EXHIBIT L
IMPACTS ON PROTECTED AREAS

OAR 345-021-0010(1)(L)

TABLE OF CONTENTS

Page

L.1 PROTECTED AREAS INVENTORY L-1

L.2 LIST OF PROTECTED AREAS AND MAP OF LOCATION L-1

L.3 POTENTIAL IMPACTS OF PROPOSED FACILITY L-2
- L.3.1 Potential Noise, Traffic, Water Use, and Wastewater Disposal Impacts L-3
- L.3.2 Potential Visual Impacts L-5
  - L.3.2.1 The Cove Palisades State Park L-6
  - L.3.2.2 Central Oregon Experiment Station, Madras L-7
  - L.3.2.3 Lower Deschutes Wild and Scenic River L-8
  - L.3.2.4 Warm Springs State Wildlife Management Area L-8
  - L.3.2.5 The Island Area of Critical Environmental Concern L-9
  - L.3.2.6 Deschutes Canyon-Steelhead Falls Wilderness Study Area L-9
  - L.3.2.7 Middle Deschutes Wild and Scenic River L-10
  - L.3.2.8 Metolius Wild and Scenic River L-10
  - L.3.2.9 Lower Crooked Wild and Scenic River L-10
  - L.3.2.10 Warm Springs National Fish Hatchery L-10
  - L.3.2.11 Peter Skene Ogden State Scenic Viewpoint L-11
  - L.3.2.12 Smith Rock State Park L-11
  - L.3.2.13 Class I Areas L-11

L.4 SUMMARY L-11

L.5 REFERENCES L-12

ATTACHMENT

L-1 Existing Conditions Photographs

TABLE

L-1 Protected Areas within the 20-mile Analysis Area L-1

FIGURES

L-1 Protected Areas L-14

L-2 Potential Visibility and Photo Survey Points within 20 miles of the Facility Site Boundary L-14

This Exhibit provides an assessment of potential impacts on protected areas within 20 miles of the Madras Solar Energy Facility (Facility) site boundary. The protected areas are designated in Oregon Administrative Rule (OAR) 345-022-0040. No protected areas are located within the Facility site boundary.

L.1 PROTECTED AREAS INVENTORY

The analysis area for protected areas consists of the area within the Facility site boundary and 20 miles from the Facility site boundary [OAR 345-001-0010(59)(e)]. Protected areas in the analysis area are inventoried in Table L-1 and shown on Figure L-1. Table L-1 identifies the approximate distance from the Facility to the closest point of the protected area boundary, and the direction of each protected area from the Facility. A total of 16 categories of protected area designations are identified in OAR 345-022-0040(1). The inventory of protected areas conducted for this Exhibit was based on a review of available geographic information system data, maps, and other information pertaining to the relevant OAR categories.

OAR 345-021-0010(1)(L) *Information about the proposed Facility's impact on Protected Areas, providing evidence to support a finding by the Council as required by OAR 345-022-0040, including*:

Response: OAR 345-021-0010(1)(L) requires that the Application for Site Certificate for a proposed energy facility address impacts on the protected areas defined in OAR 345-022-0040(l)(a)-(p). According to OAR 345-022-0040(1), for an energy facility located outside any defined protected area, the Council must find that, "*taking into account mitigation, the design, construction and operation of the facility are not likely to result in significant adverse impact to the areas listed [in OAR 345-022-0040(1)(a)-(p)]*" before issuing a site certificate.

As shown on Figure L-1, the proposed Facility is located outside the protected areas defined in OAR 345-022-0040(1)(a)-(p). Therefore, to address OAR 345-022-0040 and demonstrate that the Facility will not result in significant adverse impacts on protected areas, Madras PV1, LLC (Applicant) has undertaken a systematic analysis of potential Facility impacts on protected areas within 20 miles of the proposed Facility site boundary. The results of this analysis are presented in accordance with OAR 345-021-0010(1)(L), and provide evidence to support a finding by the Council as required by OAR 345-022-0040.

As described in Exhibit B, the proposed Facility does not involve construction of a new transmission line. The Facility will be coupled with the existing Portland General Electric (PGE) Pelton Dam to Round Butte 230-kilovolt transmission line that intersects the Facility site boundary. Therefore, OAR 345-022-0040(2) and (3) are not applicable to this analysis of protected areas.

L.2 LIST OF PROTECTED AREAS AND MAP OF LOCATION

OAR 345-021-0010(1)(L)(A) *A list of the protected areas within the analysis area showing the distance and direction from the proposed Facility and the basis for protection by reference to a specific subsection under OAR 345-022-0040(1).*

Response: The analysis area for impacts on protected areas includes the area within the Facility site boundary and the area within 20 miles of the Facility site boundary in accordance with OAR 345-001-0010(2) and 345-001-0010(59)(e). Table L-1 lists the protected areas in the analysis area and the specific OAR 345-022-0040(1)(a-p) rule reference associated with each designated protected area.

Table L-1. Protected Areas within the 20-mile Analysis Area

Protected Area	Approximate Distance from the Facility to the Closest Point of the Protected Area Boundary (miles)	Direction from Facility	Basis for Protection (OAR 345-022-0040(1) Subsection)[a]
The Cove Palisades State Park	3.1	South	*(h) State parks and waysides*
Central Oregon Experiment Station, Madras	3.5	East	*(m) Agricultural experimental stations*

Table L-1. Protected Areas within the 20-mile Analysis Area

Protected Area	Approximate Distance from the Facility to the Closest Point of the Protected Area Boundary (miles)	Direction from Facility	Basis for Protection (OAR 345-022-0040(1) Subsection)[a]
Lower Deschutes Wild and Scenic River – from Pelton Dam downstream to the north county line	4.2	North	*(k) Scenic waterways*
Warm Springs State Wildlife Management Area	5.1	North	*(p) State wildlife areas and management areas*
The Island Area of Critical Environmental Concern	6.3	South	*(o) Bureau of Land Management areas of critical environmental concern, outstanding natural areas and research natural areas*
Deschutes Canyon-Steelhead Falls Wilderness Study Area	8.9	South	*(c) Wilderness areas*
Middle Deschutes Wild and Scenic River – from Odin Falls to the upper end of Lake Billy Chinook	11.7	South	*(k) Scenic waterways*
Metolius Wild and Scenic River – from Deschutes National Forest boundary to Lake Billy Chinook	12.1	West	*(k) Scenic waterways*
Lower Crooked Wild and Scenic River – from the National Grasslands boundary to Dry Creek	12.8	South	*(k) Scenic waterways*
Warm Springs National Fish Hatchery	13.5	North	*(f) National and state fish hatcheries*
Peter Skene Ogden State Scenic Viewpoint	18.2	South	*(h) State parks and waysides*
Smith Rock State Park	19.7	South	*(h) State parks and waysides*

[a] Under OAR 345-022-0040(1), no areas meet the criteria stated in subsections (a), (b), (d), (e), (g), (i), (j), (l), and (n) in the analysis area.

OAR 345-021-0010(1)(L)(B) *A map showing the location of the proposed Facility in relation to the protected areas listed in OAR 345-022-0040 located in the analysis area.*

Response: In accordance with OAR 345-021-0010(1)(L)(B), Figure L-1 shows the Facility site boundary, the 20-mile analysis area around the Facility site boundary, and the protected areas identified in the analysis area.

L.3 POTENTIAL IMPACTS OF PROPOSED FACILITY

OAR 345-021-0010(1)(L)(C) *A description of significant potential impacts of the proposed facility, if any, on the protected areas including, but not limited to, potential impacts such as*:

(i) Noise resulting from facility construction or operation;

(ii) Increased traffic resulting from facility construction or operation;

(iii) Water use during facility construction or operation;

(iv) Wastewater disposal resulting from facility construction or operation;

(v) Visual impacts of facility structures or plumes.

(vi) Visual impacts from air emissions resulting from facility construction or operation, including, but not limited to, impacts on Class 1 Areas as described in OAR 340-204-0050.

L.3.1 Potential Noise, Traffic, Water Use, and Wastewater Disposal Impacts

Response: The protected areas listed on Table L-1 are located over 3 miles from the Facility site boundary. The following responses present an evaluation of potential impacts on protected areas within the analysis area from noise, traffic, water use, and wastewater disposal. Potential visual impacts on protected areas are addressed in Section L.3.2. The evaluation concludes that the Facility will not result in significant potential impacts on the protected areas.

(i) Noise resulting from facility construction or operation;

Response: As described in Exhibit X, projected noise levels resulting from Facility construction and operation will be extremely low and meet requirements contained in Oregon Department of Environmental Quality (DEQ) rules. Construction noise will be temporary in nature and limited to the approximately 9-month construction period described in Section B.5 of Exhibit B.

