APPENDIX 4.10-1

Glare Analysis Inputs and Assumptions

This Page Intentionally Left Blank

Glare Analysis Report for the Horse Heaven Wind Farm

Benton County, Washington

Prepared for:

SCOUT CLEAN ENERGY

Prepared by:

TETRA TECH

19803 North Creek Parkway
Bothell, WA 98011

January 2021

TABLE OF CONTENTS

1 Introduction 1

2 Federal Aviation Administration Notice Criteria Consultation 1

3 Glare Analysis Method 2

4 Glare Analysis Inputs 3

5 Glare Analysis Assumptions 5

6 Glare Analysis Results 5

6.1 Analysis 1: Solar Array County Well (West 1) PV Array Areas - First Story and Commuter Car View Results 6

6.2 Analysis 2: Solar Array County Well (West 1) PV Array Areas - Second Story and Commercial Truck View Results 6

6.3 Analysis 3: Solar Array Sellards (West 2) PV Array Areas - First Story and Commuter Car View Results 7

6.4 Analysis 4: Solar Array Sellards (West 2) PV Array Areas - Second Story and Commercial Truck View Results 7

6.5 Analyses 5 and 7: Solar Array East PV Array Areas - First Story and Commuter Car View Results 8

6.6 Analyses 6 and 8: Solar Array East PV Array Areas - Second Story and Commercial Truck View Results 8

7 Summary 9

8 References 10

LIST OF TABLES

Table 1. Glare Analyses Input Features 4

Table 2. Analysis 1 Annual Minutes of Glare Summary – Solar Array County Well 6

Table 3. Analysis 2 Annual Minutes of Glare Summary – Solar Array County Well 6

Table 4. Analysis 3 Annual Minutes of Glare Summary – Solar Array Sellards 7

Table 5. Analysis 4 Annual Minutes of Glare Summary – Solar Array Sellards 7

Table 6. Analyses 5 and 7 Annual Minutes of Glare Summary – Solar Array East 8

Table 7. Analyses 6 and 8 Annual Minutes of Glare Summary – Solar Array East 9

LIST OF ATTACHMENTS

Attachment A. Preliminary Project Layout

Attachment B. Figures

Attachment C. ForgeSolar Glare Analysis Reports

EXECUTIVE SUMMARY

At the request of Scout Clean Energy, LLC (Scout), Tetra Tech, Inc. (Tetra Tech) conducted a glint and glare analysis of the proposed Horse Heaven Wind Farm (Project), which includes proposed solar energy generation in addition to wind. The analysis was conducted using the Solar Glare Hazard Analysis Tool (SGHAT) software through an online tool (GlareGauge) developed by Sandia National Laboratories and hosted by ForgeSolar. A total of eight glare analyses were conducted for the Project. The analyses modeled the points of view from an average first- and second-floor structure, as well as those from a typical commuter car and commercial truck. These analyses included several representative observation points from the surrounding community and several segmented traffic routes chosen to represent the relative traffic routes around the array areas.

The results of the analyses indicate that the surrounding observation points and vehicle routes would not experience glare as a result of the Project. The lack in predicted glare could be a result of the parameters for the solar panels and the relative lack of representative points from the surrounding area. The predicted glare at these receptors is considered to be a conservative representation as the SGHAT does not consider obstacles (either man-made or natural) between the defined solar photovoltaic arrays and the receptors such as vegetative screening (existing or planted), buildings, topography, etc. Where such features exist, they would screen views of the Project and, thus, minimize or eliminate glare from these receptor locations.

Based on the results of the Federal Aviation Administration Notice Criteria Tool, the Project does not exceed notice criteria and a formal filing is not necessary.

1 INTRODUCTION

The Horse Heaven Wind Farm (Project) consists of a renewable energy generation facility, which is located in unincorporated Benton County, Washington, within the Horse Heaven Hills area, which is an anticline ridge of the Yakima Folds within the larger Columbia Plateau Ecoregion. At its closest point, the Project is located approximately 4 miles south/southwest of the city of Kennewick and the larger Tri-Cities urban area, along the Columbia River. In addition to proposed wind energy generation, the Project would include solar energy generation. Currently, Scout Clean Energy (Scout) is considering multiple areas for solar photovoltaic (PV) arrays for siting during final design (Attachment A). This analysis includes each potential set of solar arrays, divided into three areas for the purposes analysis: Solar Array County Well (West 1) near County Well Road, Solar Array Sellards (West 2) near Sellards Road, and Solar Array East on either side of Interstate-82 (Attachment B, Figure 1).

As an industry standard, the term "glint and glare" analysis is typically used to describe an analysis of potential ocular impacts to defined receptors. ForgeSolar defines glint and glare in the following statement:

> *Glint is typically defined as a momentary flash of bright light, often caused by a reflection off a moving source. A typical example of glint is a momentary solar reflection from a moving car. Glare is defined as a continuous source of bright light. Glare is generally associated with stationary objects, which, due to the slow relative movement of the sun, reflect sunlight for a longer duration.*

Based on the ForgeSolar definitions of glint and glare and the stationary nature of the Project solar PV modules related to the sun, the potential reflectance from the Project modeled throughout this report will be referred to as glare.

Tetra Tech completed a glare analysis using the Solar Glare Hazard Analysis Tool (SGHAT) software, developed by Sandia Laboratories, now hosted by ForgeSolar (as discussed further below; ForgeSolar 2020). The SGHAT software is considered an industry best practice and conservative model that effectively models the potential for glare at defined receptors from defined solar energy generating facilities. As discussed further below, the model is conservative in that it does not account for potential screening such as existing or proposed vegetation, topography outside of the defined areas, buildings, walls, or fences.

This report summarizes the glare analysis conducted based on the preliminary Project layout provided by Scout in November of 2020. Included as attachments are the Preliminary Project Layout that formed the basis of the analysis (Attachment A); Figure 1, "Solar Array Areas" and Figures 2a through 2c, "Glare Receptors" (Attachment B); and the raw glare analysis output reports generated through the use of the ForgeSolar tool (Attachment C).

2 FEDERAL AVIATION ADMINISTRATION NOTICE CRITERIA CONSULTATION

The Federal Aviation Administration (FAA) developed *Technical Guidance for Evaluating Selected Solar Technologies on Airports* in 2010, in addition to FAA regulatory guidance under 78 *Federal Register* (FR) 63276 Interim Policy, FAA Review of Solar Energy System Projects on Federally Obligated Airports (collectively referred to as FAA Guidance) (FAA 2010). The FAA Guidance recommends that

glare analyses should be performed on a site-specific basis using the Sandia Laboratories SGHAT (FAA 2010). This guidance applies to solar facilities located on federally-obligated airport property; it is not mandatory for a proposed solar installation that is not on an airport (and for which a Form 7460-1 is filed with FAA pursuant to Title 14 Code of Federal Regulations [CFR] Part 77.9, as discussed below), but is considered to be an industry best practice for solar facilities in general. The SGHAT is the standard for measuring potential ocular impact as a result of solar facilities (78 FR 63276).

According to 78 FR 63276, the FAA has determined that "glint and glare from solar energy systems could result in an ocular impact to pilots and/or air traffic control facilities and compromise the safety of the air transportation system." The FAA has developed the following criteria for analysis of solar energy projects located on jurisdictional airports:

- No potential for glint or glare in the existing or planned air traffic control tower cab; and
- No potential for glare or "low potential for after-image" along the final approach path for any existing landing threshold or future landing thresholds (including any planned interim phases of the landing thresholds) as shown on the current FAA-approved Airport Layout Plan (ALP). The final approach path is defined as 2 miles from 50 feet above the landing threshold using a standard 3-degree glidepath.

The online FAA Notice Criteria Tool (NCT) reports whether a proposed structure is in proximity to a jurisdictional air navigation facility and if formal submission to the FAA under 14 CFR Part 77.9 (Safe, Efficient Use, and Preservation of the Navigable Airspace) is recommended (FAA 2020). The NCT also identifies final approach flight paths that may be considered vulnerable to a proposed structure's impact on navigation signal reception. The NCT was utilized to determine if the proposed Project is located within an FAA-identified impact area based on the Project boundaries and height above ground surface. The FAA NCT Report stated that the Project does not exceed notice criteria.

3 GLARE ANALYSIS METHOD

The SGHAT is considered to be an industry best practice for analysis of glare related to solar energy generating facilities. Tetra Tech utilized the SGHAT technology as part of an online tool (GlareGauge) developed by Sandia National Laboratories and hosted by ForgeSolar. GlareGauge provides a quantitative assessment of the following (ForgeSolar 2020):

- When and where glare has the potential to occur throughout the year for a defined solar array polygon; and
- Potential effects on the human eye at locations where glare is predicted.

The following statement was issued by Sandia Laboratories regarding the SGHAT technology:

> *Sandia developed SGHAT v. 3.0, a web-based tool and methodology to evaluate potential glint/glare associated with solar energy installations. The validated tool provides a quantified assessment of when and where glare will occur, as well as information about potential ocular impacts. The calculations and methods are based on analyses, test data, a database of different photovoltaic module surfaces (e.g. anti-reflective coating, texturing), and models developed over several years at Sandia. The results are presented in a simple easy-to-interpret plot that specifies when glare will occur throughout the year, with color indicating the potential ocular hazard.* (Sandia 2016)

Note, however, that technology changes continue to occur to address issues such as reflectivity. The model, therefore, presents a conservative assessment based upon simplifying assumptions inherent in the model as well as industry improvements since the most recent update of such assumptions.

Based on the predicted retinal irradiance (i.e., intensity) and subtended angle (i.e., size/distance) of the glare source to receptor, the GlareGauge categorizes potential glare where it is predicted by the model to occur in accordance with three tiers of severity (i.e., ocular hazards) that are shown by different colors in the model output:

- Red glare: glare predicted with a potential for permanent eye damage (i.e., retinal burn)
- Yellow glare: glare predicted with a potential for temporary after-image
- Green glare: glare predicted with a low potential for temporary after-image

These categories of glare are calculated using a typical observer's blink response time, ocular transmission coefficient (i.e., the amount of radiation absorbed in the eye prior to reaching the retina), pupil diameter, and eye focal length (i.e., the distance between where rays intersect in the eye and the retina). As a point of comparison, direct viewing of the sun without a filter is considered to be on the border between yellow glare and red glare, while typical camera flashes are considered to be lower tier yellow glare (i.e., approximately 3 orders of magnitude less than direct viewing of the sun). Upon exposure to yellow glare, the observer may experience a spot in their vision temporarily lasting after the exposure. Upon exposure to green glare, the observer may experience a bright reflection but typically no spot lasting after exposure.

4 GLARE ANALYSIS INPUTS

The modules to be used for the proposed Project are smooth glass surface material with an anti-reflection coating (ARC), which are parameters selected in the glare analyses. Values associated with panel reflectivity and reflective scatter were not altered from the GlareGauge standard input averaged from various module reflectance profiles produced from module research concluded in 2016; therefore, as previously noted, the model does not incorporate further advances in anti-reflective coatings since that time (Sandia 2016).

Due to capacity constraints in the SGHAT, which limits the number of drawn photovoltaic (PV) array areas to 20 per analysis, Tetra Tech performed eight separate glare analyses: two for Solar Array County Well (West 1) (Analysis 1 and 2), two for Solar Array Sellards (West 2) (Analysis 3 and 4), four for Solar Array East (Analyses 5 through 8). Each analysis evaluated separate "PV Array Areas," which are segmented polygons within each of the three larger solar array areas generally representative of the proposed Project layout as of November 2020 (Attachment A). Analysis 1 and 2 consisted of 12 PV Array Areas, Analysis 3 and 4 consisted of 18 PV Array Areas, Analysis 5 and 6 consisted of 17 PV Array Areas, and Analysis 7 and 8 consisted of 13 PV Array Areas (Attachment B). Segmentation of the Project layout allows GlareGauge to more accurately represent potential ocular impacts as a result of the Project.

Each analysis run included proximal segmented vehicular traffic routes, as well as several residential receptors (also referred to as observation points [OPs]). The vehicular route and residential receptors were selected to provide a representation of proximal areas surrounding the Project that could experience glare. The route segment extents were based on the results of Tetra Tech's preliminary viewshed analysis for the Project. The residential receptors are a subset of the noise sensitive receptors analyzed for the

Project as part of the acoustic assessment (see Section 4.1.1 and Appendix O in the Application for Site Certification), and retain the associated identification numbers for cross-reference in addition to the simplified OP numbering needed for the SGHAT. The analyses for each array area were run first from the point of view from an average first floor (6 feet) and typical commuter car height (5 feet), followed by an analysis from the point of view from an average second floor residential structure (16 feet) and commercial truck height above the road surface (9 feet). The additional input features used in the analyses are summarized in Table 1.

Table 1. Glare Analyses Input Features

Analysis No.	Racking Type	Module Orientation[1]	Tilt[2] (degrees)	Resting Angle (degrees)[3]	Module Height[4] (feet)	OP Height[5] (feet)	Route Height[6] (feet)
1	Single Axis Tracking	East-to-West-facing	Variable	10	8	6	5
2	Single Axis Tracking	East-to-West-facing	Variable	10	8	16	9
3	Single Axis Tracking	East-to-West-facing	Variable	10	8	6	5
4	Single Axis Tracking	East-to-West-facing	Variable	10	8	16	9
5	Single Axis Tracking	East-to-West-facing	Variable	10	8	6	5
6	Single Axis Tracking	East-to-West-facing	Variable	10	8	16	9
7	Single Axis Tracking	East-to-West-facing	Variable	10	8	6	5
8	Single Axis Tracking	East-to-West-facing	Variable	10	8	16	9

Notes:
OP = observation point; PV = photovoltaic
[1] PV Array Areas modeled as single axis tracking modules from east-facing in the morning hours to west-facing in the evening hours.
[2] The module tilt varies through the day as they track the sun, the maximum tracking angle tilt is ±50˚.
[3] The resting angle is used to model module backtracking when the sun is outside of the module rotation range. A resting angle of 10 assumes that the modules immediately revert back to 10˚ (backtrack) when the sun is outside of the rotation range.
[4] Average module centroid height above ground surface.
[5] Height of observation point receptor: 6 feet represents an average first floor residential/commercial point of view and 16 feet represents an average second floor residential/commercial point of view.
[6] Height of vehicular route receptor: 5 feet represents typical commuter car height views and 9 feet represents typical semi-tractor-trailer truck views.

5 GLARE ANALYSIS ASSUMPTIONS

The GlareGauge model is bound by conservative limitations. The following assumptions provide a level of conservatism to the GlareGauge model:

- The GlareGauge model simulates PV arrays as infinitesimally small modules within planar convex polygons exemplifying the tilt and orientation characteristics defined by the user. Gaps between modules, variable heights of the PV array within the polygons, and supporting structures are not considered in the analysis. Because the actual module rows will be separated by open space, this model assumption could result in indication of glare in locations where panels will not be located. In addition, the supporting structures are considered to have reflectivity values that are negligible relative to the module surfaces included in the model.
- The GlareGauge model utilizes a simplified model of backtracking, which assumes panels instantaneously revert to the "resting angle" whenever the sun is outside the rotation range.
- The GlareGauge model assumes that the observation point receptor can view the entire PV array segment when predicting glare minutes; however, it may be that the receptor at the observation point may only be able to view a small portion (typically the nearest edge) of the PV array segment. Therefore, the predicted glare minutes and intensity from a specific PV array to a specific observation point are conservative because the observer will likely not experience glare from the entire PV array segment at once.
- The GlareGauge model does not consider obstacles (either man-made or natural) between the defined PV arrays and the receptors such as vegetative screening (existing or planted), buildings, topography, etc. Where such features exist, they would screen views of the Project and, thus, minimize or eliminate glare from those locations.
- The GlareGauge model does not consider the potential effect of shading from existing topography between the sun and the Project outside of the defined areas.
- The direct normal irradiance (DNI) is defined as variable using a typical clear day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum of 1,000 watts per square meter (W/m^2) at solar noon. The irradiance profile uses the coordinates from Google Maps and a sun position algorithm to scale the DNI throughout the year. The actual daily DNI would be affected by precipitation, cloud cover, atmospheric attenuation (radiation intensity affected by gaseous constituents), and other environmental factors not considered in the GlareGauge model. This may result in modeled predicted glare occurrences when in fact the glare is not actually occurring due to cloud cover, rain, or other atmospheric conditions.

Note that hazard zone boundaries shown in the Glare Hazard plots are an approximation; actual ocular impacts encompass a continuous, not discrete, spectrum.

6 GLARE ANALYSIS RESULTS

Tetra Tech performed eight different analyses covering four groupings of PV arrays to provide a quantitative assessment of the potential for glare from the Project based on different receptor characteristics. The GlareGauge model's predicted results for the Project are summarized in the following sections partitioned according to the receptor parameters.

6.1 Analysis 1: Solar Array County Well (West 1) PV Array Areas - First Story and Commuter Car View Results

Analysis 1 consisted of 12 PV Arrays (1-1 through 1-12), as viewed from four OPs at 6 feet above ground surface (i.e., typical first story receptor height), and seven segmented vehicular traffic routes at 5 feet above ground surface (i.e., typical commuter vehicle receptor height) (Attachment B, Figure 2a).

Table 2 represents the glare summary in annual minutes of glare for Analysis 1. Based on the SGHAT results, no amounts of glare are predicted at any of the OPs or at the segmented vehicular routes.

Table 2. Analysis 1 Annual Minutes of Glare Summary – Solar Array County Well

Receptor ID	Green Glare	Yellow Glare	Red Glare
185 (OP-1)	0	0	0
737 (OP-2)	0	0	0
715 (OP-3)	0	0	0
743 (OP-4)	0	0	0
Country Well Rd	0	0	0
Sellards Road-1	0	0	0
Sellards Road-2	0	0	0
S Travis Road-1	0	0	0
WA-221-1	0	0	0
WA-221-2	0	0	0
WA-221-3	0	0	0

6.2 Analysis 2: Solar Array County Well (West 1) PV Array Areas - Second Story and Commercial Truck View Results

Analysis 2 included the same PV Arrays and the same receptor locations as Analysis 1, with the OP viewing height raised to 16 feet above ground surface (i.e., typical second story receptor height) and the segmented vehicular traffic route viewing height raised to 9 feet above ground surface (i.e., typical commercial truck receptor height) (Attachment B, Figure 2a).

Table 3 represents the glare summary in annual minutes of glare for Analysis 2. Based on the SGHAT results, no amounts of glare were predicted at any of the defined receptors.

Table 3. Analysis 2 Annual Minutes of Glare Summary – Solar Array County Well

Receptor ID	Green Glare	Yellow Glare	Red Glare
185 (OP-1)	0	0	0
737 (OP-2)	0	0	0
715 (OP-3)	0	0	0
743 (OP-4)	0	0	0
Country Well Rd	0	0	0
Sellards Road-1	0	0	0
Sellards Road-2	0	0	0
S Travis Road-1	0	0	0
WA-221-1	0	0	0
WA-221-2	0	0	0
WA-221-3	0	0	0

6.3 Analysis 3: Solar Array Sellards (West 2) PV Array Areas - First Story and Commuter Car View Results

Analysis 3 consisted of 18 PV Arrays (2-1 through 2-18), as viewed from five OPs at 6 feet above ground surface and seven segmented vehicular traffic routes at 5 feet above ground surface (Attachment B, Figure 2b).

Table 4 represents the glare summary in annual minutes of glare for Analysis 3. Based on the SGHAT results, no amounts of glare were predicted at the defined receptors.

Table 4. Analysis 3 Annual Minutes of Glare Summary – Solar Array Sellards

Receptor ID	Green Glare	Yellow Glare	Red Glare
141 (OP-1)	0	0	0
185 (OP-2)	0	0	0
737 (OP-3)	0	0	0
744 (OP-4)	0	0	0
195 (OP-5)	0	0	0
Sellards Road-1	0	0	0
Sellards Road-2	0	0	0
Sellards Road-3	0	0	0
S Travis Road-1	0	0	0
S Travis Road-2	0	0	0
WA-221-1	0	0	0
WA-221-2	0	0	0

6.4 Analysis 4: Solar Array Sellards (West 2) PV Array Areas - Second Story and Commercial Truck View Results

Analysis 4 included the same PV Arrays and the same receptor locations as Analysis 3, with the OP viewing height raised to 16 feet above ground surface and the segmented vehicular traffic route viewing height raised to 9 feet above ground surface (Attachment B, Figure 2b).

Table 5 represents the glare summary in annual minutes of glare for Analysis 4. Based on the SGHAT results, no amounts of glare were predicted at the defined receptors.

Table 5. Analysis 4 Annual Minutes of Glare Summary – Solar Array Sellards

Receptor ID	Green Glare	Yellow Glare	Red Glare
141 (OP-1)	0	0	0
185 (OP-2)	0	0	0
737 (OP-3)	0	0	0
744 (OP-4)	0	0	0
195 (OP-5)	0	0	0
Sellards Road-1	0	0	0
Sellards Road-2	0	0	0
Sellards Road-3	0	0	0
S Travis Road-1	0	0	0
S Travis Road-2	0	0	0
WA-221-`1	0	0	0
WA-221-2	0	0	0

6.5 Analyses 5 and 7: Solar Array East PV Array Areas - First Story and Commuter Car View Results

As noted in Section 4, the SGHAT constrains the number of drawn PV array areas to a maximum of 20 per analysis; thus, the Solar Array East area had to be divided two sets of PV arrays with two analyses each for the height variations, resulting in Analyses 5 through 8. Analysis 5 consisted of 17 PV Arrays (3-1 through 3-17), as viewed from six OPs at 6 feet above ground surface and seven segmented vehicular traffic routes at 5 feet above ground surface (Attachment B, Figure 2c). Analysis 7 consisted of 13 PV Arrays (4-1 through 4-13) as viewed from the same receptors at the same heights as Analysis 5 (Attachment B, Figure 2c).

Table 6 represents the glare summary in combined annual minutes of glare for Analysis 5 and 7. Based on the SGHAT results, no amounts of glare are predicted at any of the OPs or at the segmented vehicular routes.

Table 6. Analyses 5 and 7 Annual Minutes of Glare Summary – Solar Array East

Receptor	Green Glare	Yellow Glare	Red Glare
192 (OP-1)	0	0	0
215 (OP-2)	0	0	0
187 (OP-3)	0	0	0
178 (OP-4)	0	0	0
745 (OP-5)	0	0	0
195 (OP-6)	0	0	0
Beck Rd-1	0	0	0
Beck Rd-2	0	0	0
Beck Rd-3	0	0	0
US HWY 395-1	0	0	0
US HWY 395-2	0	0	0
US HWY 395-3	0	0	0
US HWY 395-4	0	0	0

6.6 Analyses 6 and 8: Solar Array East PV Array Areas - Second Story and Commercial Truck View Results

Analysis 6 included the same PV Arrays as Analysis 5 (3-1 through 3-17), and Analysis 8 included the same PV Arrays as Analysis 7 (4-1 through 4-13). The receptor locations remain the same across all four analyses. For both Analysis 6 and 8, the OP viewing height was raised to 16 feet above ground surface and the segmented vehicular traffic route viewing height was raised to 9 feet above ground surface (Attachment B, Figure 2c).

Table 7 represents the glare summary in combined annual minutes of glare for Analyses 6 and 8. Based on the SGHAT results, no amounts of glare were predicted at any of the defined receptors.

Table 7. Analyses 6 and 8 Annual Minutes of Glare Summary – Solar Array East

Receptor	Green Glare	Yellow Glare	Red Glare
192 (OP-1)	0	0	0
215 (OP-2)	0	0	0
187 (OP-3)	0	0	0
178 (OP-4)	0	0	0
745 (OP-5)	0	0	0
195 (OP-6)	0	0	0
Beck Rd-1	0	0	0
Beck Rd-2	0	0	0
Beck Rd-3	0	0	0
US HWY 395-1	0	0	0
US HWY 395-2	0	0	0
US HWY 395-3	0	0	0
US HWY 395-4	0	0	0

7 SUMMARY

The preliminary Project layout for the solar PV arrays was modeled using GlareGauge to evaluate the potential extent of glare the Project may cause to receptors at several OPs and segmented traffic routes representing proximal areas surrounding the Project.

In order to better analyze the potential for glare as a result of sunlight reflectance from the Project and accommodate GlareGauge conservatisms noted in Section 4.0, 60 PV Array Areas were modeled within the Project layout, which was broken down into three separate areas (i.e., Solar Array County Well [West 1], Solar Array Sellards [West 2], and Solar Array East). Eight separate glare analyses (i.e., Analysis 1 through Analysis 8) were performed to provide a quantitative assessment of the potential for glare as a result of the Project, based on views from first- and second-story structures, and commuter and commercial vehicles.

Based on the SGHAT results, all of the modeled receptors (OPs and vehicular routes) are predicted to not experience glare as a result of the Project. As previously noted, the GlareGauge model does not account for varying ambient conditions (i.e., cloudy days, precipitation), atmospheric attenuation, screening due to existing topography not located within the defined array layouts, or existing vegetation or structures (including fences or walls), nor does the tool allow proposed landscaping to be included; therefore, the predicted results are considered to be conservative. This means that the existing vegetation (crops) and topography of the surrounding area are not accounted for with the GlareGauge model and will most likely have a significant impact on glare reduction from receptors. In addition, the Project was modeled with backtracking (i.e., the modules reverted back to 10-degree position [resting angle] when the sun is outside of the tracking range). The sun is outside of the 50-degree maximum tracking range in the early morning hours (until approximately 8:00 AM) and in the late evening hours of the day (beginning at approximately 7:00 PM). The GlareGauge model assumes that backtracking to the resting angle will be instantaneous, when in fact the process will be slower, resulting in less glare experienced than predicted. The module backtracking program that will be implemented on the Project detects the rising sun light and begins to tilt the modules out of the resting position until they reach the maximum tracking angle (50 degrees) facing east around 8:00 to 8:30 AM. Subsequently, as the modules track to the east, western receptors will experience less glare prior to 8:00 AM because the receptor will be observing the back of the modules. Likewise, in the evening hours, the eastern receptors will experience less glare from approximately 6:00

PM to 8:00 PM as the modules slowly backtrack to the resting angle. In general, tracking and backtracking at a slower pace than assumed by GlareGauge will result in significantly less glare experienced than predicted. Therefore, the representation of backtracking using an immediate 10 degree revert position is also a conservative approach to predicting glare at the surrounding receptors.

