REDLINE

Teanaway Solar Reserve

Conditional Use Permit Application Supplement and Expanded SEPA Checklist Supplement

SUBMITTED TO

Kittitas County, Washington

SUBMITTED BY

Teanaway Solar Reserve, LLC

Teanaway solar reserve

FEBRUARY 2010

PREPARED BY

CH2MHILL

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Permit Application

Teanaway Solar Reserve Conditional Use Permit Application Supplement

Submitted to

Kittitas County, Washington

by

Teanaway Solar Reserve, LLC

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February 2010

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Section **Page**

Attachments

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SECTION 1

Request

Teanaway Solar Reserve, LLC (TSR) proposes to construct and operate the Teanaway Solar Reserve (project), a solar farm capable of generating up to 75 direct current megawatts (MWdc) of photovoltaic (PV) solar energy. The proposed project area consists of 982 acres within the County's Forest and Range (F&R) zoning district. Based on site surveys, the project will utilize approximately 477 acres within the proposed project area. This includes 399 acres of solar panels and 78 acres of supporting facilities. The remaining 505 acres are currently undeveloped open space, a portion of which will be preserved as part of the wildlife mitigation plan (see Expanded SEPA Checklist Supplement, Attachment H, *Wildlife Mitigation Plan*).

TSR worked with staff from Kittitas County to determine the applicable land use approvals and permits in addition to the relevant provisions from the *Kittitas County Code* (KCC). This narrative is a supplement to the application submitted to Kittitas County for a Conditional Use Permit (CUP) necessary to construct and operate the proposed project. TSR understands that the following approvals and permits are also required from Kittitas County:

- TSR must demonstrate project compliance with the State Environmental Policy Act (SEPA) through a decision rendered by Kittitas County. This application notebook also includes TSR's Expanded SEPA Checklist Supplement to demonstrate compliance with SEPA.
- The project is subject to compliance with the County's Critical Areas Ordinance (CAO). The CAO is introduced in this narrative (see Section 3), but a thorough demonstration of compliance is included in the Land Use section of the Expanded SEPA Checklist Supplement.
- Kittitas County has indicated that the size and complexity of the project generates the need for a Development Agreement (DA) between TSR and the County. To ensure mitigation consistency and jurisdictional efficiency, the requirement for the DA is expected to be a condition for approval of this CUP, and will condition and govern this CUP. As set forth in the DA, any inconsistencies between the CUP and the DA will be resolved in favor of the DA. A revised draft DA is included as Attachment E to this CUP application and will also be submitted concurrent with the other application materials described above. The Supplement to the SEPA Expanded Checklist is intended to apply to all of TSR's County proposals triggering SEPA, including this CUP and the DA.

Subsequent sections of this narrative are organized as follows:

- **Section 2, Project Description:** This section provides information about the project in general, including the purpose and need (Section 2.1), proposed project schedule (Section 2.2) site setting (Section 2.3), key components (Section 2.4), permits and authorizations (Section 2.5), summary of construction activities and features (Section 2.6), summary of operations and maintenance activities and features (Section 2.7), and decommissioning and site restoration (Section 2.8).

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- **Section 3, Compliance with Kittitas County Land Use Regulations:** This section provides specific detail on how the project is consistent with the applicable provisions from the KCC. The section is organized numerically by applicable code.
- **Attachment A:** Contains figures referenced in the text of this narrative.
- **Attachment B:** Contains photographs showing examples of proposed project components.
- **Attachment C:** Contains a table identifying landowners of real property within 500 feet of the proposed project.
- **Attachment D:** Contains a legal description of the proposed project.
- **Attachment E**: Contains the Draft Development Agreement, which will be submitted to the Board of County Commissioners of Kittitas County.

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SECTION 2

Project Description

This section provides an overview of the project. Topics addressed include the project description, the project purpose and need, the proposed schedule, site setting, key components, permits and authorizations, summary of construction activities and components, and a summary of operations and maintenance activities and components.

TSR proposes to construct and operate the project on approximately 982 acres of private land within the F&R zoning district in an unincorporated area of Kittitas County, Washington. The project will generate up to 75 MWdc of PV solar energy utilizing approximately 477 acres of land within the proposed project area.

2.1 Purpose and Need

The purpose of the proposed project is to generate up to 75 MWdc of PV solar energy for distribution to utilities seeking to optimize their renewable and sustainable energy sources. The project was conceived in response to the growing importance of and need for sustainable energy sources. In 2001, Kittitas County recognized the importance of facilitating new alternative energy facilities, proclaiming that:

> Kittitas County recognizes the value of facilitating the construction and operation of both alternative and conventional energy producing facilities in reducing the disruption of commerce and governmental services caused by potential energy shortages, all of which adversely affect the economy, public health, safety and welfare. (Kittitas County Ordinance No. 2001-12)

In recognition of the importance alternative energy could play in the future of Kittitas County, the County amended its land use code to, among other things, allow alternative energy facilities as conditional uses in a number of zones. See Kittitas County Code (KCC) Chapter 17.61.

The State of Washington also recognizes the importance of locally produced renewable energy. For example, the State of Washington's Renewable Electricity Standard, Revised Code of Washington (RCW) Title 19, mandates that by the year 2020, the state's largest electric utilities meet 15 percent of their retail electric load with renewable electricity (for example, wind and solar energy). The standard first takes effect in 2012 with a requirement of 3 percent through 2015, then 9 percent from 2016 through 2019, and 15 percent thereafter. Oregon and California have adopted similar standards. Depending on the commercial terms available for the power sales, the utilities that may buy power from the project could change over time.

The Governor of Washington has also proclaimed that renewable energy production, including the project, is integral to the economic health of Washington: "If we seize on the

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economic opportunities presented by the clean energy revolution…then we can achieve our other important goals: a healthier environment and more energy independence" (Speech to the Seattle Chamber of Commerce by Gov. Chris Gregoire, October 22, 2009, found at: http://www.tvw.org/media/mediaplayer.cfm?evid=2009100047C&TYPE=V&CFID=1701129&CFTOKEN=11324713&bhcp=1).

2.2 Project Schedule

The proposed project schedule is outlined in Table 2-1.

TABLE 2-1
Proposed Project Schedule

Task/Milestone	Start	Finish
Obtain Necessary Permits	June 2009	June 1, 2010
Engineering	June 2009	October 2010
Construction	April 1, 2010	As early as October 2011 or as late as December 2012
Initial Operation	Fall 2010	Not applicable

Note: Two to three 7- to 9-month construction seasons are anticipated

2.3 Site Setting

The proposed project site is located approximately 4 miles northeast of Cle Elum, Washington, in Township 20N, Range 16E, within Sections 22, 23, and 27 (see Attachment A, Figure 1 for site location). The site is located on the eastern slopes of the Cascade Mountains on Cle Elum Ridge, which runs generally from east to west at elevations ranging from approximately 2,200 to 2,600 feet (see Attachment A, Figure 2). The Teanaway River is approximately 1 mile to the northeast of Cle Elum Ridge. The site is accessed from Highway 970 by way of County roads such as Red Bridge Road (see Attachment A, Figure 3), and private roads such as Loping Lane. The site is also accessed via Wiehl Road, which is a dedicated public road but is not maintained by the County; it is maintained privately.

The proposed project area consists of 982 acres. This site was chosen for the project by TSR for a variety of reasons.

First, the property is not occupied by any threatened or endangered species, such as the northern spotted owl, nor does it contain any high quality habitats, such shrub steppe grasslands. TSR was thus able to initially consider the entire 982 acres for potential solar placement. TSR then conducted numerous site surveys, as explained in the technical reports attached to the Expanded SEPA Checklist Supplement, including those for wetlands, plants and wildlife, cultural resources, and critical areas. Based on the site surveys and topography, the project will utilize approximately 477 acres within the proposed project area. Solar arrays will be placed on approximately 399 acres. The remaining 505 acres are currently undeveloped open space, a portion of which will be preserved as part of the wildlife mitigation plan (Expanded SEPA Checklist Supplement, Attachment H, *Wildlife*

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TSR proposes to develop the site described below to maximize its solar energy potential, based on its commitment to providing renewable energy and becoming the leading (in terms of energy production and environmentally sensitive development and management of its solar production site) sustainable energy production location in North America. The following factors have been analyzed to determine optimal location within the site defined below:¶
<#>Significant solar radiation (insolation)¶
<#>Site accessibility¶
<#>Avoidance of and minimization of impacts to environmentally sensitive areas¶
<#>Limited visibility from offsite locations¶
The purpose of the proposed project is to generate up to 75 MWdc of PV solar energy for distribution to utilities and communities seeking to optimize their renewable and sustainable energy sources. The project was conceived in response to the growing need for sustainable energy sources and the State of Washington's Renewable Electricity Standard, Revised Code of Washington (RCW) Title 19, mandate that by the year 2020, the state's largest electric utilities meet 15 percent of their retail electric load with renewable electricity (for example, wind and solar energy). The standard first takes effect in 2012 with a requirement of 3 percent through 2015, then 9 percent from 2016 through 2019 and 15 percent thereafter.¶
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Mitigation Plan). An open corridor will be maintained to allow for potential wildlife migration through the site.

Second, the site has been managed for timber harvesting and has been frequently disturbed. Currently zoned F&R (see Attachment A, Figure 6), the project area has been repeatedly selectively logged since the early 1900s. Harvests have occurred in the 1920s, 1950s, 1980s, and 2000s. Pre-commercial thinning occurred in the decades between logging. Prior to 1900, the site had a fire frequency of 9 to 12 years, indicating that a healthy understory and small trees did not exist, creating a park-like stand of larger trees that were fire resistant to low-intensity periodic fires (Wright, 1996; Agee and Wright, 1997). The site was most recently selectively logged in 2001, and existing site vegetation consists of low grasses, shrubs, and plants with scattered 50- to 60-foot, 6- to 18-inch-diameter ponderosa pine (*Pinus ponderosa*) trees. Shrub and riparian plant communities are predominantly snowberry (*Symphoricarpos albus*) and Rose (*Rosa* spp.) bushes. Herbaceous plant communities are predominantly Lupine (*Lupinus seiceus*), yarrow (*Achillea millefolium*), arrowleaf balsamroot (*Balsamorhiza sagittata*), and various grass species. Wetland plant communities are dominated by rushes (*Juncus* spp.), sedges (*Carex* spp.), wild onion (*Allium douglasii*), and various grass species. Some structural and residential developments have taken place on the site's southern boundary. Figure 5 in Attachment A shows the identified structures within the vicinity of the site boundary.

Third, the Bonneville Power Administration's (BPA) 345-kilovolt (kV) Rocky Reach-Maple Valley transmission line is in close proximity to the site, running east to west along the southern site boundary (see Attachment A, Figure 2). The proposed project is expected to interconnect to the regional transmission grid using this line (see Attachment A, Figure 4). An interconnection substation with an approximate footprint of 6 acres will be located on the project site. Siting the project close to the existing BPA transmission line significantly minimizes the environmental impacts that could arise from using other sites further away from the line. Construction of transmission lines is costly; therefore, siting a project in close proximity to a transmission is economically beneficial to the project.

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Finally, TSR proposes to develop the site described below to maximize its solar energy potential, based on its commitment to providing renewable energy and becoming the leading (in terms of energy production and environmentally sensitive development and management of its solar production site) sustainable energy production location in North America. The following factors have been analyzed to determine optimal location within the site defined below:

- Significant solar radiation (insolation)
- Site accessibility
- Avoidance of and minimization of impacts to environmentally sensitive areas
- Limited visibility from offsite locations

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2.4 Key Components

The proposed project will consist of the following key components:

- Solar modules
- Field inverters
- Field transformers
- Electrical conductors
- Electrical substation and switchyard
- Operations and maintenance (O&M) building and supervisory control and data acquisition (SCADA) system
- Overhead interconnection transmission line
- Access and maintenance roads

Key components are described in the following subsections.

2.4.1 Solar Modules

Solar modules in a metal frame on supporting mounting structures will be used for the proposed project. Approximately 399 acres of modules will be installed within the 982-acre proposed project area. The solar modules are manufactured offsite and will be delivered to the site by truck in wooden crates or cardboard boxes. TSR seeks flexibility in choosing a solar array system that best suits the site conditions. A representative module is shown in Attachment B, Photo 1. Each module measures 65 inches by 38 inches (5.4 feet by 3.2 feet) and is rated at 216 watts (Sharp Electronics, 2009) and will be mounted so that they are at least 4 feet above the ground surface. The solar modules are mounted in a fashion that orients the modules toward the sun.

Several module mounting types will be considered to best address the slope of land and soil stability at the project site. For example, large land areas with a slope toward the south are excellent for single-axis tracking systems. Land areas that are sloped to the east, southeast, west, or southwest will not as easily accommodate single-axis tracking systems, and are better suited to a fixed-tilt mounting structure.

The mounting system foundations could consist of embedded posts, poles, or structural steel angle. For one type of single-axis support approach, 1,936 posts are needed for every megawatt of energy. If the entire 75 MWdc were to be installed with this mounting system, then approximately 145,200 posts would need to be set. If a fixed-tilt approach is used, up to 8,000 steel angles would be needed. The impervious surface associated with these structures is presented in more detail in the Expanded SEPA Checklist Supplement, Attachment F, *Hydraulic Analysis*.

The posts will not be anchored unless a patch of bedrock is encountered during installation. The embedment could be completed via a vibratory drill or similar installation method to depths of approximately 8 feet. After the posts are installed, they are held in place by friction from the surrounding soil, without the use of concrete. Driven piles develop their strength by utilizing a definable skin friction between the pile and the soil. As the pile is forced into the ground, the displaced material compresses and that, in turn, creates the friction at the pile/soil interface. Piles are typically driven to a depth that prevents seasonal

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The proposed project area consists of 982 acres. Based on site surveys, the project will utilize approximately 580 acres within the proposed project area. The remaining acres are currently undeveloped open space, but may accommodate some future expansion of the project after appropriate surveys are conducted to address any environmental concerns and compliance with any underlying federal, state, or local permitting requirements. ¶
The Bonneville Power Administration's (BPA) 345-kilovolt (kV) Rocky Reach-Maple Valley transmission line runs east to west along the southern site boundary (Figure 2). The proposed project is expected to interconnect to the regional transmission grid using this line (Figure 5). An interconnection substation with an approximate footprint of 10 acres will be located either on the project site, or within the BPA line right-of-way (Figure 5).¶
Some structural and residential development has taken place on the site's southern boundary. Figure 4 shows the identified structures within the vicinity of the site boundary. The closest identified residence is approximately 200 feet southeast of the proposed project area. ¶
The site is currently zoned Forest and Range (F-R) (Figure 6). The site was most recently selectively logged in 2001 and existing site vegetation consists of low grasses, shrubs, and plants with scattered 50- to 60-foot, 6- to 18-inch-diameter ponderosa pine (*Pi*...

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and temporary changes from affecting their strength. A geotechnical engineer will determine the parameters to be used in the structural design.

The modules will be arranged in 1-MW fields and up to 75 fields will be installed at the project site. A representative single-axis tracking system is presented in Attachment B, Photo 2. Fixed-tilt systems typically have a galvanized or corrosion-resistant metal frame to hold the solar modules at a 20 to 30 degree tilt, as shown in Attachment B, Photo 3.

2.4.2 Field Inverters

Up to 80 field inverters will be needed for the project. The inverters will be placed outdoors in enclosures to attenuate noise and protect the equipment from the elements. An example inverter is shown in Attachment B, Photo 4.

2.4.3 Field Transformers

Up to 80 field transformers will be required for the solar field arrays. The field transformers are approximately 8 feet by 6 feet and 8 feet in height. They may be contained within prefabricated cabinets that will rest on concrete pads. A typical transformer cabinet is presented in Attachment B, Photo 5.

2.4.4 Electrical Conductors

Underground 34.5-kV electrical conductors will connect the solar array field transformers and the proposed BPA substation transformers. These will be installed in trenches along improved maintenance roads onsite at depths of 36 inches or greater (KCC, Chapter 12.24.040). Conductors will be direct burial or in a polyvinyl chloride (PVC) conduit. A photo of typical trenching for underground cables is included in Attachment B, Photos 6 and 7.

Electrical conductors from the array field to the field inverters will be supported aboveground within the solar module framework and installed per National Electrical Code (NEC) standards.

2.4.5 Electrical Substation and Switchyard

A new electric primary transmission line dedicated to the project will be constructed to connect the proposed project substation to the existing BPA line. It has yet to be determined if certain elements of the line and substation will be owned and constructed by BPA, but for purpose of environmental review and this permit application, all elements of the line and the substation (up to the point of interconnection with BPA's existing transmission line) are proposed as part of the project. The substation will be located in the southern part of the project site, to minimize the size of the associated transmission line. The substation will require a level, fenced area of approximately 6 acres. The 6-acre area will be graveled with no vegetation. The substation will contain a small control house, transformer(s), circuit breakers and switches, steel support structures, a dead-end tower structure, and overhead electrical bus work. The control house will be up to 16 feet high, 60 feet long, and 30 feet wide. The dead-end tower structure will be up to 120 feet high. Transformers and oil-filled equipment will be underlain with appropriate containment structures. The appearance of

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The modules will be arranged in 1-MW fields and up to 75 fields will be installed at the project site. A representative single-axis tracking system is presented in Attachment B, Photo 2. Solar modules in a metal frame on supporting mounting structures will be used for the proposed project. The solar modules are manufactured offsite and will be delivered to the site by truck in wooden crates or cardboard boxes. A representative module from Sharp Electronics Corporation is shown in Attachment B, Photo 1. The module measures 1.0 by 1.6 meters (3.3 feet by 5.3 feet) and is rated at 216 watts (Sharp Electronics, 2009).The solar modules are mounted in a fashion that orients the modules toward the sun.¶
Several mounting types will be considered to best address the slope of land at the project site. For example, large land areas with a slope toward the south are excellent for single-axis tracking systems. Land areas that are sloped to the east, southeast, west, or southwest will not as easily accommodate single-axis tracking systems, and are better suited to a fixed-tilt mounting structure or a pole-mounted tracking system.¶
A representative single-axis tracking system is presented in Attachment B, Photo 2. The ...

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the substation will be similar to that of many other substations throughout the Pacific Northwest.

2.4.6 Operations and Maintenance (O&M) Building and SCADA System

A storage and O&M building will store spare parts (e.g., modules and fuses), testing equipment, and cleaning equipment. The building will be of cinderblock construction or pre-engineered with an overall footprint of approximately 1,000 square feet and will be located within the 6-acre fenced substation area.

A SCADA system will be installed within the substation boundary to collect operating and performance data from the TSR facilities, and provide remote operation of the solar panels. The SCADA system will be associated with the BPA-owned facilities (substation and transmission line). The fiber-optic cable system needed for the SCADA components will be determined by BPA and will be installed per BPA standards.

2.4.7 Overhead Interconnection Transmission Line

A new 345-kV transmission line is required to connect the new substation to the existing BPA line and up to 200 feet of clearance will be needed for the proposed overhead line. Similar to the substation, it has yet to be determined if certain elements of the transmission line will be owned and constructed by BPA, but for purpose of environmental review and this permit application, all elements of the line and the substation (up to the point of interconnection with BPA's existing transmission line) are proposed as part of the project. As illustrated on Attachment A, Figure 4, TSR has delineated a 300-foot area within which the BPA transmission line could be sited. Of this 300-foot area, a maximum of 200 feet will be cleared for the transmission line. In April 2006, the North American Electric Reliability Corporation (NERC) issued mandatory standards that govern the height of vegetation growing near certain high-voltage power lines. NERC is in charge of improving the reliability and management standards for electric transmission lines. NERC has authority over eight regional entities in North America, known as regional reliability organizations, which include all segments of the electric industry: investor-owned utilities; federal power agencies; rural electric cooperatives; state, municipal and provincial utilities; independent power producers; power marketers; and end-use customers. The regional entity that has jurisdiction over Washington State is the Western Electric Coordinating Council (WECC)(Puget Sound Energy Fact Sheet, 2007).

Along with the regional reliability organizations, NERC has the legal authority to enforce compliance with NERC reliability standards. NERC achieves compliance through a rigorous program of monitoring, audits and investigations, and the imposition of financial penalties and other enforcement actions for non-compliance (Puget Sound Energy Fact Sheet, 2007).

New NERC vegetation standards, effective June 2007, require utilities to actively manage vegetation in all transmission line corridors that operate at more than 200 kV. Vegetation that matures at a height of more than 15 feet must be removed from the areas underneath and beside transmission rights of way (ROW). These areas are known as the wire and border zones (Puget Sound Energy Fact Sheet, 2007). Per the BPA Business Plan Environmental Impact Statement (BPEIS, 1995), typical ROW widths for 230-kV transmission lines are 105 to 115 feet on either side of the line, for a total of 210 to 230 feet.

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Typical ROW widths for 500-kV transmission lines are 120 to 170 feet on either side of the line, for a total of 240 to 340 feet (BPEIS, 1995). Typical ROW widths for 345-kV lines are not outlined in the BPEIS.

A new BPA structure will be required to replace the existing lattice tower located within the BPA easement (see Attachment A, Figure 4). The BPA replacement tower would reroute the three existing 345-kV power lines via an existing 200–foot-wide ROW within the leasehold through the substation and back to the replacement BPA tower. Two additional grounding lines may be required by BPA to bring the total number of power lines between the replacement tower and substation to eight. A visual simulation of the replacement tower is shown in Expanded SEPA Checklist Supplement, Attachment L, *Potential Visual Impact Assessment*) In addition to the replacement structure, two new transmission structures will be required to support the new transmission lines between the replacement BPA tower and the substation. New transmission structures are indicated on the site plan (see Attachment A, Figure 4) and will be steel monopole structures.

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2.4.8 Access and Maintenance Roads

The site will be accessed via Kittitas County and private roads that interconnect with Highway 970. The major County access road is Red Bridge Road. Only the southern portion of this road will be used and no construction access or delivery vehicles will cross the Red Bridge. TSR has easement rights over Wiehl Road, a dedicated public road maintained privately and not by the County, and Loping Lane, a private road. Loping Lane is subject to several road use and cost-sharing agreements, and TSR will comply with any such applicable agreement. Additionally, TSR will work with neighbors who use Loping Lane to identify measures that will minimize disruption to their use during construction and to the roadway itself. TSR will videotape the conditions of the roads prior to construction to ensure the roads are returned to the same or better than conditions once the project is decommissioned. The project will be served internally by a network of existing and new maintenance roads. The existing maintenance roads will be widened and graveled, where necessary. The roads will be improved pursuant to County requirements and turnarounds adequate for fire protection service vehicles will be established.

Per the Kittitas County Code and roadway standards (KCC, Chapter 12.01.090), Wiehl Road and Loping Lane would likely be improved to 24–foot wide roads to allow vehicles in both directions to pass safely at the same time. These roads could be paved, with culverts or drainage ditches constructed along the shoulders to prevent water from collecting on the roadway surface. Water could be channelized into a detention pond or catchment area, where it would be slowly released back into the ground. The County road standards suggest asphalt concrete pavement for roads with grades exceeding 10 percent. Because Wiehl Road (between Red Bridge and Loping Lane) is fairly steep, paving would likely be recommended. An alternative to paving is using layers of crushed stone or gravel to level and stabilize the roadway. The gravel layer would likely need to be between 8 and 21 inches deep, depending on the topography of the existing road. The size of the gravel and the density of the layers would need to be determined during engineering. Although gravel roads would allow some drainage to occur on the roadway surface, drainage ditches or culverts would likely still be necessary to prevent water from collecting.

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As set forth in the Draft DA, TSR will coordinate any improvements to these roads with the Kittitas County Public Works Department. Attachment A, Figure 3 shows the location of the access and maintenance roads in relation to the project site.

2.5 Permits and Authorizations

Table 2-2 outlines the permits and authorizations required to construct the proposed project.

TABLE 2-2
Required Permits and Authorizations

Act/Law	Permit/Authorization	Permit Trigger	Agency/Contact
Federal Permits			
Section 404 Clean Water Act Compliance	Section 404—Nationwide Permit	May be required if road improvements impact wetlands along Loping Lane	U.S. Army Corps of Engineers
State Permits			
Historic Preservation Act Compliance	Section 106 Review	TSRs receiving a section 404 permit from the U.S. Army Corps must undergo a Section 106 review	WA Authority Delegated to State Department of Archaeology and Historic Preservation (DAHP)
State Environmental Policy Act	Chapter 197-11 Washington Administrative Code	Conditional use permit per Kittitas County	Authority Delegated to Kittitas County
Clean Water Act—Section 401 Compliance	Water Quality Certification	TSRs receiving a section 404 permit from the U.S. Army Corps are required to obtain a section 401 water quality certification	Washington Department of Ecology
National Pollutant Discharge Elimination System (NPDES)	General Construction Permit	Required for land disturbances greater than 1 acre	Washington Department of Ecology
Forest Practices Act (76.09 RCW)	Forest Practices Permit	Harvesting trees from onsite	Washington Department of Natural Resources (WDNR)
County Permits			
Land Use Review	Conditional Use Permit	Development occurring within Kittitas County	Kittitas County
Land Use Review	Development Agreement	Development occurring within Kittitas County	Kittitas County
Land Use Review	Cultural Resources	Development occurring within Kittitas County	Kittitas County
Land Use Review	Stormwater	Development occurring within Kittitas County	Kittitas County
Land Use Review	Critical Areas Ordinance	Development occurring within Kittitas County	Kittitas County
Land Use Review	Construction Permit	Development occurring within Kittitas County	Kittitas County

Deleted: <#>Operations and Maintenance (O&M) Building and SCADA System¶
A storage and O&M building will store spare parts (e.g., modules and fuses), testing equipment, and cleaning equipment. The building will be of cinderblock construction or pre-engineered with an overall footprint of approximately 1,000 square feet.¶
A supervisory control and data acquisition (SCADA) system will be installed within the substation boundary to collect operating and performance data from the TSR facilities, and provide remote operation of the solar panels. The SCADA system will be associated with the BPA owned facilities (substation and transmission line). The fiber-optic cable system needed for the SCADA components will be determined by BPA and will be installed per BPA standards.¶
<#>The site will be accessed via Kittitas County and private roads that interconnect with Highway 970. The major County access road is Red Bridge Road. Loping Lane and Weihl Road are private roads over which the Applicant has easement rights. Loping Lane is subject to several road use and cost-sharing agreements, and the Applicant will be subject to those agreements. Additionally, the Applicant will work with neighbors who use Loping Lane to identify measures that will minimize disruption to their use during construction and to the roadway itself. The project will be served internally by a network of existing and/or new maintenance roads. The existing maintenance roads, along with Weihl Road and Loping Lane, generally consist of gravel and dirt and will be improved pursuant to County requirements. As set forth in the attached DA, the Applicant will coordinate any improvements to these roads with the Kittitas County Public Works Department. Figure 3 shows the location of the access and maintenance roads in relation to the project site.¶

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2.6 Summary of Construction Activities and Components

Site preparation will consist of clearing the existing vegetation only in those areas where construction, grading, and road improvements will occur. Site preparation will be limited to maintenance roads, the O&M facility, the substation, and the solar facility. Once the site is prepared, and the materials are delivered to the staging areas within the cleared portion of the site, the installation of module foundations, field inverter pads and enclosures, field transformer pads, electrical conductors, substation switchyard foundation, overhead interconnection transmission line, and access and maintenance roads will begin. Materials and equipment used for the installation of the facilities are described in Section 2.6.3, "Construction Materials and Equipment".

2.6.1 Site Preparation

The project site will require clearing to address the potential for damage to the project from blown down trees, decreased power efficiency of the solar modules from shading, the risk of fire from fuel buildup within the project area, and the need to create a 100-foot firebreak along the project's perimeters as described below. To clear the site for installing the project, trees will be harvested within the project area on an as-needed basis for facilitating each construction phase of the project (Table 2-1). Trees will generally be harvested to a stump level of 6 to 12 inches above ground level. TSR will obtain a permit from the Washington Department of Natural Resources (WDNR) and contract with a professional forester to harvest these trees in accordance with the Forest Practices Act (FPA). Because the bottoms of the solar modules will be approximately 3 feet above grade, any vegetation taller than 3 feet or expected to exceed 3 feet in height will be removed. Shrubs, grass, and groundcover will, to the maximum extent practicable, remain between rows and under the solar modules.

Trees within the 100-foot firebreak will be limbed up to 12 feet, as negotiated with Kittitas County Fire District 7. This minimizes the need to remove the entire tree, thus potentially decreasing the visual impact to nearby landowners. In addition, existing trees with a diameter base of 3 inches or greater will be replanted at a 3:1 ratio. Although there is no legal requirement for this mitigation, TSR is committed to undertaking efforts that will further the long-term sustainability of the land. These two measures will provide greater carbon sequestration, wildlife habitat, and soil stabilization opportunities than are currently available onsite. A more detailed discussion on vegetation management is included in Expanded SEPA Checklist Supplement, Attachment G, *Vegetation Management Plan*.

Construction equipment such as tractors, backhoes, loaders, dozers, and graders will be needed to clear brush and vegetation from the site as needed, and to grade roads and foundation locations. If the slope of the land is excessive, terracing, or retaining walls may be required.

2.6.2 Staging Areas

Staging areas for parts and materials such as solar modules, electric cable, and structural supports will be needed. These staging areas will be located in areas where solar arrays will eventually be constructed and will change location throughout the duration of the project.

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Deleted: the installation of foundations, trackers, modules, inverter pads and enclosures, transformer pads, and substation foundation can begin.Site preparation will consist of clearing the existing vegetation only in those areas where driveways and modular construction will be undertaken, grading, and establishing temporary staging areas (including stockpile and laydown areas). Site preparation will be limited to staging areas, maintenance roads, O&M facilities, and some extreme portions of the larger site as needed to accommodate a level field for the solar facility. Once the site is prepared, the installation of foundations, trackers, modules, inverter equipment pads, and substation foundation can begin.

Deleted: Site Clearing and Grading

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These will not add additional impact acreage to the project area and will not be permanent components of the project site. Staging will also occur near the O&M Building. Mobilization will last approximately 1 month during each phase of construction.

2.6.3 Construction Materials and Equipment

A concrete batch plant will not be located on site. Gravel and concrete for the project will be sourced in the Cle Elum area to the extent possible. Construction equipment such as backhoes, loaders, concrete trucks, and graders will likely be used. A crane may be necessary, but is typically not required.

2.6.3.1 Module Foundation Installation

Several module mounting types will be considered to best address the slope of land and soil stability at the project site. For example, large land areas with a slope toward the south are excellent for single-axis tracking systems (see Expanded SEPA Checklist Supplement Attachment J, Figure 4b). Land areas that are sloped to the east, southeast, west, or southwest will not as easily accommodate single-axis tracking systems, and are better suited to a fixed-tilt mounting structure (see Expanded SEPA Checklist Supplement Attachment J, Figure 4c).

The foundations securing the solar modules will be designed to withstand high winds and snow loads. The site may have multiple foundation types to match the ground conditions and type of mounting structures used. The mounting-system support structures could consist of embedded posts, poles, or structural steel angle. The embedment could be completed via a vibratory drill or similar installation method to depths of approximately 8 feet. Pending final design, the solar module foundations will require site work and potential boring.

The posts will not be anchored unless a patch of bedrock is encountered during installation. The embedment could be completed via a vibratory drill or similar installation method to depths of approximately 8 feet. After the posts are installed, they are held in place by friction from the surrounding soil, without the use of concrete. Driven piles develop their strength by utilizing a definable skin friction between the pile and the soil. As the pile is forced into the ground, the displaced material compresses and that, in turn, creates the friction at the pile/soil interface. Piles are typically driven to a depth that prevents seasonal and temporary changes from affecting their strength. A geotechnical engineer will determine the parameters to be used in the structural design. Expanded SEPA Checklist Supplement Attachment J, Figure 4d illustrates the footing installation methods for both the fixed tilt and single axis panels.

No concrete will be used when installing the foundations for the modules.

For one type of single-axis support approach, 1,936 posts are needed for every megawatt of energy. If the entire 75 MWdc were to be installed with this mounting system, then approximately 145,200 posts would need to be set. If a fixed-tilt approach is used, up to 8,000 steel angles would be needed. The impervious surface associated with these structures is presented in more detail in Expanded SEPA Checklist Supplement, Attachment F, *Hydrological Analysis*.

Deleted: Several temporary staging areas totaling approximately 5 acres will be used as laydown areas for parts and materials such as solar crates, electric cable, and structural supports. These staging areas will be located in areas where solar arrays will eventually be constructed and will change location throughout the duration of the project. These will not add additional impact acreage to the project area and will not be permanent components of the project site. Staging will also occur near the O&M Building. Attachment B, Photo 10, shows a typical staging area for a 10-MW solar project. Mobilization will last approximately 1 month during each phase of construction.A temporary staging area of approximately 5 acres will be used as a laydown area for parts and materials such as solar crates, electric cable, structural supports, and perhaps a concrete batching facility. The staging area could be located at the intersection of logging roads on the property, as illustrated on Figure 7. Attachment B, Photo 10, shows a typical staging area for a 10-MW solar project. Mobilization of the site will consist of fencing off a 5 acre section of land that will be needed to store materials. Mobilization will also include a temporary facility and staging area for solar module deliveries, and metal racking. Mobilization will last approximately 1 month.¶
<#>Foundations, Trackers, and Modules¶
The foundations securing the solar modules will be designed to withstand high winds and snow loads. The site may have multiple foundation types to match the ground conditions and type of mounting structures used. The mounting-system support structures could consist of embedded posts, poles, or structural steel angle. The embedment could be completed via a vibratory drill or similar installation method to depths of approximately 8 feet. Details regarding the number of supports can be found above under *Key Components*. Pending final design, the solar module foundations will require site work and potential boring. No concrete will be used when installing the foundations for the modules.¶
Dependent upon weather conditions at the site, installation of foundations, trackers, and modules will occur over a period of approximately 7 to 9 months during two or three construction seasons (April to December).The foundations securing the solar modules will be designed to withstand high winds and snow loads. The site may have multiple foundation types to match the ground conditions and type of mounting structure used. One foundation type consists of boring a hole approximately 12 inches wide and 48 inches deep to hold a steel support pipe. The hole is then filled with concrete. A support pier will be required for every 45 square feet of land area, or approximately 1,000 piers per installed MW of solar capacity. Approximately 145 acres of modules will be installed within the 982-acre proposed project area.¶
A second type of foundation consists of an abovegrade concrete ballast used to support the uplift forces of the solar mounting structure. These ballasts will contain 0.25 to 0.35 cubic yards of ...

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Fixed-tilt systems typically have a galvanized or corrosion-resistant metal frame to hold the solar modules at a 20 to 30 degree tilt, as shown in Attachment B, Photo 3.

Dependent upon weather conditions at the site, installation of foundations, trackers, and modules will occur over a period of approximately 7 to 9 months during two or three construction seasons.

2.6.3.2 Field Inverter Pad and Enclosure Installation

Concrete use will be limited to the foundations for field inverters and field transformers, as well as the foundations for the substation buildings. Up to 80 field inverters will be needed for the project. A total of approximately 250 cubic yards of concrete, or 25 truck loads, will be needed for the 80 field inverter concrete pads.

Dependent upon weather conditions at the site, installation of field inverter pads and enclosures will occur over a period of approximately 5 to 6 months.

2.6.3.3 Field Transformer Pad Installation

Concrete use will be limited to the foundations for field inverters and field transformers, as well as the foundations for the substation buildings. A total of approximately 150 cubic yards of concrete, or 15 truck loads, will be needed for the 80 field transformer concrete pads. Dependent upon weather conditions at the site, installation of field transformer pads will occur over a period of approximately 5 to 6 months.

2.6.3.4 Electrical Conductor Installation

Underground 34.5-kV electrical conductors will connect the solar array field transformers and the proposed BPA substation transformers. These will be installed in trenches along improved maintenance roads onsite at depths of 36 inches or greater (KCC, Chapter 12.24.040). Conductors will be direct burial or in a polyvinyl chloride (PVC) conduit.

Electrical conductors from the array field to the field inverters will be supported aboveground within the solar module framework and installed per NEC standards. Photos of typical trenching for underground cables are included in Attachment B, Photos 6 and 7.

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2.6.3.5 Substation and Switchyard Foundation Installation

The substation will require an area of approximately 6 acres. The substation consists of a steel support structure that is 15 to 20 feet tall. The substation will be surrounded by a cyclone fence that is approximately 10 feet tall. The substation will include a small, enclosed, air conditioned control building, approximately 1,000 square feet in area.

Approximately 135 truckloads of concrete will be necessary for the substation foundations and associated facilities. The concrete necessary for the substation includes 70 yards for the BPA control building (7 trucks), 40 yards for the switchgear buildings (4 trucks), 50 yards for the operations and maintenance building (5 trucks), 660 yards for the dead-end towers and overhead transmission line support structures (66 trucks), and 530 yards for the substation electrical equipment, including transformer, breakers, switches, and overhead bus foundations (53 trucks).

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2.6.3.6 Overhead Interconnection Transmission Line Installation

Pending location of the substation, overhead electrical distribution lines may be required to connect the substation with BPA's transmission line. Two new structures supporting the overhead lines will be required from the facility to the substation and will be approximately spaced as indicated in the site plan. Spans between structures can range from 1,000 to 1,200 feet.

2.6.3.7 Access and Maintenance Road Installation

A network of existing and new maintenance roads will serve the project internally. The existing maintenance roads will be widened and graveled, where necessary. Approximately 751,000 square feet of roadway may require gravel surfacing improvements. These improved roadways will be approximately 8 inches deep, and will require up to 1,900 truckloads of gravel.

Paths for new maintenance roadways will be cut from existing grades. At least half of the cut material will be spread out on site. The remaining amount of cut earthwork will be hauled off-site in approximately 950 truckloads. The roads will be improved pursuant to County requirements and turnarounds adequate for fire protection service vehicles will be established.

2.6.4 Transportation and Traffic

Materials for the project (e.g., solar modules, supporting racks, foundation materials, electrical gear) will be brought to the site by truck. The trucks will travel on Interstate 90 (I-90) and access Highway 970 by way of County roads such as Red Bridge Road (see Attachment A, Figure 3), private roads such as Loping Lane, and public roads that are privately maintained such as Wiehl Road. An existing network of maintenance roads will provide Road service within the project area, although new maintenance roads or segments may be necessary. Road improvements will be conducted as needed, and are anticipated to include upgrades to local gravel and dirt roads as discussed above in Section 2.6.1. Road improvements are further addressed in the DA with Kittitas County (Attachment E). For further discussion of traffic impacts, see the Expanded SEPA Checklist Supplement, Attachment I, *Transportation Road Plan*.

2.6.5 Employment

A typical construction workforce for a multiple-megawatt solar facility consists of between 200 and 450 full-time workers during the construction period. Typically, 100 to 150 workers are involved in the site prep, and 100 to 150 are involved in installing the module footings. When the solar installation begins, the workload will peak, and will likely remain at between 300 and 450 workers for a period of up to 27 months (two to three 7- to 9-month construction seasons). Workers could be brought in by vanpool or bus. Workers will stay at local hotels and motels, as described in the Housing section of the Expanded SEPA Checklist Supplement. Security crews will likely consist of up to eight workers. In addition, access control in the form of an electric gate with an associated keypad security code for entry will be installed.

Deleted: The structural supports and other mounting materials will require an estimated 800 trucks to deliver materials to the site based on vendor estimates. It is estimated that the project will require up to 450 shipping containers of solar modules. A concrete batch plant will not be located on site, as concrete use will be limited to the foundations for field inverters and transformers as well as the foundations for the substation buildings. Thus, a total number of truck deliveries to the site will be in the range of 175 to 200 for deliveries of goods and materials.¶
If the project uses above-ground mounting methods with ballasted (concrete) blocks, the amount of concrete required is subject to wind loading and engineering analysis. An estimated 33,000 cubic yards of concrete could be used to create the ballasted footings, equivalent to approximately 3,500 truckloads of concrete. The concrete is expected to be pre-mixed. If a concrete batch plant is necessary for the site, it will only be used for onsite purposes and will be removed when construction is completed. The structural supports and other mounting materials would require an estimated 800 trucks to deliver materials to the site based on vendor estimates. Thus, a total number of truck deliveries to the site would be in the range of 4,300 for deliveries of goods and materials.¶
The 75 MWdc anticipated to be generated from this project equates to 75,000,000 watts-dc, or 347,222 solar modules of 216 watts-dc each. It is estimated that the project will require up to 450 shipping containers of solar modules.¶
Gravel and concrete for the project will be sourced in the Cle Elum area to the extent possible.¶
Construction equipment such as backhoes, loaders, concrete trucks, and graders will likely be used. A crane may be necessary, but is typically not required.

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Deleted: Materials for the project (e.g., solar modules, supporting racks, foundation materials, electrical gear) will be brought to the site by truck. The trucks will travel on Interstate 90 and access Highway 970 by way of County roads such as Red Bridge Road (see Figure 3), and private roads such as Loping Lane and Weihl Road. Road service within ...

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Deleted: fabricating the concrete forms and placing the concrete ballasts in the field

Deleted: are not typically housed onsite, but this is subject to the cost of transportation to the site. Subject to the needs of any security personnel for the project, it is not expected that a significant number of workers will require temporary housing

Deleted: Subject to the needs of any security personnel for the project, it is not expected that a significant number of workers will remain onsite and require temporary housing. Security crews will likely consist of up to eight onsite workers. In addition, access control in the form of an electric gate with a ...

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2.6.6 Safety and Fire Protection

The fire protection needs of the site are currently served by WDNR. After the project is constructed, the site will likely be served by the Kittitas County Fire District 7, under a contractual agreement with TSR (see Expanded SEPA Checklist Supplement, Attachment M, *Fire Protection Agreement*). Further, the project will be bordered by a firebreak no less than 100 feet wide. Should the construction of the project require supplemental fire protection services, TSR will work with Kittitas County Fire District 7 to ensure that suitable fire suppression services are in place during the construction and ongoing operations of the project. Separate safety or fire protection systems will not be required at the site. Basic safety and fire protection equipment such as fire extinguishers, personal protective equipment, and other equipment as determined by the site's safety and emergency response plan can be stored in the O&M equipment storage building.

Police protection of the proposed project area is provided by the County's Sheriff's Office. The construction contractor will notify the fire protection and police services of staging and active construction locations so these services can respond efficiently to emergencies, should any arise.

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Deleted: The fire protection needs of the site are currently served by WDNR. After the project is constructed, the site will likely be served by the Kittitas County Fire Protection District #7. Further, the project will be bordered by a firebreak no less than 100 feet wide. Separate safety or fire protection systems will not be required at the site. Basic safety and fire protection equipment such as fire extinguishers, personal protective equipment, and other equipment as determined by the site's safety and emergency response plan can be stored in the O&M equipment storage building.

2.6.7 Water Use

Water will be needed for activities such as dust control and module cleaning. TSR proposes to truck in water from the Cle Elum area or elsewhere. Subject to any restrictions imposed by the County or Washington Department of Ecology (Ecology), an alternative approach would be to establish a groundwater well onsite. For initial project permitting, it is assumed that water will be trucked to the site.

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2.6.8 Sewer and Solid Waste

Sewer services are not anticipated. Portable toilets will be placed onsite during construction. The onsite toilets will require regular service visits.

2.7 Summary of O&M Activities and Components

Deleted: Operations and Maintenance

Photovoltaic power plants typically have low O&M requirements. During the life of the plant, there will be regular O&M site activity. The actual O&M requirements will be determined by the specific plant components.

2.7.1 Materials and Equipment

A storage and O&M building will store spare parts (e.g., modules and fuses), equipment testing equipment, and cleaning equipment. The building will be constructed on site or pre-engineered in accordance with local and state building codes and it will have an overall footprint of approximately 1,000 square feet.

Deleted: The building will be of cinderblock construction or pre-engineered with dimensions of roughly 20 feet by 20 feet.

2.7.2 Transportation and Traffic

Routine vehicular traffic will occur along the site access roads and any maintenance roads within the PV array. One to two small to medium-duty pickup trucks will be required. Larger delivery trucks occasionally may be required if major equipment is in need of

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replacement such as structural elements, inverters, or large quantities of PV modules (not likely).

2.7.3 Employment

Personnel for system monitoring, maintenance, and troubleshooting will likely be needed on site. The staff will work out of the O&M building and make frequent trips to the facility by way of passenger pickup truck or off-road vehicle. If issues regarding plant performance are detected, additional troubleshooting or maintenance may be required through special visits from vendors or specialty technicians.

Deleted: A staff of two to four technicians will perform system monitoring.

Deleted: Personnel for system monitoring, maintenance, and troubleshooting will likely be needed onsite. A staff of 2 two to 4 four technicians will perform system monitoring. The staff will work out of the O&M building and make frequent trips to the facility by way of passenger pickup truck or off-road vehicle. If issues regarding plant performance are detected, additional troubleshooting or maintenance may be required through special visits from vendors or specialty technicians.¶
Routine onsite activities will consist of maintaining vegetation so that it does not interfere with operation of the plant (as often as weekly during periods of high rain and growth), and cleaning the solar modules of dirt and debris. In a heavily vegetated area such as the proposed site, it is not anticipated that cleaning will be required on a weekly basis (as it would be in a desert environment). The firebreak will require periodic monitoring and clearing to remove vegetation buildup. The project is also anticipated to require the need for personnel to monitor and secure the site.