As shown in Exhibit X, Table X-5, composite construction site noise levels are conservatively estimated to decrease 6 decibels on an A-weighted scale (dBA) for each doubling of distance. Based on Table X-5, the temporary construction noise levels at 1 mile will not exceed 50 dBA and will be even less at 3.1 miles, which is the distance to the protected area nearest the Facility site boundary. However, as noted, these levels are conservative and will be further reduced when additional attenuation factors discussed in Exhibit X are considered such as terrain and ground effects. The noise level is not such that it will result in activity or resource interference within the nearest designated protected areas.

Few sources of noise are associated with the operation of solar facilities. The noise sources are generally minor compared to other energy facilities. The sound power levels used to model Facility operational noise are reported in Table X-6 in Exhibit X. The primary noise sources associated with the Facility are solar inverters, transformers, and battery storage. In addition, the Facility will use an existing transmission line that intersects the Facility site boundary and a new generation-tie transmission line will not be constructed for the Facility.

The nearest designated protected area is the Cove Palisades State Park, located over 3 miles from the Facility site boundary. As described in Exhibit X, at a distance of 400 feet, the sound level one would measure or hear is approximately 44 dBA less than the levels identified in Table X-6. Therefore, at a distance of over 3 miles, attenuation related to the presence of trees or vegetation, ground effects, atmospheric absorption, and intervening terrain will reduce both temporary construction- and operation-related noise so low as to be undetectable. The other designated protected areas listed in Table L-1 are all over 3 miles from the Facility.

Given the minimal projected noise levels documented in Exhibit X, the distance between the Facility and the protected areas (over 3 miles), and existing substantial sources of noise, noise resulting from Facility construction and operation will not significantly affect the designated protected areas within the 20-mile analysis area.

(ii) Increased traffic resulting from facility construction or operation;

Response: Traffic impacts are addressed in greater detail in Exhibit U, which provides additional information on anticipated traffic volumes, peak construction traffic times, and measures the construction contractor will implement to avoid significant traffic impacts. This section focuses on the impacts of increased traffic on protected areas.

It is assumed that the primary transportation routes to and from the site will be US Highway 26 from the north and US 97 from the south. Both routes lead directly to the Facility. From US Highway 26, the primary transportation route will enter the City of Madras and continue south to the intersection with US 97. The route will continue due south on US 97 for approximately 0.95 mile to SW Belmont Lane, where it turns west and continues for approximately 5.7 miles to SW Elk Drive. From SW Belmont Lane, the route then turns north on SW Elk Drive and extends for approximately 2.5 miles to the Facility site.

Potential impacts associated with Facility construction- and operation-related traffic on designated protected areas are discussed as follows:

- SW and NW Elk Drive. Direct access to the proposed Facility will be from NW Elk Drive, a County road that begins as SW Elk Drive and runs north, from SW Belmont Lane, through the center of the Facility site where it turns into NW Elk Drive. Driveways will be constructed to allow access on both the east and west sides of the road. Construction traffic will use SW Elk Drive and NW Elk Drive for approximately 2.8 miles. SW Elk Drive and NW Elk Drive do not provide direct access to the designated protected areas listed in Table L-1; therefore, traffic associated with Facility construction and operations will not impact designated protected areas.
- SW Belmont Lane/J Street. Traveling west, from the City of Madras to NW Elk Drive, the haul route to the Facility will use J Street for a small segment before the name changes to SW Belmont Lane. Construction traffic will be on this road for approximately 5.6 miles. Visitors to the Cove Palisades State Park may use this road to access the northern portion of the park; however, the main park entrance and most amenities (e.g., trails, bathrooms, lake access, marinas, viewpoints) are located in the southern portion of the park, which is accessed off Highway 97 (Business Route), using several routes along farming roads.

Backups and delays of a temporary nature may occur on the 5.6-mile segment of SW Belmont Lane from the increase in traffic during construction. These impacts are mitigated by the fact that the traffic will primarily be from the delivery of large components as a result of truck size, weight, and maneuverability. Large delivery trucks will be concentrated over a smaller duration during peak construction (e.g., approximately 4 to 6 months), limiting the time period over which delays will occur. In addition, the arrival of large delivery trucks will likely be during the work week, thereby minimizing delays to weekend visitors. The Applicant will monitor road traffic on SW Belmont Lane during delivery of heavy components, and will implement measures such as advance signage and flag personnel as described in Exhibit U

Impacts from construction traffic will be temporary and operational traffic on visitor access to the Cove Palisades State Park will be inconsequential because few park visitors use SW Belmont Lake/J Street due to lack of amenities in the northern portion of the park.

- US Highway 26. US Highway 26 will be used to access the City of Madras from the north before turning west onto SW Belmont Lane/J Street. The Central Oregon Experiment Station, Madras, the Warm Springs Wildlife Management Area, and the nearest portion of the Lower Deschutes Wild and Scenic River are located adjacent to US Highway 26 within approximately 5 miles of the Facility. Because US Highway 26 will be one of two main transportation routes and the state highway system is constructed to design, safety, and load-bearing standards, minimal impacts are anticipated from potential construction- and operation-related traffic on traffic safety or road maintenance. In addition, construction-related traffic impacts on visitor access to these areas will be inconsequential because construction vehicles will constitute a fraction of the daily traffic typical on US Highway 26 (see Exhibit U).
- US Highway 97. US Highway 97 will be used to access the City of Madras from the south before turning west onto SW Belmont Lane/J Street. Visitors to The Cove Palisades State Park may use this highway for access; however, the main entrance to the park is reached using several routes along farm roads, which can also be accessed using Highway 97 (Business Route). Because Highway 97 is one of two main transportation routes and the state highway system is constructed to design, safety, and load-bearing standards, minimal impacts are anticipated from potential construction- and operation-related traffic on traffic safety or road maintenance. In addition, construction-related traffic impacts on visitor access to the park will be inconsequential because visitors have multiple alternate routes and construction vehicles will constitute a fraction of the daily traffic typical on US Highway 97 (see Exhibit U).
- Traffic Volume. As documented in Exhibit U, existing traffic volumes are low as a result of the rural nature of the surroundings and lack of traffic-generating land uses; therefore, the roads will be able to accommodate the increased temporary traffic associated with Facility construction. Operational traffic will be limited to visits from offsite technicians in light-duty trucks, deployed on an as-needed basis for maintenance and repairs. Long-term negative impacts from traffic will be negligible due to the lack of permanent employees.

Therefore, traffic-related impacts resulting from Facility construction and operations will be negligible and will not adversely affect designated protected areas listed in Table L-1.

(iii) Water use during facility construction or operation;

As discussed in Exhibit O, Facility water use will be temporary and limited to the construction period, except for a small amount to be used for operation and maintenance (O&M) activities. Water will be used during construction for a number of activities, including construction of concrete foundations and dust control. The construction contractor will be responsible for arranging the delivery of water via water trucks from the Deschutes Valley Water District, and no water will be withdrawn from a protected area. Once the Facility is constructed, there will be limited need for water. Water will primarily be used for cleaning activities such as periodically washing down the solar modules (panels), and for employee drinking and sanitation water. The O&M enclosure will consist of a dry-storage shed with no running water.

While designated protected areas are not located within 3 miles of the Facility, water for dust control will ensure that protected areas are not affected by dust that otherwise might arise during construction. Other water uses during Facility construction and operation will not affect the protected areas within the 20-mile analysis area.

(iv) Wastewater disposal resulting from facility construction or operation;

Response: Wastewater disposal will not affect designated protected areas listed in Table L-1. As discussed in Exhibit V, the use of water for construction practices is not anticipated to generate significant runoff. Exhibit V documents structural and nonstructural best management practices that will be implemented during construction to prevent erosion and control sedimentation. The only sewage services required by the Facility during construction will be the handling of sewage from portable toilets, which will not affect protected areas. Waste from the portable toilets will be pumped regularly and disposed of offsite by the construction contractor. Other than the washwater that may be periodically generated from washing panels and will be covered under an Oregon General Water Pollution Control Facilities 1700-B General Permit if deemed necessary, industrial wastewater will not be generated through Facility operation. During operation, the stormwater will infiltrate into the ground. Water may be used to wash the solar modules up to two times per year and will not be heated or include detergents. If needed, this washwater will be allowed to infiltrate into the ground and will be covered under a 1700-B General Water Pollution Control Facilities Permit, as described in Exhibit E. No sanitary waste will be generated during operation, as the O&M enclosure will be a dry-storage shed with no septic system. Wastewater resulting from Facility construction and operation will not affect the designated protected areas within the 20-mile analysis area.

L.3.2 Potential Visual Impacts

(v) Visual impacts of facility structures or plumes.

This section provides analysis of potential adverse impacts that may result from construction and operation of the Facility on the designated protected areas shown on Figure L-1 and listed in Table L-1. Visual impacts to protected areas were evaluated using the methodology developed for Exhibit R. Figure L-2 shows the viewshed or zone of visual influence (ZVI) analysis and locations where photographs were taken from the identified protected areas toward the Facility site boundary.

