OP 9

No glare found

Middle bottom and OP 10

No glare found

Middle bottom and OP 11

No glare found

Middle bottom and OP 12

No glare found

Middle bottom and OP 13

No glare found

Middle bottom and OP 14

No glare found

Middle bottom and OP 15

No glare found

Middle bottom and OP 16

No glare found

Middle bottom and OP 17

No glare found

Middle bottom and OP 18

No glare found

Middle bottom and OP 19

No glare found

Middle bottom and OP 20

No glare found

Middle bottom and OP 21

No glare found

Middle bottom and OP 24

No glare found

Middle bottom and OP 25

No glare found

Middle bottom and OP 26

No glare found

Middle bottom and OP 27

No glare found

PV: Middle Top potential temporary after-image

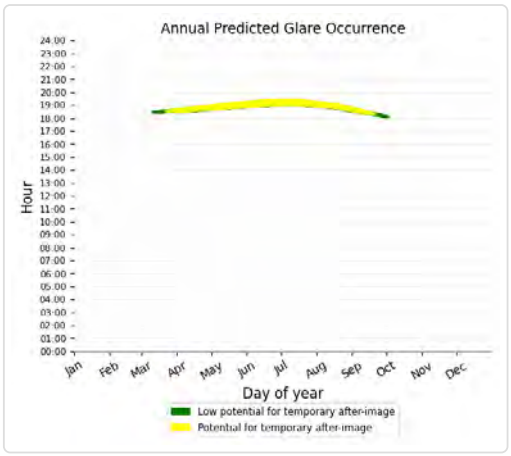
Receptor results ordered by category of glare

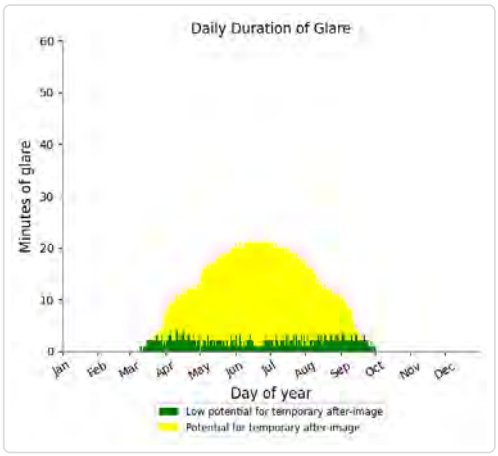
Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
KY 1009	409	6.8	2,302	38.4
CR 1018	0	0.0	0	0.0
Massingale Rd	0	0.0	0	0.0
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 12	328	5.5	96	1.6
OP 26	237	4.0	55	0.9
OP 27	195	3.2	236	3.9
OP 13	193	3.2	0	0.0
OP 25	141	2.4	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 24	0	0.0	0	0.0

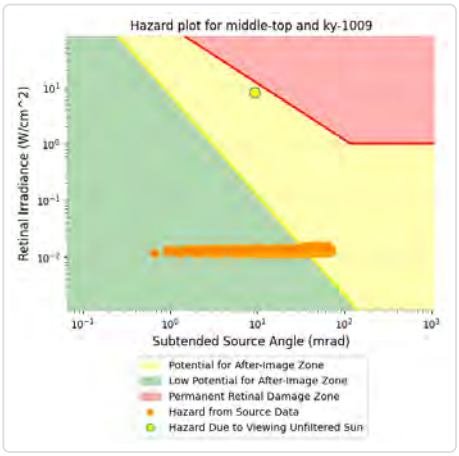
Middle Top and Route: KY 1009

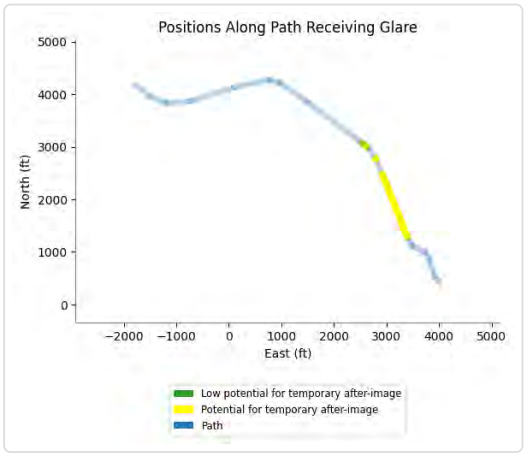
Yellow glare: 2,302 min.

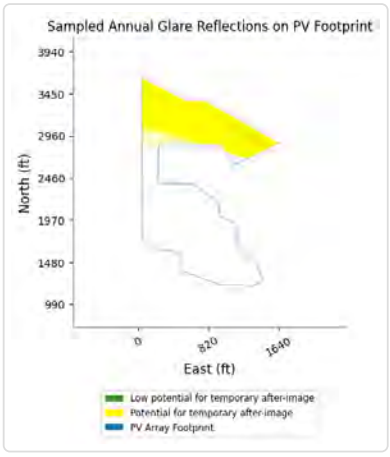
Green glare: 409 min.











Middle Top and Route: CR 1018

No glare found

Middle Top and Route: Massingale Rd

No glare found

Middle Top and FP: Wayne County Airport 1

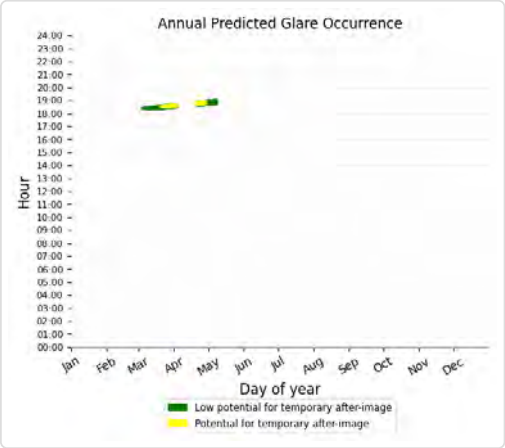
No glare found

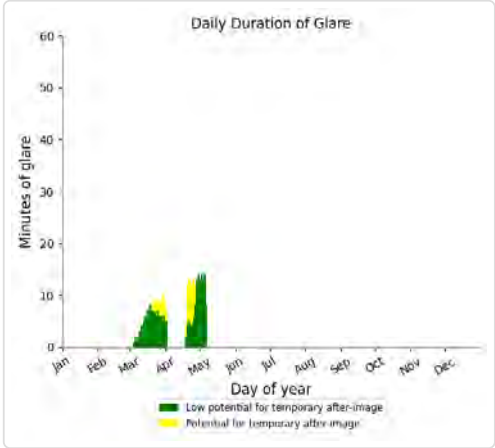
Middle Top and FP: Wayne County Airport 2

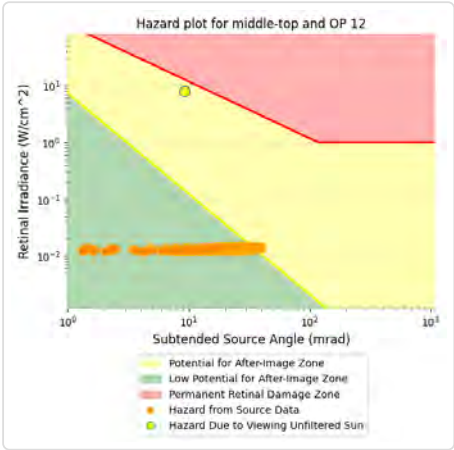
No glare found

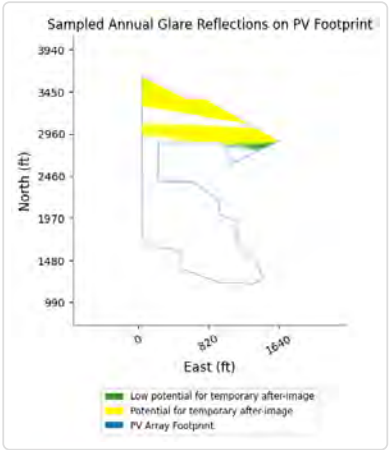
Middle Top and OP 12

Yellow glare: 96 min.
Green glare: 328 min.





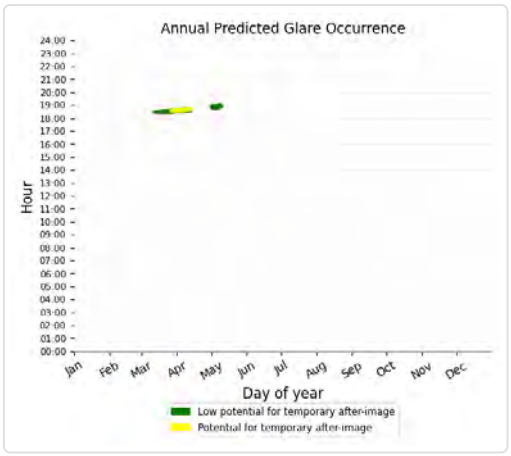


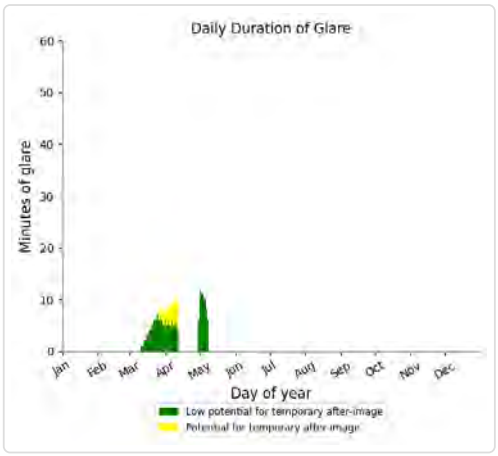


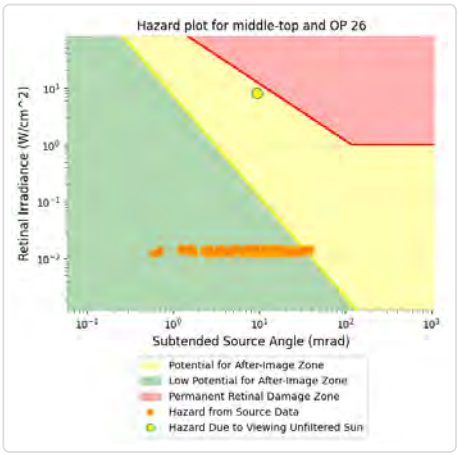
Middle Top and OP 26

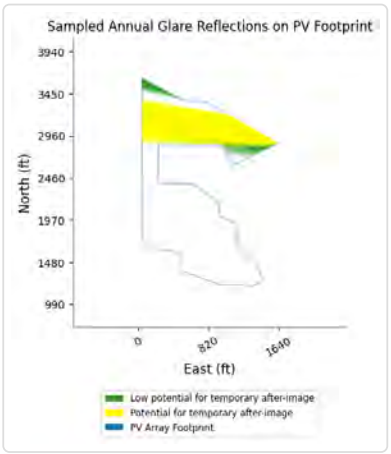
Yellow glare: 55 min.

Green glare: 237 min.





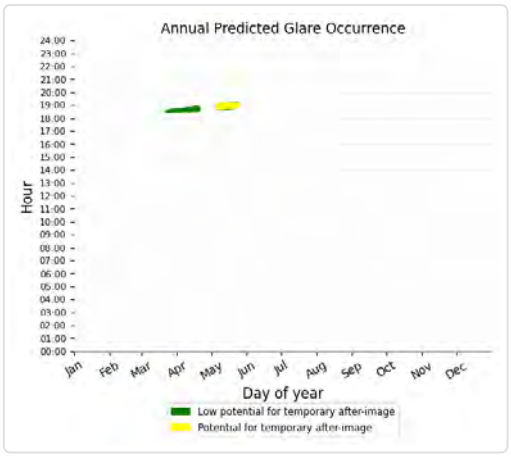


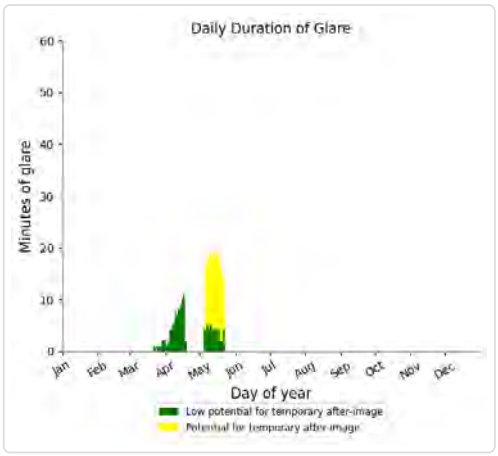


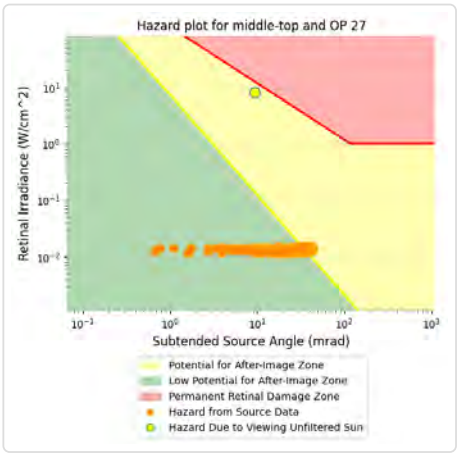
Middle Top and OP 27

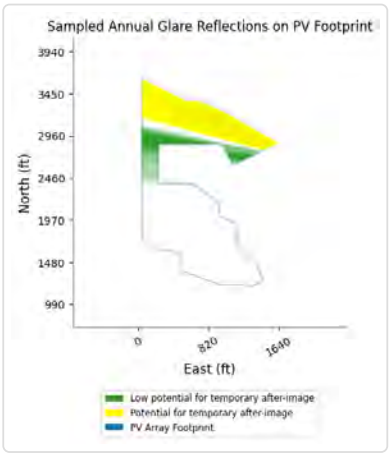
Yellow glare: 236 min.