2.7.4 Maintenance Activities

Routine onsite activities will consist of maintaining vegetation so that it does not interfere with operation of the plant (as often as weekly during periods of high rain and growth), and cleaning the solar modules of dirt and debris. Routine weed control will be required to ensure vegetation growth does not interfere with the operation of any equipment. For more details on noxious weed control, see Expanded SEPA Checklist Supplement Attachment G, *Vegetation Mitigation Plan*. The frequency of visits will be determined by the growth rate and density of the vegetation left on the site once construction is complete. In a heavily vegetated area such as the proposed site, it is not anticipated that cleaning will be required on a weekly basis (as it would be in a desert environment). The firebreak will require periodic monitoring and clearing to remove vegetation buildup. It is anticipated that additional personnel may be required to monitor and secure the site.

In addition to maintaining the vegetation on site during project operations, TSR has committed to maintenance and operation of Wiehl and Loping during all seasons. That includes winter plowing of these roads.

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2.7.5 Safety and Fire Protection

As previously discussed, separate safety or fire protection systems will not be required at the site. TSR will create and maintain a firebreak of no less than 100 feet between all outer edges of the project site and adjacent property lines. Basic safety and fire protection equipment such as fire extinguishers, personal protective equipment, and other equipment as determined by the site's safety and emergency response plan can be stored in the O&M equipment storage building.

A copy of the contractual agreement between TSR and Kittitas County Fire District 7 is included as Attachment M to the Expanded SEPA Checklist Supplement.

Police protection of the proposed project area is provided by the County's Sheriff's Office. During the operational phase, TSR will contact fire protection and police services in the event of an emergency.

Deleted: As previously discussed, separate safety or fire protection systems will not be required at the site. Basic safety and fire protection equipment such as fire extinguishers, personal protective equipment, and other equipment as determined by the site's safety and emergency response plan can be stored in the O&M equipment storage building.

2.7.6 Water Use

The solar modules must be kept clear from dirt and debris, the presence of which can affect the performance of the PV plant. Because the proposed site is heavily vegetated and has sufficient rainfall, it is not anticipated that monthly washing will be required. Annual cleaning may be recommended based on soiling conditions. It may be possible to use special

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brushes in lieu of water to remove any dirt that accumulates on the solar modules. However, if it is determined that water is required for cleaning the solar modules or other purposes, a water tanker truck could be brought onsite to fill portable canisters with water to be used throughout the PV array.

2.7.7 Sewer and Solid Waste

Sewer services are not anticipated. If necessary, portable toilets can be placed onsite. Onsite toilets would require regular service visits.

2.8 Decommissioning and Site Restoration

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored.

Deleted: The useful life of the project is assumed to be 20 to 30 years, although new technology could extend this estimation at some time in the future (such as advancement in solar module technology). At the time TSR decides to terminate operation of the project, however, the project would be decommissioned and the project site restored.

At least 30 days prior to construction of the project, TSR will provide to the County for its approval an Initial Project Decommissioning and Site Restoration Plan (the "Initial Plan"), prepared in sufficient detail to identify, evaluate, and resolve all major environmental impacts, costs, and public health and safety issues reasonably anticipated by TSR at that time associated with decommissioning and restoring the project site. The Initial Plan will describe the measures that will be taken to decommission the project and restore the project site, including any measures necessary to protect the public against risks or danger resulting from decommissioning the project and restoring the project site.

Ninety days prior to decommissioning the project site, TSR shall submit a Final Project Decommissioning and Site Restoration Plan ("Final Plan") to the County for its approval. The Final Plan may contain measures to decommission the project and restore the project site different than the Initial Plan, provided that TSR explains in sufficient detail the reasons for any new or substantially different measures.

Subject to the Initial and Final Plans, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, the O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project area landowners wish to retain) (all of which shall comprise "Decommissioning"). The Initial and Final Plans shall contain the measures necessary to fulfill TSR's Decommissioning obligations.

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Restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Restoration procedures would be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and would include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "Restoration"). Decommissioned roads would be reclaimed or left in place. The Initial and Final Plans shall contain the measures necessary to fulfill TSR's Restoration obligations.

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Decommissioning the project and restoring the project site will occur within 12 months following the earlier of either terminating the Agreement or when the project is no longer in substantive operation. However, if the project stops generating electricity due to *force majeure*, mechanical breakdown, or malfunction, TSR may repair rather than decommission the affected project component(s).

Prior to commencing construction, TSR will post a bond or letter of credit in favor of the County to cover decommissioning costs. The initial amount of the bond or letter of credit will be set forth in the Initial Plan. If the project were terminated, the necessary authorization from any appropriate regulatory agencies would be obtained to decommission the project and restore the project site in accordance with the approved Final Plan.

As set forth in the Initial and Final Plans, aboveground facilities would be removed from the site, and unsalvageable material would be disposed of at authorized sites.

Decommissioning would consist of removing aboveground equipment, such as inverters, substations, and their associated foundations, to a depth of 3 feet below grade. Any foundations below 3 feet would remain. The ground surface would be regraded to natural contours and revegetated to a natural condition. For several years after decommissioning, site disturbance would likely be visible upon close examination and the visual impacts of those aboveground elements that are not removed would remain. During the decommissioning process, similar impacts to those experienced during construction would occur but to a lesser extent because less construction material would likely be removed than was delivered to the project site. To avoid environmental damage and unnecessary land disturbance, underground collector cables likely would be retired in place, and any building or structural foundations would be removed to a depth of approximately 3 feet below grade, with the remainder likely retired in place. Decommissioned roads would be reclaimed or left in place. The soil surface would be restored as close as reasonably possible to its original condition. The Initial and Final Plans shall be prepared in sufficient detail to identify, evaluate, and resolve all major environmental impacts, costs, and public health and safety issues associated with decommissioning and restoring the project site. Accordingly, no significant unavoidable adverse environmental impacts, including those to rare or sensitive plants or animals from construction, operation, decommissioning, or restoration of the proposed project are expected.

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Routine weed control will be required to ensure vegetation growth does not interfere with the operation of any equipment. The frequency of visits will be determined by the growth rate and density of the vegetation left on the site once construction is complete. The Applicant is under a contractual obligation with the landowner to return the site in good condition and, at the landowner's request, to remove any or all of the project's components. Applicant is also contractually bound to reclaim the site to address any damage caused by the demolition and removal of any alterations or improvements to the site, including the project.¶
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SECTION 3

Compliance with Kittitas County Land Use Regulations

This section demonstrates compliance with the relevant provisions from the KCC. The project is proposed entirely within the Kittitas County F-R zoning district and the applicable review procedure includes approval of a CUP. The relevant provisions from the KCC are reviewed below in numerical order by title and then chapter. The KCC provisions are included in *italics* followed by TSR's response (i.e., finding of fact, or "**Finding**").

3.1 Title 17—Zoning

3.1.1 Chapter 17.56–Forest and Range Zone

17.56.020 Uses permitted.

17.56.030 Conditional uses.

Finding: The project is a *"Major alternative energy facility"* as defined in Section 17.61.010(9) and is an authorized use in the Forest and Range Zone subject to approval of a CUP per Section 17.61.020(4) & (6). Sections 17.61.010(9) and 17.61.020(4) & (6) are reviewed further later in this narrative.

17.56.040 Lot – Minimum size.

The minimum lot size in the Forest and Range Zone shall be:

1. *Twenty acres;*
2. *One-half acre minimum for any lot with an approved platted cluster subdivision, served by public water and sewer;*
3. *Six thousand square feet for lots on existing municipal sewer and water systems.*

Response: The project is proposed on several existing tax parcels that all exceed the 20-acre minimum. The project does not include a request for approval of a subdivision or municipal sewer and water, and criteria 2 and 3 are not applicable. Therefore, the project complies with these criteria.

Deleted: The project is proposed on four existing tax parcels. The smallest parcel is 22 acres and exceeds the 20-acre minimum.

17.56.050 Lot – width.

1. *No parcel created after the adoption of the ordinance codified in this chapter shall have a length-width dimension less than five hundred feet unless the parcel is approved under provisions established in Section 17.56.040 (2) and (3).*
2. *No platted parcel shall have dimensions in excess of a 4:1 length by width ratio.*

Finding: The proposed project does not include the creation of any new parcels nor does it modify the boundaries of existing lots. Therefore, the project complies with these criteria.

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17.56.060 Yard –requirements.

1. *Front Yard. There shall be a minimum front yard of twenty-five feet.*
2. *Side Yard. Side yard shall be ten feet, except on corner lots which shall have a fifteen-foot side yard.*
3. *Rear Yard. There shall be a rear yard with a minimum depth of ten feet to the main building.*

Finding: The proposed project will not include any buildings or improvements within 25 feet of a property boundary. TSR will create and maintain a firebreak of no less than 100 feet between all outer edges of the project site and adjacent property lines. Therefore, the project complies with these criteria.

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17.56.065 Yard requirements – Zones Adjacent to Commercial Forrest Zone

Properties bordering or adjacent to the Commercial Forest zone are subject to a 200' setback from the Commercial Forest Zone. (KCC 17.57.050(1)). For properties where such setback isn't feasible, development shall comply with Kittitas County Code 17.57.050(2).

Finding: The northernmost extent of the proposed project boundary is directly adjacent to an area encompassed by the Commercial Forest (CF) zone. To achieve 75 dcMW of generating capacity, use of the entire area within the project boundary may be required, including the area within 200 feet of the adjacent CF zone. The closest structure is a PV array, which is located 100 feet from the adjacent CF property boundary. Assuming the 200-foot setback applies to the project, the TSR will seek a modification to this dimensional standard as set forth in Section 5.3 of the DA, which Attachment E to this CUP.

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17.56.070 Structure height

No structure shall exceed two and one-half stories or thirty-five feet in height, whichever is greater. This limit does not apply to agricultural buildings.

Finding: The solar modules and associated structures currently proposed for the project will be less than 2-1/2 stories or 35 feet in height. The solar modules will be approximately 14 feet in height, inverter buildings 12 feet, switchgear structures 10 feet, substation 14 feet, and storage/O&M building 24 feet.

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A new electric primary transmission line dedicated to the project will be constructed to connect the proposed project substation to the existing BPA line. It has yet to be determined if certain elements of the line and substation will be owned and constructed by BPA, but for purpose of environmental review and this permit application, all elements of the line and the substation (up to the point of interconnection with BPA's existing transmission line) are proposed as part of the project. Support structures for the line would be steel mono-poles, and each structure will be approximately 120 feet tall. Two structures would be needed for the 3,000-foot-long line, and one 120-foot termination structure will be constructed as part of the substation. The line would be constructed at the lowest elevation on the site to minimize its visibility, and the line route, right-of-way width, structure locations, conductor type, and span lengths were selected for compatibility with other land uses. A modification to 17.56.070 may be needed to address the height of the transmission line towers. More detailed information regarding this modification can be found in the DA (Attachment E).

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17.56.080 Setbacks

The following setbacks shall be enforced for residential and accessory buildings constructed or placed on shorelines or floodplains under the jurisdiction of the Washington State Shoreline Management Act:

1. *One hundred feet (measured horizontally) from the ordinary high water mark or line of vegetation for lots abutting such waterways;*
2. *One hundred feet (measured horizontally) from the ordinary high water mark of line of vegetation for lots fronting on reservoirs including Keechelus, Cle Elum, Kachess, and Easton Lakes and Wanapum reservoir.*

Finding: The proposed project site and adjacent areas do not include shorelines or floodplains under the jurisdiction of the Washington State Shoreline Management Act. The proposed buildings for operation and maintenance activities will not be located in or near a regulated shoreline or floodplain. Therefore, the project complies with these criteria.

3.1.2 Chapter 17.60A—Conditional Uses

17.60A.010 Review Criteria

The Board of Adjustment, upon receiving a properly filed application or petition, may permit and authorize a conditional use when the following requirements have been met:

1. *The Board of Adjustment shall determine that the proposed use is essential or desirable to the public convenience and not detrimental or injurious to the public health, peace, or safety or to the character of the surrounding neighborhood.*

Finding: The proposed project is desirable to the public convenience. TSR proposes to develop the project site so that solar energy potential is maximized, in accordance with the commitment to establishing a leading sustainable energy production location in North America. TSR is committed to energy production and environmentally sensitive development and management of its solar production site.

The project is desirable as it will have the capacity to generate up to 75 MWdc of PV solar energy for distribution to utilities seeking to optimize their renewable and sustainable energy sources. The project was conceived in response to the growing interest in and need for sustainable energy sources and the State of Washington's Renewable Electricity Standard, RCW Title 19, mandate that by the year 2020, the state's largest electric utilities meet 15 percent of their retail electric load with renewable electricity (for example, wind and solar energy). The standard first takes effect in 2012 with a requirement of 3 percent through 2015, then 9 percent from 2016 through 2019 and 15 percent thereafter. Therefore, the project will provide a clean energy source and assist utilities in achieving the Renewable Electricity Standard.

Construction and operation of the project is desirable as it will benefit the local and regional economies. When the solar installation begins, the workload will peak at 450 workers for a period of up to 27 months (two to three 7- to 9-month construction seasons).The project, along with the construction workers, will further stimulate the economy through local purchases of goods and materials. The total value of goods and services that will be purchased locally (within Kittitas County) during the three construction seasons is

Deleted: A new 345-kV transmission line may will be needed to connect the proposed substation to the existing BPA line. , if tThe substation willis not be located at the BPA right-of-way. The construction could be similar to the existing lattice towers for the BPA line, which are approximately 150 feet tall. A maximum of threefive towers would be needed for the 3,000-foot-long line. The line would be constructed at the lowest elevation on the site to minimize its visibility. A modification to 17.56.070 may be needed to address the height of the transmission line towers. More detailed information regarding this modification can be found in the DA (Attachment E). ¶
Although potentially necessary as an accessory use for the project (if the substation is not located at the BPA right-of-way), the 345-kV transmission line is likely considered a *"Special utility"* as defined in the KCC (see Section 17.61.010(2)(b)). The substation is also likely considered a "special utility" under the KCC (see Section 17.61.010(2)(c)). Special utilities may be authorized as a conditional use in all zoning districts per KCC Section 17.61.020(6), and subject to the additional review criteria of KCC 17.61.030. Thus, the potential for this transmission line and substation can be processed as part of the CUP for the overall project and the project will comply with the structure height criterion. ¶

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estimated to be $97.5 million. Project construction could also attract other related businesses to the local and regional area, resulting in longer-term economic benefits. Operation of the project will employ up to eight O&M and security staff. For a more detailed analysis of the economic benefits provided by the construction and operation of the proposed project, please see the *Economic Impact Analysis for the Teanaway Solar Reserve Kittitas County, Washington* (see Expanded SEPA Checklist Supplement, Attachment N), which has been prepared at the County's request.

The project will not be injurious to the public health, peace, or safety or to the character of the surrounding neighborhood. The proposal involves a clean energy source without emissions to air or water for the life of the project.

The solar modules do not present a health or safety hazard. Contact with the modules will not lead to electrocution or contamination (see Expanded SEPA Checklist Supplement Attachment H, *Wildlife Mitigation Plan*, Appendix G). No combustible materials will be used except for fuel and oil used in construction equipment. The project will be constructed in accordance with applicable federal, state, and county regulations that pertain to fire prevention and suppression. In addition, standard construction safety measures would be implemented to reduce the risk of hazards and accidents. The project is proposed in a rural area with a limited existing neighborhood character and a limited number of surrounding residences. In addition, it is being designed and sited to minimize its visibility from all surrounding areas and will result in a minimal increase in noise and odors.

For the reasons stated above, the project complies with this criterion.

2. *The Board of Adjustment shall determine that the proposed use at the proposed location will not be unreasonably detrimental to the economic welfare of the county and that it will not create excessive public cost for facilities and services by finding that (1) it will be adequately serviced by existing facilities such as highways, roads, police and fire protection, irrigation and drainage structures, refuse disposal, water and sewers, and schools; or (2) that the applicant shall provide such facilities or (3) demonstrate that the proposed use will be of sufficient economic benefit to offset additional public costs or economic detriment.*

Finding: The proposed project will not be unreasonably detrimental to the economic welfare of the county and will not create excessive public cost for facilities and services for the following reasons:

- Construction and operation of the project is desirable as it will benefit the local and regional economies. Construction will employ approximately 450 workers at peak levels. The project, along with the construction workers, will further stimulate the economy through local purchases of goods and materials. The total value of goods and services that will be purchased locally (within Kittitas County) during the three construction seasons is estimated to be $97.5 million.
- Project construction could also attract other related businesses to the local and regional area, resulting in longer-term economic benefits.
- Operation of the project will employ up to eight O&M and security staff. Fifty (50) percent of the onsite peak construction workforce of 450 is assumed to be from the local labor market (within Kittitas County) while the remaining 50 percent, or 225 peak period

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workers could come from outside the County and are assumed to relocate to Kittitas County for the duration of the construction period or phase.

- The project will be adequately served by existing facilities, as discussed below, and the economic benefits summarized above and in the *Economic Impact Analysis for the Teanaway Solar Reserve Kittitas County, Washington* (Expanded SEPA Checklist Supplement, Attachment N) well exceed any minor public costs.

The project's use of existing facilities is summarized as follows:

Highways and Roads. The site will be accessible via Kittitas County and private roads that interconnect with Highway 970 (see Figure 3). The major County access road is Red Bridge Road. Loping Lane is a private road and Wiehl Road is a public road over which TSR has easement rights. Loping Lane is subject to several road use and cost sharing agreements, and TSR will be subject to those agreements. TSR will additionally work with neighbors who use Loping Lane to identify improvements that will minimize disruption to their use during construction and to the roadway itself. The project will be internally served by a network of existing and/or new maintenance roads. These maintenance roads, along with Wiehl Road and Loping Lane, consist of gravel and dirt and may need improvements pursuant to County requirements. As set forth in attached Draft DA, TSR will coordinate any improvements to these roads with the Kittitas County Public Works Department. Figure 3 shows the location of the maintenance and access roads in relation to the project site.

Police Protection. Police protection of the project area is provided by the County's Sheriff's Office. The project will include security staff on site around the clock. As a result of proposed project security measures and personnel, it is not anticipated that the project will generate any new demand for police services. The construction contractor will notify the police services of staging and active construction locations so these services can respond efficiently to emergencies, should any arise. During the operational phase, TSR will contact police services in the event of an emergency.

Fire Protection. The project area is currently subject to the fire suppression services of the Washington Department of Natural Services. After the project is constructed, it will be served by the Kittitas County Fire District 7 (see Expanded SEPA Checklist Supplement, Attachment M). Further, the project will be bordered by a firebreak no less than 100 feet wide.

The project will be constructed in accordance with applicable federal, state, and county regulations that pertain to fire prevention and suppression. In addition, standard construction safety measures will be implemented to reduce the risk of hazards and accidents. Separate safety or fire protection systems will not be required at the site. Basic safety and fire protection equipment such as fire extinguishers, personal protective equipment, and other equipment as determined by the site's safety and emergency response plan can be stored in the O&M equipment storage building.

Irrigation and Drainage. The project will be adequately served by existing drainage and will not need to utilize Kittitas County irrigation and drainage services. The project will maximize existing pervious surface on the site by maintaining natural ground cover wherever possible including areas under solar modules. In addition, TSR will maintain

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existing contours whenever possible during grading and site preparation. Therefore, site runoff and drainage will remain largely unchanged. During construction, TSR will implement Best Management Practices (BMPs) to minimize erosion and sediment release.

Refuse. Construction workers will be directed to dispose of all refuse in defined containers. Following construction, the only refuse generated by the project will be from the O&M staff. This limited refuse will be disposed of as required by the County.

Water and Sewers. The project does not need any water rights. TSR proposes to truck in water from the surrounding area or elsewhere, if and as needed, for dust control during construction and module cleaning for operation.

The need for sewer services is not anticipated. Portable toilets will be placed onsite during construction and as necessary during operation. Service visits to the onsite toilets will occur on a regular basis.

Schools. The project will not be detrimental to or cause an increased burden on local school resources.

17.60A.020 Conditions

1. *In permitting such uses the board of adjustments may impose in addition to the regulations specified herein, such conditions as it deems necessary to protect the best interests of the surrounding property or neighborhood or the county as a whole.*
2. *Uses subject to conditions which exist in an R or S zone on the effective date of the ordinance codified herein shall not be changed, expanded nor structures used in connection therewith altered without first applying to the board of adjustment for review and under provisions of this chapter.*
3. *Any change, enlargement or alternation in such use shall require a review by the board of adjustment and new conditions may be imposed where finding requires.*

Finding: TSR further intends this CUP to be conditioned and governed at a minimum by the attached Draft DA once it is approved by the County (per KCC Chapter 15A.11).

3.1.3 Chapter 17.61—Utilities

17.61.010 Definitions.

2. "Special utility" or "special utilities" shall mean the following:

b. Electrical transmission lines exceeding 115,000 volts

c. Electrical substations

Finding: A new electric primary transmission line dedicated to the project will be constructed to connect the proposed project substation to the existing BPA line. It has yet to be determined if certain elements of the line and substation will be owned and constructed by BPA, but for purpose of environmental review and this permit application, all elements of the line and the substation (up to the point of interconnection with BPA's existing transmission line) are proposed as part of the project. The support structures for the line would be steel mono-poles, and each structure will be approximately 120 feet tall. A maximum of two structures would be needed for the 3,000-foot-long line, and a 120-foot termination structure will be constructed as part of the substation. The line would be

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constructed at the lowest elevation on the site to minimize its visibility, and the line route, right-of-way width, structure locations, conductor type, and span lengths were selected for compatibility with other land uses. TSR has delineated a 300-foot area within which the BPA transmission line could be sited. Of this 300-foot area, a maximum of 200 feet will be cleared for the placement of the BPA transmission line. Final design and placement of the transmission line will be determined by BPA.

The substation will require an area of approximately 6 acres. The substation consists of a steel support structure that is 15 to 20 feet tall. The substation will be surrounded by a cyclone fence that is approximately 10 feet tall. The substation will include a small, enclosed, air-conditioned control building, approximately 1,000 square feet in area.

9. *"Major alternative energy facility" means a hydroelectric plant, solar farm, or wind farm that is not a minor alternative energy facility.*

11. *"Minor alternative energy facility" or "minor alternative energy system" means a fuel cell or a facility for the production of electrical energy that:*
    a.
        i. *Uses as its fuel either solar, wind, or hydropower;*
        ii. *Is located on the power beneficiary's premises;*
        iii. *Is intended primarily to offset part or all of the beneficiary's requirements for electricity; and*
        iv. *Is secondary to the beneficiary's use of the premises for other lawful purpose(s)*

Finding: The proposed project is a major alternative energy facility. It does not qualify as a minor alternative energy facility because the production of electrical energy is not intended to primarily offset part of all of the beneficiary's requirements for electricity per KCC Section 17.61.010(11)(a)(iii). Instead, the solar energy will be distributed to the existing electrical grid.

17.61.020 Permitted and conditional uses.

4. *Major alternative energy facilities may be authorized in the Agriculture-20, forest and range, commercial agriculture, and commercial forest zone as follows:*

    b. *All other major alternative energy facilities may be authorized by the board of adjustments as a conditional use.*

Finding: TSR understands this provision and requests approval of a CUP for the proposed project from the board of adjustments.

17.61.030 Review criteria – Special utilities and associated facilities.

1. The board of adjustment shall determine that adequate measures have been undertaken by the proponent of the special utility and/or associated facility to reduce the risk of accidents caused by hazardous materials.

The proposed project includes a primary transmission line and substation, both of which are required to connect the project with the existing BPA transmission network. These are dedicated facilities, serving no other electrical purpose. The risk of exposure to hazardous materials will be minimal. The transmission line will contain no hazardous materials. The substation will contain oil-filled equipment; however, it will be designed to provide

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containment for any spills or leaks in accordance with a Spill Prevention Control and Countermeasures (SPCC) Plan. Basic safety and fire protection equipment such as fire extinguishers, personal protective equipment, and other equipment as determined by the site's safety and emergency response plan can be stored in the O&M equipment storage building.

2. The board of adjustment, as required by existing statutes, shall determine that the proposed special utility and/or associated facilities are essential and desirable to the public convenience and/or not detrimental or injurious to the public heath or safety, or to the character of the surrounding neighborhood.

The proposed project is both essential and desirable to the public convenience. Renewable resources, such as the project, are essential to efforts to reduce greenhouse gases and to fulfill the legislative mandate of State of Washington's Renewable Electricity Standard, RCW Title 19. The project will provide a clean energy source and assist utilities in serving retail electric load with renewable electricity. TSR proposes to develop the project site so that solar energy potential is maximized, in accordance with the commitment to establishing a leading sustainable energy production location in North America. TSR is committed to energy production and environmentally sensitive development and management of its solar production site.

The project will have the capacity to generate up to 75 MWdc of PV solar energy for distribution to utilities in need of renewable and sustainable energy sources.

Construction and operation of the project will also benefit the local and regional economies. Construction will employ 150 to 250 workers at peak levels. The project, along with the construction workers, will further stimulate the economy through local purchases of goods and materials. The total value of goods and services that will be purchased locally (within Kittitas County) during the three construction seasons is estimated to be $97.5 million. Project construction could also attract other related businesses to the local and regional area, resulting in longer-term economic benefits. Operation of the project will employ a minimum of two to four O&M staff and potentially more for security and other functions. For a more detailed analysis of the economic benefits provided by the construction and operation of the proposed project, please see the *Economic Impact Analysis for the Teanaway Solar Reserve Kittitas County, Washington* (see Expanded SEPA Checklist Supplement, Attachment N), which has been prepared at the County's request.

The project will not be injurious to the public health, peace, or safety or to the character of the surrounding neighborhood. The proposal involves a clean energy source without emissions to air or water for the life of the project.

The solar modules do not present a health or safety hazard. Contact with the modules will not lead to electrocution or contamination. No combustible materials will be used except for fuel and oil used in construction equipment. The project will be constructed in accordance with applicable federal, state and county regulations that pertain to fire prevention and suppression. In addition, standard construction safety measures would be implemented to reduce the risk of hazards and accidents. The project is proposed in a rural area with a limited existing neighborhood character and a limited number of surrounding residences. In addition, it is being designed and sited to minimize its visibility from all surrounding areas and will not result in any noise or odors.

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For the reasons stated above, the project complies with this criterion.

3. The board of adjustment shall determine that the proposed special utility and/or associated facilities will note be unreasonably detrimental to the economic welfare of the county and /or it will not create excessive public cost for the public services by finding that:

a. It will be adequately serviced by existing services such as highways, roads, police and fire protection, emergency response, and drainage structures, refuse disposal, water and sewers, and schools; or

b. The applicant shall provide such services or facilities.

Finding: The proposed project will not be unreasonably detrimental to the economic welfare of the county and will not create excessive public cost for facilities and services for the following reasons:

- Construction and operation of the project is desirable as it will benefit the local and regional economies. Construction will employ 150 to 250 workers at peak levels. The project, along with the construction workers, will further stimulate the economy through local purchases of goods and materials. The total value of goods and services that will be purchased locally (within Kittitas County) during the three construction seasons is estimated to be $97.5 million.
- Project construction could also attract other related businesses to the local and regional area, resulting in longer-term economic benefits.
- Operation of the project will employ a minimum of two to four O&M staff and potentially more for security and other functions. Fifty (50) percent of the onsite peak construction workforce of 450 is assumed to be from the local labor market (within Kittitas County) while the remaining 50 percent, or 225 peak period workers could come from outside the County and are assumed to relocate to Kittitas County for the duration of the construction period or phase.
- The project will be adequately served by existing facilities, as discussed below, and the economic benefits summarized above and in the *Economic Impact Analysis for the Teanaway Solar Reserve Kittitas County, Washington* (see Expanded SEPA Checklist Supplement, Attachment N) well exceed any minor public costs.

The project's use of existing facilities is summarized as follows:

Highways and Roads. The site will be accessible via Kittitas County and private roads that interconnect with Highway 970 (see Figure 3). The major County access road is Red Bridge Road. Loping Lane is a private road and Wiehl Road is a public road over which TSR has easement rights. Loping Lane is subject to several road use and cost sharing agreements, and TSR will be subject to those agreements. TSR will additionally work with neighbors who use Loping Lane to identify improvements that will minimize disruption to their use during construction and to the roadway itself. The project will be internally served by a network of existing and/or new maintenance roads. These maintenance roads, along with Wiehl Road and Loping Lane, consist of gravel and dirt and may need improvements pursuant to County requirements. As set forth in attached Draft DA, TSR will coordinate any improvements to these roads with the Kittitas County Public Works Department.

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Figure 3 shows the location of the maintenance and access roads in relation to the project site.

Police Protection. The project will include periodic visits by security staff. As a result of proposed project security measures and personnel, it is not anticipated that the project will generate any new demand for police services.

Fire Protection. The fire protection needs of the site are currently served by WDNR. After the project is constructed, it will be served by the Kittitas County Fire Protection District #7 (see Expanded SEPA Checklist Supplement, Attachment M). Further, the project will be bordered by a firebreak no less than 100 feet wide.

The project will be constructed in accordance with applicable federal, state, and county regulations that pertain to fire prevention and suppression. In addition, standard construction safety measures will be implemented to reduce the risk of hazards and accidents. Separate safety or fire protection systems will not be required at the site. Basic safety and fire protection equipment such as fire extinguishers, personal protective equipment, and other equipment as determined by the site's safety and emergency response plan can be stored in the O&M equipment storage building.

Irrigation and Drainage. The project will be adequately served by existing drainage. The project will maximize existing pervious surface on the site by maintaining natural ground cover wherever possible including areas under solar modules. In addition, TSR will maintain existing contours whenever possible during grading and site preparation. Therefore, site runoff and drainage will remain largely unchanged. During construction, TSR will implement Best Management Practices (BMPs) to minimize erosion and sediment release.

Refuse. Construction workers will be directed to dispose of all refuse in defined containers. Following construction, the only refuse generated by the project will be from the two to four O&M staff. This limited refuse will be disposed of as required by the County.

Water and Sewers. The project does not need any water rights. TSR proposes to truck in water from the Cle Elum area or elsewhere as needed for activities such as fugitive dust control during construction and module cleaning for operation.

The need for sewer services is not anticipated. Portable toilets will be placed onsite during construction and as necessary during operation. Service visits to the onsite toilets will occur on a regular basis.

Schools. The project will not be detrimental or cause an increased burden on local school resources.

4. Special utilities and/or associated facilities as defined by this chapter shall use public rights-of-way or established utility corridors when reasonable. Although Kittitas County may map utility corridors, it is recognized and reaffirmed that the use of such corridors is subject to conditional use and approval and just compensation to the landowner for the use of such corridor. While a utility corridor may be used for more than one utility or purpose, each utility or use should be negotiated with the landowner as a separate easement, right-of-way, or other agreement, or other arrangement between the landowner and all owners of interests in the property. Any county map which shows utility corridors shall designate such corridors as "private land closed to trespass and public use" where

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such corridors are on private land. Nothing in this paragraph is intended to conflict with the right of eminent domain.

Finding: The project is sited near an exiting utility corridor (BPA 345-kV line) and no new transmission lines are needed to provide transmission services to the 9roject. A 3,000-foot tap line (or primary transmission line dedicated to the project) will be constructed to connect the project to the grid. Support structures for this line will be steel mono-poles, and each structure will be approximately 120 feet tall. A maximum of three structures would be needed for the 3,000-foot-long line, and a 120-foot termination structure will be constructed as part of the substation. The line will be constructed at the lowest elevation on the site to minimize its visibility, and the line route, right-of-way width, structure locations, conductor type, and span lengths were selected for compatibility with other land uses. The real property required for the line has been acquired from the underlying property owner. However, because this line can and will serve no electrical purpose other than connecting the project to the grid, there is no intention to develop the right-of-way as a utility corridor that could be used for more than one utility or purpose. This limited purpose, and the structure types, span lengths, and other physical characteristics of the line also keep it in character with surrounding existing and future land uses.

5. The board of adjustment shall consider industry standards, available technology, and proposed design technology for special utilities and associated facilities in promulgating conditions of approval.

Finding: The line and substation will be built and operated in accordance with current industry standards. As noted above, the design of the line employs locational criteria and physical characterizes that minimize its visibility and ensure compatibility with other land uses. The line and the substation are envisioned to utilize the most recent readily availably technology for these type of structures.

6. The construction and installation of utilities and special utilities may necessitate the importation of fill material which may result in the displacement of native material. The incidental generation of earthen spoils resulting from the construction and/or installment of a utility or special utility, and the removal said material from the development site shall not require a separate zoning conditional use permit.

Finding: TSR understands the criteria listed under KCC 17.61.030(6) and intends to comply with this provision. Native fill will be used for the structure foundations and the substation. To the extent that any additional fill material is required for these facilities, TSR expects to obtain this material from local sources.

7. The operation of some utilities and special utilities identified within this chapter may necessitate unusual parcel configurations and/or parcel sizes.

Finding: TSR is not proposing to reconfigure or resize any parcels.

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Deleted: The ApplicantTSR understands the criteria listed under KCC 17.61.030(4) and intends to comply with this provision. ¶

Deleted: The ApplicantTSR understands the criteria listed under KCC 17.61.030(5) and intends to comply with this provision. Current industry standards and technology will be utilized in the design and implementation of the proposed project.¶

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Deleted: The ApplicantTSR understands the criteria listed under KCC 17.61.030(7) and does not seek to

Deleted: The proposed project will be located on land leased from the property owner. Therefore, this criterion does not apply.¶

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3.2 Title 17A—Critical Areas

3.2.1 Chapter 17A.02–Critical Areas Ordinance Definitions

17A.02.060 Critical areas.

"Critical areas" are (1) wetlands; (2) areas with a critical recharging effect on aquifers used for potable water; (3) fish and wildlife habitat conservation areas; (4) frequently flooded area; and (5) geologically hazardous areas.

Finding: All five critical areas are discussed in the Land Use section of the Expanded SEPA Checklist. In addition, the following technical reports have been prepared and are attached to the Expanded SEPA Checklist Supplement:

Attachment A: *Sensitive Species Report*

Attachment B: *Wetland Delineation Report*

Attachment D: *Geology and Soils Hazards Evaluation*

Attachment H: *Wildlife Mitigation Plan*

Deleted: Expanded SEPA Checklist

Chapter 17.A.03—Critical Areas Administration

Deleted: The proposed project site does not include any of the critical areas defined in KCC Section 17A.02.060 except for wetlands.¶

17A.03.015 Land use activities to which this chapter applies.

1. *The following land use activities shall be subject to and coordinated with the requirements of this chapter:*
   a. *Any activity which is not exempt from a threshold determination under the State Environmental Policy Act, as subject to the threshold exemptions established by the county SEPA ordinance;*
   b. *Any activity which requires approval through a public hearing process under the county ordinance;*

   k. *Conversion of forest land to nonforest land uses.*

Finding: The Critical Areas Ordinance applies as part of the proposed project review and approval.

Deleted: The ApplicantTSR understands that the proposed project fits under the provisions listed above. Therefore, t

17A.03035 Critical area checklist and required information.

An applicant is required to submit a checklist of critical area information before commencement of all land use activities which are subject to this chapter. This information shall be used in processing all other site related development permits and approvals. Development may be required to be modified or may be conditioned to meet the requirements of this chapter. The checklist shall contain the following information:

1. *Legal description of the land, and assessor's parcel number.*

Finding: The legal description of the land is located in Attachment D to this CUP application. The assessor's parcel numbers are as follows: 20-16-22000-0001, 20-16-23000-0002, 20-16-22000-0002, 20-16-27000-00025, and 20-16-27000-0009.

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2. *As defined herein, the location of the following, if applicable:*
   a. *Wetlands;*
   b. *Erosion hazard areas;*
   c. *Floodplains and floodways;*
   d. *Riparian habitat;*
   e. *Geologically hazardous areas;*
   f. *Landslide hazard areas;*
   g. *Mine hazard areas;*
   h. *Seismic hazard areas;*
   i. *Streams and rivers*

Finding: The proposed project site does not include any of the critical areas defined in KCC Section 17A.02.060 except for wetlands. Impacts to wetlands will be avoided through project design. Minimal impacts to wetlands will occur. See the Land Use section of the Expanded SEPA Checklist Supplement for additional discussion.

Deleted: The proposed project site contains wetlands, riparian areas, streams, and erosion hazards.

Deleted: riparian areas, streams, and erosion prone soils

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Deleted: Supplement to the Expanded SEPA Checklist

3. *Any voluntary methods or activities anticipated by the applicant pertaining to critical areas, including incentives being offered by local or state government.*

Finding: TSR has coordinated with all applicable local and state agencies. TSR will comply with all associated regulations and apply for all applicable licenses and permits.

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Deleted: The Applicant

4. *Duplicate plans drawn to scale showing the nature, location, dimensions and elevations of the area in question, including existing or proposed structures, estimated amounts of fill material, drainage facilities, significant natural features, and the location of the above items, if applicable. Survey quality documents will not normally be required.*

Finding: Plans showing the nature, location, dimensions, and elevations of the area in question are contained in Attachment A to this CUP application. Additional figures are included in the Expanded SEPA Checklist Supplement, Attachment J, *Figures*.

Deleted: Attachment J to

Deleted: SEPA Supplement

5. *The requirement for delineating the location of possible critical areas will be waived if field investigation by county staff indicates the following:*

a. *Sufficient information exists for staff to estimate the boundaries of any critical areas without a delineation by the applicant; or*

b. *No structures and uses, except for exempt activities, are proposed to be located within the possible critical areas.*

6. *Subject to field investigation by county staff, or other reliable and relevant information, the information submitted by the applicant shall be presumed valid for all purposes under this chapter.*

Finding: TSR conducted significant research and field surveys for critical areas located within or directly adjacent to the project site (Attachment A, Figure 5). The Land Use section of the Expanded SEPA Checklist provides additional discussion of critical areas and the various technical reports attached to the Expanded SEPA Checklist Supplement demonstrate the research and field surveys. The wetlands located within the proposed project area have been delineated by professional wetland scientists. A full description of the wetland boundaries is included in Expanded SEPA Checklist Supplement Attachment B, *Wetland Delineation Report*.

Deleted: The Applicant

Deleted: Supplement to the Expanded SEPA Checklist

Deleted: will be included in the Joint Aquatic Resources Permit Application (JARPA)

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Deleted: to the SEPA Supplement

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17A.03.045 Coordination with the State Environmental Policy Act and other concurrent permitting.

The director shall coordinate application of the critical areas ordinance with any required SEPA review and the processing of any other associated permits. Any required critical areas mitigation shall be separate from SEPA conditions imposed as part of a threshold determination. The objective is to provide a concurrent, coordinated, and consistent review of development activities within critical areas, without creating another regulatory review or appeal process.

Finding: TSR understands this criterion. A detailed discussion of critical areas is provided in the Land Use section of the Expanded SEPA Checklist Supplement.

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Deleted: Supplement to the Expanded SEPA Checklist

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ATTACHMENT A

Figures

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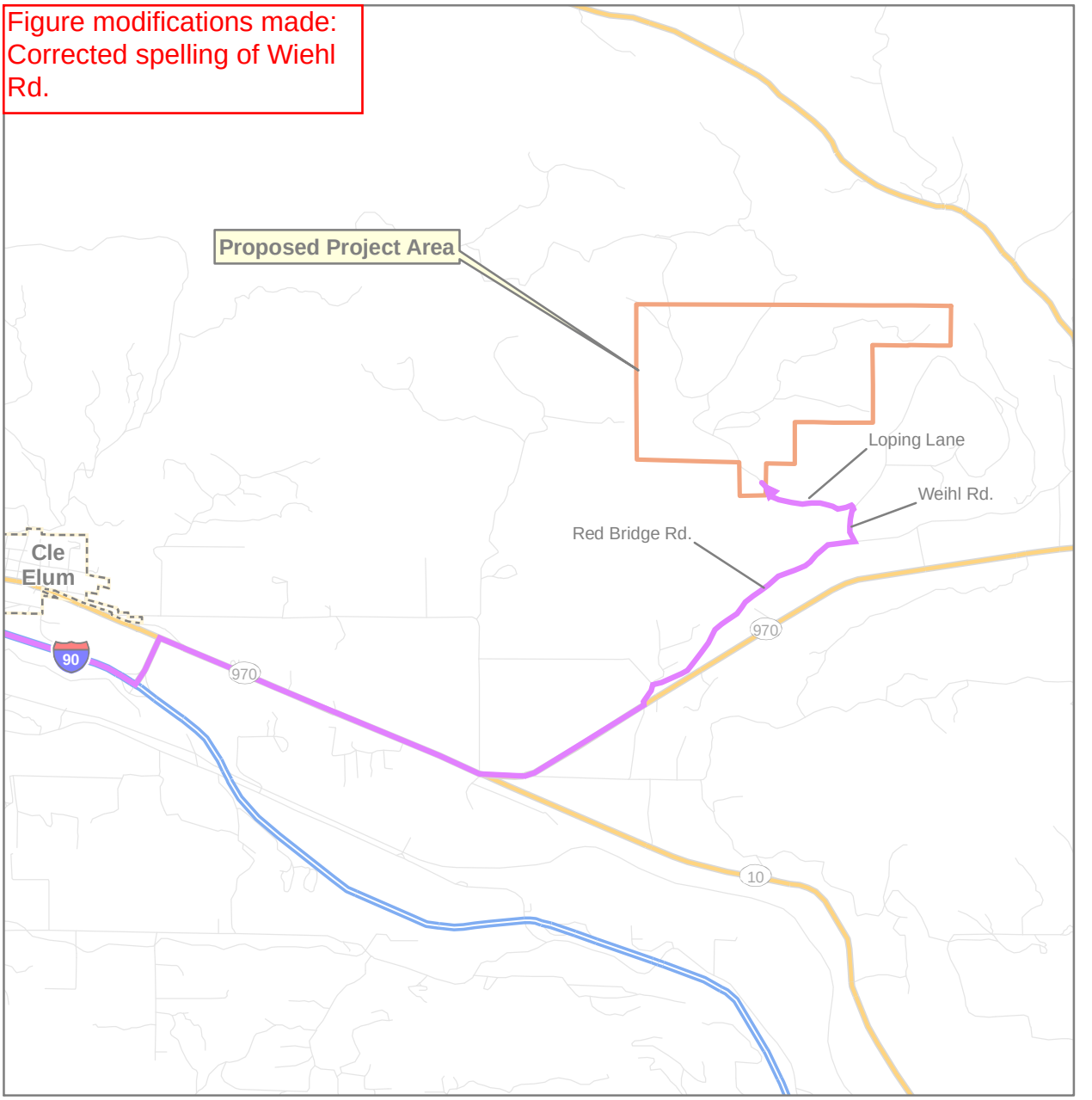
Figure modifications made:
Corrected spelling of Wiehl Rd.



LEGEND
- Proposed Project Area
- Site Access Route
- City Boundary
- Interstate
- Highway
- Major Road
- Minor Road

Note:
1. Street Data: 2002 ESRI StreetMap USA.

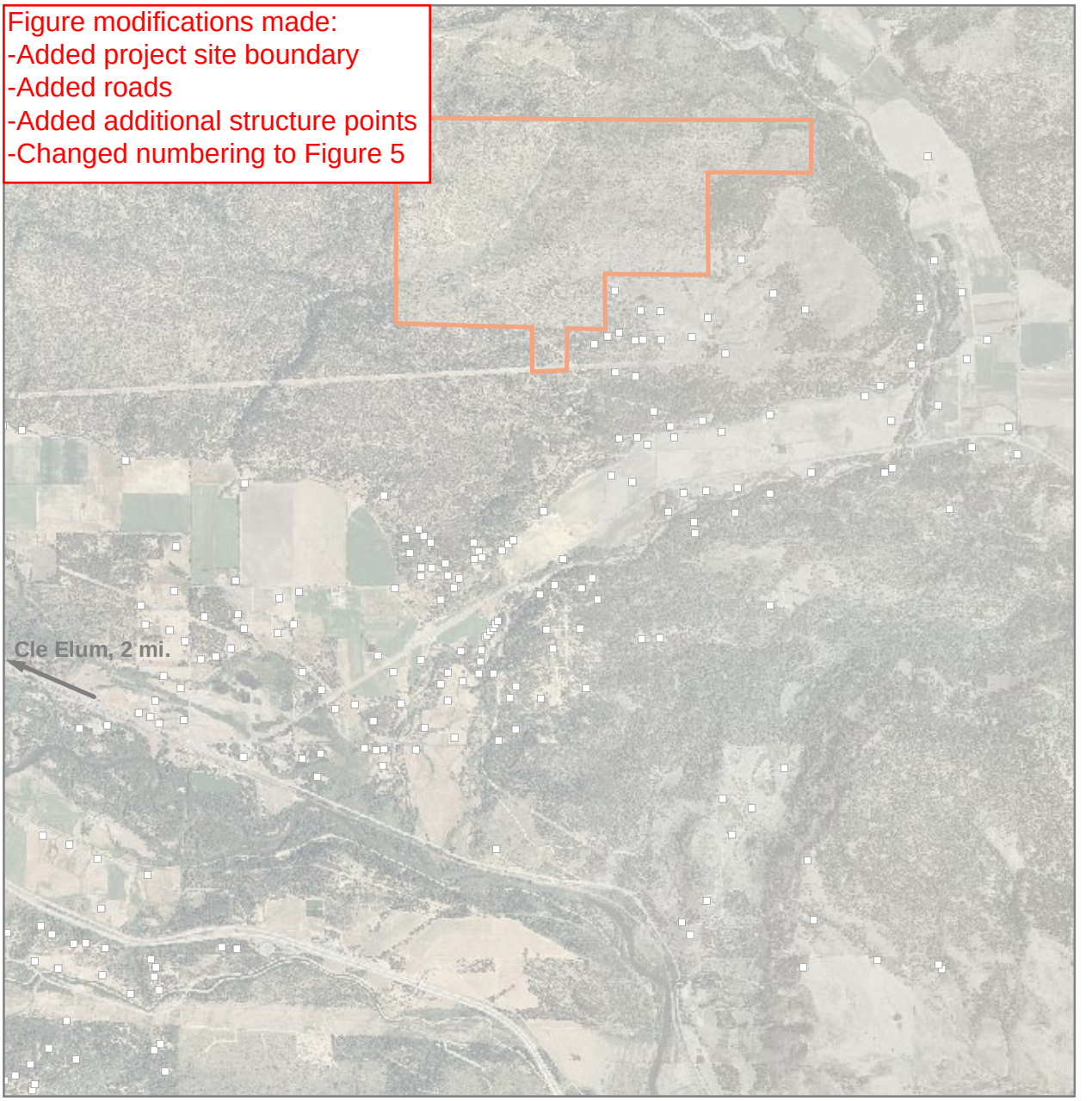
N

0 0.5 1
Miles

VICINITY MAP

FIGURE 3
Site Access Map
Teanaway Solar Reserve
Kittitas County, Washington

Figure modifications made:
-Added project site boundary
-Added roads
-Added additional structure points
-Changed numbering to Figure 5



LEGEND

Proposed Project Area

Identified Structure

VICINITY MAP

Notes:
1. Aerial Imagery: 2006 1m NAIP.
2. Structures identified from aerial, not ground verified.