The ZVI viewshed analysis was conducted to determine the widest visual range using the tallest Facility components described in Exhibit B, which are: (1) the four H-frame poles that will hold the overhead cables connecting the substation to the POI in the center of the Facility; and (2) pad-mounted inverters and transformers located throughout the Facility. The component heights used in the ZVI model include 80 feet for the substation and POI location where the H-frame poles will be located, and 10 feet for the entire area within the Facility's security fence shown on Figure C-1 in Exhibit C, meant as a worst-case representation of the pad-mounted inverters and transformers.

The orange shading on Figure L-2 represents areas of Facility visibility for the H-frame poles in the substation and POI with a maximum height of 80 feet. The purple shading on Figure L-2 represents areas of Facility visibility for the pad-mounted inverters and transformers with a maximum height of approximately 10 feet, for the entire surface inside the security fence.

Attachment L-1 contains photographs taken from the Photo Survey Point locations shown on Figure L-2. Each photograph includes a descriptive caption of the viewshed shown and a visual indication (i.e., arrow) of where in the photos the Facility site would be located. The Facility will not generate emissions plumes and no visual impacts from plumes will result from the construction and operation of the Facility.

The visual resource specialist relied on field observations, review of aerial photography, and professional expertise to assess the extent to which the Facility will be visible, including an evaluation of the screening potential of existing development, topography, and vegetation. Topographic features, elevation change, and the type, density, and height of vegetation were considered when assessing screening potential. Another criterion used by the visual resource specialist to assess the level of Facility visibility from the applicable protected areas was the distance between the two areas.

Exhibit R analyzes visual impacts from the Facility on scenic resources within 10 miles of the Facility site boundary that are identified as significant or important in applicable local, state, tribal, or federal land management plans. The following resources are identified as both significant or important scenic resources in Exhibit R and designated protected areas: the Cove Palisades State Park and Lower Deschutes Wild and Scenic River. For consistency and completeness, these areas are evaluated in both Exhibit R and this Exhibit L. Like Exhibit R, the analysis provided below concludes that construction and operation of the Facility will not result in significant adverse impacts on these designated protected areas.

As explained in Section R.5.5 of Exhibit R, the Facility is designed to generate power through the absorption of sunlight, resulting in limited reflectivity (glare) that may be visible within the protected areas analysis area. Viewed collectively from a distance at similar elevations, the limited reflectivity of the solar modules may contribute to an overall appearance of a dark line on the horizon. However, at over 3 miles from the nearest protected area, solar array modules are unlikely to be visible or substantial sources of glint or glare. The solar modules are tracking, which means that they will rotate as the sun's angle changes. This, combined with the fact that most modern solar modules employ antireflective (AR) coating, which is designed to nearly eliminate the reflection of sunlight off the module face, will result in minimized glare. A typical human eye reacts to light wavelengths from 390 to 700 nanometers and, in that spectrum, the AR-coated glass typical of most modern solar modules will have a high-level transmittance of at least 93.3 percent. Transmittance is the percentage of radiation (light) that travels through a surface. Such a high level of transmittance is valuable because it means that more light is traveling through the glass and onto the photovoltaic cells, rather than reflecting off the surface. With transmittance values higher than a body of water or a glass window without an AR coating, the potential for glare is lower for modules compared to other surfaces, such as Lake Simtustus or Lake Billy Chinook, both of which are visible within the protected areas analysis area.

The Facility structures under consideration will not visually affect the designated protected areas identified in Table L-1. Sections L.3.2.1 through L.3.2.12 provide additional description.

L.3.2.1 The Cove Palisades State Park

At approximately 5,200 acres, the Cove Palisades State Park is one of the largest of the 54 state parks managed by the Oregon Parks and Recreation Department (OPRD). The park includes the deep rimrock canyons at the confluence of the Deschutes, Crooked, and Metolius Rivers into Lake Billy Chinook. The park is managed by the OPRD in accordance with *The Cove Palisades State Park Master Plan* (OPRD, 2002). Vegetation communities within the park consist primarily of sagebrush, rabbitbrush, juniper, and grassland. Steep basalt cliffs and talus slopes surround Lake Billy Chinook, except for a few gentle benches where park facilities are located and visitors can access the lake for boating. The majority of the State Park is located 3.6 miles southwest of the Facility around Lake Billy Chinook (Figure L-1). The ZVI viewshed analysis on Figure L-2 shows that the Facility is not visible from areas within the park boundary surrounding Lake Billy Chinook. The Facility is only potentially visible from an isolated 64-acre area of the park located approximately 3.1 miles south of the Facility. However, this isolated area is not designated as an important viewpoint in the park and is not analyzed further.

Based on Scenic Resource Management Objective A in *The Cove Palisades State Park Master Plan* (OPRD, 2002), the following viewpoints are considered important: Mountain View Drive

Viewpoint 1, Mountain View Drive Viewpoint 2, Café at the Marina, and Peninsula Group Camp. These viewpoints are within the 20-mile analysis area for protected areas. While ZVI viewshed analysis on Figure L-2 shows that the Facility will not be visible from these locations, the Applicant's visual resource specialist took photographs from these locations to verify this finding (see Attachment L-1). Further analysis is provided below.

Photograph L-1 at Photo Survey Point L-1 was taken from Mountain View Drive Viewpoint 1 located off SW Mountain View Drive and within the mapped boundary of the Cove Palisades State Park facing the Facility site boundary (Attachment L-1). Photograph L-1 shows that views of the Facility site from Mountain View Drive Viewpoint 1 are precluded by existing elevation and topography. The Facility will not result in significant potential adverse impacts to scenic qualities of views from Mountain View Drive Viewpoint 1.

Photograph L-2 at Photo Survey Point L-2 was taken from Mountain View Drive Viewpoint 2 located off SW Mountain View Drive and within the mapped boundary of the Cove Palisades State Park facing the Facility site boundary (Attachment L-1). Photograph L-2 shows that views of the Facility site from Mountain View Drive Viewpoint 2 are also precluded by existing elevation and topography. The Facility will not result in significant potential adverse impacts to scenic qualities of views from Mountain View Drive Viewpoint 2.

Photograph L-3 at Photo Survey Point L-3 was taken from the entrance to the marina and Upper Deschutes Day Use Area within the mapped boundary of the Cove Palisades State Park facing the Facility site boundary (Attachment L-1). Photograph L-3 shows that views of the Facility site from the marina and Upper Deschutes Day Use Area are also precluded by existing elevation and topography. The Facility will not result in significant potential adverse impacts to scenic qualities of views from the marina and Upper Deschutes Day Use Area. Photo Survey Point L-3 also serves as a proxy location for the Café at the Marina and Peninsula Group Camp. Figure L-2 shows that Café at the Marina and Peninsula Group Camp are located within the canyon surrounding Lake Billy Chinook and are therefore precluded from views toward the Facility. Photograph L-3 demonstrates that any view toward the Facility from within the canyon at the Cove Palisades State Park will be precluded by existing elevation and topography. The Facility will not result in significant potential adverse impacts to scenic qualities of views from Café at the Marina and Peninsula Group Camp.

Photograph L-4 at Photo Survey Point L-4 was taken from the Tam-A-Lau Trail on the plateau of the peninsula within the mapped boundary of the Cove Palisades State Park facing the Facility site boundary (Attachment L-1). While not designated as a significant scenic or important scenic resource, the crest of the Tam-A-Lau Trail offers sweeping views from the Cove Palisades State Park toward the Facility site. Figure L-2 and Photograph L-4 show that even at a higher elevation along the rim of the peninsula within the park, views toward the Facility are precluded by existing elevation and topography.

Therefore, the Facility will not result in significant potential adverse impacts to scenic qualities of views from the Cove Palisades State Park.

L.3.2.2 Central Oregon Experiment Station, Madras

OAR 345-022-0040(1)(m) identifies agricultural experimental stations established by the College of Agriculture, Oregon State University (College of Agriculture) as designated protected areas. Specifically, the Central Oregon Experiment Station, Madras is an identified station located in Jefferson County [OAR 345-022-0040(1)(m)]. The station is identified by the College of Agriculture as the Central Oregon Agriculture Research and Extension Center (COAREC) (Oregon State University, 2019). The purpose of the COAREC is to conduct research and provide valuable knowledge relating to agriculture, food systems, as well as biological, social, and environmental sciences (Oregon State University, 2019). The station conducts research on a variety of specialty crops associated with central Oregon seed production.

The COAREC is located on NW Dogwood Lane near the intersection with US Highway 26 approximately 3.5 miles east of the Facility site boundary. The ZVI viewshed analysis on Figure L-2 shows that the Facility may be visible from the COAREC. The Applicant's visual resource specialist did not visit the COAREC site. However, Photograph L-5 at Photo Survey Point L-5 was taken from the shoulder of NW Dogwood Lane located directly south of and adjacent to the COAREC heading approximately 250 degrees (°) SW toward the Facility site boundary

(Attachment L-1). At approximately 3.5 miles away, the Facility will appear obscured or may be undetectable in the background of the viewshed shown on Photograph L-5. The solar array will be screened by existing juniper vegetation and agricultural structures. Any visibility of the Facility will appear similar to a dark outline or shadow with a low profile on the background in the landscape. The Facility components, if visible, will lack definition and detail and will not dominate the existing landscape.