As noted in Section 2.0, the FAA has developed the following criteria (78 FR 63276) for analysis of solar energy projects located on jurisdictional airports:

- No potential for glint or glare in the existing or planned Air Traffic Control Tower cab; and
- No potential for glare or "low potential for after-image" along the final approach path for any existing landing threshold or future landing thresholds (including any planned interim phases of the landing thresholds) as shown on the current FAA-approved Airport Layout Plan.

Based on the results of the FAA NCT, the Project does not exceed notice criteria and a formal filing is not necessary.

8 REFERENCES

FAA (Federal Aviation Administration). 2010. Technical Guidance for Evaluating Selected Solar Technologies on Airports. Office of Airports, Office of Airport Planning and Programming, Airport Planning and Environmental Division (APP-400). November.

FAA. 2020. Notice Criteria Tool hosted by Federal Aviation Administration. Accessed online https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showNoNoticeRequiredToolForm

ForgeSolar. 2020. Sandia Solar Glare Hazard Analysis Tool, GlareGauge hosted by ForgeSolar. Accessed online https://www.forgesolar.com/.

Sandia (Sandia National Laboratories). 2016. Solar Glare Hazard Analysis Tool (SGHAT) User's Manual v. 3.0. December 6, 2016.

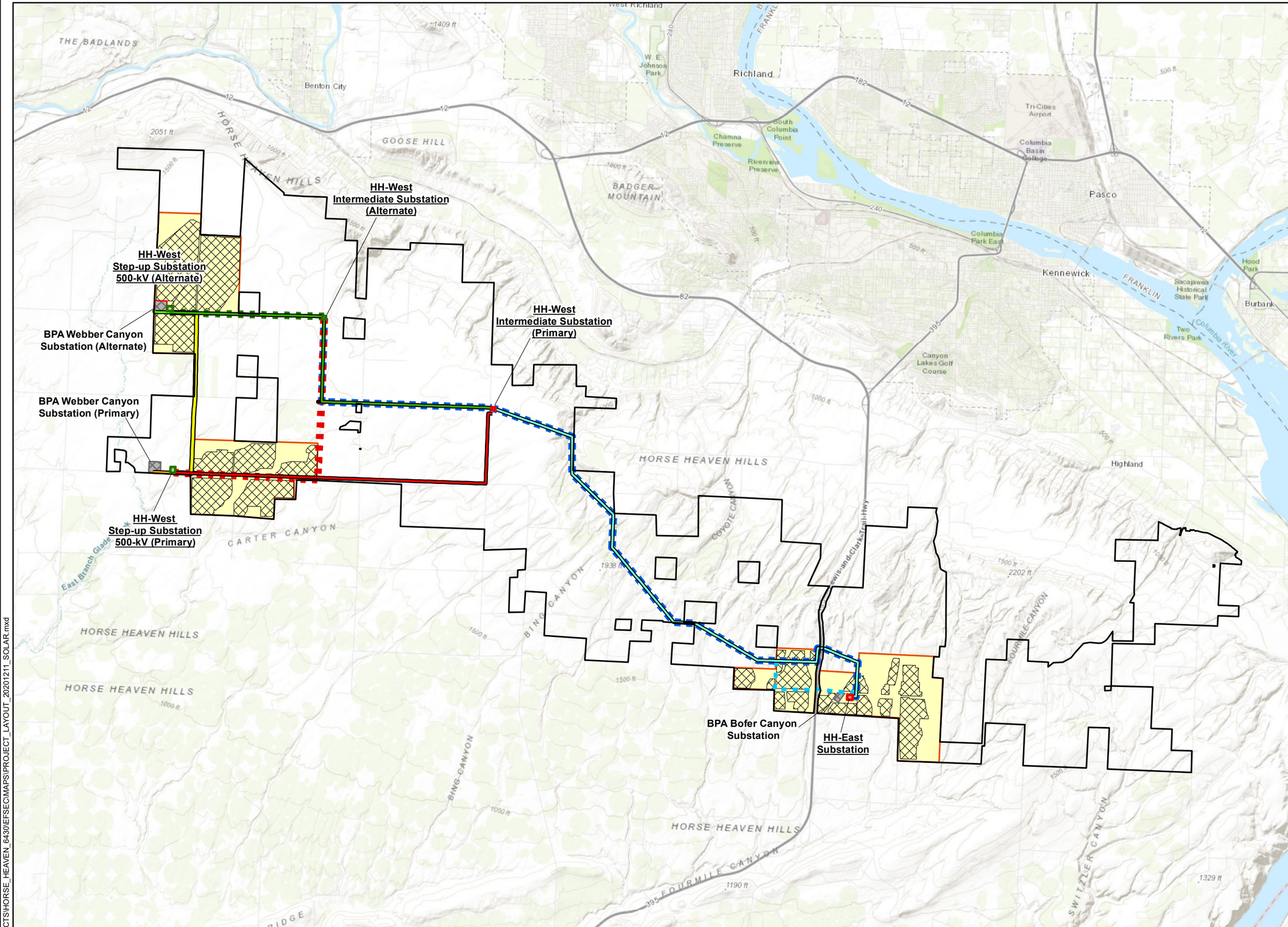
ATTACHMENT A
PRELIMINARY SITE PLAN

Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Preliminary Project Layout Solar and Supporting Facilities

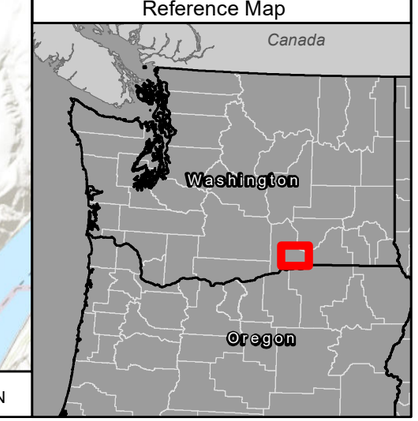
BENTON COUNTY, WA



Project Lease Boundary
Sellards Road 230-kV Transmission Line (Primary)
Sellards Road 500-kV Transmission Line Step-up (Primary)
Sellards Road 230-kV Transmission Line (Alternate)
Solar Intertie 230-kV Transmission Line
County Well Road 230-kV Transmission Line (Primary)
County Well Road 500-kV Transmission Line Step-up (Primary)
County Well Road 230-kV Transmission Line (Alternate)
230-kV Intertie Transmission Line (Primary)
230-kV Intertie Transmission Line (Alternate)
230-kV Alternate Intertie Transmission Line
Project Substation (Primary)
Project Substation (Alternate)
Solar AOI (Area of Interest)
Solar Array
BPA Substation (Primary)
BPA Substation (Alternate)

TETRA TECH

Reference Map



1:140,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 Miles

NOT FOR CONSTRUCTION

R:\PROJECTS\HORSE_HEAVEN_6430\EFSEC\MAPS\PROJECT_LAYOUT_20201211_SOLAR.mxd

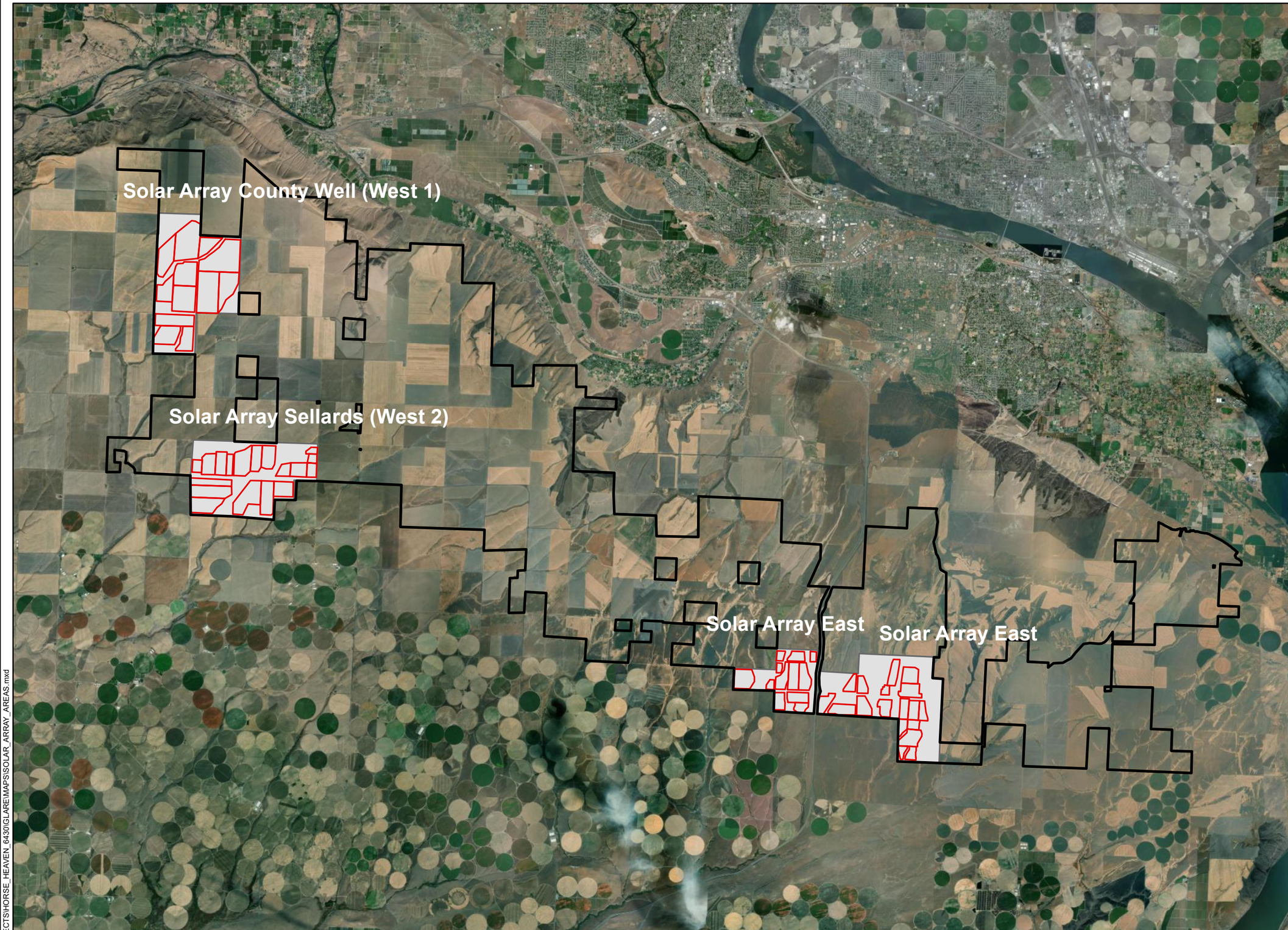
ATTACHMENT B
FIGURES

Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure 1
Solar Array Areas

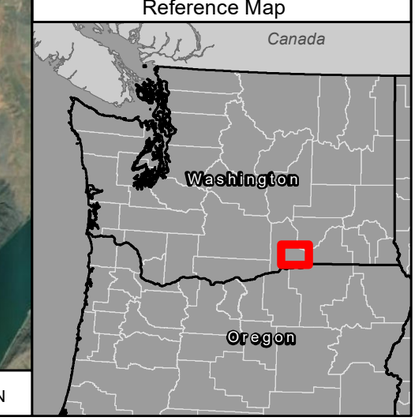
BENTON COUNTY, WA



- Solar Array Area
- Project Lease Boundary
- Solar Siting Area

TETRA TECH

Reference Map



1:140,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 Miles

NOT FOR CONSTRUCTION

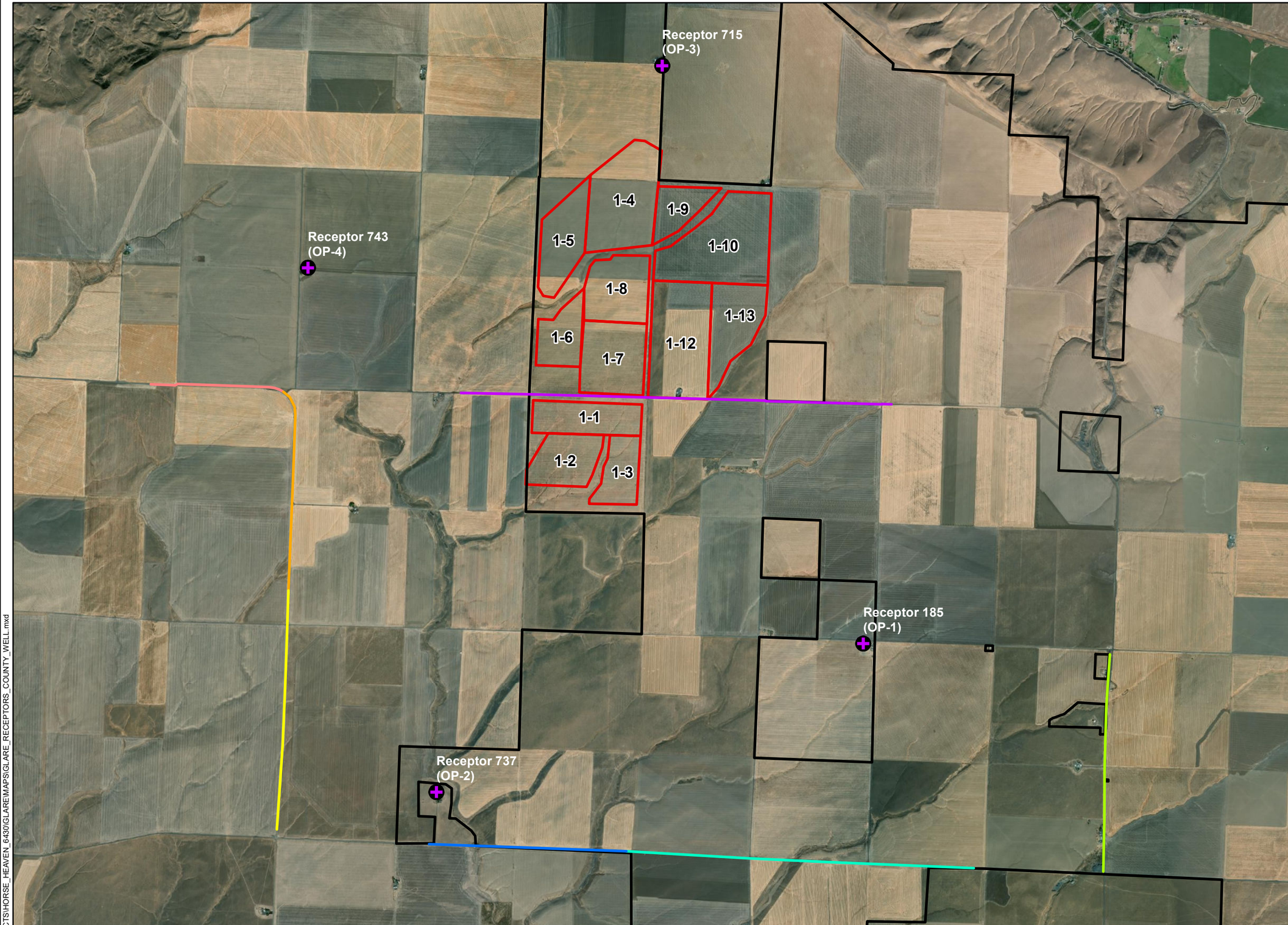
R:\PROJECTS\HORSE_HEAVEN_6430\GLARE\MAPS\SOLAR_ARRAY_AREAS.mxd

Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure 2a
Glare Receptors
Solar Array County Well (West 1)

BENTON COUNTY, WA



Project Lease Boundary

Solar Array Area

Residential Receptors

Observation Point

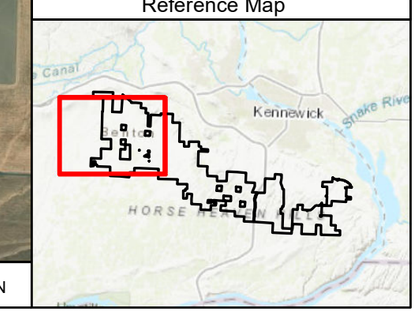
Road Receptors*

- Country_Well_Rd
- S_Travis_Rd-1
- Sellards_Road-1
- Sellards_Road-2
- WA-221-1
- WA-221-2a
- WA-221-3

* The actual width of the road receptors shown in this figure are smaller than they appear, as the highlighted roads receptors have been enlarged in this figure to aid in readability.

TETRA TECH

Reference Map



1:50,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 Miles

NOT FOR CONSTRUCTION

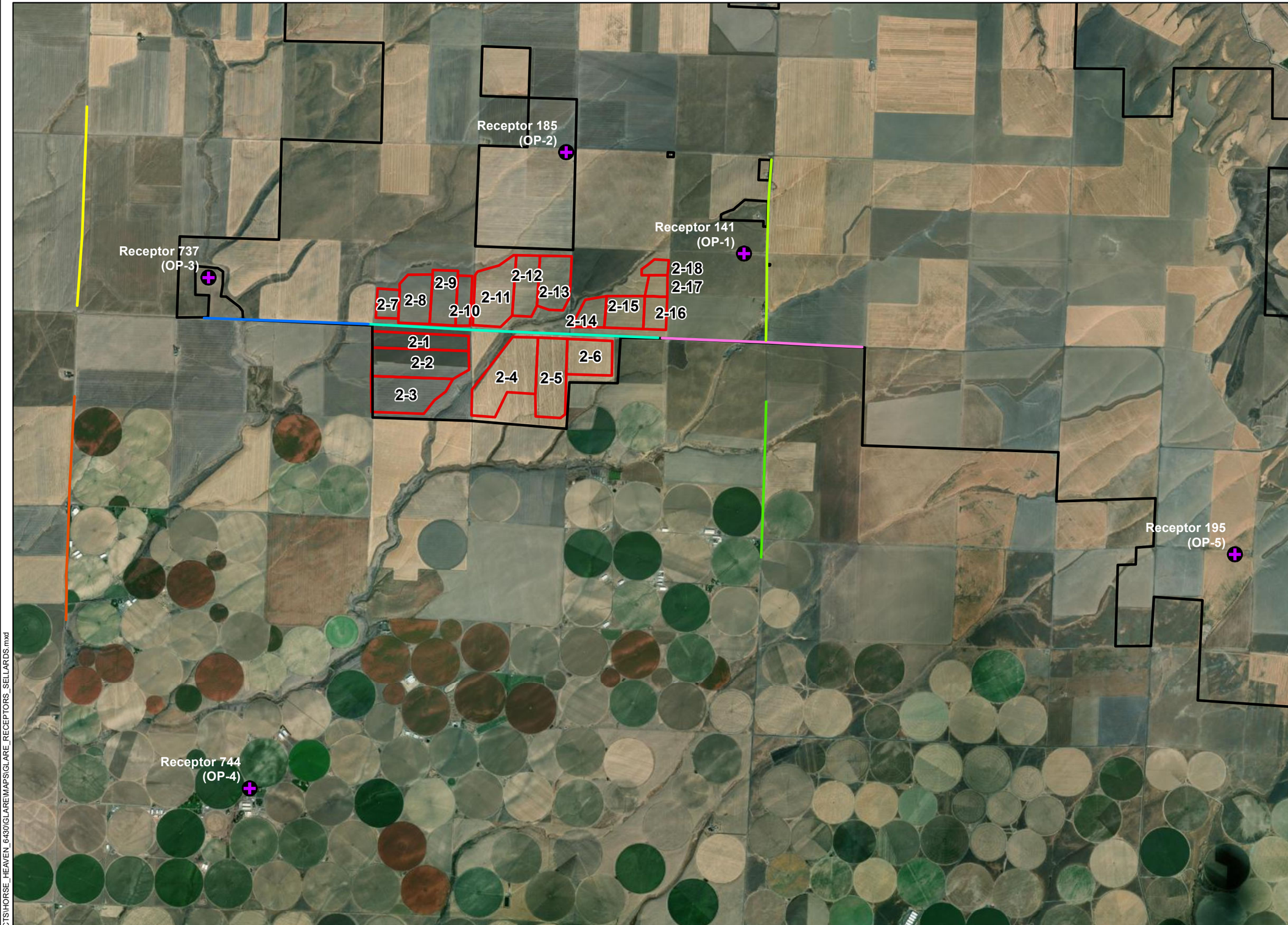
R:\PROJECTS\HORSE_HEAVEN_6430\GLAREMAPS\GLARE_RECEPTORS_COUNTY_WELL.mxd

Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure 2b
Glare Receptors
Solar Array Sellards
(West 2)

BENTON COUNTY, WA



Project Lease Boundary

Solar Array Area

Residential Receptors

Observation Point

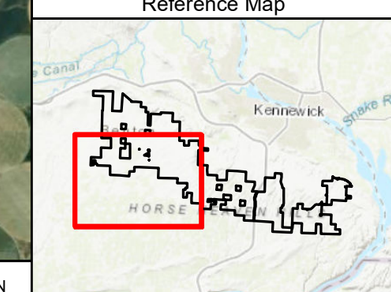
Road Receptors*

- S_Travis_Rd-1
- S_Travis_Rd-2
- Sellards_Road-1
- Sellards_Road-2
- Sellards_Road-3
- WA-221-1
- WA-221-2b

* The actual width of the road receptors shown in this figure are smaller than they appear, as the highlighted roads receptors have been enlarged in this figure to aid in readability.

TETRA TECH

Reference Map



1:60,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 Miles

NOT FOR CONSTRUCTION

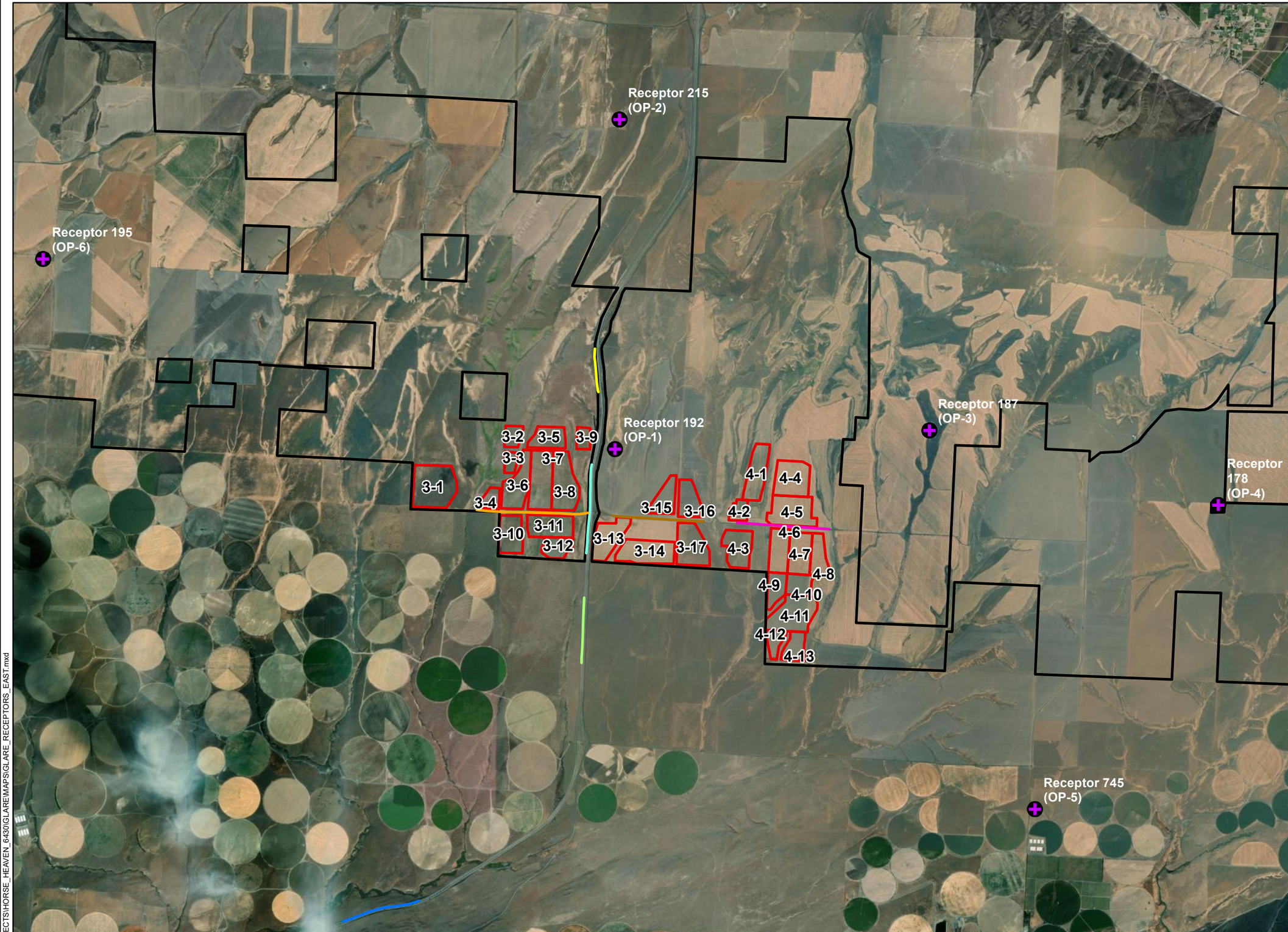
R:\PROJECTS\HORSE_HEAVEN_6430\GLAREMAPS\GLARE_RECEPTORS_SELLARDS.mxd

Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure 2c
Glare Receptors
Solar Array East

BENTON COUNTY, WA



Project Lease Boundary

Solar Array Area

Residential Receptors

Observation Point

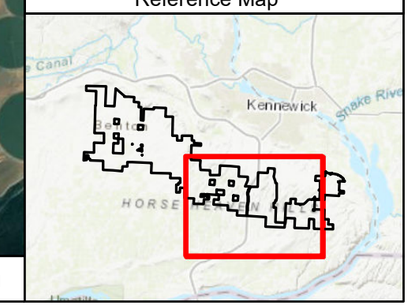
Road Receptors*

- Becks_Rd-1
- Becks_Rd-2
- Becks_Rd-3
- US_HWY_395-1
- US_HWY_395-2
- US_HWY_395-3
- US_HWY_395-4

* The actual width of the road receptors shown in this figure are smaller than they appear, as the highlighted roads receptors have been enlarged in this figure to aid in readability.

