

Memorandum

To: Lauren Altick

Cc: John Hanks

From: Leslie McClain, Josh Hohn, Paula Fell

Date: July 16, 2024

Correspondence # TTCES-PTLD-2024-006

Subject: **Visual Impact Assessment of Key Observation Points 1, 3, and 5**

Tetra Tech understands that Carriger Solar, LLC (Applicant) is developing the Carriger Solar Project (Project), a solar photovoltaic (PV) electric generating facility that includes 160 (MW) of solar energy and 63 MW of battery energy storage in Klickitat County, Washington. The Applicant is seeking a Site Certification Agreement from the Washington Energy Facility Siting Council (EFSEC).

As part of the Application for Site Certification (ASC), Tetra Tech prepared the Carriger Solar, LLC Project Visual Impact Assessment (VIA) Report, dated April 18, 2023. Tetra Tech has prepared additional simulations and visual impact assessment of three of the Key Observation Points (KOPs) to reflect mitigation measures proposed by the Applicant to be considered in EFSEC evaluation of aesthetic resources under the State Environmental Policy Act (SEPA). This technical memorandum (Memo) is meant to supplement the information provided in the 2023 VIA Report and provides the results of this additional visual assessment. The Visual Assessment Methodology (Section 3.0), Environmental Setting (Section 4.0), and Regulatory Setting (Section 5.0) of the 2023 VIA Report continue to apply to the work provided in this Technical Memo. The Project Description also applies (Section 2.0) from the 2023 VIA Report; however, several changes were made to the site plan layout in response to EFSEC's concerns with visual impacts along Knight Road (KOPs 3 and 5) and State Route (SR)-142 (KOP 1). The following changes were made to the site plan layout to mitigate these visual impact concerns after meeting with EFSEC on 10/11/23, and as agreed upon in the 12/1/23 email from EFSEC:

- KOP 1: Along the north side of SR-142, the Applicant has increased the distance the Project fence is setback from the edge of the highway road pavement. The original location of 40 feet has been increased to 70 feet from the edge of pavement. See Figure 1. No change has occurred to the location of the panel arrays which are setback 100 feet from the edge of the road pavement.
- KOP 3: At the northern end of Knight Road, where the Project solar arrays are located on both the east and west side of the road, the Applicant has increased the setback distance of the Project fence from the edge of the road pavement on both sides to 100 feet. This is an increase from the original

setback of 25-40 feet from the edge of the pavement. See Figure 2. By increasing the fence distance from the roadway, the solar panels have also been setback to a distance of 120 to 160 feet from the road pavement, depending on the location of the solar array (an increase from the original distance of 50 to 70 feet).

- KOP 5: Along the south end of Knight Road, where the Project solar arrays are located on both the east and west side of the road, the Applicant has increased the setback distance of the Project fence from the edge of the road pavement on both sides to 100 feet. This is an increase from the original setback of 25 to 40 feet from the edge of the pavement. See Figure 3. By increasing the fence distance from the roadway, the solar panels have also been setback to a distance of 120 to 150 feet from the edge of the road pavement, depending on the location of the solar array (an increase from the original distance of 50 to 85 feet).
- Fence Design: The Applicant has revised the Project's perimeter fencing design which is shown in Figure 4 and includes an 8-foot-high fence with no barbed-wire and utilizes 6-inch wire mesh opening game fencing. This fence design is similar to fencing design approved by Washington Department of Fish and Wildlife for other solar projects in Washington State. Per the National Electric Code (NFPA 70) requirements, fencing is required to be installed around the Project solar arrays to restrict public access and must have a minimum height of 7 feet with 1 foot of barbed wire along the top, or 8 feet if no barbed wire is used.

By implementing these site plan changes and fencing design changes, the Applicant is proposing to mitigate potential perceived visual impacts at the KOPs 1, 3, and 5 to a level less than significant under SEPA. To assist with evaluation of the effect of these mitigation measures, Tetra Tech prepared revised simulations at KOPs 1, 3, and 5 (see Figures 5 through 13). As the Applicant proposes using ground mounted single axis trackers for the panel design, the panels will follow the sun's position throughout the day. Figures 5, 8, and 11 show the original VIA KOPs. The remaining figures depict two new simulations to show potential visual effects during different times of the day:

- Simulation showing panels in a flat orientation which would occur when the sun is at its highest point in the sky during the day. Panels may also be in flat orientation for longer durations on overcast days.
- Simulation showing panels at the maximum tilt orientation when the sun is at its lowest point on the horizon. Maximum tilt was simulated to show the anticipated view of the panels at their maximum height above ground surface (highest point of panels would be 12 feet above grade); however, the number of minutes the panels would be at maximum tilt would be a small portion of the total daylight hours per day.

For the maximum tilt simulations, a west-facing orientation was chosen as the photos used for the simulations were taken in the afternoon on March 29, 2022. Therefore, the simulation shows the maximum tilt that would occur near sunset (i.e. west-facing orientation) vs. at sunrise (i.e. east-facing orientation). The actual panel orientation that would occur at the exact time of day/time of year the simulation photos

were taken would be less than maximum tilt, but rather would be west facing at tilt angle somewhere between 55- and 59-degrees¹ (see Figure 14 below).

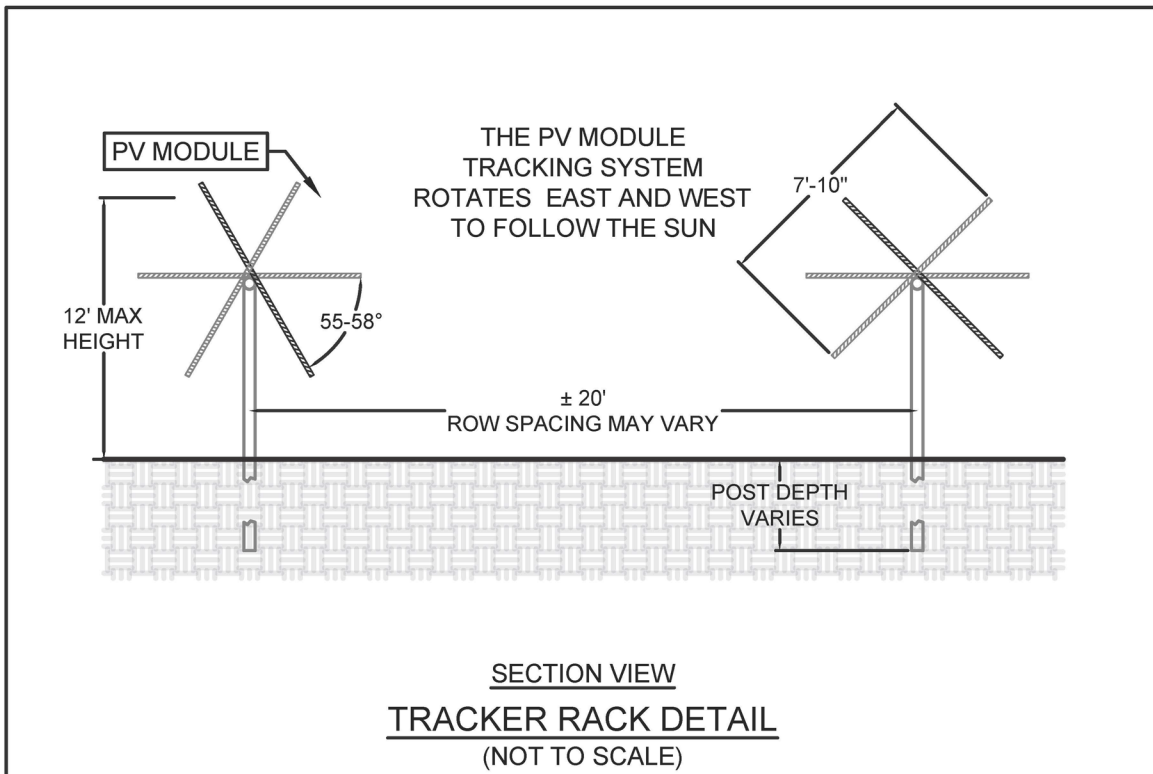


Figure 14. Tracker Rack Detail

Using the revised simulations for KOPs 1, 3, and 5, Tetra Tech evaluated the potential visual effects anticipated along Knight Road and SR-142 as a result of construction and operation of the Project. An updated impact analysis is provided below for each KOP.

The following terms are used to describe areas associated with Project development: Project Site Control Boundary, Project Study Area, and Maximum Project Extent. Each of these terms is defined below.

- **Project Site Control Boundary:** Contains 2,108 acres and is comprised of two non-contiguous areas across 25 parcels of private land that are under purchase or lease option for project site control.

¹ Angle of tilt represents the angle the panel is positioned relative to the horizontal plane.

- **Project Study Area:** This includes an approximately 2,011-acre area that includes the Maximum Project Extent (1,326 acres, defined below), a portion of the Klickitat County Knight Road ROW (approximately 9 acres), and a portion of the BPA transmission line ROW (approximately 3 acres).
- **Maximum Project Extent (MPE):** This area is a subset of the Project Study Area defined above and includes the approximately 1,326-acre area that contains the maximum Project footprint. The MPE is the proposed permitted area provided in the ASC. The final project footprint/impact areas identified in the final Project design are anticipated to be smaller than the 1,326-acre MPE.

1.0 Impact Analysis

1.1 BLM Contrast Rating Process

Visual impacts are generally defined in terms of a project’s physical characteristics and potential visibility, as well as the extent to which the project’s presence would change the perceived visual character and quality of the environment in which it would be located. The U.S. Bureau of Land Management (BLM) contrast rating system is commonly used by federal agencies to assess potential visual resource impacts from proposed projects and is widely accepted as a standard approach for analyzing potential changes to the visual environment for non-federal projects.