Therefore, the Facility will not result in significant potential adverse impacts to scenic qualities of views from the Central Oregon Experiment Station, Madras (COAREC).

L.3.2.3 Lower Deschutes Wild and Scenic River

The lower segment of the Deschutes River (from Pelton Dam downstream to the north County line) is located within the protected areas analysis area approximately 4.2 miles north of the Facility site boundary (Figure L-2). In 1970, this segment of the river was designated as the Deschutes River Scenic Waterway Recreation Area and is a component of the Oregon State Scenic Waterways System. In 1988, the same segment of the river was designated by the U.S. Congress as a National Wild and Scenic River. The 20,641 acres of land within the boundaries of the Lower Deschutes Wild and Scenic River are managed by the Bureau of Land Management (BLM) in accordance with the *Lower Deschutes River Management Plan Record of Decision* (Lower Deschutes ROD) (BLM, 1993). Pursuant to ORS 390.934, the State of Oregon also adopts the Lower Deschutes ROD as the management document for the Deschutes River Scenic Waterway Recreation Area.

The Lower Deschutes Wild and Scenic River is generally managed to protect and enhance the river's outstanding qualities while allowing the continuation of compatible existing uses, which consist primarily of outdoor recreation opportunities. The ZVI viewshed analysis provided in Figure L-2 shows that the Facility could only be visible to motorists and boaters from a small area within the Lower Deschutes Wild and Scenic River boundary. The area of potential visibility is approximately 5 miles from the Facility site boundary along an approximately 0.2-mile-long section of Bureau of Indian Affairs (BIA) Road 24, and along an approximately 400-foot-section of the river at river level. The majority of views from the Lower Deschutes Wild and Scenic River toward the Facility are precluded by the existing elevation and topography of the river canyon.

Photograph L-6 at Photo Survey Point L-6 was taken from the northbound shoulder of BIA Road 24 and shows a view with potential visibility of the Facility from the mapped boundary of the Lower Deschutes Wild and Scenic River (Attachment L-1). Photograph L-6 shows the Facility location on the plateau that forms the horizon in the background of the viewshed approximately 5 miles to the south of Photo Survey Point L-6. At this distance, the Facility is unlikely to be detectable in the surrounding landscape. The existing transmission lines described in Section R.1 are identified as the "visually prominent developed features of the landscape" (USFS, 1989); however, at a distance of approximately 5 miles, these transmission lines are not visible in Photograph L-6. Since the Facility will be well under the height of the tree line on the plateau, and well under the height of the existing transmission lines located adjacent to the site and crossing the Facility site boundary, it is unlikely that the solar array will be visible or form a significant contrast in the viewshed from the Lower Deschutes Wild and Scenic River.

As described in Exhibit K, the Facility will also comply with Section 412 (Scenic and Natural Hazard Rim Setback) of the Jefferson County Zoning Ordinance, which requires a 30-foot setback from the rim edge of steep slopes such as the walls of Willow Creek Canyon located along the northern and eastern perimeter of the Facility site boundary (Jefferson County, 2018). Compliance with this setback will further obscure views of the Facility and will maintain consistency with County regulations. Therefore, the Facility will not result in significant potential adverse impacts to scenic qualities experienced by recreational users of Lower Deschutes Wild and Scenic River.

Therefore, the Facility will not result in significant potential adverse impacts to scenic qualities of views from the Lower Deschutes Wild and Scenic River.

L.3.2.4 Warm Springs State Wildlife Management Area

Under OAR 345-022-0040(1)(p), state wildlife areas and management areas identified in OAR chapter 635, division 8, are included as designated protected areas. The Warm Springs State

Wildlife Management Area (WMA) is identified under OAR 635-008-0165 and located in Jefferson County within the protected areas analysis area. The Warm Springs State WMA is managed by the Oregon Department of Fish and Wildlife and is open to wildlife-oriented public uses. The only prohibited activities associated with the WMA include camping and discharging firearms on portions of the WMA west of US Highway 26. The nearest portion of the Warm Springs WMA is approximately 5.1 miles north of the Facility site boundary.

While the ZVI viewshed analysis on Figure L-2 shows that the Facility will not be visible from areas within the WMA boundary, the Applicant's visual resource specialist took a photograph from the WMA to verify this finding. Photograph L-7 at Photo Survey Point L-7 was taken from a portion of the Warm Springs WMA located between the Lower Deschutes Wild and Scenic River and US Highway 26 heading approximately 180°S toward the Facility site boundary (Attachment L-1). Photograph L-7 shows that views toward the Facility site from Photo Survey Point L-7 are precluded by existing elevation and topography.

Therefore, the Facility will not result in significant potential adverse impacts to scenic qualities of views from the Warm Springs State WMA.

L.3.2.5 The Island Area of Critical Environmental Concern

The Island is an approximately 195-acre site located at the confluence of the Deschutes and Crooked Rivers within the Cove Palisades State Park (Figure L-1). The Island was designated by the BLM as an Area of Critical Environmental Concern (ACEC) / Research Natural Area (RNA) (referred to herein as The Island ACEC). It is reserved for scientific research and observations of pre-European settlement landscapes in the western U.S. The Island received RNA status to retain undisturbed native plant communities such as western juniper and big sagebrush. At its nearest point, The Island ACEC is located approximately 6.3 miles south of the Facility site boundary.

The plateau of The Island ACEC is not accessible from publicly marked trails and casual recreation access is prohibited. Access to The Island ACEC can only be obtained through permits for research purposes. The ZVI viewshed analysis on Figure L-2 shows that the Facility is not visible from The Island ACEC. In addition, Photograph L-4 at Photo Survey Point L-4 was taken from the Tam-A-Lau Trail on the plateau of the peninsula within the mapped boundary of the Cove Palisades State Park facing the Facility site boundary (Attachment L-1). The crest of the Tam-A-Lau Trail offers sweeping views from the Cove Palisades State Park toward the Facility site. The Island ACEC is shown in the middleground below the elevation of the canyon walls surrounding Lake Billy Chinook. Figure L-2 and Photograph L-4 show that, at the elevation along the plateau of The Island ACEC, views toward the Facility are precluded by existing elevation and topography.

Therefore, the Facility will not result in significant potential adverse impacts to scenic qualities of views from The Island ACEC.

L.3.2.6 Deschutes Canyon-Steelhead Falls Wilderness Study Area

Deschutes Canyon-Steelhead Falls Wilderness Study Area (WSA) is an approximately 18,402-acre area that is jointly studied and managed by the BLM and United States Forest Service (USFS) (Figure L-1). The area is generally studied for wilderness manageability (BLM, 2019). At its nearest point, the Deschutes Canyon-Steelhead Falls WSA is located approximately 8.9 miles south of the Facility site boundary.

While the ZVI viewshed analysis on Figure L-2 shows that the Facility will not be visible from areas within the Deschutes Canyon-Steelhead Falls WSA boundary, the Applicant's visual resource specialist took a photograph from the WSA to verify this finding. Photograph L-8 at Photo Survey Point L-8 was taken from a portion of the Deschutes Canyon-Steelhead Falls WSA accessible from the northbound shoulder of SW Jordan Road and adjacent to the Deschutes River's inlet to Lake Billy Chinook heading approximately 20°N toward the Facility site boundary. Photograph L-8 (Attachment L-1) shows that views toward the Facility site from Photo Survey Point L-8 are precluded by existing elevation and topography.

Therefore, the Facility will not result in significant potential adverse impacts to scenic qualities of views from the Deschutes Canyon-Steelhead Falls WSA.

L.3.2.7 Middle Deschutes Wild and Scenic River

The federally designated portion of the Middle Deschutes Wild and Scenic River is 20 miles long. When combined with the Lower Crooked Wild and Scenic River, the designated areas encompass approximately 9,305 acres. The designated portion of the Middle Deschutes river is managed by the BLM in accordance with the *Middle Deschutes/Lower Crooked Wild and Scenic River Management Plan* (BLM, 1992). Congress designated this segment of the river due to its outstandingly remarkable scenic, recreation, cultural, geologic, wilderness, hydrologic, fish and wildlife, as well as historical and botanical resource values. At its nearest point, the Middle Deschutes is approximately 11.7 miles south of the Facility site boundary and within the protected areas analysis area (Figure L-1).

The ZVI viewshed analysis on Figure L-2 shows that the Facility is not visible from any area within the management area of the Middle Deschutes Wild and Scenic River. Based on distance and results from the ZVI viewshed analysis, the Applicant's visual resource specialist did not take photographs from this designated protected area.