TETRA TECH

Reference Map



1:65,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 Miles

NOT FOR CONSTRUCTION

R:\PROJECTS\HORSE_HEAVEN_6430\GLARE\MAPS\GLARE_RECEPTORS_EAST.mxd

ATTACHMENT C
FORGESOLAR GLARE ANALYSIS REPORTS

FORGESOLAR GLARE ANALYSIS

Project: **Horse Heaven**
Site configuration: **Horse Heaven West 1-1st**
Analysis conducted by Josh Burdett (joshua.burdett@tetratech.com) at 04:05 on 15 Dec, 2020.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

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

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

SITE CONFIGURATION

Analysis Parameters

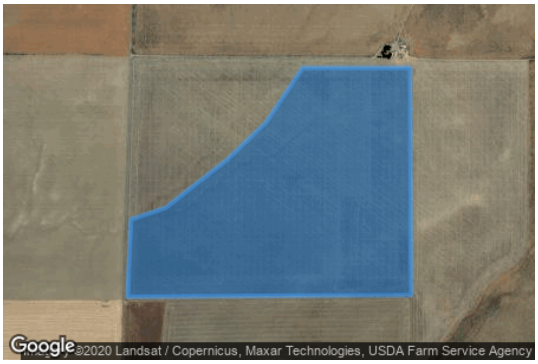
DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 46876.8449

PV Array(s)

Name: PV array 1-1
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.57°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.186226	-119.558406	1361.27	7.00	1368.27
2	46.186256	-119.538880	1389.29	7.00	1396.29
3	46.182364	-119.538880	1372.25	7.00	1379.25
4	46.182215	-119.558364	1346.31	7.00	1353.31

Name: PV array 1-10
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.2°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.213261	-119.525075	1464.23	7.00	1471.23
2	46.213261	-119.517264	1469.49	7.00	1476.49
3	46.201886	-119.517178	1478.00	7.00	1485.00
4	46.201797	-119.537777	1452.42	7.00	1459.42
5	46.205673	-119.537541	1435.13	7.00	1442.13
6	46.206252	-119.535031	1435.99	7.00	1442.99
7	46.208658	-119.530568	1450.69	7.00	1457.69
8	46.210529	-119.527735	1455.28	7.00	1462.28

Name: PV array 1-11
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.57°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.201745	-119.537781	1452.74	7.00	1459.74
2	46.201745	-119.527181	1488.16	7.00	1495.16
3	46.187426	-119.526923	1391.33	7.00	1398.33
4	46.187367	-119.537824	1396.71	7.00	1403.71

Name: PV array 1-12
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.201884	-119.527277	1486.99	7.00	1493.99
2	46.201944	-119.517234	1477.58	7.00	1484.58
3	46.198082	-119.517320	1444.74	7.00	1451.74
4	46.194339	-119.519981	1428.46	7.00	1435.46
5	46.192141	-119.522985	1417.08	7.00	1424.09
6	46.188992	-119.525217	1401.43	7.00	1408.44
7	46.187447	-119.526976	1392.25	7.00	1399.25

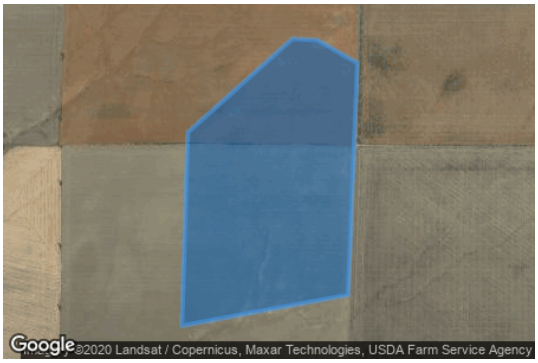
Name: PV array 1-2
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.182274	-119.555274	1348.90	7.00	1355.90
2	46.177580	-119.558836	1327.94	7.00	1334.94
3	46.175767	-119.558879	1325.17	7.00	1332.17
4	46.175826	-119.547978	1326.17	7.00	1333.17
5	46.177164	-119.547034	1332.79	7.00	1339.79
6	46.180640	-119.545489	1350.21	7.00	1357.21
7	46.182364	-119.545103	1358.34	7.00	1365.34

Name: PV array 1-3
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

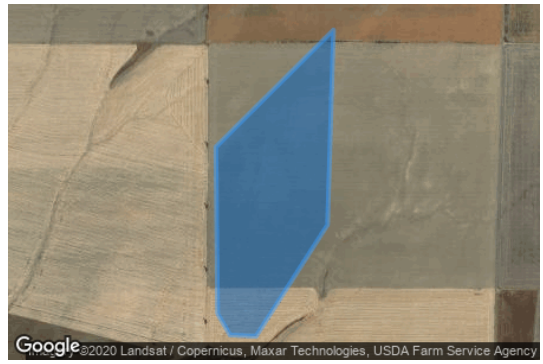
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.182334	-119.544073	1355.58	7.00	1362.58
2	46.179600	-119.544416	1343.33	7.00	1350.33
3	46.178471	-119.545060	1344.26	7.00	1351.26
4	46.176302	-119.545360	1332.42	7.00	1339.42
5	46.174281	-119.547334	1327.65	7.00	1334.65
6	46.173806	-119.547377	1331.44	7.00	1338.44
7	46.173865	-119.538751	1348.97	7.00	1355.97
8	46.182423	-119.538837	1372.51	7.00	1379.51

Name: PV array 1-4
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



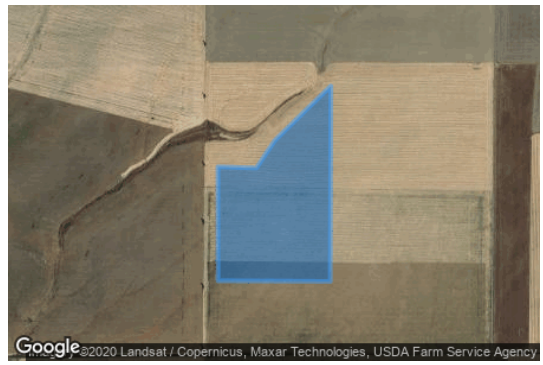
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.206362	-119.538174	1441.16	7.00	1448.16
2	46.218003	-119.537488	1503.05	7.00	1510.05
3	46.219161	-119.540406	1525.83	7.00	1532.83
4	46.219220	-119.542208	1523.71	7.00	1530.71
5	46.214529	-119.549804	1493.85	7.00	1500.85
6	46.204817	-119.550233	1427.67	7.00	1434.67

Name: PV array 1-5
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.46°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



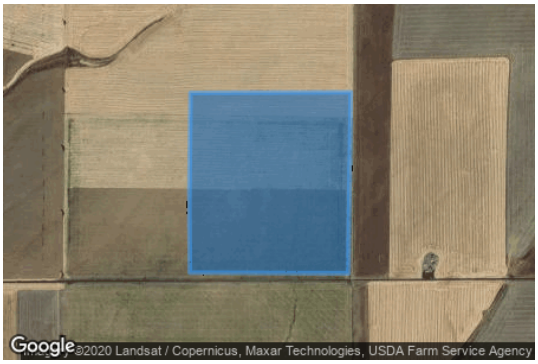
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.200362	-119.558302	1416.39	7.00	1423.39
2	46.199293	-119.557400	1406.00	7.00	1413.00
3	46.199233	-119.555512	1413.98	7.00	1420.98
4	46.204817	-119.550319	1427.75	7.00	1434.75
5	46.214558	-119.549890	1493.74	7.00	1500.74
6	46.208708	-119.558430	1482.25	7.00	1489.25

Name: PV array 1-6
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



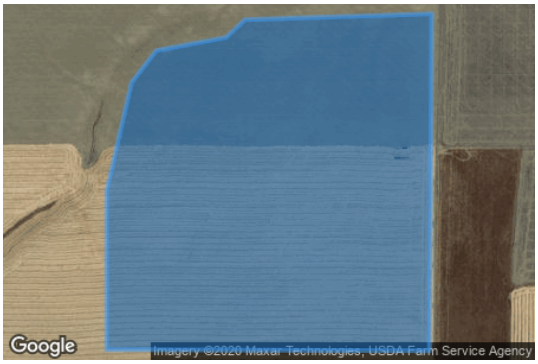
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.200456	-119.549994	1414.14	7.00	1421.14
2	46.190683	-119.550037	1389.49	7.00	1396.49
3	46.190712	-119.558191	1373.62	7.00	1380.62
4	46.196416	-119.558191	1407.05	7.00	1414.05
5	46.196357	-119.555401	1409.91	7.00	1416.91
6	46.197723	-119.554071	1412.48	7.00	1419.48
7	46.199060	-119.552097	1418.14	7.00	1425.14

Name: PV array 1-7
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.46°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



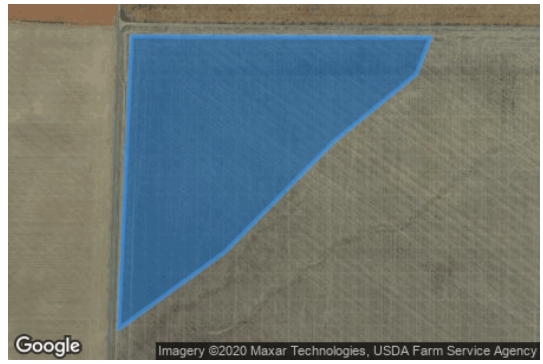
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.190742	-119.550123	1390.05	7.00	1397.05
2	46.187444	-119.550080	1375.64	7.00	1382.64
3	46.187415	-119.538578	1392.91	7.00	1399.91
4	46.196476	-119.538407	1433.60	7.00	1440.60
5	46.196446	-119.550037	1435.72	7.00	1442.72

Name: PV array 1-8
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.196505	-119.550080	1435.49	7.00	1442.49
2	46.196476	-119.538364	1434.33	7.00	1441.33
3	46.204911	-119.538278	1431.71	7.00	1438.71
4	46.204763	-119.545059	1424.34	7.00	1431.34
5	46.204317	-119.545745	1428.41	7.00	1435.41
6	46.203991	-119.548277	1424.69	7.00	1431.69
7	46.203189	-119.549179	1422.57	7.00	1429.57
8	46.200486	-119.550080	1412.92	7.00	1419.92

Name: PV array 1-9
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.57°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.213558	-119.537091	1464.05	7.00	1471.05
2	46.213528	-119.526233	1460.74	7.00	1467.74
3	46.212608	-119.526748	1464.19	7.00	1471.19
4	46.210915	-119.529752	1454.38	7.00	1461.38
5	46.208153	-119.533701	1445.36	7.00	1452.36
6	46.206223	-119.537563	1440.36	7.00	1447.36

Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	46.157483	-119.496755	1415.78	6.00
OP 2	2	46.136308	-119.572725	1188.75	6.00
OP 3	3	46.228568	-119.537703	1473.44	6.00
OP 4	4	46.201261	-119.599865	1347.21	6.00

Route Receptor(s)

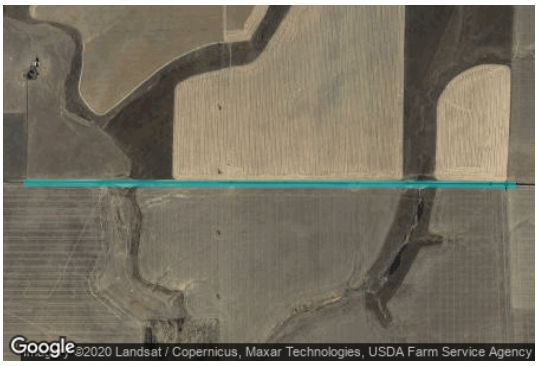
Name: Country Well Rd
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.186942	-119.571627	1317.23	5.00	1322.23
2	46.186972	-119.558538	1363.75	5.00	1368.75
3	46.187061	-119.541157	1385.48	5.00	1390.48
4	46.187061	-119.531201	1399.83	5.00	1404.83
5	46.187120	-119.521502	1423.59	5.00	1428.59
6	46.187135	-119.508649	1435.66	5.00	1440.66
7	46.187165	-119.499529	1447.66	5.00	1452.66
8	46.187180	-119.493908	1455.78	5.00	1460.78

Name: Sellards Road 1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130963	-119.573374	1183.15	5.00	1188.15
2	46.130919	-119.562151	1181.49	5.00	1186.49
3	46.130904	-119.554555	1215.70	5.00	1220.70
4	46.130889	-119.542899	1221.76	5.00	1226.76
5	46.130844	-119.538050	1246.26	5.00	1251.26

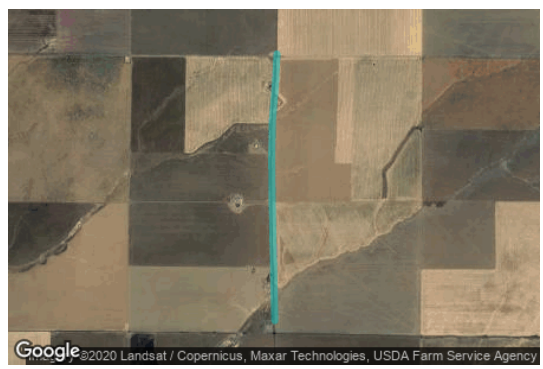
Name: Sellards Road 2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130844	-119.537878	1247.08	5.00	1252.09
2	46.130696	-119.530857	1270.87	5.00	1275.87
3	46.130547	-119.521759	1298.29	5.00	1303.29
4	46.130443	-119.515729	1303.92	5.00	1308.92
5	46.130370	-119.508138	1302.79	5.00	1307.79
6	46.130281	-119.499812	1345.74	5.00	1350.74
7	46.130221	-119.492731	1360.96	5.00	1365.96
8	46.130177	-119.483955	1386.73	5.00	1391.73
9	46.130117	-119.475694	1406.43	5.00	1411.43

Name: S Travis Road-1
Path type: Two-way
Observer view angle: 50.0°

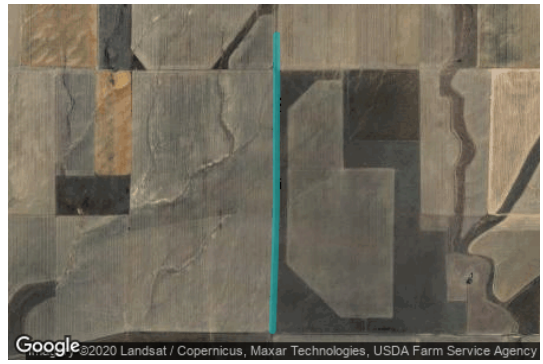
Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.158019	-119.454002	1504.91	5.00	1509.91
2	46.155270	-119.454195	1512.40	5.00	1517.40
3	46.151152	-119.454667	1487.89	5.00	1492.89
4	46.147584	-119.454753	1498.02	5.00	1503.02
5	46.142991	-119.454688	1492.24	5.00	1497.24
6	46.136984	-119.454495	1455.52	5.00	1460.52
7	46.131308	-119.454323	1437.90	5.00	1442.90

Name: WA-221-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.161059	-119.600993	1218.15	5.00	1223.15
2	46.155946	-119.600993	1197.87	5.00	1202.87
3	46.150446	-119.601057	1172.58	5.00	1177.58
4	46.145035	-119.601014	1147.99	5.00	1152.99
5	46.139043	-119.601229	1127.91	5.00	1132.91
6	46.135178	-119.601422	1111.14	5.00	1116.14
7	46.131490	-119.601594	1098.20	5.00	1103.20

Name: WA-221-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.161258	-119.601002	1220.31	5.00	1225.31
2	46.165909	-119.600938	1232.02	5.00	1237.02
3	46.170902	-119.600895	1251.25	5.00	1256.25
4	46.178436	-119.600916	1294.24	5.00	1299.24
5	46.183985	-119.600938	1328.54	5.00	1333.54
6	46.184743	-119.601281	1334.45	5.00	1339.45
7	46.185560	-119.601968	1335.54	5.00	1340.54
8	46.186110	-119.602890	1339.61	5.00	1344.61

Name: WA-221-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.186273	-119.603363	1338.88	5.00	1343.88
2	46.186615	-119.604457	1338.58	5.00	1343.58
3	46.186749	-119.605937	1332.06	5.00	1337.06
4	46.186689	-119.611280	1330.41	5.00	1335.41
5	46.186674	-119.615701	1344.05	5.00	1349.05
6	46.186674	-119.622095	1349.76	5.00	1354.76
7	46.186719	-119.626730	1353.10	5.00	1358.10

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV array 1-1	SA tracking	SA tracking	0	0	-
PV array 1-10	SA tracking	SA tracking	0	0	-
PV array 1-11	SA tracking	SA tracking	0	0	-
PV array 1-12	SA tracking	SA tracking	0	0	-
PV array 1-2	SA tracking	SA tracking	0	0	-
PV array 1-3	SA tracking	SA tracking	0	0	-
PV array 1-4	SA tracking	SA tracking	0	0	-
PV array 1-5	SA tracking	SA tracking	0	0	-
PV array 1-6	SA tracking	SA tracking	0	0	-
PV array 1-7	SA tracking	SA tracking	0	0	-
PV array 1-8	SA tracking	SA tracking	0	0	-
PV array 1-9	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Results for: PV array 1-1

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare

0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-10

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare

0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-11

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-12

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-2

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-3

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-4

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 1-5

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-6

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-7

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-8

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-9

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

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.
Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
Several 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.
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.)
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
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.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

2016-2019 © Sims Industries d/b/a ForgeSolar, All Rights Reserved.

FORGESOLAR GLARE ANALYSIS

Project: **Horse Heaven**
Site configuration: **Horse Heaven West 1-2nd**
Analysis conducted by Josh Burdett (joshua.burdett@tetratech.com) at 04:06 on 15 Dec, 2020.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

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

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

SITE CONFIGURATION

Analysis Parameters

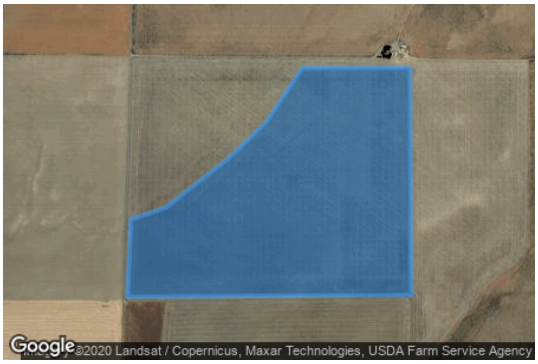
DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 46938.8449

PV Array(s)

Name: PV array 1-1
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.57°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.186226	-119.558406	1361.27	7.00	1368.27
2	46.186256	-119.538880	1389.29	7.00	1396.29
3	46.182364	-119.538880	1372.25	7.00	1379.25
4	46.182215	-119.558364	1346.31	7.00	1353.31

Name: PV array 1-10
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.2°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.213261	-119.525075	1464.23	7.00	1471.23
2	46.213261	-119.517264	1469.49	7.00	1476.49
3	46.201886	-119.517178	1478.00	7.00	1485.00
4	46.201797	-119.537777	1452.42	7.00	1459.42
5	46.205673	-119.537541	1435.13	7.00	1442.13
6	46.206252	-119.535031	1435.99	7.00	1442.99
7	46.208658	-119.530568	1450.69	7.00	1457.69
8	46.210529	-119.527735	1455.28	7.00	1462.28

Name: PV array 1-11
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.57°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.201745	-119.537781	1452.74	7.00	1459.74
2	46.201745	-119.527181	1488.16	7.00	1495.16
3	46.187426	-119.526923	1391.33	7.00	1398.33
4	46.187367	-119.537824	1396.71	7.00	1403.71

Name: PV array 1-12
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.201884	-119.527277	1486.99	7.00	1493.99
2	46.201944	-119.517234	1477.58	7.00	1484.58
3	46.198082	-119.517320	1444.74	7.00	1451.74
4	46.194339	-119.519981	1428.46	7.00	1435.46
5	46.192141	-119.522985	1417.08	7.00	1424.09
6	46.188992	-119.525217	1401.43	7.00	1408.44
7	46.187447	-119.526976	1392.25	7.00	1399.25

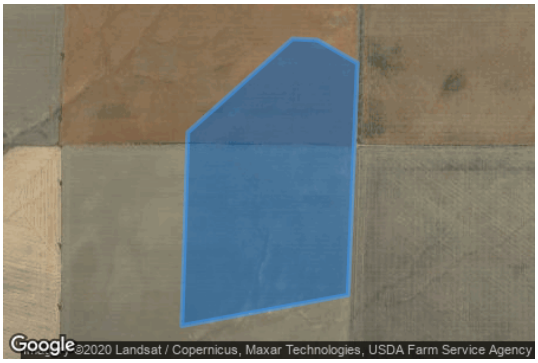
Name: PV array 1-2
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.182274	-119.555274	1348.90	7.00	1355.90
2	46.177580	-119.558836	1327.94	7.00	1334.94
3	46.175767	-119.558879	1325.17	7.00	1332.17
4	46.175826	-119.547978	1326.17	7.00	1333.17
5	46.177164	-119.547034	1332.79	7.00	1339.79
6	46.180640	-119.545489	1350.21	7.00	1357.21
7	46.182364	-119.545103	1358.34	7.00	1365.34

Name: PV array 1-3
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

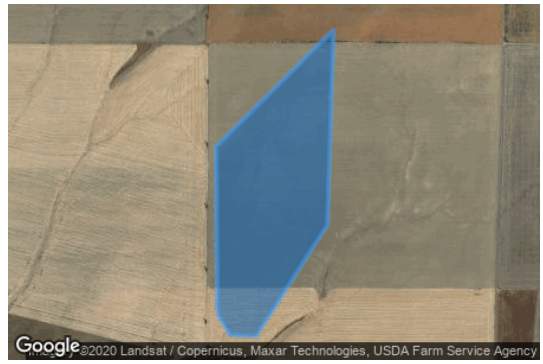
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.182334	-119.544073	1355.58	7.00	1362.58
2	46.179600	-119.544416	1343.33	7.00	1350.33
3	46.178471	-119.545060	1344.26	7.00	1351.26
4	46.176302	-119.545360	1332.42	7.00	1339.42
5	46.174281	-119.547334	1327.65	7.00	1334.65
6	46.173806	-119.547377	1331.44	7.00	1338.44
7	46.173865	-119.538751	1348.97	7.00	1355.97
8	46.182423	-119.538837	1372.51	7.00	1379.51

Name: PV array 1-4
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



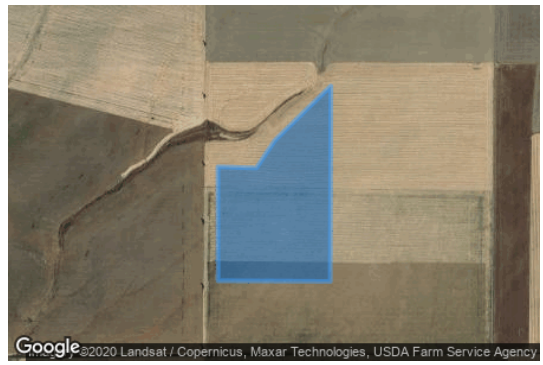
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.206362	-119.538174	1441.16	7.00	1448.16
2	46.218003	-119.537488	1503.05	7.00	1510.05
3	46.219161	-119.540406	1525.83	7.00	1532.83
4	46.219220	-119.542208	1523.71	7.00	1530.71
5	46.214529	-119.549804	1493.85	7.00	1500.85
6	46.204817	-119.550233	1427.67	7.00	1434.67

Name: PV array 1-5
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.46°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



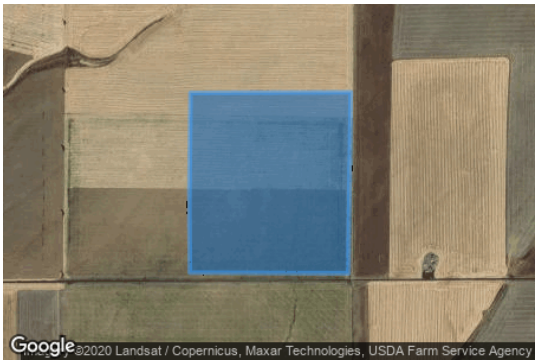
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.200362	-119.558302	1416.39	7.00	1423.39
2	46.199293	-119.557400	1406.00	7.00	1413.00
3	46.199233	-119.555512	1413.98	7.00	1420.98
4	46.204817	-119.550319	1427.75	7.00	1434.75
5	46.214558	-119.549890	1493.74	7.00	1500.74
6	46.208708	-119.558430	1482.25	7.00	1489.25

Name: PV array 1-6
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



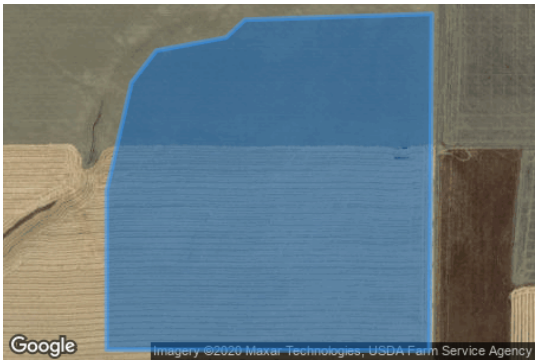
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.200456	-119.549994	1414.14	7.00	1421.14
2	46.190683	-119.550037	1389.49	7.00	1396.49
3	46.190712	-119.558191	1373.62	7.00	1380.62
4	46.196416	-119.558191	1407.05	7.00	1414.05
5	46.196357	-119.555401	1409.91	7.00	1416.91
6	46.197723	-119.554071	1412.48	7.00	1419.48
7	46.199060	-119.552097	1418.14	7.00	1425.14

Name: PV array 1-7
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.46°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