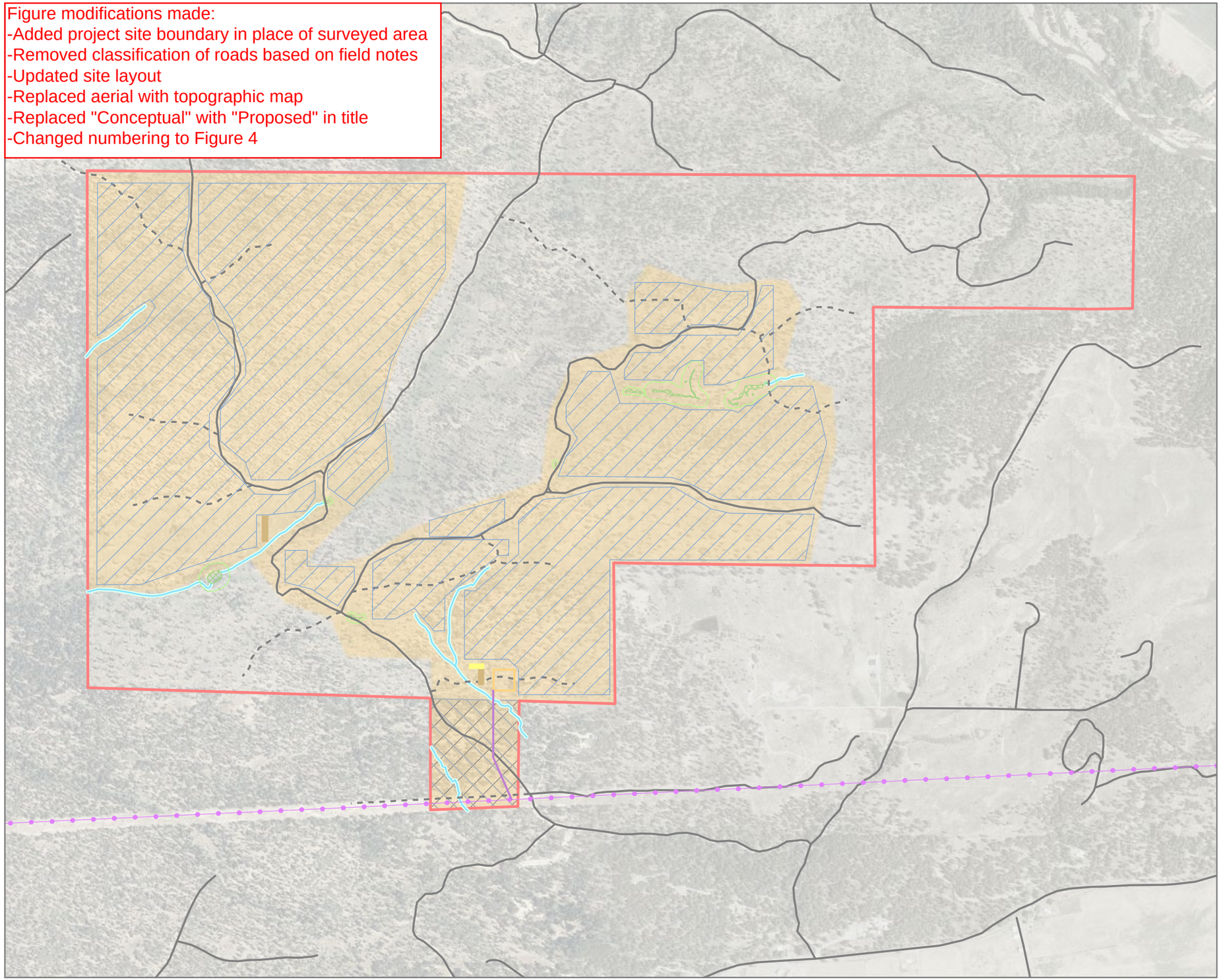
N

0 2,000 4,000

Feet

FIGURE 4
Identified Structure Map
Teanaway Solar Reserve
Kittitas County, Washington

Figure modifications made:
-Added project site boundary in place of surveyed area
-Removed classification of roads based on field notes
-Updated site layout
-Replaced aerial with topographic map
-Replaced "Conceptual" with "Proposed" in title
-Changed numbering to Figure 4



LEGEND
- Proposed Project Area
- Surveyed Area (580 acres)
- Proposed Powerline Route to Grid
- Potential Module Placement Area
- Proposed O&M Facility
- Proposed Substation
- Proposed Switchgear
- Transmission and Access Corridor
- Existing Transmission Line
- Road
- Minor Dirt Road
- Wetland
- Wetland Buffer
- Stream
- Stream Buffer

Note:
1. Aerial Imagery: 2006 1m NAIP.

N

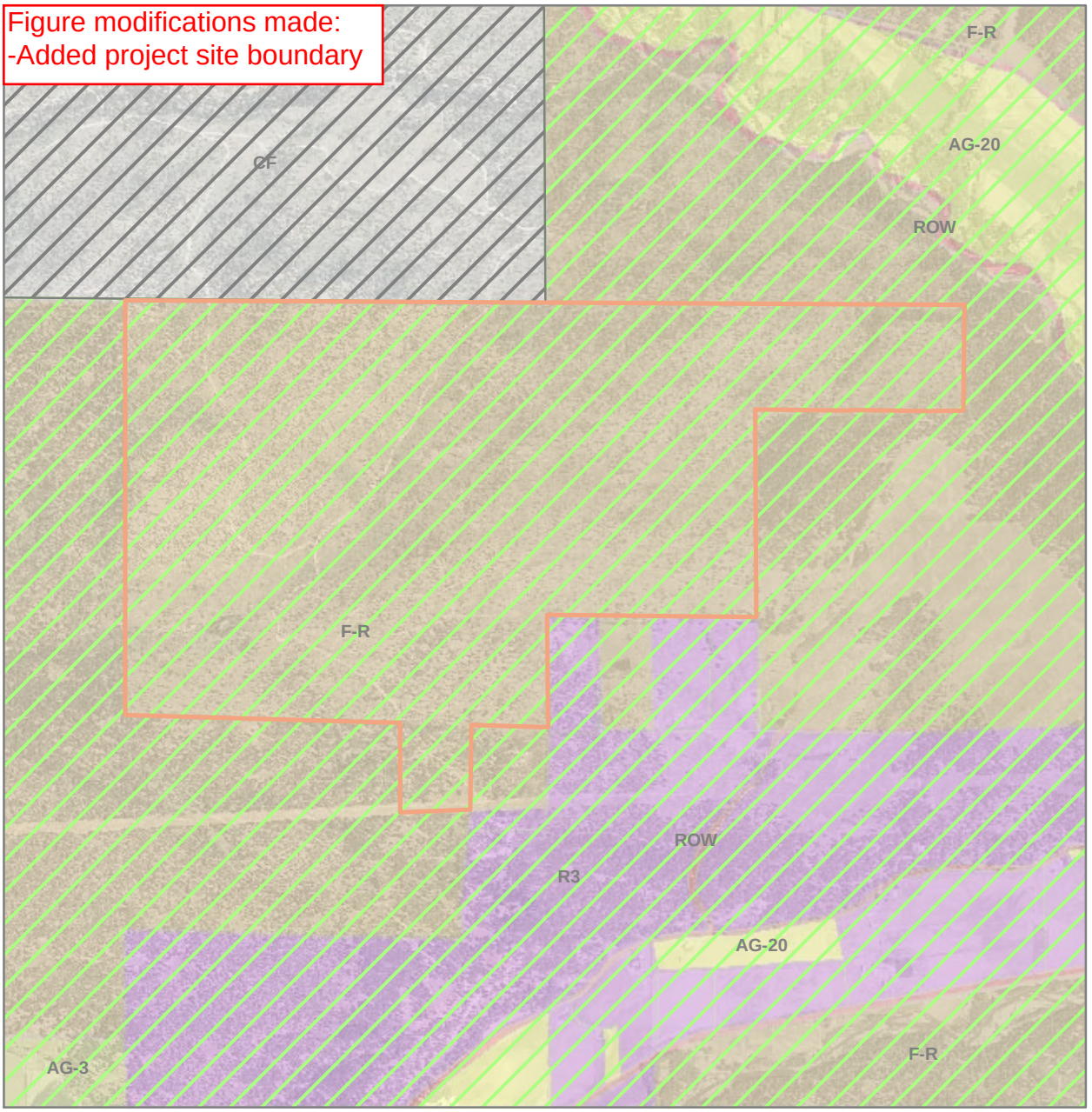
0 1,000
Feet

1 inch = 1,000 feet

FIGURE 5
Conceptual Site Layout
Teanaway Solar Reserve
Kittitas County, Washington

Inserted:
Figure 5a
Proximity to Closest residences

Figure modifications made:
-Added project site boundary



LEGEND

Proposed Project Area

Land Use

COMMERCIAL FOREST

RURAL

Zoning

AG-20, Agricultural 20

AG-3, Agricultural 3

CF, Commercial Forest

F-R, Forest & Range

R3, Rural 3

ROW, Right-of-Way

VICINITY MAP

N

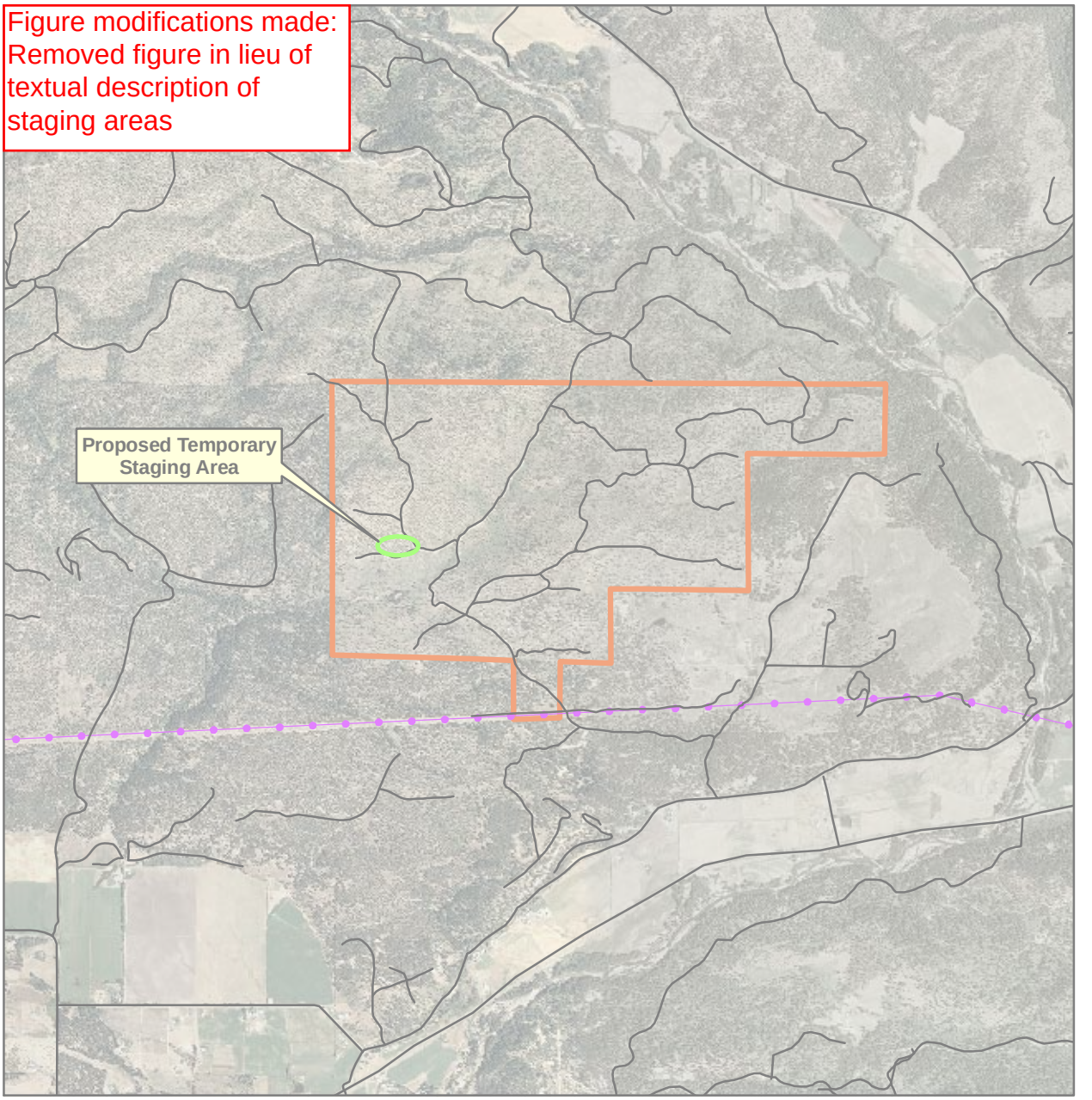
0 1,000 2,000

Feet

Note:
1. Aerial Imagery: 2006 1m NAIP.

FIGURE 6
Land Use/Zoning Map
Teanaway Solar Reserve
Kittitas County, Washington

Figure modifications made:
Removed figure in lieu of textual description of staging areas



LEGEND

- Proposed Project Area
- Proposed Temporary 5-Acre Staging Area
- Road
- Existing BPA Transmission Line

VICINITY MAP

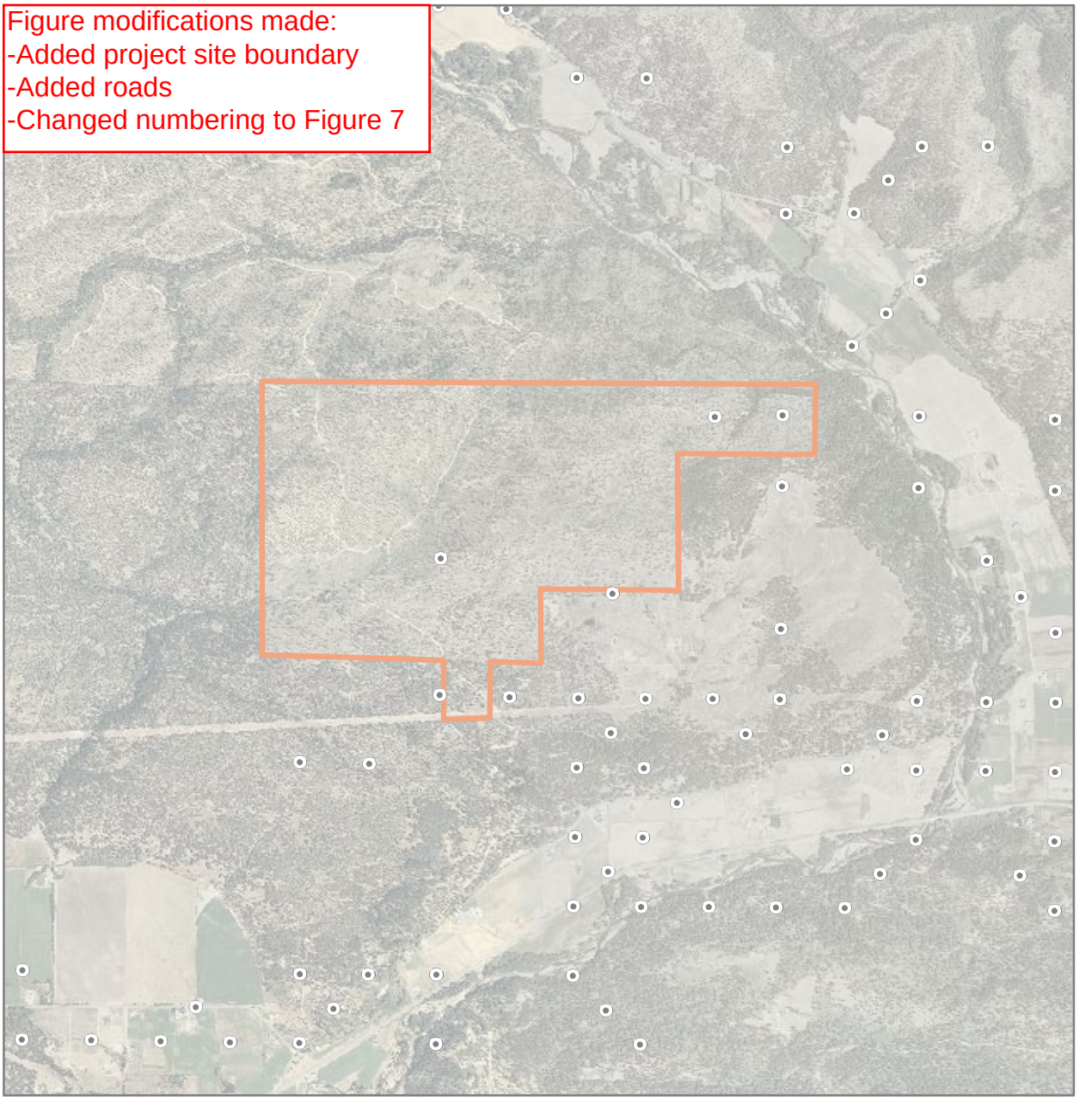
Note:
1. Aerial Imagery: 2006 1m NAIP.

N

0 1,500 3,000
Feet

FIGURE 7
Staging Area Map
Teanaway Solar Reserve
Kittitas County, Washington

Figure modifications made:
-Added project site boundary
-Added roads
-Changed numbering to Figure 7



LEGEND

- Well Location
- Proposed Project Area

Notes:
1. Well Log Data: Washington State Department of Ecology Water Resources Program.
2. Aerial Imagery: 2006 1m NAIP.

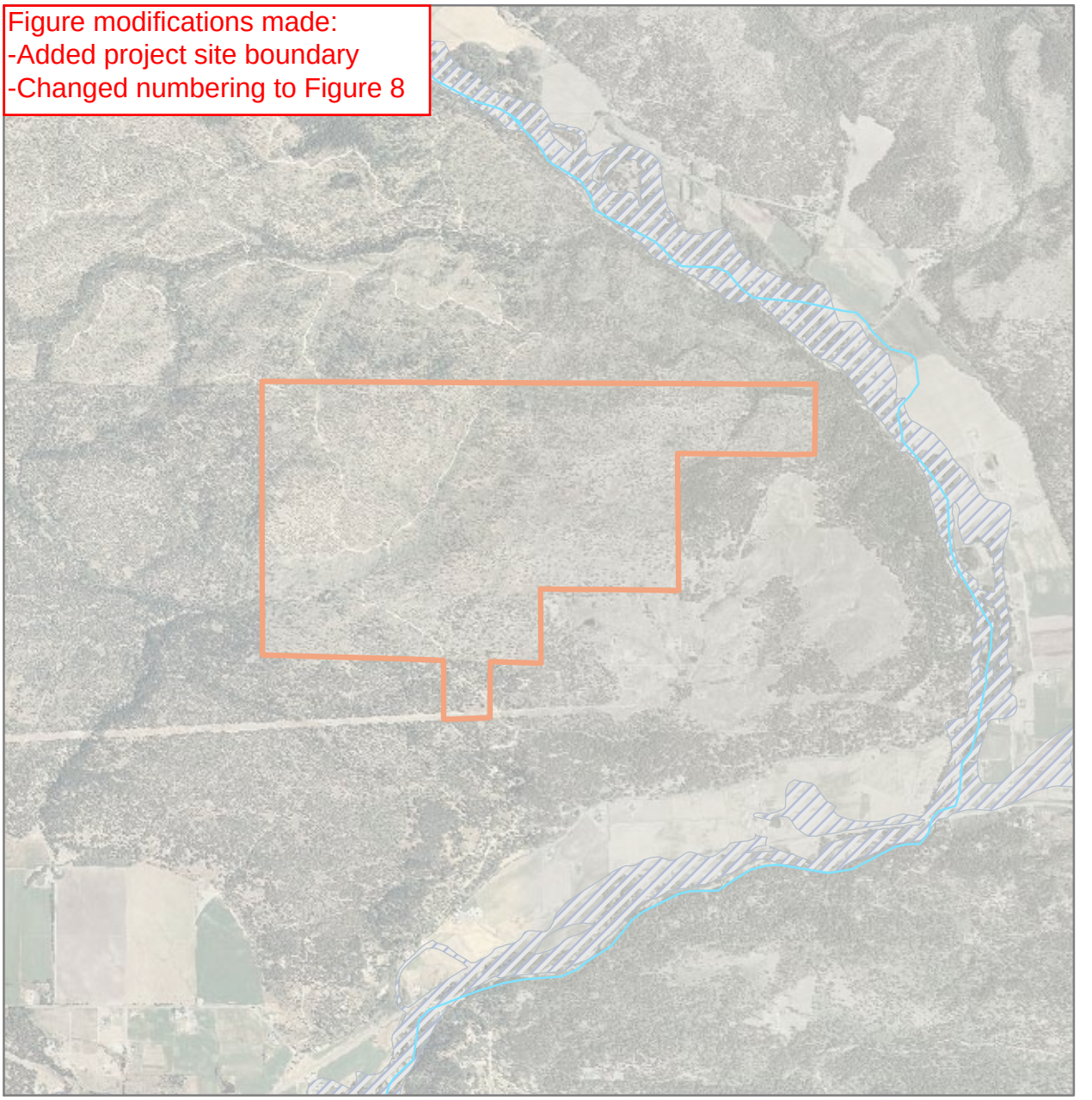
N

0 1,500 3,000
Feet

VICINITY MAP

FIGURE 8
Designated Critical Areas: Aquifer Recharge Areas
Teanaway Solar Reserve
Kittitas County, Washington

Figure modifications made:
-Added project site boundary
-Changed numbering to Figure 8



LEGEND

- Proposed Project Area
- FEMA 100-year Flood Zone
- Shoreline Management Act Stream (450 feet from proposed project area)

Notes:
1. Flood Data: Federal Emergency Management Agency Flood Insurance Rate Map.
2. Stream Data: Washington Department of Ecology.
3. Aerial Imagery: 2006 1m NAIP.

N

0 1,500 3,000
Feet

VICINITY MAP

FIGURE 9
Designated Critical Areas: FEMA Federal Insurance Rate Map for Kittitas County
Teanaway Solar Reserve
Kittitas County, Washington

ATTACHMENT B

Photos

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No Changes Made to Attachment

ATTACHMENT C

Landowners Adjacent to Proposed Site Boundary

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No Changes Made to Attachment

ATTACHMENT D

Legal Description

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ATTACHMENT E

Development Agreement

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PROPOSED DRAFT

DEVELOPMENT AGREEMENT

Between

KITTITAS COUNTY WASHINGTON

and

TEANAWAY SOLAR RESERVE, LLC

Deleted: *[**Note to reader:** The Applicant, Teanaway Solar Reserve, LLC (TSR), submitted this draft Development Agreement to Kittitas County on August 18, 2009. The revisions in this document were prepared by Kittitas County as part of the initial review of this agreement. The revisions are purposely limited at this time as a full substantive review of this document can not occur until the applicant submits additional information as described in Kittitas County's December _____, 2009 letter requesting additional information. As part of the applicant's resubmittal, the applicant may propose additional revisions to this agreement. Furthermore, additional revisions will be prepared after a SEPA threshold determination is issued, and a decision is made on the associated Conditional Use Permit (CUP) application (File No. CU-09-00005.]*¶

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TABLE OF CONTENTS

List of Attachments

Deleted: Conditional Use Permit

Deleted: SEPA

Deleted: Attachment E:

Deleted: Decommissioning Estimate

Deleted: Amendment Provisions

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DEVELOPMENT AGREEMENT

TEANAWAY SOLAR RESERVE PROJECT

THIS DEVELOPMENT AGREEMENT ("Agreement") is entered into and effective this ____day of _____, 2010 by and between Kittitas County, a Washington municipal corporation ("County") and Teanaway Solar Reserve, LLC, a Wyoming limited liability company authorized to do business in the state of Washington ("Applicant") (collectively, the "Parties"). This Agreement is made pursuant to Revised Code of Washington ("RCW") 36.70B.170, Kittitas County Code ("KCC") Chapter 15A.11, and KCC Chapter 17.61, and relates to the Teanaway Solar Reserve Project.

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RECITALS

A. RCW Chapter 36.70B, and KCC Chapter 15A.11 authorize the County to enter into an agreement regarding development of real property located within the County's jurisdiction with any person having an ownership interest in or control of such real property.

B. The Applicant desires and intends to develop a solar farm in Upper Kittitas County known as the Teanaway Solar Reserve Project (the "Project") located approximately four miles northeast of the town of Cle Elum. Key components and related appurtenant improvements of the Project include solar modules, inverter buildings, underground electrical conductors, substation, transmission line, maintenance and access roads, and Operations and Maintenance (O&M) building. A full description of the Project is contained in Attachment A: Project Description.

C. The Applicant's objective is to develop a commercially viable solar energy facility generating up to 75 megawatts (MWdc) of photovoltaic (PV) for distribution to utilities and communities seeking to optimize their renewable and sustainable energy sources through an interconnection point on the Pacific Northwest power grid.

D. The Project will be located on land referred to herein as the "Project Area". The Applicant entered into agreements with the owners of approximately 982 acres of real property comprising the Project Area, giving it requisite control of this land for the purpose of, and authority to, develop the Project. The Project Area is as more specifically described in Attachment B: Project Area Legal Description. A map showing the location of the Project Area is contained in Attachment A: Project Description.

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E. The construction of the Project is currently scheduled for two to three consecutive seven to nine month construction seasons (generally between April 1 to October 31 as weather allows) between the years 2010 through 2012. As fully constructed, the Project is anticipated to require approximately 477 acres ("Project Site") within the overall Project Area. A site plan showing the location and layout of the Project is contained in Attachment A: Project Description.

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F. A solar farm is defined by the County as a "major alternative energy facility". KCC 17.61.010(9) & (15). The transmission line and electrical substation may also be considered "special utilities." KCC 17.61.010(2). Major alternative energy facilities and special utilities may be authorized for the Project Site by the County's Board of Adjustment ("BOA") as conditional uses following a 15-day comment period and hearing, per KCC Chapter 15.61, KCC Title 15A, and KCC Chapter 17.60A.

G. In conjunction with this Agreement, the Applicant submitted a Conditional Use Permit ("CUP") Application as required by KCC 15.61.020(4)(b) & (6). One of the conditions of the CUP is that Applicant will obtain an approved development agreement with the County, and that it will be conditioned and governed by this Agreement.

H. The Applicant's submissions were deemed complete by the County on August 22, 2009. As the State Environmental Policy Act ("SEPA") Lead Agency, Kittitas County issued a Mitigated Determination of Non-significance ("MDNS") for the Project on _____ ___, 2010. The SEPA determination is attached hereto as Attachment C. Applicant agrees to abide by the CUP, the SEPA Mitigation Measures identified in the MDNS, and the Development Standards set forth in this Agreement to mitigate impacts to the environment.

I. The CUP was the subject of a 15-day comment period and a hearing before the Board of Adjustment as required by KCC Title 15A. On - ___, 2010, the Board of Adjustment ("BOA") voted ___ to ___ to approve the CUP. The CUP is attached hereto as Attachment D.

J. As required by KCC Title 15A and accompanying Table, and RCW 36.70B.200., this Agreement was the subject of a 30-day comment period and a hearing before the Kittitas County Board of County Commissioners ("BOCC") was held on _____ ___, 2010, and it voted ___ to ___ enter into this Agreement.

NOW, THEREFORE, in consideration of the recitals (which are incorporated into the

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Agreement by this reference) and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the County and the Applicant agree as follows:

AGREEMENT

1. Effective Date, Termination and Modification.

1.1 Effective Date. The Effective Date of this Agreement is the last date upon which it was signed by the Parties hereto.

1.2 Termination. This Agreement may be terminated by mutual agreement of the Parties to this Agreement, or terminated by Applicant pursuant to Section 9 of this Agreement, or by the County upon revocation, withdrawal or termination of the underlying CUP.

1.3 Modification. This Agreement shall govern and vest the development, use, and mitigation of the Project, and shall not be modified unless as provided in Section 8 below; *Provided* that nothing herein shall be construed to limit the County's reserved authority per KCC 15A.11.020(6) to impose new or different regulations to the extent required by a serious threat to public health and safety.

2. Definitions.

Deleted: *[Note: Additional revisions to this section will be prepared following issuance of the SEPA threshold determination and the CUP decision.]*

For purposes of this Agreement, the following terms, phrases, words, and their derivations shall have the meaning given herein where capitalized; words not defined herein shall have their ordinary and common meaning. When not inconsistent with the context, words used in the present tense include the future, words in the plural number include the singular number, words in the singular number include the plural number, and the use of any gender shall be applicable to all genders whenever the sense requires. The words "shall" and "will" are mandatory and the word "may" is permissive. References to governmental entities (whether persons or entities) refer to those entities or their successors in authority. If specific provisions of law referred to herein are renumbered, then the reference shall be read to refer to the renumbered provision. Unless otherwise specified herein, references to laws, ordinances or regulations shall be interpreted broadly to cover government actions, however nominated, and include laws, ordinances and regulations now in force.

2.1. Agreement. "Agreement" means this Development Agreement between Kittitas County, Washington and Teanaway Solar Reserve, LLC, approved by the Board of County

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Commissioners.

2.2. Applicant. "Applicant" means Teanaway Solar Reserve, LLC or any of its Transferee(s) as provided in Section 10 of this Agreement.

2.3. BOCC. "BOCC" means the Board of County Commissioners of Kittitas County, Washington.

2.4 BOA. "BOA" means Kittitas County Board of Adjustment.

2.5 CDS. "CDS" means the Kittitas County Community Development Services.

2.6 County. "County" means Kittitas County, Washington.

2.7 Construction Buildout Period. "Construction Build out Period" has the meaning set forth in Section 5.10 of this Agreement.

2.8 CUP. "CUP" means the Conditional Use Permit approved by the County's BOA for the Project, which shall be conditioned and governed by this Agreement.

2.9 Development Standards. "Development Standards" means the requirements stated in Section 5 of this Agreement.

2.10 Director. "Director" means the Director of the County Department of Community Development Services.

2.11 Effective Date. "Effective Date" has the meaning set forth in Section 1.1 of this Agreement.

2.12 Force Majeure Event. "Force Majeure Event" means any event that directly prevents or delays the performance by the Party affected of any obligation arising under this Agreement, including an event that is within one or more of the following categories: condemnation; expropriation; invasion; plague; drought; landslide; tornado; hurricane; tsunami; flood; lightning; earthquake; fire; explosion; epidemic; quarantine; war (declared or undeclared), terrorism or other armed conflict; material physical damage to the Project caused by third Parties; riot or similar civil disturbance or commotion; other acts of God; acts of the public enemy; blockade; insurrection, riot or revolution; sabotage or vandalism; embargoes; and, actions of a governmental authority other than EFSEC.

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2.13. Historical Energy Production. "Historical Energy Production" means the sum of all energy generated by the Project after Substantial Completion divided by the total number of months of operation after Substantial Completion and the remaining sum multiplied by twelve.

2.14. Liability. "Liability" means all loss, damage, cost, expense (including costs of investigation and attorneys' fees and expenses at arbitration, trial or appeal and without institution of arbitration or suit), liability, claims and demands of whatever kind or nature (including those arising under the Federal Employers Liability Act), arising out of an occurrence relating to this Agreement or occurring on or relating to the Project described herein.

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2.15. MDNS. "MDNS" means the Mitigated Determination of Non-significance" issued as a SEPA determination by Kittitas County for the Project on _____.

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2.16. Parties. "Parties" means Kittitas County, Washington and the Applicant, Teanaway Solar Reserve, LLC, a Wyoming limited liability company.

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2.17. Project. "Project" means the Teanaway Solar Reserve Project, a solar farm generating up to 75 megawatts (MWdc) of photovoltaic (PV) solar energy, together with any necessary Project components and related appurtenant improvements, including approximately 400,000 solar panels, inverter buildings, underground electrical conductors, substation, transmission line, maintenance and access roads and Operations and Maintenance (O&M) building. The Project and its components are more fully described in Attachment A: Project Description.

Deleted: 5.

2.18. Project Area. "Project Area" means the overall land area in which the Project Site will be located. The Project Area covers approximately 982 acres. A map depicting the location of the Project Area is contained in Attachment A: Project Description. The land within the Project Area is as more specifically described in Attachment B: Project Area Legal Description.

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2.19. Project Site. "Project Site" means the land area on which the Project will actually be sited. The Project Site covers approximately 477 acres. A map showing the approximate location of the Project Site is contained in Attachment A: Project Description.

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2.20. Public Works. "Public Works" means the Kittitas County Public Works Department.

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2.21 SEPA. "SEPA" means the State Environmental Policy Act, Chapter 43.21C RCW.

2.22 Substantial Completion. "Substantial Completion" means the Project is constructed, installed, generating and delivering energy to the electric power grid.

2.23 Transferee. A party to which the Project is transferred or assigned in part or in whole under the provisions contained in Section 10.1 of this Agreement.

3. Protect Description

The Project is a proposed solar farm, along with other necessary components and related appurtenant improvements as described in Attachment A: Project Description, capable of generating up to 75 megawatts (MWdc) of photovoltaic (PV), modified as necessary in accordance with the Development Standards contained herein, the CUP, and the proposed SEPA MDNS mitigation measures.

4. Vesting.

Except as otherwise noted, this Agreement vests the Project, Project Site, and Project Area to the existing County land use plans, ordinances, and regulations effective as of the Effective Date of this Agreement.

5. Development Standards.

5.1. Location and Description of Project. The Project is as described in Attachment A: Project Description, and illustrated in Attachment A: Project Description, modified as necessary in accordance with this Agreement's Development Standards, CUP, and SEPA mitigation measures, see Attachments C and D. Attachment A contains a Project Vicinity Map with Landowners and Residential Locations that illustrates the location of the Project and its components in relation to existing structures in the vicinity of the Project.

5.2 Structures. As part of the Project, Applicant may require supporting structures for any related transmission line. Such structures shall not be subject to any applicable County height restriction, provided that any supporting structure taller than 150 feet will not be used without Applicant first obtaining an approved variance from the County.

5.3. Fire and Police Protection Measures. Applicant will create and maintain a

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Deleted: *[Note: Additional revisions to this section will be prepared following issuance of the SEPA threshold determination and the CUP decision.]*
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firebreak of no less than 100 feet between all outer edges of the Project Site and adjacent property lines, as illustrated in Attachment A: Project Description. The Project Area is currently subject to the fire suppression services of the Washington Department of Natural Services. Should the construction of the Project require additional or different fire protections services, the Applicant will work with Kittitas County Fire Protection District #7 to ensure that suitable fire suppression services are in place during the construction and on-going operations of the Project. Police protection of the Site Area is provided by the County's Sherriff's Office. The construction contractor will notify the fire protection and police services of staging and active construction locations so these services can respond efficiently to emergencies, should any arise. During the operational phase, the Applicant will contact fire protection and police services in the event of an emergency.

5.4. Setbacks. The Project may be located up to, but no less than, 100 feet from any bordering property as illustrated in Attachment A: Project Description.

5.5. Emergency Plans. An emergency preparedness and response plan shall be prepared and submitted to the County by the Applicant prior to construction.

5.6. Project Access and Maintenance Roads. The main Project access road entrance is from a private roadway generally known as Loping Lane extending from the Wjehl Road, also a private road, through portions of sections 26 and 27, T. 20, 16 E, W.M., Kittitas County, to the Project Area as generally depicted in Attachment A: Project Description. The Applicant's road use shall be subject to any road use agreements in effect applicable to Applicant's use of that roadway, that may include, without qualification or limitation, the Horseshoe Hills Ranch Declaration of Protective Covenants, Conditions and Easements (Kittitas County Auditor's Recoding No. 488155, dated June 5, 1985), Easement and Road Maintenance Agreement (Kittitas County Auditor's Recoding No. 200204020024 dated February 5, 2002), Declaration of Protective Covenants (Kittitas County Auditor's Recoding No. 200306060049 dated June 6, 2003), and Addendum To Protective Covenants (Kittitas County Auditor's Recoding No. 200308290105 dated August 28, 2003). The Applicant will additionally work with neighbors who use Loping Lane to identify measures that will minimize disruption to their use during construction and to the roadway itself.

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The project will be served internally by a network of existing and/or new maintenance roads. The existing maintenance roads, along with Wjehl Road and Loping Lane, generally

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consist of gravel and dirt and may need improvements in accordance with County requirements. The Applicant is responsible for any improvements to these roads, and will first submit a plan detailing any such improvement for review and approval by the Kittitas County Public Works Department, which shall not unreasonably be withheld.

5.7. The Relationship between this Agreement and the CUP. This Agreement incorporates by reference the terms and conditions of the CUP as approved by the BOA, which shall be further conditioned and governed by this Agreement. In the event a conflict should occur between the CUP and this Agreement, the terms and provisions of this Agreement shall control.

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5.8. Concrete batch plants. Concrete batch plants will not be located on the site.

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5.9. Project Site Access. Public access to the Project Area is already restricted by the subject landowners and will continue to be restricted in accordance with easement agreements. Access to the Project Site shall be further controlled in the form of an electric gate with an associated keypad security code for entry. The Applicant shall be responsible for the installation and maintenance of the gate, and will work with applicable landowners to determine its appropriate location. Property owners who access their property from Loping Lane and require access through the gate will be provided the necessary and applicable access. Representatives of the Washington State Department of Natural Resources currently has access to and through the Project Site and will continue to be allowed access. The Applicant will also coordinate with local landowners to identify any necessary additional security measures, including an additional access restriction on Loping Lane near its intersection with Wiehl Road. The Applicant does not have the authority to grant permission to third party recreationists, including hunters and campers, to access the Project, but may grant permission to such parties on a case-by-case basis provided such parties first secure written permission from all of the applicable landowners along Loping Lane.

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5.10 Construction Buildout Period. Applicant shall be allowed to construct the Project such that Substantial Completion is achieved no later than 5 years from the date that all permits necessary to construct the Project are obtained, but in no event later than 6 years from the Effective Date of this Agreement (the "Construction Buildout Period") provided however, that such construction is not delayed by a Force Majeure Event.

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6. Decommissioning and Restoration.

6.1. Initial Project Decommissioning and Site Restoration Plan. At least 30 days prior to construction of the Project, Applicant shall provide to the County for its approval an Initial Project Decommissioning and Site Restoration plan (the "Initial Plan"), prepared in sufficient detail to identify, evaluate, and resolve all major environmental, and public health and safety issues reasonably anticipated by the Applicant on the date thereof associated with decommissioning and restoring the Project Site. The Initial Plan shall describe the measures that will be taken to decommission the Project and restore the Project site, including any measures necessary to protect the public against risks or danger resulting from decommissioning the Project and restoring the Project Site.

6.2 Final Project Decommissioning and Site Restoration Plan. Ninety days prior to decommissioning the Project Site, Applicant shall submit a Final Project Decommissioning and Site Restoration Plan ("Final Plan") to the County for its approval. The Final Plan may contain measures to decommission the Project and restore the Project Site different than the Initial Plan, *provided* that Applicant explains in sufficient detail the reasons for any new or substantially different measures.

6.3. Decommissioning and Restoration: Scope and Timing.

6.3.1 Scope of Decommissioning. Decommissioning the Project shall involve removal of the Project's components, including, without limitation, the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, underground electrical conductors, substation, and Operations and Maintenance (O&M) building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; removal of Project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that Project Area landowners wish to retain); and final reseeding of disturbed lands with an approved seed mixture (all of which shall comprise "Decommissioning"). The Initial and Final Plans shall contain the measures necessary to fulfill Applicant's Decommissioning obligations.

6.3.2. Scope of Restoration. Restoration of the Project Site shall be to a reasonable approximation of its original condition prior to construction allowing for any

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Deleted: The Applicant is under a contractual obligation with the landowner to return the site in pre-construction condition minus reasonable wear and tear and, at the landowner's request, to remove any or all of the Project's components. Applicant is also contractually bound to reclaim the site to address any damage caused by the demolition and removal of any alterations or improvements to the Project Site, including the Project. *[Note to applicant: The contractual obligation for decommission and reclamation must be between the County and TSR, with the landowner acknowledgment of this obligation. Revise and expand this section to include the following: Decommissioning Plan; Decommission Scope and Timing; and Decommissioning Funding and Surety]*

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permanent improvements chosen by the underlying landowners to be left on site as provided in Section 6.3.1. The Initial and Final Plans shall contain the measures necessary to fulfill Applicant's Restoration obligations.

6.3.3. Timing; Exemptions and Extension. Applicant or any Transferee, as the case may be, shall decommission the Project and restore the Project Site within twelve (12) months following the earlier of either: (a) the date of termination of this Agreement, in accordance with Section 1.2 above; or (b) at the written request of the County, the Applicant demonstrates that the energy generated by the Project for the past 12 month period is less than 10% of the Historical Energy Production and no exemptions apply. The Applicant will be exempted from the decommissioning and restoration requirements if the twelve (12) month reduced energy output period described above is the result of (i) a repair, restoration or improvement to an integral part of the Project that affects the generation of electricity that is being diligently pursued by the Applicant, or (ii) a Force Majeure Event, including, but not limited to, an extended low solar period. The twelve (12) month period to perform the decommissioning and restoration may be extended if there is a delay caused by forces beyond the control of the Applicant including, but not limited to inclement weather conditions, planting requirements, equipment failure, wildlife considerations or the availability of equipment or personnel to support decommissioning.

6.3.4. County Access and Reporting. The County shall be granted reasonable access to the Project site during decommissioning of the Project for purposes of inspecting any decommissioning work or to perform decommissioning evaluations. County personnel on the Project site shall observe all worker safety requirements enforced and observed by the Applicant and its contractors. If requested by the County, Applicant will provide monthly status reports until this decommissioning work is completed.

6.4 Decommissioning and Restoration Funding and Surety. Except as provided in Section 6.5 below, Applicant or any Transferee, as the case may be, shall post funds sufficient for Decommissioning and Restoration in the form of a guarantee bond, or a letter of credit to ensure the availability of said funds (the "Decommissioning Funds") to Kittitas County, prior to the end of the first year after completion of the first construction season as described in Recital E herein. The Initial Plan shall provide that the Decommissioning and Restoration Funds shall

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be reevaluated annually during construction of the Project and every five (5) years thereafter from the date of Substantial Completion to ensure sufficient funds for Decommissioning and Restoration and, if deemed appropriate at that time, the amount of the Decommissioning and Restoration Funds shall be adjusted accordingly. The duty to provide such security shall continue annually until this Agreement terminates as provided in Section 1.2 herein or when the Project ceases to generate electricity as defined in Section 6.2 above whichever occurs first. On or before the date on which financial security must be established, the Applicant or any Transferee, as the case may be, shall provide the County with a copy of one of the following security devices for their information:

6.4.1 Performance Bond. Applicant or any Transferee, as the case may be, shall provide financial security for the performance of its Decommissioning and Restoration obligations through a Performance Bond issued by a surety registered with the Washington State Insurance Commissioner and is, at the time of delivery of the bond, is on the authorized insurance provider list published by the Insurance Commissioner. The Performance Bond shall be in an amount equal to the Decommissioning and Restoration Funds. The Performance Bond shall be for a term of 1 year, shall be continuously renewed, extended, or replaced so that it remains in effect for the remaining term of this Agreement or until the secured decommissioning obligations are satisfied, whichever occurs sooner. In order to ensure continuous renewal of the Performance Bond with no lapse, each Performance Bond shall be required to be extended or replaced at least one month in advance of its expiration date. Failure to secure such renewal or extension shall constitute a default of the Applicant under this Agreement and under the Bond provisions.; or

6.4.2 Letter of Credit. Applicant or any Transferee, as the case may be, shall provide financial security for the performance of its Decommissioning and Restoration obligations through a letter of credit issued by a bank whose long-term debt is rated "A" or better by a Rating Service. The letter of credit shall be in an amount equal to the Decommissioning and Restoration Funds. The letter of credit shall be for a term of 1 year, shall be continuously renewed, extended, or replaced so that it remains in effect for the remaining term of this Development Agreement or until the secured decommissioning obligations are satisfied, whichever occurs sooner. Kittitas County or designees shall be authorized under the letter of credit to make one or more sight drawings thereon upon certification to the issuing bank of the Applicant's or Transferee's (as the case may be) failure to perform its Decommissioning and

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Restoration obligations when due.