The Facility will not result in significant potential adverse impacts to scenic qualities of views from the Middle Deschutes Wild and Scenic River.

L.3.2.8 Metolius Wild and Scenic River

The federally designated portion of the Metolius Wild and Scenic River corridor is approximately 8,560 acres. The Metolius Wild and Scenic River corridor is managed by the USFS in accordance with the *Metolius Wild and Scenic River Management Plan Record of Decision* (USFS, 1997). Congress designated this segment of the Metolius Wild and Scenic River, and its adjacent land, with the intention of providing a primitive recreation experience. At its nearest point, the Metolius Wild and Scenic River is approximately 12.1 miles west of the Facility site boundary and within the protected areas analysis area (Figure L-1).

The ZVI viewshed analysis on Figure L-2 shows that the Facility is not visible from any area within the management area of the Metolius Wild and Scenic River. Based on distance and results from the ZVI viewshed analysis, the Applicant's visual resource specialist did not take photographs from this designated protected area.

The Facility will not result in significant potential adverse impacts to scenic qualities of views from the Metolius Wild and Scenic River.

L.3.2.9 Lower Crooked Wild and Scenic River

The federally designated portion of the Lower Crooked Wild and Scenic River is 9.8 miles long. When combined with the Middle Deschutes Wild and Scenic River, the designated areas encompass approximately 9,305 acres. The Lower Crooked Wild and Scenic River is managed by the BLM in accordance with the *Middle Deschutes/Lower Crooked Wild and Scenic River Management Plan* (BLM, 1992). Congress designated this segment of the river due to its outstandingly remarkable scenic and recreation resource values. At its nearest point, the Lower Crooked Wild and Scenic River is approximately 12.8 miles south of the Facility site boundary and within the protected areas analysis area (Figure L-1).

The ZVI viewshed analysis on Figure L-2 shows that the Facility is not visible from any area within the management area of the Lower Crooked Wild and Scenic River. Based on distance and results from the ZVI viewshed analysis, the Applicant's visual resource specialist did not take photographs from this designated protected area.

The Facility will not result in significant potential adverse impacts to scenic qualities of views from the Lower Crooked Wild and Scenic River.

L.3.2.10 Warm Springs National Fish Hatchery

The Warm Springs Fish Hatchery is used for egg incubation and rearing of spring Chinook salmon. The Warm Springs Fish Hatchery is located approximately 13.5 miles north of the Facility site boundary and within the protected areas analysis area (Figure L-1).

The ZVI viewshed analysis on Figure L-2 shows that the Facility is not visible from the Warm Springs Fish Hatchery. Based on distance and results from the ZVI viewshed analysis, the

Applicant's visual resource specialist did not take photographs from this designated protected area.

The Facility will not result in significant potential adverse impacts to scenic qualities of views from the Warm Springs Fish Hatchery.

L.3.2.11 Peter Skene Ogden State Scenic Viewpoint

The Peter Skene Ogden State Scenic Viewpoint is located off US Highway 97 and provides travelers with views of basalt cliffs and the Crooked River canyon. The viewpoint is located approximately 18.2 miles south of the Facility site boundary and within the protected areas analysis area (Figure L-1).

The ZVI viewshed analysis on Figure L-2 shows that the Facility is not visible from the Peter Skene Ogden State Scenic Viewpoint. Based on distance and results from the ZVI viewshed analysis, the Applicant's visual resource specialist did not take photographs from this designated protected area.

The Facility will not result in significant potential adverse impacts to scenic qualities of views from the Peter Skene Ogden State Scenic Viewpoint.

L.3.2.12 Smith Rock State Park

Smith Rock State Park is approximately 641 acres and offers a variety of recreational opportunities, including rock climbing and hiking. The northern boundary of the state park is located approximately 19.7 miles south of the Facility site boundary and within the protected areas analysis area (Figure L-1).

The ZVI viewshed analysis on Figure L-2 shows that the Facility is not visible from Smith Rock State Park. Based on distance and results from the ZVI viewshed analysis, the Applicant's visual resource specialist did not take photographs from this designated protected area.

The Facility will not result in significant potential adverse impacts to scenic qualities of views from Smith Rock State Park.

L.3.2.13 Class I Areas

(vi) Visual impacts from air emissions resulting from facility construction or operation, including, but not limited to, impacts on Class 1 Areas as described in OAR 340-204-0050.

Response: The Facility is not located in a Class 1 area pursuant to OAR 340-204-0050, which addresses Prevention of Significant Deterioration to areas in Oregon. The closest area classified as Class 1 is the Mount (Mt.) Jefferson Wilderness Area, which is approximately 22 miles from the site boundary. Because of the considerable distance between the Mt. Jefferson Wilderness Area and the Facility, the Facility will not be visible from the area.

In terms of visual impacts from air quality, dust may be generated during Facility construction activities such as grading and clearing. However, the Applicant will control dust by watering disturbed areas during construction. Furthermore, the Facility will not emit regulated pollutants in the generation of electricity. Because of the distance from the Facility to the Mt. Jefferson Wilderness Area (Class 1 area), the Facility and any construction-related air emissions will not be visible from the area.

To summarize, no impacts are expected from construction or operation of the Facility. Therefore, there will be no impacts on Class 1 areas.

L.4 SUMMARY

On the basis of the potential impacts evaluation discussed in this Exhibit, sufficient evidence is provided to demonstrate that the design, construction, and operation of the Facility will not cause direct or indirect noise, traffic, water, wastewater, or visual impacts likely to result in significant adverse impacts to designated protected areas.

L.5 REFERENCES

Bureau of Land Management (BLM). 1992. *Middle Deschutes/Lower Crooked Wild and Scenic River Management Plan*. U.S. Department of the Interior. U.S. Department of Agriculture Forest Service. Oregon State Parks and Recreation Department. December. Accessed July 25, 2019. https://www.blm.gov/or/districts/prineville/plans/files/middle_deschutes.pdf.

Bureau of Land Management (BLM). 1993. *Lower Deschutes River Management Plan Record of Decision.* U.S. Department of the Interior. February. Accessed July 2019. https://eplanning.blm.gov/epl-front-office/projects/nepa/55145/66709/72555/19930200_Lower_Deschutes_River_Mgmt_Plan_ROD_(1993).pdf.

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Oregon Parks and Recreation Department (OPRD). 2002. The Cove Palisades State Park Master Plan. Accessed July 2019. http://library.state.or.us/repository/2012/201211140801363/index.pdf.

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U.S. Department of Agriculture Forest Service (USFS). 1997. *Metolius Wild and Scenic River Management Plan Record of Decision.* May. Accessed July 25, 2019. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd501607.pdf.

Figures

121°40'W 121°30'W 121°20'W 121°10'W 121°0'W 120°50'W 120°40'W

44°50'N 44°40'N 44°30'N 44°20'N

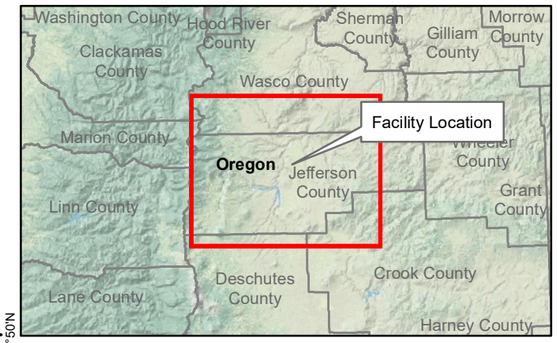
Warm Springs Meadows
Olallie Lake
Monon Lake
Boulder Lake
Boulder Creek Meadows
Whitewater Glacier
Waldo Glacier
Suttle Lake
Blue Lake
Lake Simtustus
Lake Billy Chinook
Pelton Regulating Reservoir
Little Willow Creek Reservoir
Brewer Reservoir
Haystack Reservoir

Warm Springs National Fish Hatchery
Lower Deschutes Wild and Scenic River
Warm Springs Wildlife Management Area
Central Oregon Experiment Station, Madras
City of Madras
Metolius Wild and Scenic River
The Cove Palisades State Park
Mountain View Drive Viewpoint 1
The Island ACEC
Cafe at the Marina
Mountain View Drive Viewpoint 2
Peninsula Group Camp
Deschutes Canyon-Steelhead Falls Wilderness Study Area
Middle Deschutes Wild and Scenic River
Lower Crooked Wild and Scenic River
Peter Skene Ogden State Scenic Viewpoint
Smith Rock State Park

US Hwy 26
US Hwy 97
US Hwy 197
Sherman Hwy
State Hwy 218
State Hwy 293
US Hwy 97 Bus
SW US Hwy 97
SE US Hwy 26
US Hwy 20
State Hwy 370