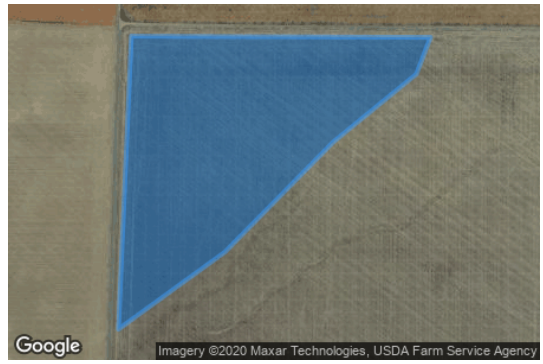
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.190742	-119.550123	1390.05	7.00	1397.05
2	46.187444	-119.550080	1375.64	7.00	1382.64
3	46.187415	-119.538578	1392.91	7.00	1399.91
4	46.196476	-119.538407	1433.60	7.00	1440.60
5	46.196446	-119.550037	1435.72	7.00	1442.72

Name: PV array 1-8
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.196505	-119.550080	1435.49	7.00	1442.49
2	46.196476	-119.538364	1434.33	7.00	1441.33
3	46.204911	-119.538278	1431.71	7.00	1438.71
4	46.204763	-119.545059	1424.34	7.00	1431.34
5	46.204317	-119.545745	1428.41	7.00	1435.41
6	46.203991	-119.548277	1424.69	7.00	1431.69
7	46.203189	-119.549179	1422.57	7.00	1429.57
8	46.200486	-119.550080	1412.92	7.00	1419.92

Name: PV array 1-9
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.57°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.213558	-119.537091	1464.05	7.00	1471.05
2	46.213528	-119.526233	1460.74	7.00	1467.74
3	46.212608	-119.526748	1464.19	7.00	1471.19
4	46.210915	-119.529752	1454.38	7.00	1461.38
5	46.208153	-119.533701	1445.36	7.00	1452.36
6	46.206223	-119.537563	1440.36	7.00	1447.36

Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	46.157483	-119.496755	1415.78	16.00
OP 2	2	46.136308	-119.572725	1188.75	16.00
OP 3	3	46.228568	-119.537703	1473.44	16.00
OP 4	4	46.201261	-119.599865	1347.21	16.00

Route Receptor(s)

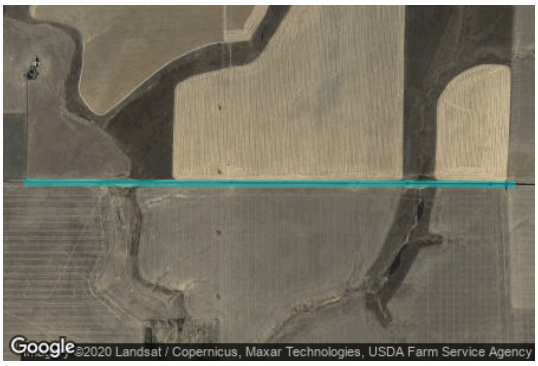
Name: Country Well Rd
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.186942	-119.571627	1317.23	9.00	1326.23
2	46.186972	-119.558538	1363.75	9.00	1372.75
3	46.187061	-119.541157	1385.48	9.00	1394.48
4	46.187061	-119.531201	1399.83	9.00	1408.83
5	46.187120	-119.521502	1423.59	9.00	1432.59
6	46.187135	-119.508649	1435.66	9.00	1444.66
7	46.187165	-119.499529	1447.66	9.00	1456.66
8	46.187180	-119.493908	1455.78	9.00	1464.78

Name: Sellards Road 1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130963	-119.573374	1183.15	9.00	1192.15
2	46.130919	-119.562151	1181.49	9.00	1190.49
3	46.130904	-119.554555	1215.70	9.00	1224.70
4	46.130889	-119.542899	1221.76	9.00	1230.76
5	46.130844	-119.538050	1246.26	9.00	1255.26

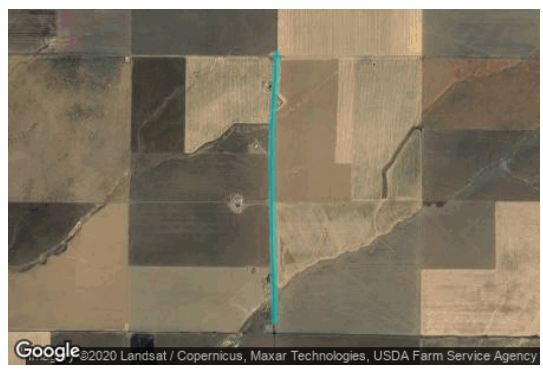
Name: Sellards Road 2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130844	-119.537878	1247.08	9.00	1256.09
2	46.130696	-119.530857	1270.87	9.00	1279.87
3	46.130547	-119.521759	1298.29	9.00	1307.29
4	46.130443	-119.515729	1303.92	9.00	1312.92
5	46.130370	-119.508138	1302.79	9.00	1311.79
6	46.130281	-119.499812	1345.74	9.00	1354.74
7	46.130221	-119.492731	1360.96	9.00	1369.96
8	46.130177	-119.483955	1386.73	9.00	1395.73
9	46.130117	-119.475694	1406.43	9.00	1415.43

Name: S Travis Road-1
Path type: Two-way
Observer view angle: 50.0°

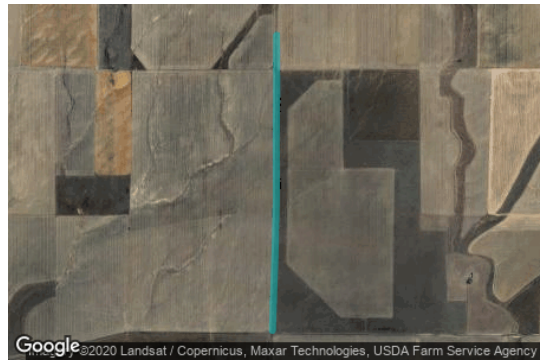
Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.158019	-119.454002	1504.91	9.00	1513.91
2	46.155270	-119.454195	1512.40	9.00	1521.40
3	46.151152	-119.454667	1487.89	9.00	1496.89
4	46.147584	-119.454753	1498.02	9.00	1507.02
5	46.142991	-119.454688	1492.24	9.00	1501.24
6	46.136984	-119.454495	1455.52	9.00	1464.52
7	46.131308	-119.454323	1437.90	9.00	1446.90

Name: WA-221-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.161059	-119.600993	1218.15	9.00	1227.15
2	46.155946	-119.600993	1197.87	9.00	1206.87
3	46.150446	-119.601057	1172.58	9.00	1181.58
4	46.145035	-119.601014	1147.99	9.00	1156.99
5	46.139043	-119.601229	1127.91	9.00	1136.91
6	46.135178	-119.601422	1111.14	9.00	1120.14
7	46.131490	-119.601594	1098.20	9.00	1107.20

Name: WA-221-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.161258	-119.601002	1220.31	9.00	1229.31
2	46.165909	-119.600938	1232.02	9.00	1241.02
3	46.170902	-119.600895	1251.25	9.00	1260.25
4	46.178436	-119.600916	1294.24	9.00	1303.24
5	46.183985	-119.600938	1328.54	9.00	1337.54
6	46.184743	-119.601281	1334.45	9.00	1343.45
7	46.185560	-119.601968	1335.54	9.00	1344.54
8	46.186110	-119.602890	1339.61	9.00	1348.61

Name: WA-221-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.186273	-119.603363	1338.88	9.00	1347.88
2	46.186615	-119.604457	1338.58	9.00	1347.58
3	46.186749	-119.605937	1332.06	9.00	1341.06
4	46.186689	-119.611280	1330.41	9.00	1339.41
5	46.186674	-119.615701	1344.05	9.00	1353.05
6	46.186674	-119.622095	1349.76	9.00	1358.76
7	46.186719	-119.626730	1353.10	9.00	1362.10

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV array 1-1	SA tracking	SA tracking	0	0	-
PV array 1-10	SA tracking	SA tracking	0	0	-
PV array 1-11	SA tracking	SA tracking	0	0	-
PV array 1-12	SA tracking	SA tracking	0	0	-
PV array 1-2	SA tracking	SA tracking	0	0	-
PV array 1-3	SA tracking	SA tracking	0	0	-
PV array 1-4	SA tracking	SA tracking	0	0	-
PV array 1-5	SA tracking	SA tracking	0	0	-
PV array 1-6	SA tracking	SA tracking	0	0	-
PV array 1-7	SA tracking	SA tracking	0	0	-
PV array 1-8	SA tracking	SA tracking	0	0	-
PV array 1-9	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Results for: PV array 1-1

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare

0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-10

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare

0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-11

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-12

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-2

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-3

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-4

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 1-5

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-6

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-7

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-8

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-9

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

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.
Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
Several 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.
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.)
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
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.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

2016-2019 © Sims Industries d/b/a ForgeSolar, All Rights Reserved.

FORGESOLAR GLARE ANALYSIS

Project: **Horse Heaven**
Site configuration: **Horse Heaven West2-1st Floor**
Analysis conducted by Josh Burdett (joshua.burdett@tetratech.com) at 21:36 on 15 Dec, 2020.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

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

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

SITE CONFIGURATION

Analysis Parameters

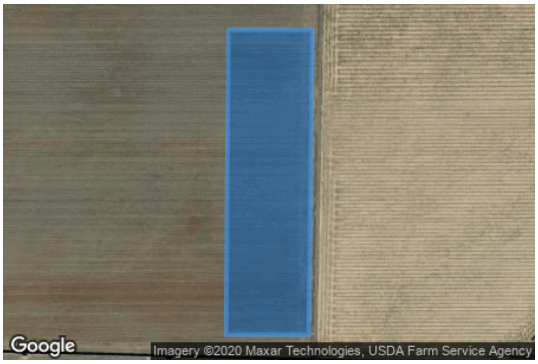
DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 46937.8449

PV Array(s)

Name: PV array 2-1
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.129706	-119.538246	1244.06	7.00	1251.06
2	46.127238	-119.538161	1241.57	7.00	1248.57
3	46.127149	-119.517561	1301.28	7.00	1308.28
4	46.129469	-119.517647	1299.76	7.00	1306.76

Name: PV array 2-10
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.2°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

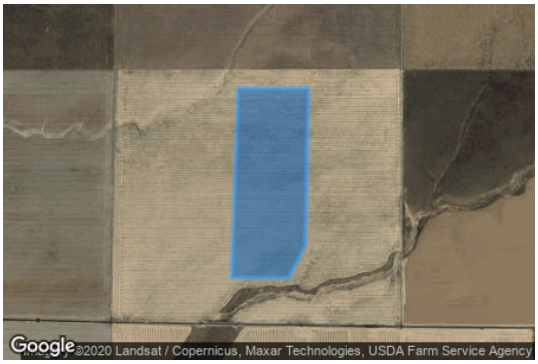


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.138739	-119.520554	1306.61	7.00	1313.61
2	46.138739	-119.517507	1318.60	7.00	1325.60
3	46.131096	-119.517636	1306.18	7.00	1313.18
4	46.131096	-119.520640	1303.84	7.00	1310.84

Name: PV array 2-11
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.139481	-119.516282	1316.28	7.00	1323.28
2	46.138797	-119.516926	1320.81	7.00	1327.81
3	46.131154	-119.517141	1304.42	7.00	1311.42
4	46.131035	-119.511004	1309.38	7.00	1316.38
5	46.132671	-119.508600	1325.82	7.00	1332.82
6	46.142187	-119.508128	1341.08	7.00	1348.08
7	46.142157	-119.508772	1337.73	7.00	1344.73
8	46.140522	-119.511819	1326.80	7.00	1333.80

Name: PV array 2-12
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

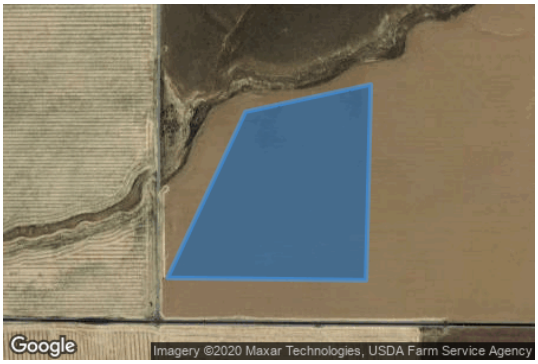


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.132731	-119.508686	1325.82	7.00	1332.82
2	46.132731	-119.504524	1323.39	7.00	1330.39
3	46.134396	-119.503322	1340.92	7.00	1347.92
4	46.142217	-119.503107	1364.22	7.00	1371.22
5	46.142217	-119.508214	1340.93	7.00	1347.93

Name: PV array 2-13
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

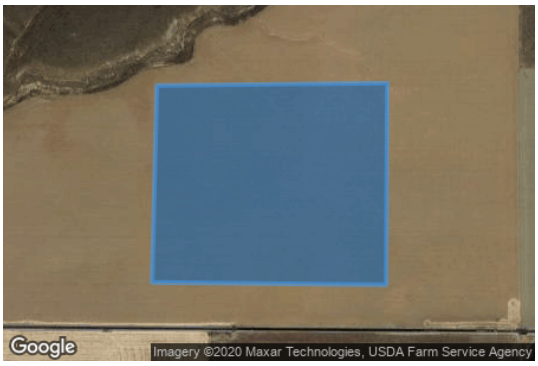
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.134455	-119.503408	1341.36	7.00	1348.36
2	46.133861	-119.500704	1346.09	7.00	1353.09
3	46.133920	-119.497786	1352.12	7.00	1359.12
4	46.135511	-119.496734	1348.19	7.00	1355.19
5	46.137221	-119.496455	1365.53	7.00	1372.53
6	46.142247	-119.496455	1388.24	7.00	1395.24
7	46.142247	-119.503150	1364.24	7.00	1371.24

Name: PV array 2-14
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.55°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



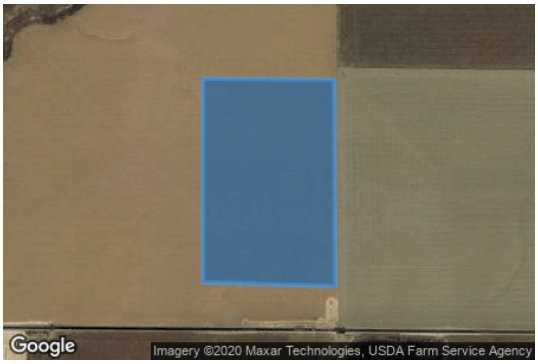
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.131364	-119.495989	1350.79	7.00	1357.79
2	46.131305	-119.488779	1384.33	7.00	1391.33
3	46.136212	-119.488607	1359.75	7.00	1366.75
4	46.135528	-119.493156	1351.98	7.00	1358.98

Name: PV array 2-15
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.09°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



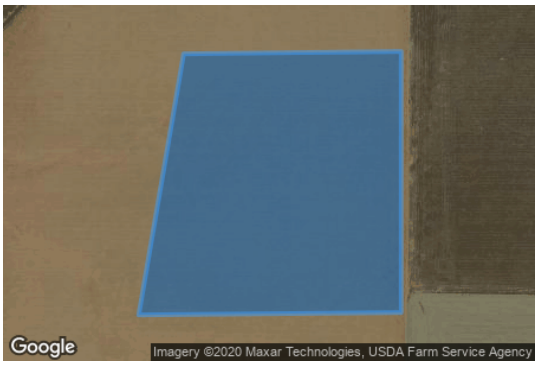
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.131364	-119.488865	1384.99	7.00	1391.99
2	46.131305	-119.480367	1398.89	7.00	1405.89
3	46.136361	-119.480324	1400.78	7.00	1407.78
4	46.136301	-119.488693	1355.83	7.00	1362.83

Name: PV array 2-16
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.2°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



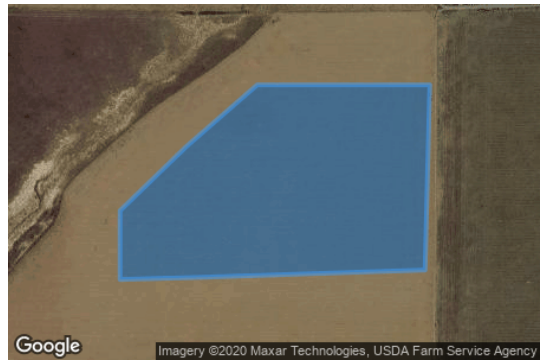
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.136450	-119.480410	1399.88	7.00	1406.88
2	46.136420	-119.475647	1421.86	7.00	1428.86
3	46.131245	-119.475604	1413.32	7.00	1420.32
4	46.131335	-119.480410	1399.47	7.00	1406.47

Name: PV array 2-17
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



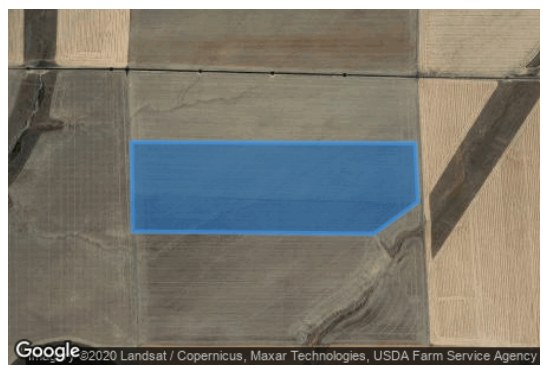
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.136479	-119.475690	1420.73	7.00	1427.73
2	46.139751	-119.475690	1433.42	7.00	1440.42
3	46.139721	-119.479638	1411.17	7.00	1418.18
4	46.136450	-119.480453	1399.73	7.00	1406.74

Name: PV array 2-18
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.55°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



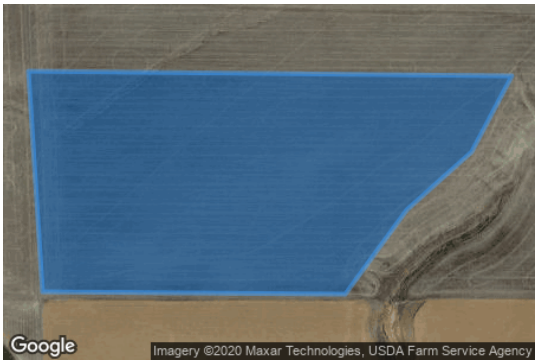
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.139810	-119.475733	1432.94	7.00	1439.94
2	46.142129	-119.475647	1420.18	7.00	1427.18
3	46.142129	-119.478780	1394.02	7.00	1401.02
4	46.141356	-119.480067	1394.82	7.00	1401.82
5	46.140553	-119.481269	1386.66	7.00	1393.66
6	46.139691	-119.481269	1395.40	7.00	1402.40
7	46.139721	-119.479681	1411.13	7.00	1418.13

Name: PV array 2-2
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.3°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



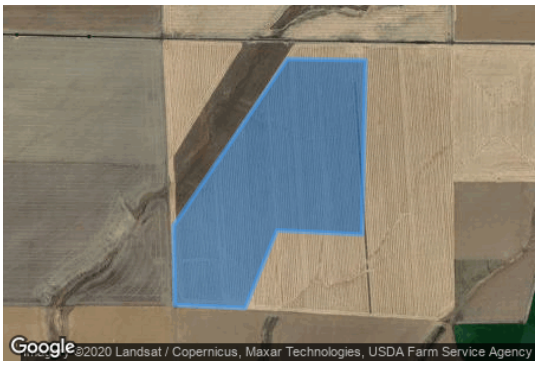
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.127238	-119.538203	1241.38	7.00	1248.38
2	46.122746	-119.538118	1237.40	7.00	1244.40
3	46.122628	-119.520608	1269.48	7.00	1276.49
4	46.124234	-119.517390	1284.60	7.00	1291.60
5	46.127178	-119.517604	1301.23	7.00	1308.23

Name: PV array 2-3
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.09°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.122776	-119.538203	1237.89	7.00	1244.89
2	46.117243	-119.537689	1220.47	7.00	1227.47
3	46.117184	-119.526702	1246.77	7.00	1253.77
4	46.119296	-119.524471	1256.58	7.00	1263.58
5	46.120754	-119.522110	1266.27	7.00	1273.27
6	46.122657	-119.520651	1269.94	7.00	1276.94

Name: PV array 2-4
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

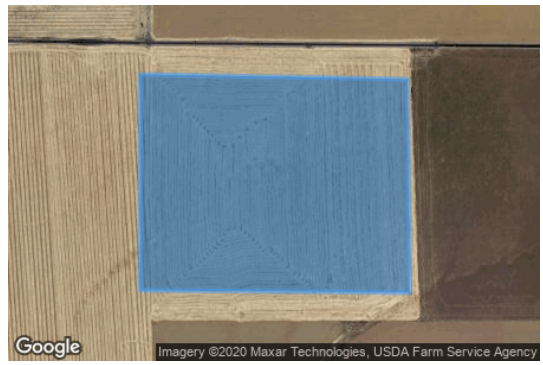


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.121116	-119.516591	1271.22	7.00	1278.22
2	46.117130	-119.516505	1249.39	7.00	1256.39
3	46.116982	-119.511398	1278.19	7.00	1285.19
4	46.120878	-119.509081	1298.03	7.00	1305.03
5	46.120670	-119.502901	1307.13	7.00	1314.13
6	46.129413	-119.502650	1335.25	7.00	1342.25
7	46.129472	-119.508315	1312.03	7.00	1319.03

Name: PV array 2-5
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

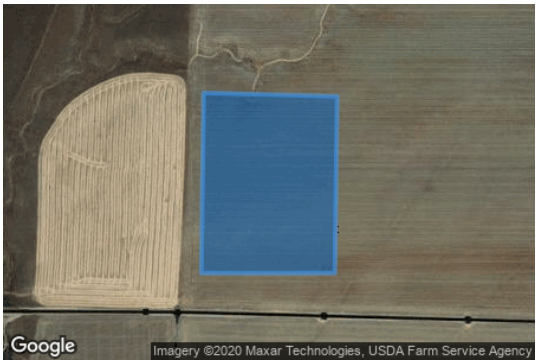
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.120727	-119.503080	1306.81	7.00	1313.81
2	46.117336	-119.502736	1296.43	7.00	1303.43
3	46.117217	-119.497415	1305.85	7.00	1312.85
4	46.117753	-119.496556	1300.34	7.00	1307.34
5	46.129413	-119.496471	1350.77	7.00	1357.77
6	46.129413	-119.502908	1334.48	7.00	1341.48

Name: PV array 2-6
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



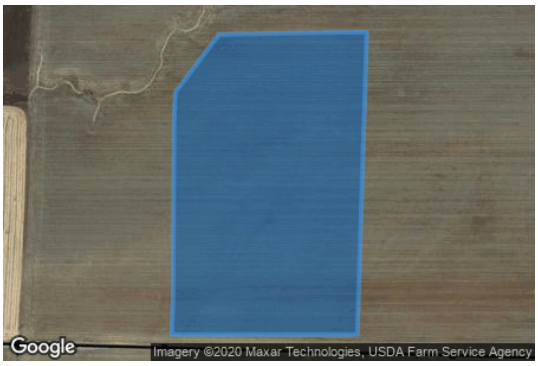
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.129472	-119.496642	1351.12	7.00	1358.12
2	46.129353	-119.486943	1375.32	7.00	1382.32
3	46.123999	-119.486858	1342.30	7.00	1349.30
4	46.124059	-119.496642	1338.21	7.00	1345.21

Name: PV array 2-7
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.43°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



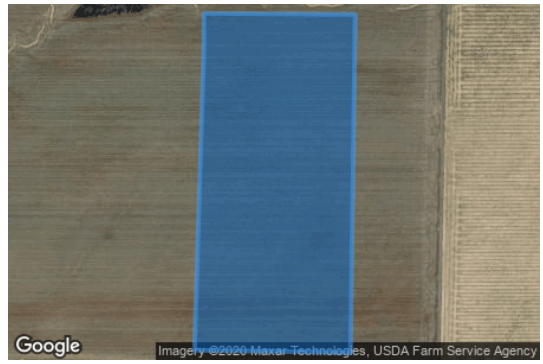
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.136360	-119.537548	1251.82	7.00	1258.82
2	46.136271	-119.532699	1273.84	7.00	1280.84
3	46.131840	-119.532785	1267.48	7.00	1274.48
4	46.131840	-119.537634	1248.75	7.00	1255.75

Name: PV array 2-8
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.14°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.136360	-119.532828	1271.34	7.00	1278.34
2	46.137163	-119.532785	1264.52	7.00	1271.52
3	46.138620	-119.531197	1272.00	7.00	1279.00
4	46.138679	-119.525833	1297.72	7.00	1304.72
5	46.131096	-119.526176	1288.04	7.00	1295.04
6	46.131096	-119.532914	1265.63	7.00	1272.63
7	46.131929	-119.532871	1267.81	7.00	1274.81

Name: PV array 2-9
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.14°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.138739	-119.525918	1297.22	7.00	1304.22
2	46.139542	-119.525918	1290.88	7.00	1297.88
3	46.139512	-119.520425	1302.20	7.00	1309.20
4	46.131037	-119.520597	1303.84	7.00	1310.84
5	46.131096	-119.526262	1287.91	7.00	1294.91

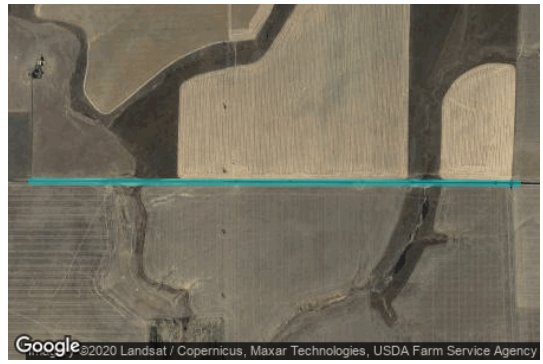
Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	46.142763	-119.459696	1493.13	6.00
OP 2	2	46.157483	-119.496755	1415.78	6.00
OP 3	3	46.136308	-119.572725	1188.75	6.00
OP 4	4	46.061492	-119.561396	992.85	6.00
OP 5	5	46.129143	-119.360406	1793.71	6.00