6.5. Financial Security and Utility Project Ownership. If, at the time the duty to provide Decommissioning and Restoration security arises under Section 6.3 above, the owner of the Project is an investor-owned electric utility regulated by the Federal Energy Regulatory Commission (FERC) and the Washington Utilities and Transportation Commission (WUTC), Applicant or any Transferee, as the case may be, shall not be required to obtain and provide proof of financial security for the performance of its Decommissioning and Restoration obligations arising hereunder, since the obligation to fully decommission the Project and restore the Project Site when due shall be a general obligation of the investor-owned electric utility owner.

7. Consistency with Local Regulations.

Deleted: *[Note: Revisions to this section will be prepared following the CUP decision.]*

The County hereby acknowledges that if the Project is developed consistent with this Agreement and any Amendments thereto, the public health, safety, and welfare will be adequately protected within the bounds of the law; the Project will be considered essential and desirable to the public convenience; the Project will not be detrimental or injurious to the public health, peace, or safety, or to the character of the surrounding neighborhood; the Project will not be unreasonably detrimental to the economic welfare of the County; and the Project will not create excessive public cost for public facilities and services. Assuming the Applicant's objectives are met, the Project helps fills significant local needs in supplying electricity, creating local jobs and promoting economic development in rural areas, while also having the positive benefits of avoiding the external environmental costs associated with traditional electrical generation technologies.

The Project is located on property that is zoned as Forest & Range -20. Due to Project and equipment design and materials, the Project's O&M, the remoteness of the Project, and the surrounding vegetation, the Project poses no significant risks to residents from reflective glare, noise impacts, fire, or other disturbances from the construction, installation or use of the Project. The Project will deliver cost effective renewable energy to the electric grid and, as such, is essential and desirable to the public convenience. The Project will contribute significant tax revenues to the County which will far exceed the limited public service costs the Project will introduce.

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8. Amendments and Revisions.

This Development Agreement may be amended by mutual agreement of the Parties only if the amendment is in writing and signed by Applicant and the County and is approved by the BOCC (an "Amendment"), whose approval shall not unreasonably be withheld. The following sections specify what Project actions and revisions can be undertaken without the need for amendment of the Development Agreement and what revisions require Amendment to this Agreement and the CUP.

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8.1 Project Facility Repair, Maintenance and Replacement. Applicant shall be permitted, without any further land use approval from the County or amendment to this Agreement, to repair, maintain and replace the Project and its components consistent with the terms of this Agreement.

8.2 Project and Project Area Expansion. If Applicant seeks to expand the generating capacity of the Project and the geographic scope of the Project Site or Project Area, Applicant will seek an Amendment to this Agreement and amend the CUP, if and as necessary, in accordance with this Agreement and any applicable state and local regulations in effect at the time of such amendments. The Applicant acknowledges that further SEPA review may be required if the criteria for such is met as set forth in Kittitas County Code Chapter 15.04 (SEPA Regulations).

8.2.1 **Authorized Amendments.**

Deleted: *[Note to applicant: To clarify the scope of any expansions and the role of the staff, BOA and BOCC in such expansions, the County anticipates revising Section 8.2 to include the Amendment Provisions conceptually outlined in Attachment E.]* ¶

Authorized Amendments are set forth below. In regard to Authorized Amendments that concern road, stormwater, utility and other Public Works standards, the Public Works Director, or his/her designee, shall have the authority to review and render decisions on such Authorized Amendments. The CDS Director, or his/her designee, shall have the authority to review and render decisions on all other Authorized Amendments. No additional review for Authorized Amendments shall be required, provided the amendment proposed is consistent with the standards set forth below. If the amendment is not consistent with the standards set forth below, the request may be considered as an Administrative Minor Amendment or Major Amendment as provided in Section 8.2.2 and 8.2.3 below.

8.2.1.1. The proposal does not add to the site or approved structures by more than a 10 percent increase in square footage.

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8.2.1.2. The proposal does not increase the overall impervious surface on the site by more than percent.

8.2.1.3. ***Place holder - to be completed during Development Approval review process)***

8.2.1.4. Any additions or expansions approved through a series of minor amendments that cumulatively exceed the requirements of this section shall be reviewed as an administrative minor modification or major modification.

8.2.1.5. Other *de minimus* amendments requested by the Applicant, which the County determines to be reasonably consistent with the CUP which do not result in significantly greater impacts than those contemplated in the approval.

8.2.2 **Administrative Minor Amendments**

Administrative Minor Amendments are set forth below. In regard to Administrative Minor Amendments that concern road, stormwater, utility and other Public Works standards, the Public Works Director, or his/her designee, shall have the authority to review and render decisions on such Administrative Minor Amendments. The CDS Director, or his/her designee, or BOA shall have the authority to review and render decisions on all other Authorized Amendments as specified below. The County or BOA, as applicable, may approve, or approve with conditions, a requested Administrative Minor Amendment upon determining that it is consistent with the standards as set forth below, otherwise it shall be denied. The decision shall be provided in writing, following a 15-day notice and comment period to property owners within 500 feet of the perimeter of the Project. The County shall maintain a cumulative list of all approved administrative minor modifications.

8.2.2.1. Decision by County Staff

8.2.2.1.1. ***(Place holder - to be completed during review process)***

8.2.2.1.2. ***(Place holder - to be completed during review process)***

8.2.2.2. Decision by BOA

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8.2.2.2.1. ***(Place holder - to be completed during review process)***

8.2.2.2.2. ***(Place holder - to be completed during review process)***

8.2.3 **Major Amendments**

Major Amendments are set forth below. Proposed Major Amendments shall be reviewed using the standards, requirements, criteria, and approval process for conditional use permits and development agreements existing at the time of the proposed Major Amendment. For vesting purposes a Major Amendment is considered to be a new application. However, the change in vesting shall only apply to that aspect of the Project or Project Area being proposed for a Major Amendment.

A proposed change shall be considered a Major Amendment when it is not an Authorized Amendment or Administrative Minor Amendment. In addition, the following shall be considered a Major Amendment:

8.2.3.1. ***(Place holder - to be completed during review process)***

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8.2.3.2. ***(Place holder - to be completed during review process)***

9. Termination.

Applicant shall have the option, in its sole discretion, to terminate this Agreement prior to Substantial Completion of the Project, *Provided* such termination will not relieve the Applicant of any obligation owed the County under the terms of this Agreement and outstanding at the time of such termination. If it elects to terminate this Agreement, Applicant shall submit a Notice to this effect to Kittitas County at least thirty (30) days prior to such termination.

10. General Provisions.

10.1 Assignment. The County and Applicant acknowledge that development of the Project may involve the sale and/or assignment of all or substantially all of the assets or all or substantially all of the membership interests to third parties. In addition the County and Applicant acknowledge that Applicant and its permitted Transferees may obtain financing for all or a portion of the costs of the Project. Applicant shall have the right to assign or transfer all or

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any portion of its interest in the Project at any time, including rights, obligations and responsibilities arising hereunder, to third parties acquiring all or substantially all the assets of the Project or all or substantially all the membership interests in Applicant (each such third party, a "Transferee"), provided such assignments or transfers are made in accordance with the following:

10.1.1 Assignments or Transfers Requiring the Consent of the County.

Applicant may at any time enter into a written agreement with a Transferee other than those described in Sections 10.1.2 and 10.1.3 to transfer all or substantially all the assets of the Project or all or substantially all the membership interests in Applicant, including rights, obligations and responsibilities arising hereunder (such agreement, a "Transfer Agreement"); provided that Applicant obtains the prior written consent of the County as described in this section:

(a) Such Transfer Agreement shall not take effect unless and until the County has consented in writing to such transfer or assignment, which consent shall not be unreasonably withheld, conditioned, or delayed. Written notice of the proposed Transfer Agreement shall be mailed, first-class, to the County at least thirty (30) days in advance of the proposed date of transfer or assignment. Failure by the County to respond within thirty (30) days after receipt of a request made by Applicant for such consent shall be deemed to be the County's approval of the Transfer Agreement.

(b) Any Transfer Agreement shall be binding on the Applicant, the County and the Transferee. Upon approval of a Transfer Agreement by the County, the Applicant shall be released from those obligations and responsibilities assumed by the Transferee therein.

(c) Applicant shall be free from any and all liabilities accruing on or after the date of any assignment or transfer with respect to those obligations assumed by a Transferee pursuant to an approved Transfer Agreement. No breach or default hereunder by any person that assumes any portion of Applicant's obligations under this Agreement pursuant to an approved transfer shall be attributed to Applicant, nor shall any of Applicant's remaining rights hereunder be cancelled or diminished in any way by any such breach or default.

(d) No breach or default hereunder by Applicant shall be attributed to any person succeeding to any portion of Applicant's rights or obligations under this Agreement, nor shall

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such Transferee's rights be cancelled or diminished in any way by any such breach or default.

(e) Upon any transfer made in accordance with this Section 10.1.1 for which the County has consented, the Transferee shall be entitled to all interests and rights and be subject to all obligations under this Agreement, and Applicant shall be automatically released of all liabilities and obligations under this Agreement as to that portion of its interest so transferred or assigned.

10.1.2 Collateral Assignments Without the Consent of the County.

Notwithstanding anything herein to the contrary, Applicant or any Transferee shall be permitted to collaterally assign its interest in the Project to a lender providing financing for the Project without the consent of the County, provided that Applicant or any Transferee delivers written notice to the County at least thirty (30) days prior to the date of such collateral assignment and identifies such lender.

10.1.3 Assignments or Transfers without the Consent of the County.

Applicant may transfer or assign all or any portion of its interest in the Project at any time, including rights, obligations and responsibilities arising hereunder, to third parties acquiring all or substantially all the assets of the Project or all or substantially all the membership interests in Applicant without the consent of the County provided that:

(a) Transferee is (i) an investor-owned electric utility regulated by the Federal Regulatory Energy Commission ("FERC") and the Washington Utilities and Transportation Commission ("WUTC") or a wholly owned subsidiary of such an investor-owned electric utility, or; (ii) an entity having, at the time of transfer or assignment, a senior unsecured long term debt rating ("Credit Rating") of (1) if such entity has a Credit Rating from Standard and Poor's but not from Moody's, BBB- or better from Standard and Poor's or (2) if such entity has a Credit Rating from Moody's but not from Standard and Poor's, Baa3 or better from Moody's or (3) if such entity has a Credit Rating from both Standard and Poor's and Moody's, BBB- or better from Standard and Poor's and Baa3 or better from Moody's; and

(b) Transferee agrees to be bound by the rights, obligations and responsibilities of Applicant hereunder, on and after the date of such transfer or assignment. In the event that Applicant transfers or assigns all or any portion of its interest in and to the Project in accordance with this provision, Applicant shall be released from all obligations or liabilities under this

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Agreement on and after the date of such transfer or assignment as to that portion of Applicant's interest so transferred or assigned.

10.2 Binding Effect. This Agreement shall be binding upon, and inure to the benefit of, the Parties and their respective heirs, successors (by merger, consolidation or otherwise) and assigns, devisees, administrators, representatives, lessees and all other persons or entities acquiring all or any portion of the Project, any lot, parcel or any portion thereof within the Project Area, or any interest therein, whether by sale, operation of law, devise, or in any manner whatsoever.

10.3 Washington Law. This Agreement is entered into under the laws of the State of Washington, and the parties hereto intend that Washington law shall apply to the interpretation hereof.

10.4 Severability. If any provisions of this Agreement are determined to be unenforceable or invalid, this Agreement shall thereafter be modified, to implement the intent of the Parties to the maximum extent allowable under law and the remainder of this Agreement shall remain unaffected and in full force and effect.

10.5 Authority. Each Party represents and warrants that it has the respective power and authority, and is duly authorized, to enter into this Agreement on the terms and conditions herein stated, and to execute, deliver and perform its obligations under this Agreement.

10.6 No Third-Party Beneficiary. This Agreement is made and entered into for the sole protection and benefit of the Parties hereto and their successors and assigns. No other person shall have any right of action based upon any provision of this Agreement.

10.7 Duty to Act Reasonably and in Good Faith. Unless otherwise expressly provided, each party shall act reasonably in giving consent, approval, or taking any other action under this Agreement. The Parties agree that each of them shall at all times act in good faith in order to carry out the terms of this Agreement and each of them covenants that it will not at any time voluntarily engage in any actions which frustrate the purpose and intent of the Parties to develop the Project in conformity with the terms and conditions specified in this Agreement. The Parties understand and agree that the process described in this Agreement depends upon timely and open communication and cooperation between the Parties. The Parties agree to use best efforts to communicate regarding issues, changes, or problems that arise in the

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performance of the rights, duties and obligations hereunder as early as possible in the process, and not wait for explicit due dates or deadlines. Each party agrees to work cooperatively and in good faith toward resolution of any such issues.

10.8 Time of Essence. Time is of the essence in the performance of each and every obligation to be performed by the Parties hereto.

10.9 Staffing Agreement for County Project Costs. The Applicant will pay for County costs, including third party consultant costs, if necessary, incurred to support plan review and inspection of the Project during construction, in accordance with K.C.C. 14.04 et. al., under a County Staffing Agreement. The Staffing Agreement shall be approved by the County prior to construction, and such approval shall not be unreasonably withheld.

11. Notices.

11.1 Written Notice. Any notice, demand, or other communication ("Notice") given under this Agreement shall be in writing and given personally or by registered or certified mail (return receipt requested). A courtesy copy of the Notice may be sent by facsimile transmission.

11.2 Addresses. Notices shall be given to the Parties at their addresses set forth below.

If to the County:
Kittitas County Community Development Services
411 North Ruby, Suite 2
Ellensburg, Washington 98926
Attn: Director

CC:
Kittitas County Prosecuting Attorney's Office
205 West Fifth, Room 213
Ellensburg, Washington 98926
Attn: Neil Caulkins

If to Applicant:
Teanaway Solar Reserve, LLC
418 E. 1st, Suite B
Cle Elum, WA 98922

CC:
Perkins Coie LLP
Attention: Patrick W. Ryan
1201 Third Ave, Suite 4800
Seattle, WA 98109
Fax: 206-359-9662

11.3 Notice by hand delivery shall be effective upon receipt. If deposited in the mail,

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notice shall be deemed delivered forty-eight (48) hours after deposited. Any party at any time by Notice to the other party may designate a different address or person to which such notice or communication shall be given.

12. Default and Remedies.

No party shall be in default under this Agreement unless it has failed to perform as required under this Agreement for a period of thirty (30) days after written notice of default from the other party. Each notice of default shall specify the nature of the alleged default and the manner in which the default may be cured satisfactorily. If the nature of the alleged default is such that it cannot be reasonably cured within the thirty (30) day period, then commencement of the cure within such time period and the diligent prosecution to completion of the cure shall be deemed a cure of the alleged default.

12.1 Dispute Resolution Process.

12.1.1. In the event of any dispute relating to this Agreement, each Party, upon the request of the other Party, shall meet within seven (7) calendar days to confer and seek to resolve the dispute ("Conference"). The Conference shall be attended by the following parties: (a) the County shall send department director(s) and County employees and contractors with information relating to the dispute, and (b) Applicant shall send an Applicant's representative and any Applicant's consultant(s) with technical information or expertise related to the dispute. The parties shall, in good faith, endeavor to resolve their disputes through the Conference.

12.1.2. Mediation. If this Conference process does not resolve the dispute within the 7 day Conference period, the Parties shall in good faith submit the matter to mediation. The Parties shall send the same types of representatives to mediation as specified for the "Conference" process. Additionally the Parties shall have representatives present at the mediation with full authority to make a settlement within the range of terms being discussed, should settlement be deemed prudent. The mediation shall take place within 45 days of the parties submitting the dispute to mediation.

In order to expedite the mediation, during the Conference process the Parties shall select the mediator. The mediator must be a neutral professional full time mediator with time available to meet with the parties within the 45 day mediation period following the 7 day Conference period.

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To prepare for mediation, during the 7 day Conference period, the County will select three qualified mediators, as specified above, who are available in the following 45 days. At the end of the 7 day Conference period, if the matter has not been resolved, the Applicant shall, within the 24 hours of being given the three names select one of the three. The parties will in good faith attempt to resolve the dispute in the 45 day mediation period.

If the dispute is not able to be resolved through the mediation process in the 45 day period, the parties may pursue their legal remedies in accordance with Washington law.

13. Indemnity.

The Project owners shall indemnify and hold harmless the County and its elected officials and employees from and against any and all claims, actions, suits, liability, loss, costs, expenses, and damages of any nature whatsoever ("Claims") that are caused by or result from the negligent act or omission of Applicant's employees, officers, or agents in the operation of the Project; provided, however, that the total and cumulative obligation hereunder for all such Claims is limited to and shall not exceed five million dollars ($5,000,000.00). In the event of concurrent negligence, Applicant shall indemnify and hold harmless the County only to the extent of Applicant's negligence, subject to the foregoing five-million-dollar limitation for any and all Claims.

14. Entire Agreement.

This Agreement, together with all Attachments hereto, constitutes the entire agree between the Parties with respect to the subject matter of this Agreement. Agreement is specifically intended by the Parties to supersede all prior agreements whether written or oral.

APPROVED this _____ day of _____, 2010.

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BOARD OF COUNTY COMMISSIONERS
Kittitas County, Washington

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Chairman, Alan A. Crankovich Vice Chairman, Paul Jewell

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Approved by:

_____
Kittitas County Prosecuting Attorney, Deputy
Neil Caulkins

TEANAWAY SOLAR RESERVE, LLC,
a Wyoming limited liability company

By: _____

Name: _____

Title: _____

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ATTACHMENT A: PROJECT DESCRIPTION

This section provides an overview of the project. Topics addressed include the project description, the project purpose and need, the proposed schedule, site setting, key components, permits and authorizations, summary of construction activities and components, and a summary of operations and maintenance activities and components.

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TSR proposes to construct and operate the project on approximately 982 acres of private land within the F&R zoning district in an unincorporated area of Kittitas County, Washington. The project will generate up to 75 MWdc of PV solar energy utilizing approximately 477 acres of land within the proposed project area.

A.1 Purpose and Need

The purpose of the proposed project is to generate up to 75 MWdc of PV solar energy for distribution to utilities seeking to optimize their renewable and sustainable energy sources. The project was conceived in response to the growing importance of and need for sustainable energy sources. In 2001, Kittitas County recognized the importance of facilitating new alternative energy facilities, proclaiming that:

> Kittitas County recognizes the value of facilitating the construction and operation of both alternative and conventional energy producing facilities in reducing the disruption of commerce and governmental services caused by potential energy shortages, all of which adversely affect the economy, public health, safety and welfare. (Kittitas County Ordinance No. 2001-12)

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In recognition of the importance alternative energy could play in the future of Kittitas County, the County amended its land use code to, among other things, allow alternative energy facilities as conditional uses in a number of zones. See Kittitas County Code (KCC) Chapter 17.61.

The State of Washington also recognizes the importance of locally produced renewable energy. For example, the State of Washington's Renewable Electricity Standard, Revised Code of Washington (RCW) Title 19, mandates that by the year 2020, the state's largest electric utilities meet 15 percent of their retail electric load with renewable electricity (for example, wind and solar energy). The standard first takes effect in 2012 with a requirement of 3 percent

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through 2015, then 9 percent from 2016 through 2019, and 15 percent thereafter. Oregon and California have adopted similar standards. Depending on the commercial terms available for the power sales, the utilities that may buy power from the project could change over time.

The Governor of Washington has also proclaimed that renewable energy production, including the project, is integral to the economic health of Washington: "If we seize on the economic opportunities presented by the clean energy revolution…then we can achieve our other important goals: a healthier environment and more energy independence" (Speech to the Seattle Chamber of Commerce by Gov. Chris Gregoire, October 22, 2009, found at: http://www.tvw.org/media/mediaplayer.cfm?evid=2009100047C&TYPE=V&CFID=1701129&CFTOKEN=11324713&bhcp=1).

A.2 Project Schedule

The proposed project schedule is outlined in below.

Task/Milestone	Start	Finish
Obtain Necessary Permits	June 2009	June 1, 2010
Engineering	June 2009	October 2010
Construction	April 1, 2010	As early as October 2011 or as late as December 2012
Initial Operation	Fall 2010	Not applicable

Note: Two to three 7- to 9-month construction seasons are anticipated.

A.3 Site Setting

The proposed project site is located approximately 4 miles northeast of Cle Elum, Washington, in Township 20N, Range 16E, within Sections 22, 23, and 27 (see Conditional Use Permit [CUP] Application Supplement Attachment A, Figure 1 for site location). The site is located on the eastern slopes of the Cascade Mountains on Cle Elum Ridge, which runs generally from east to west at elevations ranging from approximately 2,200 to 2,600 feet (see CUP Application Supplement Attachment A, Figure 2). The Teanaway River is approximately 1 mile to the northeast of Cle Elum Ridge. The site is accessed from Highway 970 by way of County roads such as Red Bridge Road (see CUP Application Supplement Attachment A,

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Figure 3), and private roads such as Loping Lane. The site is also accessed via Wiehl Road, which is a dedicated public road but is not maintained by the County; it is maintained privately.

The proposed project area consists of 982 acres. This site was chosen for the project by TSR for a variety of reasons.

First, the property is not occupied by any threatened or endangered species, such as the northern spotted owl, nor does it contain any high quality habitats, such shrub steppe grasslands. TSR was thus able to initially consider the entire 982 acres for potential solar placement. TSR then conducted numerous site surveys, as explained in the technical reports attached to the Expanded SEPA Checklist Supplement, including those for wetlands, plants and wildlife, cultural resources, and critical areas. Based on the site surveys and topography, the project will utilize approximately 477 acres within the proposed project area. Solar arrays will be placed on approximately 399 acres. The remaining 505 acres are currently undeveloped open space, a portion of which will be preserved as part of the wildlife mitigation plan (see Expanded SEPA Checklist Supplement, Attachment H, Wildlife Mitigation Plan). An open corridor will be maintained to allow for potential wildlife migration through the site.

Second, the site has been managed for timber harvesting and has been frequently disturbed. Currently zoned F&R (see CUP Application Supplement Attachment A, Figure 6), the project area has been repeatedly selectively logged since the early 1900s. Harvests have occurred in the 1920s, 1950s, 1980s, and 2000s. Pre-commercial thinning occurred in the decades between logging. Prior to 1900, the site had a fire frequency of 9 to 12 years, indicating that a healthy understory and small trees did not exist, creating a park-like stand of larger trees that were fire resistant to low-intensity periodic fires (Wright, 1996; Agee and Wright, 1997). The site was most recently selectively logged in 2001, and existing site vegetation consists of low grasses, shrubs, and plants with scattered 50- to 60-foot, 6- to 18-inch-diameter ponderosa pine (*Pinus ponderosa*) trees. Shrub and riparian plant communities are predominantly snowberry (*Symphoricarpos albus*) and Rose (*Rosa* spp.) bushes. Herbaceous plant communities are predominantly Lupine (*Lupinus seiceus*), yarrow (*Achillea millefolium*), arrowleaf balsamroot (*Balsamorhiza sagittata*), and various grass species. Wetland plant communities are dominated by rushes (*Juncus* spp.), sedges (*Carex* spp.), wild onion (*Allium douglasii*), and various grass species. Some structural and residential developments have taken place on the site's southern boundary. Figure 5 in CUP Application Supplement Attachment A shows the identified structures within the vicinity of the site boundary.

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Third, the Bonneville Power Administration's (BPA) 345-kilovolt (kV) Rocky Reach-Maple Valley transmission line is in close proximity to the site, running east to west along the southern site boundary (see CUP Application Supplement Attachment A, Figure 2). The proposed project is expected to interconnect to the regional transmission grid using this line (see CUP Application Supplement Attachment A, Figure 4). An interconnection substation with an approximate footprint of 6 acres will be located on the project site. Siting the project close to the existing BPA transmission line significantly minimizes the environmental impacts that could arise from using other sites further away from the line. Construction of transmission lines is costly; therefore, siting a project in close proximity to a transmission is economically beneficial to the project.

Finally, TSR proposes to develop the site described below to maximize its solar energy potential, based on its commitment to providing renewable energy and becoming the leading (in terms of energy production and environmentally sensitive development and management of its solar production site) sustainable energy production location in North America. The following factors have been analyzed to determine optimal location within the site defined below:

- Significant solar radiation (insolation)
- Site accessibility
- Avoidance of and minimization of impacts to environmentally sensitive areas
- Limited visibility from offsite locations

A.4 Key Components

The proposed project will consist of the following key components:

- Solar modules
- Field inverters
- Field transformers
- Electrical conductors
- Electrical substation and switchyard
- Operations and maintenance (O&M) building and supervisory control and data

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acquisition (SCADA) system

- Overhead interconnection transmission line
- Access and maintenance roads

Key components are described in the following subsections.

A.4.1 Solar Modules

Solar modules in a metal frame on supporting mounting structures will be used for the proposed project. Approximately 399 acres of modules will be installed within the 982-acre proposed project area. The solar modules are manufactured offsite and will be delivered to the site by truck in wooden crates or cardboard boxes. TSR seeks flexibility in choosing a solar array system that best suits the site conditions. A representative module is shown in CUP Application Supplement Attachment B, Photo 1. Each module measures 65 inches by 38 inches (5.4 feet by 3.2 feet) and is rated at 216 watts (Sharp Electronics, 2009) and will be mounted so that they are at least 4 feet above the ground surface. The solar modules are mounted in a fashion that orients the modules toward the sun.

Several module mounting types will be considered to best address the slope of land and soil stability at the project site. For example, large land areas with a slope toward the south are excellent for single-axis tracking systems. Land areas that are sloped to the east, southeast, west, or southwest will not as easily accommodate single-axis tracking systems, and are better suited to a fixed-tilt mounting structure.

The mounting system foundations could consist of embedded posts, poles, or structural steel angle. For one type of single-axis support approach, 1,936 posts are needed for every megawatt of energy. If the entire 75 MWdc were to be installed with this mounting system, then approximately 145,200 posts would need to be set. If a fixed-tilt approach is used, up to 8,000 steel angles would be needed. The impervious surface associated with these structures is presented in more detail in the Expanded SEPA Checklist Supplement, Attachment F, Hydrologic Analysis.

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The posts will not be anchored unless a patch of bedrock is encountered during installation. The embedment could be completed via a vibratory drill or similar installation method to depths of approximately 8 feet. After the posts are installed, they are held in place by

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friction from the surrounding soil, without the use of concrete. Driven piles develop their strength by utilizing a definable skin friction between the pile and the soil. As the pile is forced into the ground, the displaced material compresses and that, in turn, creates the friction at the pile/soil interface. Piles are typically driven to a depth that prevents seasonal and temporary changes from affecting their strength. A geotechnical engineer will determine the parameters to be used in the structural design.

The modules will be arranged in 1-MW fields and up to 75 fields will be installed at the project site. A representative single-axis tracking system is presented in CUP Application Supplement Attachment B, Photo 2. Fixed-tilt systems typically have a galvanized or corrosion-resistant metal frame to hold the solar modules at a 20 to 30 degree tilt, as shown in CUP Application Supplement Attachment B, Photo 3. A.4.2 Field Inverters

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Up to 80 field inverters will be needed for the project. The inverters will be placed outdoors in enclosures to attenuate noise and protect the equipment from the elements. An example inverter is shown in CUP Application Supplement Attachment B, Photo 4.

A.4.3 Field Transformers

Up to 80 field transformers will be required for the solar field arrays. The field transformers are approximately 8 feet by 6 feet and 8 feet in height. They may be contained within prefabricated cabinets that will rest on concrete pads. A typical transformer cabinet is presented in CUP Application Supplement Attachment B, Photo 5.

A.4.4 Electrical Conductors

Underground 34.5-kV electrical conductors will connect the solar array field transformers and the proposed BPA substation transformers. These will be installed in trenches along improved maintenance roads onsite at depths of 36 inches or greater (KCC, Chapter 12.24.040). Conductors will be direct burial or in a polyvinyl chloride (PVC) conduit. A photo of typical trenching for underground cables is included in CUP Application Supplement Attachment B, Photos 6 and 7.

Electrical conductors from the array field to the field inverters will be supported aboveground within the solar module framework and installed per National Electrical Code (NEC) standards.

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A.4.5 Electrical Substation and Switchyard

A new electric primary transmission line dedicated to the project will be constructed to connect the proposed project substation to the existing BPA line. It has yet to be determined if certain elements of the line and substation will be owned and constructed by BPA, but for purpose of environmental review and this permit application, all elements of the line and the substation (up to the point of interconnection with BPA's existing transmission line) are proposed as part of the project. The substation will be located in the southern part of the project site, to minimize the size of the associated transmission line. The substation will require a level, fenced area of approximately 6 acres. The 6-acre area will be graveled with no vegetation. The substation will contain a small control house, transformer(s), circuit breakers and switches, steel support structures, a dead-end tower structure, and overhead electrical bus work. The control house will be up to 16 feet high, 60 feet long, and 30 feet wide. The dead-end tower structure will be up to 120 feet high. Transformers and oil-filled equipment will be underlain with appropriate containment structures. The appearance of the substation will be similar to that of many other substations throughout the Pacific Northwest.

A.4.6 Operations and Maintenance (O&M) Building and SCADA System

A storage and O&M building will store spare parts (e.g., modules and fuses), testing equipment, and cleaning equipment. The building will be of cinderblock construction or pre-engineered with an overall footprint of approximately 1,000 square feet and will be located within the 6-acre fenced substation area.

A SCADA system will be installed within the substation boundary to collect operating and performance data from the TSR facilities, and provide remote operation of the solar panels. The SCADA system will be associated with the BPA-owned facilities (substation and transmission line). The fiber-optic cable system needed for the SCADA components will be determined by BPA and will be installed per BPA standards.

A.4.7 Overhead Interconnection Transmission Line

A new 345-kV transmission line is required to connect the new substation to the existing BPA line and up to 200 feet of clearance will be needed for the proposed overhead line. Similar to the substation, it has yet to be determined if certain elements of the line will be owned and constructed by BPA, but for purpose of environmental review and this permit application, all

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elements of the line and the substation (up to the point of interconnection with BPA's existing transmission line) are proposed as part of the project. Therefore, TSR can not specify the exact placement of the overhead line and the transmission structures at this time. As illustrated on CUP Application Supplement Attachment A, Figure 4, TSR has delineated a 300 foot area within which the BPA transmission line could be sited. Of this 300-foot area, a maximum of 200 feet will be cleared for the transmission line. In April 2006, the North American Electric Reliability Corporation (NERC) issued mandatory standards that govern the height of vegetation growing near certain high-voltage power lines. NERC is in charge of improving the reliability and management standards for electric transmission lines. NERC has authority over eight regional entities in North America, known as regional reliability organizations, which include all segments of the electric industry: investor-owned utilities; federal power agencies; rural electric cooperatives; state, municipal and provincial utilities; independent power producers; power marketers; and end-use customers. The regional entity that has jurisdiction over Washington State is the Western Electric Coordinating Council (WECC)(Puget Sound Energy Fact Sheet, 2007).

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Along with the regional reliability organizations, NERC has the legal authority to enforce compliance with NERC reliability standards. NERC achieves compliance through a rigorous program of monitoring, audits and investigations, and the imposition of financial penalties and other enforcement actions for non-compliance (Puget Sound Energy Fact Sheet, 2007).

New NERC vegetation standards, effective June 2007, require utilities to actively manage vegetation in all transmission line corridors that operate at more than 200 kV. Vegetation that matures at a height of more than 15 feet must be removed from the areas underneath and beside transmission rights of way (ROW). These areas are known as the wire and border zones (Puget Sound Energy Fact Sheet, 2007). Per the BPA Business Plan Environmental Impact Statement (BPEIS, 1995), typical ROW widths for 230-kV transmission lines are 105 to 115 feet on either side of the line, for a total of 210 to 230 feet. Typical ROW widths for 500-kV transmission lines are 120 to 170 feet on either side of the line, for a total of 240 to 340 feet (BPEIS, 1995). Typical ROW widths for 345-kV lines are not outlined in the BPEIS.

A new BPA structure will be required to replace the existing lattice tower located within the BPA easement (see CUP Application Supplement Attachment A, Figure 4). The BPA replacement tower would reroute the three existing 345-kV power lines via an existing 200–foot-

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wide ROW within the leasehold through the substation and back to the replacement BPA tower. Two additional grounding lines may be required by BPA to bring the total number of power lines between the replacement tower and substation to eight. A visual simulation of the replacement tower is shown in Expanded SEPA Checklist Supplement, Attachment L, Potential Visual Impact Assessment) In addition to the replacement structure, two new transmission structures will be required to support the new transmission lines between the replacement BPA tower and the substation. New transmission structures are indicated on the site plan (see CUP Application Supplement Attachment A, Figure 4) and will be steel monopole structures.

A.4.8 Access and Maintenance Roads

The site will be accessed via Kittitas County and private roads that interconnect with Highway 970. The major County access road is Red Bridge Road. Only the southern portion of this road will be used and no construction access or delivery vehicles will cross the Red Bridge. TSR has easement rights over Wiehl Road, a dedicated public road maintained privately and not by the County, and Loping Lane, a private road. Loping Lane is subject to several road use and cost-sharing agreements, and TSR will comply with any such applicable agreement. Additionally, TSR will work with neighbors who use Loping Lane to identify measures that will minimize disruption to their use during construction and to the roadway itself. TSR will videotape the conditions of the roads prior to construction to ensure the roads are returned to the same or better than conditions once the project is decommissioned. The project will be served internally by a network of existing and new maintenance roads. The existing maintenance roads will be widened and graveled, where necessary. The roads will be improved pursuant to County requirements and turnarounds adequate for fire protection service vehicles will be established.

Per the Kittitas County Code and roadway standards (KCC, Chapter 12.01.090), Wiehl Road and Loping Lane would likely be improved to 24–foot wide roads to allow vehicles in both directions to pass safely at the same time. These roads could be paved, with culverts or drainage ditches constructed along the shoulders to prevent water from collecting on the roadway surface. Water could be channelized into a detention pond or catchment area, where it would be slowly released back into the ground. The County road standards suggest asphalt concrete pavement for roads with grades exceeding 10 percent. Because Wiehl Road (between Red Bridge and Loping Lane) is fairly steep, paving would likely be recommended. An alternative to paving is using layers of crushed stone or gravel to level and stabilize the roadway. The gravel layer would likely need to be between 8 and 21 inches deep, depending on

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the topography of the existing road. The size of the gravel and the density of the layers would need to be determined during engineering. Although gravel roads would allow some drainage to occur on the roadway surface, drainage ditches or culverts would likely still be necessary to prevent water from collecting.

As set forth in the Draft DA, TSR will coordinate any improvements to these roads with the Kittitas County Public Works Department. CUP Application Supplement Attachment A, Figure 3 shows the location of the access and maintenance roads in relation to the project site.

A.5 Permits and Authorizations

The table below outlines the permits and authorizations required to construct the proposed project.

Act/Law	Permit/Authorization	Permit Trigger	Agency/Contact
Federal Permits			
Section 404 Clean Water Act Compliance	Section 404—Nationwide Permit	May be required if road improvements impact wetlands along Loping Lane	U.S. Army Corps of Engineers
State Permits			
Historic Preservation Act Compliance	Section 106 Review	TSRs receiving a section 404 permit from the U.S. Army Corps must undergo a Section 106 review	WA Authority Delegated to State Department of Archaeology and Historic Preservation (DAHP)
State Environmental Policy Act	Chapter 197-11 Washington Administrative Code	Conditional use permit per Kittitas County	Authority Delegated to Kittitas County
Clean Water Act—Section 401 Compliance	Water Quality Certification	TSRs receiving a section 404 permit from the U.S. Army Corps are required to obtain a section 401 water quality certification	Washington Department of Ecology
National Pollutant Discharge Elimination System (NPDES)	General Construction Permit	Required for land disturbances greater than 1 acre	Washington Department of Ecology
Forest Practices Act	Forest Practices Permit	Harvesting trees from	Washington Department of Natural Resources

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Act/Law	Permit/Authorization	Permit Trigger	Agency/Contact
(76.09 RCW)		onsite	(WDNR)
County Permits			
Land Use Review	Conditional Use Permit	Development occurring within Kittitas County	Kittitas County
Land Use Review	Development Agreement	Development occurring within Kittitas County	Kittitas County
Land Use Review	Cultural Resources	Development occurring within Kittitas County	Kittitas County
Land Use Review	Stormwater	Development occurring within Kittitas County	Kittitas County
Land Use Review	Critical Areas Ordinance	Development occurring within Kittitas County	Kittitas County
Land Use Review	Construction Permit	Development occurring within Kittitas County	Kittitas County

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A.6 Summary of Construction Activities and Components

Site preparation will consist of clearing the existing vegetation only in those areas where construction, grading, and road improvements will occur. Site preparation will be limited to maintenance roads, the O&M facility, the substation, and the solar facility. Once the site is prepared, and the materials are delivered to the staging areas within the cleared portion of the site, the installation of module foundations, field inverter pads and enclosures, field transformer pads, electrical conductors, substation switchyard foundation, overhead interconnection transmission line, and access and maintenance roads will begin. Materials and equipment used for the installation of the facilities are described in Section A.6.5, "Construction Materials and Equipment".

A.6.1 Site Preparation

The project site will require clearing to address the potential for damage to the project from blown down trees, decreased power efficiency of the solar modules from shading, the risk of fire from fuel buildup within the project area, and the need to create a 100-foot firebreak along the project's perimeters as described below. To clear the site for installing the project, trees will be harvested within the project area on an as-needed basis for facilitating each construction phase of the project (see table above). Trees will generally be harvested to a stump level of 6 to

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12 inches above ground level. TSR will obtain a permit from the Washington Department of Natural Resources (WDNR) and contract with a professional forester to harvest these trees in accordance with the Forest Practices Act (FPA). Because the bottoms of the solar modules will be approximately 3 feet above grade, any vegetation taller than 3 feet or expected to exceed 3 feet in height will be removed. Shrubs, grass, and groundcover will, to the maximum extent practicable, remain between rows and under the solar modules.

Trees within the 100-foot firebreak will be limbed up to 12 feet, as negotiated with Kittitas County Fire District 7. This minimizes the need to remove the entire tree, thus potentially decreasing the visual impact to nearby landowners. In addition, existing trees with a diameter base of 3 inches or greater will be replanted at a 3:1 ratio. Although there is no legal requirement for this mitigation, TSR is committed to undertaking efforts that will further the long-term sustainability of the land. These two measures will provide greater carbon sequestration, wildlife habitat, and soil stabilization opportunities than are currently available onsite. A more detailed discussion on vegetation management is included in Expanded SEPA Checklist Supplement, Attachment G, Vegetation Management Plan.

Construction equipment such as tractors, backhoes, loaders, dozers, and graders will be needed to clear brush and vegetation from the site as needed, and to grade roads and foundation locations. If the slope of the land is excessive, terracing, or retaining walls may be required.

A.6.2 Staging Areas

Staging areas for parts and materials such as solar modules, electric cable, and structural supports will be needed. These staging areas will be located in areas where solar arrays will eventually be constructed and will change location throughout the duration of the project. These will not add additional impact acreage to the project area and will not be permanent components of the project site. Staging will also occur near the O&M Building. Mobilization will last approximately 1 month during each phase of construction.

A.6.3 Construction Materials and Equipment

A concrete batch plant will not be located on site. Gravel and concrete for the project will be sourced in the Cle Elum area to the extent possible. Construction equipment such as backhoes, loaders, concrete trucks, and graders will likely be used. A crane may be necessary,

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but is typically not required.

A.6.3.1 Module Foundation Installation

Several module mounting types will be considered to best address the slope of land and soil stability at the project site. For example, large land areas with a slope toward the south are excellent for single-axis tracking systems (see Expanded SEPA Checklist Supplement Attachment J, Figure 4b). Land areas that are sloped to the east, southeast, west, or southwest will not as easily accommodate single-axis tracking systems, and are better suited to a fixed-tilt mounting structure (see Expanded SEPA Checklist Supplement Attachment J, Figure 4c).

The foundations securing the solar modules will be designed to withstand high winds and snow loads. The site may have multiple foundation types to match the ground conditions and type of mounting structures used. The mounting-system support structures could consist of embedded posts, poles, or structural steel angle. The embedment could be completed via a vibratory drill or similar installation method to depths of approximately 8 feet. Pending final design, the solar module foundations will require site work and potential boring.

The posts will not be anchored unless a patch of bedrock is encountered during installation. The embedment could be completed via a vibratory drill or similar installation method to depths of approximately 8 feet. After the posts are installed, they are held in place by friction from the surrounding soil, without the use of concrete. Driven piles develop their strength by utilizing a definable skin friction between the pile and the soil. As the pile is forced into the ground, the displaced material compresses and that, in turn, creates the friction at the pile/soil interface. Piles are typically driven to a depth that prevents seasonal and temporary changes from affecting their strength. A geotechnical engineer will determine the parameters to be used in the structural design. Expanded SEPA Checklist Supplement Attachment J, Figure 4d illustrates the footing installation methods for both the fixed tilt and single axis panels.

No concrete will be used when installing the foundations for the modules.

For one type of single-axis support approach, 1,936 posts are needed for every megawatt of energy. If the entire 75 MWdc were to be installed with this mounting system, then approximately 145,200 posts would need to be set. If a fixed-tilt approach is used, up to 8,000 steel angles would be needed. The impervious surface associated with these structures is presented in more detail in Expanded SEPA Checklist Supplement, Attachment F, Hydrological

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Analysis.

Fixed-tilt systems typically have a galvanized or corrosion-resistant metal frame to hold the solar modules at a 20 to 30 degree tilt, as shown in CUP Application Supplement Attachment B, Photo 3.

Dependent upon weather conditions at the site, installation of foundations, trackers, and modules will occur over a period of approximately 7 to 9 months during two or three construction seasons.

A.6.3.2 Field Inverter Pad and Enclosure Installation

Concrete use will be limited to the foundations for field inverters and field transformers, as well as the foundations for the substation buildings. Up to 80 field inverters will be needed for the project. A total of approximately 250 cubic yards of concrete, or 25 truck loads, will be needed for the 80 field inverter concrete pads.

Dependent upon weather conditions at the site, installation of field inverter pads and enclosures will occur over a period of approximately 5 to 6 months.

A.6.3.3 Field Transformer Pad Installation

Concrete use will be limited to the foundations for field inverters and field transformers, as well as the foundations for the substation buildings. A total of approximately 150 cubic yards of concrete, or 15 truck loads, will be needed for the 80 field transformer concrete pads. Dependent upon weather conditions at the site, installation of field transformer pads will occur over a period of approximately 5 to 6 months.

A.6.3.4 Electrical Conductor Installation

Underground 34.5-kV electrical conductors will connect the solar array field transformers and the proposed BPA substation transformers. These will be installed in trenches along improved maintenance roads onsite at depths of 36 inches or greater (KCC, Chapter 12.24.040). Conductors will be direct burial or in a polyvinyl chloride (PVC) conduit.

Electrical conductors from the array field to the field inverters will be supported aboveground within the solar module framework and installed per NEC standards. Photos of typical trenching for underground cables is included in CUP Application Supplement Attachment

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B, Photos 6 and 7.

A.6.3.5 Substation and Switchyard Foundation Installation

The substation will require an area of approximately 6 acres. The substation consists of a steel support structure that is 15 to 20 feet tall. The substation will be surrounded by a cyclone fence that is approximately 10 feet tall. The substation will include a small, enclosed, air conditioned control building, approximately 1,000 square feet in area.

Approximately 135 truckloads of concrete will be necessary for the substation foundations and associated facilities. The concrete necessary for the substation includes 70 yards for the BPA control building (7 trucks), 40 yards for the switchgear buildings (4 trucks), 50 yards for the operations and maintenance building (5 trucks), 660 yards for the dead-end towers and overhead transmission line support structures (66 trucks), and 530 yards for the substation electrical equipment, including transformer, breakers, switches, and overhead bus foundations (53 trucks).

A.6.3.6 Overhead Interconnection Transmission Line Installation

Pending location of the substation, overhead electrical distribution lines may be required to connect the substation with BPA's transmission line. Two new structures supporting the overhead lines will be required from the facility to the substation and will be approximately spaced as indicated in the site plan. Spans between structures can range from 1,000 to 1,200 feet.

A.6.3.7 Access and Maintenance Road Installation

A network of existing and new maintenance roads will serve the project internally. The existing maintenance roads will be widened and graveled, where necessary. Approximately 751,000 square feet of roadway may require gravel surfacing improvements. These improved roadways will be approximately 8 inches deep, and will require up to 1,900 truckloads of gravel.

Paths for new maintenance roadways will be cut from existing grades. At least half of the cut material will be spread out on site. The remaining amount of cut earthwork will be hauled off-site in approximately 950 truckloads. The roads will be improved pursuant to County requirements and turnarounds adequate for fire protection service vehicles will be established.

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A.6.4 Transportation and Traffic

Materials for the project (e.g., solar modules, supporting racks, foundation materials, electrical gear) will be brought to the site by truck. The trucks will travel on Interstate 90 (I 90) and access Highway 970 by way of County roads such as Red Bridge Road (see CUP Application Supplement Attachment A, Figure 3), private roads such as Loping Lane, and public roads that are privately maintained such as Wiehl Road. An existing network of maintenance roads will provide Road service within the project area, although new maintenance roads or segments may be necessary. Road improvements will be conducted as needed, and are anticipated to include upgrades to local gravel and dirt roads as discussed above in Section A.6.1. Road improvements are further addressed in the DA with Kittitas County. For further discussion of traffic impacts, see the Expanded SEPA Checklist Supplement, Attachment I, Transportation Road Plan.