Green glare: 195 min.





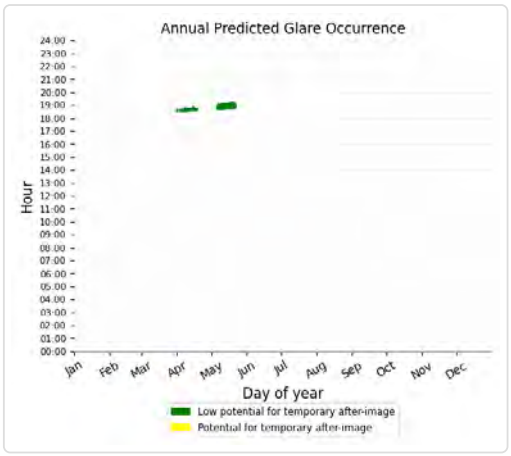


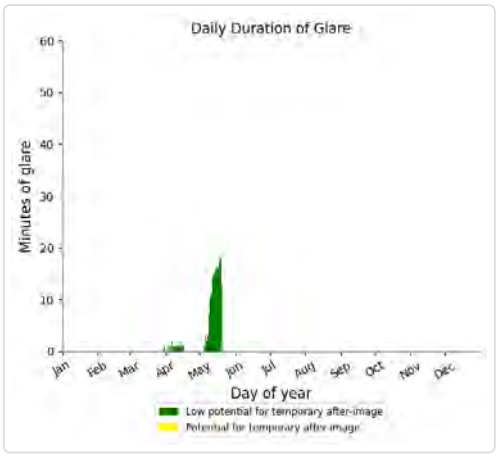


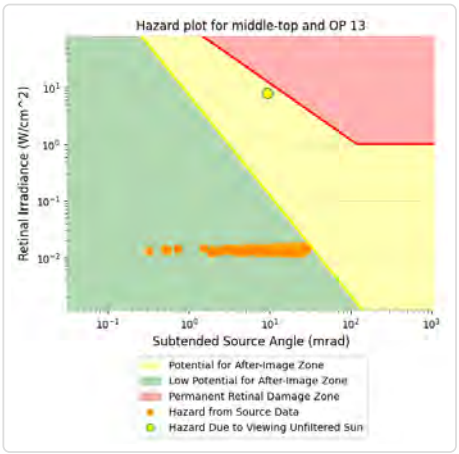
Middle Top and OP 13

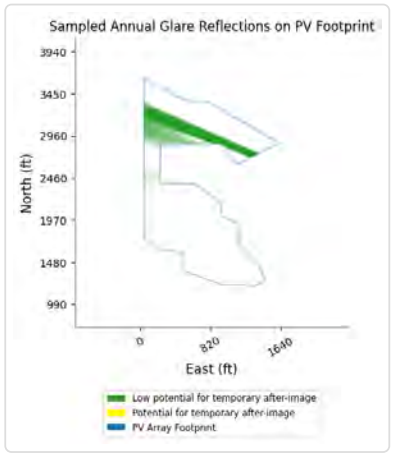
Yellow glare: none

Green glare: 193 min.





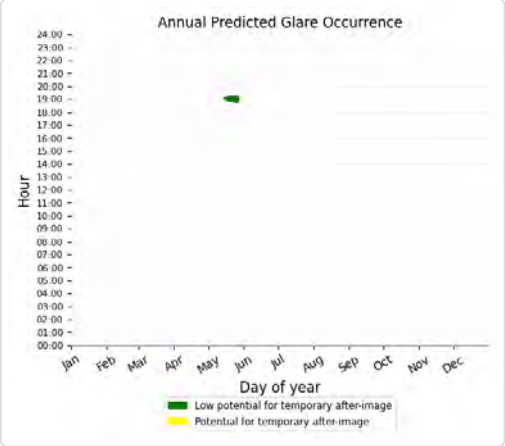


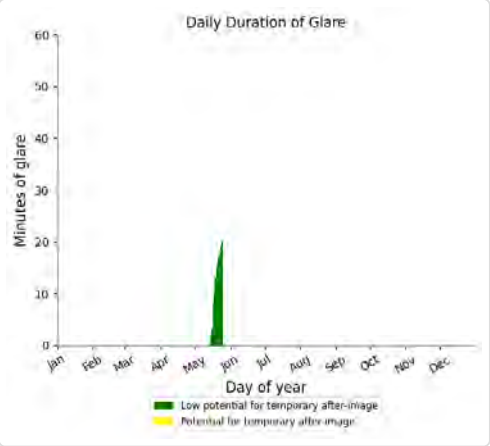


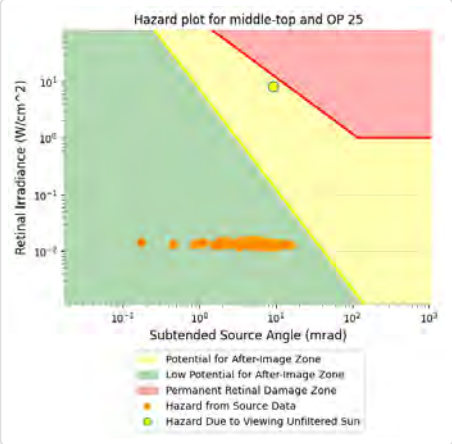
Middle Top and OP 25

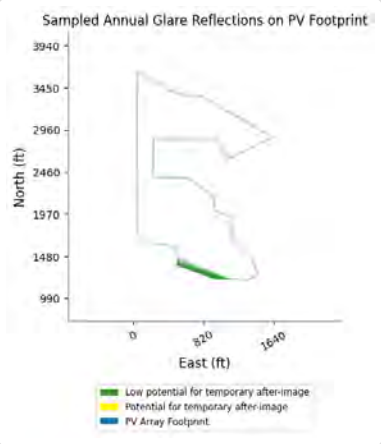
Yellow glare: none

Green glare: 141 min.









Middle Top and OP 4

No glare found

Middle Top and OP 5

No glare found

Middle Top and OP 6

No glare found

Middle Top and OP 7

No glare found

Middle Top and OP 8

No glare found

Middle Top and OP 9

No glare found

Middle Top and OP 10

No glare found

Middle Top and OP 11

No glare found

Middle Top and OP 14

No glare found

Middle Top and OP 15

No glare found

Middle Top and OP 16

No glare found

Middle Top and OP 17

No glare found

Middle Top and OP 18

No glare found

Middle Top and OP 19

No glare found

Middle Top and OP 20

No glare found

Middle Top and OP 21

No glare found

Middle Top and OP 24

No glare found

PV: Northeast 1 low potential for temporary after-image

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
CR 1018	0	0.0	0	0.0
KY 1009	0	0.0	0	0.0
Massingale Rd	0	0.0	0	0.0
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 12	126	2.1	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0

Northeast 1 and Route: CR 1018

No glare found

Northeast 1 and Route: KY 1009

No glare found

Northeast 1 and Route: Massingale Rd

No glare found

Northeast 1 and FP: Wayne County Airport 1

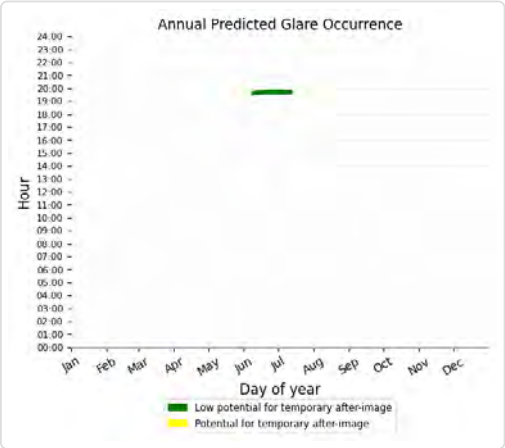
No glare found

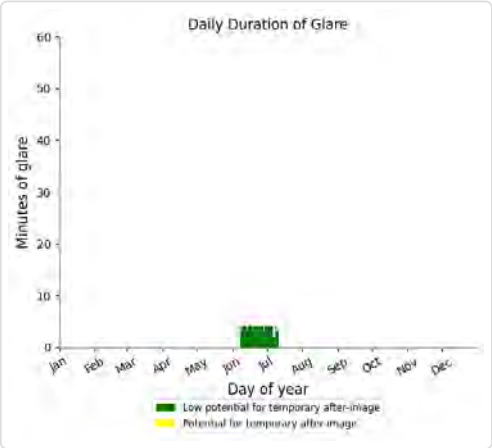
Northeast 1 and FP: Wayne County Airport 2

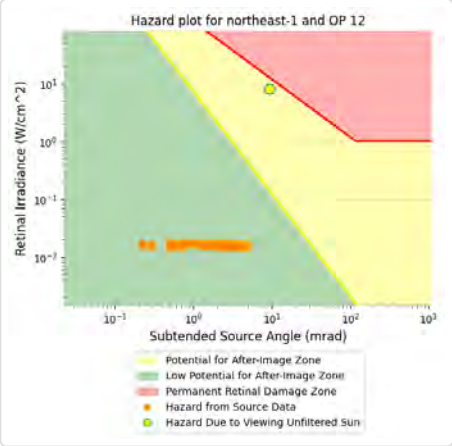
No glare found

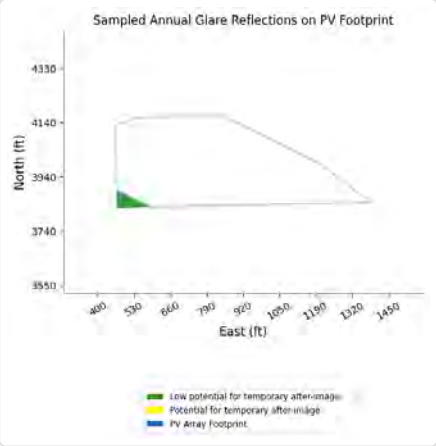
Northeast 1 and OP 12

Yellow glare: none
Green glare: 126 min.