Section II of the BLM rating system manual² describes the steps in the contrast rating process:

- A. Obtain Project Description
- B. Identify Visual Resource Management Objectives
- C. Select Key Observation Points (KOPs)
- D. Prepare Visual Simulations
- E. Complete the Contrast Rating

Section III of the manual describes the requirements for completing the contrast rating worksheet - BLM Form 8400-4 Visual Contrast Rating Worksheet. These requirements are listed and summarized as follows:

1. **Selecting the Timeframe.** This consideration is to determine if the project would have short-term or long-term effects.
2. **Rating the Degree of Contrast (Section D1 of the rating worksheet).** Using the matrix provided in section D of the form, the evaluator is asked to rate the degree of contrast. The rating is completed by determining the degree of contrast (i.e., strong, moderate, weak, or none) for each element using the contrast criteria and “factors to be considered” described below.
 - a. **Degree of Contrast Criteria.** The manual provides the following criteria for “weak”, “moderate”, and “strong” degrees of contrast:

² A copy of the BLM rating system manual is available online here:
https://blmwyomingvisual.anl.gov/docs/BLM_VCR_8431.pdf

- i. Weak. The element contrast can be seen but does not attract attention.
- ii. Moderate. The element contrast begins to attract attention and begins to dominate the characteristic landscape.
- iii. Strong. The element contrast demands attention, will not be overlooked, and is dominant in the landscape.

b. **Factors to be Considered.** Nine factors are listed in the BLM rating system manual to be considered when applying the degree of contrast criteria: (1) Distance, (2) Angle of Observation, (3) Length of Time the Project Is in View, (4) Relative Size or Scale, (5) Season of Use, (6) Light Conditions, (7) Recovery Time, (8) Spatial Relationships, and (9) Atmospheric Conditions.

c. **General Guidance for Assessing Contrast.** This includes guidance on assessing contrast based on (1) Form, (2) Line, (3) Color, and (4) Texture.

3. Determining Whether VRM Objectives are Met. As noted above, the guidance provided in the BLM manual is specific to VRM Classifications derived from BLM Resource Management Plans. However, the concept described in this step can be applied to areas not designated by a BLM Resource Management Plan or VRM Class. Mainly, that the contrast rating should be considered in the context of the sensitivity of the visual resource. For example, the BLM manual states “a ‘strong’ contrast rating may be acceptable in a class IV area but probably would not meet the VRM objectives for a class III area.” In the VRM Classification system, class I is the most sensitive while class IV is the least sensitive. Therefore, the BLM guidance is indicating that in less sensitive areas, visual impacts may be more acceptable than in more sensitive areas.

4. Developing Additional Mitigating Measures (Section D3 of the worksheet). The guidance provided in the BLM manual is to minimize visual impacts which may include use of mitigating measures for all adverse contrasts that can be reduced. Mitigating measures should be written so they are easily extracted and used in stipulations for permits, contracts, etc. and should be realistic (e.g., do not propose revegetation where the probability of success is low).

The determination of the overall visual contrast introduced by the Project at each Key Observation Point (KOP) includes a consideration of all the steps described in the BLM contrast rating manual.

1.2 Applying the BLM Contrast Rating Process

1. Selecting the Timeframe. In the ASC, the Applicant describes the Project as having an operational life of approximately 40 years. Therefore, the Project could be considered as having long-term effects.

2. Rating the Degree of Contrast.

a. Degree of Contrast Criteria.

After reviewing the new simulations created for KOPs 1, 3, and 5, Tetra Tech’s visual impact assessment evaluators completed Section D.1 of the BLM worksheets. These worksheets are included in Attachment A.

The degree of contrast was evaluated to be weak (land), weak (vegetation), or moderate (structure) depending on the feature considered in the revised simulations for KOPs 1, 3, and 5.

SECTION D. CONTRAST RATING													
I. DEGREE OF CONTRAST		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS	Form			✓			✓			✓			
	Line			✓			✓			✓			
	Color			✓			✓			✓			
	Texture			✓			✓			✓			

The following provides further analysis of how the evaluators concluded the degree of contrast ratings in the BLM worksheets for KOPs 1, 3, and 5.

- Land:** The existing landscape setting is characterized by agricultural land with flat to rolling terrain with hilly and mountainous terrain in the background. As the Project would only introduce minor change to the topography of the land and would not block views of agricultural lands or the hills and mountains in the background, the contrast rating was determined to be weak for land/waterbodies.
- Vegetation:** Vegetation includes grasses, shrubs, and trees. Dominant colors for the landscape are brown and green, while the structures are gray, brown, and white. The vegetation consists of irregular, organic forms: grasses are continuous with irregular shaped shrubs and trees. The colors, regular geometric forms, and horizontal lines associated with the solar arrays would result in a visual contrast with the irregular, organic forms and colors of the existing vegetation; however, vegetative ground cover on the Project site will be visible and consistent with the existing vegetation. Project’s solar arrays are comprised of single axis tracking PV modules, that will automatically track the sun throughout the day. Therefore, vegetation will be visible around and under the panels for a majority of the day (see Figures 6, 9, and 12). The depiction of the panels at maximum tilt (see Figures 7, 10, and 13) will only occur in the early morning and late evening hours. During the majority of the day, the panels will be closer to a horizontal alignment allowing for even more of the vegetation below and around the panels to be visible by an observer. For this reason, the contrast rating was determined to be weak for vegetation.

- **Structures:** Existing structural features include fencing, road, utility poles and lines, and agricultural and residential structures. Dominant colors of existing structures are gray, brown, and white. The linear and horizontal lines associated with the existing structures are visible and prominent. The Project would introduce light and gray colors, geometric shapes, and horizontal lines into the landscape setting, which would result in a visual contrast with the irregular, organic forms and colors of the surrounding existing vegetation; however, the Project components would be consistent with other horizontal and vertical lines and geometric shapes visible throughout the landscape such as the existing BPA transmission line corridors (the 230-kV North Bonneville-Midway No. 1 line, the 500-kV Wautoma-Ostrander No. 1 line, and the 500-kV single-circuit BPA Big Eddy-Knight line), the BPA Knight Substation, lower voltage distribution lines and poles along Knight Road, paved roads, and fences. During the majority of the daytime hours, the panels will be closer to a horizontal alignment allowing for views through the Project site, reducing attention of and contrast from the Project. When the panels are at maximum tilt, they begin to dominate the view. However, with the increased set back from the roadway, in combination with the revised fencing design and increased fence setback, the view orientation focuses either down the roadway or over the panels toward the hills and mountains in the background. In addition, maximum tilt will only occur in the early morning and late evening hours. Therefore, while the Project would begin to attract attention to the casual observer, the Project would not dominate the landscape. For this reason, the contrast rating was determined to be moderate for structures.

b. Factors to be Considered.

As noted earlier, there are nine factors listed in the BLM rating system manual to be considered when applying the degree of contrast criteria. Given that all three of these KOPs represent views from a road, BLM factor (3) “Length of Time the Project Is in View” is an important consideration for evaluating the degree of contrast and significance of contrast. Per the BLM manual: “If the viewer has only a brief glimpse of the project, the contrast may not be of great concern. If, however, the project is subject to view for a long period, as from an overlook, the contrast may be very significant.”

As noted in Section 4.4 of the VIA, the traveler viewer type is typically moving, has a relatively narrow field of view and is destination-oriented. Although motorists are focused on their driving and on traffic conditions, they do have the opportunity to observe roadside scenery, if only briefly. Assuming a car is driving 45 mph on Knight Road, it would take motorists approximately 32 seconds to drive past the northern section of Knight Road where the current layout includes panels on both sides of the road, for a distance of approximately 0.4 mile. Similarly, on the southern section of Knight Road, the extent of panels on both sides of the road is approximately 0.21 miles, which would take about 17 seconds to drive past in a car traveling 45 mph. These calculations emphasize the short length of time that motorists traveling on Knight Road would be subjected to views with solar panels on both sides of the road.

Furthermore, Knight Road, as well as the other county roads traversing through the Project Site Control Boundary, are local roads used primarily by people traveling to and from residences and work locations. These roads produce relatively small traffic volumes because of the scattered resident population around the Project Site Control Boundary. Therefore, the viewer group associated with these county roads is small.

Motorists would only experience views of the Project for a short time, and therefore to the extent contrast is introduced along the roads “may not be of great concern” as stated in BLM manual factor (3).

c. General Guidance for Assessing Contrast.

The following was considered when completing Section D.1 of the BLM worksheets.

- Form. Contrast in form results from changes in the shape and mass of landforms or structures. The degree of change depends on how dissimilar the introduced forms are to those continuing to exist in the landscape.
- Line. Contrasts in line results from changes in edge types and interruption or introduction of edges, bands, and silhouette lines. New lines may differ in their sub elements (boldness, complexity, and orientation) from existing lines.
- Color. Changes in value and hue tend to create the greatest contrast. Other factors such as chroma, reflectivity, color temperature, also increase the contrast.
- Texture. Noticeable contrast in texture usually stems from differences in the grain, density, and internal contrast. Other factors such as irregularity and directional patterns of texture may affect the rating.

3. Determining Whether VRM Objectives are Met.

As noted above, this step in the BLM rating system manual describes how the contrast rating should be considered in the context of the sensitivity of the visual resource. As noted in the VIA, no important or significant scenic resources that require protection were identified within the Project Site Control Boundary or its vicinity by the Klickitat County Code provisions or by the Klickitat County Comprehensive Plan and there are no National Scenic Byways or All-America Roads within the vicinity of the Project Study Area. In reference to KOPs 1, 3, and 5, where the Project is visible it would not block views of the hills and mountains in the background and would be consistent with other horizontal and vertical lines and geometric shapes visible throughout the landscape, including existing fencing, agricultural structures, residential structures, utility poles and lines, and transmission towers and lines, and roadways.