Route Receptor(s)

Name: Sellards Road 1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130963	-119.573374	1183.15	5.00	1188.15
2	46.130919	-119.562151	1181.49	5.00	1186.49
3	46.130904	-119.554555	1215.70	5.00	1220.70
4	46.130889	-119.542899	1221.76	5.00	1226.76
5	46.130844	-119.538050	1246.26	5.00	1251.26

Name: Sellards Road 2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130844	-119.537878	1247.08	5.00	1252.09
2	46.130696	-119.530857	1270.87	5.00	1275.87
3	46.130547	-119.521759	1298.29	5.00	1303.29
4	46.130443	-119.515729	1303.92	5.00	1308.92
5	46.130370	-119.508138	1302.79	5.00	1307.79
6	46.130281	-119.499812	1345.74	5.00	1350.74
7	46.130221	-119.492731	1360.96	5.00	1365.96
8	46.130177	-119.483955	1386.73	5.00	1391.73
9	46.130117	-119.475694	1406.43	5.00	1411.43

Name: Sellards Road 3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130132	-119.474878	1407.37	5.00	1412.37
2	46.130058	-119.463634	1421.43	5.00	1426.43
3	46.129998	-119.456566	1422.72	5.00	1427.72
4	46.129894	-119.448626	1479.50	5.00	1484.50
5	46.129835	-119.443391	1507.31	5.00	1512.31
6	46.129760	-119.437039	1525.78	5.00	1530.78

Name: S Travis Road-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.158019	-119.454002	1504.91	5.00	1509.91
2	46.155270	-119.454195	1512.40	5.00	1517.40
3	46.151152	-119.454667	1487.89	5.00	1492.89
4	46.147584	-119.454753	1498.02	5.00	1503.02
5	46.142991	-119.454688	1492.24	5.00	1497.24
6	46.136984	-119.454495	1455.52	5.00	1460.52
7	46.131308	-119.454323	1437.90	5.00	1442.90

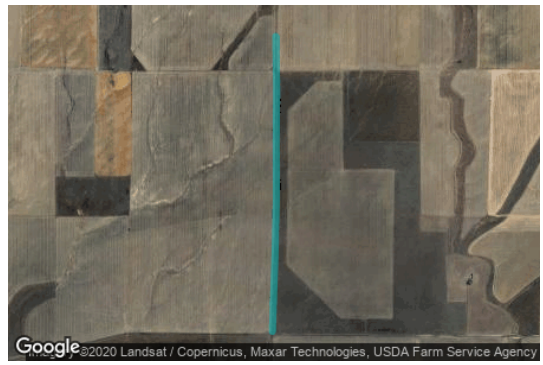
Name: S Travis Road-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.100269	-119.453967	1399.71	5.00	1404.71
2	46.103423	-119.453945	1413.05	5.00	1418.05
3	46.106785	-119.453924	1429.66	5.00	1434.66
4	46.109404	-119.453902	1409.11	5.00	1414.11
5	46.114542	-119.453881	1361.62	5.00	1366.62
6	46.117770	-119.453902	1409.03	5.00	1414.03

Name: WA-221-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.161044	-119.601121	1218.99	5.00	1223.99
2	46.155946	-119.600993	1197.87	5.00	1202.87
3	46.150446	-119.601057	1172.58	5.00	1177.58
4	46.145035	-119.601014	1147.99	5.00	1152.99
5	46.139043	-119.601229	1127.91	5.00	1132.91
6	46.135178	-119.601422	1111.14	5.00	1116.14
7	46.131490	-119.601594	1098.20	5.00	1103.20

Name: WA-221-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.096573	-119.601872	1001.79	5.00	1006.79
2	46.101126	-119.601786	1015.06	5.00	1020.06
3	46.105717	-119.601851	1023.67	5.00	1028.67
4	46.108826	-119.601808	1030.84	5.00	1035.84
5	46.112188	-119.601829	1049.84	5.00	1054.84
6	46.116725	-119.601765	1063.69	5.00	1068.69
7	46.122005	-119.601679	1081.37	5.00	1086.37
8	46.124890	-119.601679	1087.24	5.00	1092.24

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV array 2-1	SA tracking	SA tracking	0	0	-
PV array 2-10	SA tracking	SA tracking	0	0	-
PV array 2-11	SA tracking	SA tracking	0	0	-
PV array 2-12	SA tracking	SA tracking	0	0	-
PV array 2-13	SA tracking	SA tracking	0	0	-
PV array 2-14	SA tracking	SA tracking	0	0	-
PV array 2-15	SA tracking	SA tracking	0	0	-
PV array 2-16	SA tracking	SA tracking	0	0	-
PV array 2-17	SA tracking	SA tracking	0	0	-
PV array 2-18	SA tracking	SA tracking	0	0	-
PV array 2-2	SA tracking	SA tracking	0	0	-
PV array 2-3	SA tracking	SA tracking	0	0	-
PV array 2-4	SA tracking	SA tracking	0	0	-
PV array 2-5	SA tracking	SA tracking	0	0	-
PV array 2-6	SA tracking	SA tracking	0	0	-
PV array 2-7	SA tracking	SA tracking	0	0	-
PV array 2-8	SA tracking	SA tracking	0	0	-
PV array 2-9	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Results for: PV array 2-1

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-10

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-11

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-12

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-13

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-14

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-15

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-16

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-17

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-18

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-2

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-3

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-4

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-5

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-6

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-7

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-8

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-9

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

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.
Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
Several 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.
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.)
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
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.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

2016-2019 © Sims Industries d/b/a ForgeSolar, All Rights Reserved.

FORGESOLAR GLARE ANALYSIS

Project: **Horse Heaven**
Site configuration: **Horse Heaven West2-2nd floor**
Analysis conducted by Josh Burdett (joshua.burdett@tetratech.com) at 21:37 on 15 Dec, 2020.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

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

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

SITE CONFIGURATION

Analysis Parameters

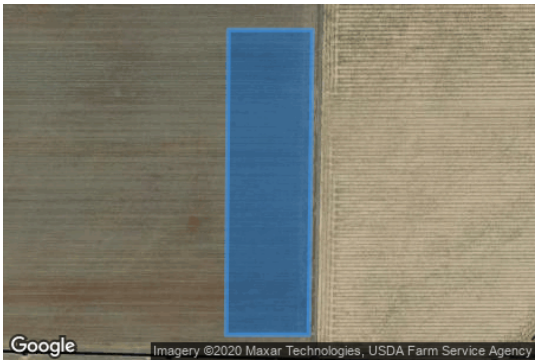
DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 46890.8449

PV Array(s)

Name: PV array 2-1
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.129706	-119.538246	1244.06	7.00	1251.06
2	46.127238	-119.538161	1241.57	7.00	1248.57
3	46.127149	-119.517561	1301.28	7.00	1308.28
4	46.129469	-119.517647	1299.76	7.00	1306.76

Name: PV array 2-10
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.2°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

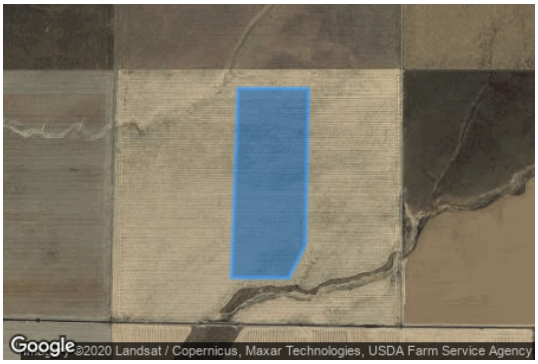


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.138739	-119.520554	1306.61	7.00	1313.61
2	46.138739	-119.517507	1318.60	7.00	1325.60
3	46.131096	-119.517636	1306.18	7.00	1313.18
4	46.131096	-119.520640	1303.84	7.00	1310.84

Name: PV array 2-11
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.139481	-119.516282	1316.28	7.00	1323.28
2	46.138797	-119.516926	1320.81	7.00	1327.81
3	46.131154	-119.517141	1304.42	7.00	1311.42
4	46.131035	-119.511004	1309.38	7.00	1316.38
5	46.132671	-119.508600	1325.82	7.00	1332.82
6	46.142187	-119.508128	1341.08	7.00	1348.08
7	46.142157	-119.508772	1337.73	7.00	1344.73
8	46.140522	-119.511819	1326.80	7.00	1333.80

Name: PV array 2-12
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

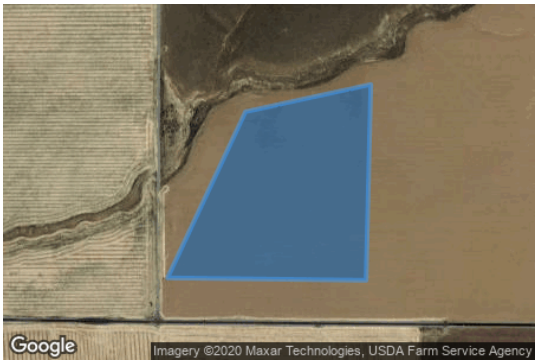


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.132731	-119.508686	1325.82	7.00	1332.82
2	46.132731	-119.504524	1323.39	7.00	1330.39
3	46.134396	-119.503322	1340.92	7.00	1347.92
4	46.142217	-119.503107	1364.22	7.00	1371.22
5	46.142217	-119.508214	1340.93	7.00	1347.93

Name: PV array 2-13
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

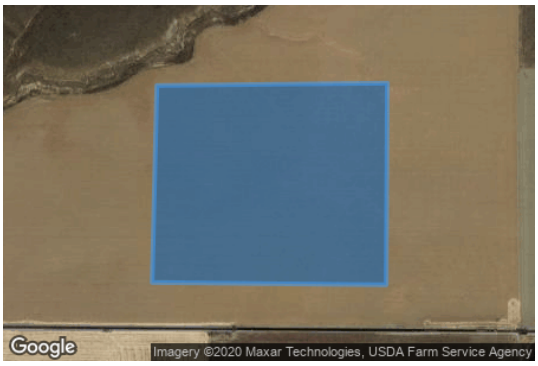
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.134455	-119.503408	1341.36	7.00	1348.36
2	46.133861	-119.500704	1346.09	7.00	1353.09
3	46.133920	-119.497786	1352.12	7.00	1359.12
4	46.135511	-119.496734	1348.19	7.00	1355.19
5	46.137221	-119.496455	1365.53	7.00	1372.53
6	46.142247	-119.496455	1388.24	7.00	1395.24
7	46.142247	-119.503150	1364.24	7.00	1371.24

Name: PV array 2-14
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.55°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



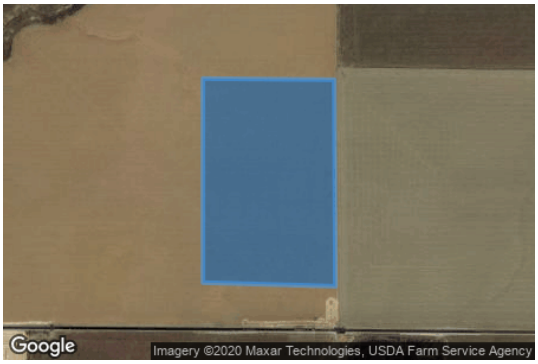
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.131364	-119.495989	1350.79	7.00	1357.79
2	46.131305	-119.488779	1384.33	7.00	1391.33
3	46.136212	-119.488607	1359.75	7.00	1366.75
4	46.135528	-119.493156	1351.98	7.00	1358.98

Name: PV array 2-15
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.09°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



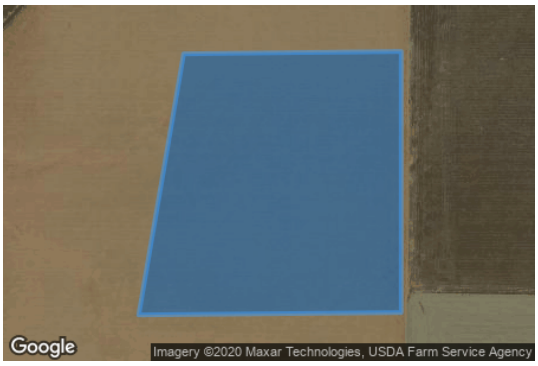
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.131364	-119.488865	1384.99	7.00	1391.99
2	46.131305	-119.480367	1398.89	7.00	1405.89
3	46.136361	-119.480324	1400.78	7.00	1407.78
4	46.136301	-119.488693	1355.83	7.00	1362.83

Name: PV array 2-16
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.2°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



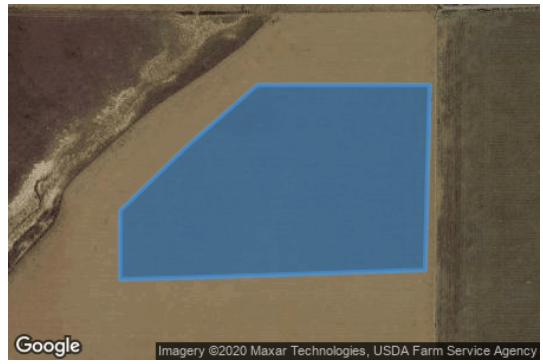
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.136450	-119.480410	1399.88	7.00	1406.88
2	46.136420	-119.475647	1421.86	7.00	1428.86
3	46.131245	-119.475604	1413.32	7.00	1420.32
4	46.131335	-119.480410	1399.47	7.00	1406.47

Name: PV array 2-17
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



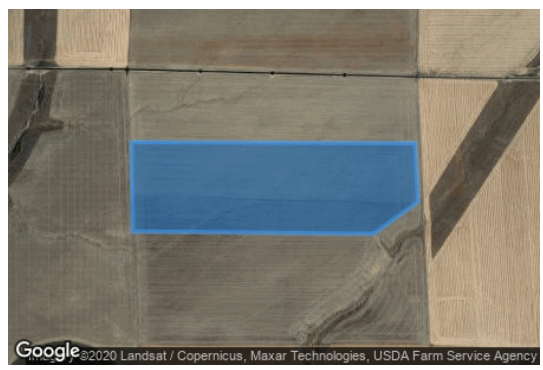
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.136479	-119.475690	1420.73	7.00	1427.73
2	46.139751	-119.475690	1433.42	7.00	1440.42
3	46.139721	-119.479638	1411.17	7.00	1418.18
4	46.136450	-119.480453	1399.73	7.00	1406.74

Name: PV array 2-18
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.55°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



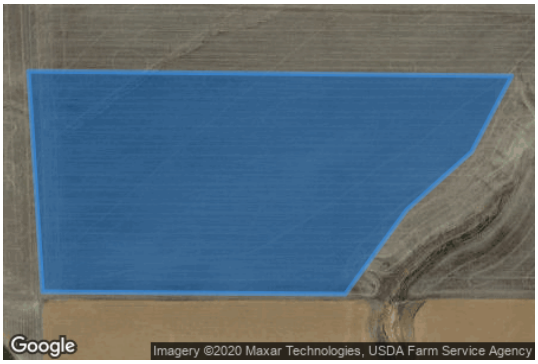
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.139810	-119.475733	1432.94	7.00	1439.94
2	46.142129	-119.475647	1420.18	7.00	1427.18
3	46.142129	-119.478780	1394.02	7.00	1401.02
4	46.141356	-119.480067	1394.82	7.00	1401.82
5	46.140553	-119.481269	1386.66	7.00	1393.66
6	46.139691	-119.481269	1395.40	7.00	1402.40
7	46.139721	-119.479681	1411.13	7.00	1418.13

Name: PV array 2-2
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.3°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



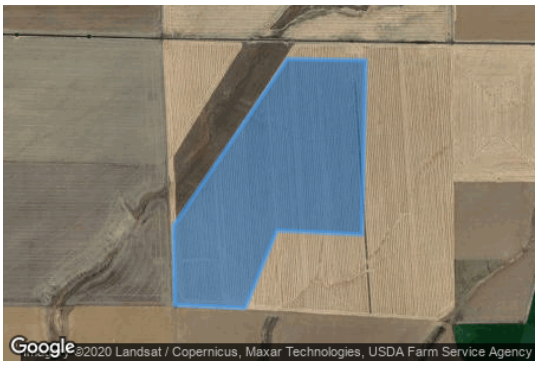
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.127238	-119.538203	1241.38	7.00	1248.38
2	46.122746	-119.538118	1237.40	7.00	1244.40
3	46.122628	-119.520608	1269.48	7.00	1276.49
4	46.124234	-119.517390	1284.60	7.00	1291.60
5	46.127178	-119.517604	1301.23	7.00	1308.23

Name: PV array 2-3
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.09°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.122776	-119.538203	1237.89	7.00	1244.89
2	46.117243	-119.537689	1220.47	7.00	1227.47
3	46.117184	-119.526702	1246.77	7.00	1253.77
4	46.119296	-119.524471	1256.58	7.00	1263.58
5	46.120754	-119.522110	1266.27	7.00	1273.27
6	46.122657	-119.520651	1269.94	7.00	1276.94

Name: PV array 2-4
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

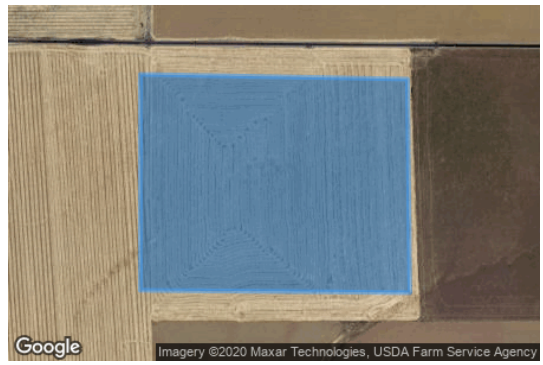


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.121116	-119.516591	1271.22	7.00	1278.22
2	46.117130	-119.516505	1249.39	7.00	1256.39
3	46.116982	-119.511398	1278.19	7.00	1285.19
4	46.120878	-119.509081	1298.03	7.00	1305.03
5	46.120670	-119.502901	1307.13	7.00	1314.13
6	46.129413	-119.502650	1335.25	7.00	1342.25
7	46.129472	-119.508315	1312.03	7.00	1319.03

Name: PV array 2-5
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

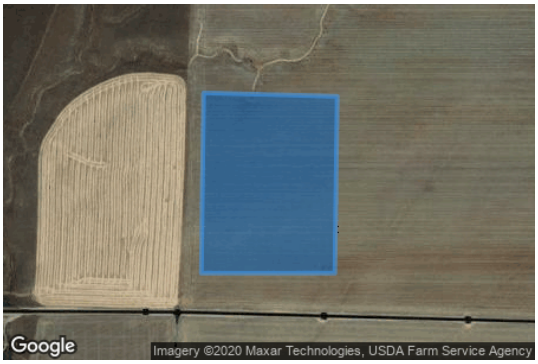
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.120727	-119.503080	1306.81	7.00	1313.81
2	46.117336	-119.502736	1296.43	7.00	1303.43
3	46.117217	-119.497415	1305.85	7.00	1312.85
4	46.117753	-119.496556	1300.34	7.00	1307.34
5	46.129413	-119.496471	1350.77	7.00	1357.77
6	46.129413	-119.502908	1334.48	7.00	1341.48

Name: PV array 2-6
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



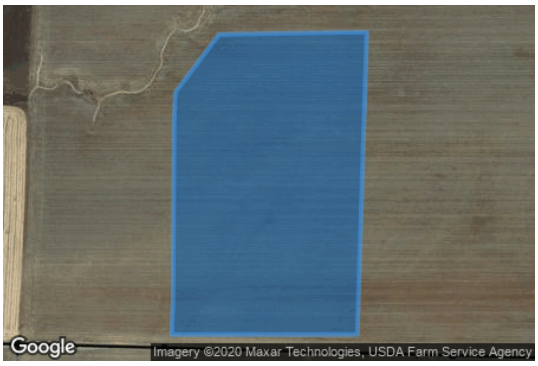
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.129472	-119.496642	1351.12	7.00	1358.12
2	46.129353	-119.486943	1375.32	7.00	1382.32
3	46.123999	-119.486858	1342.30	7.00	1349.30
4	46.124059	-119.496642	1338.21	7.00	1345.21

Name: PV array 2-7
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.43°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



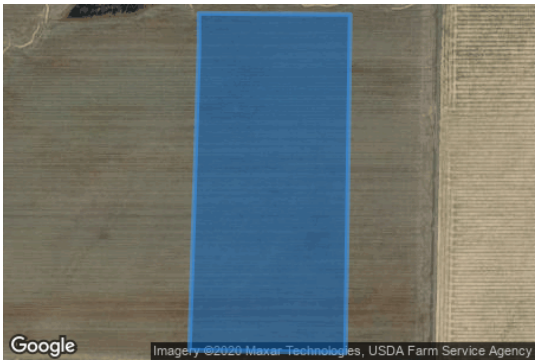
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.136360	-119.537548	1251.82	7.00	1258.82
2	46.136271	-119.532699	1273.84	7.00	1280.84
3	46.131840	-119.532785	1267.48	7.00	1274.48
4	46.131840	-119.537634	1248.75	7.00	1255.75

Name: PV array 2-8
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.14°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.136360	-119.532828	1271.34	7.00	1278.34
2	46.137163	-119.532785	1264.52	7.00	1271.52
3	46.138620	-119.531197	1272.00	7.00	1279.00
4	46.138679	-119.525833	1297.72	7.00	1304.72
5	46.131096	-119.526176	1288.04	7.00	1295.04
6	46.131096	-119.532914	1265.63	7.00	1272.63
7	46.131929	-119.532871	1267.81	7.00	1274.81

Name: PV array 2-9
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.14°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.138739	-119.525918	1297.22	7.00	1304.22
2	46.139542	-119.525918	1290.88	7.00	1297.88
3	46.139512	-119.520425	1302.20	7.00	1309.20
4	46.131037	-119.520597	1303.84	7.00	1310.84
5	46.131096	-119.526262	1287.91	7.00	1294.91

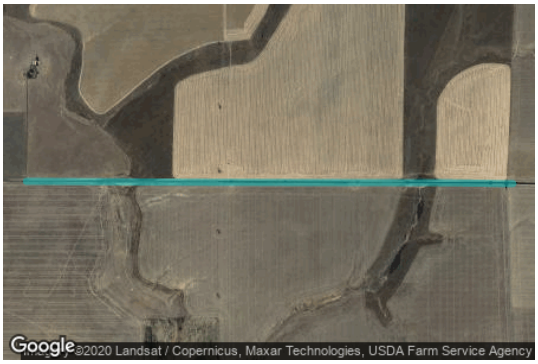
Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	46.142763	-119.459696	1493.13	16.00
OP 2	2	46.157483	-119.496755	1415.78	16.00
OP 3	3	46.136308	-119.572725	1188.75	16.00
OP 4	4	46.061492	-119.561396	992.85	16.00
OP 5	5	46.129147	-119.360395	1793.60	16.00

Route Receptor(s)

Name: Sellards Road 1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130963	-119.573374	1183.15	9.00	1192.15
2	46.130919	-119.562151	1181.49	9.00	1190.49
3	46.130904	-119.554555	1215.70	9.00	1224.70
4	46.130889	-119.542899	1221.76	9.00	1230.76
5	46.130844	-119.538050	1246.26	9.00	1255.26

Name: Sellards Road 2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130844	-119.537878	1247.08	9.00	1256.09
2	46.130696	-119.530857	1270.87	9.00	1279.87
3	46.130547	-119.521759	1298.29	9.00	1307.29
4	46.130443	-119.515729	1303.92	9.00	1312.92
5	46.130370	-119.508138	1302.79	9.00	1311.79
6	46.130281	-119.499812	1345.74	9.00	1354.74
7	46.130221	-119.492731	1360.96	9.00	1369.96
8	46.130177	-119.483955	1386.73	9.00	1395.73
9	46.130117	-119.475694	1406.43	9.00	1415.43

Name: Sellards Road 3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130132	-119.474878	1407.37	9.00	1416.37
2	46.130058	-119.463634	1421.43	9.00	1430.43
3	46.129998	-119.456566	1422.72	9.00	1431.72
4	46.129894	-119.448626	1479.50	9.00	1488.50
5	46.129835	-119.443391	1507.31	9.00	1516.31
6	46.129760	-119.437039	1525.78	9.00	1534.78

Name: S Travis Road-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.158019	-119.454002	1504.91	9.00	1513.91
2	46.155270	-119.454195	1512.40	9.00	1521.40
3	46.151152	-119.454667	1487.89	9.00	1496.89
4	46.147584	-119.454753	1498.02	9.00	1507.02
5	46.142991	-119.454688	1492.24	9.00	1501.24
6	46.136984	-119.454495	1455.52	9.00	1464.52
7	46.131308	-119.454323	1437.90	9.00	1446.90

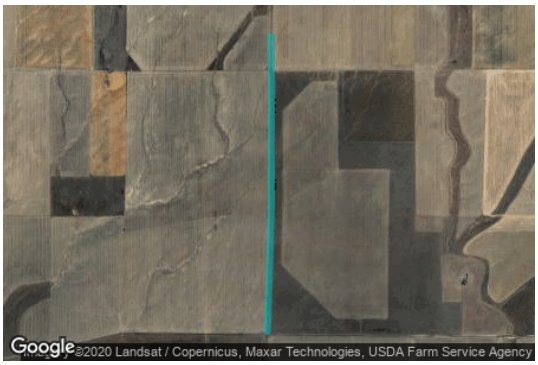
Name: S Travis Road-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.100269	-119.453967	1399.71	9.00	1408.71
2	46.103423	-119.453945	1413.05	9.00	1422.05
3	46.106785	-119.453924	1429.66	9.00	1438.67
4	46.109404	-119.453902	1409.11	9.00	1418.11
5	46.114542	-119.453881	1361.62	9.00	1370.62
6	46.117770	-119.453902	1409.03	9.00	1418.03

Name: WA-221-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.161044	-119.601121	1218.99	9.00	1227.99
2	46.155946	-119.600993	1197.87	9.00	1206.87
3	46.150446	-119.601057	1172.58	9.00	1181.58
4	46.145035	-119.601014	1147.99	9.00	1156.99
5	46.139043	-119.601229	1127.91	9.00	1136.91
6	46.135178	-119.601422	1111.14	9.00	1120.14
7	46.131490	-119.601594	1098.20	9.00	1107.20

Name: WA-221-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.096573	-119.601872	1001.79	9.00	1010.79
2	46.101126	-119.601786	1015.06	9.00	1024.06
3	46.105717	-119.601851	1023.67	9.00	1032.67
4	46.108826	-119.601808	1030.84	9.00	1039.84
5	46.112188	-119.601829	1049.84	9.00	1058.84
6	46.116725	-119.601765	1063.69	9.00	1072.69
7	46.122005	-119.601679	1081.37	9.00	1090.37
8	46.124890	-119.601679	1087.24	9.00	1096.24

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV array 2-1	SA tracking	SA tracking	0	0	-
PV array 2-10	SA tracking	SA tracking	0	0	-
PV array 2-11	SA tracking	SA tracking	0	0	-
PV array 2-12	SA tracking	SA tracking	0	0	-
PV array 2-13	SA tracking	SA tracking	0	0	-
PV array 2-14	SA tracking	SA tracking	0	0	-
PV array 2-15	SA tracking	SA tracking	0	0	-
PV array 2-16	SA tracking	SA tracking	0	0	-
PV array 2-17	SA tracking	SA tracking	0	0	-
PV array 2-18	SA tracking	SA tracking	0	0	-
PV array 2-2	SA tracking	SA tracking	0	0	-
PV array 2-3	SA tracking	SA tracking	0	0	-
PV array 2-4	SA tracking	SA tracking	0	0	-
PV array 2-5	SA tracking	SA tracking	0	0	-
PV array 2-6	SA tracking	SA tracking	0	0	-
PV array 2-7	SA tracking	SA tracking	0	0	-
PV array 2-8	SA tracking	SA tracking	0	0	-
PV array 2-9	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Results for: PV array 2-1

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-10

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-11

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-12

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-13

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-14

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-15

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-16

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-17

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-18

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-2

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-3

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-4

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-5

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-6

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-7

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-8

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-9

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

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.
Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
Several 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.
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.)
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
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.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

2016-2019 © Sims Industries d/b/a ForgeSolar, All Rights Reserved.