Northeast 1 and OP 4

No glare found

Northeast 1 and OP 5

No glare found

Northeast 1 and OP 6

No glare found

Northeast 1 and OP 7

No glare found

Northeast 1 and OP 8

No glare found

Northeast 1 and OP 9

No glare found

Northeast 1 and OP 10

No glare found

Northeast 1 and OP 11

No glare found

Northeast 1 and OP 13

No glare found

Northeast 1 and OP 14

No glare found

Northeast 1 and OP 15

No glare found

Northeast 1 and OP 16

No glare found

Northeast 1 and OP 17

No glare found

Northeast 1 and OP 18

No glare found

Northeast 1 and OP 19

No glare found

Northeast 1 and OP 20

No glare found

Northeast 1 and OP 21

No glare found

Northeast 1 and OP 24

No glare found

Northeast 1 and OP 25

No glare found

Northeast 1 and OP 26

No glare found

Northeast 1 and OP 27

No glare found

PV: Northeast 2 no glare found

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
CR 1018	0	0.0	0	0.0
KY 1009	0	0.0	0	0.0
Massingale Rd	0	0.0	0	0.0
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0

Northeast 2 and Route: CR 1018

No glare found

Northeast 2 and Route: KY 1009

No glare found

Northeast 2 and Route: Massingale Rd

No glare found

Northeast 2 and FP: Wayne County Airport 1

No glare found

Northeast 2 and FP: Wayne County Airport 2

No glare found

Northeast 2 and OP 4

No glare found

Northeast 2 and OP 5

No glare found

Northeast 2 and OP 6

No glare found

Northeast 2 and OP 7

No glare found

Northeast 2 and OP 8

No glare found

Northeast 2 and OP 9

No glare found

Northeast 2 and OP 10

No glare found

Northeast 2 and OP 11

No glare found

Northeast 2 and OP 12

No glare found

Northeast 2 and OP 13

No glare found

Northeast 2 and OP 14

No glare found

Northeast 2 and OP 15

No glare found

Northeast 2 and OP 16

No glare found

Northeast 2 and OP 17

No glare found

Northeast 2 and OP 18

No glare found

Northeast 2 and OP 19

No glare found

Northeast 2 and OP 20

No glare found

Northeast 2 and OP 21

No glare found

Northeast 2 and OP 24

No glare found

Northeast 2 and OP 25

No glare found

Northeast 2 and OP 26

No glare found

Northeast 2 and OP 27

No glare found

PV: West Array no glare found

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
CR 1018	0	0.0	0	0.0
KY 1009	0	0.0	0	0.0
Massingale Rd	0	0.0	0	0.0
Wayne County Airport 1	0	0.0	0	0.0
Wayne County Airport 2	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0
OP 12	0	0.0	0	0.0
OP 13	0	0.0	0	0.0
OP 14	0	0.0	0	0.0
OP 15	0	0.0	0	0.0
OP 16	0	0.0	0	0.0
OP 17	0	0.0	0	0.0
OP 18	0	0.0	0	0.0
OP 19	0	0.0	0	0.0
OP 20	0	0.0	0	0.0
OP 21	0	0.0	0	0.0
OP 24	0	0.0	0	0.0
OP 25	0	0.0	0	0.0
OP 26	0	0.0	0	0.0
OP 27	0	0.0	0	0.0

West Array and Route: CR 1018

No glare found

West Array and Route: KY 1009

No glare found

West Array and Route: Massingale Rd

No glare found

West Array and FP: Wayne County Airport 1

No glare found

West Array and FP: Wayne County Airport 2

No glare found

West Array and OP 4

No glare found

West Array and OP 5

No glare found

West Array and OP 6

No glare found

West Array and OP 7

No glare found

West Array and OP 8

No glare found

West Array and OP 9

No glare found

West Array and OP 10

No glare found

West Array and OP 11

No glare found

West Array and OP 12

No glare found

West Array and OP 13

No glare found

West Array and OP 14

No glare found

West Array and OP 15

No glare found

West Array and OP 16

No glare found

West Array and OP 17

No glare found

West Array and OP 18

No glare found

West Array and OP 19

No glare found

West Array and OP 20

No glare found

West Array and OP 21

No glare found

West Array and OP 24

No glare found

West Array and OP 25

No glare found

West Array and OP 26

No glare found

West Array and OP 27

No glare found

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, we have validated our models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque, and the tool accurately predicted the occurrence and intensity of glare at different times and days of the year.
Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare. This primarily affects V1 analyses of path receptors.
Random number computations are utilized by various steps of the annual hazard analysis algorithm. Predicted minutes of glare can vary between runs as a result. This limitation primarily affects analyses of Observation Point receptors, including ATCTs. Note that the SGHAT/ ForgeSolar methodology has always relied on an analytical, qualitative approach to accurately determine the overall hazard (i.e. green vs. yellow) of expected glare on an annual basis.
The analysis does not automatically consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
The variable direct normal irradiance (DNI) feature (if selected) scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors.
The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain. We provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results. The speed of SGHAT allows expedited sensitivity and parametric analyses.
The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

Siting Board 2-55:

Refer to the SAR, Appendix G, Glare Analysis. See Table 2. Provide a graphic identifying the specific segment of KY 1009 affected by yellow glare (identified as "between mileposts 9.4 and 10.5" in the glare analysis).

Response: The images from the ForgeSolar tool results provided in RFI No. 2-54, show the approximate location that KY 1009 could be affected by yellow glare from the Middle Top and Northeast 2 sections of arrays.

Witness: Marty Marchaterre

Siting Board 2-56:

Refer to the SAR, Appendix G, Glare Analysis. See Table 2. Provide the maximum number of minutes of yellow glare per day on (1) KY 1009 and (2) Massingale Road.

Response: The ForgeSolar tool quantifies the suggested annual duration of glare. The results graphics provided by ForgeSolar can be used to estimate when peak glare might occur and the daily duration at that time. The full results from the ForgeSolar model are provided as Attachment 2-54.

KY 1009 could be affected by yellow glare from the Middle Top section of the arrays from approximately 5 to 7 p.m. in March to April and September, with peak yellow glare occurring for a few days at the end of March and mid-September (daily duration could be up to 100 minutes per day). KY 1009 could also be affected by yellow glare from approximately 5 to 7 p.m. in March-April and September, with peak glare potentially occurring for a few days at the beginning of April and beginning of September (daily duration could be up to 100 minutes per day).

Massingale Road could be affected by yellow glare from the Main Northwest section of the arrays from approximately 7 to 9 a.m. in March to April and August to September. Peak yellow glare could occur for a few days around mid-March and late August, with up to 300 minutes of yellow glare occurring daily during this time.

Witness: Marty Marchaterre

Siting Board 2-57:

Refer to the SAR, Appendix G, Glare Analysis. See Table 2. Provide the maximum number of minutes of yellow glare per day on (1) KY 1009 and (2) Massingale Road.

Response: See response to RFI No. 2-56.

Witness: Marty Marchaterre

Siting Board 2-58:

Refer to the SAR, Appendix G, Glare Analysis. Explain any safety concerns regarding yellow glare on Massingale Road, given that glare is anticipated to occur along Massingale Road "where it intersects with KY 1009".

Response: According to the ForgeSolar results, yellow glare is anticipated to occur near the intersection of Massingale Road and KY 1009, not at the intersection. There are many factors that influence the severity of the yellow glare at a given location that the ForgeSolar tool does not (or cannot) include, such as the distance between the observer and the glare source, atmospheric attenuation, and human properties, such as pupil size, eye focal length, ocular transmittance and light sensitivity.

Yellow glare is the potential to cause temporary after-image, also known as flash blindness. This can last up to a few minutes, but generally only lasts a few seconds and is not unlike experiencing glare from other vehicles. Ho et al. (2011) summarized the potential impacts to eyesight as a function of retinal irradiance (the solar flux entering the eye and reaching the retina) and subtended source angle (size of glare source divided by distance) in the "Ocular Hazard Plot." Shown in the Ocular Hazard Plot (provided below), if the retinal irradiance or subtended angle is sufficiently large, permanent eye damage from retinal burn may occur. The size and impact of the after-image in the field of view depends on the size of the subtended source angle. For a given retinal irradiance, smaller source angles yield smaller after-images, and the potential impact is less. Sufficiently low retinal irradiances and/or subtended angles of the glare source have a low potential for after-image and ocular impacts. Note that retinal burn is typically not possible for PV glare since PV modules do not focus reflected sunlight.

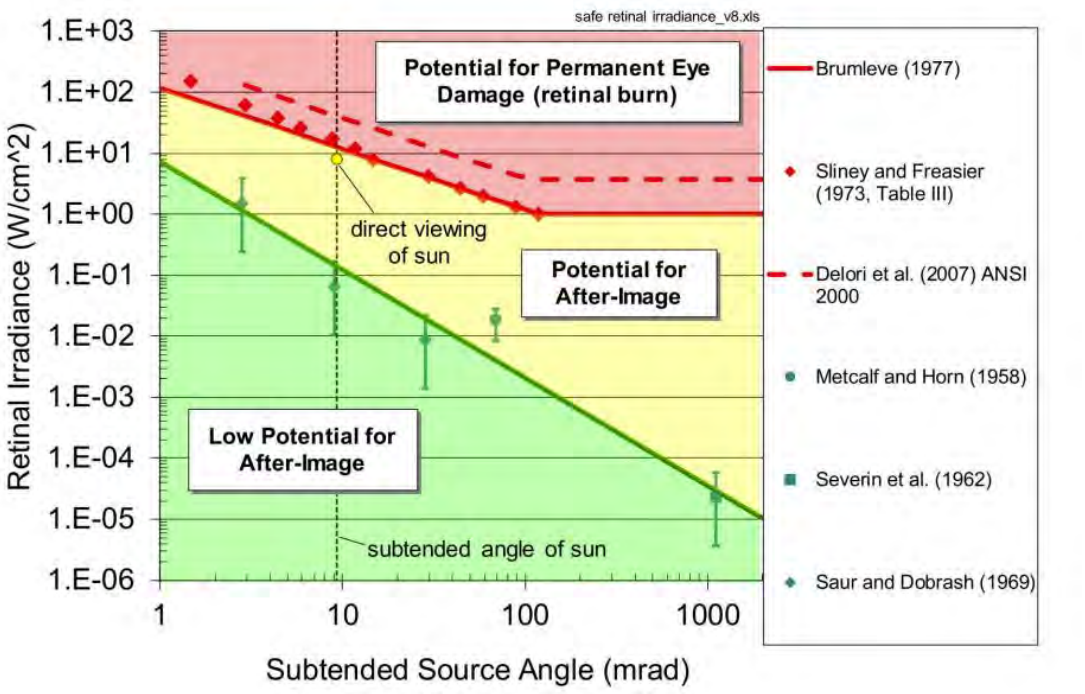


Figure 2-58a. Ocular Hazard Plot (Ho et al. 2011)[1].

Based on the Ocular Hazard Plot and ForgeSolar Glare Analysis results for the route (below), the subtended source angle is around 100 mrad or less; however, the retinal irradiance is low. Therefore, the effects of the predicted yellow glare are likely to be insignificant, and safety concerns are negligible as a result.

[1] Ho, C.K., C.M. Ghanbari, and R.B. Diver, 2011, Methodology to Assess Potential Glint and Glare Hazards From Concentrating Solar Power Plants: Analytical Models and Experimental Validation, Journal of Solar Energy Engineering-Transactions of the ASME, 133(3).

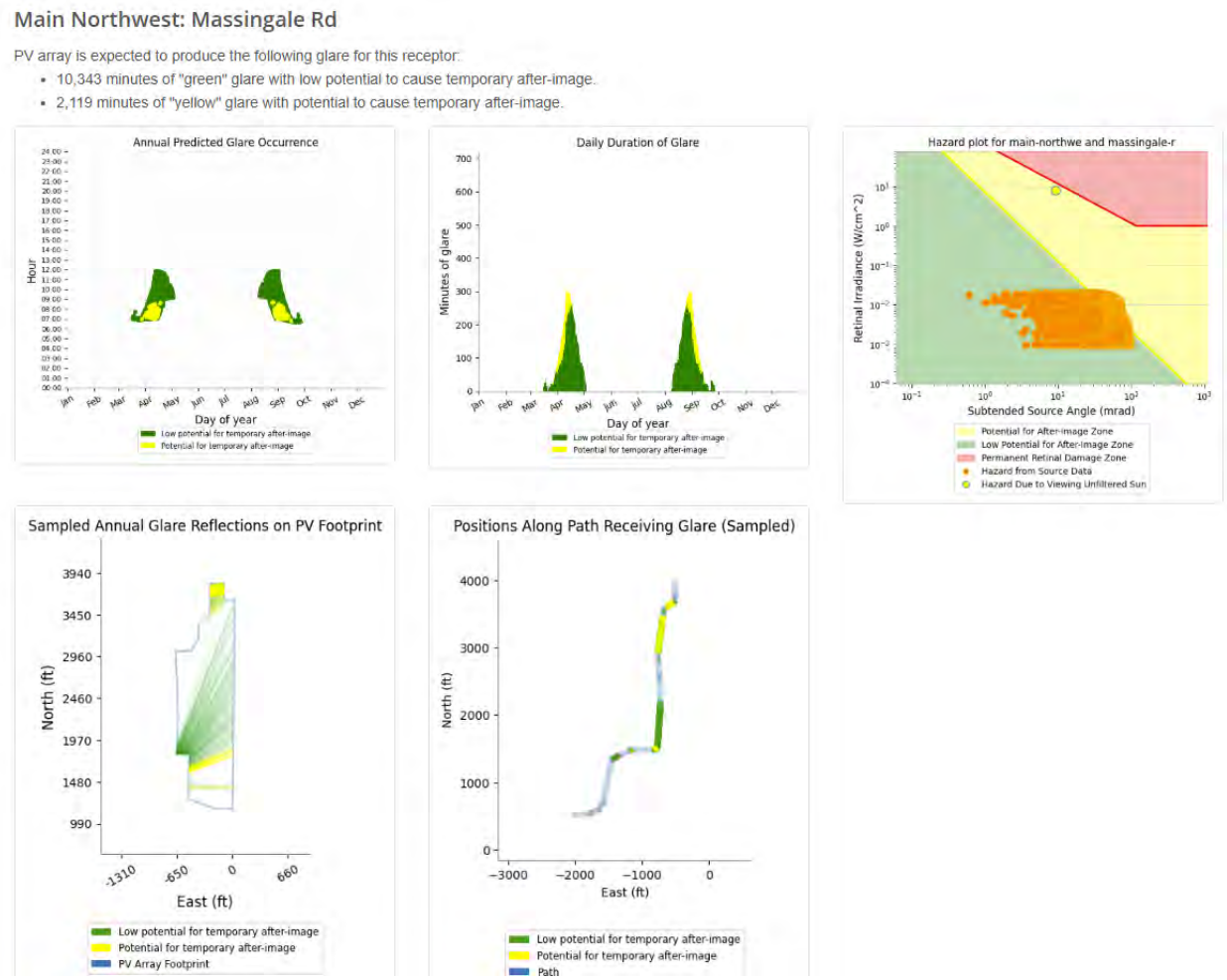


Figure 2-58b. ForgeSolar Model Results for Massingale Road.