4. Developing Additional Mitigating Measures.

The Project’s ASC describes the following mitigation measures:

- Downward-directed and shielded lighting to minimize horizontal or skyward illumination, and avoidance of steady-burning, high-intensity lights.
- Utilizing solar panels with an anti-reflective coating to minimize glare.
- Maintenance of revegetated surfaces until the vegetation has been established.

The Project has also been designed to avoid impacts to existing adjacent residences through implementation of setbacks (minimum of 500 feet from each of the closest non-participating residences).

The Applicant is proposing the following additional mitigation measures:

- Adjustments to the project layout to increase the setback of the project fence and solar panels along Knight Road:
 - KOP 3: At the northern end of Knight Road, where the Project solar arrays are located on both the east and west side of the road, the Applicant has increased the setback distance of the Project fence from the edge of the road pavement on both sides to 100 feet. This is an increase from the original setback of 25-40 feet from the edge of the pavement. See Figure 2. By increasing the fence distance from the roadway, the solar panels have also been setback to a distance of 120 to 160 feet from the road pavement, depending on the location of the solar array (an increase from the original distance of 50 to 70 feet).
 - KOP 5: Along the south end of Knight Road, where the Project solar arrays are located on both the east and west side of the road, the Applicant has increased the setback distance of the Project fence from the edge of the road pavement on both sides to 100 feet. This is an increase from the original setback of 25 to 40 feet from the edge of the pavement. See Figure 3. By increasing the fence distance from the roadway, the solar panels have also been setback to a distance of 120 to 150 feet from the edge of the road pavement, depending on the location of the solar array (an increase from the original distance of 50 to 85 feet).
- Increase the setback of the fence along SR-142; and
 - KOP 1: Along the north side of SR-142, the Applicant has increased the distance the Project fence is setback from the edge of the highway road pavement. The original location of 40 feet has been increased to 70 feet from the edge of pavement. See Figure 1. No change has occurred to the location of the panel arrays which are setback 100 feet from the edge of the road pavement.
- Modification of the fence design
 - Fence Design: The Applicant has revised the Project’s perimeter fencing design which is shown in Figure 4 and includes an 8-foot-high fence with no barbed-wire and utilizes 6-inch wire mesh opening game fencing. This fence design is similar to fencing design approved by Washington Department of Fish and Wildlife for other solar projects in Washington State. Per the National Electric Code (NFPA 70) requirements, fencing is required to be installed around the Project solar arrays to restrict public access and must have a minimum height of 7 feet with 1 foot of barbed wire along the top, or 8 feet if no barbed wire is used.

2.0 Conclusion

2.1 KOP 1

KOP 1 represents a view of the Project for motorists traveling along SR-142 and the residence adjacent to this viewpoint. Due to the level of traffic along SR-142 and the short distance to the MPE, this KOP has increased potential for views of the Project. This KOP also represents views from the southwest side of the

Project's MPE. Figure 5 presents the original simulated view of Project components from KOP 1. Figures 6 and 7 present the updated simulated view of the Project components, with the fence setback 30 additional feet. Figure 6 depicts the view of the panels at flat orientation while Figure 7 depicts the view of the panels at maximum tilt, facing west prior to sunset.

The Project would introduce light and dark gray colors, geometric shapes, and horizontal lines into the landscape setting and would be visible from this location by a casual observer. The colors, regular geometric forms, and horizontal lines associated with the solar arrays would result in a visual contrast with the irregular, organic forms and colors of the existing vegetation; however, vegetative ground cover on the Project site will be visible and consistent with the existing vegetation. Existing structures in the vicinity possess horizontal and vertical lines (fencing, roadway, utility poles and overhead distribution lines, buildings) and some are colored gray (roadway, transmission lines).

During the majority of the day, the panels will be oriented closer to a horizontal alignment that allows views through the Project site, reducing attention to and contrast from the Project (see Figure 6). Therefore, during the majority of the day, the panels would introduce a weak contrast. When the panels are at maximum tilt (Figure 7), the Project would begin to attract attention to the casual observer and begin to co-dominate the landscape which would indicate the introduction of a moderate contrast per the BLM contrast rating definitions. However, by setting the panels back from SR-142 by 100 feet, and increasing the fence set back to 70 feet from the roadway, the view orientation focuses either down the roadway or over the panels toward the hills and mountains in the background. The visual experience would be short-term for travelers and the Project would attract little attention from drivers on SR-142. Therefore, the Project would introduce weak contrast for travelers on SR-142.

Views of the Project from the adjacent non-project participating residence (on tax parcel 04151451000100) will be partially obscured by existing structures and trees adjacent to the residence and the closest solar panel array would be over 500 feet from the residence. Where the Project is visible, the Project components would be consistent with other horizontal and vertical lines and geometric shapes visible throughout the landscape and would not block views of agricultural lands or the hills and mountains in the background.

None of the views from KOP 1 are protected or designated as important or significant scenic resources by the federal, state, or county regulations. Given that fact and that views of the surrounding hills, mountains, and agricultural lands would not be blocked, and considering the low number of residences in the immediate vicinity of the project, Tetra Tech concluded that the overall contrast introduced by the Project for travelers on SR-142 is likely to be weak and for residents near KOP 1 is likely to be moderate.

2.2 KOP 3

KOP 3 represents a view of the Project for drivers traveling south on Knight Road and the non-project participating residences north of this viewpoint. This KOP also represents views of the north portion of the MPE. Figure 8 presents the original simulated view of Project components from KOP 3. Figures 9 and 10 present the updated simulated view of the Project components, with increased setbacks. Figure 9 depicts

the view of the panels at flat orientation while Figure 10 depicts the view of the panels at maximum tilt near sunset (facing west).

The Project would introduce light and dark gray colors, geometric shapes, and horizontal lines into the landscape setting and would be visible from this location by a casual observer. The colors, regular geometric forms, and horizontal lines associated with the solar arrays would result in a visual contrast with the irregular, organic forms and colors of the existing vegetation; however, vegetative ground cover on the Project site will be visible and consistent with the existing vegetation. Existing structures in the vicinity possess horizontal and vertical lines (fencing, road, transmission tower and lines, utility poles and lines, residential and agricultural structures, and wind turbines) and some are colored gray (roadway, transmission tower and lines, agricultural structures).

During the majority of the day, the panels will be oriented closer to a horizontal alignment that allows views through the Project site, reducing attention to and contrast from the Project (see Figure 9). While the Project would begin to attract attention to the casual observer, the portion of the Project that would be visible would not dominate the landscape the majority of the day when the panels will be oriented closer to a horizontal alignment. In the maximum tilt orientation (Figure 10), the Project would begin to attract attention to the casual observer and begin to co-dominate the landscape along with the other existing structures in the vicinity that provide horizontal and vertical lines. Beginning to dominate the landscape is a “moderate” level of contrast per the BLM contrast rating definitions. The maximum tilt visual experience would short-term both because of the short amount of time each day the panels would be at maximum tilt orientation and for the short amount of time travelers would see the panels while driving down Knight Road. In addition, with the increased set back from the roadway, the view orientation focuses either down the roadway or over the panels toward the hills and mountains in the background. The viewer’s focus will be on the road and existing transmission lines and fence lines, and the Project no longer demands attention or dominates the landscape due to the increased setbacks and modified fence design. Therefore, the Project would introduce moderate contrast for travelers on Knight Road at KOP 3.

Views of the Project from the adjacent non-project participating residence located north of KOP 3, include a residential structure owned by a participating landowner (on tax parcel 05152500001000) and a residential structure owned by a non-participating landowner (on tax parcel 05152500000700). Views of the Project from these two residential structures will be partially obscured by existing structures and trees adjacent to the residences and the closest solar panel array would be over 500 feet from the residential structures. Where the Project is visible, the Project components would be consistent with other horizontal and vertical lines and geometric shapes visible throughout the landscape and would not block views of the hills and mountains in the background.

None of the views from KOP 3 are protected or designated as important or significant scenic resources by the federal, state, or county regulations. Given that fact and that views of the surrounding hills, mountains, and agricultural lands would not be blocked, and considering the low number of residences in the immediate vicinity of the project, Tetra Tech concluded that the overall contrast introduced by the Project for travelers on Knight Road at KOP 3 is likely to be moderate and for residents near KOP 3 is likely to be moderate.

2.3 KOP 5

KOP 5 represents a view of the Project for drivers traveling north on Knight Road and the non-project participating residence (on tax parcel 04151300000200) adjacent to this viewpoint. This KOP also represents views of the south side of the MPE. Figure 11 presents the original simulated view of Project components from KOP 5. Figures 12 and 13 present the updated simulated view of the Project components, with increased setbacks. Figure 12 depicts the view of the panels at flat orientation while Figure 13 depicts the view of the panels at maximum tilt near sunset (facing west).

The Project would introduce light and dark gray colors, geometric shapes, and horizontal lines into the landscape setting and would be visible from this location by a casual observer. The colors, regular geometric forms, and horizontal lines associated with the solar arrays would result in a visual contrast with the irregular, organic forms and colors of the existing vegetation, however, vegetative ground cover on the Project site will be visible and consistent with the existing vegetation. Existing structures in the vicinity possess horizontal and vertical lines (fencing, agricultural structures, utility poles and lines, and transmission towers and lines) and some are colored gray (roadway, transmission tower and lines, agricultural structures).