A.6.5 Employment

A typical construction workforce for a multiple-megawatt solar facility consists of between 200 and 450 full-time workers during the construction period. Typically, 100 to 150 workers are involved in the site prep, and 100 to 150 are involved in installing the module footings. When the solar installation begins, the workload will peak, and will likely remain at between 300 and 450 workers for a period of up to 27 months (two to three 7- to 9-month construction seasons). Workers could be brought in by vanpool or bus. Workers will stay at local hotels and motels, as described in the Housing section of the Expanded SEPA Checklist Supplement. Security crews will likely consist of up to eight workers. In addition, access control in the form of an electric gate with an associated keypad security code for entry will be installed.

A.6.6 Safety and Fire Protection

The fire protection needs of the site are currently served by WDNR. After the project is constructed, the site will likely be served by the Kittitas County Fire District 7, under a contractual agreement with TSR (see Expanded SEPA Checklist Supplement, Attachment M, Fire Protection Agreement). Further, the project will be bordered by a firebreak no less than 100 feet wide. Should the construction of the project require supplemental fire protection services, TSR will work with Kittitas County Fire District 7 to ensure that suitable fire suppression services are in place during the construction and ongoing operations of the project. Separate safety or fire protection systems will not be required at the site. Basic safety and fire protection equipment

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such as fire extinguishers, personal protective equipment, and other equipment as determined by the site's safety and emergency response plan can be stored in the O&M equipment storage building.

Police protection of the proposed project area is provided by the County's Sheriff's Office. The construction contractor will notify the fire protection and police services of staging and active construction locations so these services can respond efficiently to emergencies, should any arise.

A.6.7 Water Use

Water will be needed for activities such as dust control and module cleaning. TSR proposes to truck in water from the Cle Elum area or elsewhere. Subject to any restrictions imposed by the County or Washington Department of Ecology (Ecology), an alternative approach would be to establish a groundwater well onsite. For initial project permitting, it is assumed that water will be trucked to the site.

A.6.8 Sewer and Solid Waste

Sewer services are not anticipated. Portable toilets will be placed onsite during construction. The onsite toilets will require regular service visits.

A.7 Summary of O&M Activities and Components

Photovoltaic power plants typically have low O&M requirements. During the life of the plant, there will be regular O&M site activity. The actual O&M requirements will be determined by the specific plant components.

A.7.1 Materials and Equipment

A storage and O&M building will store spare parts (e.g., modules and fuses), equipment testing equipment, and cleaning equipment. The building will be constructed on site or pre-engineered in accordance with local and state building codes and it will have an overall footprint of approximately 1,000 square feet.

A.7.2 Transportation and Traffic

Routine vehicular traffic will occur along the site access roads and any maintenance

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roads within the PV array. One to two small to medium-duty pickup trucks will be required. Larger delivery trucks occasionally may be required if major equipment is in need of replacement such as structural elements, inverters, or large quantities of PV modules (not likely).

A.7.3 Employment

Personnel for system monitoring, maintenance, and troubleshooting will likely be needed on site. The staff will work out of the O&M building and make frequent trips to the facility by way of passenger pickup truck or off-road vehicle. If issues regarding plant performance are detected, additional troubleshooting or maintenance may be required through special visits from vendors or specialty technicians.

Deleted: A staff of two to four technicians will perform system monitoring.

A.7.4 Maintenance Activities

Routine onsite activities will consist of maintaining vegetation so that it does not interfere with operation of the plant (as often as weekly during periods of high rain and growth), and cleaning the solar modules of dirt and debris. Routine weed control will be required to ensure vegetation growth does not interfere with the operation of any equipment. For more details on noxious weed control, see Expanded SEPA Checklist Supplement Attachment G, Vegetation Mitigation Plan. The frequency of visits will be determined by the growth rate and density of the vegetation left on the site once construction is complete. In a heavily vegetated area such as the proposed site, it is not anticipated that cleaning will be required on a weekly basis (as it would be in a desert environment). The firebreak will require periodic monitoring and clearing to remove vegetation buildup. It is anticipated that additional personnel may be required to monitor and secure the site.

In addition to maintaining the vegetation on site during project operations, TSR has committed to maintenance and operation of Wiehl and Loping during all seasons. That includes winter plowing of these roads.

A.7.5 Safety and Fire Protection

As previously discussed, separate safety or fire protection systems will not be required at the site. TSR will create and maintain a firebreak of no less than 100 feet between all outer edges of the project site and adjacent property lines. Basic safety and fire protection equipment such as fire extinguishers, personal protective equipment, and other equipment as determined

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by the site's safety and emergency response plan can be stored in the O&M equipment storage building.

A copy of the contractual agreement between TSR and Kittitas County Fire District 7 is included as Attachment M to the Expanded SEPA Checklist Supplement.

Police protection of the proposed project area is provided by the County's Sheriff's Office. During the operational phase, TSR will contact fire protection and police services in the event of an emergency.

A.7.6 Water Use

The solar modules must be kept clear from dirt and debris, the presence of which can affect the performance of the PV plant. Because the proposed site is heavily vegetated and has sufficient rainfall, it is not anticipated that monthly washing will be required. Annual cleaning may be recommended based on soiling conditions. It may be possible to use special brushes in lieu of water to remove any dirt that accumulates on the solar modules. However, if it is determined that water is required for cleaning the solar modules or other purposes, a water tanker truck could be brought onsite to fill portable canisters with water to be used throughout the PV array.

A.7.7 Sewer and Solid Waste

Sewer services are not anticipated. If necessary, portable toilets can be placed onsite. Onsite toilets would require regular service visits.

A.8 Decommissioning and Site Restoration

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored.

At least 30 days prior to construction of the project, TSR will provide to the County for its approval an Initial Project Decommissioning and Site Restoration Plan (the "Initial Plan"), prepared in sufficient detail to identify, evaluate, and resolve all major environmental impacts, costs, and public health and safety issues reasonably anticipated by TSR at that time associated with decommissioning and restoring the project site. The Initial Plan will describe the measures that will be taken to decommission the project and restore the project site, including any measures necessary to protect the public against risks or danger resulting from

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decommissioning the project and restoring the project site.

Ninety days prior to decommissioning the project site, TSR shall submit a Final Project Decommissioning and Site Restoration Plan ("Final Plan") to the County for its approval. The Final Plan may contain measures to decommission the project and restore the project site different than the Initial Plan, provided that TSR explains in sufficient detail the reasons for any new or substantially different measures.

Subject to the Initial and Final Plans, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, the O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project area landowners wish to retain) (all of which shall comprise "Decommissioning"). The Initial and Final Plans shall contain the measures necessary to fulfill TSR's Decommissioning obligations.

Restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Restoration procedures would be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and would include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "Restoration"). Decommissioned roads would be reclaimed or left in place. The Initial and Final Plans shall contain the measures necessary to fulfill TSR's Restoration obligations.

Decommissioning the project and restoring the project site will occur within 12 months following the earlier of either terminating the Agreement or when the project is no longer in substantive operation. However, if the project stops generating electricity due to force majeure, mechanical breakdown, or malfunction, TSR may repair rather than decommission the affected project component(s).

Prior to commencing construction, TSR will post a bond or letter of credit in favor of the County to cover decommissioning costs. The initial amount of the bond or letter of credit will be set forth in the Initial Plan. If the project were terminated, the necessary authorization from any

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appropriate regulatory agencies would be obtained to decommission the project and restore the project site in accordance with the approved Final Plan.

As set forth in the Initial and Final Plans, aboveground facilities would be removed from the site, and unsalvageable material would be disposed of at authorized sites.

Decommissioning would consist of removing aboveground equipment, such as inverters, substations, and their associated foundations, to a depth of 3 feet below grade. Any foundations below 3 feet would remain. The ground surface would be regraded to natural contours and revegetated to a natural condition. For several years after decommissioning, site disturbance would likely be visible upon close examination and the visual impacts of those aboveground elements that are not removed would remain. During the decommissioning process, similar impacts to those experienced during construction would occur but to a lesser extent because less construction material would likely be removed than was delivered to the project site. To avoid environmental damage and unnecessary land disturbance, underground collector cables likely would be retired in place, and any building or structural foundations would be removed to a depth of approximately 3 feet below grade, with the remainder likely retired in place. Decommissioned roads would be reclaimed or left in place. The soil surface would be restored as close as reasonably possible to its original condition. The Initial and Final Plans shall be prepared in sufficient detail to identify, evaluate, and resolve all major environmental impacts, costs, and public health and safety issues associated with decommissioning and restoring the project site. Accordingly, no significant unavoidable adverse environmental impacts, including those to rare or sensitive plants or animals from construction, operation, decommissioning, or restoration of the proposed project are expected.

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ATTACHMENT B: PROJECT AREA LEGAL DESCRIPTION

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ATTACHMENT C: SEPA DETERMINATION

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ATTACHMENT D: CONDITIONAL USE PERMIT

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ATTACHMENT E: DECOMMISSIONING ESTIMATE

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Expanded SEPA Checklist Supplement

Teanaway Solar Reserve
Expanded SEPA
Checklist Supplement
Kittitas County, Washington

Submitted to

Kittitas County, Washington

by

Teanaway Solar Reserve, LLC

February 2010

Deleted: August 2009

Printed on
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Acronyms and Abbreviations

ADT	average daily traffic
BMP	best management practice
BPA	Bonneville Power Administration
CAO	Critical Areas Ordinance
CF	Commercial Forest
Checklist	Expanded SEPA Checklist
CO	carbon monoxide
CUP	conditional use permit
cy	cubic yards
DA	Development Agreement
dBA	decibels on an A-weighted scale
Ecology	Washington Department of Ecology
F&R	Forest and Range
FAA	Federal Aviation Administration
FDCP	Fugitive Dust Control Plan
FPA	Forest Practices Act
GIS	geographic information system
I-90	Interstate 90
JARPA	Joint Aquatic Resources Permit Application
KCC	Kittitas County Code
kV	kilovolt(s)
MP	milepost
mph	miles per hour
MW	megawatt
MWdc	direct current megawatt
N/A	Information not available

NEC	National Electrical Code
NHP	Natural Heritage Program
NO_x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NPDES 1200-C	National Pollutant Discharge Elimination System and State Wastewater Discharge General Permit for stormwater discharges associated with construction activities
O&M	operations and maintenance
PEM	palustrine emergent
PHS	Priority Habitats and Species
PM_{10}	particulate matter less than 10 micrometers in aerodynamic diameter
PV	photovoltaic
PVC	polyvinyl chloride
RCW	Revised Code of Washington
ROW	right-of-way
SEPA	State Environmental Policy Act
SR	State Route
TSR	Teanaway Solar Reserve, LLC
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WSDOT	Washington State Department of Transportation

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Environmental Checklist
State Environmental Policy Act (SEPA)
WAC 197-11-960

Background

1. *Name of proposed project*:

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Teanaway Solar Reserve

2. *Name of Applicant*:

Teanaway Solar Reserve, LLC ("TSR")

3. *Address and phone number of applicant and contact person*:

Applicant

Howard Trott
Teanaway Solar Reserve, LLC
218 E. First Street, Suite B
Cle Elum, WA 98922
(206) 972-3800

Contact Person

Nichole Seidell
CH2M HILL
2020 SW Fourth Ave., Suite 300
Portland, OR 97201
(503) 872-4803

4. *Date checklist prepared*:

August 14, 2009; Supplement prepared February 22, 2010

5. *Agency requesting checklist*:

Kittitas County Planning Department

6. *Proposed timing or schedule*:

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Project construction will occur over a period of 2 to 3 years, with 7- to 9-month construction periods (weather dependent) in each year. Table 1 presents the start and finish dates for major tasks and key milestones. The schedule will depend on time of year, ability to obtain permits, and weather and ground conditions.

Timber harvesting will be done only as necessary to facilitate construction and will be performed pursuant to the terms and conditions of a Washington Department of Natural Resources (WDNR) Forest Practices Act (FPA) permit.

The proposed project schedule is outlined in Table 1.

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TABLE 1
Revised Project Schedule

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Task/Milestone	Start	Finish
Obtain Necessary Permits	June 2009	June 1, 2010
Engineering	June 2009	October 2010
Construction	April 1, 2010	As early as October 2011 or as late as December 2012
Initial Operation	Fall 2010	Not applicable

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Note: Two or three 7- to 9-month construction seasons are anticipated in 2010, 2011, and 2012.

Deleted: , from April 1 to October 31

7. *Do you have any plans for future additions, expansion, or further activity related to this proposal*?

Future additions, expansion, or further activities are not known at this time.

8. *List any environmental information that has/will be prepared related to this proposal.*

Contractors conducted the following supplemental environmental studies in preparation for the submittal of the Expanded SEPA Checklist on August 14, 2009:

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- Sensitive Species surveys were conducted in June and July 2009 (see Attachment A)
- Wetlands and waters of the U.S. and State were delineated in June and July 2009 (see Attachment B)
- Cultural resource surveys were conducted in June and July 2009 (see Attachment C [restricted distribution])

Contractors conducted the following supplement environmental studies and activities in preparation for the submittal of the Expanded SEPA Checklist Supplement on February 22, 2010:

- Geology and soils hazards surveys were conducted in November 2009 (see Attachment D)

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- Fugitive Dust Control Plan was created in January 2010 (see Attachment E)
- Hydrological analysis was conducted in January 2010 (see Attachment F)
- Vegetation Management Plan was created in January 2010 (see Attachment G)
- Wildlife mitigation efforts were developed after meetings with the resource agencies in October 2009, November 2009, December 2009, and January 2010 (see Attachment H)

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- Transportation Road Plan was prepared in January 2010 (see Attachment I)
- Updated Figures (see Attachment J)

- Updated Photos (see Attachment K)
- Additional simulations and visual analysis were created as part of the updated Potential Visual Impact Assessment (see Attachment L)
- Fire Protection Agreement is currently under negotiation with Kittitas County Fire District #7 (see Attachment M)
- Economic Impact Analysis was created in October 2009 (see Attachment N - resubmitted)
- Comprehensive public outreach listing was compiled in February 2010 (see Attachment O)

9. *Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal?*

TSR is not aware of pending approvals for any other projects directly affecting the properties involved in this application.

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10. *Government approvals or permits needed*:

Table 2 outlines the permits and authorizations required to construct the proposed project.

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TABLE 2
Required Permits and Authorizations

Act/Law	Permit/Authorization	Permit Trigger	Agency/Contact
Federal Permits			
Section 404 Clean Water Act Compliance	Section 404—Nationwide Permit	May be required if road improvements impact wetlands along Loping Lane	U.S. Army Corps of Engineers
State Permits			
Historic Preservation Act Compliance	Section 106 Review	TSRs receiving a section 404 permit from the U.S. Army Corps must undergo a Section 106 review	WA Authority Delegated to State Department of Archaeology and Historic Preservation (DAHP)
State Environmental Policy Act	Chapter 197-11 Washington Administrative Code	Conditional use permit per Kittitas County	Authority Delegated to Kittitas County
Clean Water Act—Section 401 Compliance	Water Quality Certification	TSRs receiving a section 404 permit from the U.S. Army Corps are required to obtain a section 401 water quality certification	Washington Department of Ecology
National Pollutant Discharge Elimination System (NPDES)	General Construction Permit	Required for land disturbances greater than 1 acre	Washington Department of Ecology

TABLE 2
Required Permits and Authorizations

Act/Law	Permit/Authorization	Permit Trigger	Agency/Contact
Forest Practices Act (76.09 RCW)	Forest Practices Permit	Harvesting trees from onsite	Washington Department of Natural Resources (WDNR)
County Permits			
Land Use Review	Conditional Use Permit	Development occurring within Kittitas County	Kittitas County
Land Use Review	Development Agreement	Development occurring within Kittitas County	Kittitas County
Land Use Review	Cultural Resources	Development occurring within Kittitas County	Kittitas County
Land Use Review	Stormwater	Development occurring within Kittitas County	Kittitas County
Land Use Review	Critical Areas Ordinance	Development occurring within Kittitas County	Kittitas County
Land Use Review	Construction Permit	Development occurring within Kittitas County	Kittitas County

11. *Give brief, complete description of your proposal, including the proposed uses and the size of the project and site.*

This section provides an overview of the project. Topics addressed include the project description, the project purpose and need, the proposed schedule, site setting, key components, permits and authorizations, summary of construction activities and components, and a summary of operations and maintenance activities and components.

Project Description

The Applicant (TSR) proposes to construct and operate the project on approximately 982 acres of private land within the Forest and Range (F&R) zoning district in an unincorporated area of Kittitas County, Washington. The project will generate up to 75 direct current megawatts (MWdc) of photovoltaic (PV) solar energy utilizing approximately 477 acres of land within the proposed project area.

Purpose and Need

The purpose of the proposed project is to generate up to 75 MWdc of PV solar energy for distribution to utilities and communities seeking to optimize their renewable and sustainable energy sources. The project was conceived in response to the growing importance of and need for sustainable energy sources. In 2001, Kittitas County recognized the importance of facilitating new alternative energy facilities, proclaiming that:

> Kittitas County recognizes the value of facilitating the construction and operation of both alternative and conventional energy producing facilities in reducing the

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> disruption of commerce and governmental services caused by potential energy shortages, all of which adversely affect the economy, public health, safety and welfare. (Kittitas County Ordinance No. 2001-12)

In recognition of the importance alternative energy could play in the future of Kittitas County, the County amended its land use code to, among other things, allow alternative energy facilities as conditional uses in a number of zones. See Kittitas County Code (KCC) Chapter 17.61.

The State of Washington also recognizes the importance of locally produced renewable energy. For example, the State of Washington's Renewable Electricity Standard, Revised Code of Washington (RCW) Title 19, mandates that by the year 2020, the state's largest electric utilities meet 15 percent of their retail electric load with renewable electricity (for example, wind and solar energy). The standard first takes effect in 2012 with a requirement of 3 percent through 2015, then 9 percent from 2016 through 2019, and 15 percent thereafter. Oregon and California have adopted similar standards. Depending on the commercial terms available for the power sales, the utilities that may buy power from the project could change over time.

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The Governor of Washington has also proclaimed that renewable energy production, including the project, is integral to the economic health of Washington: "If we seize on the economic opportunities presented by the clean energy revolution…then we can achieve our other important goals: a healthier environment and more energy independence" (Speech to the Seattle Chamber of Commerce by Gov. Chris Gregoire, October 22, 2009, found at: http://www.tvw.org/media/mediaplayer.cfm?evid=2009100047C&TYPE=V&CFID=1701129&CFTOKEN=11324713&bhcp=1).

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Project Schedule

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The proposed project schedule is outlined in Table 1, above.

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Site Setting

The proposed project site is located approximately 4 miles northeast of Cle Elum, Washington, in Township 20N, Range 16E, within Sections 22, 23, and 27 (see Attachment J, Figure 1 for site location). The site is located on the eastern slopes of the Cascade Mountains on Cle Elum Ridge, which runs generally from east to west at elevations ranging from approximately 2,200 to 2,600 feet (see Attachment J, Figure 2). The Teanaway River is approximately 1 mile to the northeast of Cle Elum Ridge. The site is accessed from Highway 970 by way of County roads such as Red Bridge Road (see Attachment J, Figure 3), and private roads such as Loping Lane. The site is also accessed via Wiehl Road, which is a dedicated public road but is not maintained by the County; it is maintained privately.

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The proposed project area consists of 982 acres. This site was chosen for the project by TSR for a variety of reasons.

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First, the property is not occupied by any threatened or endangered species, such as the northern spotted owl, nor does it contain any high quality habitats, such shrub steppe grasslands. TSR was thus able to initially consider the entire 982 acres for potential solar placement. As explained in the attached technical reports, TSR then conducted numerous site surveys, including those for wetlands, plants and wildlife, cultural resources, and critical areas. Based on the site surveys and topography, the project will utilize approximately 477 acres within the proposed project area. Solar arrays will be placed on approximately 399 acres. The remaining 505 acres are currently undeveloped open space, a portion of which will be preserved as part of the wildlife mitigation plan (see Attachment H, *Wildlife Mitigation Plan*). An open corridor will be maintained to allow for potential wildlife migration through the site.

Second, the site has been managed for timber harvesting and has been frequently disturbed. Currently zoned F&R (see Attachment J, Figure 6), the project area has been repeatedly selectively logged since the early 1900s. Harvests have occurred in the 1920s, 1950s, 1980s, and 2000s. Pre-commercial thinning occurred in the decades between logging. Prior to 1900, the site had a fire frequency of 9 to 12 years, indicating that a healthy understory and small trees did not exist, creating a park-like stand of larger trees that were fire resistant to low-intensity periodic fires (Wright, 1996; Agee and Wright, 1997). The site was most recently selectively logged in 2001, and existing site vegetation consists of low grasses, shrubs, and plants with scattered 50- to 60-foot, 6- to 18-inch-diameter ponderosa pine (*Pinus ponderosa*) trees. Shrub and riparian plant communities are predominantly snowberry (*Symphoricarpos albus*) and Rose (*Rosa* spp.) bushes. Herbaceous plant communities are predominantly Lupine (*Lupinus seiceus*), yarrow (*Achillea millefolium*), arrowleaf balsamroot (*Balsamorhiza sagittata*), and various grass species. Wetland plant communities are dominated by rushes (*Juncus* spp.), sedges (*Carex* spp.), wild onion (*Allium douglasii*), and various grass species. Some structural and residential developments have taken place on the site's southern boundary. Figure 5 in Attachment J shows the identified structures within the vicinity of the site boundary.

Third, the Bonneville Power Administration's (BPA) 345-kilovolt (kV) Rocky Reach-Maple Valley transmission line is in close proximity to the site, running east to west along the southern site boundary (see Attachment J, Figure 2). The proposed project is expected to interconnect to the regional transmission grid using this line (see Attachment J, Figure 4). An interconnection substation with an approximate footprint of 6 acres will be located on the project site (see Attachment J, Figure 4a). Siting the project close to the existing BPA transmission line significantly minimizes the environmental impacts that could arise from using other sites further away from the line and reduces the costs associated with constructing the transmission line.

Finally, TSR proposes to develop the site described below to maximize its solar energy potential, based on its commitment to providing renewable energy and becoming the leading (in terms of energy production and environmentally sensitive development and management of its solar production site) sustainable energy production location in North America. The following factors have been analyzed to determine optimal location within the site defined below:

- Significant solar radiation (insolation)

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- Site accessibility
- Avoidance of and minimization of impacts to environmentally sensitive areas
- Limited visibility from offsite locations

Key Components

The proposed project will consist of the following key components:

- Solar modules
- Field inverters
- Field transformers
- Electrical conductors
- Electrical substation and switchyard
- O&M building and SCADA system
- Overhead interconnection transmission line
- Access and maintenance roads

Key components are described in the following subsections.

Solar Modules

Solar modules in a metal frame on supporting mounting structures will be used for the proposed project. Approximately 399 acres of modules will be installed within the 982-acre proposed project area. The solar modules are manufactured offsite and will be delivered to the site by truck in wooden crates or cardboard boxes. TSR seeks flexibility in choosing a solar array system that best suits the site conditions. A representative module is shown Attachment K, Photo 1. Each module measures 65 inches by 38 inches (5.4 feet by 3.2 feet) and is rated at 216 watts (Sharp Electronics, 2009) and will be mounted so that they are at least 4 feet above the ground surface. The solar modules are mounted in a fashion that orients the modules toward the sun.

The modules will be arranged in 1-MW fields and up to 75 fields will be installed at the project site. A single-axis 1-MW field is illustrated in Attachment J, Figure 4e and a fixed-panel array is shown in Attachment J, Figure 4f. A representative single-axis tracking system is presented in Attachment K, Photo 2 and a fixed-tilt mounting structure is shown in Attachment K, Photo 3.

Field Inverters

Up to 80 field inverters will be needed for the project. The inverters will be placed outdoors in enclosures to attenuate noise and protect the equipment from the elements. An example inverter is shown in Attachment K, Photo 4.

Field Transformers

Up to 80 field transformers will be required for the solar field arrays. The field transformers are approximately 8 feet by 6 feet and 8 feet in height. They may be contained within prefabricated cabinets that will rest on concrete pads. A typical transformer cabinet is presented in Attachment K, Photo 5.

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The mounting system foundations could consist of embedded posts, poles, or structural steel angle. For one type of single-axis support approach, 1,936 posts are needed for every megawatt of energy. If the entire 75 MWdc were to be installed with this mounting system, then approximately 145,200 posts would need to be set. If a fixed-tilt approach wereis used, up to 8,000 steel angles would be needed. The impervious surface associated with these structures is presented in more detail in Attachment F. ¶ ...
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Electrical Conductors

Underground 34.5-kV electrical conductors will connect the solar array field transformers and the proposed BPA substation transformers. These will be installed in trenches along improved maintenance roads onsite at depths of 36 inches or greater (KCC, Chapter 12.24.040). Conductors will be direct burial or in a polyvinyl chloride (PVC) conduit. A photo of typical trenching for underground cables is included in Attachment K, Photos 6 and 7.

Electrical conductors from the array field to the field inverters will be supported aboveground within the solar module framework and installed per National Electrical Code (NEC) standards.

Electrical Substation and Switchyard

TSR proposes to construct, in compliance with design and installation requirements from BPA, an electrical substation that will interconnect the solar field with the existing 345-kV BPA transmission line. It has yet to be determined if certain elements of the line and substation will be owned and constructed by BPA, but for purpose of environmental review and this permit application, all elements of the line and the substation (up to the point of interconnection with BPA's existing transmission line) are proposed as part of the project. The substation will be located in the southern part of the project site, to minimize the size of the associated transmission line (see Attachment J, Figure 4a). The substation will require a level, fenced area of approximately 6 acres. The 6-acre area will be graveled with no vegetation. The substation will contain a small control house, transformer(s), circuit breakers and switches, steel support structures, a dead-end tower structure, and overhead electrical bus work. The control house will be up to 16 feet high, 60 feet long, and 30 feet wide. The dead-end tower structure will be up to 120 feet high. Transformers and oil-filled equipment will be underlain with appropriate containment structures. The appearance of the substation will be similar to that of many other substations throughout the Pacific Northwest.

O&M Building and SCADA System

A storage and O&M building will store spare parts (e.g., modules and fuses), testing equipment, and cleaning equipment. The building will be of cinderblock construction or pre-engineered with an overall footprint of approximately 1,000 square feet and will be located within the 6-acre fenced substation area.

A SCADA system will be installed within the substation boundary to collect operating and performance data from the TSR facilities, and provide remote operation of the solar panels. The SCADA system will be associated with the BPA-owned facilities (substation and transmission line). The fiber-optic cable system needed for the SCADA components will be determined by BPA and will be installed per BPA standards.

Overhead Interconnection Transmission Line

A new 345-kV transmission line is required to connect the new substation to the existing BPA line and up to 200 feet of clearance will be needed for the proposed overhead line. Similar to the substation, it has yet to be determined if certain elements of the transmission

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line will be owned and constructed by BPA, but for purposes of the environmental review and of this permit application, all elements of the line and the substation (up to the point of interconnection with BPA's existing transmission line) are proposed as part of the project. TSR cannot specify the exact placement of the overhead line and the transmission structures at this time. As illustrated on Attachment J, Figure 4, TSR has delineated a 300-foot area within which the BPA transmission line could be sited. Of this 300-foot area, a maximum of 200 feet will be cleared for the transmission line. In April 2006, the North American Electric Reliability Corporation (NERC) issued mandatory standards that govern the height of vegetation growing near certain high-voltage power lines. NERC is in charge of improving the reliability and management standards for electric transmission lines. NERC has authority over eight regional entities in North America, known as regional reliability organizations, which include all segments of the electric industry: investor-owned utilities; federal power agencies; rural electric cooperatives; state, municipal and provincial utilities; independent power producers; power marketers; and end-use customers. The regional entity that has jurisdiction over Washington State is the Western Electric Coordinating Council (WECC)(Puget Sound Energy Fact Sheet, 2007)

Along with the regional reliability organizations, NERC has the legal authority to enforce compliance with NERC reliability standards. NERC achieves compliance through a rigorous program of monitoring, audits and investigations, and the imposition of financial penalties and other enforcement actions for non-compliance (Puget Sound Energy Fact Sheet, 2007).

New NERC vegetation standards, effective June 2007, require utilities to actively manage vegetation in all transmission line corridors that operate at more than 200 kV. Vegetation that matures at a height of more than 15 feet must be removed from the areas underneath and beside transmission rights of way (ROW). These areas are known as the wire and border zones (Puget Sound Energy Fact Sheet, 2007). Per the BPA Business Plan Environmental Impact Statement (BPEIS, 1995) BPA typical ROW widths for 230-kV transmission lines are 105 to 115 feet on either side of the line, for a total of 210 to 230 feet. Typical ROW widths for 500-kV transmission lines are 120 to 170 feet on either side of the line, for a total of 240 to 340 feet (BPEIS, 1995). Typical ROW widths for 345-kV lines are not outlined in the BPEIS.

A new BPA structure will be required to replace the existing lattice tower located within the BPA easement (see Attachment J, Figure 4). The BPA replacement tower would reroute the three existing 345-kV power lines via an existing 200–foot-wide ROW within the leasehold through the substation and back to the replacement BPA tower. Two additional grounding lines may be required by BPA to bring the total number of power lines between the replacement tower and substation to eight. A visual simulation of the replacement tower is shown in Attachment L, Figure 10b). In addition to the replacement structure, two new transmission structures will be required to support the new transmission lines between the replacement BPA tower and the substation. New transmission structures, which will be steel monopole structures, are indicated on the site plan (see Attachment J, Figure 4).

Access and Maintenance Roads

The site will be accessed via Kittitas County and private roads that interconnect with Highway 970. The major County access road is Red Bridge Road. Only the southern portion of this road will be used and no construction access or delivery vehicles will cross the Red

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Bridge. TSR has easement rights over Wiehl Road, a dedicated public road maintained privately and not by the County, and Loping Lane, a private road. Loping Lane is subject to several road use and cost-sharing agreements, and TSR will comply with any such applicable agreement. Additionally, TSR will work with neighbors who use Loping Lane to identify measures that will minimize disruption to their use during construction and to the roadway itself. TSR will videotape the conditions of the roads prior to construction to ensure the roads are returned to the same or better than conditions once the project is decommissioned. A network of existing and new maintenance roads will serve the project internally. The existing maintenance roads will be widened and graveled, where necessary. The roads will be improved pursuant to County requirements and turnarounds adequate for fire-protection-service vehicles will be established.

Per the Kittitas County Code and roadway standards (KCC, Chapter 12.01.090), Wiehl Road and Loping Lane would likely be improved to a 24–foot width to allow vehicles in both directions to pass safely at the same time. These roads could be paved, with culverts or drainage ditches constructed along the shoulders to prevent water from collecting on the roadway surface. Water could be channelized into a detention pond or catchment area, where it would be slowly released back into the ground. The County road standards suggest asphalt concrete pavement for roads with grades exceeding 10 percent. Because Wiehl Road (between Red Bridge and Loping Lane) is fairly steep, paving would likely be recommended. An alternative to paving is using layers of crushed stone or gravel to level and stabilize the roadway. The gravel layer would likely need to be between 8 and 21 inches deep, depending on the topography of the existing road. The size of the gravel and the density of the layers would need to be determined during engineering. Although gravel roads would allow some drainage to occur on the roadway surface, drainage ditches or culverts would likely still be necessary to prevent water from collecting. Attachment J, Figure 4f illustrates the proposed road improvements and turnarounds.

As set forth in the Draft DA, TSR will coordinate any improvements to these roads with the Kittitas County Public Works Department. Attachment J, Figure 3 shows the location of the access and maintenance roads in relation to the project site.

Summary of Construction Activities

Site preparation will consist of clearing the existing vegetation only in those areas where construction, grading, and road improvements will occur. Site preparation will be limited to maintenance roads, the O&M facility, the substation, and the solar facility. Once the site is prepared, and the materials are delivered to the staging areas within the cleared portion of the site, the installation of module foundations, field inverter pads and enclosures, field transformer pads, electrical conductors, substation switchyard foundation, overhead interconnection transmission line, and access and maintenance roads will begin. Materials and equipment used for the installation of the facilities is described below in the section titled, "Construction Materials and Equipment".

Site Preparation

The project site will require clearing to address the potential for damage to the project from blown down trees, decreased power efficiency of the solar modules from shading, the risk of

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A storage and O&M building will store spare parts (e.g., modules and fuses), testing equipment, and cleaning equipment. The building will be of cinderblock construction or pre-engineered with an overall footprint of approximately 1,000 square feet.¶
A supervisory control and data acquisition (SCADA) system will be installed within the substation boundary to collect operating and performance data from the TSR facilities, and provide remote operation of the solar panels. The SCADA system will be associated with the BPA owned facilities (substation and transmission line). The fiber-optic cable system needed for the SCADA components will be determined by BPA and will be installed per BPA standards.¶

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fire from fuel buildup within the project area, and the need to create a 100-foot firebreak along the project's perimeters as described below. To clear the site for installing the project, trees will be harvested within the project area on an as-needed basis for facilitating each construction phase of the project (Table 1). Trees will generally be harvested to a stump level of 6 to 12 inches above ground level. TSR will obtain a permit from WDNR and contract with a professional forester to harvest these trees in accordance with the Forest Practices Act (FPA). Because the bottoms of the solar modules will be approximately 3 feet above grade, any vegetation taller than 3 feet or expected to exceed 3 feet in height will be removed. Shrubs, grass, and groundcover will remain, to the maximum extent practicable, between rows and under the solar modules.

Trees within the 100-foot firebreak will be limbed up to 12 feet, as negotiated with Kittitas County Fire District 7. This minimizes the need to remove the entire tree, thus potentially decreasing the visual impact to nearby landowners. In addition, existing trees with a diameter base of 3 inches or greater will be replanted at a 3:1 ratio. Although there is no legal requirement for this mitigation, TSR is committed to undertaking efforts that will further the long-term sustainability of the land. These two measures will provide greater carbon sequestration, wildlife habitat, and soil stabilization opportunities than are currently available onsite. A more detailed discussion on vegetation management is included in Attachment G, *Vegetation Management Plan*.

Construction equipment such as tractors, backhoes, loaders, dozers, and graders will be needed to clear brush and vegetation from the site as needed, and to grade roads and foundation locations. If the slope of the land is excessive, terracing, or retaining walls may be required.

Staging Areas

Staging areas for parts and materials such as solar modules, electric cable, and structural supports will be needed. These staging areas will be located in areas where solar arrays will eventually be constructed, and will change location throughout the duration of the project. These will not add additional impact acreage to the project area and will not be permanent components of the project site. Staging will also occur near the O&M Building. Mobilization will last approximately 1 month during each phase of construction.

Construction Materials and Equipment

A concrete batch plant will not be located on site. Gravel and concrete for the project will be sourced in the Cle Elum area to the extent possible. Construction equipment such as backhoes, loaders, concrete trucks, and graders will likely be used. A crane may be necessary, but is typically not required.

Module Foundation Installation

Several module mounting types will be considered to best address the slope of land and soil stability at the project site. For example, large land areas with a slope toward the south are excellent for single-axis tracking systems (see Attachment J, Figure 4b). Land areas that are sloped to the east, southeast, west, or southwest will not as easily accommodate single-axis tracking systems, and are better suited to a fixed-tilt mounting structure (see Attachment J, Figure 4c).

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The foundations securing the solar modules will be designed to withstand high winds and snow loads. The site may have multiple foundation types to match the ground conditions and type of mounting structures used. The mounting-system support structures could consist of embedded posts, poles, or structural steel angle. The embedment could be completed via a vibratory drill or similar installation method to depths of approximately 8 feet. Pending final design, the solar module foundations will require site work and potential boring.

The posts will not be anchored unless a patch of bedrock is encountered during installation. The embedment could be completed via a vibratory drill or similar installation method to depths of approximately 8 feet. After the posts are installed, they are held in place by friction from the surrounding soil, without the use of concrete. Driven piles develop their strength by utilizing a definable skin friction between the pile and the soil. As the pile is forced into the ground, the displaced material compresses and that, in turn, creates the friction at the pile/soil interface. Piles are typically driven to a depth that prevents seasonal and temporary changes from affecting their strength. A geotechnical engineer will determine the parameters to be used in the structural design. Attachment J, Figure 4d illustrates the footing installation methods for both the fixed tilt and single axis panels.

No concrete will be used when installing the foundations for the modules.

For one type of single-axis support approach, 1,936 posts are needed for every megawatt of energy. If the entire 75 MWdc were to be installed with this mounting system, then approximately 145,200 posts would need to be set. If a fixed-tilt approach were used, up to 8,000 steel angles would be needed. The impervious surface associated with these structures is presented in more detail in Attachment F.

Fixed-tilt systems typically have a galvanized or corrosion-resistant metal frame to hold the solar modules at a 20 to 30 degree tilt, as shown in Attachment K, Photo 8.

Dependent upon weather conditions at the site, installation of foundations, trackers, and modules will occur over a period of approximately 7 to 9 months during two or three construction seasons.

Field Inverter Pad and Enclosure Installation

Concrete use will be limited to the foundations for field inverters and field transformers, as well as the foundations for the substation buildings. Up to 80 field inverters will be needed for the project. A total of approximately 250 cubic yards of concrete, or 25 truck loads, will be needed for the 80 field inverter concrete pads.

Dependent upon weather conditions at the site, installation of field inverter pads and enclosures will occur over a period of approximately 5 to 6 months.

Field Transformer Pad Installation

Concrete use will be limited to the foundations for field inverters and field transformers, as well as the foundations for the substation buildings. A total of approximately 150 cubic yards of concrete, or 15 truck loads, will be needed for the 80 field transformer concrete pads. Dependent upon weather conditions at the site, installation of field transformer pads will occur over a period of approximately 5 to 6 months.

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The posts will not be anchored unless a patch of bedrock is encountered during installation. The embedment could be completed via a vibratory drill or similar installation method to depths of approximately 8 feet. After the posts are installed, they are held in place by friction from the surrounding soil, without the use of concrete. Driven piles develop their strength by utilizing a definable skin friction between the pile and the soil. As the pile is forced into the ground, the displaced material compresses and that, in turn, creates the friction at the pile/soil interface. Piles are typically driven to a depth that prevents seasonal and temporary changes from affecting their strength. A geotechnical engineer will determine the parameters to be used in the structural design. Attachment J, Figure 4d illustrates the footing installation methods for both the fixed tilt and single axis panels.¶
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Fixed-tilt systems typically have a galvanized or corrosion-resistant metal frame to hold the solar modules at a 20 to 30 degree tilt, as shown in Attachment K, Photo 4. A dimensioned view is shown in Attachment K, Photo 5, and a cutaway view is shown in Attachment K, Photo 6. ¶
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Electrical Conductor Installation

Underground 34.5-kV electrical conductors will connect the solar array field transformers and the proposed BPA substation transformers. These will be installed in trenches along improved maintenance roads onsite at depths of 36 inches or greater (KCC, Chapter 12.24.040). Conductors will be direct burial or in a polyvinyl chloride (PVC) conduit. A photo of typical trenching for underground cables is included in Attachment K, Photos 6 and 7.

Electrical conductors from the array field to the field inverters will be supported aboveground within the solar module framework and installed per NEC standards. Photos of typical trenching for underground cables are included in Attachment K, Photos 6 and 7.

Substation and Switchyard Foundation Installation

The substation will require an area of approximately 6 acres. The substation consists of a steel support structure that is 15 to 20 feet tall. The substation will be surrounded by a cyclone fence that is approximately 10 feet tall. The substation will include a small, enclosed, air-conditioned control building, approximately 1,000 square feet in area.

Approximately 135 truckloads of concrete will be necessary for the substation foundations and associated facilities. The concrete necessary for the substation includes 70 yards for the BPA control building (7 trucks), 40 yards for the switchgear buildings (4 trucks), 50 yards for the operations and maintenance building (5 trucks), 660 yards for the dead-end towers and overhead transmission line support structures (66 trucks), and 530 yards for the substation electrical equipment, including transformer, breakers, switches, and overhead bus foundations (53 trucks).

Overhead Interconnection Transmission Line Installation

Pending location of the substation, overhead electrical distribution lines may be required to connect the substation with BPA's transmission line. Two new structures supporting the overhead lines will be required from the facility to the substation and will be approximately spaced as indicated in the site plan. Spans between structures can range from 1,000 to 1,200 feet.

Access and Maintenance Road Installation

A network of existing and new maintenance roads will serve the project internally. The existing maintenance roads will be widened and graveled, where necessary. Approximately 751,000 square feet of roadway may require gravel surfacing improvements. These improved roadways will be approximately 8 inches deep, and will require up to 1,900 truckloads of gravel.

Paths for new maintenance roadways will be cut from existing grades. At least half of the cut material will be spread out on site. The remaining amount of cut earthwork will be hauled off-site in approximately 950 truckloads. The roads will be improved pursuant to County requirements and turnarounds adequate for fire-protection-service vehicles will be established.

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A concrete batch plant will not be located on site. Gravel and concrete for the project will be sourced in the Cle Elum area to the extent possible. Construction equipment such as backhoes, loaders, concrete trucks, and graders will likely be used. A crane may be necessary, but is typically not required.¶
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Transportation and Traffic

Materials for the project (e.g., solar modules, supporting racks, foundation materials, electrical gear) will be brought to the site by truck. The trucks will travel on Interstate 90 (I-90) and access Highway 970 by way of County roads such as Red Bridge Road (see Attachment J, Figure 3), private roads such as Loping Lane, and public roads that are privately maintained such as Wiehl Road. An existing network of maintenance roads will provide road service within the project area, although new maintenance roads or segments may be necessary. Road improvements will be conducted as needed, and are anticipated to include upgrades to local gravel and dirt roads as discussed above in "Site Clearing and Grading". Road improvements are further addressed in the DA with Kittitas County (see CUP, Attachment E). For further discussion of traffic impacts, see Attachment I, *Transportation Road Plan*.

Employment

A typical construction workforce for a multiple-megawatt solar facility consists of between 200 and 450 full-time workers during the construction period. Typically, 100 to 150 workers are involved in the site prep, and 100 to 150 are involved in installing the module footings. When the solar installation begins, the workload will peak, and will likely remain at between 300 and 450 workers for a period of up to 27 months (three 9-month construction seasons). Workers could be brought in by vanpool or bus. Workers will stay at local hotels and motels, as described in the Housing section of this document. Security crews will likely consist of up to eight workers. In addition, access control in the form of an electric gate with an associated keypad security code for entry will be installed.

Safety and Fire Protection

The fire protection needs of the site are currently served by WDNR. After the project is constructed, the site will likely be served by the Kittitas County Fire District 7, under a contractual agreement with TSR (see Attachment M). This agreement is currently pending finalization and approval. Further, the project will be bordered by a firebreak no less than 100 feet wide. Should the construction of the project require supplemental fire protection services, TSR will work with Kittitas County Fire District 7 to ensure that suitable fire suppression services are in place during the construction and ongoing operations of the project. Separate safety or fire protection systems will not be required at the site. Basic safety and fire protection equipment such as fire extinguishers, personal protective equipment, and other equipment as determined by the site's safety and emergency response plan can be stored in the O&M equipment storage building.

A copy of the contractual agreement between TSR and Fire District 7 is included as Attachment M.

Police protection of the proposed project area is provided by the County Sheriff's Office. The construction contractor will notify the fire protection and police services of staging and active construction locations so these services can respond efficiently to emergencies, should any arise.

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Several temporary staging areas totaling approximately 5 acres will be used as laydown areas for parts and materials such as solar crates, electric cable, and structural supports. These staging areas will be located in areas where solar arrays will eventually be constructed and will change location throughout the duration of the project. These will not add additional impact acreage to the project area and will not be permanent components of the project site. Staging will also occur near the O&M Building. Attachment K, Photo 10, shows a typical staging area for a 10-MW solar project. Mobilization will last approximately 1 month during each phase of construction.¶
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Foundations, Trackers, and Modules¶
The foundations securing the solar modules will be designed to withstand high winds and snow loads. The site may have multiple foundation types to match the ground conditions and type of mounting structures used. The mounting-system support structures could consist of embedded posts, poles, or structural steel angle. The embedment could be ...

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Water Use

Water will be needed for activities such as dust control and module cleaning. TSR proposes to truck in water from the Cle Elum area or elsewhere. Subject to any restrictions imposed by the County or the Washington Department of Ecology (Ecology), an alternative approach would be to establish a groundwater well onsite. For initial project permitting, it is assumed that water will be trucked to the site.

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Sewer and Solid Waste

Sewer services are not anticipated. Portable toilets will be placed onsite during construction. The onsite toilets will require regular service visits.

Summary of O&M Activities and Components

Photovoltaic power plants typically have low O&M requirements. During the life of the plant, there will be regular O&M site activity. The actual O&M requirements will be determined by the specific plant components.

Materials and Equipment

A storage and O&M building will store spare parts (e.g., modules and fuses), equipment testing equipment, and cleaning equipment. The building will be constructed on site or pre-engineered in accordance with local and state building codes and it will have an overall footprint of approximately 1,000 square feet.

Transportation and Traffic

Routine vehicular traffic will occur along the site access roads and any maintenance roads within the PV array. One to two small to medium-duty pickup trucks will be required. Larger delivery trucks occasionally may be required if major equipment is in need of replacement such as structural elements, inverters, or large quantities of PV modules (not likely).

Employment

Personnel for system monitoring, maintenance, and troubleshooting will likely be needed onsite. The staff will work out of the O&M building and make frequent trips to the facility by way of passenger pickup truck or off-road vehicle. If issues regarding plant performance are detected, additional troubleshooting or maintenance may be required through special visits from vendors or specialty technicians.