JEFFERSON COUNTY
JEFFERSON COUNTY

VICINITY MAP



LEGEND

- Madras Solar Energy Facility Site Boundary
- Protected Areas Analysis Area (20 miles)
- City Limits
- Major Highway
- Existing Road
- Waterbody

Protected Area

- Area of Critical Environmental Concern (ACEC)
- Wilderness Study Area
- National Wild and Scenic River
- National Fish Hatchery
- State Park
- State Park – Designated Important Viewpoint
- State Wildlife Management Area
- State Wayside
- Agricultural Experimental Station

Coordinate System: NAD 1983 UTM Zone 10N

Data Sources: Jefferson County; USGS, National Geospatial Technical Operations Center; Oregon Department of Land Conservation and Development; ESRI ArcGIS online

0 1 2 4 6 8 10
Miles

1 inch equals 4.57 miles

Figure L-1
Protected Areas
Application for Site Certificate
Madras Solar Energy Facility
Jefferson County, OR

JACOBS

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121°40'W 121°30'W 121°20'W 121°10'W 121°0'W 120°50'W 120°40'W

44°50'N 44°40'N 44°30'N 44°20'N

Warm Springs Meadows
Olallie Lake
Monon Lake
Boulder Lake
Boulder Creek Meadows
Whitewater Glacier
Waldo Glacier
Suttle Lake
Blue Lake
Lake Simtustus
Lake Billy Chinook
Little Willow Creek Reservoir
Brewer Reservoir
Haystack Reservoir
Pelton Regulating Reservoir

US Hwy 26
US Hwy 97
US Hwy 197
Sherman Hwy
State Hwy 218
State Hwy 293
US Hwy 97 Bus
SW US Hwy 97
SE US Hwy 26
US Hwy 20
State Hwy 370

JEFFERSON COUNTY
JEFFERSON COUNTY

Warm Springs National Fish Hatchery
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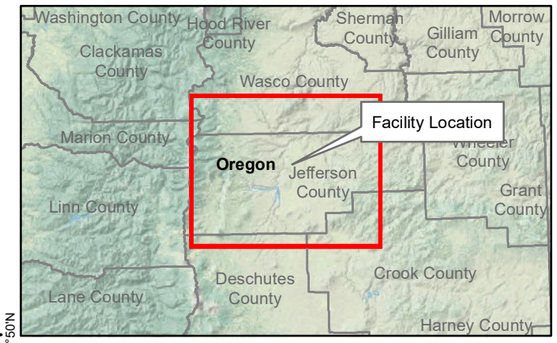
Middle Deschutes Wild and Scenic River
Lower Crooked Wild and Scenic River
Peter Skene Ogden State Scenic Viewpoint
Smith Rock State Park

L-1 L-2 L-3 L-4 L-5 L-6 L-7 L-8

VICINITY MAP



LEGEND

- Madras Solar Energy Facility Site Boundary
- Protected Areas Analysis Area (20 miles)
- City Limits
- Major Highway
- Existing Road
- Waterbody

Protected Area

- Area of Critical Environmental Concern (ACEC)
- Wilderness Study Area
- National Wild and Scenic River
- National Fish Hatchery
- State Park
- State Park – Designated Important Viewpoint
- State Wildlife Management Area
- State Wayside
- Agricultural Experimental Station

Potential Visibility

- Zone of Visual Influence (ZVI): Potential Visibility of the Facility
- ZVI: Potential Visibility of Only the Facility Substation and Point of Interconnection (Pad-Mounted Inverters and Transformers not visible)
- Photo Survey Point

Coordinate System: NAD 1983 UTM Zone 10N

Data Sources: Jefferson County; USGS, National Geospatial Technical Operations Center; Oregon Department of Land Conservation and Development; ESRI ArcGIS online

0 1 2 4 6 8 10
Miles

1 inch equals 4.57 miles

Figure L-2
Potential Visibility and Photo Survey Points within 20 miles of the Facility Site Boundary
Application for Site Certificate
Madras Solar Energy Facility
Jefferson County, OR

JACOBS

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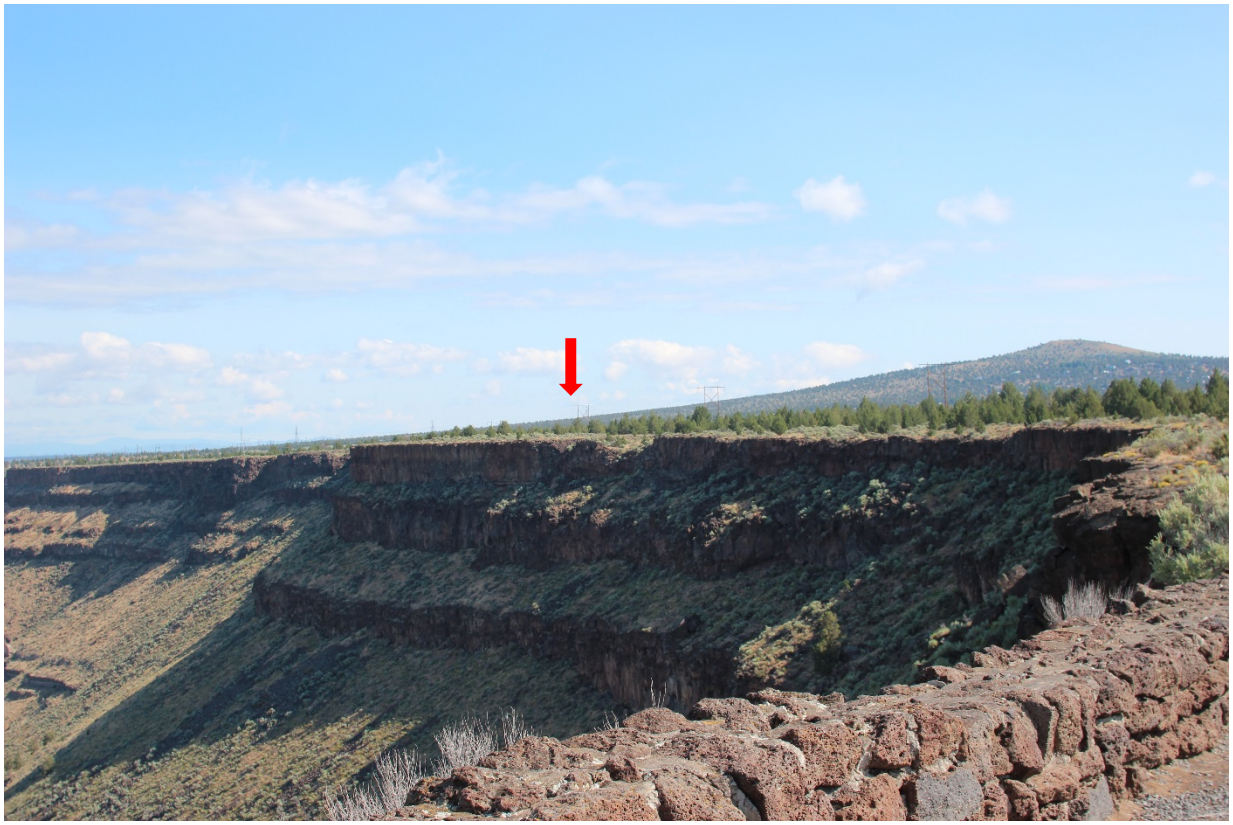
Attachment L-1
Existing Conditions Photographs

Project Title	**Madras Solar Energy Facility**
Location	Jefferson County, Oregon (see Figure L-2, Potential Visibility and Photo Survey Points within 20 miles of the Facility Site Boundary)
Date	Photographs taken on July 1 and 2, 2019