Witness: Marty Marchaterre

Siting Board 2-59:

Refer to the SAR, Appendix G, Glare Analysis. See Table 6. Confirm that no yellow glare would be produced from the Northeast 2 or Main NW panel under the tracking array configuration. If not confirmed, explain the response.

Response: According to the ForgeSolar model, no yellow glare would be produced from the Northeast 2 or Main NW sections of the arrays under the tracking array configuration. The ForgeSolar model results are provided as Attachment 2-54.

Witness: Marty Marchaterre

Siting Board 2-60:

Refer to the SAR, Appendix G, Glare Analysis. See Table 2 and Table 6 for a comparison of modeled results for KY 1009. Explain whether Table 6 indicates that more yellow glare would be experienced along KY 1009 (2,302 minutes) from the Middle Top panels using the tracking arrays, as compared to the fixed arrays (1,557 minutes).

Response: According to the ForgeSolar model, KY 1009 could experience yellow glare from the Middle Top section of the arrays for approximately 2,302 minutes ANNUALLY if tracking panels were used. In comparison, the tool suggests that KY 1009 could experience yellow glare from the same section of arrays for approximately 1,623 minutes ANNUALLY with fixed panels. The ForgeSolar model results for both analyses are provided as Attachment 2-54.

Witness:Marty Marchaterre

Siting Board 2-61

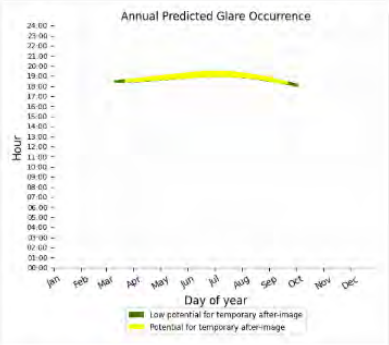
Refer to the SAR, Appendix G, Glare Analysis. Refer to Table 2 and Table 6 for a comparison of modeled results for KY 1009. Explain whether Table 6 indicates that yellow glare would be experienced along KY 1009 over a longer period of time (March through September) using the tracking arrays, as compared to the fixed arrays (March and September), from the middle top panels.

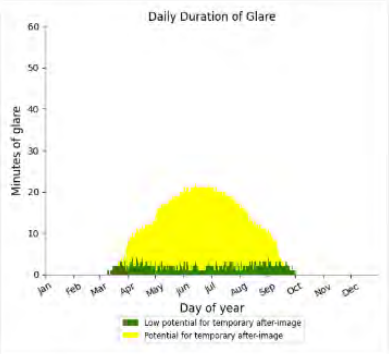
Response: That is correct, the anticipated duration that yellow glare could be experienced on KY 1009 from the Middle Top section using tracking arrays is from March to September. See ForgeSolar results graphic, below. Also see Attachment 2-54 for ForgeSolar results of both fixed and tracking analyses.

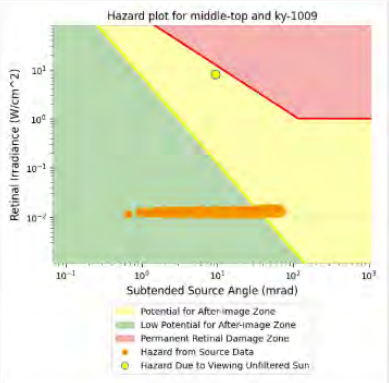
Middle Top: KY 1009

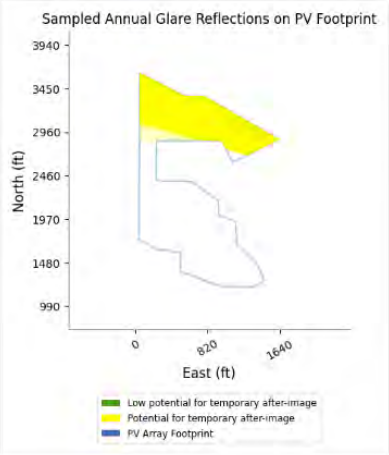
PV array is expected to produce the following glare for this receptor:

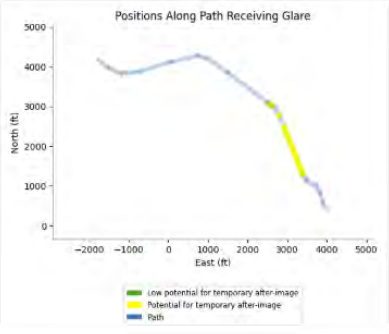
- 409 minutes of "green" glare with low potential to cause temporary after-image.
- 2,302 minutes of "yellow" glare with potential to cause temporary after-image.











Witness: Marty Marchaterre

Siting Board 2-62:

Refer to the SAR, Appendix G, Glare Analysis. See Table 6. Provide the maximum number of minutes of yellow glare per day on KY 1009.

Response: The ForgeSolar tool quantifies the potential annual duration of glare. The results graphics provided by ForgeSolar can be used to estimate when peak glare might occur and the daily duration at that time but cannot be used to estimate the maximum number of minutes of yellow glare per day. When peak yellow glare is expected to occur, around June and July, the daily duration of glare is expected to be around 20 minutes per day (graphic above in RFI No. 2-61).

Witness: Marty Marchaterre

Siting Board 2-63:

Refer to the SAR, Appendix G, Glare Analysis. Confirm that, overall, the tracking array configuration would produce considerably less yellow glare than the fixed array configuration. If not confirmed, explain the response.

Response: According to the ForgeSolar model, using tracking arrays instead of fixed arrays in the same site configuration would yield less yellow glare overall. See Attachment 2-54 for all ForgeSolar model results.

Witness: Marty Marchaterre

Siting Board 2-64:

Refer to Barrelhead Solar's response to Staff's First Request, Item 46. Confirm the Applicant's statements during the site visit that the Project will not perform mowing operations on Sunday's. If not confirmed, explain the response.

Response: Barrelhead Solar will not perform mowing operations on Sundays.

Witness: Trudie Grattan

Siting Board 2-65:

Refer to Barrelhead Solar's response to Staff's First Request, Item 49. Provide the cumulative noise contour maps for construction and operation. Identify which pieces of construction equipment or Project components are included in the modeled results.

Response: The noise contour maps produced for operational noise are provided in the report as Attachment 2-65. All noise-generating components of the Project were used to model operational noise, including the substation, transformers, and inverters.

The report provided as Attachment 2-65 assesses only cumulative operational noise from the facility. An evaluation of anticipated construction noise from various sources, including pile driving, was previously completed for the Project (see Attachment 1-46 from RFI No. 1-46). The previous analysis provides estimates of construction noise; however, because models are static, they cannot account for factors such as the location and use of all machinery at a given time, humidity, wind, and other factors that influence how sound travels. In addition to the many variables that could affect noise at any single receptor during construction, noise impacts would be temporary and variable as construction equipment and vehicles move through the Project Area. As a result of these limitations, a "maximum" construction sound level cannot be reliably produced, and a noise contour map would not accurately display true construction sound levels at receptors.

Witness: Marty Marchaterre

COPPERHEAD
ENVIRONMENTAL CONSULTING

Operational Noise Analysis for the Proposed Barrelhead Solar Project Wayne County, Kentucky

Prepared for:

Barrelhead Solar, LLC

7 January 2026

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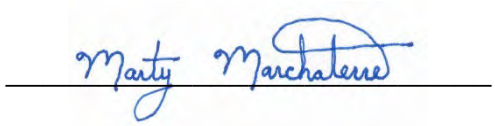
471 Main Street
Paint Lick, KY 40461



Marty Marchaterre
Senior Environmental Planner

January 7, 2026

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INTRODUCTION

Barrelhead Solar, LLC (the Applicant) proposes to construct a solar energy facility (the Project in Wayne County. The Project would be situated on approximately 307 acres and is located on KY 1009 and Massingale Road, southwest of the city of Monticello, Kentucky (Figure 1).

The Project is an approximately 54 megawatt (MW) solar facility that would generate electricity using photovoltaic solar panels. It would include solar panel arrays, inverter boxes, a utility interconnection substation, transformer, and overhead and underground electrical conveyance lines.

NOISE ANALYSIS TERMINOLOGY AND APPROACH

Sound is caused by vibrations that generate waves of minute pressure fluctuations in the surrounding air. Sound levels are measured using a logarithmic decibel (dB) scale. Noise is generally described as unwanted sound, which can be based either on objective effects (hearing loss, damage to structures, etc.) or subjective judgments (such as community annoyance). To better reflect human hearing sensitivity, noise levels are adjusted using A-weighted decibels (dBA). A-weighted decibels are also the most widely used measurement for regulatory requirements.

Environmental sound is variable in time; therefore, it is appropriate to analyze sound levels statistically. Numerous metrics have been developed to quantify the temporal characteristics (changes over time) of environmental noise. A common metric for assessing environmental noise is the equivalent sound level, or L_{eq}. The L_{eq} is a metric that corresponds to the average, or equivalent, sound level over a defined period of time. **Unless otherwise noted, all sound levels in this report are reported as the average, or L_{eq}, in dBA.** Other common metrics include the L_{min} and L_{max}. These metrics represent the lowest and maximum, respectively, sound levels measured during a single noise event. Although these can be useful to understand on their own, the dBA scale is based on a combination of intensity and how the human ear responds, and more accurately achieves a strong correlation with how people perceive acceptable and unacceptable sound levels. Several examples of typical sound levels are in Table 1. The threshold of human hearing is approximately 0 dB, and the threshold of discomfort or pain is around 120 dB.

Table 1. Sound Levels of Common Activities/Situations.

Activity/Event	dB	Effect
Lowest audible sound to person with normal hearing	0	
Rustling leaves	20	Just audible
Whisper	20	Very quiet

Activity/Event	dB	Effect
Refrigerator humming	40	
Quiet office	50-60	Comfortable hearing levels are under 60 dB
Normal conversation	50-65	
Vacuum cleaner, hair dryer	70	Intrusive; interferes with telephone conversation
Washing machine	78	
Average city traffic	80	Annoying, interferes with conversation; constant exposure my cause damage
Lawnmower, recreational vehicles	85-90	85 dB is the level at which hearing damage (8 hrs) begins
Subway	88	Very annoying
Farm tractor	98	
Electric furnace area, garbage truck	100	No more than 15 minutes of unprotected exposure recommended for noises between 90-100 dB
Symphony orchestra, power saw (chainsaw)	110	Regular exposure to noise over 100 dB for more than 1 minute risks permanent hearing loss
Boom box or nearby thunderclap	120	Threshold of sensation begins around 120 dB
Shotgun firing, jet takeoff (100-200 ft)	130	Threshold of pain begins around 125 dB
Jet engines (near)	140	

Source: American Academy of Audiology 2010.

Noise levels are computed over a 24-hour period and adjusted for nighttime annoyances to produce the day-night average sound level (Ldn), measured in dBA. Ldn is the community noise metric recommended by the US Environmental Protection Agency (USEPA) and has been adopted by most federal agencies (USEPA 1974). A Ldn of 65 dBA is the most common level for noise planning purposes and represents a compromise between community impact and the need for activities such as construction. Because sound is described in a logarithmic scale (i.e., dBA), sound levels cannot be added by ordinary arithmetic. An increase of 3 dBA represents a doubling of sound energy, so two helicopters flying side-by-side would be 3 dBA louder than one. A 6-

dBA increase represents four times more energy and this increase generally allows for sounds to be heard from twice as far.

Areas exposed to a Ldn above 65 dBA for a consistent 24-hour period every day are generally not considered suitable for residential use. A Ldn of 55 dBA was identified by USEPA as a level below which there is no adverse impact (USEPA 1974). The dynamics of noise are based on the relationship between the source of the noise, the person or place exposed to the noise (the receiver) and the path the noise will travel from source to receiver (HUD 1985).

A change in sound levels of 3 decibels is generally considered to be the threshold of perception, whereas a change of 5 decibels is clearly perceptible, and a change of 10 decibels is perceived as a doubling or halving of loudness. Each time the number of noise sources is doubled or halved, logarithmic addition (or subtraction) of decibels results in a 3 decibel change in sound levels.

REGULATORY ENVIRONMENT/CRITERIA

A review was conducted of noise regulations applicable to the Project at the federal, state, and county levels. There are no federal environmental noise requirements that are applicable to this Project.