Maintenance Activities

Routine onsite activities will consist of maintaining vegetation so that it does not interfere with operation of the plant (as often as weekly during periods of high rain and growth), and cleaning the solar modules of dirt and debris. Routine weed control will be required to ensure vegetation growth does not interfere with the operation of any equipment. For more details on noxious weed control, see Attachment G, *Vegetation Mitigation Plan*. The frequency of visits will be determined by the growth rate and density of the vegetation left

on the site once construction is complete. In a heavily vegetated area such as the proposed site, it is not anticipated that cleaning will be required on a weekly basis (as it would be in a desert environment). The firebreak will require periodic monitoring and clearing to remove vegetation buildup. It is anticipated that additional personnel may be required to monitor and secure the site.

In addition to maintaining the vegetation on site during project operations, TSR has committed to maintenance and operation of Wiehl and Loping during all seasons. That includes winter plowing of these roads.

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Safety and Fire Protection

As previously discussed, separate safety or fire protection systems will not be required at the site. TSR will create and maintain a firebreak of no less than 100 feet between all outer edges of the project site and adjacent property lines. Basic safety and fire protection equipment such as fire extinguishers, personal protective equipment, and other equipment as determined by the site's safety and emergency response plan can be stored in the O&M equipment storage building.

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A copy of the contractual agreement between TSR and Fire District 7 is included as Attachment M.

Police protection of the proposed project area is provided by the County Sheriff's Office. During the operational phase, TSR will contact fire protection and police services in the event of an emergency.

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Water Use

The solar modules must be kept clear from dirt and debris, the presence of which can affect the performance of the PV plant. Because the proposed site is heavily vegetated and has sufficient rainfall, it is not anticipated that monthly washing will be required. Annual cleaning may be recommended based on soiling conditions. It may be possible to use special brushes in lieu of water to remove any dirt that accumulates on the solar modules. However, if it is determined that water is required for cleaning the solar modules or other purposes, a water tanker truck could be brought onsite to fill portable canisters with water to be used throughout the PV array.

Sewer and Solid Waste

Sewer services are not anticipated. If necessary, portable toilets can be placed onsite. Onsite toilets would require regular service visits.

Decommissioning and Site Restoration

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored.

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At least 30 days prior to construction of the project, TSR will provide to the County for its approval an Initial project Decommissioning and Site Restoration Plan (the "Initial Plan"), prepared in sufficient detail to identify, evaluate, and resolve all major environmental

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impacts, costs, and public health and safety issues reasonably anticipated by TSR at that time associated with decommissioning and restoring the project site. The Initial Plan will describe the measures that will be taken to decommission the project and restore the project site, including any measures necessary to protect the public against risks or danger resulting from decommissioning the project and restoring the project site.

Ninety days prior to decommissioning the project site, TSR shall submit a Final project Decommissioning and Site Restoration Plan ("Final Plan") to the County for its approval. The Final Plan may contain measures to decommission the project and restore the project site different from the Initial Plan, provided that TSR explains in sufficient detail the reasons for any new or substantially different measures.

Subject to the Initial and Final Plans, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, the O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project area landowners wish to retain) (all of which shall comprise "Decommissioning"). The Initial and Final Plans shall contain the measures necessary to fulfill TSR's Decommissioning obligations.

Restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Restoration procedures would be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and would include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "Restoration"). Decommissioned roads would be reclaimed or left in place. The Initial and Final Plans shall contain the measures necessary to fulfill TSR's Restoration obligations.

Decommissioning the project and restoring the project site will occur within 12 months following the earlier of either terminating the Agreement or when the project is no longer in substantive operation. However, if the project stops generating electricity due to *force majeure*, mechanical breakdown, or malfunction, TSR may repair rather than decommission the affected project component(s).

Prior to commencing construction, TSR will post a bond or letter of credit in favor of the County to cover decommissioning costs. The initial amount of the bond or letter of credit will be set forth in the Initial Plan. If the project were terminated, the necessary authorization from any appropriate regulatory agencies would be obtained to decommission the project and restore the project site in accordance with the approved Final Plan.

As set forth in the Initial and Final Plans, aboveground facilities would be removed from the site, and unsalvageable material would be disposed of at authorized sites.

Decommissioning would consist of removing aboveground equipment, such as inverters, substations, and their associated foundations, to a depth of 3 feet below grade. Any foundations below 3 feet would remain. The ground surface would be regraded to natural

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contours and revegetated to a natural condition. For several years after decommissioning, site disturbance would likely be visible upon close examination and the visual impacts of those aboveground elements that are not removed would remain. During the decommissioning process, similar impacts to those experienced during construction would occur but to a lesser extent because less construction material would likely be removed than was delivered to the project site. To avoid environmental damage and unnecessary land disturbance, underground collector cables likely would be retired in place, and any building or structural foundations would be removed to a depth of approximately 3 feet below grade, with the remainder likely retired in place. Decommissioned roads would be reclaimed or left in place. The soil surface would be restored as close as reasonably possible to its original condition. The Initial and Final Plans shall be prepared in sufficient detail to identify, evaluate, and resolve all major environmental impacts, costs, and public health and safety issues associated with decommissioning and restoring the project site. Accordingly, no significant unavoidable adverse environmental impacts, including those to rare or sensitive plants or animals from construction, operation, decommissioning, or restoration of the proposed project are expected.

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Environmental Elements

Earth

a. General description of the site:

The proposed project site is located approximately 4 miles northeast of Cle Elum, Washington, in Township 20N, Range 16E, within Sections 22, 23, and 27 (see Attachment J, Figure 1 for site location). The site is located on the eastern slopes of the Cascade Mountains on Cle Elum Ridge, which runs generally from east to west at elevations ranging from approximately 2,200 to 2,600 feet (see Attachment J, Figure 2). The Teanaway River is approximately 1 mile to the northeast of Cle Elum Ridge. The site is accessed from Highway 970 by way of county roads such as Red Bridge Road, private roads such as Loping Lane, and Wiehl Road, which is a dedicated public road that is maintained privately and not by the County (see Attachment J, Figure 3). The project is located on approximately 477 acres of land within the 982-acre proposed project area.

The solar facility components and other related appurtenant improvements are described in detail in the project description above.

The ground surface elevation within the boundaries of the proposed solar facility ranges between 2,200 and 2,600 feet. The elevation along the potential transmission line varies from approximately 2,200 feet (near the location of the existing BPA transmission line) to approximately 2,300 feet (near the substation).

b. What is the steepest slope on the site and the approximate percentage of the slope?

The site would be located on a relatively flat terrace above the Teanaway River valley. Slopes on the site range from flat (0 percent) to approximately 25 percent. South-facing slopes where facilities would be constructed typically range from 10 to 20 percent. The project area does not contain steep slopes (i.e. greater than 33 percent slope) that will be impacted.

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Deleted: The proposed solar facility will be installed on the eastern slopes of the Cascade Mountains on Cle Elum Ridge. The Cle Elum Ridge area has an estimated maximum slope of 50 percent, although the majority of the area has slopes with a gradient of less than 25 percent. The

During the initial corridor selection process, TSR selected a corridor that minimized the need to site the facility components and other related appurtenant improvements in steep-slope areas. During the final design phase, TSR will conduct detailed slope evaluations to establish site gradients, and will locate structures, roads, and facilities to avoid adverse slopes.

c. *What general types of soils are found on the site (e.g., clay, sand, gravel, peat, muck)? Please specify the classification of agricultural soils and note any prime farmland.*

The majority of the soils that underlie the project site consist of clayey-, silty-, sandy-loam of the Teanaway series. The Teanaway Loam series in the vicinity have similar soil texture and characteristics, but are divided into units based on slope angles. The Teanaway Loam is divided into soils on slopes from 3 to 10 percent, and on slopes from 25 to 50 percent. The loam is described as grayish-brown, well-drained soil formed in loess over glacial drift and alluvium terrace deposits. These soils occur at both the lower and higher elevations. Some volcanic ash influence exists near the surface at higher elevations. Although the NRCS data indicates the Teanaway soils have slopes up to 50 percent (NRCS, 2009), slopes measured during an on-site evaluation (November 2009) range from 0 to 25 percent.

The Teanaway loam is used for timber production, cropland, livestock grazing, wildlife habitat, recreation, and watershed. This soil type is not traditionally used for agriculture and do not constitute prime farmland. The native vegetation is ponderosa pine and Douglas-fir.

The subsurface conditions and engineering properties of the soils across the site can influence the engineering design and construction. Each of the components of the facility requires specific design calculations, drawings, and final engineering design for successful construction and future operation. Therefore, during final design of the facility a detailed geotechnical investigation and testing program will be conducted to evaluate the engineering properties of the soils. The information from the geotechnical investigation will be used to design the foundations securing the solar modules, inverter pads, and substation; and design proper roadway sections to carry the anticipated traffic loads, as well as applicable portions of the Kittitas County Code.

The potential geologic and soils hazards and erosion potential are discussed in detail in Attachment D: *Geology and Soil Hazards Evaluation.*

d. *Are there surface indications or history of unstable soils in the immediate vicinity? If so, please describe.*

There is no indication of unstable soils in the immediate vicinity of the project. Unstable slopes and landslides are mapped along the steep valley walls along the Teanaway River valley; but none are mapped in the site boundaries and none were observed during the geologic reconnaissance. If, during geotechnical investigation and engineering design efforts, unstable soils are found, TSR will locate the project to avoid those areas. Areas with a slope of 0 to 25 percent are considered to have a low risk of erosion and landsides.

e. *Describe the purpose, type, and approximate quantities of any filling or proposed grading. Also, indicate the source of fill.*

The construction contract may use imported gravel from a quarry located in West Cle Elum to fill the 10-acre area level-ground substation. The substation will contain a 6-inch-thick

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The elevation in the proposed project area of Cle Elum Ridge changes from approximately 2,200 feet to about 2,600 feet, with an approximate slope ratio of about 6 horizontal to 1 vertical (6H:1V), or 9.5 percent.¶
Other, less significant slopes in the Cle Elum Ridge area that have a lower elevation differential may also have lower slope ratios. Prior to construction, the Applicant will perform a more detailed slope evaluation prior to construction.

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layer of gravel, and no vegetation will be present. The overall estimated amount of gravel fill required for the substation will be 8,100 cubic yards (cy).

The construction contractor may use imported gravels or crushed rock as backfill for the transmission-structure auger holes, if required. If imported gravel is not required, the construction contractor will use native materials, removed when the auger holes are made, for backfill. If imported materials are used, the construction contractor will spread the native materials, resulting in a level area in the vicinity. The approximate quantity of fill material is 4.2 cy per structure. The project will include approximately up to four transmission line structures, which will require a total of 500 cy of fill. The construction contractor may also grade some areas to enable construction access and to create level areas for the structure locations.

The estimated transmission line-structure-related fill is no more than 500 cy. The amount of material required for surfacing the access roads is estimated to be 4,000 cy.

f. Could erosion occur as a result of clearing, construction, or use? If so, please describe.

The soils onsite are rated as moderately susceptible to erosion by water. Existing vegetation helps to resist erosion, and clearing of the vegetation during construction of roads will expose the soil to a higher risk of erosion during rainfall. To alleviate potential soil erosion, the construction contractor will use a Storm Water Pollution Prevention Plan (SWPPP) and Best Management Practices (BMPs) to minimize erosion and sediment transport during construction activities. These are described in Section *h* below, and in Attachment D: *Geology and Soil Hazards Evaluation*.

g. What percentage of the site will be covered with impervious surfaces after the project construction (e.g., asphalt or buildings)?

An increase in impervious area on the proposed project site is expected to be generated by the following: solar modules, power inverter enclosures, concrete pads, tower and transmission lines and three buildings that include a control house, switchgear building, and operations and maintenance facility. It should be noted that the impervious area created by a solar panel is considered to be the area of the foundation of the panels, not the panels themselves. The panels are considered a disconnected impervious surface because the infiltration capability of the soil is only affected by the foundation and native vegetation will be maintained underneath the panels. These project components total 1.17 acres of impervious area, which is less than one percent of the total project site.

Other project components that include maintenance and access roads and a 6-acre substation area are planned as gravel surfaces, which will allow for some infiltration. In addition, adjacent soils will absorb stormwater runoff.

h. Proposed measures to reduce or control erosion, or other impacts to the earth include:

The construction contractor will implement erosion-control measures during construction, including the following measures from the required Ecology National Pollutant Discharge Elimination System (NPDES) Individual Permit:

1. Maintenance of vegetative buffer strips between the areas affected by construction activities and any receiving waters

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2. Installation of sediment fence and straw bale barriers
3. Straw mulching at locations that have suffered impacts
4. Provision of temporary sediment traps downstream of intermittent stream crossings
5. Provision of sediment-type mats downstream of perennial stream crossings
6. Planting of designated seed mixes at affected areas
7. Installation of a sediment fence along the downslope side of pulling and tensioning areas, as appropriate

The construction contractor will reseed all areas temporarily disturbed by the construction, as agreed upon with landowners. Where installed, sediment fences and check dams will remain in place until the affected areas are well vegetated and the risk of erosion has been eliminated. The construction contractor may remove the sediment fence at that time.

The construction contractor will construct roadways so that natural surface drainage is maintained.

Additional mitigation measures for soil erosion and geologic hazards are presented in Attachment D: *Geology and Soil Hazards Evaluation.*

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no increased incidence of erosion or impacts to soil quality are anticipated as a result of project decommissioning and site restoration. BMPs will be utilized to ensure no water or wind erosion will occur as a result of the removal of the project's components. In addition, all waste will be disposed of by a local waste removal company to an offsite location. This will prevent any potential soil contamination from oil,

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herbicides, or other routinely used solvents. Accordingly, no significant unavoidable adverse environmental impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the Project Description for more information about decommissioning and restoration.

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Air

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a. What types of emissions to the air would result from this proposal (e.g., dust, automobile, odors, industrial wood smoke) during construction and after completion? Please describe and give approximate quantities.

Construction activities will produce dust and heavy-duty-vehicle emissions. These emissions, which will include nitrogen oxides (NO_x), carbon monoxide (CO), and particulate matter less than 10 micrometers in aerodynamic diameter (PM_{10}; dust), will be temporary in nature. Although the quantity of these emissions is unknown at this time, the small number of vehicles to be used (see the Transportation section of this checklist) and the relatively short duration of the construction period will limit such emissions. The potential for dust generation will be greatest during dry, windy weather.

When the project is operational, no emissions from any source are expected.

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Burning of woody debris from land clearing will produce combustion emissions, including NO_x, CO, and PM_{10}. It is TSR's intent not to burn woody debris, slash, or logging refuse. Any woody debris chipped on site will be put to a beneficial use (e.g., chipped material will be sent to a compost facility, used for paper or ground cover). If burning is necessary, TSR will secure the necessary permits from state agencies and no more than approximately 130 consumable tons of material will be burned.

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b. Are there any offsite sources of emissions or odor that may affect your proposal? If so, please describe.

None. No offsite sources of emissions will affect the proposed project.

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c. Proposed measures to reduce or control emissions or other impacts to air:

A Fugitive Dust Control Plan (FDCP), to help minimize air emissions from construction-related ground disturbance and traffic, will be developed before this project begins. The FDCP will include the following BMPs:

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- Vehicles and equipment will comply with applicable state and federal emissions standards.
- Vehicles and equipment used during construction will be properly maintained to minimize exhaust emissions.
- Operational measures such as limiting engine idling time, minimizing driving speeds and shutting down equipment when not in use will be implemented.
- Open soil areas and road surfaces will be watered. TSR expects to have one water truck onsite during construction to minimize fugitive dust. In addition, a chemical tacifier may be utilized at the request of Kittitas County.

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- Bussing and carpooling among construction workers will be required to minimize construction-related traffic and associated emissions.
- Disturbed sites will be revegetated in a timely manner with a seed mixture consistent with local vegetation.

Because the construction equipment and vehicles will be dispersed across a large, sparsely populated area, no impacts to surrounding residences are anticipated. Because the construction is of limited duration total construction emissions will be relatively minor.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with a seed mixture consistent with local vegetation (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional adverse impacts to the air quality are anticipated as a result of project decommissioning and site restoration. Proper BMPs will be utilized to ensure fugitive dust control. No burning of project components will occur as a result of decommissioning. There will be increased vehicle use, similar to that of construction levels. Accordingly, no significant unavoidable adverse environmental impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

Water

a. Surface

1. *Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, and wetlands)? If yes, describe the type and provide names and into which stream or river it flows.*

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Biologists identified and delineated a total of 12 wetlands and six ephemeral streams within the site survey area (see Attachment J, Figure 5). The wetlands cover 0.97 acre within the survey area.

Wetland boundaries were determined using procedures found in *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and in *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valley and Coast* (USACE, 2008). Some wetlands extend outside the proposed project area.

Eleven of the wetlands (W1 through W11) are classified as palustrine emergent (PEM) (Cowardin), depressional (HGM) wetlands. Wetlands W1 through W6 are located in the northeast portion of the project area, and W7 through W11 are located adjacent to roads. W12 is a manmade pond located near the southwest corner of the project area (see Attachment J, Figure 5) and is classified as a PEM, riverine wetland. W12 is NWI-mapped as *palustrine emergent, semi-permanently flooded*.

Six streams within the Teanaway River and Yakima River watersheds flow within the survey area (see Attachment J, Figure 5). Five streams were mapped by WDNR. All five are classified as *non-fish, seasonal*. All of the streams flow into ponds, ditches, and vegetated swales. Water from these tributaries not used for irrigation practices may eventually flow into the Yakima River several miles to the south with the following exception. One unnamed tributary (S6) flows directly into the Teanaway River, which flows into the Yakima River.

Table 3 shows the waterbody name, width, type, and eventual hydrologic connection for each drainage of the potentially jurisdictional waters.

TABLE 3
Streams Summary Table

Waterbody Name	Width (feet)	Type	Hydrologic Connection
S1	2-5	Ephemeral	Yakima River
S2	2-6	Ephemeral	Yakima River
S3	2-5	Ephemeral	Yakima River
S4	2-4	Ephemeral	Yakima River
S5	2-5	Ephemeral	Yakima River
S6	1-2	Ephemeral	Yakima River

The biologists presume that all of the investigated wetlands and waterbodies are potentially jurisdictional under federal regulations for wetlands and waters of the United States. A final determination will be made by USACE.

TSR recognizes that there are six Type-4 streams with widths greater than 2 feet within the proposed project area. These streams will contain the maximum required riparian buffer of 20 feet, pursuant to 17A.07.010 of the KCC, which will not be impacted by any permanent or temporary structure (see Attachment J, Figure 5). The proposed design of the project

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incorporates a 100-150 foot buffer around wetlands W1-W11 and a 150-300 foot buffer around wetland W12 where no permanent structures are proposed.

The *Wetland Delineation Report* (see Attachment B) provides additional discussion of wetlands and drainages within the project corridor.

2. *Will the project require any work within 200 feet of the described waters? If yes, please describe and attach available plans.*

TSR will work within 200 feet of described waters but will avoid siting solar modules directly within potentially jurisdictional waters (see Attachment J, Figure 4). All wetland and stream buffers pursuant to the KCC will be followed. Impacts to all potentially jurisdictional wetlands and waters are avoided (see Attachment J, Figure 4).

3. *Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of the fill material.*

The proposed project will not result in any fill or removal of material in surface waters or wetlands.

4. *Will the proposal require surface water withdrawals or diversions? Please provide description, purpose, and approximate quantities:*

The proposed project will not require new surface water withdrawals or diversions.

5. *Does the proposal lie within a 100-year floodplain? If so, please note the location on the site plan.*

The proposed project does not lie within a 100-year floodplain (see Attachment J, Figure 8).

6. *Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.*

The proposed project does not involve any discharge of waste materials to surface waters.

b. Ground

1. *Will ground water be withdrawn, or will water be discharged to ground water? Please give description, purpose, and approximate quantities.*

The construction contractor will neither withdraw groundwater nor discharge water to groundwater during project construction. Construction of the project may involve water use for dust control. The construction contractor will arrange for delivery of water to the active construction site using water trucks from a source with an existing water right. TSR will neither withdraw groundwater nor discharge to groundwater during project operations.

2. *Describe waste material that will be discharged into the ground from septic tanks or other sources (e.g., domestic sewage; industrial, containing the following chemicals…; agricultural; etc.). Describe the size and number of the systems, houses to be served; or, the number of animals or humans the systems are expected to serve.*

TSR does not anticipate the discharge of waste materials into the ground during construction or operation. The construction contractor will use onsite portable toilets during construction.

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Deleted: <#>*Road widening associated with construction activities may affect four wetlands (W8–W11) and one waterbody (S4). The expected impact to wetlands and waterbodies as a result of road widening will be less than 0.1 acre. Total fill could be up to 59 cy of road material.*¶
<#>*A USACE Section 404 Wetland Permit Application will be submitted using the Joint Aquatic Resources Permit Application (JARPA) as part of this project proposal.* ¶

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c. Water Runoff (Including Stormwater):

1. *Describe the source of runoff (including storm water) and method of collection and disposal. Include quantities, if known. Describe where the water will flow, and whether it will flow into other water.*

Runoff on the site will come from rainfall and snowstorm events in the project area. Impervious areas created by the construction of the proposed project are disconnected. Thus, the natural drainage of the project site is not expected to change.

There are two main drainage basins on the project site, the North Drainage Basin drains north to the Teanaway River and the South Drainage Basin drains south to a stream that flows to the Teanaway River. Existing and proposed project conditions were modeled using the Natural Resources Conservation Service Technical Release 55 Methodology. The 2-, 10- and 100- year, 6-hour and 10-year, 24-hour storms were evaluated using Type 1A storm distributions for each basin.

The largest increase in peak discharge for the 6-hour storm events occurred during the 100-year storm in the South drainage basin (9.90 cfs). At the point of discharge to the Teanaway River, the total contributing drainage basin area is 195 square miles. Using a direct proportion of drainage basin area to flow (FEMA data reports recorded the total size of the drainage basin to be 207 square miles and have a 100-year discharge of 7,350 cfs), the flow in the Teanaway River at the discharge point is expected to be approximately 6,924 cfs during a 100-year storm event. An increase of 9.90 cfs results in a 0.14 percent increase in flow during the 100-year storm event. From a flooding standpoint, this increase is determined to be negligible when compared to the contribution of the entire watershed at the point of discharge from the project site.

For the 10-year, 24-hour duration storm, the largest increase in peak discharge occurred in the South drainage basin (33.60 cfs). Again, using a direct proportion of drainage basin area to flow (FEMA data reports recorded the total size of the drainage basin to be 207 square miles and have a 10-year discharge of 5,300 cfs), the flow in the Teanaway River at the discharge point is expected to be approximately 4,993 cfs during a 10-year storm event. An increase of 33.60 cfs results in a 0.67 percent increase in flow during the 10-year storm event. From a flooding standpoint, this increase is determined to be negligible when compared to the contribution of the entire watershed at the point of discharge from the project site.

Increases in rainfall runoff rates and volumes experienced by the onsite natural drainages will be managed using infiltration to the maximum extent practicable and stormwater BMPs will also be implemented if necessary.

2. *Could waste materials enter ground or surface waters? If so, please describe.*

Waste materials will not enter ground or surface waters. Waste materials stored at the staging areas will have secondary containment to prevent entrance into ground or surface waters. The construction contractor will establish buffers to prevent waste materials from entering surface waters. The construction contractor will also remove waste materials from the project area upon completion of construction activities. The construction contractor will implement the following BMPs to minimize the release of waste materials into ground or surface waters:

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Deleted: The largest increase in peak discharge resulted during the 100-year, 6-hour storm and was 9.80 cubic feet per second (cfs). At the point of discharge from the project site, the total contributing drainage basin area is 195 square miles. Using a direct proportion of drainage basin area to flow (recorded FEMA data reports the total size of the drainage basin to be 207 sq. mi. and have a 100-year discharge of 7,350 cfs), the flow in the Teanaway River at the discharge point is expected to be approximately 6,924 cfs during a 100-year storm event. An increase of 9.80 cfs results in a 0.14 percent increase in flow during the 100-year storm event. From a flooding standpoint, this increase is determined to be negligible when compared to the contribution of the entire watershed at the point of discharge from the project site. ¶
<#>Increases in rainfall runoff rates and volumes will be managed by on-site infiltration to the maximum extent practicable. Stormwater may also be managed using stormwater Best Management Practices (BMPs) if necessary and these BMPs will be designed and constructed in accordance with the Eastern Washington Stormwater Management Manual. The proposed project will maintain the local surface drainage system and patterns. The ApplicantTSR will not collect or treat stormwater runoff.¶
Construction of the access roads, staging areas, and installed solar modules could result in stormwater runoff into surrounding soils. No additional stormwater will run off into waterbodies.¶

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- During project construction, vehicle servicing and refueling will occur offsite in a temporary staging area equipped for fuel or oil spills.
- Existing roads located immediately adjacent to jurisdictional wetlands within the project area will be disused during project construction.
- Construction flagging and signage will be installed to clearly identify stream and wetland buffers within the project area so that they are avoided by project activities.
- Onsite vehicles will be monitored for petroleum leaks. Spills will be cleaned up immediately upon recovery and reported to the appropriate agency.
- Few hazardous materials will be used during project construction or operation—primarily small amounts of lubricants and cleaning solutions. Any hazardous waste material generated by project construction or operation will be disposed of in a manner specified by local and state regulations or by the manufacturer.
- Cleanup materials will be kept readily available onsite, either at the equipment storage area, O&M building or on the construction contractor's trucks.

d. Proposed Measures to Reduce or Control Surface, Ground, and Runoff Water Impacts, If Any:

A Washington Construction Stormwater Individual Permit (1200-C) administered by the Washington State Department of Ecology will regulate construction activities. This permit requires BMPs to minimize possible impacts from erosion or other impacts to soil and waterways. Increases in rainfall runoff rates and volumes will be managed by on-site infiltration to the maximum extent practicable. As required by the conditions outlined in the permit authorization, any permanent erosion-control measures will be implemented with final design of the project.

There are three basic types of stormwater BMPs that will be considered during the design and implementation of the project: source control, water quality treatment, and flow control. Source control BMPs are measures that are directed toward pollutant-generating activities that will help prevent pollution or other adverse effects of stormwater. Water quality treatment BMPs remove pollutants from stormwater by filtration, biological uptake, adsorption, and gravity settling. The need for water quality BMPs is based on the types of pollutants generated by a project and the vulnerability of the receiving waters to the pollutants of concern. Flow control BMPs control the rate, frequency, and/or flow duration of stormwater runoff through infiltration, evaporation, or detention facilities with infiltration being the preferred method wherever possible. The concept of detention is to collect runoff from a developed area and release it at a slower rate than it would typically run off the site.

Stormwater management involves careful application of source controls, site design principles, and construction techniques in order to protect a watershed. Some potential stormwater BMPs for the site include, but are not limited to, infiltration ponds; infiltration trenches; infiltration swales; large, extended-detention wet ponds; and extended-detention wetlands. Facilities will be designed in accordance with the standards outlined in the Eastern Washington Stormwater Management Manual in order to protect water quality in

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the receiving waters and reduce the impacts of development on the watershed. Guidance on stormwater BMPs and Low Impact Development (LID) were provided by the Washington Department of Ecology; however, they were not included in the list of facilities above. Stormwater BMPs provided in the Eastern Washington Stormwater Management Manual were more applicable to the rural setting of the project and also account for location and climate in the project area.

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Decommissioning

In the event TSR decides to terminate operation of the Project, the Project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

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Subject to a County-approved decommissioning plan, decommissioning the Project shall involve removal of the Project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Deleted: The useful life of the project is assumed to be 20 to 30 years, although new technology could extend this estimation at some time in the future (such as advancement in solar module technology). At the time the TSR decides to terminate operation of the project, however, the project would be decommissioned and the project site restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and summarized below.¶

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Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, no additional adverse impacts to water quality or increased water use are anticipated as a result of project decommissioning and site restoration. Impacts to wetlands and streams are not anticipated during decommissioning through the use of avoidance measures and BMPs. BMPs will be also be utilized to ensure no water quality impacts from increased soil erosion and sedimentation. In addition, all waste will be disposed of by a local waste removal company to an offsite location. This will prevent any potential water contamination from oil, herbicides, or other routinely used solvents. Accordingly, no significant unavoidable adverse environmental impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

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Plants

a. Check or circle types of vegetation found on the site:

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The following sections describe the vegetation categories found in the survey area. Detailed plant descriptions are included in Attachment A.

Results indicated five natural habitat types within the survey area. Most of these can be named by using the Chappel et al. (2001) system of vegetation classification. Project area natural vegetation types are as follows:

- Ponderosa Pine Forest and Woodlands
- Open Water—Lakes, Rivers, and Streams
- Herbaceous Wetlands
- Riparian
- Upland Aspen Forest

These habitat types are described below.

Ponderosa Pine Forest and Woodlands

Ponderosa Pine Forest and Woodlands vegetation is the dominant vegetation category found on the proposed project site. The project site has been actively managed as commercial timberlands for the past 100 years. The proposed project area was last logged in 2001-2002, leaving relatively few trees per acre and open stands of predominantly ponderosa pine (*Pinus ponderosa*). Crown cover of larger ponderosa pine, commercial grade, (greater than 8 inches diameter at breast height [dbh]) currently is approximately 10 to 15 percent across the proposed project site. Ponderosa pine stands growing on site are dominated by an overstory of 50-year-old ponderosa pine trees with a subcomponent of Douglas fir (*Pseudotsuga menziesii*) trees. Saplings of both species are present in the understory.

The understory is dominated by a mixture of native bunchgrass species, including Idaho fescue (*Festuca idahoensis*), bluebunch wheatgrass (*Pseudoroegneria spicata*), squirreltail (*Elymus elymoides*), and western wheatgrass (*Pascopyrum smithii*). Common native forbs in the understory are arrowleaf balsamroot (*Balsamorhiza sagittata*), yarrow (*Achillea millefolium*), silky lupine (*Lupinus* spp.), sticky purple geranium (*Geranium viscossimum*), and Oregon checkermallow (*Sidalcea oregana* var. *procera*).

The variety of Oregon checkermallow found on site is the more common of two varieties of this species. A second variety of this checkermallow (*Sidalcea oregana var. calva*) was federally listed under the Endangered Species Act as Endangered on December 22, 1999 (64 FR 71680). Rare plant surveys completed for the proposed project site in 2009 determined that the Oregon checkermallow variety found on site is not the endangered variety. An additional rare plant survey and habitat inventory may need to be completed in the spring of 2010, prior to construction.

Non-native species, such as bulbous bluegrass (*Poa bulbosa*), ventenata (*Ventenata dubia*), and rush skeletonweed (*Chondrilla juncea*) are abundant in many areas. Rush skeletonweed is a Class B noxious weed in Washington.

Open Water—Lakes, Rivers, and Streams

Several ephemeral streams and one artificially ponded area occur within the proposed project area. Streambeds were vegetated to varying extents and all dry at the time of the field visits (June and July 2009). Typical herbaceous grass and forb species within most dry channels include Brewer's navarretia (*Navarretia brewerii*), poverty oatgrass (*Danthonia spicata*), and small tarweed (*Madia exigua*). Other channels were dominated by dense shrub

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and herb species including Woods' rose (*Rosa woodsii*), snowberry (*Symphoricarpos albus*), cinquefoil (*Potentilla* spp.), and Oregon checkermallow (*Sidalcea oregana var. procera*).

Herbaceous Wetlands

Herbaceous wetland habitats within the survey area consist of depressional wetlands dominated by herbaceous vegetation. Exposed soils were cracked, which is evident of altering drying and wetting periods. Water arrives as either snowmelt or rain. These wetlands support hydrophytic herbaceous vegetation and meet the criteria for hydric soils and wetland hydrology. Common plant species within these wetlands were creeping spikerush (*Eleochaeris palustris*), Parry's rush (*Juncus parryi*), marsh cudweed (*Gnaphalium palustre*), and several sedge (*Carex* spp.) species. The non-native, annual grass ventenata (*Ventenata dubia)* had invaded most of the depressional wetlands and dominated them as they dried. Herbaceous wetlands are located within the proposed project area boundary but will not be impacted by project activities (see Appendix A, Figure 2).

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Riparian

Riparian habitat is found adjacent to some of the ephemeral stream channels in the survey area. Riparian habitat is located in the transitional area between the stream channel and ponderosa pine forest. It typically consists of a dense shrub layer composed of a mixture of oceanspray (*Holodiscus discolor*), mountain spiraea (*Spiraea betulifolia),* Woods' rose (*Rosa woodsii*), and ponderosa pine. Oregon checkermallow (*Sidalceae oregana* var. *procera*) was often found in the understory of these areas.

Upland Aspen Forest

A small grove of aspen (*Populus tremuloides*) forest occurs along one drainage and around an artificially impounded pond in the southwestern portion of the survey area. Associated species include ponderosa pine, snowberry, and wild rose. This aspen grove is within the proposed project area boundary, but will not be impacted by project activities as it is located outside of the proposed project site boundary (see Appendix A, Figure 2).

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b. What kind and amount of vegetation will be removed or altered?

The project site will require clearing to address the potential for damage to the project from blown down trees, decreased power efficiency of the solar modules, the risk of fire from fuel buildup within the project area, and the need to create a 100-foot firebreak along the project's perimeters as provided below. To clear the site for installing the project, trees will be harvested within the project area on an as-needed basis for facilitating the next construction phase of the project. Trees will generally be harvested to a stump level of 6 to 12 inches above ground level. The Applicant will obtain a permit from WDNR and contract with a professional forester to harvest these trees in accordance with the permit. Because the bottoms of the solar modules will be approximately 3-4 feet above grade, any vegetation taller than 3 feet or expected to exceed 3 feet in height will be removed. Shrubs, grass, and groundcover will remain, to the maximum extent practicable, between rows and under the solar modules.

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The project will not affect any listed Washington Department of Fish and Wildlife (WDFW) Priority Habitat or habitats listed under the WDNR Natural Heritage Program (NHP)

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database. No high-value or Category I or II habitats will be affected (see Attachment A). Any impacts to Category III habitats will be mitigated and minimized as described below.

c. List threatened or endangered species known to be on or near the site.

No threatened or endangered plant species were identified within the survey area.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Detailed information on the proposed mitigation measures for vegetation is included in Attachment G. In summary, the following measures are proposed:

- Vegetation removal and disturbance during construction will be restricted to the area designated for solar modules and related facilities, and vegetation adjacent to the access roads. Soil disturbances will be reduced by seeding with an approved native seed mix once project construction is complete.
- Vegetation clearing will occur along some existing ROWs for road widening and improvement. Vegetation along existing ROWs is primarily herbaceous plant species. Some shrubs and trees may be removed for the widening of access roads; however, TSR proposes to minimize the removal of these species when possible.
- Herbaceous vegetation taller than 3 feet will be temporarily cleared for the placement of the solar modules. After construction, vegetation inspections will be performed and herbaceous vegetation growth will be allowed up to a height of 3 feet, at which time the vegetation will be trimmed. Noxious weeds such as spotted knapweed (*Centaurea stoebe*) will be controlled within the project area.
- The solar modules will contain nonvegetated buffers. These buffers will be maintained as a firebreak. To prevent shading, soiling, and damage from windthrow, no trees will be permitted within the buffer. The site will be maintained to prevent the regrowth and reestablishment of saplings or trees in these areas.
- The proposed project is designed to avoid impacts to wetlands and streams. Thus, no wetland or stream vegetation will be cleared during project development or maintenance. All impacts to wetlands and waters will be avoided.
- Vehicles will avoid riparian areas, areas within wetlands, or areas within wetland buffers by driving only on access roads. Sediment will be prevented from entering streams and wetlands through the use of BMPs. For further discussion of the BMPs that will be implemented to prevent soil erosion and stream sedimentation, please see the Earth and Water sections of this SEPA Supplement.
- Up to 200 feet of clearance will be needed for the proposed overhead line. Vegetation will be cleared for the proposed powerline route to grid interconnection. Similar to the substation, it has yet to be determined if certain elements of the transmission line will be owned and constructed by BPA, but for purpose of environmental review and this permit application, all elements of the line and the substation (up to the point of interconnection with BPA's existing transmission line) are proposed as part of the

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project. Areas cleared of vegetation will be r maintained for noxious weed control and to prevent woody seedling growth

- Where appropriate, development will be located in already disturbed areas, including previously logged lands, existing transmission corridors, and ROWs. However, when impacts are unavoidable, alternative means of compensation mitigation will be considered.

WDFW Wind Power Guidelines

In 2003 and 2009, WDFW adopted guidelines to address fish and wildlife habitat protection, conservation and mitigation related to the development of wind energy facilities. The purpose of the WDFW Wind Power Guidelines is to provide consistent statewide guidance for the development of land-based wind energy projects that avoid, minimize and mitigate impacts to fish and wildlife habitats in Washington State. Specifically, the guidelines were largely designed to address concerns due to the unique nature of wind turbines and wind power projects, including avian and bat strikes, liability under the Migratory Bird Treaty Act, avian behavioral modification and migration displacement through the installation of tall wind turbines, and lack of research regarding avian migration and response to FAA-approved lighting configurations. Because the concerns over high wind turbines largely do not apply to solar farms, the Guidelines are not applicable to the TSR project. Nonetheless, TSR has used the same approach to species and habitat identification, and will implement the following additional measures to minimize and mitigate any impacts that may occur.

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Best Management Practices

BMPs will be implemented during construction to avoid and reduce temporary and permanent impacts to the extent practicable. No state or federally listed species were observed onsite. However, in the event that a state or federally listed threatened or endangered plant or wildlife species is observed during project development, work will be halted immediately and a qualified biologist notified.

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BMPS will be implemented wherever surface disturbances occur. These measures include, but are not limited to, the following:

- Trees will generally be harvested to a stump level of 6 to 12 inches above ground level. TSR will obtain a permit from the WDNR and contract with a professional forester to harvest these trees in accordance with the Forest Practices Act.
- It is TSR's intent not to burn woody debris, slash, or logging refuse. Any woody debris chipped on site will be put to a beneficial use (e.g., chipped material will be sent to a compost facility, used for paper or ground cover). If burning is necessary, TSR will secure the necessary permits from the state agencies and no more than approximately 130 consumable tons of material will be burned.
- Slash production from logging will use a chipper, such as the Hydro-ax, to de-limb and process slash and small trees. This will be done in confined staging areas on or next to proposed or current roadways. The resulting chips could be used as composting chips, ground cover, or erosion control material, or taken to a mulch center for recycling. Kittitas County has a new compost center north in Ellensburg, which is approximately

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25 miles from the project site. No slash or brush piles permanently left on the project site to inadvertently impact herbaceous vegetation cover.

- All trees, shrubbery, and other vegetation not designated for removal will be protected from damage caused by the project construction.
- Areas of temporary soil disturbance will be seeded with the specified temporary seed mix.
- Install filter bags, sediment fences, sediment filter fabric traps, and graveled construction accesses as necessary for erosion control, where possible.
- Cover stockpiles with impervious materials when unattended or during rainfall.
- Locate construction staging areas for storage, maintenance, and fueling of construction equipment minimum of 150 feet from creeks or wetlands. Show staging areas on the construction plans.
- Petroleum products and other harmful material will be prevented from entering wetland or waterways at all times.
- Upon completion of construction, seed or plant all areas temporarily disturbed by construction activities with native plants.
- Erect construction fencing along buffered boundaries of all wetland and riparian areas and aspen groves within the proposed project site prior to construction to avoid inadvertent impacts to these habitats.
- Monitor areas used for staging after construction to determine if impacts to these areas are temporary. If weeds invade or native plants on these sites appear dead or unhealthy the year following construction, weeds will be controlled and these areas will be overseeded with the same seeding mixture described for other disturbed areas.
- Where seeding is necessary, seeding mixture consisting of 12 pounds of PLS from a certified weed-free source will planted on this prepared surface at a ratio of 4 pounds of bluebunch wheatgrass (*Pseudoroegneria spicata*), 2 pounds of Idaho fescue (*Festuca idahoensis*), 2 pounds of prairie junegrass (*Koeleria macrantha*), 2 pounds needle-and-thread grass (*Hesperostipa comata*), 1 pound of arrowleaf balsamroot (*Balsamorhiza sagittata*), and 1 pound of silky lupine (*Lupinus sericeus*).
- Weed monitoring and any necessary control efforts will be completed annually.
- Ground application of herbicides will be with a dripless wand applicator carried over the site either on foot in a backpack sprayer or in a tank on a rubber-tired all-terrain vehicle (ATV). Herbicide(s) used will be limited to types that do not move through the soil and whose affect is immediate but short-lived. Herbicide(s) used will be approved for use near or in wetlands to avoid unintentional affects to aquatic species.
- Herbicide mixes may be colored with dye to aid in post-application monitoring.
- The first pass of each application will be made parallel to the buffer zones in such a way that chemicals cannot drift into the buffers.

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- Wetland buffers will be maintained and are described in detail in Attachment B, *Wetland Delineation Report*.

Mitigation

Possible avoidance and mitigation measures may include the following:

- Implement micrositing: slight relocations of project facilities to avoid rare plant populations.
- Remove and conserve plants; replant following construction.
- Replant disturbed area with seed obtained from a qualified cultivator of rare plants.
- Mitigate by seeding an approved offsite area with the same species.

Mitigation will require approval of the agencies, as well as monitoring for a defined period of time.

Specific Mitigation Measures

Existing trees with a diameter at breast height (dbh) of 3 inches or greater will be replanted at a 3:1 ratio. Although there is no legal requirement for this mitigation TSR is committed to undertaking efforts that will further the long term sustainability of the land. This measure will provide greater carbon sequestration, wildlife habitat, and soil stabilization opportunities than are currently available onsite.

TSR proposes to form a TAC to address mitigation for tree replacement. Stakeholders invited to participate in TAC include TSR, Kittitas County, Kittitas County Fire District 7, WDNR, and WDFW at a minimum. At this time, Kittitas County, WDFW, and WDNR have agreed to participate (see Appendix C to Attachment G). Once plantings are in place, the success of plantings will be monitored annually for 3 years by TSR by installing monitoring plots. Plots will be monitored for seedling survival for the duration of 3 years. If the viable seedlings meet or exceed 150 stems 3 years post planting, the site is considered fully stocked and WDNR will close the FPA permit. An annual monitoring report will be sent to Kittitas County, WDNR, and WDFW, at a minimum.

Areas temporarily disturbed by construction activities, including the areas under solar arrays, will be revegetated with native species. Annual revegetation monitoring will be undertaken to ensure that all seeded revegetation sites meet a minimum cover standard of 70 percent cover composed of predominantly native species within 3 years. A general seeding mixture consisting of 12 pounds per acre of pure live seed (PLS) from a certified weed-free source will be planted on disturbed sites at a ratio of 4 pounds of bluebunch wheatgrass (*Pseudoroegneria spicata*), 2 pounds of Idaho fescue (*Festuca idahoensis*), 2 pounds of prairie junegrass (*Koeleria macrantha*), 2 pounds needle-and-thread grass (*Hesperostipa comata*), 1 pound of arrowleaf balsamroot (*Balsamorhiza sagittata*), and 1 pound of silky lupine (*Lupinus sericeus*).

Several small roads segments located near wetlands will be abandoned during construction of the project to avoid impacts to the wetland resource.

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Decommissioning

In the event TSR decides to terminate operation of the project, the Project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the Project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional adverse impacts to vegetation onsite are anticipated as a result of project decommissioning and site restoration. Disturbed areas will be restored through replanting with a native seed mixture. Accordingly, no significant unavoidable adverse environmental impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see project Description for more information about decommissioning and restoration.

Animals

No federal- or state-listed threatened or endangered species were found during field surveys. CH2M HILL biologists conducted reconnaissance-level field surveys on June 16 through June 19 and on July 9, 2009. Surveys were conducted by walking transects spaced 30 meters apart. Both audible and visual observations of avian and mammal species were recorded. Attachment A, *Sensitive Species Surveys* report (see Attachment A), further discusses the results of the wildlife field survey. Measures designed to avoid, minimize, or mitigate impacts to wildlife are as provided above.

a. *Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:*

   Birds – hawks, heron, eagle, songbirds, other

The Priority Habitat and Species (PHS) database identifies three species that are *candidates* for federal or state listing with some, however unlikely, potential to occur within the proposed project area (see Attachment A, Tables 3 and 4). The database includes potential occurrences of both black-backed woodpecker and mountain quail approximately 1.0 mile from the project area. In addition, several occurrences of northern goshawk are documented

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<#>*Check or circle types of vegetation found on the site:*¶
The following sections describe the vegetation categories found in the survey area. Detailed plant descriptions are included in Attachment A.¶
Results indicated a total of five natural habitat types within the survey area. Most of these can be named by using the Chappel et al. (2001) system of vegetation classification. Project area natural vegetation types are as follows:¶
<#>Ponderosa Pine Forest and Woodlands¶
<#>Open Water – Lakes, Rivers, and Streams¶
<#>Herbaceous Wetlands¶
<#>Riparian¶
<#>Upland Aspen Forest¶
These habitat types are described below.¶
Ponderosa Pine Forest and Woodlands¶
The Ponderosa Pine Forest and Woodlands habitat type has the greatest coverage of the five habitat types in the survey area. The survey area has been actively managed as commercial timberlands for the past 100 years. The area was last logged in 2001-2002, leaving relatively few trees per acre and open stands of predominantly ponderosa pine (see Attachment A, *Sensitive Species Surveys* report). The ponderosa pine stands located at the proposed project site are dominated by an overstory of 50-year-old ponderosa pine (*Pinus ponderosa)* ...

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approximately 1.5 to 1.8 miles from the northern edge of the proposed project area. The black-backed woodpecker occurrence is approximately 1 mile from the project area's southernmost boundary.

Field biologists did not observe any federal- or state-listed threatened or endangered wildlife species within the survey area. A state candidate species, the white-headed woodpecker (*Picoides albolarvatus*), was observed in the northwest portion of the survey area. Biologists observed both male and female woodpeckers close to the main access road. The male was observed foraging in a stand of adult ponderosa pine, while the female was located excavating a nest in a snag approximately 10 feet from the road.