During the majority of the day, the panels will be oriented closer to a horizontal alignment that allows views through the Project site, reducing attention to and contrast from the Project (see Figure 12). While the Project would begin to attract attention to the casual observer, the portion of the Project that would be visible would not dominate the landscape the majority of the day when the panels will be oriented closer to a horizontal alignment. In the maximum tilt orientation (Figure 13), the Project would begin to attract attention to the casual observer and begin to co-dominate the landscape along with the other existing structures in the vicinity that provide horizontal and vertical lines. Beginning to dominate the landscape is a “moderate” level of contrast per the BLM contrast rating definitions. The maximum tilt visual experience would short-term both because of the short amount of time each day the panels would be at maximum tilt orientation and for the short amount of time travelers would see the panels while driving down Knight Road. In addition, with the increased set back from the roadway, the view orientation focuses either down the roadway or over the panels toward the existing structures in the middleground and the hills and mountains in the background. The viewer’s focus will be on the road and existing transmission line and fence lines and the Project no longer demands attention or dominates the landscape due to the increased setbacks and modified fence design. Therefore, the Project would introduce moderate contrast for travelers on Knight Road at KOP 5.

Views of the Project from the adjacent residence (on tax parcel 04151300000200) will be partially obscured by existing structures and trees adjacent to the residence and the closest solar panel array would be over 500 feet from the residential structure. Where the Project is visible, the Project components would be consistent with other horizontal and vertical lines and geometric shapes visible throughout the landscape and would not block views of the hills and mountains in the background.

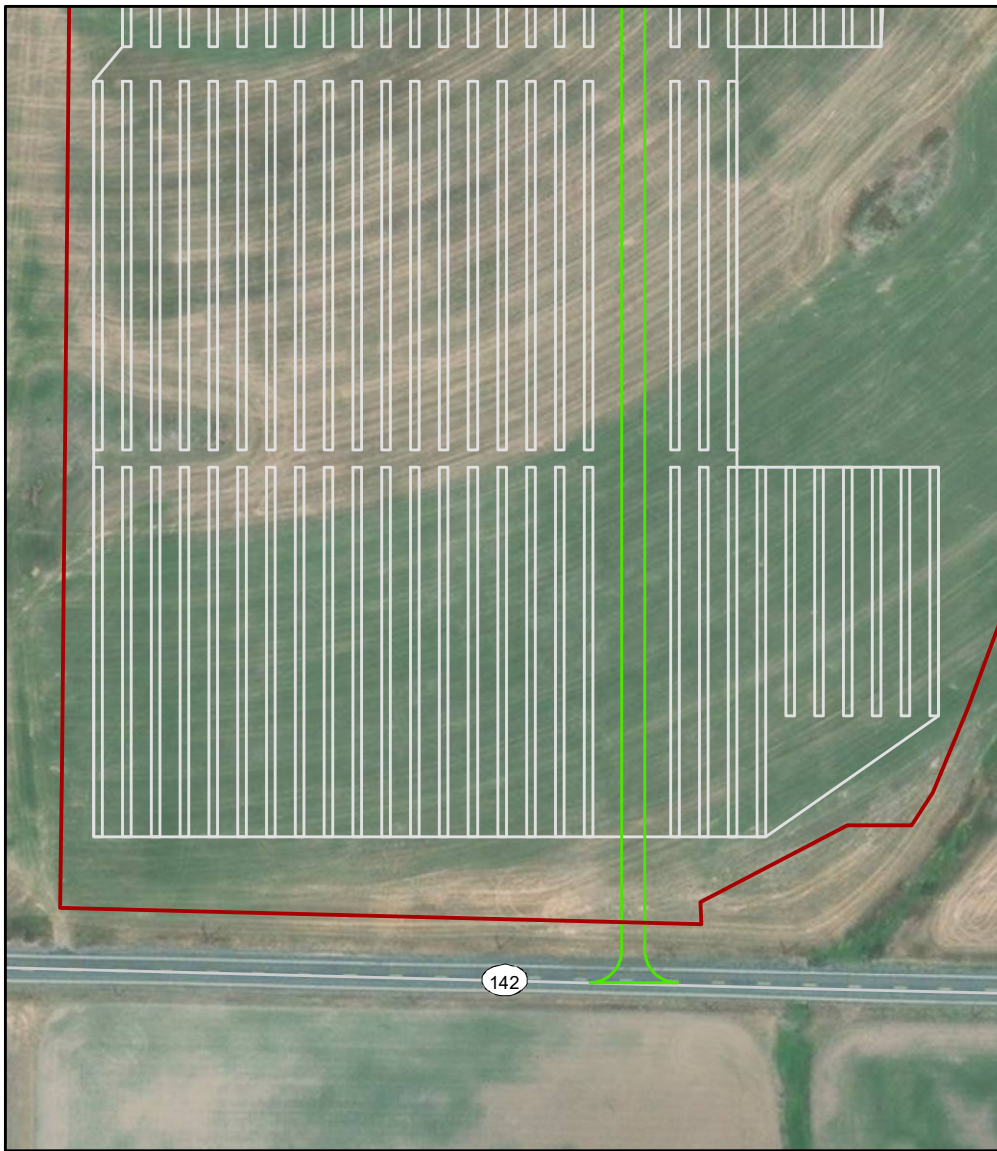
None of the views from KOP 5 are protected or designated as important or significant scenic resources by the federal, state, or county regulations. Given that fact and that views of the surrounding hills, mountains, and agricultural lands would not be blocked, and considering the low number of residences in the

immediate vicinity of the project, Tetra Tech concluded that the overall contrast introduced by the Project for travelers on Knight Road at KOP 5 is likely to be moderate and for residents near KOP 3 is likely to be moderate.

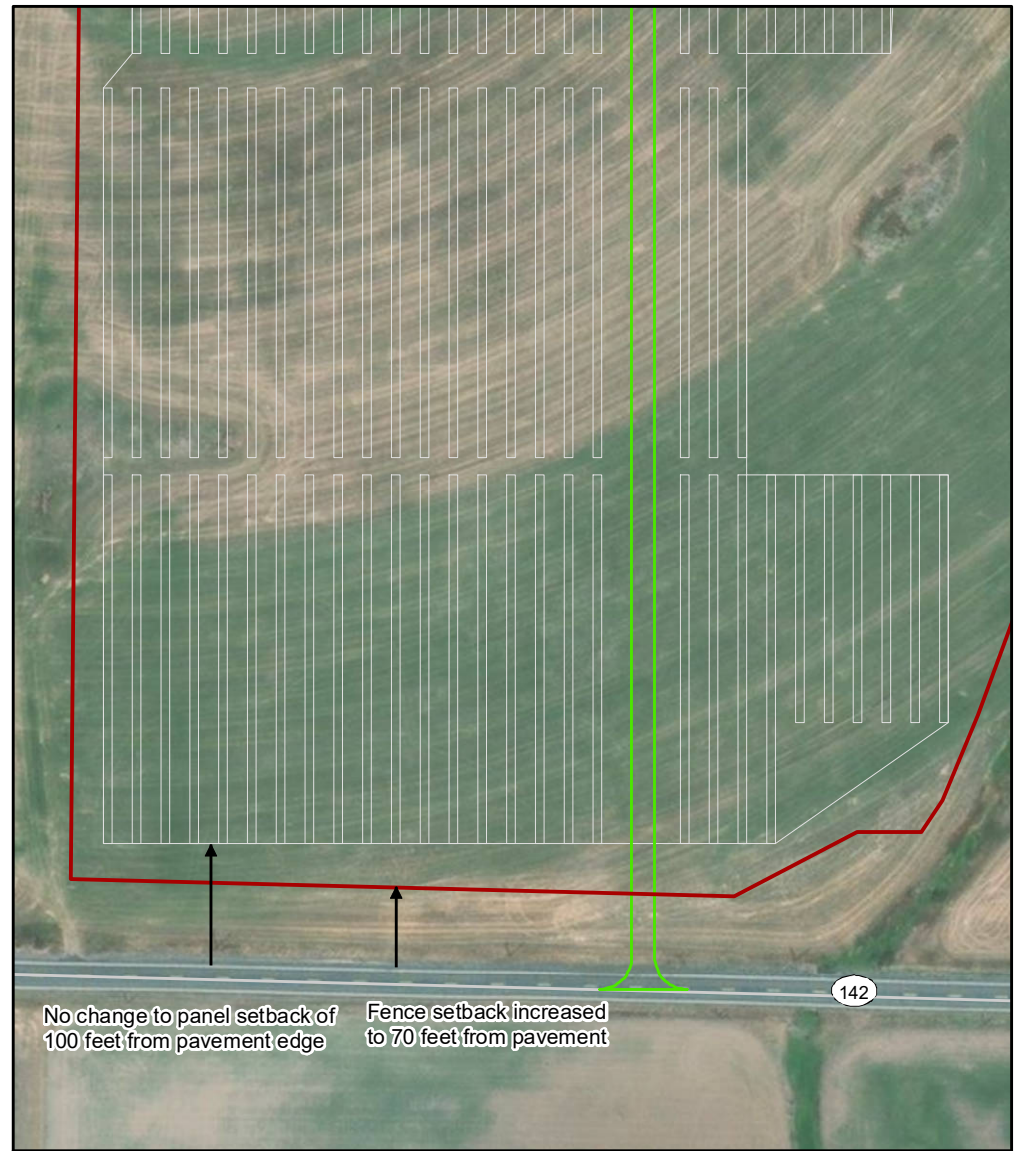
2.4 Conclusion

The visual impact analysis concluded that at KOPs 1, 3, and 5, the Project would introduce moderate contrast given consideration of views of both motorists/travelers on Knight Road/SR-142 and consideration of views from the adjacent non-project participating residences.

Figures



Original Layout



Revised Layout

- Access Road
- Fenceline
- Array

Fenceline setback from SR 142 increased by 30 feet (minimum setback now 70 feet from road pavement, panels set back 100 feet).