Kentucky Revised Statutes (KRS) Section 278.708 requires a site assessment report be completed for proposed electrical generation facilities that includes "evaluation of sound levels expected to be produced by the facility" (KRS 278.708(3)(a)8) and "evaluation of anticipated peak and average sound levels associated with the facility's construction and operation at the project boundary" (KRS 278.708(3)(d)). This sound assessment was completed to address the above requirements.

No Wayne County noise regulations or limits applicable to the Project were identified.

This report assesses only operational noise from the facility. An evaluation of anticipated construction noise from various sources, including pile driving, was previously completed for the Project. The previous analysis provides estimates of construction noise; however, because models are static, they cannot account for factors such as the location and use of all machinery at a given time, humidity, wind, and other factors that influence how sound travels. In addition to the many variables that could affect noise at any single receptor during construction, noise impacts would be temporary and variable as construction equipment and vehicles move through the Project Area. As a result of these limitations, a "maximum" construction sound level cannot be reliably produced, and a noise contour map would not accurately display true construction sound levels at receptors.

EXISTING SOUND CONDITIONS

Nearest Sensitive Receptors

Sound-sensitive receptors are generally defined as locations where people reside or where the presence of unwanted sound may adversely affect the existing land use. Typically, sound-sensitive land uses include residences, hospitals, places of worship, libraries, performance spaces, offices, and schools, as well as nature preserves, recreational areas, and parks.

A total of 60 receptors within 2,000 feet of the Project Boundary include residences, agricultural buildings, one church, and one commercial property. Receptors are a mix of participating and non-participating structures, which is indicated in tables throughout this report.

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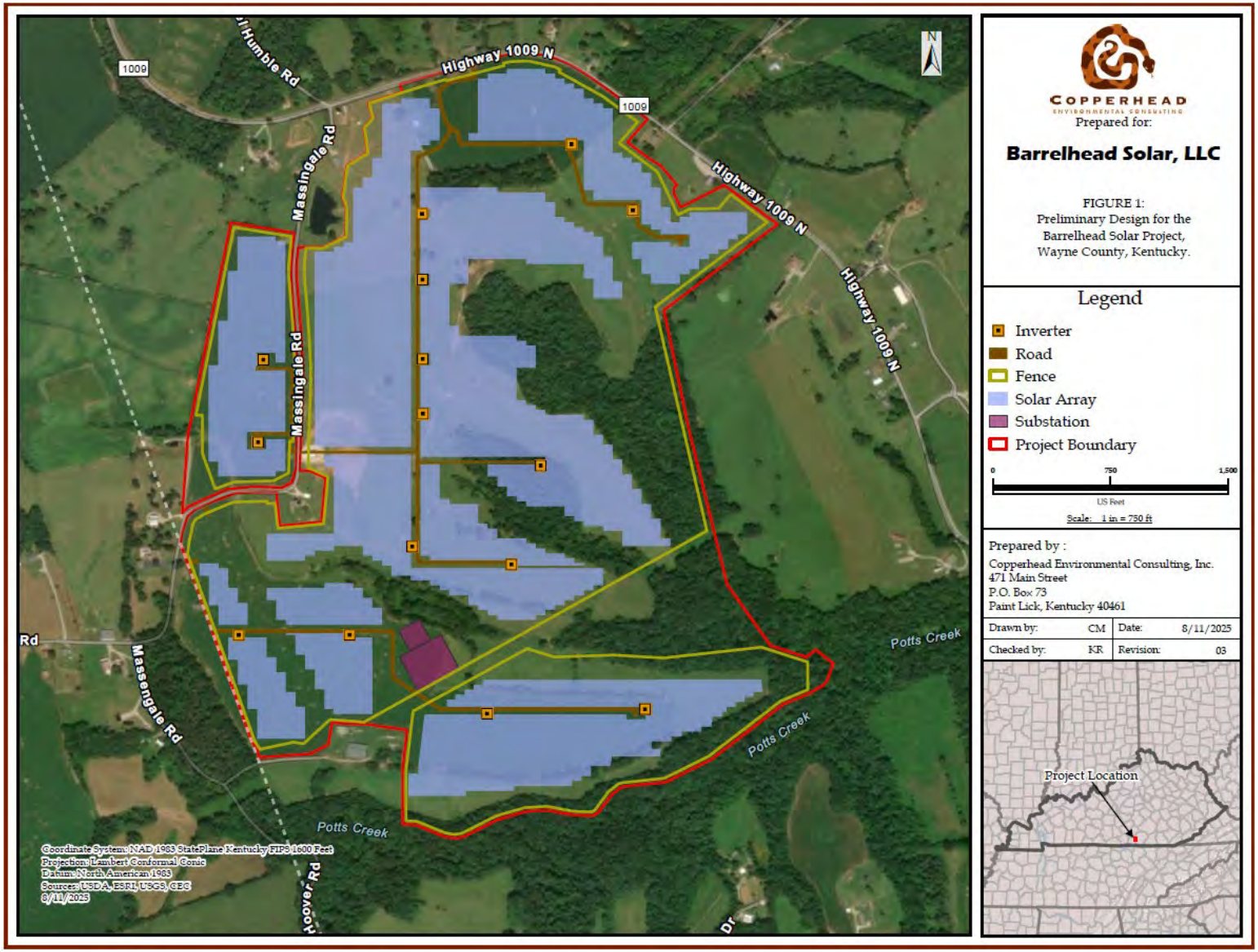

Figure 1. Project location and preliminary design plans.

Existing Sound at the Project Area and from Surrounding Areas

Local conditions such as traffic, topography, and wind can alter background sound conditions. In general, the Ldn sound levels for outdoor quiet rural nighttime conditions are considered to be approximately 25 dBA (EPA 1974). Sound levels attenuate (or diminish) at a rate of approximately 6 dBA per doubling of distance from an outdoor point source due to the geometric spreading of the sound waves. The inverse square law is used to estimate noise levels at different distances.

The analysis area is within an agricultural, rural-residential, and undeveloped area of Livingston County. Ambient sound within the analysis area consists mainly of agricultural sounds, such as noise from farm machinery; natural sounds, such as from wind and wildlife; and moderate traffic sounds. Sound levels of these types generally range from 45 to 55 dBA (USDOT 2017).

Typical sounds produced from farming and agriculture activities surrounding the Project Area include trucks, all-terrain vehicles (ATVs), tractors, and other farming equipment. The adjacent farms produce sound similar to those within the analysis area. Table 3 lists the sound level of common agricultural sounds.

Table 2. Decibel Ratings of Common Agricultural Sounds.

Decibel	Sound
30	Crickets, distant frogs, whisper
40	Kitten meowing, songbirds, distant dog bark
50	Babbling stream, quiet empty barn
60	Average conversation level
70	Chicken coop, busy restaurant.
80	Tractor idling, barn cleaner, conveyors, elevators.
90	Tractor at 50 percent load, blower, compressor, combine.
100	Tractor at 80 percent load, pig squeal, power tools.
120	Tractor at full load, bad muffler, old chain saw.
140	Gunshot, backfire, dynamite blast.

Source: Texas A&M 2012.

Roadway traffic contributes to noise within the Project Area. Portions of the Project Area are bounded by two-lane roadways that receive local traffic (i.e., cars, trucks, and tractor trucks with trailering equipment). Based on Kentucky Transportation Cabinet traffic count data (accessed

July 18, 2025), the average annual daily traffic (AADT) on KY 1009 north and east of the Project Area was approximately 253 vehicles in 2022. Roadway traffic noise levels typically range from 70 to 80 dBA at approximately 50 feet and peak during normal business hours.

OPERATIONAL SOUND CONDITIONS

This section describes the sound conditions during Project operation. Sound power levels for Project equipment were obtained from vendor/manufacturer data and are based on preliminary design. Since the preliminary design uses fixed arrays, operational noise generated would be from the inverters and transformers. The analysis results are the cumulative noise level at each receptor for 15 inverters and two transformers.

SoundPLANessential 6.0 was used to assess operational sound levels at each receptor. All model inputs and results are provided in Appendix A. In general, noise generated by the operation of the facility would vary depending on multiple factors, including humidity and wind. As a result, noise from operation of the facility would actually be constantly fluctuating based on atmospheric and environmental variables. Modeling depends on static data, which means that modeling for this type of noise would not accurately capture the variable noise levels produced by the facility.

Inverters

Inverters convert the DC power generated by the solar panels to AC power. Inverters generate the highest sound during sunny days. Because they do not operate at night, the sound produced is minimal and typically a result of cooling fans (Kaliski et al. 2020). The Project includes approximately 15 photovoltaic inverters, expected to be Sungrow SG-4400UD-MV-US inverters or similar. The data sheet provided by Sungrow does not identify actual measured levels of sound produced by the specified inverter. Inverter sound levels can vary widely, from 25 dBA to more than 80 dBA. A conservative L_{max} estimate of 94.6 dBA per inverter was used for the analysis.

Transformer

The main transformer at the substation is anticipated to be a 69kV/34.5kV 40/53/66 MVA transformer. Sound from transformers is produced by alternating current flux in the core that causes it to vibrate, and is characterized as a discrete low frequency hum. A conservative L_{max} estimate of 85.6 dBA per transformer was used for the analysis.

Operational Noise Summary

Table 3 displays a summary of estimated operational sound levels at each receptor.

Table 3. Maximum Anticipated Operational Sound Levels at each Sensitive Receptor.

Receptor ID	Receptor Type	Participating (Y/N)	Distance to Project Boundary (feet)	Average Operational Sound Level (L_{eq}) (dBA)
NR-4	Church	no	75.26	40.2
R-25	Residence	no	1,403.19	32.8
R-43	Residence	no	950.88	34.7
R-15	Residence	yes	182.06	39.3
R-28	Residence	no	306.74	39.1
R-4	Residence	no	77.97	37.2
R-21	Residence	no	700.78	36.5
R-20	Residence	no	547.24	37.0
R-29	Residence	no	608.20	37.7
R-5	Residence	no	469.62	38.9
R-6	Residence	no	309.29	37.7
R-1	Residence	no	1,689.24	34.3
R-7	Residence	no	98.20	37.8
R-8	Residence	no	168.16	36.2
R-9	Residence	no	414.26	39.9
R-10	Residence	no	94.51	30.3
R-2	Residence	no	813.52	42.1
R-11	Residence	no	189.73	35.8
R-12	Residence	no	256.60	35.5
R-26	Residence	no	592.84	33.4
R-27	Residence	no	1,087.04	32.4
R-13	Residence	no	1,258.33	32.7
R-14	Residence	no	997.74	31.1
R-16	Residence	no	1,516.52	28.5
R-22	Residence	no	1,628.59	29.5
R-17	Residence	no	1,380.04	30.4
R-30	Residence	no	1,809.84	29.2
R-24	Residence	no	1,490.24	30.2
R-31	Residence	no	1,540.44	30.4
R-32	Residence	no	1,297.39	31.3
R-33	Residence	no	1,314.80	31.2
R-23	Residence	no	1,339.85	31.0
NR-16	Barn	no	954.47	32.6
NR-17	Barn	no	1,004.80	32.5
R-34	Residence	no	1,299.77	31.4
R-35	Residence	no	1,478.28	30.7
R-36	Residence	no	1,208.88	31.7
R-37	Residence	no	1,344.56	31.2
R-38	Residence	no	1,515.69	30.6
R-39	Residence	no	1,284.09	31.6
R-40	Residence	no	1,561.77	30.5
R-41	Residence	no	1,623.14	30.4

Receptor ID	Receptor Type	Participating (Y/N)	Distance to Project Boundary (feet)	Average Operational Sound Level (L_{eq}) (dBA)
R-18	Residence	no	959.66	32.9
R-19	Residence	no	1,568.79	30.4
R-42	Residence	yes	116.40	43.6
NR-3	Barn	yes	106.36	43.7
NR-2	Barn	yes	190.46	39.2
NR-5	Barn	yes	70.96	40.1
NR-6	Barn	no	1,861.17	29.7
NR-7	Barn	no	1,821.35	30.1
NR-8	Barn	no	305.19	36.3
NR-9	Barn	no	882.09	34.0
R-3	Residence	yes	116.11	41.3
NR-10	Barn	no	897.64	32.3
NR-11	Barn	no	793.66	32.2
NR-15	Commercial	no	707.83	33.9
NR-14	Barn	no	1,618.22	30.1
NR-13	Barn	no	1,662.99	30.0
NR-12	Barn	no	1,528.27	30.5
NR-1	Barn	no	1,399.64	32.7

Operational noise is displayed on the maps in Figures 2 and 3 on the following pages.