It is unlikely that any black-backed woodpeckers will be affected by project development because activities relating to this project will not involve the documented area. Black-backed woodpeckers require habitat with stands of mature conifers that have experienced a burn event within the last 5 years. No stands of burned, mature conifer trees exist in the project area. In addition, the proposed project is unlikely to affect any mountain quail or northern goshawk habitat, as no activities related to this project will occur near the PHS listing.

Mammals – deer, bear, elk, beaver, other

The PHS database was queried for elk and mule deer habitat regions. Priority habitats for these large mammals do not occur within the proposed project area. According to the PHS database, the closest elk wintering habitat is across the Teanaway River, approximately 0.8 to 1.5 miles from the proposed project area.

During the course of field surveys, a small herd of roughly six elk cows and two mule deer with fawns was identified in the northwest portion of the proposed project area. This area is used as a calving and fawning area during spring and summer. During fall, the herds travel east to the PHS regions located along the Teanaway River.

TSR will propose both onsite mitigation in accordance with WDFW guidelines to avoid and minimize impacts to wildlife habitat. Payment in lieu will be implemented to offset additional impacts to potential wildlife habitat. Please see Attachment H-Wildlife Mitigation Plan for detailed information about mitigation for impacts to wildlife habitat.

A study of cougars conducted by WDFW biologists from 2001 to 2007 estimates the total population density at 4.97 cougars per 100 square kilometers in the area surrounding the Teanaway River, with 1.50 adult males and 1.15 adult females per 100 square kilometers respectively (Cooley et al., 2009a). The remaining estimate consists of juveniles (younger than 24 months) and kittens. The population is composed primarily of older animals, indicating the population is stable. Cooley et al. (2009a) determined the mean age of adult cougars in the area surrounding the Teanaway River based on 65 known specimens. The mean age of males was 60 months (5 years), while the mean age of females was 69 months (5.4 years). A separate study found the average annual survival rate was 0.71 percent for adults (Cooley et al., 2009b), with approximately 1.12 kittens maturing per female each year (Cooley et al., 2009b).

Based on the available data, it is unlikely that any grizzly bears occur within the proposed project area. Currently, bears are only known to occur in one 100-mile area in the Okanogan

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Deleted: In order to avoid disturbances to elk and mule deer, the ApplicantTSR will coordinate with WDFW and the U.S. Fish and Wildlife Service (USFWS) on construction timing and activities to avoid impacts to elk and deer during calving season. BMPs will be developed to avoid and minimize impacts to these species during the calving and fawning season. TSRPerimeter and access roads will be wide enough to allow for migration. In addition, the PV solar modules will be securely constructed with concrete foundations. The height of the modules is approximately 12 feet, which will allow several feet of clearance for elk and mule deer. The Applicant will coordinate with WDFW and USFWS on construction timing and activities to avoid impacts to elk and deer during calving season.¶

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Highlands. No evidence of the sight being used by grizzly bear was observed during 2009 field surveys. In addition, there are no occurrences listed in the WDFW or USFWS databases, verified or unverified, of bears in the surrounding region.

Fish – bass, salmon, trout, herring, shellfish, other

The project area contains several ephemeral streams. Project construction will not disturb vegetation within these waterbodies. Although the project area contains no fish-bearing streams, the construction contractor will implement BMPs adequate to protect fish habitat. Because no in-water work is anticipated as a project activity, TSR did not conduct any fish field surveys.

b. List any threatened or endangered species known to be on or near the site.

The survey team did not find any threatened or endangered species in or near the survey area.

Prior to field surveys, biologists searched the WDFW PHS and WDNR NHP databases for any documented occurrences of listed species within 3 miles of the project area. Agency data did not show any threatened or endangered species occurring within the project area. The PHS database documented occurrences of northern goshawk, black-backed woodpecker, northern spotted owl, and mountain quail occurring within 3 miles of the project area. Because of a lack of suitable habitat, it is unlikely that any of these species occur within the project area. Moreover, the survey team did not observe these species in the survey area.

c. Is the site part of a migration route? If so, explain.

Because of this seasonal migration, portions of the project area may be used as a migratory corridor for large, migrating ungulates. However, this route was not identified during the 2009 field survey effort. Portions of the project area include an upland ponderosa pine forest stand, which may provide habitat for several species of wildlife. During spring, elk and mule deer typically use this type of habitat as a calving and fawning ground.

The PHS data identified regions of elk and mule deer habitat across the Teanaway River, north of the proposed project area. The nearest known PHS regions occur between 0.8 and 1.5 miles from the proposed project area.

TSR has considered impacts to potential elk movements and migration during the design of the proposed project layout. TSR proposes onsite mitigation to preserve potential migration corridors and elk habitat in the northeast and southwest portion of the project area. In addition, micrositing of solar arrays will result in a wide access corridor between solar arrays to allow for elk movement between these areas. Please see Attachment H-Wildlife Mitigation Plan for detailed information about mitigation for impacts to wildlife habitat. No fencing will occur along the property boundary. Such fencing is not required to be installed, per the National Electrical Code (NEC).

Decommissioning

In the event TSR decides to terminate operation of the Project, the Project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

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Subject to a County-approved decommissioning plan, decommissioning the Project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional adverse impacts to wildlife or wildlife habitat are anticipated as a result of project decommissioning and site restoration. No threatened or endangered species are present onsite, and thus no listed species will be affected. Temporary impacts in the form of increased noise levels and human activity may occur during project decommissioning; however, these are expected to be temporary in nature and will not result in permanent impacts to wildlife. Please see project Description for more information about decommissioning and restoration.

Energy and Natural Resources

a. *What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.*

Minimal amounts of energy will be used to meet the completed project's energy needs; the completed project will produce electricity. A minimal amount of energy will be used to heat and light the O&M facility; however, this energy will be derived from the solar energy facility.

b. *Would your project affect the potential use of solar energy by adjacent properties?*

The Project will not affect the potential use of solar energy by adjacent properties. Any shadows from transmission line-structures would have minimal, if any, effect on adjacent properties. The shadows from the solar facility components and other related appurtenant improvements will not interfere with the potential use of solar energy by adjacent properties.

c. *What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts:*

Minimal amounts of energy will be used to meet the completed project's energy needs. No energy conservation features are included in the plans of this proposal.

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Environmental Health

a. *Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal?*

Once the project is completed, there will be minimal exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste. In addition, a letter from REC Solar (see Appendix G to Attachment H) states, "the modules are silicon based and do not contain hazardous materials such as cadmium which is used in some other types of solar modules. The modules do contain a small amount of lead solder which is fully encapsulated. Even in the event of damage to the modules, there is no potential for the lead to be released into the environment." At the end of this 25-year life cycle, the solar modules will be recycled by the manufacturer.

During construction, the construction contractor may use small amounts of lubricants and solvents and will follow appropriate measures to prevent spills and contamination. Except for fuel and oil used in construction equipment, the construction contractor will use no combustible materials. During construction activities, the potential for fires and accidents may exist. However, the construction contractor will construct the project in accordance

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with applicable federal, state, and County regulations that pertain to fire prevention, presuppression, and suppression. In addition, a letter from REC Solar (see Appendix G to Attachment H) states, "the photovoltaic modules, manufactured by REC Solar AS, which would be utilized on this project are constructed of glass, aluminum and silicon with PTE foil backsheet and EVA encapsulate. In addition, all other materials used on the solar arrays are steel, aluminum, and copper. As the primary materials are non-flammable we do not anticipate that modules would be considered a fire hazard during a forest fire."

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1) *Describe special emergency services that might be required.*

This project does not require any special emergency services related to environmental health.

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2) *Proposed measures to reduce or control environmental health hazards, if any:*

TSR will construct the project to comply with applicable federal, state, and industry standards that address environmental health standards, such as clearances, grounding, lightning protection, and fire protection.

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During construction, the construction contractor will implement standard safety measures to reduce or control environmental health hazards. The construction contractor will employ the following BMPs to reduce or control the potential for environmental health hazards:

- Monitoring onsite vehicles for petroleum leaks; the construction contractor will clean up spills immediately upon recovery and report such spills to the appropriate agency.
- Disposing of hazardous waste material generated by project construction and operation in a manner specified by local and state regulations or by the manufacturer.
- Keeping cleanup materials readily available onsite, either at the equipment storage area or on the construction contractor's trucks.

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PV arrays will be set back 100 feet from the perimeter of the property to allow for proper firebreaks. In addition, spacing between PV arrays will be 10 feet, to provide for adequate maintenance and fire prevention space.

During operation, TSR will continue to implement applicable BMPs to reduce or control environmental health hazards.

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b. *Noise*

1) *What types of noise exist in the area which may affect your project (e.g., traffic, equipment, operation, other)?*

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The nature of the project is such that it is unaffected by noise.

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2) *What types and levels of noise are associated with the project on a short-term or a long-term basis (e.g., traffic, equipment, operation, other)? Indicate what hours the noise would come from the site.*

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During construction, the project will expose nearby residences to increased noise from construction equipment. Typical equipment the construction contractor is likely to use during construction includes pickup trucks, line trucks, graders and bulldozers, backhoes, boring equipment, tractor-trailers, cranes, drum pullers and tensioners, harrows, and

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broadcast seeders. Construction equipment typically produces noise levels of 75 to 90 decibels on an A-weighed scale (dBA) at a distance of 50 feet from the construction activity. Noise levels from construction equipment will vary and will be temporary in nature. Construction will occur during daylight hours (7 a.m. to 7 p.m.) and is anticipated to last for several weeks at a given location for up to 9 months over a period of 2 to 3 years.

Sources of potential noise during construction include vehicular traffic noise and equipment noise such as chainsaws, rollers, bulldozers, pile drivers, and diesel engines. Sources of noise during operations include solar tracking devices, transformer and switchgear noise from substations, corona noise from transmission lines, vehicular traffic noise, and maintenance facility noise.

A detailed noise study was not conducted as part of the Teanaway Solar Reserve project. The closest inhabited structure is located 290 feet from project facilities.

A noise analysis performed for a proposed solar facility of a similar size (60 MW) in Sarnia, Ontario, indicated that the potential daytime and nighttime operational noise footprint of an approximately 60-MW solar project is not discernable at more than 100 feet from the project boundary. The noise sources for the project, the transformers and inverters, located in each PV block, will be at least 290 feet from the nearest noise receptors, including any residences.

The closest residence will be approximately 290 feet from the transmission line. There are two types of noise associated with transmission lines: corona noise and aeolian noise. The corona noise is breakdown of air into charged particles caused by the electrical field at the surface of conductors. In close proximity to the transmission line, such as at the edge of the ROW, noise levels are approximately 40 dBA to 50 dBA. A whisper is approximately 30 dBA and the ambient noise in a home is approximately 50 dBA.

Aeolian noise is the noise created from wind blowing from the transmission structures. This type of noise is usually infrequent and depends on wind velocity and direction (Aspen Environmental Group, 2009). Research by the Electric Power Research Institute has shown that the fair-weather aeolian noise from transmission lines to be generally indistinguishable from background noise at the edge of a ROW of 100 feet or more.

Per Kittitas County's Noise Ordinance (Chapter 9.45, Sections 9.45.010), "it is unlawful to create, or to allow property in one's possession or control to be used so as to create any loud, unpleasant, or raucous noise which unreasonably disturbs the peace, comfort, or repose of others" (Ord. 99-09, 1999; Ord. 95-14 § 1, 1995). In addition, noise disturbances referred to in KCC 9.45.010 may include, but are not limited to, continuous or repetitive sound from the following sources:

1. Operating motors, engines, motorcycles and snowmobiles in a capricious manner, to be plainly audible within any dwelling unit which is not the source or is generated within 200 feet of any dwelling unit
2. Playing amplified or otherwise loud music and voice amplification either live or recorded
3. Yelling or shouting at a continuous loud level of sound

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4. Allowing domestic animals to bark, howl, or otherwise make noise either on private or commercial premises for extended periods of time

5. Use of noise-making fireworks except for duly authorized or approved public displays (Ord. 99-09, 1999; Ord. 95-14 § 2, 1995).

The project is expected to be well within the compliance standards of the Kittitas County Noise Ordinance.

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3) *Proposed measures to reduce or control noise impacts:*

Noise levels during construction of the solar facility components and other related appurtenant improvements will depend on the specific construction methods used. Construction noise will be localized and temporary.

To minimize noise impacts, the construction contractor will limit construction activities to daylight hours (7 a.m. to 7 p.m.), and all equipment will have sound-control devices.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

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Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional adverse impacts to environmental health are anticipated as a result of project decommissioning and site restoration. All waste will be disposed of by a local waste removal company to an offsite location. This will prevent any potential hazard of human exposure from oil, herbicides, or other routinely used solvents.

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It is unlikely that emergency services will be necessary during the decommissioning and restoration effort; however, the Kittitas County Planning Department and Kittitas County Fire District 7 will be notified prior to the engaging in decommissioning and restoration.

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Noise levels during decommissioning of the solar facility components and other related appurtenant improvements will be similar to construction levels. This noise will be localized and temporary. To minimize noise impacts, the decommissioning and site restoration efforts will be limited to daylight hours (7 a.m. to 7 p.m.), and all equipment will have sound-control devices. Accordingly, no significant unavoidable adverse environmental impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

Land and Shoreline Use

a. What is the current use of the site and adjacent properties?

The site is currently zoned Forest and Range (F&R) (Figure 5). The site was most recently selectively logged in 2001–2002, and existing site vegetation consists of low grasses, shrubs, and plants with scattered 50- to 60-foot, 6- to 18-inch-diameter ponderosa pine (*Pinus ponderosa*) trees.

The adjacent properties are zoned as Commercial Forest (CF), Rural 3, and F&R (Figure 6).

b. Has the site been used for agriculture? If so, please describe.

No, the proposed project site has not been used for agriculture. The site is currently zoned F&R and was most recently logged in 2001–2002.

c. Describe any structures on the site.

No structures are currently present on the proposed project site. TSR selected the proposed project site to maximize significant insulation capacities and sunlight, optimize slopes for year-round energy production, provide adequate site accessibility, avoid environmentally sensitive areas, and minimize visibility from offsite locations.

d. Will any structures be demolished? If so, please describe.

TSR is not proposing to demolish any structures as part of this project.

d. What is the current zoning classification of the site?

The proposed project site is located within the F&R zone in Kittitas County.

e. What is the current comprehensive plan designation of the site?

The current comprehensive plan designation of the proposed project site is Rural.

f. What is the current shoreline master program designation of the site?

The proposed project will not be located within 200 feet of any rivers designated under the shoreline master program. The closest river with such a designation under Washington Administrative Code (WAC) 173-18-230 is the Teanaway River, which is located approximately 1.0 mile from the proposed project site (see Attachment J, Figure 8).

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g. Has any part of the site been classified as an "environmentally sensitive" area? If so, please specify.

Section 17A.02.060 of the Kittitas County Code (KCC) designates the following habitats and ecosystems as critical areas consistent with state statute (RCW 36.70A.030[5]):

1. *Wetlands;*
2. *Areas with a critical recharging effect on aquifers used for potable water;*
3. *Fish and wildlife habitat conservation areas;*
4. *Frequently flooded areas; and*
5. *Geologically hazardous areas.*

The following subsections further define these designated "critical areas." TSR will mitigate the critical areas that the project affects in accordance with the KCC, Critical Areas Ordinance (CAO), and federal and state requirements. The Critical Areas permit application is included as part of the Kittitas County conditional use permit.

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Deleted: The following subsections further define these designated "critical areas." However, only wetlands and frequently flooded areas apply to the project because the proposed project does not affect the other critical areas. The Applicant will mitigate the critical areas that the project affects in accordance with the KCC, Critical Areas Ordinance (CAO), and federal and state requirements. The Critical Areas permit application is included as part of the Kittitas County conditional use permit.

Wetlands

CH2M HILL conducted a wetlands and other waters delineation in June and July 2009 for the proposed project.

The proposed project is located in the Teanaway River and Yakima River watersheds within the Yakima River basin and Upper Yakima subbasin. Tributaries within the project site flow into ponds, ditches, and vegetated swales. Water from these tributaries not used for irrigation practices eventually flows into the Yakima River with the exception of one unnamed tributary (S6), which flows directly into the Teanaway River. Wetlands within the project site are hydrologically connected to these tributaries.

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Twelve wetlands were delineated (see Table 4). They total 0.97 acre within the survey area (see Attachment J, Figure 8). All of the wetlands were determined to be PEM (Cowardin) depressional (HGM) wetlands except wetland W12, which was determined to be a riverine (HGM) wetland. Table 4 lists the separate wetlands within the proposed project area. (See *Environmental Elements: Water a. Surface* in this checklist for more details.)

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TABLE 4
Wetlands Summary Table

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Wetland ID	Wetland Acreage	Cowardin Type	HGM Type	Wetland Adjacent to RPW	Wetland Adjacent to Non-RPW	USACE Jurisdiction	State Jurisdiction
W1	0.010	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W2	0.004	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W3	0.030	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W4	0.067	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES

TABLE 4
Wetlands Summary Table

Wetland ID	Wetland Acreage	Cowardin Type	HGM Type	Wetland Adjacent to RPW	Wetland Adjacent to Non-RPW	USACE Jurisdiction	State Jurisdiction
W5	0.004	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W6	0.253	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W7	0.231	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W8	0.027	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W9	0.013	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W10	0.019	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W11	0.006	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W12	0.312	PEM	Riverine	NO	YES	Potentially – if significant nexus to TNW	YES

The survey team delineated wetlands within the proposed project area in accordance with *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE, 2006), and distinguished buffers based on 17A.04.020 of the KCC. The *Wetland Delineation Report* (see Attachment B) provides a detailed analysis of the stream classifications for the streams/jurisdictional waters in the project area.

There will be no impacts to wetlands or waters in Washington from the construction of solar PV arrays, transformers, the O&M building, switchgear structures, or the powerline route to the grid.

TSR recognizes that there are three Category III wetlands greater than 10,000 square feet within the proposed project area. Wetlands W1, W3, W5, W6, and W7 will contain a buffer of 80 feet, which will not be impacted by any permanent or temporary structure and wetlands W2, W4, W8, W9, W10, and W11 will have a 25-foot buffer (see Attachment D, Figure 5) pursuant to Section 17A.04.020 of the KCC.

Wetland functional assessments showed moderate to high potential and opportunity to provide amphibian habitat and high potential and opportunity to provide invertebrate habitat. However, no evidence of amphibians or invertebrates (burrows, casings, shells, water, mating calls, etc.) were observed in wetlands W1-W11 on the surface or within the upper 20" of soil pits. Wetland W12 is the only wetland with likely habitat for invertebrates or amphibians. The eastern Washington wetland-rating system was not tested on wetlands

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less than 1/10 acre (only wetlands W6, W7, and W12 are greater than 0.10 acre in size); therefore, more focus was placed on field observations and best professional judgment to determine wetland functions. Most of the delineated wetlands were also sparsely vegetated or dominated by non-native species (*Ventenata dubia*) providing poor habitat for aquatic wildlife. Based on WDFW functional assessment data and field observations, wetlands W1-W7 exhibit low habitat function due to an absence of invertebrates, amphibians, aquatic birds, aquatic mammals, and low to moderate native plant diversity. Buffers for these wetlands should therefore be between 25 and 75 feet. Based on WDFW functional assessment data and field observations, wetlands W8-W11 exhibit low habitat functions due to an absence of invertebrates, amphibians, aquatic birds, aquatic mammals, and little or no native plant diversity. Buffers for these wetlands should therefore be between 25 and 75 feet. Wetland W12 exhibits moderate to high habitat functions based on habitat suitability for a variety of aquatic species. Buffers for this wetland should be between 150 and 300 feet.

The proposed project also incorporates a 100-150 foot buffer around all potential wetlands within the project area where no permanent structures are proposed to further avoid and/or minimize impacts on wetland habitat. Wetland W12 has a 150-foot buffer with all proposed permanent structures sited 150-300 feet from the wetland.

TSR will revegetate temporarily disturbed areas with an appropriate seed mix consisting of native shrubs, forbs, and grasses developed using applicable state and federal guidelines and plant lists. Permanently disturbed areas will be maintained to prevent the occurrence of noxious weeds (see Attachment G.)

Critical Aquifer Recharge Areas

Section 17A.02.020 of the KCC defines areas with a critical recharging effect on aquifers used for potable water as *"areas where an aquifer that is a source of drinking water is vulnerable to contamination that would affect the potability of the water (WAC 365-190-030[2])."*

This project will not have an impact on critical aquifer recharge areas (see Attachment J, Figure 8). Per Section 17A.08.010 of the KCC, no critical aquifer recharge areas have been identified by the County. All nearby wells have been identified (see Attachment J, Figure 8) and will be avoided. No hazardous materials that may contaminate the ground or surface water will be utilized or stored on site. The solar modules are silicon based and do not contain hazardous materials such as cadmium which is used in some other types of solar modules. The modules do contain a small amount of lead solder that is fully encapsulated. Even in the event of damage to the modules, there is no potential for the lead to be released into the environment.

During construction, the construction contractor may use small amounts of lubricants and solvents and will follow appropriate measures to prevent spills and contamination.

Fish and Wildlife Habitat Conservation Areas

Section 17A.02.090 of the KCC defines fish and wildlife habitat conservation areas as follows:

1. *Those lands in Kittitas County owned or leased by the Washington State Department of Fish and Wildlife;*
2. *Those lands donated to or purchased by Kittitas County for corridors pursuant to RCW 36.07A.160;*

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Deleted: These wetlands will contain a buffer of 80 feet, which will not be impacted by any permanent or temporary structure (Attachment D, Figure 5). All other wetlands will have a 25-foot buffer pursuant to 17A.04.020 of the KCC.

Deleted: It is anticipated that the improvements associated with access roads will result in minimal impacts to wetlands and waters. As stated in the Plants section of this checklist, impacts to wetlands and waters will be avoided wherever practicable. For a more detailed analysis of wetland impacts and mitigation measures, please see Attachment B, *Wetland Delineation Report.*¶
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Deleted: While some solar modules being considered for installation do contain toxic substances, such as cadmium telluride, there is very little chance of groundwater contamination because modules are laminated in a glass structure that is designed to last for 25 years. At the end of this 25-year life cycle, the solar modules will be recycled by the manufacturer.

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3. Wetlands;
4. Big game winter range;
5. Riparian habitat;
6. Habitats for species of local importance.

There are no lands owned or leased by WDFW within the project area. Also, there are no lands purchased by Kittitas County pursuant to RCW 36.017A.160, which requires the County to designate "open space corridors within and between urban growth areas." Because no such corridors are located in the project area, they are not affected by the proposed project.

The project area contains wetlands. However, impacts to wetlands will be avoided. All category-specific buffers will be observed and BMPs will be in place to avoid impacts to wetlands and riparian habitat, where practicable. Please see the Wetlands section directly above and Waters section for a more detailed discussion of these areas.

There are no areas of important wildlife habitat within the project area. This includes big game winter habitat and habitats for species of local importance. The project will not affect any listed WDFW Priority Habitat or habitats listed under the WDNR NHP database. The nearest PHS habitat is between 0.8 and 1.5 miles from the site.

The Animals section Attachment H, *Wildlife Mitigation Plan* in this checklist discusses detailed wildlife, habitat, and proposed mitigation measures.

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Frequently Flooded Areas

Section 17A.02.140 of the KCC defines areas of special flood hazard as "*the one-hundred year floodplain, which are lands subject to a one percent or greater chance of flooding in any given year as designated by the Federal Emergency Management Federal Insurance Rate Map for Kittitas County.*"

The project area does not contain or affect any 100-year floodplains according to the Federal Emergency Management Agency floodplain areas (see Attachment J, Figure 9). The nearest 100-year floodplain is adjacent to the Teanaway River and is approximately 450 feet from the project area.

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Geologically Hazardous Areas

Section 17A.02.150 of the KCC defines geologically hazardous areas as "*areas that because of their susceptibility to erosion, sliding, earthquake, or other geological events, are not suitable to the siting of major commercial, residential or industrial development consistent with public health or safety concerns without proper engineering consideration and design. The term commercial shall not be construed to include natural resource activities.*"

The proposed project is not "commercial, residential, or industrial development" as defined by the KCC. TSR will select the placement and locations of the facility components to minimize susceptibility to erosion, sliding, earthquakes, and other geological events, consistent with proper engineering consideration and design.

Based literature review, soil data, site geologic reconnaissance, and published geologic information, the project can be designed, constructed, and operated safely to minimize or avoid adverse geologic and soil impacts. No direct impacts from geologic hazards such as landslides or earthquakes are anticipated from design, construction, and operation of the

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project. The potential for soil erosion during and after project construction and operation will be minimized by adherence to an erosion control plan, BMPs, and the mitigation measures. Site grading, roads, and stable cut slopes will be incorporated into final design to minimize or avoid potential impacts that could endanger the project components.

No areas of slopes steeper than 33 percent were observed during on-site field work (November 2009). Slopes of this steepness are primarily present along the edges of the Teanaway River valley, outside the project boundaries. No roads, structures, or other facilities would be constructed on slopes steeper than 33 percent. Therefore, it is not anticipated that slopes will pose a potential hazard nor interfere with the performance of new roads or structures.

Potential geological hazards and soil limitations are discussed in further detail in the Earth section of this checklist and Attachment J, Figure 10, Designated Critical Areas: Erosion-Prone Soils and Geologic Hazards. Soil data, geologic features, site photos, and an in-depth discussion of geology and soils are presented in detail in Attachment D.

h. How many people would reside or work in the completed project?

The project will not result directly in any people residing in the project area.

i. How many people would the completed project displace?

The project will not result in the displacement of any people.

j. Please list proposed measures to avoid or reduce displacement impacts:

The project will not create displacement impacts.

k. List proposed measures to ensure the proposal is compatible with existing and projected land uses and plans:

The proposed project is compatible with the existing and projected land uses and plans with the approvals and permits described in the following subsections. This includes compatibility with the *Kittitas County Comprehensive Plan* (Kittitas County, 2006), and the Kittitas County Code.

TSR will submit all necessary applications for local land use approvals and permits in Washington to ensure that the project is compatible with existing and projected land uses and plans. These land use approvals and permits include those described below.

Forest Practices Act Permit

The FPA permit will be obtained through WDNR. Trees will be removed from the site only as necessary to install facilities. Trees will be left onsite wherever practicable.

Conditional Use Permits

TSR will submit a conditional use permit (CUP) application to Kittitas County consistent with the comprehensive plans and zoning ordinances for both jurisdictions.

The project is defined as a *"Major alternative energy facility"* in KCC Section 17.61.010(9) and may be authorized in the F-R zoning district through approval of a CUP per KCC Section 17.61.020(4).

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Kittitas County has indicated that the size and complexity of the project generate the need for a Development Agreement (DA) between TSR and the County. A Draft DA is provided as Attachment E to the CUP. The DA will condition and govern the CUP.

Critical Areas Permit

The proposed project site includes wetlands, which are critical areas as defined in Section 17A.02.060 of KCC and are described in more detail in item (*g*). Therefore, TSR has applied for a Critical Areas Permit as part of the Kittitas County CUP.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional adverse impacts to land use, shoreline areas, or critical areas are anticipated as a result of project decommissioning and site restoration. All wetlands and streams will be avoided during decommissioning. The Applicant will adhere to the construction buffers of 150 feet for each wetland and 20 feet for each stream.

Critical aquifer recharge areas will not be affected, as all water required for decommissioning and site restoration will be arranged for delivery to the active decommissioning site using water trucks from a source with an existing water right. The Applicant will neither withdraw groundwater nor discharge to groundwater during project operations.

No construction will take place in a fish and wildlife habitat conservation area or in a floodplain, thus the decommissioning and site restoration efforts will avoid these areas as well.

BMPs will be utilized to ensure no water or wind erosion associated with the removal of the project's components and site restoration. Geologically hazardous areas will be avoided to

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further reduce potential impacts. Accordingly, no significant unavoidable adverse environmental impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

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Housing

a. *Approximately how many units would be provided? Indicate whether it is high, middle, or low-income housing.*

The proposed project involves the construction and operation of the Teanaway Solar Reserve on private land in an unincorporated area of Kittitas County, and does not include the development of any new housing units.

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The direct average employment in during each of the 7- to 9-month construction periods is estimated at 450 workers (see Attachment N *Economic Impact Analysis for the Teanaway Solar Reserve, Kittitas County, Washington*). TSR is committed to utilizing a local workforce and thus, the number of construction workers expected to be transient to Kittitas County will be small enough that adequate temporary housing provided by hotels and motels is available to meet project needs. No housing units will be developed as part of the proposed project.

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According to the 2005–2007 American Community Survey 3-Year Estimates, Kittitas County has 9,180 estimated housing units, including 5,464 owner-occupied units and 2,729 renter-occupied units (U.S. Census Bureau, 2009). The vacancy rate is estimated to be 8.8 percent.

According to the Cle Elum Roslyn Chamber of Commerce (2009), approximately 20 hotels and motels are available in the Cle Elum Roslyn area.

For a review of the 14 closest hotels and motels, see Table 5. TSR spoke with employees at each hotel and motel listed in Table 5 (Dinges, 2010). During the summer months, when construction will occur, the number of vacant rooms ranges from 102 to 417 rooms. This will provide enough temporary housing for many of the estimated 450 workers.

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TABLE 5
Hotel and Motel Vacancy Rates near the Proposed Project Site

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Hotel Name	Address	Contact Number	Room Rate[1]	Vacancy Rate*	Total Rooms	Rooms Available	Distance to project (miles)
Best Western Snow Cap Lodge	809 W Davis St Cle Elum, WA	(509) 674-0200	$89	50-30%	50	15-25	8
Stewart Lodge	805 West 1st Street, Cle Elum, WA	(509) 674-4548	$74 - $84	0-100%	37	up to 37	8
Cascade Mountain Inn	906 East 1st Street, Cle Elum, WA	(877) 747-8713	$79 - $109	0 - 50%	43	up to 22	6
Timber Lodge Inn-Motel	301 West 1st Street, Cle Elum, WA	(509) 674-5966	$47 - $66	25%	35	9	8
Chalet Motel	800 East 1st Street, Cle Elum, WA	(509) 674-5434	$65 - $75	25%	11	3	8
Aster Inn	521 East 1st Street, Cle Elum, WA	(509) 674-2551	$45 - $55	25 - 90%	10	up to 9	8

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TABLE 5
Hotel and Motel Vacancy Rates near the Proposed Project Site

Hotel Name	Address	Contact Number	Room Rate[1]	Vacancy Rate*	Total Rooms	Rooms Available	Distance to project (miles)
Cle Elum Traveler's Inn	1001 East 1st Street, Cle Elum, WA	(877) 747-8713	$68 - $72	0 - 50%	33	up to 17	6
Holiday Inn Express	1620 S Canyon Rd. Ellensburg, WA	(509) 962-9400	$129 - $159	0 - 70%	66	up to 46	24
Comfort Inn	1722 Canyon Rd. Ellensburg, WA	(509) 925-7037	$93 - $110	30 - 55%	52	16-29	24
I-90 Inn Motel	1390 North Dolarway Road, Ellensburg, WA	(509) 925-9844	$63 - $68	20 - 25%	70	14-18	22
Inn at Goose Creek	1720 Canyon Rd. Ellensburg, WA	(800) 533-0822	$100 - $150	20 - 30%	10	3	24
Hampton Inn	2705 Triple L Loop, Ellensburg, WA	(509) 933-1600	$109 - $200	25 - 75%	80	20-60	22
Best Western	211 W. Umptanum Rd. Ellensburg, WA	(509) 925-4244	$89 - $219	0 - 75%	55	up to 41	24
Quality Inn	1700 Canyon Rd. Ellensburg, WA	(509) 925-9800	$70 - $140	20 - 95%	105	up to 100	24
				TOTAL	657	102-417	

b. Approximately how many units, if any, would be eliminated? Indicate whether it is high, middle, or low-income housing.

The proposed project will not eliminate any housing units in Washington.

c. List proposed measures to reduce or control housing impacts.

No housing impacts will occur as a result of the proposed project.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

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The direct average employment in Kittitas County during each of the 7- to 9-month construction periods is estimated at 225 workers (see Economic Impact Analysis for the Teanaway Solar Reserve, Kittitas County, Washington). The number of construction workers expected to be transient to Kittitas County will be small enough that adequate temporary housing provided by hotels and motels is available to meet project needs. No housing units will be developed as part of the proposed project.¶
¶
According to the 2005–2007 American Community Survey 3-Year Estimates, Kittitas County has 9,180 estimated housing units, including 5,464 owner-occupied units and 2,729 renter-occupied units (U.S. Census Bureau, 2009). The vacancy rate is estimated to be 8.8 percent.¶
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Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no need for housing units to be developed as part of the decommissioning and site restoration phases of the project. The number of decommissioning and restoration workers expected to be transient to Kittitas County will be small enough that adequate temporary housing provided by hotels and motels is available to meet project needs. Accordingly, no significant unavoidable adverse impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see project Description for more information about decommissioning and restoration.

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Aesthetics

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a. *What is the tallest height of any proposed structure(s), not including antennas? What is proposed as the principal exterior building materials?*

The tallest structures associated with the proposed project will be structures associated with the proposed powerline route to interconnect with the grid. The three structures of the transmission line would need to be a height of approximately 150 feet. An A-frame dead-end structure at the project substation that the transmission line would connect to would be 120-feet high. The length of the transmission line between the substation and the BPA transmission line will be approximately 3,000 feet long. A geographic information system (GIS)-based zone of potential visual influence assessment was conducted for the project (see Attachment L). It indicated that the proposed project transmission line would be similar in terms of potential visibility as the portion of the existing BPA transmission line that passes south of the project site. This project transmission line will be constructed in the portion of the project site with the lowest elevation which will help reduce its visibility.

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Within the project area, the tallest structures, other than those associated with the transmission line, will be components associated with the O&M building. The O&M building will be approximately 24 feet in height.

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b. *What views in the immediate vicinity would be altered or obstructed?*

Nine GIS-based visibility assessments were conducted to determine the potential visibility of the project components (see Attachment L, *Teanaway Solar Reserve Potential Visual Impact Assessment*). The visibility assessments, along with the rest of Attachment L, were developed to provide background documentation for the conclusions discussed below. Attachment L was updated after County review of the original submittal. In order to better assist the County in evaluating potential visual impacts associated with the proposed project.

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The assessment indicates that because the proposed site is located on a sloping "bench," above Cle Elum and the Teanaway Valley, it would not be visible from many important nearby viewing locations within the immediate vicinity (considered to be within one-mile of

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the project boundary). These locations include parts of the Teanaway Valley (from north to east to south around the project site); U.S. 97 (a state-designated Scenic and Recreational Highway); and the City of Cle Elum.

There are residences within 1 mile of the project site, but due to existing trees and topography (the residences would look uphill at the site) views of the project from most residences within these areas will be very limited. Attachment L includes conceptual illustrations from residential areas looking towards the project that depict how the viewed landscape would likely change. The main change will be that trees within the project site that form part of the forested backdrop of views from some nearby residences and roads will be removed; in some locations (such as from residences on the bench south of the project site) this will change the appearance of the tree-lined backdrop. Some of these residences will have obstructed views (between trees) of some of the panels and possibly other project components. Impacts to the viewed landscape from these locations are considered to range from minor to low.

In addition to the "immediate vicinity," the project site is also visible from some residences farther than 1 mile away. Among the closest residences beyond 1 mile away are those found southeast of the site on the northwest-facing slopes of Lookout Mountain. Several residences are located between 1 and 2 miles from the project site at elevations that are higher than, or similar to, the project site. Views from these locations look down upon or are even with parts of the project site. However, based on several site visits and discussions with one resident in the area (personal communication between M. Greenig [CH2M HILL] and Tom Lambert, property owner, July 26, 2009), many, if not most, of the residences on the northwest-facing slopes of Lookout Mountain that have views toward the project site have their views obscured, or at least partially screened, by trees.

Conceptual illustrations in Attachment L from two areas on the slopes of Lookout Mountain depict how the viewed landscape will likely change with the project. The project will alter the viewed landscape in that dark solar modules will be visible in areas that now have the appearance having been selectively harvested for timber. Most of the remaining or replanted trees at the project site that are visible from these two locations will be removed for the project and replaced with a series of parallel solar module rows. New trees will be planted at visually strategic locations around the perimeter of the site to screen views or help "soften" views of the project. Although views of Mt. Stewart and other peaks that are visible from these two locations will not be blocked or obscured by the project, the presence of the project will alter the appearance of the viewed landscape. The viewed landscape seen from the pasture above the residence used to depict impacts in Attachment L will change enough to be considered a moderately negative impact. The appearance of the landscape seen from Ridgewater Drive will change enough to be considered a negative impact, but not enough to be considered a moderate impact the drivers who briefly see it. The negative impact of the project on drivers traveling on Ridgeway Drive is considered to be low.

The site is also potentially visible within the 1- to 2-mile distance zone from part of the Teanaway Valley north of the project site. From some locations, people looking south toward the project site may notice changes in the tree line along the ridge near the north end of the project, although most trees north of the project site will remain in place. If necessary, trees can be planted along selected parts of the north edge of the project area to reestablish the forested ridgeline as well as screen potential views of the site from the part of the valley

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from which is potentially visible. Impacts to the viewed landscape from the projects to this part of the Teanaway Valley are considered to range from negligible to low.

The project site is also potentially visible from areas beyond 2 miles away. It will be seen from some residential areas on hillsides south of I-90. The distance between these areas and the closest part of the project site varies from approximately 3.5 to 7 miles. Conceptual depictions of how the project will change existing views toward the project site from two locations in the 3.5- to 4-mile range areas are provided in Attachment L. These conceptual illustrations show that parts of the project will be visible as low-lying darker areas on the slopes of the ridge the project will be sited on, but that the project would not block or obscure views of the mountains behind it. Impacts to the viewed landscape from areas south of I-90 from which the project site could be seen are considered to range from minor to low.

The closest part of I-90 (a National Scenic Byway) to the project site is approximately 3 miles away. Because the part of I-90 from which the project will be visible is laid out in a generally southeast-to-northwest direction, drivers likely will not notice the project in their peripheral vision as they drive I-90 with their attention on the freeway ahead of them. Passengers looking at the landscape may notice the project site as a darker area on the ridgeline for brief periods of time as they traverse I-90. However, because of the project site's distance from I-90 and the gentle slope of the terrain on which much of it will be located, the project will not block or obscure views of mountains to the north. It will cause little alteration to landscape viewed from these areas, and its impact when viewed from those segments of I-90 from which will be visible will range from minor to low.

The project site will be most visible in terms of contrasting with its adjoining landscape during the construction phase of the project. The site's color contrast will be greatest after site clearing and before the solar modules have been installed. This will occur because the color of the disturbed earth will contrast with nearby vegetation. After the dark solar modules have been installed and the vegetation underneath them has become established, the visibility of the project site, particularly from areas south of I-90 will greatly decrease.

c. *Proposed measures to reduce or control aesthetic impacts:*

The tallest and potentially most visible project components (the transmission structures) will be treated at the factory to create a dulled finish that will reduce light reflection from the structures. In addition, nonspecular (nonreflecting) material will be used for the conductors. Nonspecular conductors and insulators made of materials that do not reflect light will also be used for the proposed substation. As with the transmission structures, the metal frames for the solar modules will be treated at the factory to create a dull finish that will reduce reflection. The solar modules themselves require no measures to reduce or control light or glare impacts. Lighting specified for the substation and inverters will be the minimum required to meet safety and security standards. Light fixtures will be hooded to eliminate any potential for glare effects and to prevent light from spilling off the site or up into the sky. In addition, the fixtures will have sensors and switches to permit the lighting to be turned off at times when it is not required. The finish of the inverters will be dull so as not to reflect glare.

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These measures will limit the reflectivity of the project components and greatly reduce or eliminate the potential for the proposed project to be a source of daytime glare or create nighttime lighting impacts.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional adverse aesthetic impacts are anticipated as a result of project decommissioning and site restoration. For several years after decommissioning, site disturbance would likely be visible upon close examination; however, replanting and restoration efforts will take place as part of the decommissioning efforts and the natural vegetation will be restored to pre-construction conditions. Accordingly, no significant unavoidable adverse impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

The proposed solar modules are monochromatic with a dull finish, which minimizes the production of glare. Additionally, the photovoltaic modules proposed are designed (and have antireflective coatings) to absorb and capture sunlight rather than reflect it. Design features such as textured glass further reduce reflectivity. Other project components such as the substation, transmission line, and inverter buildings could potentially create glare, but the measures described in item *(d)* below explain how that potential has been addressed. Lights associated with the substation and inverter buildings will potentially be seen from some areas for irregular periods of time. Item *(d)* below explains how that potential has been addressed. During construction, onsite and offsite staging areas will have temporary lights that will be used at times. Because most of the project will occur during daylight hours, use

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of the lights will be limited. During the construction period, construction lights might be noticed by observers from various vantage points, but would like not be noticed by nearby residences south of the project site due to topography and screening by trees.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

No. See previous item *(a)*.

c. What existing off-site sources of light or glare may affect your proposal?

None. There are very few residences and buildings near the project site and none within the site. Some lighting from residences may be seen below the project site, and some light or glare from vehicles traveling on roads near the project site (but rarely through the project site due to locked gates blocking public access) may be seen from some viewing areas. These offsite sources of light or glare will not affect the proposed project.

d. Proposed measures to reduce or control light and glare impacts:

The tallest and potentially most visible project components (the three transmission structures) will be galvanized and treated at the factory to create a dulled and darkened finish that will reduce light reflection from the structures. In addition, nonspecular (nonreflecting) material will be used for the conductors. Nonspecular conductors and insulators made of materials that do not reflect light will also be used for the proposed substation. As with the transmission structures, the metal frames for the solar modules will be galvanized and treated at the factory to create a dull finish that will reduce reflection. The solar modules themselves require no measures to reduce or control light or glare impacts. Lighting specified for the substation and inverted buildings will be the minimum required to meet safety and security standards. All light fixtures will be hooded to eliminate any potential for glare effects and to prevent light from spilling off the site or up into the sky. In addition, the fixtures will have sensors and switches to permit the lighting to be turned off at times when it is not required. The finish of the inverter buildings' walls and roofs will be dull so as not to reflect glare.

These measures will limit the reflectivity of the project components and greatly reduce or eliminate the potential for the proposed project to be a source of daytime glare or create nighttime lighting impacts.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

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Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional adverse impacts due to light and glare are anticipated as a result of project decommissioning and site restoration. Since all above ground facilities will be removed entirely there will be no possibilities for glare. The restored area will not contain any lighting. Accordingly, no significant unavoidable adverse impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

The proposed project site and immediate vicinity do not contain any designated or informal recreational opportunities. The proposed project site traditionally has been used as commercial forest, and public access has been prohibited.

Although some hunting or hiking occurs on private land near the proposed project site, there are no designated parks, wildlife refuges, or recreational areas in the immediate vicinity, according to data provided by *National Atlas of the United States* (U.S. Department of the Interior, 2007). The proposed project is not visible from the Indian John Hill rest stop and may be minimally visible from the summit. Three lakes occur approximately 2 miles from the proposed project area (Table 6). No impacts to the lakes are anticipated.

TABLE 6
Potential Locations for Recreational Opportunities Near the Proposed Project Area

Name	Distance to Proposed project Area
Big Lake	1.95 miles
Cabin Lake	2.16 miles
Little Lake	2.42 miles

Source: U.S. Department of the Interior, 2007.

The majority of the land near the proposed project area is privately owned. Bird watching and hunting are the only types of recreational opportunity to exist on these private lands. There are no known planned future recreational sites or opportunities in or near the proposed project area.

b. Would the project displace any existing recreational uses? If so, please describe.

The project may minimally affect the existing hunting uses. Public access of the primary access point is already restricted by the subject landowners and will continue to be restricted in accordance with easement agreements. TSR does not have the authority to grant

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permission to third party recreationists, including hunters and campers, to access the proposed project area, but may grant permission to such parties on a case-by-case basis provided such parties secure written permission from all of the applicable landowners along Loping Lane.

Public recreation, such as orienteering, has been allowed on the site by the landowner on a case-by-case basis. TSR is willing to work with local landowners who have used the property for recreation in the past. The proposed project will be built on private land, which will be leased to TSR.