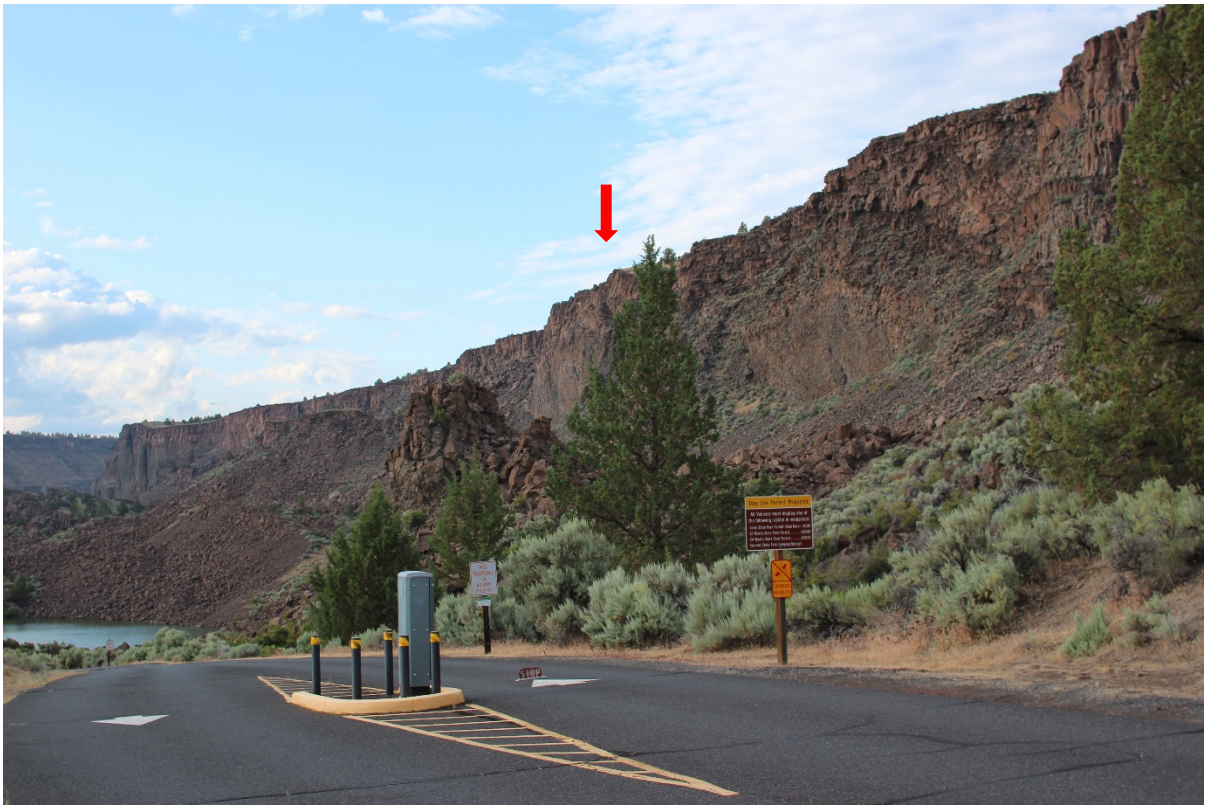
The Cove Palisades State Park



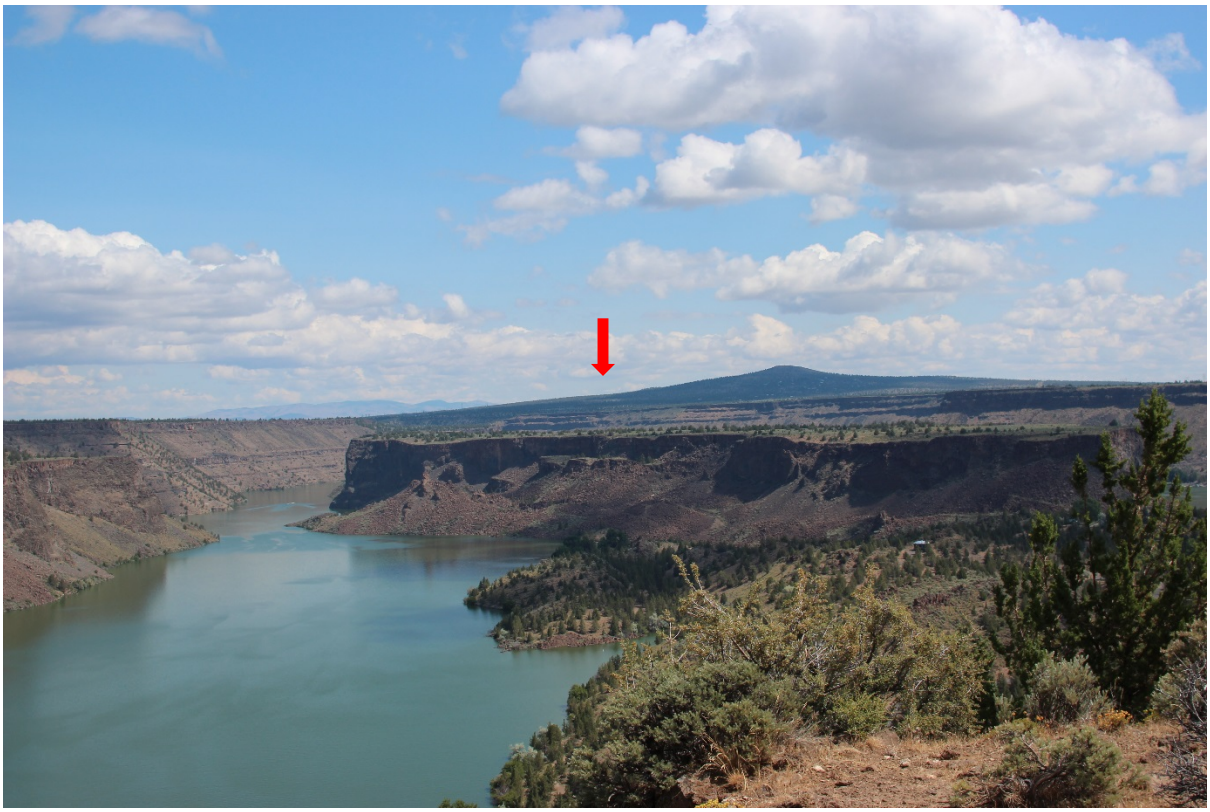
Photograph L-1 – From Photo Survey Point L-1 on Figure L-2: View from Mountain View Drive Viewpoint 1 located off SW Mountain View Drive and within the mapped boundary of the Cove Palisades State Park heading approximately 10°N toward the Facility site boundary. (The red arrow indicates the approximate location of the Facility site about 6.2 miles north of Photo Survey Point L-1.)

Photograph L-2 – From Photo Survey Point L-2 on Figure L-2: View from Mountain View Drive Viewpoint 2 located off SW Mountain View Drive and within the mapped boundary of the Cove Palisades State Park heading approximately 15°N toward the Facility site boundary. (The red arrow indicates the approximate location of the Facility site about 6.7 miles north of Photo Survey Point L-2.)

The Cove Palisades State Park / The Island Area of Critical Environmental Concern

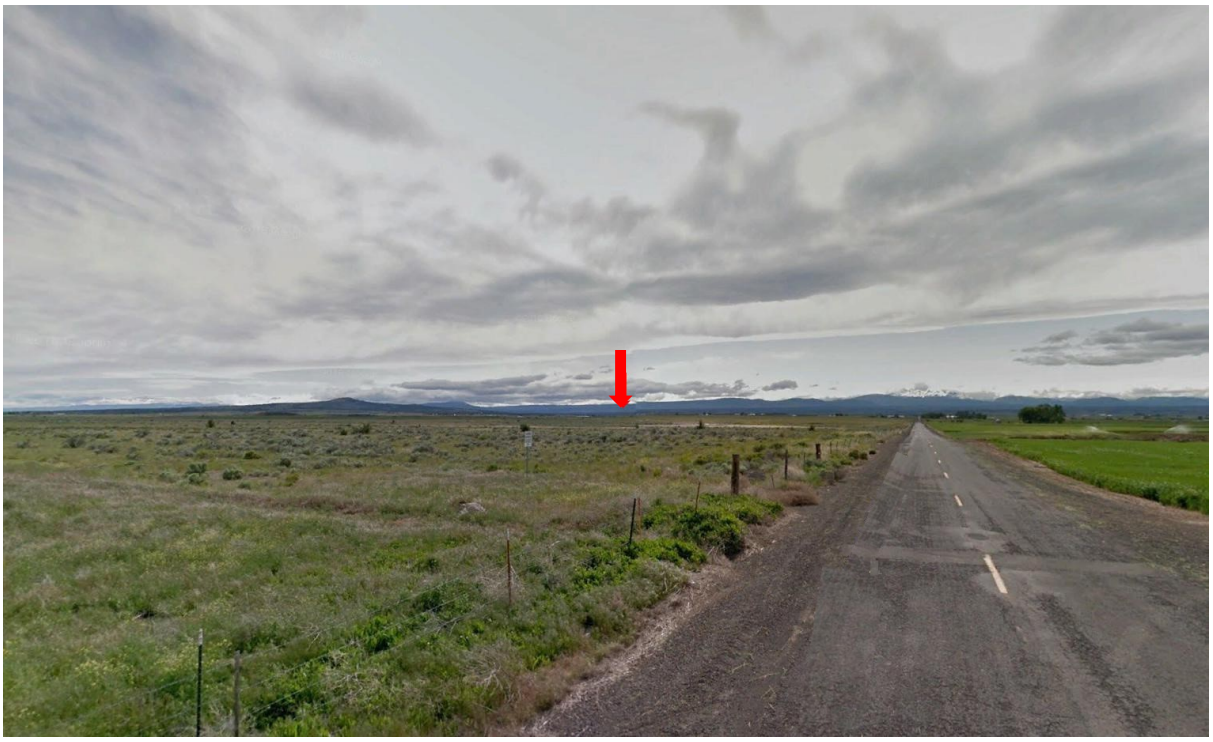


Photograph L-3 – From Photo Survey Point L-3 on Figure L-2: View from the entrance to the marina and Upper Deschutes Day Use Area within the mapped boundary of the Cove Palisades State Park heading approximately 15°N toward the Facility site boundary. The western canyon rim of The Island Area of Critical Environmental Concern (ACEC) is shown in the foreground. (The red arrow indicates the approximate location of the Facility site about 8.3 miles north of Photo Survey Point L-3.)