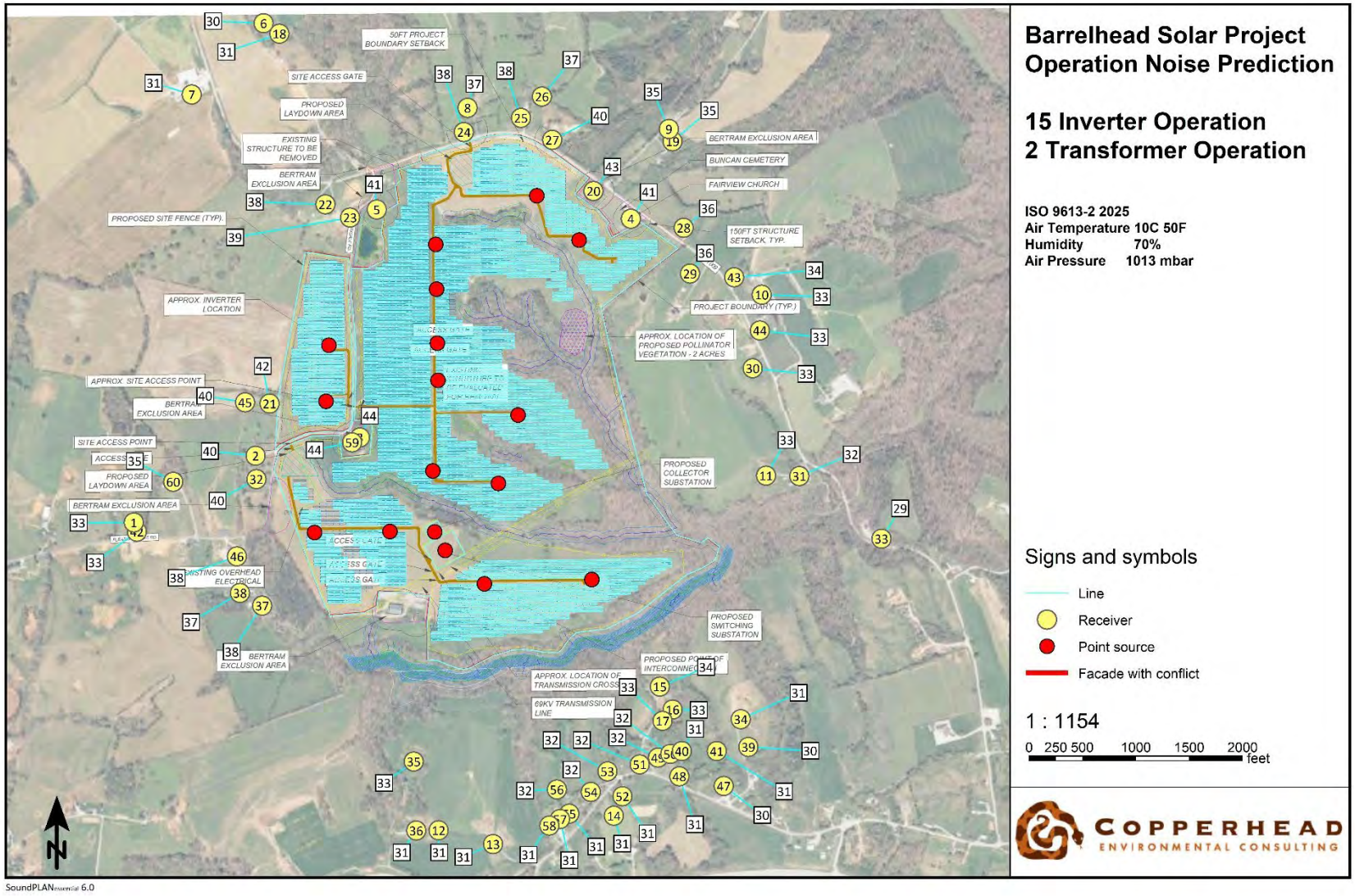

Figure 2. All receptors within 2,000 feet of the Project Area and the analysis results showing the maximum operational sound level.

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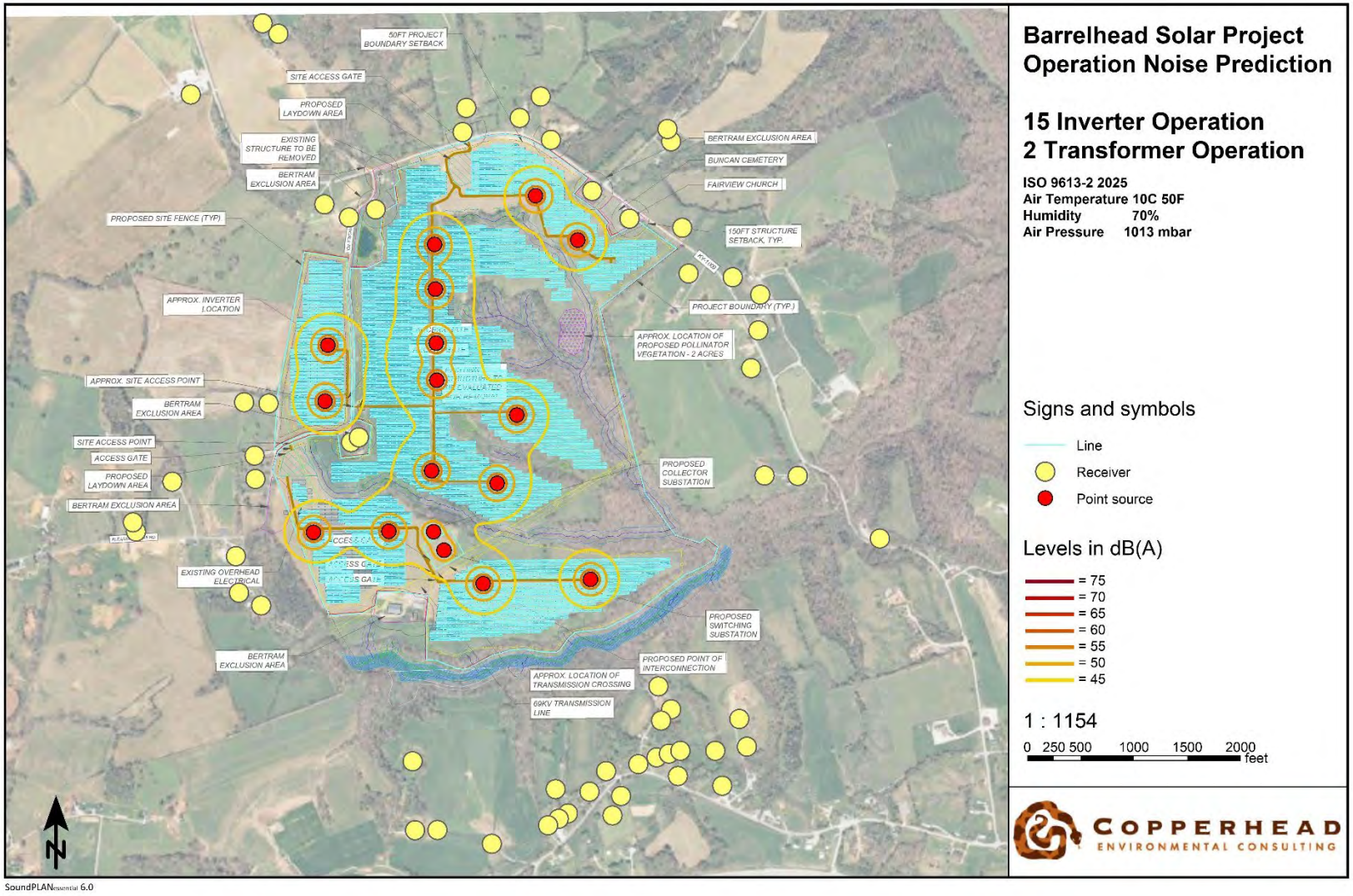

Figure 3. Operational noise contour map and all receptor locations.

CONCLUSION

Noise levels fluctuate based on atmospheric and environmental variables. As a result, noise generated by the facility would be constantly fluctuating and is not accurately captured by modeling, which relies on static data.

During operation, the ambient sound environment would return to existing levels, with the highest expected operational sound level to be around 43.7 dBA at NR-3. In addition, nighttime operation will result in lower sound emissions, as power would not be generated and therefore the solar inverters and substation transformer will be operating in stand-by mode. As a result, impacts of Project operation are anticipated to be minimal to negligible.

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Appendix A

SoundPLANessential Model Inputs and Results

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Calculation Service December 17th, 2025

Navcon Project #: 256462

Project Engineer: Hans J. Forschner

Project: Barrelhead Solar Project

Navcon Engineering Network
701 W. Las Palmas Dr.
Fullerton, CA 92835

Phone: 714-441-3488
Email: forschner@navcon.com
Web-Site www.navcon.com

Customer:
Copperhead Consulting

Contact: Chris McNees
Phone: 859.925.9012
Email: cmcnees@copperheadconsulting.com

Work Sheets:	Description
Caculation Parameter	Documentation of Software and Calculation Parameters
Source Input Noise Barrier	Summary of the Sound Power Level Lw for Transformer, Inverter
Community Leq	60 receiver closest buildings and location of interest

Software Version: SoundPLANessential v6.0 - Kernel version: 12/11/2025

Prediction Model:	ISO 9613 -2 "Acoustics -- Attenuation of sound during propagation outdoors -- Part 2: General method of calculation", 2024
Air absorption:	ISO 9613-1 "Acoustics -- Attenuation of sound during propagation outdoors -- Part 1: Calculation of the absorption of sound by the atmosphere"
Environment:	
Air pressure	1013 mbar
rel. Humidity	70%
Temperature	10 °C = 50 °F
Assessment:	Leq
Frequency Weighting:	dBA
Ground:	Absorptive Ground g=0.75 (mostly soft), Ground Substation and Battery Area g=0 (hard ground)

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Model Inputs

Operation Sources

			Frequency spectrum [dB(A)]								
		Lmax	31	63	125	250	500	1	2	4	8
Source name	Reference	dB(A)	Hz	Hz	Hz	Hz	Hz	kHz	kHz	kHz	kHz
Inverter No. 1	Lwfunit	94.6	59.5	67.7	74.8	79.3	90.7	88.9	87.1	84.9	72.8
Inverter No. 2	Lwfunit	94.6	59.5	67.7	74.8	79.3	90.7	88.9	87.1	84.9	72.8
Inverter No. 3	Lwfunit	94.6	59.5	67.7	74.8	79.3	90.7	88.9	87.1	84.9	72.8
Inverter No. 4	Lwfunit	94.6	59.5	67.7	74.8	79.3	90.7	88.9	87.1	84.9	72.8
Inverter No. 5	Lwfunit	94.6	59.5	67.7	74.8	79.3	90.7	88.9	87.1	84.9	72.8
Inverter No. 6	Lwfunit	94.6	59.5	67.7	74.8	79.3	90.7	88.9	87.1	84.9	72.8
Inverter No. 7	Lwfunit	94.6	59.5	67.7	74.8	79.3	90.7	88.9	87.1	84.9	72.8
Inverter No. 8	Lwfunit	94.6	59.5	67.7	74.8	79.3	90.7	88.9	87.1	84.9	72.8
Inverter No. 9	Lwfunit	94.6	59.5	67.7	74.8	79.3	90.7	88.9	87.1	84.9	72.8
Inverter No. 10	Lwfunit	94.6	59.5	67.7	74.8	79.3	90.7	88.9	87.1	84.9	72.8
Inverter No. 11	Lwfunit	94.6	59.5	67.7	74.8	79.3	90.7	88.9	87.1	84.9	72.8
Inverter No. 12	Lwfunit	94.6	59.5	67.7	74.8	79.3	90.7	88.9	87.1	84.9	72.8
Inverter No. 13	Lwfunit	94.6	59.5	67.7	74.8	79.3	90.7	88.9	87.1	84.9	72.8
Inverter No. 14	Lwfunit	94.6	59.5	67.7	74.8	79.3	90.7	88.9	87.1	84.9	72.8
Inverter No. 15	Lwfunit	94.6	59.5	67.7	74.8	79.3	90.7	88.9	87.1	84.9	72.8
Transformer 1	Lwfunit	85.6	73.6	79.6	81.6	76.6	76.6	70.6	65.6	60.6	53.6
Transformer 2	Lwfunit	85.6	73.6	79.6	81.6	76.6	76.6	70.6	65.6	60.6	53.6