FORGESOLAR GLARE ANALYSIS

Project: **Horse Heaven**
Site configuration: **Horse Heaven East1-1st floor**
Analysis conducted by Josh Burdett (joshua.burdett@tetratech.com) at 04:09 on 15 Dec, 2020.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

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

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

SITE CONFIGURATION

Analysis Parameters

DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 46953.8449

PV Array(s)

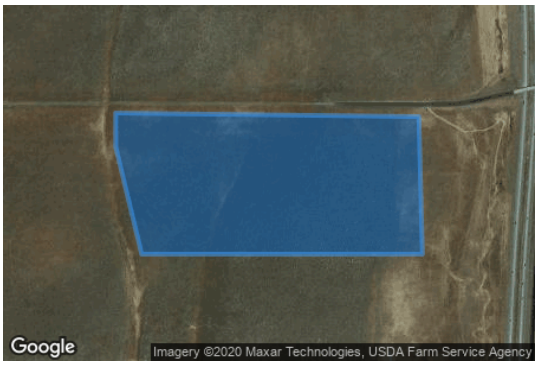
Name: PV array 3-1
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.069382	-119.264454	1544.06	7.00	1551.06
2	46.069263	-119.255786	1496.36	7.00	1503.36
3	46.067030	-119.254841	1465.97	7.00	1472.97
4	46.065094	-119.254863	1458.20	7.00	1465.20
5	46.062504	-119.256944	1443.28	7.00	1450.28
6	46.062712	-119.264755	1455.44	7.00	1462.44
7	46.069397	-119.264733	1546.85	7.00	1553.85

Name: PV array 3-10
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.061648	-119.244412	1444.08	7.00	1451.08
2	46.061693	-119.239627	1424.05	7.00	1431.05
3	46.058998	-119.239391	1389.17	7.00	1396.17
4	46.058298	-119.239091	1378.12	7.00	1385.12
5	46.055737	-119.239091	1342.19	7.00	1349.19
6	46.055796	-119.244648	1362.40	7.00	1369.40
7	46.058476	-119.244627	1394.29	7.00	1401.29

Name: PV array 3-11
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.061901	-119.238576	1428.54	7.00	1435.54
2	46.061052	-119.238576	1409.07	7.00	1416.07
3	46.058357	-119.237632	1369.29	7.00	1376.29
4	46.058357	-119.227439	1362.09	7.00	1369.09
5	46.061812	-119.227568	1414.75	7.00	1421.75

Name: PV array 3-12
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.058357	-119.234005	1375.86	7.00	1382.86
2	46.057434	-119.234134	1368.01	7.00	1375.01
3	46.056511	-119.234670	1355.03	7.00	1362.03
4	46.055856	-119.234692	1350.69	7.00	1357.69
5	46.055871	-119.232825	1362.74	7.00	1369.74
6	46.055022	-119.232825	1354.50	7.00	1361.50
7	46.055022	-119.229563	1346.52	7.00	1353.52
8	46.056064	-119.228812	1354.02	7.00	1361.02
9	46.056913	-119.227482	1351.79	7.00	1358.79
10	46.058372	-119.227461	1362.76	7.00	1369.76

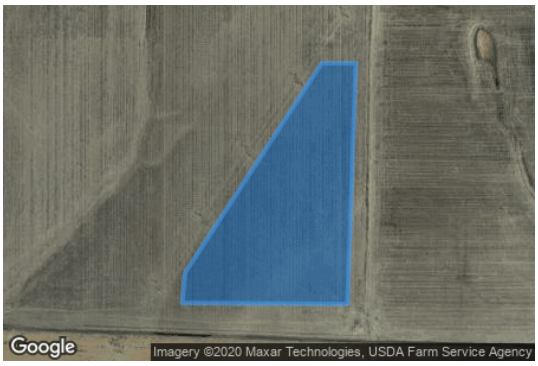
Name: PV array 3-13
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.9°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.060736	-119.221786	1390.15	7.00	1397.15
2	46.060706	-119.217752	1410.38	7.00	1417.38
3	46.061689	-119.217752	1398.79	7.00	1405.79
4	46.061600	-119.214233	1427.63	7.00	1434.63
5	46.060796	-119.214276	1420.95	7.00	1427.95
6	46.054750	-119.219898	1338.12	7.00	1345.13
7	46.054810	-119.222902	1329.50	7.00	1336.50
8	46.058026	-119.222816	1365.76	7.00	1372.76

Name: PV array 3-14
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

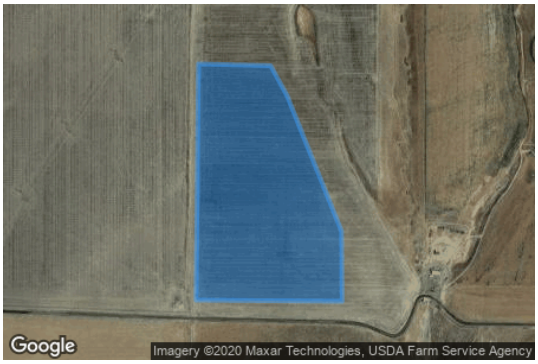
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.058324	-119.215134	1376.23	7.00	1383.23
2	46.057967	-119.203676	1398.27	7.00	1405.27
3	46.054572	-119.203719	1365.49	7.00	1372.49
4	46.054482	-119.212645	1352.42	7.00	1359.42
5	46.054780	-119.213975	1350.65	7.00	1357.65
6	46.054840	-119.217580	1329.72	7.00	1336.72
7	46.055733	-119.217494	1344.77	7.00	1351.77

Name: PV array 3-15
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.57°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.062523	-119.204276	1453.41	7.00	1460.41
2	46.068567	-119.203976	1534.61	7.00	1541.61
3	46.068567	-119.205221	1533.03	7.00	1540.03
4	46.063312	-119.210177	1461.61	7.00	1468.61
5	46.062553	-119.210285	1458.01	7.00	1465.01

Name: PV array 3-16
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

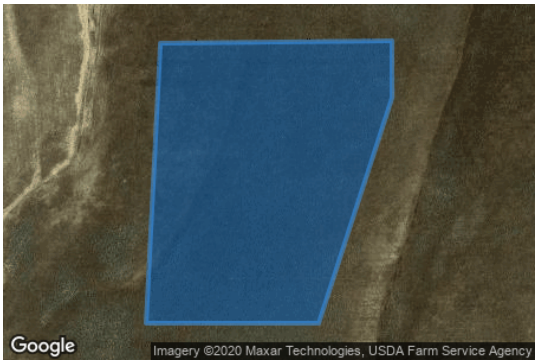


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.067962	-119.203168	1531.20	7.00	1538.20
2	46.067917	-119.200550	1490.05	7.00	1497.05
3	46.067158	-119.199949	1481.33	7.00	1488.33
4	46.063763	-119.197975	1435.30	7.00	1442.30
5	46.062006	-119.197954	1429.33	7.00	1436.33
6	46.062036	-119.203254	1451.51	7.00	1458.51

Name: PV array 3-17
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.23°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

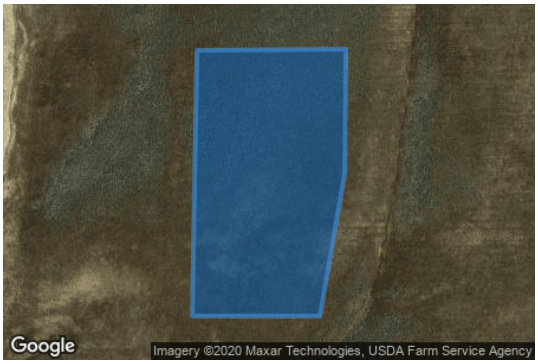
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061167	-119.203211	1444.79	7.00	1451.79
2	46.061137	-119.199370	1437.31	7.00	1444.31
3	46.058606	-119.197138	1390.82	7.00	1397.82
4	46.056774	-119.195700	1356.80	7.00	1363.80
5	46.054407	-119.195679	1346.44	7.00	1353.44
6	46.054451	-119.203318	1363.90	7.00	1370.90

Name: PV array 3-2
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



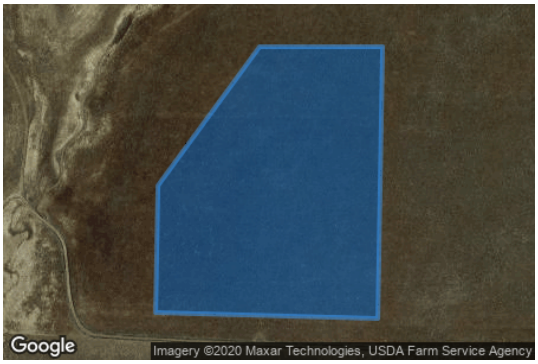
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.076111	-119.243769	1553.84	7.00	1560.84
2	46.076140	-119.239563	1570.47	7.00	1577.47
3	46.075426	-119.239563	1564.52	7.00	1571.52
4	46.072598	-119.240893	1541.36	7.00	1548.36
5	46.072598	-119.244026	1506.08	7.00	1513.08

Name: PV array 3-3
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



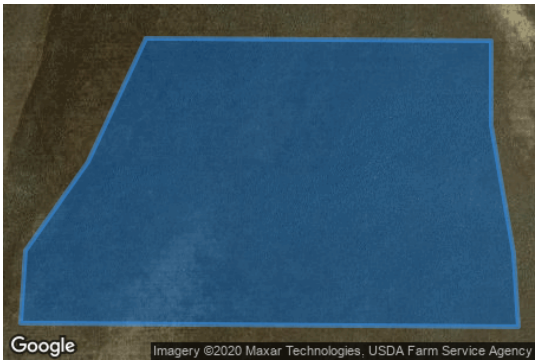
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.071824	-119.243812	1515.23	7.00	1522.23
2	46.071838	-119.241108	1533.04	7.00	1540.04
3	46.070275	-119.241129	1511.95	7.00	1518.95
4	46.068489	-119.241580	1481.38	7.00	1488.38
5	46.068489	-119.243898	1477.93	7.00	1484.93

Name: PV array 3-4
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.065943	-119.246923	1442.79	7.00	1449.79
2	46.065943	-119.244691	1470.32	7.00	1477.32
3	46.062534	-119.244777	1457.64	7.00	1464.64
4	46.062608	-119.248811	1423.57	7.00	1430.57
5	46.064201	-119.248768	1412.68	7.00	1419.68

Name: PV array 3-5
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.12°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

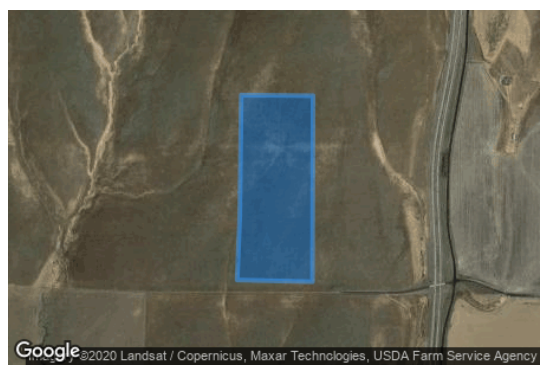


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.076141	-119.236412	1597.99	7.00	1604.99
2	46.076111	-119.230146	1594.28	7.00	1601.28
3	46.075054	-119.230146	1579.54	7.00	1586.54
4	46.073447	-119.229738	1547.68	7.00	1554.69
5	46.072524	-119.229653	1535.47	7.00	1542.47
6	46.072569	-119.238686	1542.55	7.00	1549.55
7	46.073477	-119.238600	1545.59	7.00	1552.59
8	46.074593	-119.237463	1574.18	7.00	1581.18

Name: PV array 3-6
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.065952	-119.237925	1463.27	7.00	1470.27
2	46.072056	-119.237774	1553.44	7.00	1560.45
3	46.072026	-119.239298	1527.90	7.00	1534.90
4	46.069421	-119.240028	1499.29	7.00	1506.29
5	46.068587	-119.240650	1480.07	7.00	1487.07
6	46.067605	-119.241916	1472.01	7.00	1479.01
7	46.067024	-119.243954	1460.39	7.00	1467.39
8	46.062796	-119.244190	1466.14	7.00	1473.14
9	46.062766	-119.239234	1436.41	7.00	1443.41
10	46.064374	-119.238729	1449.26	7.00	1456.26

Name: PV array 3-7
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

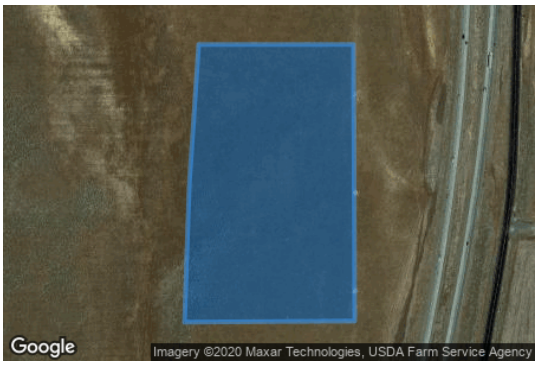


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.072075	-119.237810	1553.56	7.00	1560.57
2	46.072045	-119.232596	1553.16	7.00	1560.16
3	46.062681	-119.232639	1413.33	7.00	1420.33
4	46.062770	-119.238111	1441.44	7.00	1448.44
5	46.065971	-119.237917	1463.55	7.00	1470.55

Name: PV array 3-8
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.072071	-119.232642	1553.37	7.00	1560.37
2	46.072041	-119.229144	1520.15	7.00	1527.15
3	46.068468	-119.227900	1477.31	7.00	1484.31
4	46.066339	-119.226376	1445.67	7.00	1452.67
5	46.064642	-119.226333	1437.59	7.00	1444.59
6	46.062736	-119.227342	1420.78	7.00	1427.78
7	46.062707	-119.232663	1413.56	7.00	1420.56

Name: PV array 3-9
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.076121	-119.227108	1576.89	7.00	1583.89
2	46.076121	-119.224297	1556.62	7.00	1563.63
3	46.072653	-119.224276	1509.97	7.00	1516.97
4	46.072638	-119.227366	1523.47	7.00	1530.47
5	46.074350	-119.227280	1544.55	7.00	1551.55

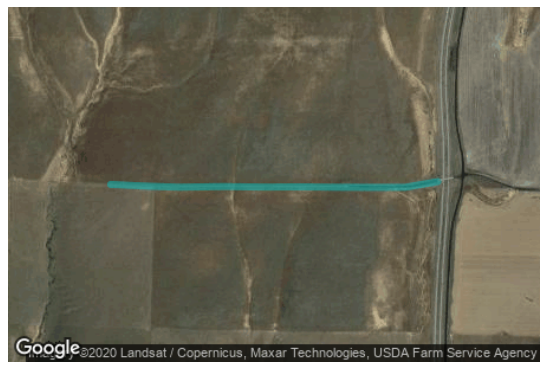
Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	46.072705	-119.218667	1497.61	6.00
OP 2	2	46.125919	-119.219932	1320.29	6.00
OP 3	3	46.077101	-119.145764	1804.81	6.00
OP 4	4	46.065913	-119.078615	1520.73	6.00
OP 5	5	46.017217	-119.129341	1560.78	6.00
OP 6	6	46.100638	-119.351684	1835.32	6.00

Route Receptor(s)

Name: Beck Rd-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.062247	-119.247896	1437.68	5.00	1442.68
2	46.062165	-119.245439	1451.19	5.00	1456.19
3	46.062105	-119.242972	1440.64	5.00	1445.64
4	46.062143	-119.239603	1430.92	5.00	1435.92
5	46.062113	-119.236824	1424.17	5.00	1429.17
6	46.062128	-119.234152	1412.82	5.00	1417.82
7	46.062105	-119.231588	1420.12	5.00	1425.12
8	46.062098	-119.228252	1423.29	5.00	1428.29
9	46.062098	-119.226556	1405.15	5.00	1410.15
10	46.062388	-119.224142	1375.78	5.00	1380.78

Name: Beck Rd-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061852	-119.214432	1427.46	5.00	1432.46
2	46.061785	-119.211922	1443.52	5.00	1448.52
3	46.061696	-119.208124	1462.60	5.00	1467.60
4	46.061622	-119.205484	1447.52	5.00	1452.52
5	46.061547	-119.202823	1447.47	5.00	1452.47
6	46.061510	-119.199894	1440.39	5.00	1445.39
7	46.061480	-119.197910	1421.95	5.00	1426.95
8	46.061383	-119.197062	1392.62	5.00	1397.62

Name: Beck Rd-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061341	-119.187536	1433.77	5.00	1438.77
2	46.061267	-119.183567	1418.60	5.00	1423.60
3	46.061163	-119.178975	1433.57	5.00	1438.57
4	46.061088	-119.176786	1435.14	5.00	1440.14
5	46.060939	-119.173460	1462.67	5.00	1467.67
6	46.060805	-119.167988	1367.84	5.00	1372.84

Name: US HWY 395-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	45.995519	-119.278077	796.24	5.00	801.24
2	45.996115	-119.275952	803.46	5.00	808.46
3	45.996950	-119.273013	808.72	5.00	813.72
4	45.997457	-119.271038	813.88	5.00	818.88
5	45.997964	-119.268356	815.97	5.00	820.97
6	45.998321	-119.265288	814.61	5.00	819.61
7	45.998634	-119.263206	823.31	5.00	828.31
8	45.998947	-119.261683	823.78	5.00	828.78

Name: US HWY 395-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.037771	-119.224776	1159.99	5.00	1164.99
2	46.040459	-119.224690	1191.05	5.00	1196.05
3	46.042857	-119.224615	1214.84	5.00	1219.84
4	46.046186	-119.224550	1238.13	5.00	1243.13
5	46.048100	-119.224507	1248.38	5.00	1253.38

Name: US HWY 395-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.054961	-119.224314	1289.13	5.00	1294.13
2	46.057039	-119.224186	1313.71	5.00	1318.71
3	46.059696	-119.223950	1337.57	5.00	1342.57
4	46.062116	-119.223714	1348.33	5.00	1353.33
5	46.063009	-119.223660	1358.35	5.00	1363.35
6	46.064401	-119.223714	1378.78	5.00	1383.78
7	46.066173	-119.223832	1404.38	5.00	1409.38
8	46.067614	-119.223907	1425.76	5.00	1430.76
9	46.069192	-119.223724	1448.15	5.00	1453.15
10	46.070763	-119.223424	1468.64	5.00	1473.64

Name: US HWY 395-4
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.081318	-119.222539	1577.60	5.00	1582.60
2	46.082650	-119.222785	1589.94	5.00	1594.94
3	46.083878	-119.223032	1600.74	5.00	1605.74
4	46.085166	-119.223268	1615.92	5.00	1620.92
5	46.086163	-119.223451	1625.07	5.00	1630.07
6	46.087257	-119.223633	1633.34	5.00	1638.34
7	46.088760	-119.223697	1639.56	5.00	1644.56
8	46.089943	-119.223612	1639.85	5.00	1644.85

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV array 3-1	SA tracking	SA tracking	0	0	-
PV array 3-10	SA tracking	SA tracking	0	0	-
PV array 3-11	SA tracking	SA tracking	0	0	-
PV array 3-12	SA tracking	SA tracking	0	0	-
PV array 3-13	SA tracking	SA tracking	0	0	-
PV array 3-14	SA tracking	SA tracking	0	0	-
PV array 3-15	SA tracking	SA tracking	0	0	-
PV array 3-16	SA tracking	SA tracking	0	0	-
PV array 3-17	SA tracking	SA tracking	0	0	-
PV array 3-2	SA tracking	SA tracking	0	0	-
PV array 3-3	SA tracking	SA tracking	0	0	-
PV array 3-4	SA tracking	SA tracking	0	0	-
PV array 3-5	SA tracking	SA tracking	0	0	-
PV array 3-6	SA tracking	SA tracking	0	0	-
PV array 3-7	SA tracking	SA tracking	0	0	-
PV array 3-8	SA tracking	SA tracking	0	0	-
PV array 3-9	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Results for: PV array 3-1

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-10

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-11

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-12

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-13

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-14

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-15

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 3-16

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-17

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-2

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-3

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-4

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-5

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-6

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-7

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-8

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-9

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

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.
Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
Several 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.
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.)
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
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.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

2016-2019 © Sims Industries d/b/a ForgeSolar, All Rights Reserved.