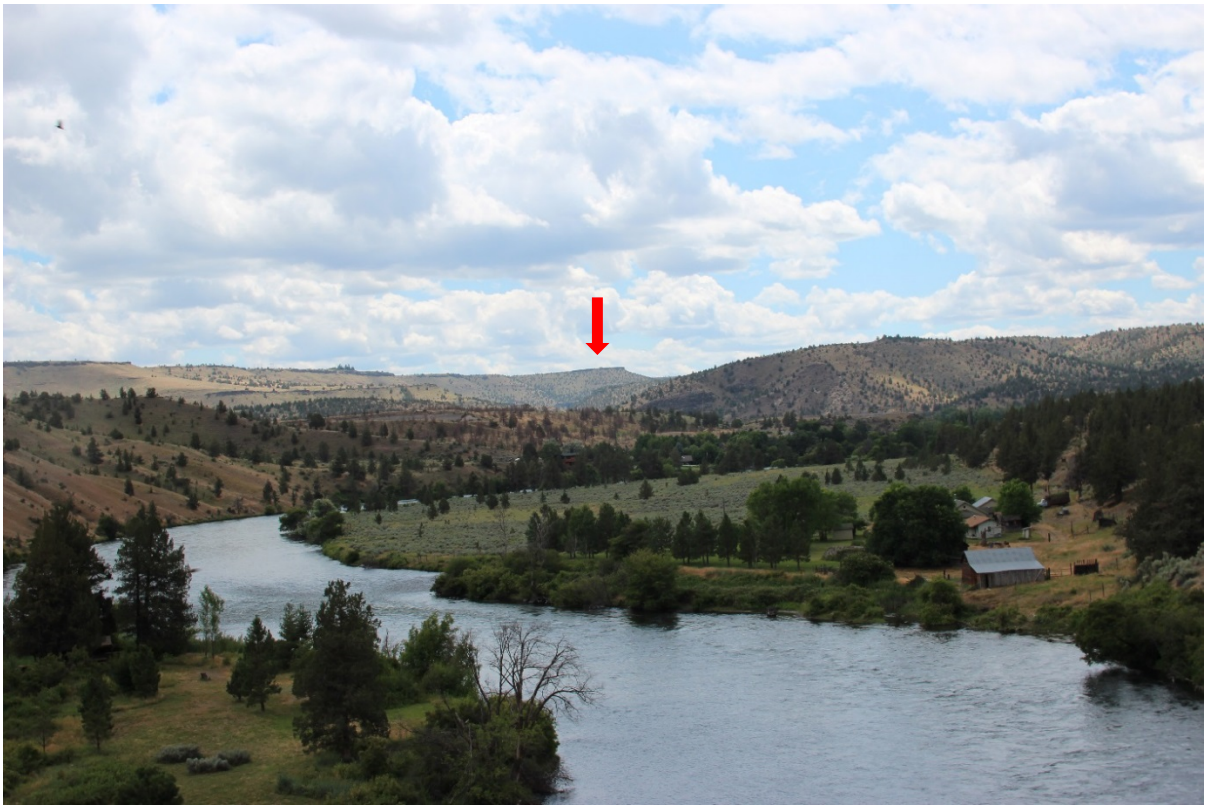
Photograph L-4 – From Photo Survey Point L-4 on Figure L-2: View from the Tam-A-Lau Trail on the plateau of the peninsula within the mapped boundary of the Cove Palisades State Park heading approximately 17°N toward the Facility site boundary. The Island ACEC is shown in the middleground below the elevation of the canyon walls surrounding Lake Billy Chinook. (The red arrow indicates the approximate location of the Facility site about 9.2 miles north of Photo Survey Point L-4.)

Central Oregon Experiment Station, Madras



Photograph L-5 – From Photo Survey Point L-5 on Figure L-2: View taken from the shoulder of NW Dogwood Lane located directly south of and adjacent to the Central Oregon Agricultural Research and Extension Center heading approximately 250°SW toward the Facility site boundary. (The red arrow indicates the approximate location of the Facility site about 3.5 miles southwest of Photo Survey Point L-5.)

Lower Deschutes Wild and Scenic River

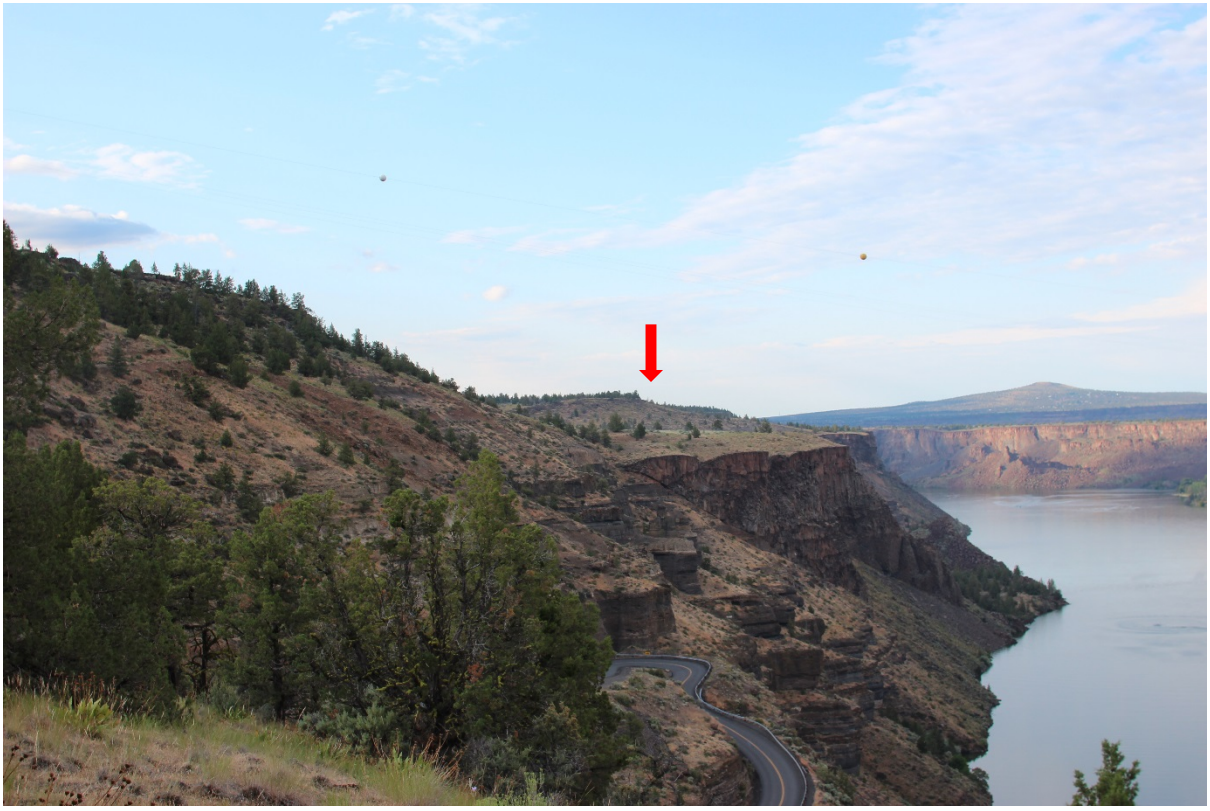


Photograph L-6 – From Photo Survey Point L-6 on Figure L-2: View from the northbound shoulder of Bureau of Indian Affairs (BIA) Road 24 within the mapped boundary of the Lower Deschutes Wild and Scenic River (north of the Pelton Dam and downstream of the County line) heading approximately 170°S toward the Facility site boundary. (The red arrow indicates the approximate location of the Facility site about 5 miles south of Photo Survey Point L-6.)

Warm Springs Wildlife Management Area

Photograph L-7 – From Photo Survey Point L-7 on Figure L-2: View from a portion of the Warm Springs Wildlife Management Area located between the Lower Deschutes Wild and Scenic River and US Highway 26 heading approximately 180°S toward the Facility site boundary. (The red arrow indicates the approximate location of the Facility site about 5.3 miles south of Photo Survey Point L-7.)

Deschutes Canyon – Steelhead Falls Wilderness Study Area



Photograph L-8 – From Photo Survey Point L-8 on Figure L-2: View from a portion of the Deschutes Canyon – Steelhead Falls Wilderness Study Area accessible from the northbound shoulder of SW Jordan Road and adjacent to the Deschutes River's inlet to Lake Billy Chinook heading approximately 20°N toward the Facility site boundary. (The red arrow indicates the approximate location of the Facility site about 9.9 miles north of Photo Survey Point L-8.)