Figure 1
Layout Changes at KOP 1

Prepared for:
Carriger Solar, LLC Project
February 9, 2023





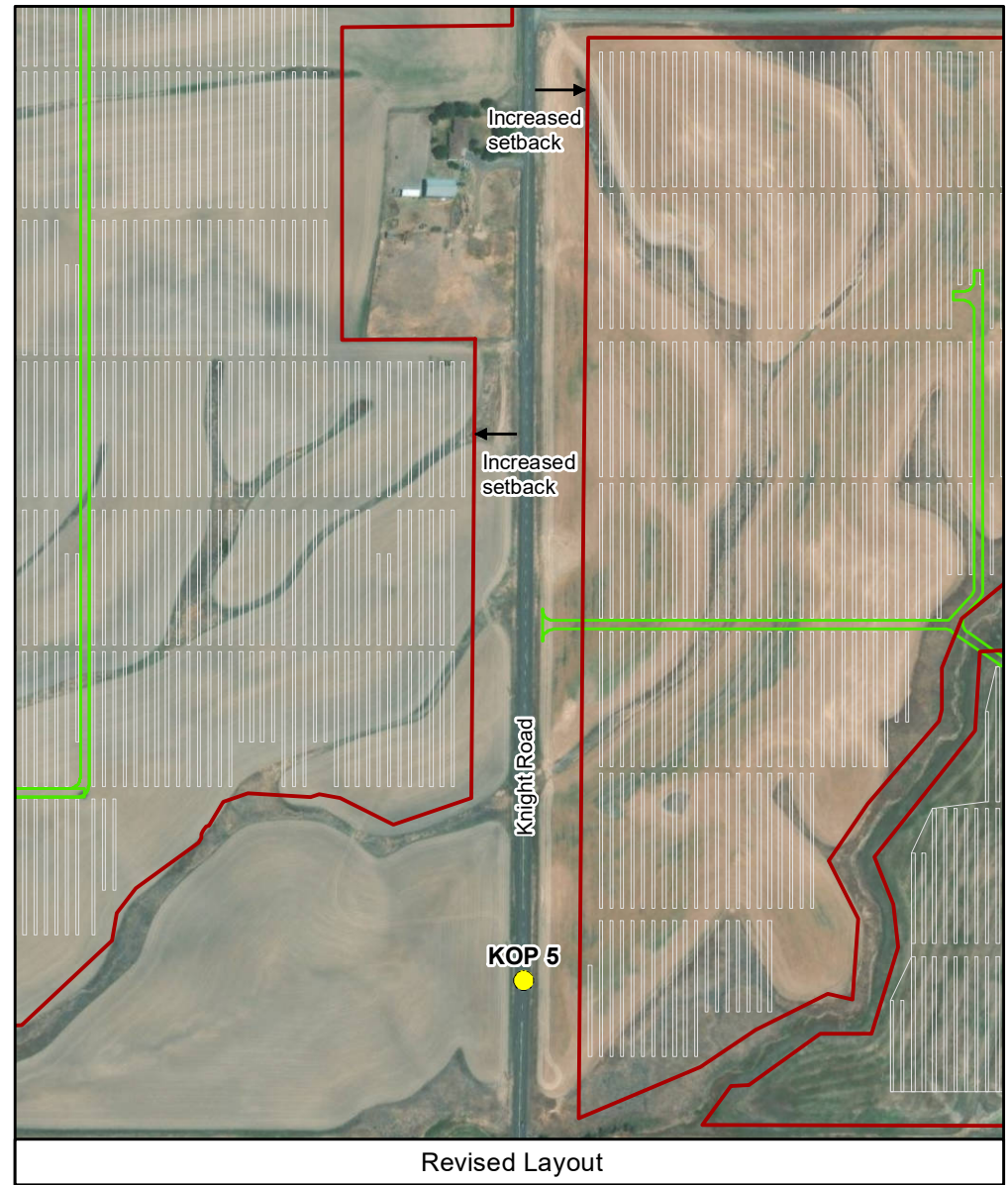
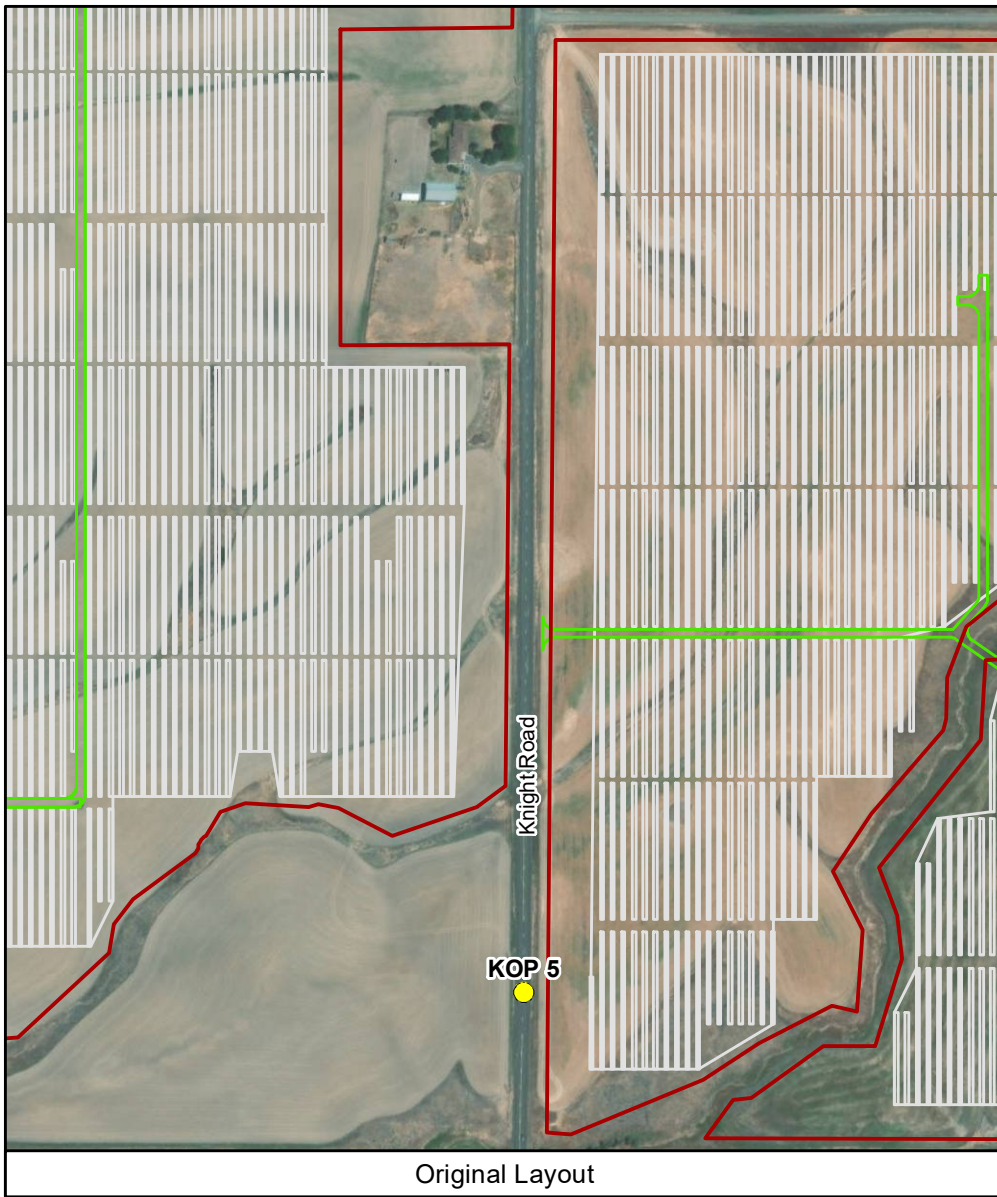
- Access Road
- Fenceline
- Array
- KOP

Fenceline and panels setback from Knight Road increased by 25-40 feet (minimum fence setback 100 feet from road pavement, panels setback 120 to 160 feet from pavement).



Figure 2
Layout Changes at KOP 3

Prepared for:
Carriger Solar, LLC Project
February 9, 2023



- Access Road
- Fenceline
- Array
- KOP

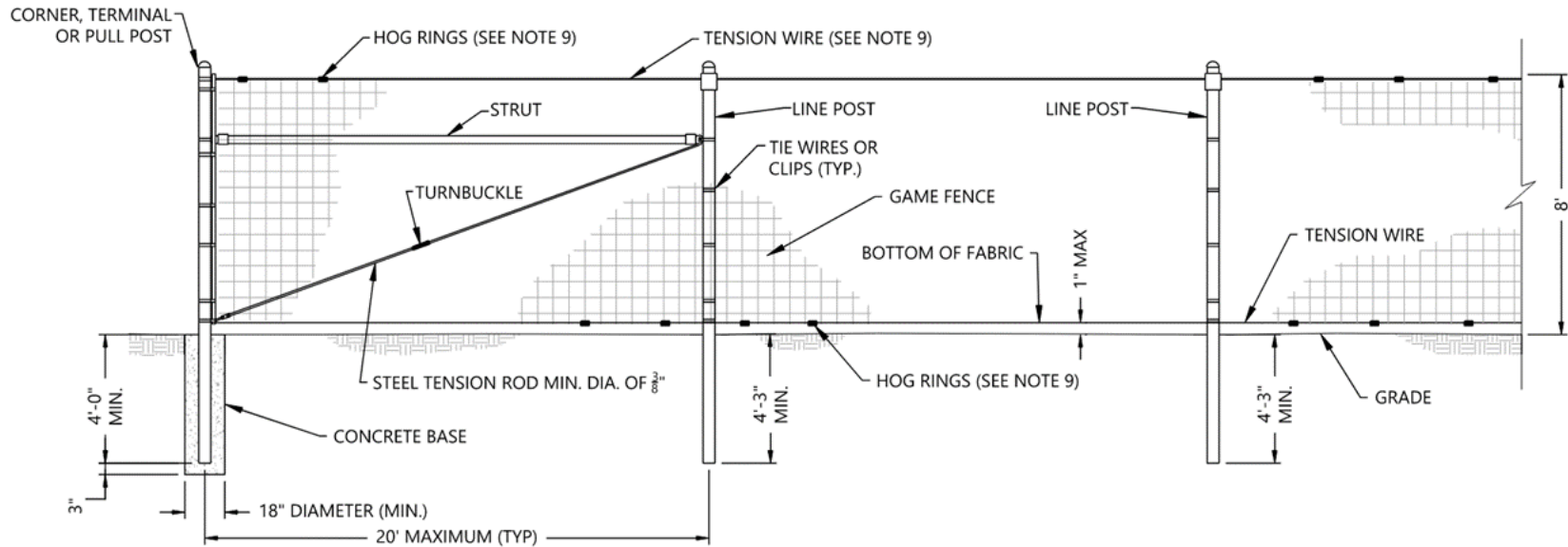
Fenceline and panels setback from Knight Road increased by 25-40 feet (minimum fence setback 100 feet from road pavement, panels setback 120 to 150 feet from pavement).