FORGESOLAR GLARE ANALYSIS

Project: **Horse Heaven**
Site configuration: **Horse Heaven East1-2nd floor**
Analysis conducted by Josh Burdett (joshua.burdett@tetratech.com) at 04:10 on 15 Dec, 2020.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

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

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

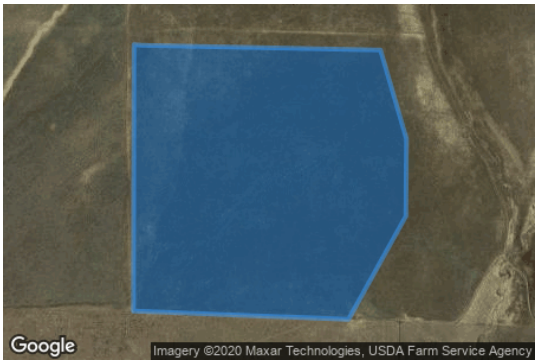
SITE CONFIGURATION

Analysis Parameters

DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 46961.8449

PV Array(s)

Name: PV array 3-1
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

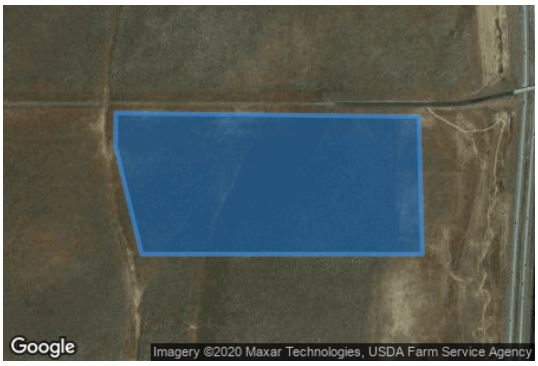


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.069382	-119.264454	1544.06	7.00	1551.06
2	46.069263	-119.255786	1496.36	7.00	1503.36
3	46.067030	-119.254841	1465.97	7.00	1472.97
4	46.065094	-119.254863	1458.20	7.00	1465.20
5	46.062504	-119.256944	1443.28	7.00	1450.28
6	46.062712	-119.264755	1455.44	7.00	1462.44
7	46.069397	-119.264733	1546.85	7.00	1553.85

Name: PV array 3-10
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.061648	-119.244412	1444.08	7.00	1451.08
2	46.061693	-119.239627	1424.05	7.00	1431.05
3	46.058998	-119.239391	1389.17	7.00	1396.17
4	46.058298	-119.239091	1378.12	7.00	1385.12
5	46.055737	-119.239091	1342.19	7.00	1349.19
6	46.055796	-119.244648	1362.40	7.00	1369.40
7	46.058476	-119.244627	1394.29	7.00	1401.29

Name: PV array 3-11
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.061901	-119.238576	1428.54	7.00	1435.54
2	46.061052	-119.238576	1409.07	7.00	1416.07
3	46.058357	-119.237632	1369.29	7.00	1376.29
4	46.058357	-119.227439	1362.09	7.00	1369.09
5	46.061812	-119.227568	1414.75	7.00	1421.75

Name: PV array 3-12
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.058357	-119.234005	1375.86	7.00	1382.86
2	46.057434	-119.234134	1368.01	7.00	1375.01
3	46.056511	-119.234670	1355.03	7.00	1362.03
4	46.055856	-119.234692	1350.69	7.00	1357.69
5	46.055871	-119.232825	1362.74	7.00	1369.74
6	46.055022	-119.232825	1354.50	7.00	1361.50
7	46.055022	-119.229563	1346.52	7.00	1353.52
8	46.056064	-119.228812	1354.02	7.00	1361.02
9	46.056913	-119.227482	1351.79	7.00	1358.79
10	46.058372	-119.227461	1362.76	7.00	1369.76

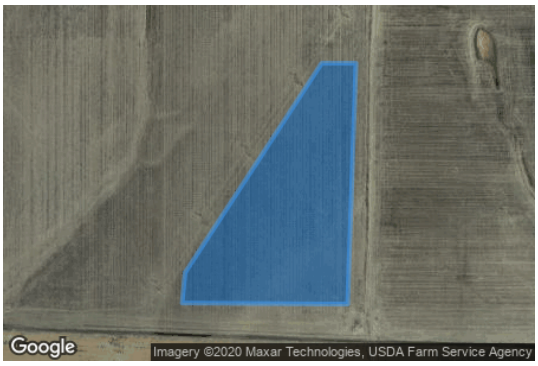
Name: PV array 3-13
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.9°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.060736	-119.221786	1390.15	7.00	1397.15
2	46.060706	-119.217752	1410.38	7.00	1417.38
3	46.061689	-119.217752	1398.79	7.00	1405.79
4	46.061600	-119.214233	1427.63	7.00	1434.63
5	46.060796	-119.214276	1420.95	7.00	1427.95
6	46.054750	-119.219898	1338.12	7.00	1345.13
7	46.054810	-119.222902	1329.50	7.00	1336.50
8	46.058026	-119.222816	1365.76	7.00	1372.76

Name: PV array 3-14
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

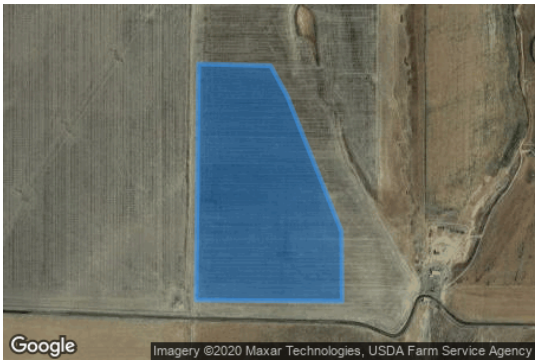
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.058324	-119.215134	1376.23	7.00	1383.23
2	46.057967	-119.203676	1398.27	7.00	1405.27
3	46.054572	-119.203719	1365.49	7.00	1372.49
4	46.054482	-119.212645	1352.42	7.00	1359.42
5	46.054780	-119.213975	1350.65	7.00	1357.65
6	46.054840	-119.217580	1329.72	7.00	1336.72
7	46.055733	-119.217494	1344.77	7.00	1351.77

Name: PV array 3-15
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.57°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.062523	-119.204276	1453.41	7.00	1460.41
2	46.068567	-119.203976	1534.61	7.00	1541.61
3	46.068567	-119.205221	1533.03	7.00	1540.03
4	46.063312	-119.210177	1461.61	7.00	1468.61
5	46.062553	-119.210285	1458.01	7.00	1465.01

Name: PV array 3-16
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

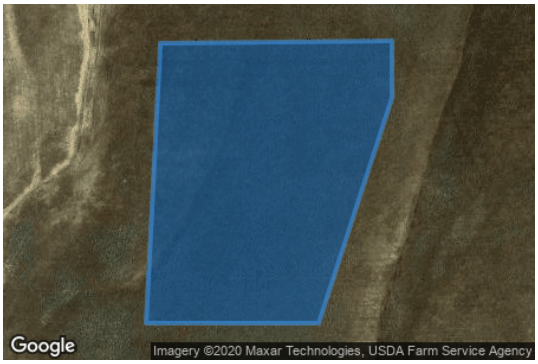


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.067962	-119.203168	1531.20	7.00	1538.20
2	46.067917	-119.200550	1490.05	7.00	1497.05
3	46.067158	-119.199949	1481.33	7.00	1488.33
4	46.063763	-119.197975	1435.30	7.00	1442.30
5	46.062006	-119.197954	1429.33	7.00	1436.33
6	46.062036	-119.203254	1451.51	7.00	1458.51

Name: PV array 3-17
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.23°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

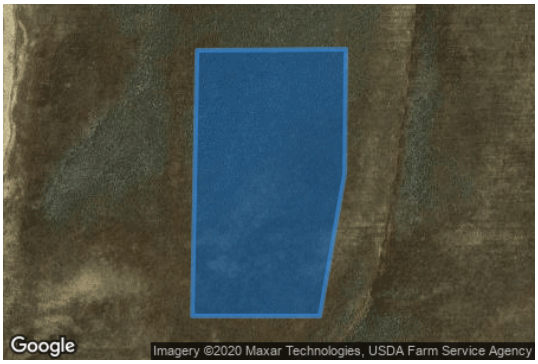
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061167	-119.203211	1444.79	7.00	1451.79
2	46.061137	-119.199370	1437.31	7.00	1444.31
3	46.058606	-119.197138	1390.82	7.00	1397.82
4	46.056774	-119.195700	1356.80	7.00	1363.80
5	46.054407	-119.195679	1346.44	7.00	1353.44
6	46.054451	-119.203318	1363.90	7.00	1370.90

Name: PV array 3-2
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



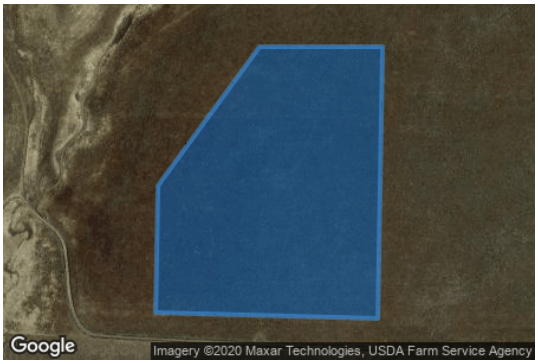
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.076111	-119.243769	1553.84	7.00	1560.84
2	46.076140	-119.239563	1570.47	7.00	1577.47
3	46.075426	-119.239563	1564.52	7.00	1571.52
4	46.072598	-119.240893	1541.36	7.00	1548.36
5	46.072598	-119.244026	1506.08	7.00	1513.08

Name: PV array 3-3
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



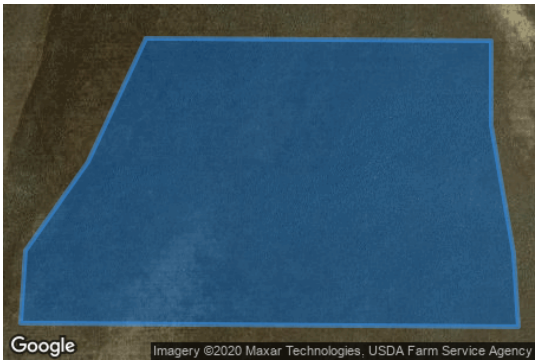
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.071824	-119.243812	1515.23	7.00	1522.23
2	46.071838	-119.241108	1533.04	7.00	1540.04
3	46.070275	-119.241129	1511.95	7.00	1518.95
4	46.068489	-119.241580	1481.38	7.00	1488.38
5	46.068489	-119.243898	1477.93	7.00	1484.93

Name: PV array 3-4
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.065943	-119.246923	1442.79	7.00	1449.79
2	46.065943	-119.244691	1470.32	7.00	1477.32
3	46.062534	-119.244777	1457.64	7.00	1464.64
4	46.062608	-119.248811	1423.57	7.00	1430.57
5	46.064201	-119.248768	1412.68	7.00	1419.68

Name: PV array 3-5
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.12°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

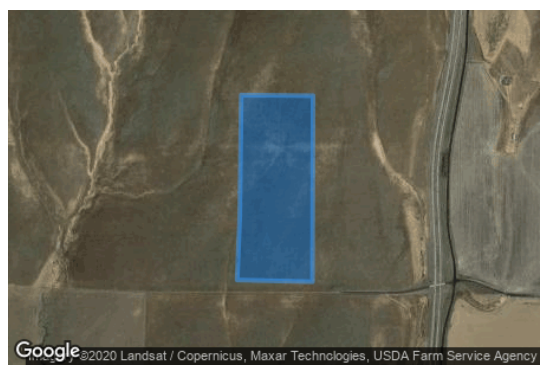


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.076141	-119.236412	1597.99	7.00	1604.99
2	46.076111	-119.230146	1594.28	7.00	1601.28
3	46.075054	-119.230146	1579.54	7.00	1586.54
4	46.073447	-119.229738	1547.68	7.00	1554.69
5	46.072524	-119.229653	1535.47	7.00	1542.47
6	46.072569	-119.238686	1542.55	7.00	1549.55
7	46.073477	-119.238600	1545.59	7.00	1552.59
8	46.074593	-119.237463	1574.18	7.00	1581.18

Name: PV array 3-6
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.065952	-119.237925	1463.27	7.00	1470.27
2	46.072056	-119.237774	1553.44	7.00	1560.45
3	46.072026	-119.239298	1527.90	7.00	1534.90
4	46.069421	-119.240028	1499.29	7.00	1506.29
5	46.068587	-119.240650	1480.07	7.00	1487.07
6	46.067605	-119.241916	1472.01	7.00	1479.01
7	46.067024	-119.243954	1460.39	7.00	1467.39
8	46.062796	-119.244190	1466.14	7.00	1473.14
9	46.062766	-119.239234	1436.41	7.00	1443.41
10	46.064374	-119.238729	1449.26	7.00	1456.26

Name: PV array 3-7
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

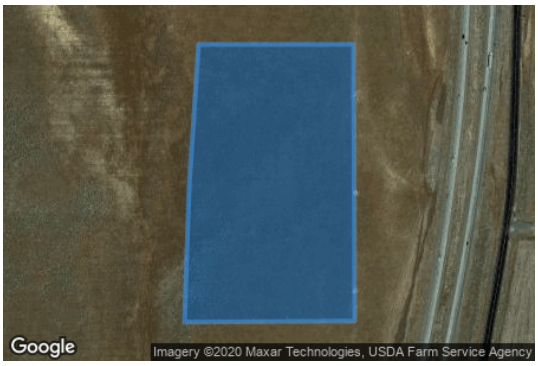


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.072075	-119.237810	1553.56	7.00	1560.57
2	46.072045	-119.232596	1553.16	7.00	1560.16
3	46.062681	-119.232639	1413.33	7.00	1420.33
4	46.062770	-119.238111	1441.44	7.00	1448.44
5	46.065971	-119.237917	1463.55	7.00	1470.55

Name: PV array 3-8
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.072071	-119.232642	1553.37	7.00	1560.37
2	46.072041	-119.229144	1520.15	7.00	1527.15
3	46.068468	-119.227900	1477.31	7.00	1484.31
4	46.066339	-119.226376	1445.67	7.00	1452.67
5	46.064642	-119.226333	1437.59	7.00	1444.59
6	46.062736	-119.227342	1420.78	7.00	1427.78
7	46.062707	-119.232663	1413.56	7.00	1420.56

Name: PV array 3-9
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.076121	-119.227108	1576.89	7.00	1583.89
2	46.076121	-119.224297	1556.62	7.00	1563.63
3	46.072653	-119.224276	1509.97	7.00	1516.97
4	46.072638	-119.227366	1523.47	7.00	1530.47
5	46.074350	-119.227280	1544.55	7.00	1551.55

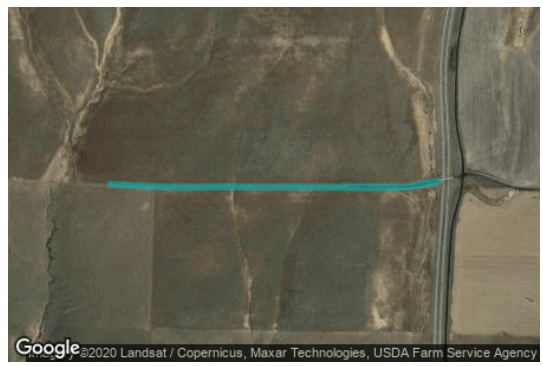
Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	46.072705	-119.218667	1497.61	16.00
OP 2	2	46.125919	-119.219932	1320.29	16.00
OP 3	3	46.077101	-119.145764	1804.81	16.00
OP 4	4	46.065913	-119.078615	1520.73	16.00
OP 5	5	46.017217	-119.129341	1560.78	16.00
OP 6	6	46.100638	-119.351684	1835.32	16.00

Route Receptor(s)

Name: Beck Rd-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.062247	-119.247896	1437.68	9.00	1446.68
2	46.062165	-119.245439	1451.19	9.00	1460.19
3	46.062105	-119.242972	1440.64	9.00	1449.64
4	46.062143	-119.239603	1430.92	9.00	1439.92
5	46.062113	-119.236824	1424.17	9.00	1433.17
6	46.062128	-119.234152	1412.82	9.00	1421.82
7	46.062105	-119.231588	1420.12	9.00	1429.12
8	46.062098	-119.228252	1423.29	9.00	1432.29
9	46.062098	-119.226556	1405.15	9.00	1414.15
10	46.062388	-119.224142	1375.78	9.00	1384.78

Name: Beck Rd-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061852	-119.214432	1427.46	9.00	1436.46
2	46.061785	-119.211922	1443.52	9.00	1452.52
3	46.061696	-119.208124	1462.60	9.00	1471.60
4	46.061622	-119.205484	1447.52	9.00	1456.52
5	46.061547	-119.202823	1447.47	9.00	1456.47
6	46.061510	-119.199894	1440.39	9.00	1449.40
7	46.061480	-119.197910	1421.95	9.00	1430.95
8	46.061383	-119.197062	1392.62	9.00	1401.62

Name: Beck Rd-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061341	-119.187536	1433.77	9.00	1442.77
2	46.061267	-119.183567	1418.60	9.00	1427.60
3	46.061163	-119.178975	1433.57	9.00	1442.57
4	46.061088	-119.176786	1435.14	9.00	1444.14
5	46.060939	-119.173460	1462.67	9.00	1471.67
6	46.060805	-119.167988	1367.84	9.00	1376.84

Name: US HWY 395-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	45.995470	-119.278188	796.11	9.00	805.11
2	45.996052	-119.276000	804.07	9.00	813.07
3	45.997006	-119.272802	810.23	9.00	819.23
4	45.997468	-119.270850	813.31	9.00	822.31
5	45.997885	-119.268597	816.89	9.00	825.89
6	45.998362	-119.265335	816.50	9.00	825.50
7	45.998645	-119.263125	823.70	9.00	832.70
8	45.998958	-119.261687	823.48	9.00	832.48

Name: US HWY 395-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.037771	-119.224776	1159.99	9.00	1168.99
2	46.040459	-119.224690	1191.05	9.00	1200.05
3	46.042857	-119.224615	1214.84	9.00	1223.84
4	46.046186	-119.224550	1238.13	9.00	1247.13
5	46.048100	-119.224507	1248.38	9.00	1257.38

Name: US HWY 395-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.054961	-119.224314	1289.13	9.00	1298.13
2	46.057039	-119.224186	1313.71	9.00	1322.71
3	46.059696	-119.223950	1337.57	9.00	1346.57
4	46.062116	-119.223714	1348.33	9.00	1357.33
5	46.063009	-119.223660	1358.35	9.00	1367.35
6	46.064401	-119.223714	1378.78	9.00	1387.78
7	46.066173	-119.223832	1404.38	9.00	1413.39
8	46.067614	-119.223907	1425.76	9.00	1434.76
9	46.069192	-119.223724	1448.15	9.00	1457.15
10	46.070763	-119.223424	1468.64	9.00	1477.64

Name: US HWY 395-4
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.081318	-119.222539	1577.60	9.00	1586.60
2	46.082650	-119.222785	1589.94	9.00	1598.94
3	46.083878	-119.223032	1600.74	9.00	1609.74
4	46.085166	-119.223268	1615.92	9.00	1624.92
5	46.086163	-119.223451	1625.07	9.00	1634.07
6	46.087257	-119.223633	1633.34	9.00	1642.34
7	46.088760	-119.223697	1639.56	9.00	1648.56
8	46.089943	-119.223612	1639.85	9.00	1648.85

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV array 3-1	SA tracking	SA tracking	0	0	-
PV array 3-10	SA tracking	SA tracking	0	0	-
PV array 3-11	SA tracking	SA tracking	0	0	-
PV array 3-12	SA tracking	SA tracking	0	0	-
PV array 3-13	SA tracking	SA tracking	0	0	-
PV array 3-14	SA tracking	SA tracking	0	0	-
PV array 3-15	SA tracking	SA tracking	0	0	-
PV array 3-16	SA tracking	SA tracking	0	0	-
PV array 3-17	SA tracking	SA tracking	0	0	-
PV array 3-2	SA tracking	SA tracking	0	0	-
PV array 3-3	SA tracking	SA tracking	0	0	-
PV array 3-4	SA tracking	SA tracking	0	0	-
PV array 3-5	SA tracking	SA tracking	0	0	-
PV array 3-6	SA tracking	SA tracking	0	0	-
PV array 3-7	SA tracking	SA tracking	0	0	-
PV array 3-8	SA tracking	SA tracking	0	0	-
PV array 3-9	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Results for: PV array 3-1

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-10

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-11

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-12

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-13

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-14

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-15

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 3-16

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-17

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-2

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-3

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-4

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-5

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-6

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-7

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-8

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-9

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

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.
Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
Several 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.
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.)
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
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.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

2016-2019 © Sims Industries d/b/a ForgeSolar, All Rights Reserved.

FORGESOLAR GLARE ANALYSIS

Project: **Horse Heaven**
Site configuration: **Horse Heaven East2-1st floor**
Analysis conducted by Josh Burdett (joshua.burdett@tetratech.com) at 04:11 on 15 Dec, 2020.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

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

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

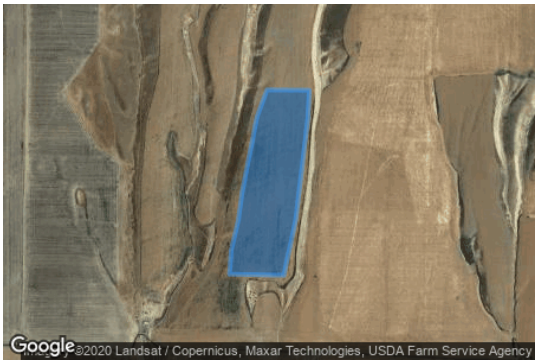
SITE CONFIGURATION

Analysis Parameters

DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 46964.8449

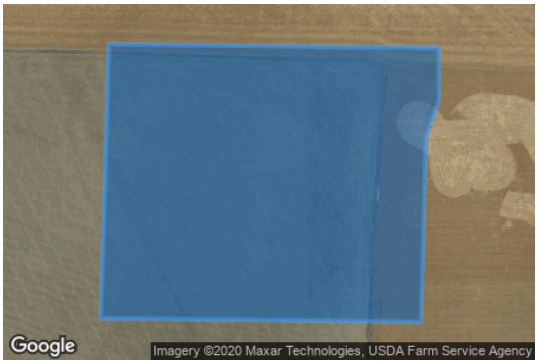
PV Array(s)

Name: PV array 4-1
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.074428	-119.185794	1604.10	7.00	1611.10
2	46.074413	-119.182725	1626.25	7.00	1633.25
3	46.072999	-119.182832	1592.62	7.00	1599.62
4	46.067922	-119.183712	1509.08	7.00	1516.08
5	46.065123	-119.184570	1478.31	7.00	1485.31
6	46.065183	-119.188519	1477.13	7.00	1484.13
7	46.066404	-119.188390	1476.95	7.00	1483.95
8	46.067892	-119.187875	1493.77	7.00	1500.77
9	46.069232	-119.187617	1514.73	7.00	1521.73
10	46.073073	-119.186523	1575.70	7.00	1582.70

Name: PV array 4-10
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

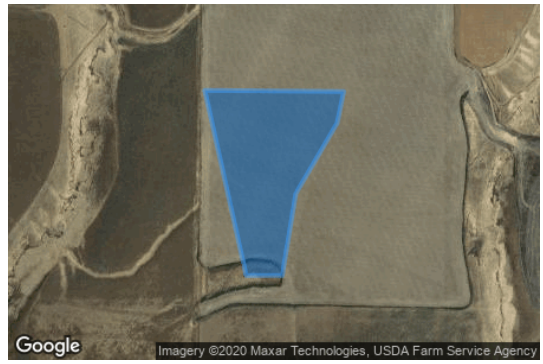


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.053662	-119.177753	1348.55	7.00	1355.55
2	46.050222	-119.177903	1300.14	7.00	1307.14
3	46.050178	-119.172088	1308.51	7.00	1315.51
4	46.052486	-119.172003	1327.98	7.00	1334.98
5	46.052962	-119.171767	1326.30	7.00	1333.30
6	46.053618	-119.171767	1334.02	7.00	1341.02

Name: PV array 4-11
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.050222	-119.177496	1301.38	7.00	1308.38
2	46.050133	-119.171080	1294.76	7.00	1301.76
3	46.048971	-119.170522	1285.48	7.00	1292.48
4	46.047959	-119.170586	1281.75	7.00	1288.75
5	46.045427	-119.172453	1270.46	7.00	1277.46
6	46.044310	-119.172475	1240.05	7.00	1247.05
7	46.044280	-119.182281	1251.59	7.00	1258.59
8	46.046097	-119.182238	1247.57	7.00	1254.57
9	46.049090	-119.177968	1294.24	7.00	1301.24
10	46.050222	-119.177903	1300.14	7.00	1307.14

Name: PV array 4-12
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.3°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.039660	-119.179496	1209.17	7.00	1216.17
2	46.039660	-119.180805	1218.17	7.00	1225.17
3	46.044307	-119.182307	1251.45	7.00	1258.45
4	46.044277	-119.177265	1259.38	7.00	1266.39
5	46.043488	-119.177501	1247.35	7.00	1254.35
6	46.041715	-119.179003	1230.31	7.00	1237.31

Name: PV array 4-13
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.9°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.044292	-119.177329	1259.37	7.00	1266.37
2	46.044322	-119.173102	1263.57	7.00	1270.57
3	46.042922	-119.173081	1238.95	7.00	1245.95
4	46.042385	-119.173209	1232.57	7.00	1239.57
5	46.041134	-119.173231	1214.53	7.00	1221.53
6	46.040434	-119.173038	1207.31	7.00	1214.31
7	46.039660	-119.173016	1202.76	7.00	1209.76
8	46.039660	-119.178445	1211.40	7.00	1218.41
9	46.040851	-119.178252	1224.53	7.00	1231.53
10	46.041745	-119.177608	1236.55	7.00	1243.55
11	46.043175	-119.176428	1250.31	7.00	1257.31
12	46.044322	-119.176385	1260.27	7.00	1267.27

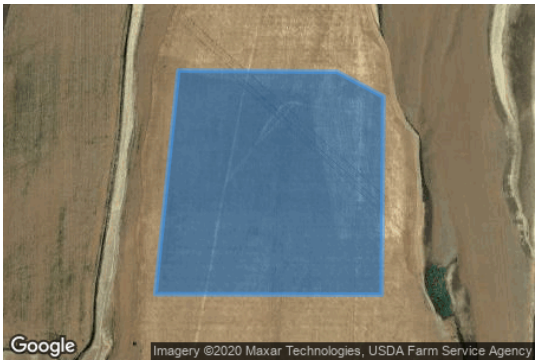
Name: PV array 4-2
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.09°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.065183	-119.188583	1476.44	7.00	1483.44
2	46.065213	-119.189785	1447.65	7.00	1454.65
3	46.064557	-119.189870	1453.39	7.00	1460.40
4	46.064557	-119.190600	1432.32	7.00	1439.32
5	46.063664	-119.190729	1437.94	7.00	1444.94
6	46.063649	-119.191415	1419.44	7.00	1426.44
7	46.061803	-119.191523	1424.54	7.00	1431.54
8	46.061773	-119.187467	1443.18	7.00	1450.18
9	46.065168	-119.187381	1486.77	7.00	1493.77

Name: PV array 4-3
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.3°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.060205	-119.192064	1407.22	7.00	1414.22
2	46.060175	-119.185991	1403.68	7.00	1410.68
3	46.057570	-119.186120	1358.40	7.00	1365.40
4	46.056393	-119.186549	1340.84	7.00	1347.84
5	46.054160	-119.186613	1310.97	7.00	1317.97
6	46.054219	-119.190905	1315.77	7.00	1322.77
7	46.055157	-119.191806	1318.49	7.00	1325.49
8	46.057540	-119.191720	1361.37	7.00	1368.37
9	46.057555	-119.193094	1357.36	7.00	1364.36
10	46.058463	-119.193115	1371.33	7.00	1378.33
11	46.059297	-119.192772	1385.11	7.00	1392.11

Name: PV array 4-4
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

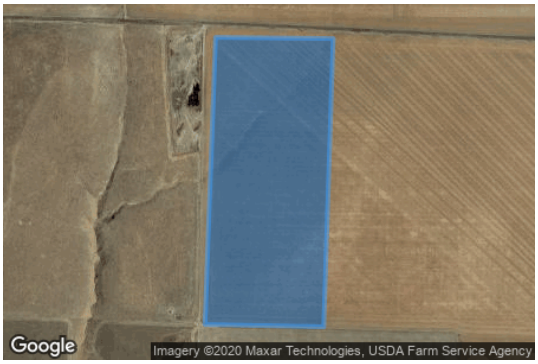


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.071906	-119.180682	1573.72	7.00	1580.72
2	46.071876	-119.174931	1613.21	7.00	1620.21
3	46.071251	-119.173236	1585.72	7.00	1592.72
4	46.066278	-119.173300	1497.98	7.00	1504.98
5	46.066293	-119.181519	1494.40	7.00	1501.40

Name: PV array 4-5
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

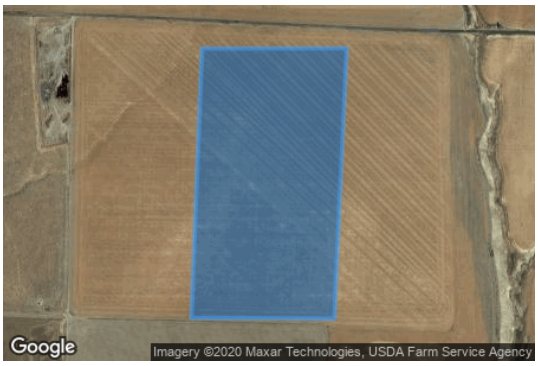
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.066293	-119.181562	1493.38	7.00	1500.38
2	46.063271	-119.181626	1468.34	7.00	1475.34
3	46.063286	-119.182806	1447.23	7.00	1454.23
4	46.062095	-119.182806	1440.75	7.00	1447.75
5	46.061514	-119.181776	1439.80	7.00	1446.80
6	46.061425	-119.171176	1442.27	7.00	1449.27
7	46.062854	-119.171198	1443.64	7.00	1450.64
8	46.062884	-119.172528	1470.54	7.00	1477.54
9	46.066278	-119.172485	1486.35	7.00	1493.35