Results

						Leq dB(A)
No.	Receiver	Floor	X m	Y m	Z m	Solar Operation
1	NR-1	676894	4071848	92.51	GF	32.7
2	NR-2	677241.8	4072039	94.98	GF	39.2
3	NR-3	677539.3	4072091	91.59	GF	43.7
4	NR-4	678312.6	4072716	93.87	GF	40.2
5	NR-5	677587.7	4072742	94.74	GF	40.1
6	NR-6	677264.4	4073274	93.65	GF	29.7
7	NR-7	677059.4	4073070	93.94	GF	30.1
8	NR-8	677846.5	4073032	95.01	GF	36.3
9	NR-9	678421.3	4072971	93.9	GF	34.0
10	NR-10	678686.2	4072498	92.79	GF	32.3
11	NR-11	678698.8	4071982	87.93	GF	32.2
12	NR-12	677764	4070969	92.93	GF	30.5
13	NR-13	677919.7	4070930	92.96	GF	30.0
14	NR-14	678264.3	4071011	89.34	GF	30.1
15	NR-15	678395.4	4071380	89.82	GF	33.9
16	NR-16	678432	4071314	90.5	GF	32.6
17	NR-17	678403	4071282	90.82	GF	32.5
18	R10	678088.4	4072941	94.73	GF	30.3
19	R-1	677309.5	4073244	93.74	GF	34.3
20	R-2	678431.9	4072936	93.8	GF	42.1
21	R-3	678206.1	4072795	93.94	GF	41.3
22	R-4	677281.5	4072188	91.86	GF	37.2
23	R-5	677440.7	4072756	92.49	GF	38.9
24	R-6	677511.4	4072719	92.69	GF	37.7

						Leq dB(A)
No.	Receiver	Floor	X m	Y m	Z m	Solar Operation
25	R-7	677836	4072963	95.3	GF	37.8
26	R-8	677999.1	4073003	95.95	GF	36.2
27	R-9	678059	4073064	95.06	GF	39.9
28	R-11	678463.5	4072690	94.9	GF	35.8
29	R-12	678482	4072559	93.88	GF	35.5
30	R-13	678660.5	4072289	90.27	GF	32.7
31	R-14	678793.8	4071981	86.43	GF	31.1
32	R-15	677244	4071972	94.12	GF	39.3
33	R-16	679028	4071802	82.16	GF	28.5
34	R-17	678626.8	4071287	92.15	GF	30.4
35	R-18	677693.1	4071166	90.98	GF	32.9
36	R-19	677700	4070969	93.24	GF	30.4
37	R-20	677260.7	4071611	87.34	GF	37.0
38	R-21	677197.2	4071647	89.34	GF	36.5
39	R-22	678648.3	4071207	92.57	GF	29.5
40	R-23	678458.4	4071196	92.83	GF	31.0
41	R-24	678558	4071196	90.88	GF	30.2
42	R-25	676903	4071822	92.01	GF	32.8
43	R-26	678607.6	4072548	93.64	GF	33.4
44	R-27	678681.2	4072397	91.84	GF	32.4
45	R-28	677211.9	4072192	91.89	GF	39.1
46	R-29	677188.3	4071752	90.24	GF	37.7
47	R-30	678578.1	4071096	93.03	GF	29.2
48	R-31	678451.5	4071124	92.17	GF	30.4

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						Leq dB(A)
No.	Receiver	Floor	X m	Y m	Z m	Solar Operation
49	R-32	678390.2	4071177	92.85	GF	31.3
50	R-33	678425.2	4071187	93.14	GF	31.2
51	R-34	678338.3	4071158	92.32	GF	31.4
52	R-35	678288.8	4071067	91.38	GF	30.7
53	R-36	678246	4071138	92.76	GF	31.7
54	R-37	678198.3	4071079	92.83	GF	31.2
55	R-38	678137	4071017	92.81	GF	30.6
56	R-39	678101.9	4071086	92.36	GF	31.6
57	R-40	678110.4	4071001	92.11	GF	30.5
58	R-41	678080.4	4070983	90.65	GF	30.4
59	R-42	677517.5	4072077	91.57	GF	43.6
60	R-43	677006.5	4071964	92.24	GF	34.7

Siting Board 2-66:

Refer to Barrelhead Solar's response to Staff's First Request, Item 56. Item 56 provides a series of visual renderings at several locations. Explain whether the "with Solar Panels" version of each location reflects the actual estimated distance to panels at that location.

Response: Yes, the visual renderings reflect the estimated distance to solar panels at those locations and are photoshop concepts.

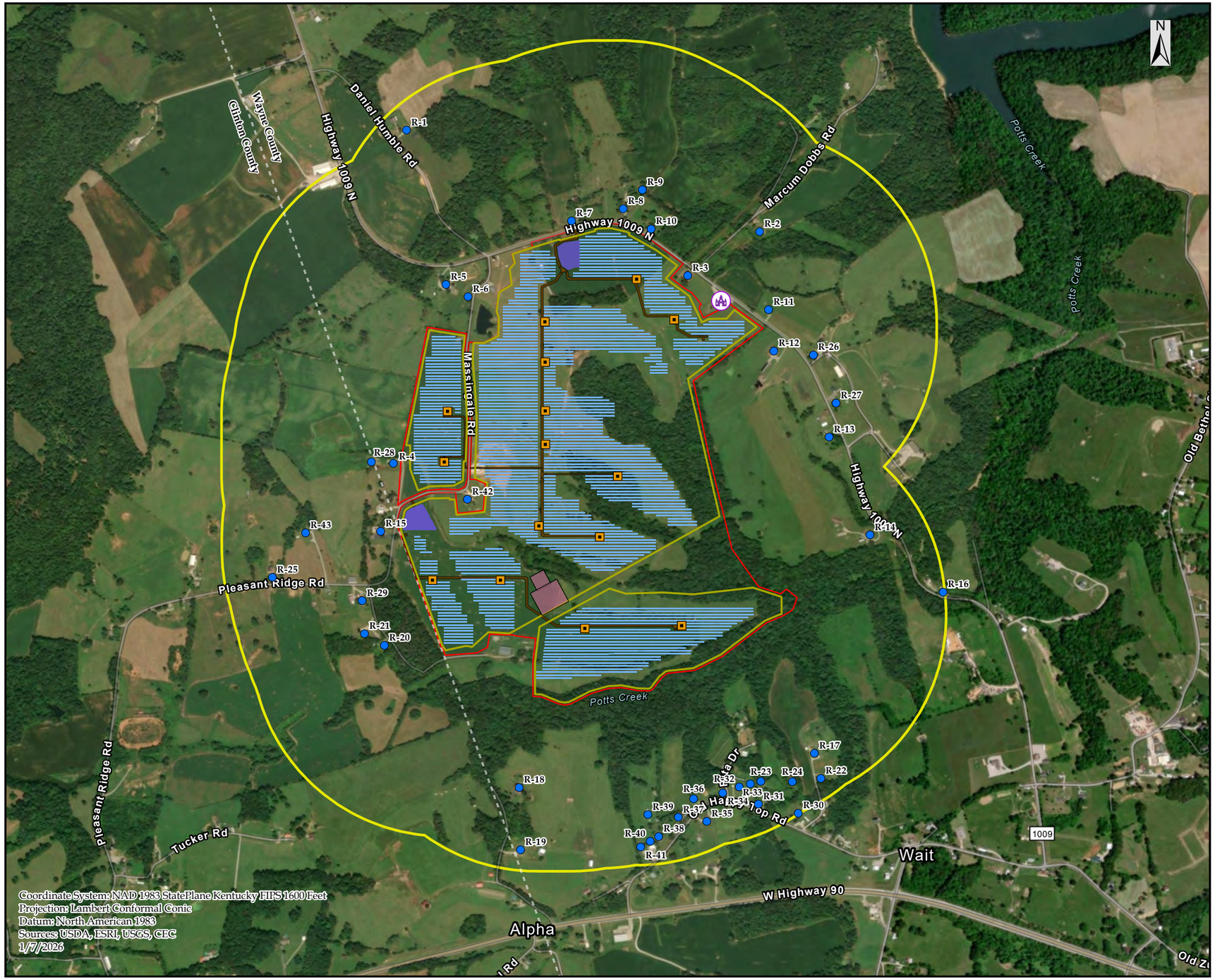
Witness: Marty Marchaterre

Siting Board 2-67:

Refer to Barrelhead Solar's response to Staff's First Request, Item 59. Figures 1 and 2 include a different total number of receptors and different numbering system for the receptors than shown in Figure 3. Explain these differences and provide revised Figures with consistent receptor numbering.

Response: Figures 1, 2, and 3 from the visibility analysis have been revised and provided as Attachment 2-67. The numbering system in the revised maps uses the updated/simplified labeling developed for this RFI. The difference in numbering between the previous maps was clerical error.

Witness: Marty Marchaterre



COPPERHEAD
ENVIRONMENTAL CONSULTING

Prepared for:

Barrelhead Solar, LLC

FIGURE 2-67a:
Structures and Design Layout for the
Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

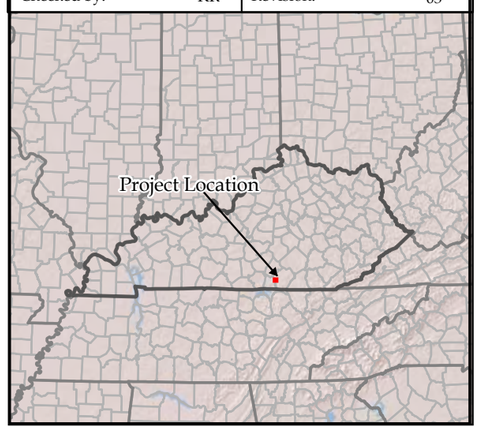
- Residential Structure
- Fairview Church
- Inverter
- Fence
- Road
- Solar Array
- Substation
- Laydown Area
- 2,000-ft Buffer
- Project Boundary

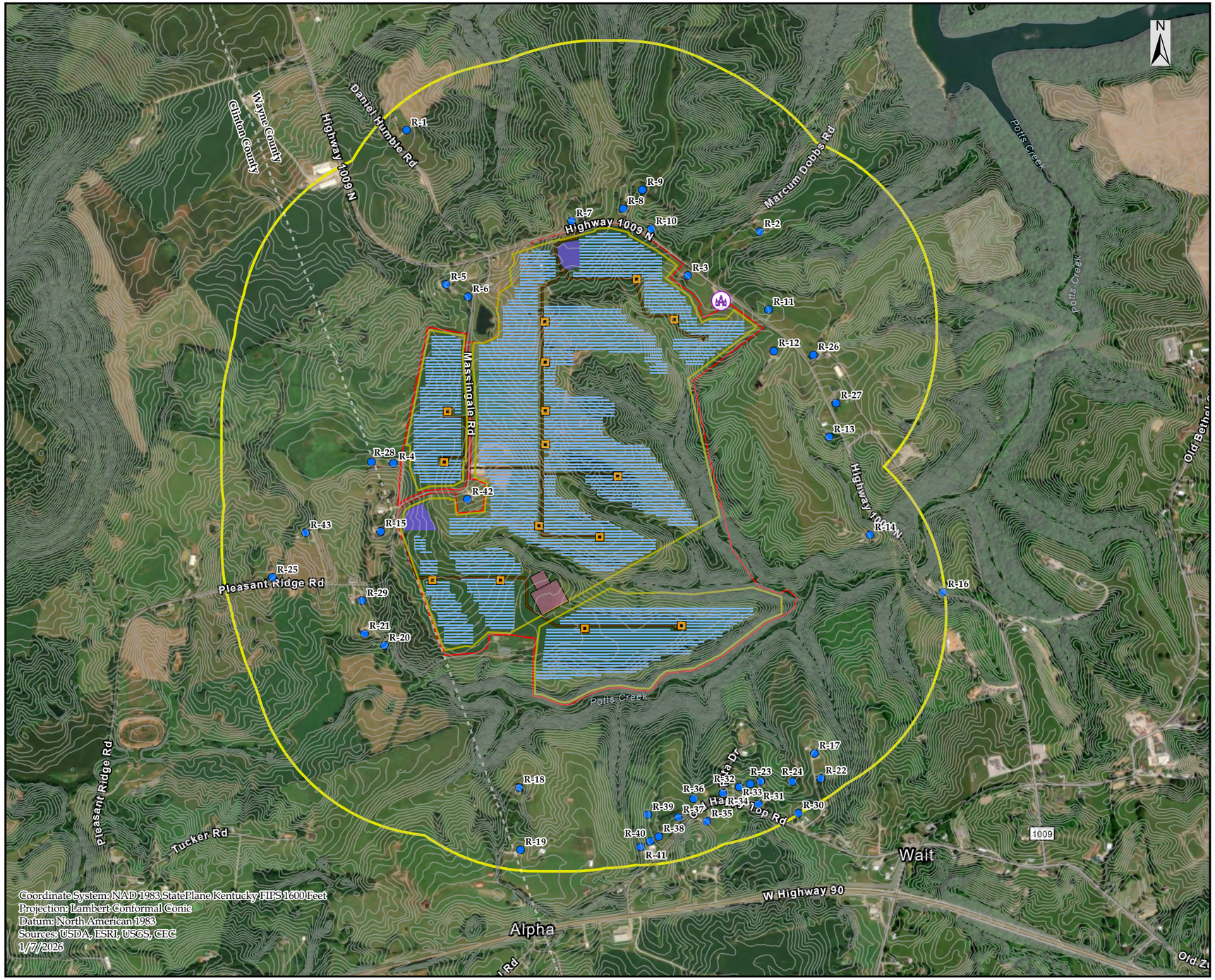
0 750 1,500
US Feet

Scale: 1 in = 1,000 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	TC	Date:	1/7/2026
Checked by:	KR	Revision:	03





COPPERHEAD
ENVIRONMENTAL CONSULTING

Prepared for:

Barrelhead Solar, LLC

FIGURE 2-67b:
Structures and Design Layout for the
Barrelhead Solar Project,
Wayne County, Kentucky.