Figure 3
Layout Changes at KOP 5

Prepared for:
Carriger Solar, LLC Project
February 9, 2023



**NOTES:**

1. CODES REFERENCED FOR FENCE POST FOUNDATION DESIGN:

- 2018 INTERNATIONAL BUILDING CODE
- ASCE 7-16

2. FENCE AND GATE TYPE TO BE APPROVED BY OWNER PRIOR TO CONSTRUCTION.

3. FENCE TO BE 12.5 GAUGE, HIGH TENSILE, FIXED KNOT GAME FENCE WITH A MAXIMUM VERTICAL STAY SPACING OF 6" AND A MINIMUM OF (20) LINE WIRES.

4. LINE POSTS TO BE 2.875" OD SS-40 PIPES. LINE POSTS ARE TO BE DRIVEN.

5. CORNER POSTS TO BE 3.5" OD SS-40 PIPES.

6. CONCRETE FOOTINGS TO BE TYPE I/II CEMENT, MIN. 4,000 PSI COMPRESSIVE STRENGTH WITH MAX. AGGREGATE SIZE OF 0.75".

7. ALL POSTS TO BE PRE-GALVANIZED WITH A MIN. 1.8 MIL GALVANIZATION THICKNESS PER MINIMUM STANDARDS SET BY ASTM F-1043.

8. ALL POSTS SHALL BE ASTM A1011, 50 KSI.

9. TENSION WIRE SHALL BE INSTALLED PRIOR TO ATTACHING FENCE FABRIC. TENSION WIRE SHALL BE STRETCHED OUT BETWEEN TERMINAL POSTS AND SECURED TO EACH LINE POST WITH FABRIC TIE WIRES. FENCE FABRIC SHALL BE ATTACHED TO TENSION WIRE WITH 9 GAUGE ALUMINUM HOG RINGS ON 2 FEET INTERVALS.

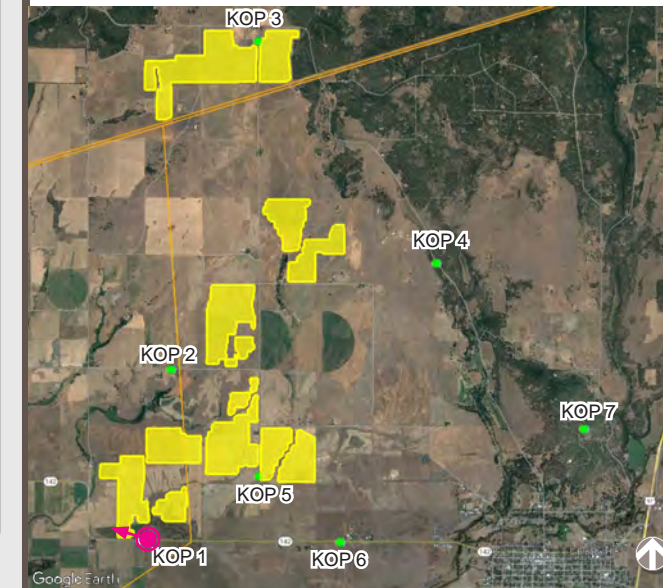
CARRIGER SOLAR LLC PROJECT

FIGURE 5 KOP 1

ORIGINAL PHOTO SIMULATION



EXISTING CONDITION



VICINITY MAP

LEGEND

- PHOTO LOCATION / DIRECTION
- MAXIMUM PROJECT EXTENT AREA
- KOP LOCATION
- EXISTING BPA TRANSMISSION LINES

PHOTOGRAPH INFORMATION

TIME:	4:32 PM
DATE:	3/29/2022
WEATHER CONDITION:	PARTLY CLOUDY
VIEWING DIRECTION:	NORTHWEST
LATITUDE:	45.824435°
LONGITUDE:	-120.895149°
DISTANCE FROM PROJECT:	605 FT

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; NOT FOR CONSTRUCTION.



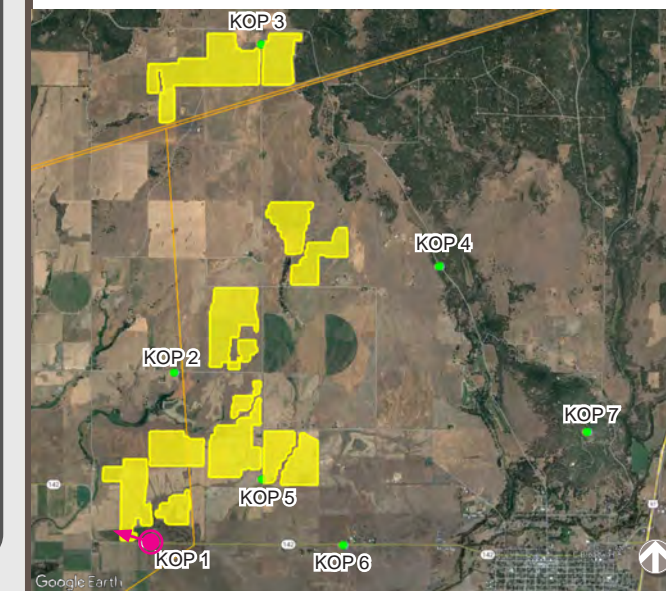
SIMULATED CONDITION

CARRIGER SOLAR LLC PROJECT

FIGURE 6

KOP 1

REVISED PHOTO SIMULATION



VICINITY MAP

LEGEND

- PHOTO LOCATION / DIRECTION
- MAXIMUM PROJECT EXTENT AREA
- KOP LOCATION
- EXISTING BPA TRANSMISSION LINES

PHOTOGRAPH INFORMATION

TIME:	4:32 PM
DATE:	3/29/2022
WEATHER CONDITION:	PARTLY CLOUDY
VIEWING DIRECTION:	NORTHWEST
LATITUDE:	45.824435°
LONGITUDE:	-120.895149°
DISTANCE FROM PROJECT:	605 FT

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; NOT FOR CONSTRUCTION.



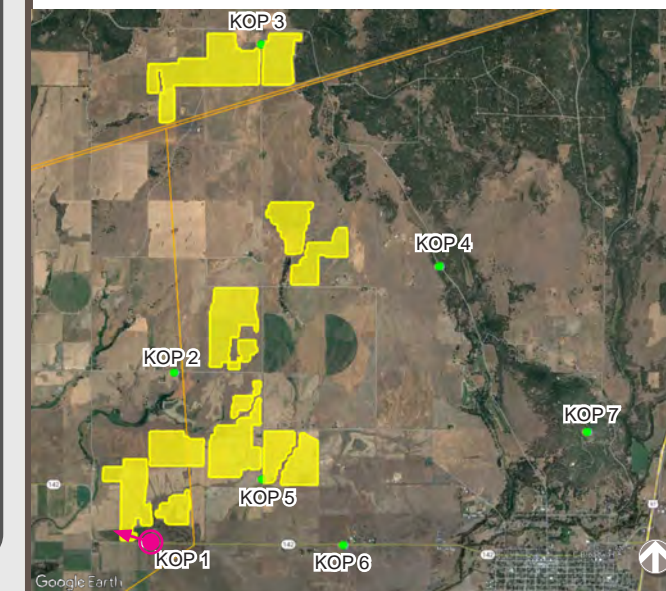
SIMULATED CONDITION - Panels At Flat Orientation

CARRIGER SOLAR LLC PROJECT

FIGURE 7

KOP 1

REVISED PHOTO SIMULATION



VICINITY MAP

LEGEND

- PHOTO LOCATION / DIRECTION
- MAXIMUM PROJECT EXTENT AREA
- KOP LOCATION
- EXISTING BPA TRANSMISSION LINES

PHOTOGRAPH INFORMATION

TIME:	4:32 PM
DATE:	3/29/2022
WEATHER CONDITION:	PARTLY CLOUDY
VIEWING DIRECTION:	NORTHWEST
LATITUDE:	45.824435°
LONGITUDE:	-120.895149°
DISTANCE FROM PROJECT:	605 FT

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; NOT FOR CONSTRUCTION.