Name: PV array 4-6
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



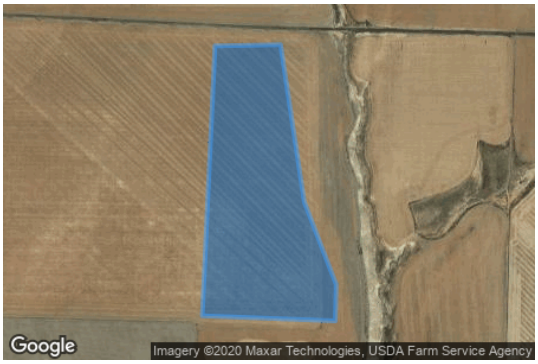
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.060885	-119.181647	1424.58	7.00	1431.58
2	46.060856	-119.177377	1429.63	7.00	1436.63
3	46.053619	-119.177721	1348.88	7.00	1355.88
4	46.053678	-119.182034	1364.82	7.00	1371.82

Name: PV array 4-7
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.060394	-119.177377	1427.17	7.00	1434.17
2	46.060401	-119.172120	1447.89	7.00	1454.89
3	46.053612	-119.172571	1344.82	7.00	1351.82
4	46.053627	-119.177764	1348.27	7.00	1355.27

Name: PV array 4-8
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.060403	-119.172142	1448.13	7.00	1455.13
2	46.060433	-119.169760	1415.08	7.00	1422.08
3	46.056487	-119.168902	1384.97	7.00	1391.97
4	46.054418	-119.167743	1352.42	7.00	1359.42
5	46.053502	-119.167775	1340.94	7.00	1347.94
6	46.053628	-119.172603	1345.18	7.00	1352.18

Name: PV array 4-9
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.053677	-119.182088	1364.58	7.00	1371.58
2	46.047601	-119.182195	1269.38	7.00	1276.38
3	46.047601	-119.181337	1270.62	7.00	1277.62
4	46.048808	-119.180092	1283.59	7.00	1290.59
5	46.050222	-119.177882	1300.11	7.00	1307.11
6	46.053618	-119.177689	1349.33	7.00	1356.33

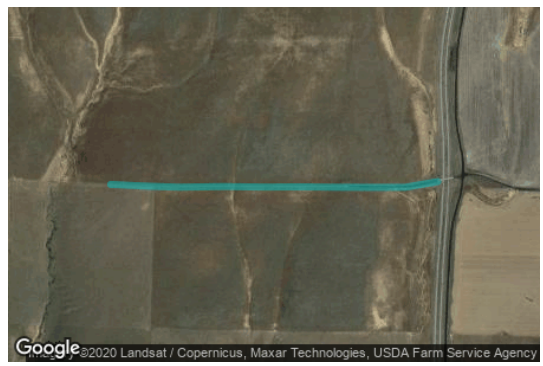
Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	46.072705	-119.218667	1497.61	6.00
OP 2	2	46.125919	-119.219932	1320.29	6.00
OP 3	3	46.077101	-119.145764	1804.81	6.00
OP 4	4	46.065913	-119.078615	1520.73	6.00
OP 5	5	46.017217	-119.129341	1560.78	6.00
OP 6	6	46.100638	-119.351684	1835.32	6.00

Route Receptor(s)

Name: Beck Rd-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.062247	-119.247896	1437.68	5.00	1442.68
2	46.062165	-119.245439	1451.19	5.00	1456.19
3	46.062105	-119.242972	1440.64	5.00	1445.64
4	46.062143	-119.239603	1430.92	5.00	1435.92
5	46.062113	-119.236824	1424.17	5.00	1429.17
6	46.062128	-119.234152	1412.82	5.00	1417.82
7	46.062105	-119.231588	1420.12	5.00	1425.12
8	46.062098	-119.228252	1423.29	5.00	1428.29
9	46.062098	-119.226556	1405.15	5.00	1410.15
10	46.062388	-119.224142	1375.78	5.00	1380.78

Name: Beck Rd-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061852	-119.214432	1427.46	5.00	1432.46
2	46.061785	-119.211922	1443.52	5.00	1448.52
3	46.061696	-119.208124	1462.60	5.00	1467.60
4	46.061622	-119.205484	1447.52	5.00	1452.52
5	46.061547	-119.202823	1447.47	5.00	1452.47
6	46.061510	-119.199894	1440.39	5.00	1445.39
7	46.061480	-119.197910	1421.95	5.00	1426.95
8	46.061383	-119.197062	1392.62	5.00	1397.62

Name: Beck Rd-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061341	-119.187536	1433.77	5.00	1438.77
2	46.061267	-119.183567	1418.60	5.00	1423.60
3	46.061163	-119.178975	1433.57	5.00	1438.57
4	46.061088	-119.176786	1435.14	5.00	1440.14
5	46.060939	-119.173460	1462.67	5.00	1467.67
6	46.060805	-119.167988	1367.84	5.00	1372.84

Name: US HWY 395-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	45.995519	-119.278077	796.24	5.00	801.24
2	45.996115	-119.275952	803.46	5.00	808.46
3	45.996950	-119.273013	808.72	5.00	813.72
4	45.997457	-119.271038	813.88	5.00	818.88
5	45.997964	-119.268356	815.97	5.00	820.97
6	45.998321	-119.265288	814.61	5.00	819.61
7	45.998634	-119.263206	823.31	5.00	828.31
8	45.998947	-119.261683	823.78	5.00	828.78

Name: US HWY 395-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.037771	-119.224776	1159.99	5.00	1164.99
2	46.040459	-119.224690	1191.05	5.00	1196.05
3	46.042857	-119.224615	1214.84	5.00	1219.84
4	46.046186	-119.224550	1238.13	5.00	1243.13
5	46.048100	-119.224507	1248.38	5.00	1253.38

Name: US HWY 395-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.054961	-119.224314	1289.13	5.00	1294.13
2	46.057039	-119.224186	1313.71	5.00	1318.71
3	46.059696	-119.223950	1337.57	5.00	1342.57
4	46.062116	-119.223714	1348.33	5.00	1353.33
5	46.063009	-119.223660	1358.35	5.00	1363.35
6	46.064401	-119.223714	1378.78	5.00	1383.78
7	46.066173	-119.223832	1404.38	5.00	1409.38
8	46.067614	-119.223907	1425.76	5.00	1430.76
9	46.069192	-119.223724	1448.15	5.00	1453.15
10	46.070763	-119.223424	1468.64	5.00	1473.64

Name: US HWY 395-4
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.081318	-119.222539	1577.60	5.00	1582.60
2	46.082650	-119.222785	1589.94	5.00	1594.94
3	46.083878	-119.223032	1600.74	5.00	1605.74
4	46.085166	-119.223268	1615.92	5.00	1620.92
5	46.086163	-119.223451	1625.07	5.00	1630.07
6	46.087257	-119.223633	1633.34	5.00	1638.34
7	46.088760	-119.223697	1639.56	5.00	1644.56
8	46.089943	-119.223612	1639.85	5.00	1644.85

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV array 4-1	SA tracking	SA tracking	0	0	-
PV array 4-10	SA tracking	SA tracking	0	0	-
PV array 4-11	SA tracking	SA tracking	0	0	-
PV array 4-12	SA tracking	SA tracking	0	0	-
PV array 4-13	SA tracking	SA tracking	0	0	-
PV array 4-2	SA tracking	SA tracking	0	0	-
PV array 4-3	SA tracking	SA tracking	0	0	-
PV array 4-4	SA tracking	SA tracking	0	0	-
PV array 4-5	SA tracking	SA tracking	0	0	-
PV array 4-6	SA tracking	SA tracking	0	0	-
PV array 4-7	SA tracking	SA tracking	0	0	-
PV array 4-8	SA tracking	SA tracking	0	0	-
PV array 4-9	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Results for: PV array 4-1

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 4-10

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-11

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-12

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-13

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-2

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-3

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-4

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-5

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-6

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-7

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-8

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 4-9

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

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.
Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
Several 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.
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.)
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
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.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

2016-2019 © Sims Industries d/b/a ForgeSolar, All Rights Reserved.

FORGESOLAR GLARE ANALYSIS

Project: **Horse Heaven**
Site configuration: **Horse Heaven East2-2nd floor**
Analysis conducted by Josh Burdett (joshua.burdett@tetratech.com) at 04:12 on 15 Dec, 2020.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

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

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

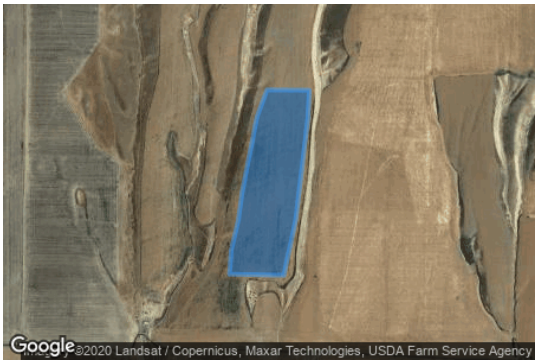
SITE CONFIGURATION

Analysis Parameters

DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 46965.8449

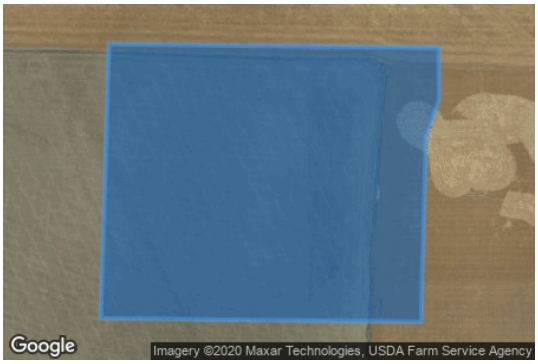
PV Array(s)

Name: PV array 4-1
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.074428	-119.185794	1604.10	7.00	1611.10
2	46.074413	-119.182725	1626.25	7.00	1633.25
3	46.072999	-119.182832	1592.62	7.00	1599.62
4	46.067922	-119.183712	1509.08	7.00	1516.08
5	46.065123	-119.184570	1478.31	7.00	1485.31
6	46.065183	-119.188519	1477.13	7.00	1484.13
7	46.066404	-119.188390	1476.95	7.00	1483.95
8	46.067892	-119.187875	1493.77	7.00	1500.77
9	46.069232	-119.187617	1514.73	7.00	1521.73
10	46.073073	-119.186523	1575.70	7.00	1582.70

Name: PV array 4-10
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

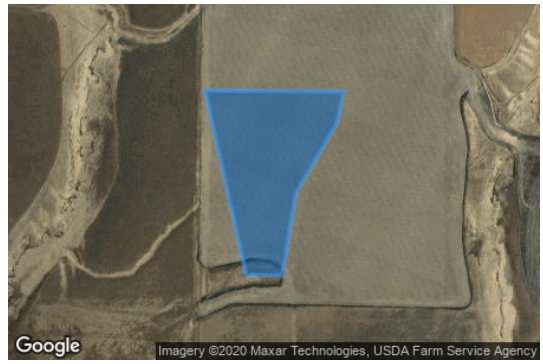


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.053662	-119.177753	1348.55	7.00	1355.55
2	46.050222	-119.177903	1300.14	7.00	1307.14
3	46.050178	-119.172088	1308.51	7.00	1315.51
4	46.052486	-119.172003	1327.98	7.00	1334.98
5	46.052962	-119.171767	1326.30	7.00	1333.30
6	46.053618	-119.171767	1334.02	7.00	1341.02

Name: PV array 4-11
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.050222	-119.177496	1301.38	7.00	1308.38
2	46.050133	-119.171080	1294.76	7.00	1301.76
3	46.048971	-119.170522	1285.48	7.00	1292.48
4	46.047959	-119.170586	1281.75	7.00	1288.75
5	46.045427	-119.172453	1270.46	7.00	1277.46
6	46.044310	-119.172475	1240.05	7.00	1247.05
7	46.044280	-119.182281	1251.59	7.00	1258.59
8	46.046097	-119.182238	1247.57	7.00	1254.57
9	46.049090	-119.177968	1294.24	7.00	1301.24
10	46.050222	-119.177903	1300.14	7.00	1307.14

Name: PV array 4-12
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.3°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.039660	-119.179496	1209.17	7.00	1216.17
2	46.039660	-119.180805	1218.17	7.00	1225.17
3	46.044307	-119.182307	1251.45	7.00	1258.45
4	46.044277	-119.177265	1259.38	7.00	1266.39
5	46.043488	-119.177501	1247.35	7.00	1254.35
6	46.041715	-119.179003	1230.31	7.00	1237.31

Name: PV array 4-13
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.9°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.044292	-119.177329	1259.37	7.00	1266.37
2	46.044322	-119.173102	1263.57	7.00	1270.57
3	46.042922	-119.173081	1238.95	7.00	1245.95
4	46.042385	-119.173209	1232.57	7.00	1239.57
5	46.041134	-119.173231	1214.53	7.00	1221.53
6	46.040434	-119.173038	1207.31	7.00	1214.31
7	46.039660	-119.173016	1202.76	7.00	1209.76
8	46.039660	-119.178445	1211.40	7.00	1218.41
9	46.040851	-119.178252	1224.53	7.00	1231.53
10	46.041745	-119.177608	1236.55	7.00	1243.55
11	46.043175	-119.176428	1250.31	7.00	1257.31
12	46.044322	-119.176385	1260.27	7.00	1267.27

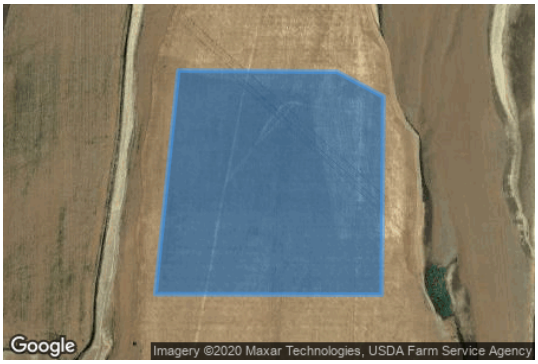
Name: PV array 4-2
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.09°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.065183	-119.188583	1476.44	7.00	1483.44
2	46.065213	-119.189785	1447.65	7.00	1454.65
3	46.064557	-119.189870	1453.39	7.00	1460.40
4	46.064557	-119.190600	1432.32	7.00	1439.32
5	46.063664	-119.190729	1437.94	7.00	1444.94
6	46.063649	-119.191415	1419.44	7.00	1426.44
7	46.061803	-119.191523	1424.54	7.00	1431.54
8	46.061773	-119.187467	1443.18	7.00	1450.18
9	46.065168	-119.187381	1486.77	7.00	1493.77

Name: PV array 4-3
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.3°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.060205	-119.192064	1407.22	7.00	1414.22
2	46.060175	-119.185991	1403.68	7.00	1410.68
3	46.057570	-119.186120	1358.40	7.00	1365.40
4	46.056393	-119.186549	1340.84	7.00	1347.84
5	46.054160	-119.186613	1310.97	7.00	1317.97
6	46.054219	-119.190905	1315.77	7.00	1322.77
7	46.055157	-119.191806	1318.49	7.00	1325.49
8	46.057540	-119.191720	1361.37	7.00	1368.37
9	46.057555	-119.193094	1357.36	7.00	1364.36
10	46.058463	-119.193115	1371.33	7.00	1378.33
11	46.059297	-119.192772	1385.11	7.00	1392.11

Name: PV array 4-4
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

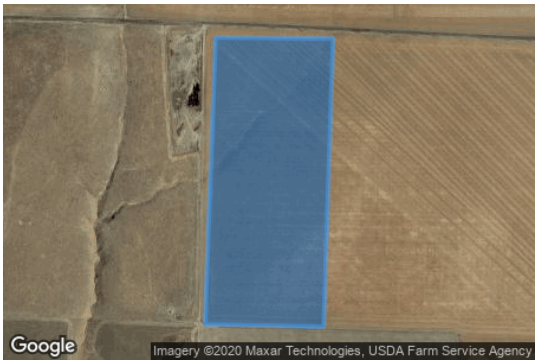


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.071906	-119.180682	1573.72	7.00	1580.72
2	46.071876	-119.174931	1613.21	7.00	1620.21
3	46.071251	-119.173236	1585.72	7.00	1592.72
4	46.066278	-119.173300	1497.98	7.00	1504.98
5	46.066293	-119.181519	1494.40	7.00	1501.40

Name: PV array 4-5
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

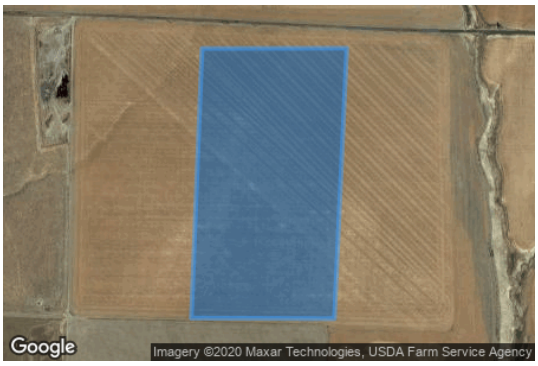
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.066293	-119.181562	1493.38	7.00	1500.38
2	46.063271	-119.181626	1468.34	7.00	1475.34
3	46.063286	-119.182806	1447.23	7.00	1454.23
4	46.062095	-119.182806	1440.75	7.00	1447.75
5	46.061514	-119.181776	1439.80	7.00	1446.80
6	46.061425	-119.171176	1442.27	7.00	1449.27
7	46.062854	-119.171198	1443.64	7.00	1450.64
8	46.062884	-119.172528	1470.54	7.00	1477.54
9	46.066278	-119.172485	1486.35	7.00	1493.35

Name: PV array 4-6
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



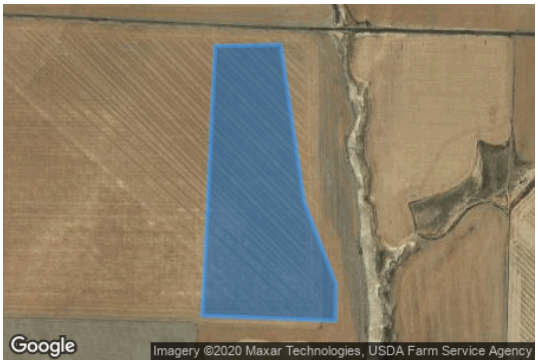
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.060885	-119.181647	1424.58	7.00	1431.58
2	46.060856	-119.177377	1429.63	7.00	1436.63
3	46.053619	-119.177721	1348.88	7.00	1355.88
4	46.053678	-119.182034	1364.82	7.00	1371.82

Name: PV array 4-7
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.060394	-119.177377	1427.17	7.00	1434.17
2	46.060401	-119.172120	1447.89	7.00	1454.89
3	46.053612	-119.172571	1344.82	7.00	1351.82
4	46.053627	-119.177764	1348.27	7.00	1355.27

Name: PV array 4-8
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.060403	-119.172142	1448.13	7.00	1455.13
2	46.060433	-119.169760	1415.08	7.00	1422.08
3	46.056487	-119.168902	1384.97	7.00	1391.97
4	46.054418	-119.167743	1352.42	7.00	1359.42
5	46.053502	-119.167775	1340.94	7.00	1347.94
6	46.053628	-119.172603	1345.18	7.00	1352.18

Name: PV array 4-9
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
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	46.053677	-119.182088	1364.58	7.00	1371.58
2	46.047601	-119.182195	1269.38	7.00	1276.38
3	46.047601	-119.181337	1270.62	7.00	1277.62
4	46.048808	-119.180092	1283.59	7.00	1290.59
5	46.050222	-119.177882	1300.11	7.00	1307.11
6	46.053618	-119.177689	1349.33	7.00	1356.33

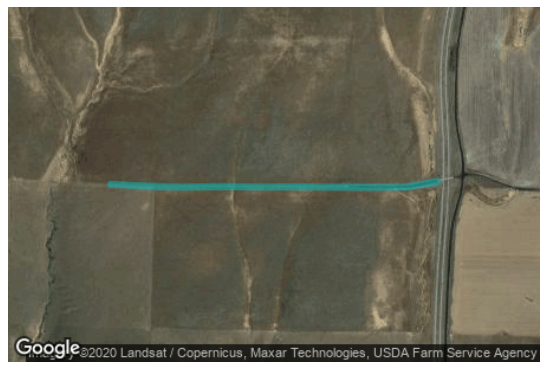
Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	46.072705	-119.218667	1497.61	16.00
OP 2	2	46.125919	-119.219932	1320.29	16.00
OP 3	3	46.077101	-119.145764	1804.81	16.00
OP 4	4	46.065913	-119.078615	1520.73	16.00
OP 5	5	46.017217	-119.129341	1560.78	16.00
OP 6	6	46.100638	-119.351684	1835.32	16.00

Route Receptor(s)

Name: Beck Rd-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.062247	-119.247896	1437.68	9.00	1446.68
2	46.062165	-119.245439	1451.19	9.00	1460.19
3	46.062105	-119.242972	1440.64	9.00	1449.64
4	46.062143	-119.239603	1430.92	9.00	1439.92
5	46.062113	-119.236824	1424.17	9.00	1433.17
6	46.062128	-119.234152	1412.82	9.00	1421.82
7	46.062105	-119.231588	1420.12	9.00	1429.12
8	46.062098	-119.228252	1423.29	9.00	1432.29
9	46.062098	-119.226556	1405.15	9.00	1414.15
10	46.062388	-119.224142	1375.78	9.00	1384.78

Name: Beck Rd-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061852	-119.214432	1427.46	9.00	1436.46
2	46.061785	-119.211922	1443.52	9.00	1452.52
3	46.061696	-119.208124	1462.60	9.00	1471.60
4	46.061622	-119.205484	1447.52	9.00	1456.52
5	46.061547	-119.202823	1447.47	9.00	1456.47
6	46.061510	-119.199894	1440.39	9.00	1449.40
7	46.061480	-119.197910	1421.95	9.00	1430.95
8	46.061383	-119.197062	1392.62	9.00	1401.62

Name: Beck Rd-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061341	-119.187536	1433.77	9.00	1442.77
2	46.061267	-119.183567	1418.60	9.00	1427.60
3	46.061163	-119.178975	1433.57	9.00	1442.57
4	46.061088	-119.176786	1435.14	9.00	1444.14
5	46.060939	-119.173460	1462.67	9.00	1471.67
6	46.060805	-119.167988	1367.84	9.00	1376.84

Name: US HWY 395-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	45.995519	-119.278077	796.24	9.00	805.24
2	45.996115	-119.275952	803.46	9.00	812.46
3	45.996950	-119.273013	808.72	9.00	817.72
4	45.997457	-119.271038	813.88	9.00	822.88
5	45.997964	-119.268356	815.97	9.00	824.98
6	45.998321	-119.265288	814.61	9.00	823.61
7	45.998634	-119.263206	823.31	9.00	832.31
8	45.998947	-119.261683	823.78	9.00	832.78

Name: US HWY 395-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.037771	-119.224776	1159.99	9.00	1168.99
2	46.040459	-119.224690	1191.05	9.00	1200.05
3	46.042857	-119.224615	1214.84	9.00	1223.84
4	46.046186	-119.224550	1238.13	9.00	1247.13
5	46.048100	-119.224507	1248.38	9.00	1257.38

Name: US HWY 395-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.054961	-119.224314	1289.13	9.00	1298.13
2	46.057039	-119.224186	1313.71	9.00	1322.71
3	46.059696	-119.223950	1337.57	9.00	1346.57
4	46.062116	-119.223714	1348.33	9.00	1357.33
5	46.063009	-119.223660	1358.35	9.00	1367.35
6	46.064401	-119.223714	1378.78	9.00	1387.78
7	46.066173	-119.223832	1404.38	9.00	1413.39
8	46.067614	-119.223907	1425.76	9.00	1434.76
9	46.069192	-119.223724	1448.15	9.00	1457.15
10	46.070763	-119.223424	1468.64	9.00	1477.64

Name: US HWY 395-4
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.081318	-119.222539	1577.60	5.00	1582.60
2	46.082650	-119.222785	1589.94	5.00	1594.94
3	46.083878	-119.223032	1600.74	5.00	1605.74
4	46.085166	-119.223268	1615.92	5.00	1620.92
5	46.086163	-119.223451	1625.07	5.00	1630.07
6	46.087257	-119.223633	1633.34	5.00	1638.34
7	46.088760	-119.223697	1639.56	5.00	1644.56
8	46.089943	-119.223612	1639.85	5.00	1644.85

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV array 4-1	SA tracking	SA tracking	0	0	-
PV array 4-10	SA tracking	SA tracking	0	0	-
PV array 4-11	SA tracking	SA tracking	0	0	-
PV array 4-12	SA tracking	SA tracking	0	0	-
PV array 4-13	SA tracking	SA tracking	0	0	-
PV array 4-2	SA tracking	SA tracking	0	0	-
PV array 4-3	SA tracking	SA tracking	0	0	-
PV array 4-4	SA tracking	SA tracking	0	0	-
PV array 4-5	SA tracking	SA tracking	0	0	-
PV array 4-6	SA tracking	SA tracking	0	0	-
PV array 4-7	SA tracking	SA tracking	0	0	-
PV array 4-8	SA tracking	SA tracking	0	0	-
PV array 4-9	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Results for: PV array 4-1

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 4-10

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-11

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-12

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-13

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-2

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-3

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-4

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-5

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-6

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-7

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-8

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 4-9

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

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.
Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
Several 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.
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.)
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
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.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

2016-2019 © Sims Industries d/b/a ForgeSolar, All Rights Reserved.