Legend

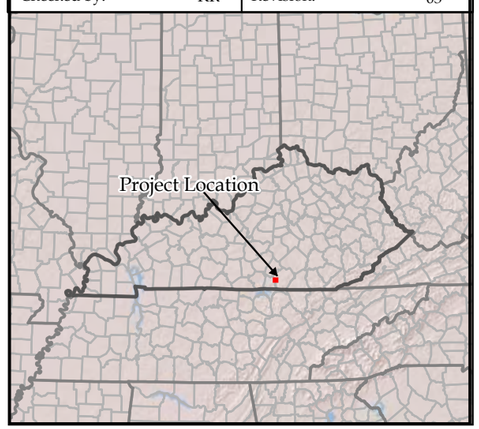
- Residential Structure
- Fairview Church
- Contour Elevation
- Inverter
- Fence
- Road
- Solar Array
- Substation
- Laydown Area
- 2,000-ft Buffer
- Project Boundary

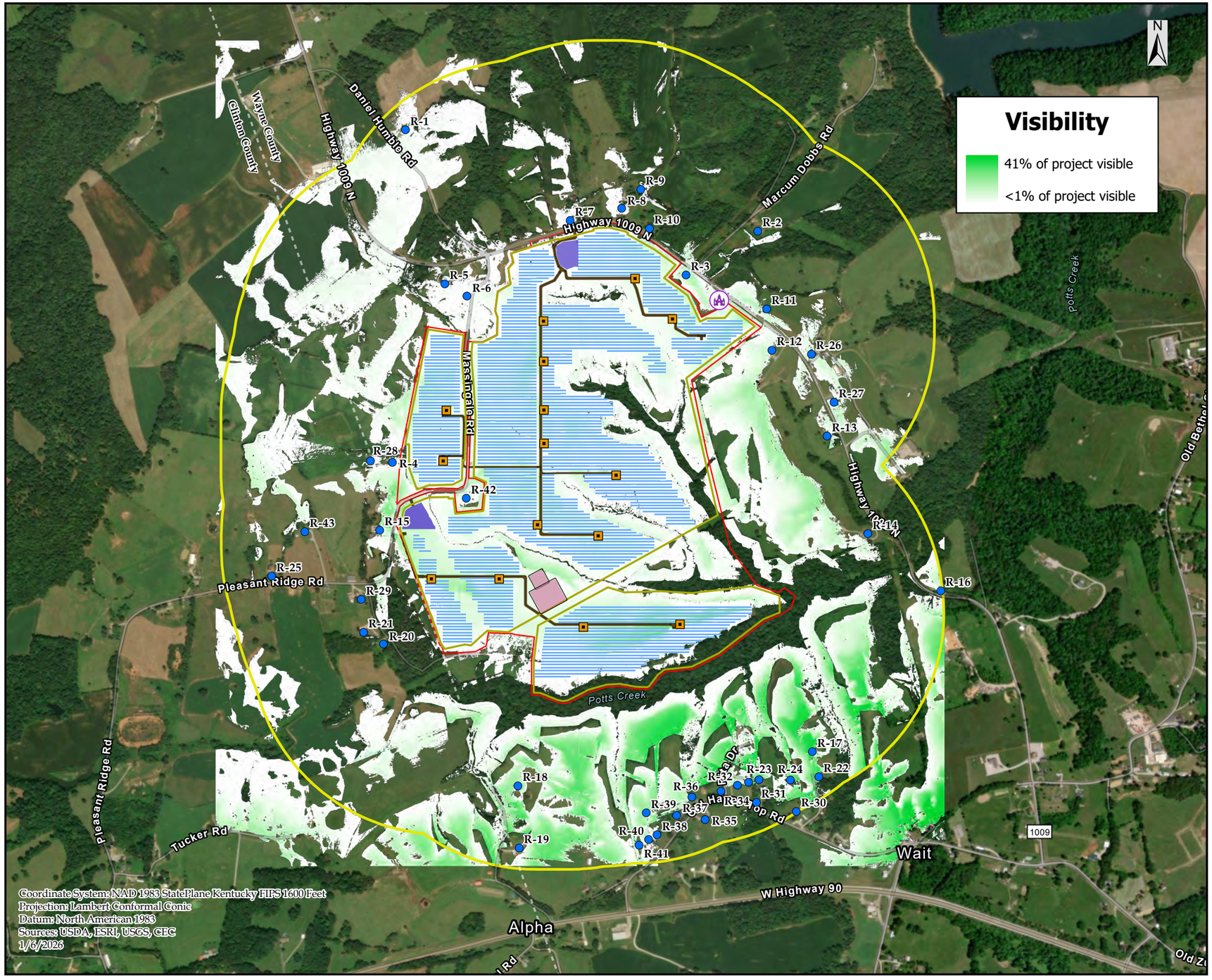
0 750 1,500
US Feet

Scale: 1 in = 1,000 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	TC	Date:	1/7/2026
Checked by:	KR	Revision:	03





COPPERHEAD
ENVIRONMENTAL CONSULTING

Prepared for:

Barrelhead Solar, LLC

FIGURE 2-67c:
Structures and Design Layout with Visibility Overlay for the Barrelhead Solar Project, Wayne County, Kentucky.

Legend

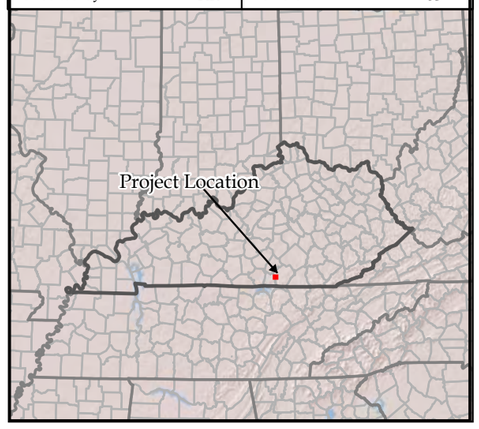
- Residential Structure
- Fairview Church
- Inverter
- Fence
- Road
- Solar Array
- Substation
- Laydown Area
- 2,000-ft Buffer
- Project Boundary

0 750 1,500
US Feet

Scale: 1 in = 1,000 ft

Prepared by :
Copperhead Environmental Consulting, Inc.
471 Main Street
P.O. Box 73
Paint Lick, Kentucky 40461

Drawn by:	TC	Date:	1/6/2026
Checked by:	KR	Revision:	03



Siting Board 2-68:

Refer to Barrelhead Solar's response to Staff's First Request, Item 46 and 59. The location for the 2,000-foot buffer and receptor numbering are inconsistent across the studies.

a. Provide a definitive map inclusive of all receptors within 2,000 feet of the Project boundary and marking the 2,000-foot buffer.

b. Include all participating and non-participating structures, residential and non-residential, with indicated receptor numbers and neighborhoods marked.

c. Revise the figures in the Noise Study and Visual Impact Study to match the definitive map, as needed.

Response: A map showing all participating and non-participating, residential and non-residential, receptors within 2,000 feet of the Project, including the buffer, is provided as Attachment 2-2. This map is the same as was used for the Noise report. Updated visibility maps with this labeling are provided as Attachment 2-67.

Witness: Marty Marchaterre

Siting Board 2-69:

Refer to Barrelhead Solar's response to Staff's First Request, Item 16. Provide the total number of poles by type that will be installed to facilitate the connection between the existing EKPC Upchurch Tap-Wayne County 69 kV line with the switching/interconnection substation.

Response: See RFI No. 2-30.

Witness: Trudie Grattan

Siting Board 2-70:

Refer to Barrelhead Solar's response to Staff's First Request, Item 50. Item 50 states that approximately 13.5 acres of trees would be cleared from within the Project site. Explain whether and how many additional acres would need to be cleared if tracking arrays were used instead of fixed arrays.

Response: Barrelhead Solar proposed a fixed tilt layout in the Application. Therefore, a separate, alternative preliminary site layout using tracking arrays has not been developed and Barrelhead Solar has not evaluated tree clearing that would be required for tracking arrays.

Witness: Marty Marchaterre

Siting Board 2-71

Refer to Barrelhead Solar's response to Staff's First Request, Item 77 and Attachment F, Economic Analysis. The revised report simply states that the county can expect at least $1.6 million in property tax revenue over the life of the Project. Provide a detailed list of the estimated amount of total property tax revenue that would be generated for:

a. Kentucky

b. Wayne County School District

c. Other Wayne County taxing entities with AND without an IRB/PILOT

Response: Based on the preliminary analysis, the Applicant estimates the total amount of property tax revenue for the following entities (based on 2024 Property Tax Rates published by the Kentucky Department of Revenue):

1. Without an IRB/PILOT:
    a. Kentucky: No state property tax revenues calculated at this time
    b. Wayne County School District: $887,544.12
    c. Other Wayne County taxing entities:
        i. Wayne County (inclusive of five taxing jurisdictions): $712,455.88

At this time, the Applicant is still meeting with Wayne County to discuss the terms of an IRB/PILOT agreement. Therefore, the county tax revenues with an IRB/PILOT are not known at this time.

Witness: Josh Pinkston

Siting Board 2-72:

Explain whether property taxes generated by the Project would be greater if using tracking arrays, as compared to fixed arrays.

Response: Barrelhead Solar proposed a fixed tilt layout in the Application. A separate property tax estimate has not been evaluated for the use of tracking arrays.

Witness: Marty Marchaterre

Siting Board 2-73:

Refer to Barrelhead Solar's response to Staff's First Request, Item 101. This response states that states that the overhead transmission line may only be 100 to 150 feet in length, as compared to the 0.65-mile length included in the Applicant's Decommissioning Plan. Provide the current estimate of the length of the overhead transmission line.

Response: See RFI No. 2-30 response. The Decommissioning Plan has been revised to provide the current estimate of the length of the overhead transmission line (see Attachment 2-5).

Witness: Marty Marchatere

Siting Board 2-74:

Confirm that in addition to the overhead line connecting the switching substation to the Upchurch Tap-Wayne County 69 kV line there will be an additional overhead line between the Project collector substation and the switching substation, as discussed at the site visit. If not confirmed, explain the response. Provide the length of the overhead line for the collector Substation and explain the plan for connection to the switching substation.

Response: There will be an overhead line between the Project collector substation and the EKPC switching substation. At this time, Barrelhead Solar anticipates that the overall interconnection transmission line will be approximately 100-150 feet in length.

To connect from the Project collector substation to the EKPC switching substation, the interconnection transmission tie-line will run from the collector substation to a 69 kV transmission line monopole dead-end structure and foundation located outside the fence of the Interconnection Substation.

Witness: Trudie Grattan

COMMONWEALTH OF KENTUCKY
BEFORE THE KENTUCKY STATE BOARD
ON ELECTRIC GENERATION AND TRANSMISSION SITING

In the Matter of the Application of Barrelhead Solar, LLC for a Certificate of Construction for an approximately 54-Megawatt Merchant Electric Generating Facility in Wayne County, Kentucky pursuant to KRS 278.700, et seq., and 807 KAR 4:110	**)** **)** **)**	**Case No. 2025-00177**

CERTIFICATION

This is to certify that I have supervised the preparation of Barrelhead Solar, LLC's responses to the Siting Board Staff's Second Request for Information and that the responses on which I am identified as a sponsoring witness are true and accurate to the best of my knowledge, information, and belief after reasonable inquiry.

1/7/26
Date

Marty Marchaterre
Marty Marchaterre

COMMONWEALTH OF KENTUCKY
BEFORE THE KENTUCKY STATE BOARD
ON ELECTRIC GENERATION AND TRANSMISSION SITING

In the Matter of the Application of Barrelhead Solar, LLC for a Certificate of Construction for an approximately 54-Megawatt Merchant Electric Generating Facility in Wayne County, Kentucky pursuant to KRS 278.700, et seq., and 807 KAR 4:110	**)** **)** **)**	**Case No. 2025-00177**

CERTIFICATION

This is to certify that I have supervised the preparation of Barrelhead Solar, LLC's responses to the Siting Board Staff's Second Request for Information and that the responses on which I am identified as a sponsoring witness are true and accurate to the best of my knowledge, information, and belief after reasonable inquiry.

1/7/2026
Date

Signed by:
Trudie Grattan
C0283142D8E64E3...
Trudie Grattan