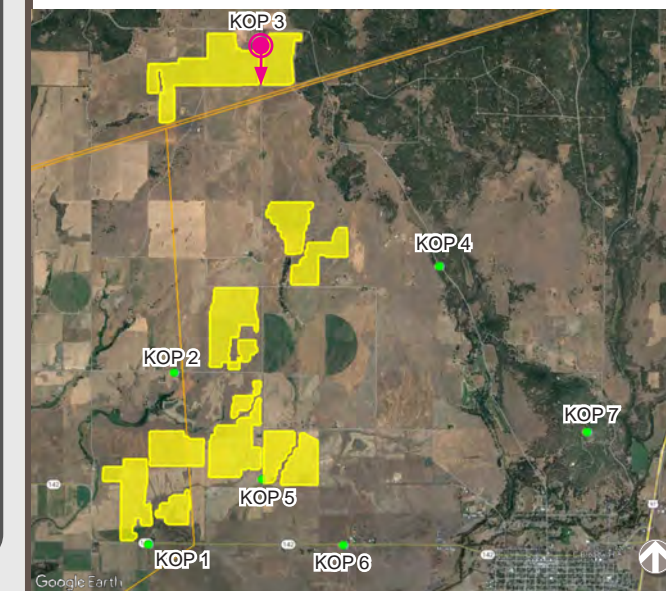


CARRIGER SOLAR LLC PROJECT

FIGURE 8

KOP 3

ORIGINAL PHOTO SIMULATION



VICINITY MAP

LEGEND

- PHOTO LOCATION / DIRECTION
- MAXIMUM PROJECT EXTENT AREA
- KOP LOCATION
- EXISTING BPA TRANSMISSION LINES

PHOTOGRAPH INFORMATION

TIME:	3:41 PM
DATE:	3/29/2022
WEATHER CONDITION:	PARTLY CLOUDY
VIEWING DIRECTION:	SOUTH
LATITUDE:	45.888040°
LONGITUDE:	-120.874580°
DISTANCE FROM PROJECT:	95 FT

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; NOT FOR CONSTRUCTION.



CARRIGER SOLAR LLC PROJECT

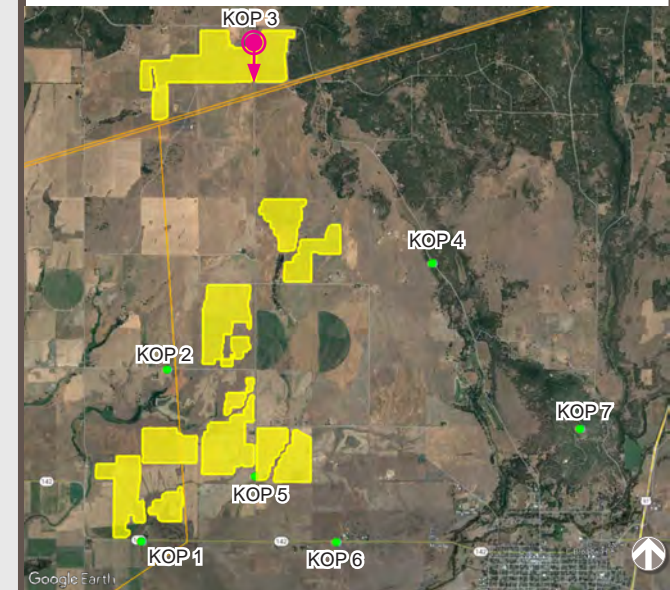
FIGURE 9

KOP 3

REVISED PHOTO SIMULATION







EXISTING CONDITION



VICINITY MAP

LEGEND

-  PHOTO LOCATION / DIRECTION
-  MAXIMUM PROJECT EXTENT AREA
-  KOP LOCATION
-  EXISTING BPA TRANSMISSION LINES

PHOTOGRAPH INFORMATION

TIME:	3:41 PM
DATE:	3/29/2022
WEATHER CONDITION:	PARTLY CLOUDY
VIEWING DIRECTION:	SOUTH
LATITUDE:	45.888040°
LONGITUDE:	-120.874580°
DISTANCE FROM PROJECT:	95 FT

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; NOT FOR CONSTRUCTION.



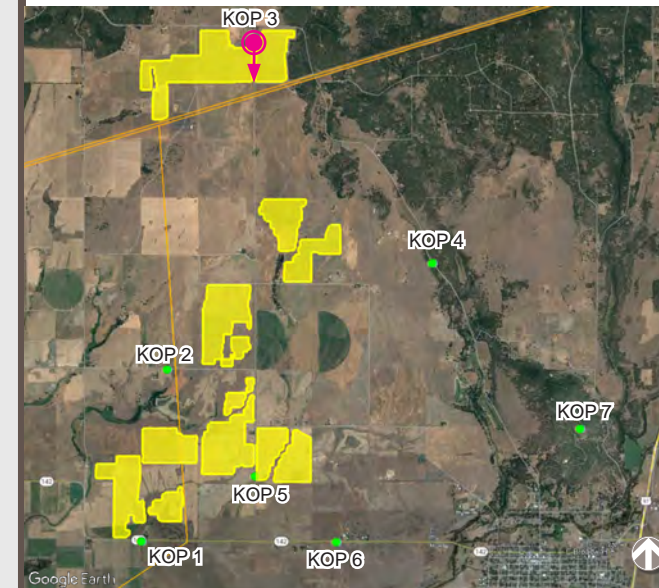
SIMULATED CONDITION - Panels At Flat Orientation

CARRIGER SOLAR LLC PROJECT

FIGURE 10

KOP 3

REVISED PHOTO SIMULATION



PHOTOGRAPH INFORMATION

TIME:	3:41 PM
DATE:	3/29/2022
WEATHER CONDITION:	PARTLY CLOUDY
VIEWING DIRECTION:	SOUTH
LATITUDE:	45.888040°
LONGITUDE:	-120.874580°
DISTANCE FROM PROJECT:	95 FT

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; NOT FOR CONSTRUCTION.

CARRIGER SOLAR LLC PROJECT

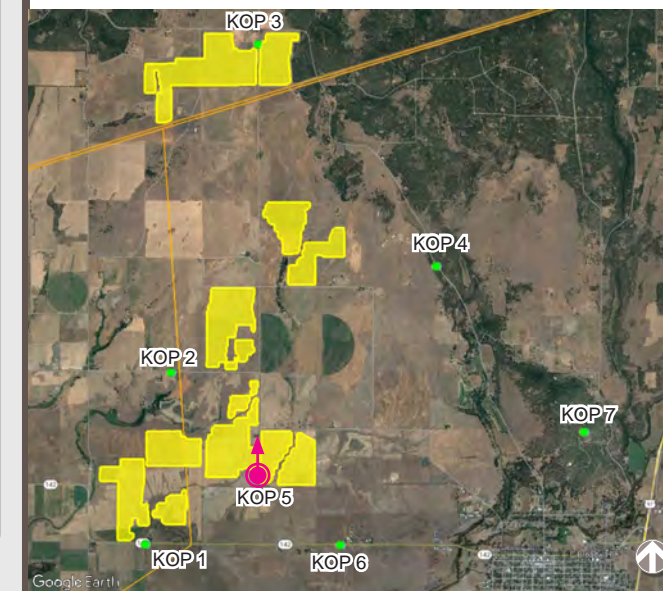
FIGURE 11

KOP 5

ORIGINAL PHOTO SIMULATION



EXISTING CONDITION



VICINITY MAP

LEGEND

- PHOTO LOCATION / DIRECTION
- MAXIMUM PROJECT EXTENT AREA
- KOP LOCATION
- EXISTING BPA TRANSMISSION LINES

PHOTOGRAPH INFORMATION

TIME:	4:38 PM
DATE:	3/29/2022
WEATHER CONDITION:	PARTLY CLOUDY
VIEWING DIRECTION:	NORTH
LATITUDE:	45.83271°
LONGITUDE:	-120.87443°
DISTANCE FROM PROJECT:	75 FT

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; NOT FOR CONSTRUCTION.



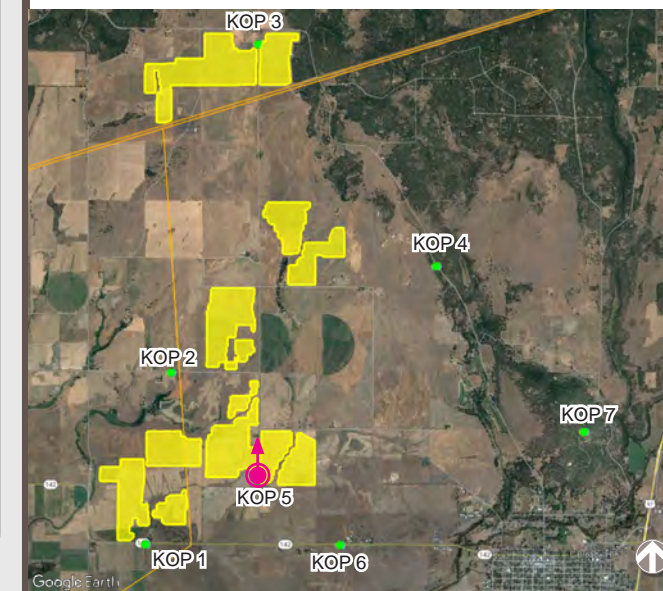
SIMULATED CONDITION

CARRIGER SOLAR LLC PROJECT

FIGURE 12





KOP 5

REVISED PHOTO SIMULATION



VICINITY MAP

LEGEND

-  PHOTO LOCATION / DIRECTION
-  MAXIMUM PROJECT EXTENT AREA
-  KOP LOCATION
-  EXISTING BPA TRANSMISSION LINES

PHOTOGRAPH INFORMATION

TIME:	4:38 PM
DATE:	3/29/2022
WEATHER CONDITION:	PARTLY CLOUDY
VIEWING DIRECTION:	NORTH
LATITUDE:	45.83271°
LONGITUDE:	-120.87443°
DISTANCE FROM PROJECT:	75 FT

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; NOT FOR CONSTRUCTION.

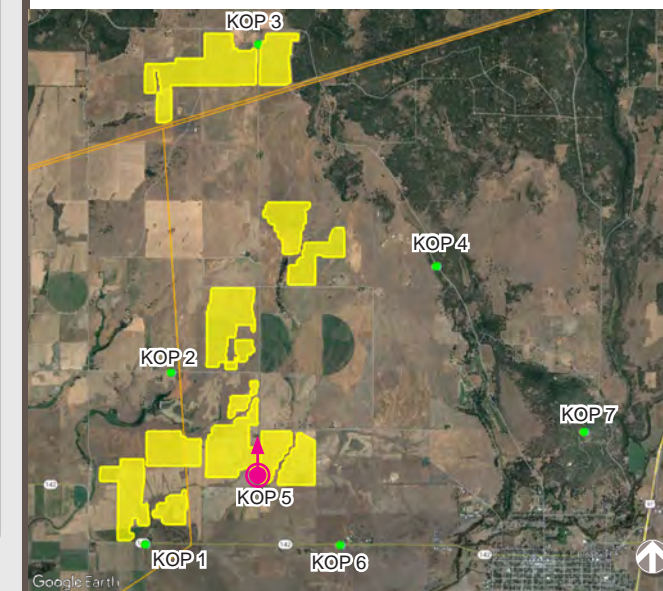


CARRIGER SOLAR LLC PROJECT

FIGURE 13

KOP 5

REVISED PHOTO SIMULATION



VICINITY MAP

LEGEND

- PHOTO LOCATION / DIRECTION
- MAXIMUM PROJECT EXTENT AREA
- KOP LOCATION
- EXISTING BPA TRANSMISSION LINES

PHOTOGRAPH INFORMATION

TIME:	4:38 PM
DATE:	3/29/2022
WEATHER CONDITION:	PARTLY CLOUDY
VIEWING DIRECTION:	NORTH
LATITUDE:	45.83271°
LONGITUDE:	-120.87443°
DISTANCE FROM PROJECT:	75 FT

DISCLAIMER: PRELIMINARY VISUALIZATIONS ARE FOR REFERENCE ONLY; NOT FOR CONSTRUCTION.



Attachment A: BLM Rating Sheets

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 2/1/2024

District N/A

Resource Area N/A

Activity (program) N/A

SECTION A. PROJECT INFORMATION

1. Project Name	Carriger Solar Project	4. Location		5. Location Sketch
2. Key Observation Point	1	Township	T4N	
3. VRM Class	Unclassified/Not on Federal Land	Range	R15E	
		Section	S23	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Fore: Flat to rolling terrain Back: Hilly to Steep terrain	Grass - regular, low Trees, shrubs - irregular	Roadway - linear, fencing, utility poles and lines - angular and linear, buildings - rectangular
LINE	Fore: Diffuse Back: Silhouette-line	Grass - soft, contiguous Trees, shrubs - complex, irregular	Roadway - horizontal, fencing, utility poles and lines - vertical, horizontal, buildings - rectangular
COLOR	Brown	Grass - green Trees, shrubs - green, brown	Roadway - gray, fencing, utility poles - brown, buildings - white, gray
TEXTURE	Coarse	Grass - fine Trees - uneven	Roadway - coarse, fencing, utility poles, buildings - medium

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Fore: Flat to rolling terrain Back: Hilly to Steep terrain	Grass - regular, low Trees, shrubs - irregular	Roadway - linear, fencing, utility poles and lines - angular and linear, buildings - rectangular, Project solar arrays - angular
LINE	Fore: Diffuse Back: Silhouette-line	Grass - soft, contiguous Trees, shrubs - complex, irregular	Roadway - horizontal, fencing, utility poles and lines - vertical, horizontal, buildings - rectangular, Project solar arrays - vertical, horizontal
COLOR	Brown	Grass - green Trees, shrubs - green, brown	Roadway - gray, fencing, utility poles - brown, buildings - white, gray, Project solar arrays - gray
TEXTURE	Coarse	Grass - fine Trees - uneven	Roadway - coarse, fencing, utility poles, buildings - medium, Project solar arrays - smooth

SECTION D. CONTRAST RATING SHORT TERM LONG TERM

I.	DEGREE OF CONTRAST	FEATURES												2. Does project design meet visual resource management objectives? <input type="checkbox"/> Yes <input type="checkbox"/> No (Explain on reverse side)
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)				
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	3. Additional mitigating measures recommended <input type="checkbox"/> Yes <input type="checkbox"/> No (Explain on reverse side)
ELEMENTS	Form			✓				✓				✓		
	Line			✓				✓				✓		
	Color			✓				✓				✓		
	Texture			✓				✓				✓		

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 2/1/2024

District N/A

Resource Area N/A

Activity (program) N/A

SECTION A. PROJECT INFORMATION

1. Project Name	Carriger Solar Project	4. Location	5. Location Sketch	
2. Key Observation Point	3	Township		T5N
3. VRM Class	Unclassified/Not on Federal Land	Range		R15E
		Section	S25	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Fore: rolling terrain Back: hilly to steep	Grass - regular, low Trees - irregular	Road, fencing, transmission tower and lines, utility poles and lines, wind turbines - angular and linear, buildings - rectangular
LINE	Fore: diffuse Back: silhouette	Grass - soft, contiguous Trees - complex, irregular	Road - horizontal, fencing, transmission towers and lines, utility poles and lines, wind turbines - vertical, horizontal, buildings - rectangular
COLOR	Brown	Grass - tan, green Trees - green	Road - gray, yellow, fencing, utility poles - brown, transmission towers - gray, wind turbines - white, buildings - white, gray
TEXTURE	Coarse	Grass - fine Trees - uneven	Road - coarse, fencing, utility poles, transmission towers, wind turbines, buildings - medium

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Fore: rolling terrain Back: hilly to steep	Grass - regular, low Trees - irregular	Road, fencing, transmission tower and lines, utility poles and lines, wind turbines - angular and linear, buildings - rectangular, Project solar arrays - angular
LINE	Fore: diffuse Back: silhouette	Grass - soft, contiguous Trees - complex, irregular	Road - horizontal, fencing, transmission towers and lines, utility poles and lines, wind turbines - vertical, horizontal, buildings - rectangular, Project solar arrays - vertical, horizontal
COLOR	Brown	Grass - tan, green Trees - green	Road - gray, yellow, fencing, utility poles - brown, transmission towers - gray, wind turbines - white, buildings - white, gray, Project solar arrays - gray
TEXTURE	Coarse	Grass - fine Trees - uneven	Road - coarse, fencing, utility poles, transmission towers, wind turbines, buildings - medium, Project solar arrays - smooth

SECTION D. CONTRAST RATING SHORT TERM LONG TERM

I. DEGREE OF CONTRAST	FEATURES												2. Does project design meet visual resource management objectives? <input type="checkbox"/> Yes <input type="checkbox"/> No (Explain on reverse side)
	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)				
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	3. Additional mitigating measures recommended <input type="checkbox"/> Yes <input type="checkbox"/> No (Explain on reverse side)
			✓				✓				✓		
			✓				✓				✓		
		✓				✓				✓			
		✓				✓				✓			
ELEMENTS	Form												Evaluator's Names Date Jess Taylor Paula Fell 2/1/2024
	Line												
	Color												
	Texture												

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date 2/1/2024

District N/A

Resource Area N/A

Activity (program) N/A

SECTION A. PROJECT INFORMATION

1. Project Name	Carriger Solar Project	4. Location	5. Location Sketch	
2. Key Observation Point	5	Township		T4N
3. VRM Class	Unclassified/Not on Federal Land	Range		R15E
		Section		S13

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Fore: rolling to hilly terrain Back: hilly to steep terrain	Grass - regular, low Trees - irregular	Roadway - linear, fencing, utility poles and lines, transmission tower and lines - angular and linear, buildings - rectangular
LINE	Fore: diffuse Back: silhouette	Grass - soft, contiguous Trees - complex, irregular	Roadway - horizontal, fencing, utility poles and lines, transmission tower and lines - vertical, horizontal, buildings - rectangular
COLOR	Brown	Grass - tan, green Trees - green	Roadway, transmission tower and lines - gray, fencing, utility poles - brown, buildings - white, gray
TEXTURE	Coarse	Grass - fine Trees - uneven	Roadway - coarse, fencing, utility poles, transmission tower and lines buildings - medium

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Fore: rolling to hilly terrain Back: hilly to steep terrain	Grass - regular, low Trees - irregular	Roadway - linear, fencing, utility poles and lines, transmission tower and lines - angular and linear, buildings - rectangular, Project solar arrays - angular
LINE	Fore: diffuse Back: silhouette	Grass - soft, contiguous Trees - complex, irregular	Roadway - horizontal, fencing, utility poles and lines, transmission tower and lines - vertical, horizontal, buildings - rectangular, Project solar arrays - vertical, horizontal
COLOR	Brown	Grass - tan, green Trees - green	Roadway, transmission tower and lines - gray, fencing, utility poles - brown, buildings - white, gray, Project solar arrays - gray
TEXTURE	Coarse	Grass - fine Trees - uneven	Roadway - coarse, fencing, utility poles, transmission tower and lines, buildings - medium, Project solar arrays - smooth

SECTION D. CONTRAST RATING SHORT TERM LONG TERM

1. DEGREE OF CONTRAST	FEATURES												2. Does project design meet visual resource management objectives? <input type="checkbox"/> Yes <input type="checkbox"/> No (Explain on reverse side)	
	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)					
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	3. Additional mitigating measures recommended <input type="checkbox"/> Yes <input type="checkbox"/> No (Explain on reverse side)	
			✓				✓				✓			
	Line		✓				✓				✓			
Color		✓				✓				✓				
Texture		✓				✓				✓				
ELEMENTS	Form												Evaluator's Names Jess Taylor Paula Fell	Date 2/1/2024