Historically, the landowner has allowed responsible uses of the land by anyone lawfully accessing the site; however, the use of motorized vehicles has been prohibited on the property. In addition, the road to the proposed project site traditionally has been gated to prevent access. TSR does not intend to change these policies. Responsible access through the proposed project site will be allowed subject to conflicting requirements beyond TSR's control (such as insurance or fire protection), provided that individuals do not interfere with the construction, operation, or maintenance of the project. Gating will continue to regulate motorized vehicles, but a fence restricting access is not proposed.

c. *Proposed measures to reduce or control impacts on recreation, including recreational opportunities to be provided by the project or applicant, if any:*

Because no significant impacts on important recreational opportunities will occur, TSR does not propose any measures to avoid, reduce, or otherwise mitigate project impacts. TSR will reduce potential impacts on unimportant recreational opportunities through measures already in use to reduce other project impacts. These measures may include the use of existing roads. Also, because there will be no significant impacts on important recreational resources, no monitoring program is proposed.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project

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site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional adverse impacts to recreation are anticipated as a result of project decommissioning and site restoration since the proposed project site and immediate vicinity do not contain any designated or formal recreational opportunities. The proposed project site traditionally has been used as commercial forest, and public access has been prohibited. Historic recreations uses of the site will be permitted to the maximum extent practicable. Accordingly, no significant unavoidable adverse environmental impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

Historic and Cultural Resources

a. *Are there any places or objects on or near the site which are listed or proposed for national, state, or local preservation registers? If so, please describe.*

No places, objects, or sites located in the project area are listed or proposed for listing in the national, state, or local preservation registers. See Attachment C, *Cultural Resources Report* (restricted distribution), for a more complete analysis and field methodology. State law exempts cultural records from public disclosure pursuant to RCW 42.56.300. A copy of the *Cultural Resources Report* was sent to the Yakama Nation and the Washington State Department of Archaeology & Historic Preservation on September 1, 2009 for review. To date, no comments from the Yakama Nation have been received.

b. *Please describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.*

The project site is located on privately owned industrial forestlands. No landmarks or other evidence of historic, archaeological, scientific, or cultural importance are known to be on or adjacent to the site.

c. *Proposed measures to reduce or control impacts, if any:*

Archaeological surveys did not identify any cultural sites in the project area. Should previously unidentified sites be discovered during the course of construction, TSR will halt work in that area until a qualified archaeologist can assess the site and determine whether protective measures should be implemented. See Attachment C, *Cultural Resources Report* (restricted distribution), for a more detailed description of measures to reduce or control impacts.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet

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below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional adverse impacts historical and cultural resources are anticipated as a result of project decommissioning and site restoration. As summarized in the above section and the Cultural Resources Report (see Attachment C-*restricted distribution*) no places, objects, or sites located in the project area are listed or proposed for listing in the national, state, or local preservation registers. Decommissioning efforts will not take place outside of previously surveyed areas. Accordingly, no significant unavoidable adverse impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

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Transportation

a. Identify the public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

Figure 3, *Site Access Map*, shows the local streets and major state highways serving the proposed project. The construction contractor will access the project site primarily from I-90 eastbound to State Route (SR) 970 northbound to Red Bridge Road, which is a local County roadway. From Red Bridge Road, project traffic likely will take Wiehl Road northbound for approximately 0.2 mile to Loping Lane, where traffic will turn left and continue westbound on Loping Lane to the project site, as shown in Attachment J, Figure 3. Loping Lane is a private roadway and Wiehl Road is a public roadway, but neither road is maintained by Kittitas County.

From the main proposed project access off Loping Lane, proposed project traffic may use private and County roads to access the project site. Use of these roads will depend on weather conditions and on load and size restrictions. Most of these other access routes are privately owned. Table 7 describes the roads that will directly access the project corridor or provide a critical regional transportation link to the project corridor.

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TABLE 7
Key Roads Providing Access to the Proposed Project Area

Facility	Description
I-90	Interstate 90 within the vicinity of the proposed project is classified as a rural interstate roadway with rolling terrain, according to the Washington State Department of Transportation (WSDOT) road classification system. This roadway has two lanes in each direction, and has a posted speed limit of 70 miles per hour (mph) outside city limits. Interstate 90 is anticipated to be the major haul route from Seattle, Washington.
US 970	US 970 begins in Cle Elum, Washington, where the speed limit is posted at 55 mph inside city limits. It continues eastbound and then northbound as a two-lane road with a posted speed limit of 60 mph. This facility is classified as a rural principal arterial with level terrain, according to the WSDOT road classification system. This rural principal arterial would provide the main access between the interstate and local County roadways serving the proposed project area.
Red Bridge Road	Red Bridge Road (also known as Masterson Road) is a paved two-lane road with a posted speed limit of 25 mph. It is classified as a rural local access road by Kittitas County. This roadway, south of the intersection with Wiehl Road, will serve as the main connection between the state highway facility and private access roads. Construction-related traffic, especially truck traffic, will not be permitted to access the site by using Red Bridge Road north of the intersection with Wiehl Road.
Wiehl Road	Wiehl Road is an unpaved, two-lane, privately maintained road without a posted speed limit. It is within a public right-of-way but is not maintained by Kittitas County. This rural privately maintained roadway likely experiences very little daily traffic, and likely will be able to provide access to the project site without affecting existing traffic operations.
Loping Lane	Loping Lane is an unpaved, two-lane private road without a posted speed limit. It is a private roadway, and is not maintained by Kittitas County. This rural private roadway likely experiences very little daily traffic, and likely will be able to provide access to the project site without affecting existing traffic operations.

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To evaluate the possible impacts resulting from construction traffic associated with the proposed powerline route to the grid, the analysts obtained traffic volumes for state highways that are part of the expected construction transportation routes. The study team consulted the WSDOT and Kittitas County for traffic volumes and roadway characteristics.

Table 8 shows the average daily traffic (ADT) volumes between 2005 and 2008, the roadway functional classifications, the jurisdiction, and estimated truck percentages on state-maintained roadways in the project area. These volumes are based on available traffic data in *Annual Traffic Report,* published by WSDOT in 2008; the report provides annual traffic volumes for at least the last 4 years.

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TABLE 8
Average Daily Traffic (ADT) Volumes, Roadway Functional Classification, and Estimated Percentage of Trucks

Roadway	State/ Jurisdiction	Functional Classification	2005 ADT	2006 ADT	2007 ADT	2008 ADT	Estimated Truck %
I-90 (MP 82.70)[a]	Washington State Dept of Transportation	Rural Interstate	27,000	27,000	28,000	27,000	23
I-90 (MP 84.61)[a]	Washington State Dept of Transportation	Rural Interstate	24,000	25,000	27,000	25,000	N/A

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TABLE 8
Average Daily Traffic (ADT) Volumes, Roadway Functional Classification, and Estimated Percentage of Trucks

Roadway	State/ Jurisdiction	Functional Classification	2005 ADT	2006 ADT	2007 ADT	2008 ADT	Estimated Truck %
SR 970 (MP 2.69 west of SR 10)	Washington State Dept of Transportation	Rural Principal Arterial	5,600	5,800	5,800	5,400	N/A
SR 970 (MP 2.69 east of SR 10)	Washington State Dept of Transportation	Rural Principal Arterial	4,700	4,900	4,800	4,500	N/A
Red Bridge Road [b]	Kittitas County	Rural Local Access	260	230	250	200	N/A
Wiehl Road	Private	N/A	N/A	N/A	N/A	N/A	N/A
Loping Lane	Private	N/A	N/A	N/A	N/A	N/A	N/A

[a] WSDOT, 2008.
[b] Wollman, 2009.
N/A = Information not available.

Traffic data along Red Bridge Road were provided by Kittitas County. No traffic data are available for Wiehl Road or Loping Lane because they are privately owned, and they are not monitored or maintained by the County.

The project will be served internally by a network of existing and new maintenance roads. The existing maintenance roads, along with Wiehl Road and Loping Lane, generally consist of gravel and dirt and will be improved pursuant to County requirements.

Loping Lane is subject to several road use and cost-sharing agreements, and TSR will be subject to those agreements. Additionally, TSR is responsible for any improvements to these roads, and will first submit a plan detailing any such improvement for review and approval by the Kittitas County Public Works Department. These roads typically do not have posted speed limits, and ADT volumes are likely not available for these locations.

Transport of major equipment and materials to the site for construction likely will span 7to 9 months for each of the two or three construction seasons. Truck deliveries are anticipated to occur between 7 a.m. and 7 p.m. on weekdays. The average daily truck volume will be approximately 100 trips per day (50 trucks with one inbound trip and one outbound trip). No more than 50 vehicles are expected to either enter or leave the site during the peak hour of construction.

Assuming construction is completed over a period of two years, the daily truck volume will be approximately 34 trips per day (17 trucks with one inbound trip and one outbound trip).

Construction worker traffic is also expected during the construction seasons. The expected peak workforce could include up to 450 construction workers during the peak months of construction each year. Assuming 30 percent of construction workers carpool to the site each day and 70 percent are bused in via project-provided transportation, approximately 75 worker vehicles (or 150 worker trips) can be expected to enter the project site in the morning and leave the site during the evening peak hour. During construction with an average workforce, worker trips would be approximately half that during the peak.

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Deleted: 15 vehicles, with no more than 10 vehicles (5 light-duty trucks and 5 heavy-duty trucks) expected to either enter or leave the site during the peak hour of construction.

Note: Quantities for water are still being determined and are not included in the above estimate.

There is one permanent load restriction on I-90 between Seattle and the project site. This restriction prohibits loads taller than 16 feet 2 inches high from entering the snow shed near Hyak (MP 54-62 on westbound I-90). This restriction is not anticipated to affect truck- and construction-related traffic because any project-related trucks will be empty (no loads) heading westbound. Construction vehicles are expected to be of legal size and legal weight for Washington highways; therefore, no special permitting for transport of materials and equipment will be necessary.

There are no permanent restrictions on SR 970 in the vicinity of the project site.

b. Is the site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

The project site is not currently served by public transit.

The nearest public transportation system is in Ellensburg, Washington. Central Transit is a general public transportation system that operates a fixed route serving mainly Central Washington University. It includes bus stops, operates on a schedule, and does not require advance reservations. It is operated by HopeSource. (Source: *Kittitas County Long Range Transportation Plan, 2008*)

c. How many parking spaces would the completed project have?

TSR anticipates 20 permanent parking stalls with the completion of this project. These parking stalls will be reserved for vehicles related to project maintenance.

d. Will the proposal require new roads or streets, or improvements to existing roads or streets, not including driveways? If so, please describe and indicate whether they are public or private.

TSR and the construction contractor will use existing roads as much as possible. Because project-generated and local traffic volumes are fairly low, TSR does not anticipate requiring any improvements to existing paved roads or streets accessing the project.

TSR and the construction contractor will also use unimproved, unpaved, private roadways to access the project site. Based on current conditions, these roadways will need improvements (such as paving, gravel surfacing, and/or widening) to transport large or heavy equipment and materials to the site during construction.

Wiehl Road and Loping Lane are privately maintained roadways that could be improved with pavement. The paved area would likely be at least 24 feet wide to allow vehicles in both directions to pass safely at the same time, per the Kittitas County Road Standards for rural, low-volume, low-speed roads. Culverts or drainage ditches could be constructed along the roadway to drain any potential runoff into a detention pond or catchment area, where it would be slowly released back into the ground. The design of these culverts or catchment areas would be developed during the engineering stage of the project and would follow requirements as specified in the Washington State Ecology Manual for Eastern Washington.

Deleted: Construction worker traffic is also expected during the three construction seasons. The expected workforce could include 500 450 construction workers and 50 other personnel during the peak 5 months of construction each year. Assuming that half of the construction workers carpool to the site each day, approximately 300 225 worker trips can be expected to enter the projectProject site in the morning and leave the site during the evening peak hour

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An alternative to paving is using layers of crushed stone or gravel to level and stabilize the roadway. The gravel layer would likely need to be between 8 and 21 inches deep, depending on the topography of the existing road. The size of the gravel and the density of the layers would need to be determined during the engineering stage of the project. Although gravel roads would allow some drainage to occur from the roadway surface, drainage ditches or culverts would likely still be necessary to prevent water from collecting on the shoulders.

Whether paving or graveling, roadway widening may be necessary to improve access roads. Widening of these roads may require clearing or grading of the earth slopes on either side of the travel path, which may affect erosion. In order to prevent erosion, retaining walls could be implemented to stabilize the adjacent slope and channel runoff away from the roadway to a catchment or detention pond area.

In addition, as previously discussed, TSR will coordinate any improvements to these roads with the Kittitas County Public Works Department to ensure compliance with County requirements. The County road standards suggest asphalt concrete pavement for roads with grades exceeding 10 percent. Because Wiehl Road (between Red Bridge and Loping Lane) is fairly steep, paving would likely be recommended. Loping Lane would need to be surveyed prior to any improvements.

The number of new access roads will be kept to a minimum to avoid disrupting existing land use.

e. *Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, please describe.*

TSR does not anticipate that the proposed project will use rail, water, or air transportation.

f. *How many vehicular trips per day would be generated by the completed project? Indicate when peak traffic volumes would occur.*

Once the project has been completed, there will be virtually no traffic (less than five trips per day) for operations and maintenance. Given the low traffic volumes within the project area, these minor added trips will not cause traffic impacts during project operations.

Traffic impacts during decommissioning are expected to be similar to those described for construction. If some of the access roads constructed or improved as part of the project remain in place, there would be fewer trips associated with workforce, materials, and equipment during decommissioning, and there would likely be fewer traffic impacts than expected during construction. Truck trips are anticipated to occur between 7 a.m. and 7 p.m. on weekdays. Workforce trips during decommissioning are expected to increase compared to workforce trips during project operation, but no significant unavoidable adverse impacts from decommissioning or restoration of the proposed Project are expected.

Mitigation at the time of decommissioning would be implemented and would likely be similar to that recommended for construction.

g. *Proposed measures to reduce or control transportation impacts, if any:*

Because project transportation impacts are limited, TSR will not pursue specific permanent measures to reduce traffic impacts on local residents during the construction process.

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In general, temporary measures could be taken to manage changes in traffic patterns:

- Provide proper advance road signage and warnings of "Equipment on Road," "Truck Access," or "Road Crossings."
- Encourage carpooling for the construction workforce to reduce traffic volume.
- Employ flagpersons as necessary to direct traffic if equipment is exiting or entering public roads to minimize risk of accidents.

Advance warning signage could be placed along the access route to alert motorists to delivery vehicles entering or exiting SR 970 or Red Bridge Road. Flagpersons may also be used to facilitate these turning vehicles, or to monitor traffic so that motorists are not in conflict with construction vehicles.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, traffic impacts during decommissioning are expected to be similar to those described for construction. If some of the access roads constructed or improved as part of the project remain in place, there would be fewer trips associated with workforce, materials, and equipment during decommissioning, and there would likely be fewer traffic impacts than expected during construction. Truck trips are anticipated to occur between 7 a.m. and 7 p.m. on weekdays. Workforce trips during decommissioning are expected to increase compared to workforce trips during project operation, but no significant unavoidable adverse impacts from decommissioning or restoration of the proposed project are expected.

Mitigation at the time of decommissioning would be implemented and would likely be similar to that recommended for construction. Please see the project Description for more information about decommissioning and restoration.

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Public Services

a. Would the project result in an increased need for public services (e.g., fire protection, police protection, health care, schools, other)? If so, please describe.

The proposed project area is currently subject to the fire-suppression protection services of WDNR. TSR is currently negotiating a fire protection agreement with Kittitas County Fire District #7 (see Attachment M) to ensure that suitable fire suppression protection services are in place during the construction and ongoing operations of the project.

TSR will create and maintain a firebreak of no less than 100 feet between all outer edges of the project site and adjacent property lines. Trees located in this firebreak will be limbed up to 12 feet. Small shrubs and herbs less than three feet in height will be left in place where possible to reduce the potential stormwater runoff.

Police protection of the proposed project area is provided by the County Sheriff's Office. The construction contractor will notify the fire protection and police services of staging and active construction locations so these services can respond efficiently to emergencies, should any arise. During the operational phase, TSR will contact fire protection and police services in the event of an emergency.

TSR does not anticipate that health care and school needs will increase during construction or operation of the proposed project.

b. Proposed measures to reduce or control direct impacts on public services, if any.

TSR does not propose any measures to reduce or control direct impacts on public services.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no additional need for public services are anticipated as a

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result of project decommissioning and site restoration. It is unlikely that emergency services will be necessary during the decommissioning and restoration effort; however, the Kittitas County Planning Department, the County Sherriff's Office, and Kittitas County Fire District 7 will be notified prior to the engaging in decommissioning. The Applicant does not anticipate that health care and school needs will increase during the decommissioning of the proposed project. Accordingly, no significant unavoidable adverse impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

Utilities

a. *Circle the utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.*

The proposed project will include electricity, telephone, and data service for the O&M facility.

b. *Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.*

TSR does not anticipate any utility use during construction. The construction contractor will provide mobile utilities such as portable toilets, cellular telephones, and water trucks. During operation, electricity generated from the solar arrays will be utilized for the O&M building.

Telephone and data lines will be installed during construction for operational uses at the O&M building. These lines will be used for general telephone, internet, and SCADA information reporting TSR will use a local service provider if possible for telephone and data lines. If no local service provider exists, TSR will contract with Quest Communications International, Inc.

TSR will remove refuse from the proposed project site.

Decommissioning

In the event TSR decides to terminate operation of the project, the project will be decommissioned and the site will be restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and are summarized below.

Subject to a County-approved decommissioning plan, decommissioning the project shall involve removal of the project's components, including the solar panels, panel trackers, anchors, supports and mounts, inverter buildings, electrical conductors, substation, and O&M building, and any foundations or permanently fixed anchors to a depth of 3 feet below grade; the re-grading of any areas significantly impacted by the removal of any components; and removal of project maintenance roads and overhead cables (except for any roads, buildings, and/or power cables that project Area landowners wish to retain) (all of which shall comprise "decommissioning").

Following decommissioning, the project site shall be restored in accordance with a County-approved plan. The project restoration procedures will be based on site-specific

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The useful life of the project is assumed to be 20 to 30 years, although new technology could extend this estimation at some time in the future (such as advancement in solar module technology). At the time the TSR decides to terminate operation of the project, however, the project would be decommissioned and the project site restored. TSR's decommissioning and restoration obligations are set forth in the CUP, Attachment E, and summarized below.¶
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requirements and forest management techniques commonly employed at the time the area is to be reclaimed, and will include regrading, adding topsoil, and replanting of all disturbed areas with an approved seed mixture (all of which shall comprise "restoration"). Decommissioned roads will be reclaimed or left in place. In sum, restoration of the project site shall be to a reasonable approximation of its original condition prior to construction allowing for any permanent improvements chosen by the underlying landowners to be left on site. Accordingly, there will be no need for any utilities are anticipated as a result of project decommissioning and site restoration. Accordingly, no significant unavoidable adverse impacts from construction, operation, decommissioning, or restoration of the proposed project are expected. Please see the project Description for more information about decommissioning and restoration.

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Literature Cited

Agee, James, and Clinton Wright. 1997. "Disturbance History of the Teanaway Ecosystem Demonstration project." Final Report to Boise Cascade. College of Forest Resources, Box 352100, University of Washington, Seattle, Washington 98195. Spring.

Aspen Environmental Group. 2009. Transmission Line Noise Factsheet. http://www.aspeneg.com/services/PowGen/home.shtml. Accessed 2/4/10.

Chappell, C.B., R.C. Crawford, C. Barrett, J. Kagan, D.H. Johnson, M. O'Mealy, G.A. Green, H.L. Ferguson, W.D. Edge, E.L. Greda, and T.A. O'Neill. 2001. "Wildlife Habitats: Descriptions, Status, Trends, and System Dynamics." Pages 22-114 in D.H. Johnson and T.A. O'Neil, managing directors. Wildlife-Habitat Relationships in Oregon and Washington. Oregon State University Press, Corvallis.

Cle Elum Roslyn Chamber of Commerce. 2009. Inns & Lodges. http://www.cleelumroslyn.org/directory/category.php?cat=277$Inns+%26+Lodges. Accessed July 2009.

Cooley, H.S., R.B.Wielgus, G. Koehler, and B. Maletzke. 2009a. "Source Populations in Carnivore Management: Cougar Demography and Emigration in a Lightly Hunted Population." The Zoological Society of London. *Animal Conservation* 12: 321–328.

Cooley, H.S., R.B. Wielgus, G. Koehler, H.S. Robinson, and B.T. Maletzke. 2009b. "Does Hunting Regulate Cougar Populations? A Test of the Compensatory Mortality Hypothesis." *Ecology 2009*-in Press. Department of Natural Resource Sciences, Washington State University, Pullman, Washington.

Electric Power Research Institute. 2008. EPRI Transmission Line Reference Book: 115–345-kV Compact Line Design (1013787).

Environmental Laboratory. 1987. *Corps of Engineers Wetland Delineation Manual*

Dinges, Monika. 2010. Personal Communications with local hotel employees.

Governor Gregoire. Speech to the Seattle Chamber of Commerce. October 22, 2009. http://www.tvw.org/media/mediaplayer.cfm?evid=2009100047C&TYPE=V&CFID=1701129&CFTOKEN=11324713&bhcp=1

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Natural Resources Conservation Service (NRCS), United States Department of Agriculture. 2009. Official Soil Series Descriptions [Online WWW]. Available URL: http://soils.usda.gov/technical/classification/osd/index.html. Accessed August 10, 2009. USDA-NRCS, Lincoln, Nebraska.

Puget Sound Energy. 2007. Regulations Governing Tree Trimming Near High-voltage Power Lines.

Puget Sound Energy. 2008. Tree Removal: New Requirements. January.

Sharp Electronics Corporation. 2009. Product Specification Sheet Model ND-216U1F. Available at: http://solar.sharpusa.com/files/sol_dow_ND216UC1.pdf. Last accessed June 2009.

U.S. Army Corps of Engineers (USACE). 2006. *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*.

U.S. Army Corps of Engineers (USACE). 2008. *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valley and Coast*.

U.S. Census Bureau. 2009. *American Community Survey, American Fact Finder*. http://factfinder.census.gov/home/saff/main.html?_lang=en.

U.S. Department of Energy (DOE) and Bonneville Power Administration (BPA). 1995. *Business Plan Final Environmental Impact Statement (BPEIS)*. DOE/EIS-0183. June.

U.S. Department of the Interior. 2007. *National Atlas of the United States*.

Washington State Department of Transportation (WSDOT). 2008. *Annual Traffic Report*.

Wollman, Christina, Kittitas County. 2009. Personal communication with CH2M HILL. June 2009.

Wright, Clinton Stewart. 1996. "Fire History of the Teanaway River Drainage, Washington." Masters Thesis, University of Washington, College of Forest Resources

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Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

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Date Submitted: _____

ATTACHMENT A

Sensitive Species Report

ATTACHMENT B

Wetland Delineation Report

ATTACHMENT C

Cultural Resources Report (*privileged and confidential*: *restricted distribution*)

ATTACHMENT D

Geology and Soil Hazards Evaluation

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ATTACHMENT E

Fugitive Dust Control Plan

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ATTACHMENT F

Hydrologic Analysis

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ATTACHMENT G

Vegetation Management Plan

ATTACHMENT H

Wildlife Mitigation Plan

ATTACHMENT I

Transportation Road Plan

ATTACHMENT J

Figures Referenced in the Text

ATTACHMENT K

Photographs of Solar Equipment

ATTACHMENT L

Potential Visual Impact Assessment

ATTACHMENT M

Fire Protection Agreement (pending approval)

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ATTACHMENT N

Economic Impact Analysis

ATTACHMENT O

Public Outreach

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Report

Sensitive Species Surveys for the Teanaway Solar Reserve Kittitas County, Washington

Prepared for

Teanaway Solar Reserve, LLC

February 2010

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Prepared by

CH2MHILL

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Contents

Appendices

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Section **Page**

Tables

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Figures (*Provided in Appendix A*)

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1.0 Introduction

CH2M HILL conducted rare plant and wildlife surveys in June and July 2009 for the proposed Teanaway Solar Reserve (TSR) project. The proposed project is located on private land in an unincorporated area of Kittitas County, Washington. The purpose of the surveys was to identify potential populations of special status species and to determine whether proposed project activities will affect these populations.

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This report provides a brief overview of the project, describes the methodology followed to conduct the surveys, presents survey results and conclusions, and offers recommendations for the future, including proposed measures for avoiding or minimizing impacts.

2.0 Project Description

2.1 Site Location

The proposed project site is located approximately 4 miles northeast of Cle Elum, Washington, in Township 20N, Range 16E, within Sections 22, 23, and 27 (see Figure 1 in Appendix A for map of site location). The site is located on the eastern slopes of the Cascade Mountains on Cle Elum Ridge, which runs generally from east to west at elevations ranging from approximately 2,200 to 2,600 feet. The Teanaway River is approximately 1 mile to the northeast of Cle Elum Ridge. The site is accessed from Highway 970 by way of County roads such as Red Bridge Road, private roads such as Loping Lane, and Wiehl Road, which is a dedicated public road that is maintained privately and not by the County.

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The proposed project area consists of 982 acres. Based on site surveys, the project will utilize approximately 477 acres within the proposed project area. The remaining acres are currently undeveloped open space, but may accommodate some future expansion of the project after appropriate surveys are conducted to address any environmental concerns and compliance with any underlying federal, state, or local permitting requirements.

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2.2 Purpose and Need

The purpose of the proposed project is to generate up to 75 direct current megawatts (MWdc) of photovoltaic (PV) solar energy for distribution to utilities and communities seeking to optimize their renewable and sustainable energy sources. The project was conceived by Teanaway Solar Reserve, LLC in response to the growing need for sustainable energy sources and the State of Washington's Renewable Electricity Standard, Revised Code of Washington (RCW) Title 19, mandate that by the year 2020, the state's largest electric utilities meet 15 percent of their retail electric load with renewable electricity (for example, wind and solar energy). The standard first takes effect in 2012 with a requirement of 3 percent through 2015, then 9 percent from 2016 through 2019 and 15 percent thereafter.

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2.3 Key Components

The proposed project will consist of the following key components:

- Solar modules
- Field inverters

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- Field transformers
- Electrical conductors
- Electrical substation and switchyard
- Operations and maintenance (O&M) building and supervisory control and data acquisition (SCADA) system
- Overhead interconnection transmission line
- Access and maintenance roads

Key components are summarized below.

2.3.1 Solar Modules

Solar modules in a metal frame on supporting mounting structures will be used. The solar modules are manufactured offsite and will be delivered to the site by truck in wooden crates or cardboard boxes. The solar modules are mounted in a fashion that orients the modules toward the sun.

2.3.2 Field Inverters

Up to 80 power inverters will be needed for the project. The inverters can be placed outdoors or they can be placed in enclosures.

2.3.3 Field Transformers

Up to 80 power transformers will be required for the solar field arrays. The transformers are contained within prefabricated cabinets and will rest on concrete pads.

2.3.4 Electrical Conductors

Underground 34.5-kV electrical conductors will be installed in trenches along improved maintenance roads onsite at depths of 36 inches or greater. Conductors will be direct-burial or placed in a polyvinyl chloride (PVC) conduit.

2.3.5 Electrical Substation and Switchyard

TSR proposes to construct, in compliance with design and installation requirements from Bonneville Power Administration (BPA), an electrical substation that will interconnect the solar field with the existing 345-kV BPA transmission line. It has yet to be determined if certain elements of the line and substation will be owned and constructed by BPA, but for purpose of environmental review and this permit application, all elements of the line and the substation (up to the point of interconnection with BPA's existing transmission line) are proposed as part of the project.

The substation will be located in the southern part of the project site, to minimize the size of the associated transmission line. The substation will require a level, fenced area of approximately 6 acres. The 6-acre area will be graveled with no vegetation. The substation will contain a small control house, transformer(s), circuit breakers and switches, steel support structures, an A-frame dead-end tower structure, and overhead electrical bus work. The control house will be up to 16 feet high, 60 feet long, and 30 feet wide. The dead-end tower structure will be up to 120 feet high. Transformers and oil-filled equipment will be underlain with appropriate containment structures. The appearance of the substation will be similar to that of many other substations throughout the Pacific Northwest.

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Deleted: <#>Operations and maintenance (O&M) building and supervisory control and data acquisition (SCADA) system¶
Deleted: Power
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Deleted: An example inverter, shown in Attachment K, Photo 94, sits on a concrete pad (10 feet by 8 feet).An example inverter building includes a concrete pad, and prefabricated facilities are available such as the 2-MW enclosed system offered by Xantrex.
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2.3.6 O&M Building and SCADA System

A storage and operations and maintenance (O&M) building will store spare parts (e.g., modules and fuses), testing equipment, and cleaning equipment. The building will be of cinderblock construction or pre-engineered with an overall footprint of approximately 1,000 square feet and will be located within the 6 acre fenced substation area. A supervisory control and data acquisition (SCADA) system will be installed within the substation boundary to collect operating and performance data from the TSR facilities, and provide remote operation of the solar panels

2.3.7 Overhead Interconnection Transmission Line

A new 345-kV transmission line is required to connect the new substation to the existing BPA line. The substation will be located in the southern part of the project site, to minimize the size of the associated transmission line. A new BPA tower is required to replace the existing tower in the BPA easement (as noted in the site plan). The replacement tower would reroute the three existing 345-kV power lines via an existing 200–foot-wide right-of-way (ROW) within the leasehold through the substation and back to the replacement BPA tower.

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2.3.8 Access and Maintenance Roads

The site will be accessed via Kittitas County and private roads that interconnect with Highway 970. The major County access road is Red Bridge Road. Loping Lane is a private road and Wiehl Road is a privately maintained public road; TSR has easement rights over both roads.

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3.0 Sensitive Species Surveys

CH2M HILL biologists conducted surveys of a total of 580 acres, of which 477 acres are included in the proposed project area, for rare plant and wildlife species in June and early July of 2009. Figure 2 (Appendix A) shows the sensitive species survey area within the 982-acre proposed project area.

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A species was considered to be rare if it met one or more of the following listing criteria:

- Federally listed as threatened or endangered (*Endangered Species Act of 1973* [16 U.S.C. 1531-1544, 87 Stat. 884])
- State listed as threatened or endangered (State of Washington *Endangered, Threatened, and Candidate Species Classification* WAC 232-12-297)

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Target species included all plant and wildlife taxa listed by the U.S. Fish and Wildlife Service (USFWS) or the state of Washington as *Endangered* or *Threatened* and potentially occurring in Kittitas County, Washington. A species was determined to have potential to occur in the survey area if its known or expected geographic range includes the survey area or the vicinity of the survey area, and if its known or expected habitat is represented within or adjacent to the survey area.

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3.1 Rare Plant Survey

The purpose of the rare plant survey was to locate all populations of special status plants within the survey area, to precisely record and map their locations using geographic positioning system (GPS) technology with submeter accuracy, and to determine the size and phenology of each rare plant population and its microhabitat characteristics.

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3.1.1 Methods

Office Review. The office review consisted of compiling a list of special-status plant species potentially occurring within the survey area, and reviewing topography and soils maps, recent aerial photography, and information on habitat requirements for any of the potentially occurring species.

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Sources consulted included the following:

- *List of Known Occurrences of Rare Plants in Washington: Kittitas County* (Washington Natural Heritage Information System [WNHIS], February 2009)
- *State of Washington Priority Habitats and Species (PHS) List* (Washington Department of Fish and Wildlife [WDFW], 2008)
- *Federally Listed, Proposed, Candidate Species and Species of Concern Under the Jurisdiction of the Fish and Wildlife Service Which May Occur Within Kittitas County, Washington* (USFWS, July 24, 2008) (provided in Appendix B)
- *Topographic Map of the Teanaway, Washington Quadrangle* (United States Geological Service [USGS], 1985 Provisional Edition)
- *Soil Survey, Kittitas County Area, Washington* (NRCS Soils Survey, 2009)
- *Field Guide to Selected Rare Plants of Washington* (Washington Natural Heritage Program, 2009) (provided in Appendix C)

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Field Investigation. Surveys were floristic in nature and were conducted according to the U.S. Bureau of Land Management Survey Protocols for Survey and Manage Strategy 2 Vascular Plants (Whiteaker et al., 1998).

Two survey methods were used. An Intuitive Controlled Survey was conducted throughout the survey area, and a Complete Survey was conducted in areas of high potential habitat within the survey area. Protocol for these methods is described below.

Intuitive Controlled Survey

An intuitive controlled survey was conducted throughout the survey area. The surveyor traversed the survey area to see a representative cross-section of all the major habitats and topographic features, looking for the target species while en route between different areas. When the surveyor arrived at an area of high potential (defined in the prefield review or encountered during the field visit), a complete survey for the target species was conducted.

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Complete Survey

A complete survey was conducted in areas within the survey area where the most suitable habitat was located. These surveys are defined as a 100 percent visual exam of the survey area.

Lists of all vascular plant taxa encountered within each survey area were recorded in the field. Nearly all plant species found in the survey areas were identified to the level needed to determine whether they qualify as special status plants. Collections were made of specimens that could not be identified readily in the field. Final determinations were made by keying specimens using standard references such as *Vascular Plants of the Pacific Northwest: Parts 1 through 5* (Hitchcock et al., 1955–1969). Plant identification was also aided by current taxonomic guides and other standard references, including the following:

- *Flora of the Pacific Northwest* (Hitchcock and Cronquist, 1973)
- *Manual of Grasses of the United States* (Hitchcock, 1971)
- *Field Guide to Selected Rare Plants of Washington* (Washington Natural Heritage Program, 2008)
- *WTU Image Collection: Plants of Washington, Lichens of Washington* (University of Washington Herbarium, Burke Museum of Natural History and Culture, 2009).

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3.1.2 Results

Office Review. Twelve plant species listed by federal or state agencies as threatened or endangered were identified as potentially occurring in the vicinity of the survey area. Of those species, six were determined to potentially occur within the survey area based on evaluation of habitat requirements, elevation, and records of known occurrence. A complete list of potentially occurring plant species, including habitat requirements and bloom times, is presented in Table 1.

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TABLE 1
Threatened or Endangered Plant Species That May Occur in the Vicinity of the Proposed Project Area

Scientific Name	Common Name	Federal Status*	State Status*	Habitat Preference	Potential to Occur
Plants					
Astragalus arrectus	Palouse milk-vetch	--	LT	Open ponderosa pine/Douglas fir forests in grassy or shrub dominated openings	May occur. Historical in Kittitas County. Several species of *Astragalus* identified during site visit.
Carex macrochaeta	Large-awn sedge	--	LT	Moist or wet, open places, frequently found near the coast, but occurs inland as well. Grows in seepage areas, around waterfalls, in wet meadows, and along streams and lakes.	May occur. Only five known extant populations, but like many sedges, it may be underreported.

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TABLE 1
Threatened or Endangered Plant Species That May Occur in the Vicinity of the Proposed Project Area

Scientific Name	Common Name	Federal Status*	State Status*	Habitat Preference	Potential to Occur
Delphinium viridescens	Wenatchee larkspur	SoC	LT	Seasonally wet openings, moist meadows, moist microsites in open coniferous forests springs, seeps, riparian areas.	May occur. Known range is very small, but southern extent of know range is less than 15 miles north of proposed project area.
Ophioglossum pusillum	Adder's-tongue	--	LT	Wet meadows, grassy swales, moist woods, mud creeks.	May occur. Historical in Kittitas County. Few extant populations left in range, however potential habitat is present.
Sidalcea oregana var. calva	Wenatchee Mountain checker-mallow	LE	LE	Moist meadows that have surface water or are saturated in the upper portions of the soil profile into early summer. Taxon also occurs in open ponderosa pine/Douglas fir forests and along edges of shrub thickets.	May occur. Range covers roughly 30 square miles of habitat S/SE of Leavenworth, Washington.
Spirathes diuvialis	Ute's ladies tresses	LE	LE	Broad low-elevation intermontane valley plains, with deltaic meandered wetland complexes; restricted to calcareous, temporarily inundated wet meadow zones and segments of channels and swales where there is stable subsurface moisture and relatively low vegetation cover. There are four 4 known sites in WA. One is in a periodically flooded alkaline flat (moist meadow) adjacent to a ponderosa pine/Douglas-fir woodlands and sagebrush steppe with big sagebrush, bitterbrush, and rabbitbrush. The other three sites are adjacent to the Columbia River on stabilized gravel bars that are moist throughout the growing season.	Not likely to occur. Occurs between 720 and 1,500 feet elevation. Project area is between 2,100 and 2,800 feet elevation.

* Status Codes:

LE = Listed Endangered (Federal or State)
LT = Listed Threatened (Federal or State)
SoC = Species of Concern (Federal)
FC=Federal Candidate for Listing (Federal)
SC = Washington State Candidate for Listing (State)

Sources: USFWS, 2009; WDFW, 2009; WDNR, 2009.

Field Investigation. CH2M HILL botanists conducted field surveys for rare plant species and potential rare plant habitat on June 16 through 19 and July 9, 2009. This range of survey dates was selected to encompass all or a portion of the blooming times of the special status

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plants potentially occurring within the project area. Approximately 580 acres were evaluated for the potential presence of rare plant species.

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Plant Species Observed

The field survey identified a total of 81 species: 3 trees, 7 shrubs, 12 graminoids, and 56 forbs, and 3 herbaceous species. No special status plant species were found within the survey area. Table 2 presents a complete list of all plant species identified during the course of the field surveys. Appendix D contains photos of typical habitat types that occur in the survey area.

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TABLE 2
Plant Species Observed During Field Surveys

Family	Scientific Name	Common Name	Native	Non-native	Form
Alismataceae					
	Alisma plantago-aquatica	European water plantain		X	forb
Apiaceae					
	Ligusticum grayii	Gray's lovage	X		forb
	Lomatium nudicaule	bare-stem desert parsley	X		forb
	Lomatium triternatum	nine-leaf desert parsley	X		forb
	Oenanthe sarmentosa	Pacific water -parsley	X		forb
Asteraceae					
	Achillea millefolium	wooly yarrow	X		forb
	Anaphalis margaritacea	pearly-everlasting	X		forb
	Arnica sororia	foothills arnica	X		forb
	Balsamorhiza sagittata	arrow-leaf balsamroot	X		forb
	Chondrilla juncea	rush skeletonweed		X	forb
	Chrysanthemum leucanthemum	ox-eye daisy		X	forb
	Cirsium vulgare	bull thistle		X	forb
	Crepis occidentalis	western hawksbeard	X		forb
	Crepis setosa	rough hawksbeard		X	forb
	Eriophyllum lanatum	wooly sunflower	X		forb
	Gnaphalium palustre	marsh cudweed	X		forb
	Hieracium scouleri	wooly-weed	X		forb
	Madia glomerata	mountain tarweed	X		forb
	Madia gracilis	slender tarweed	X		forb
	Madia minima	small-headed tarweed	X		forb
	Senecio sylvaticus	wood groundsel	X		forb

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TABLE 2
Plant Species Observed During Field Surveys

Family	Scientific Name	Common Name	Native	Non-native	Form
	Symphyotrichum spathulatum	western mountain aster	X		forb
	Tragopogon dubius	yellow salsify		X	forb
	Wyethia amplexifolia	narrow-leaf wyethia	X		forb
Berberidaceae					
	Berberis repens	creeping Oregongrape	X		shrub
Boraginaceae					
	Lithospermum ruderale	Columbia puccoon	X		forb
	Myosotis laxa	small-flowered forget-me-not	X		forb
	Plagiobothrys scouleri	Scouler's popcorn-flower	X		forb
Caprifoliaceae					
	Symphoricarpos albus	snowberry	X		shrub
Caryophyllaceae					
	Agrostemma githago	common corncockle		X	forb
	Symphoricarpos oreophilis	mountain snowberry	X		shrub
Convolvulaceae					
	Convolvulus arvensis	field Morning-glory		X	forb
Cyperaceae					
	Carex hoodii	Hood's sedge	X		graminoid
	Carex pachystachya	thick-headed sedge	X		graminoid
	Carex utriculata	inflated sedge	X		graminoid
	Scirpus microcarpus	small-fruited bulrush	X		forb
Fabaceae					
	Cytisus scoparius	Scotch broom		X	shrub
	Lathyrus japonicus	pinewoods peavine	X		forb
	Lupinus polyphyllus	large-leaf lupine	X		forb
	Lupinus sericeus	silky lupine	X		forb
	Vicia americana	American purple vetch	X		forb
Gentianaceae					
	Centaurium erythraea	centaury		X	forb
Juncaceae					

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TABLE 2
Plant Species Observed During Field Surveys

Family	Scientific Name	Common Name	Native	Non-native	Form
	Juncus parryi	Parry's rush	X		graminoid
Lamiaceae					
	Prunella vulgaris	self-heal		X	forb
Liliaceae					
	Camassia quamash	common camas	X		forb
	Veratrum insolitum	Siskiyou false-hellebore	X		forb
	Zigadenus venenosus	death camas	X		forb
Malvaceae					
	Sidalcea oregana var. procera	Oregon checkmallow	X		forb
Pinaceae					
	Pinus ponderosa	ponderosa pine	X		tree
	Pseudotsuga menziesii	Douglas-fir	X		tree
Plantaginaceae					
	Plantago major	common plantain	X		forb
Poaceae					
	Agropyron smithii	western wheatgrass	X		graminoid
	Agropyron spicatum	bluebunch wheatgrass	X		forb
	Agrostis longiligula	Pacific bentgrass	X		graminoid
	Agrostis scabra	rough bentgrass	X		graminoid
	Danthonia spicata	poverty oatgrass	X		graminoid
	Elymus elymoides	squirreltail			graminoid
	Elymus glaucus	blue wild-rye	X		graminoid
	Festuca idahoensis	Idaho fescue	X		graminoid
	Phleum pratense	common timothy		X	graminoid
	Poa bulbosa	bulbous bluegrass		X	graminoid
Polemoniaceae					
	Collomia grandiflora	large flowered collomia	X		forb
	Navarretai breweri	Brewer's navarretia	X		forb
	Navarrretia intertexta	needle-leaf navarretia	X		forb
Polygonaceae					
	Eriogonum umbellatum	sulfur buckwheat	X		forb

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TABLE 2
Plant Species Observed During Field Surveys

Family	Scientific Name	Common Name	Native	Non-native	Form
	Polygonum polygaloides spp.confertiti	close-flowered knotweed	X		forb
	Rumex acetosella	sheep sorrel		X	forb
Ranunculaceae					
	Ranunculus acris	tall ranunculus		X	forb
Rosaceae					
	Fragaria virginiana	wild strawberry	X		forb
	Potentill drummondii	Drummonds cinquefoil	X		forb
	Rosa woodsii	Wood's rose	X		shrub
	Spiraea betulifolia	white spiraea	X		shrub
Rubiaceae					
	Galium boreale	northern bedstraw	X		forb
Salicaceae					
	Populus tremuloides	quaking aspen	X		tree
	Salix scouleriana	Scouler's willow	X		shrub
Scrophulariaceae					
	Castilleja hispida	harsh paintbrush	X		forb
	Castilleja tenuis	hairy Indian paintbrush	X		forb
	Delphinium nuttallianum	upland larkspur	X		forb
	Penstemon procerus	small flowered penstemon			forb
	Verbascum thapsus	wooly mullein	X		forb
Valerianaceae					
	Plectritis macrocera	white plectritis	X		forb

3.2 Wildlife Survey

3.2.1 Methods

Office Review. The office review consisted of compiling a list of special status wildlife species potentially occurring within the proposed survey area. The office review included review of state and federal rare species lists, recent aerial photography, and information on habitat requirements for any of the potentially occurring species.

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Sources consulted included the following:

- *Species of Concern in Washington State* (WDFW, June 2009)
- *State of Washington Priority Habitats and Species (PHS) List* (WDFW, 2008)
- *Federally Listed, Proposed, Candidate Species and Species of Concern Under the Jurisdiction of the Fish and Wildlife Service Which May Occur Within Kittitas County, Washington.* (USFWS, July 24, 2008) (provided in Appendix B).

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Field Investigation. CH2M HILL biologists conducted reconnaissance-level field surveys on June 16 through 19 and July 9, 2009. A reconnaissance-level survey identifies all habitats within the survey area to determine whether there is onsite habitat with the potential to support a listed species. Recommendations are made for further protocol-level surveys for individual species if suitable habitat has been identified. Protocol-level surveys are intensive surveys with specific requirements according to the particular individual wildlife species.

Approximately 580 acres were evaluated for the potential presence of wildlife species.

3.2.2 Results

Office Review. A review of the *Species of Concern in Washington State* and the *State of Washington Priority Habitats and Species (PHS) List* resulted in four wildlife species which have the potential to occur in the vicinity of the proposed survey area. Table 3 summarizes WDFW PHS species, their habitat requirements, and likelihood of occurring in the survey area.

The database includes occurrences of both black-backed woodpecker and mountain quail approximately 1.0 mile from the project boundary. In addition, several occurrences of northern goshawk are documented approximately 1.5 to 1.8 miles from the northern edge of the survey area. The PHS database also includes elk and mule deer habitat regions approximately 0.8 to 1.5 miles from the proposed project area. While neither species is listed, these PHS listed habitats likely provide important winter habitat for elk and mule deer.

TABLE 3
Species Listed in the WDFW PHS Database that May Occur in the Vicinity of the Proposed Project Area

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Scientific Name	Common Name	Federal Status	State Status	Preferred Habitat	Potential to Occur	Notes
Birds						
Picoides arcticus	Black-backed woodpecker	--	SC	Mature coniferous forests that have been burned within 5 years	Unlikely	
Accipiter gentilis	Northern goshawk	SoC	SC	Mature coniferous forests. Often found on moderate slopes at mid to high elevations. Also found along forest edges and occasionally in mixed coniferous/deciduous forests.	May Occur	

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TABLE 3
Species Listed in the WDFW PHS Database That May Occur in the Vicinity of the Proposed Project Area

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Scientific Name	Common Name	Federal Status	State Status	Preferred Habitat	Potential to Occur	Notes
Oreortyx pictus	Mountain quail	--	--	Requires dense thicket cover with accessible openings on slopes on mountains and foothills. Often associated with thickets in burned or cut areas. Require a reliable source of water during the summer.	Unlikely	Species of Local Significance
Mammals						
Cervus Canadensis nelsoni	Elk	--	--	Productive grasslands, meadows, or clear cuts, interspersed with closed-canopy forests. Year round range varies from 2,500 to 10,000 acres, and usually includes distinct summering and wintering grounds.	Documented	

Source: WDFW, 2009.

A review of Appendix B resulted in two wildlife species which have the potential to occur in the vicinity of the survey area. Table 4 summarizes the species, their habitat requirements, and the likelihood of occurrence in the survey area.

TABLE 4
USFWS Listed Threatened or Endangered Wildlife Species That May Occur in the Vicinity of the Proposed Project Area

Scientific Name	Common Name	Federal Status*	State Status*	Habitat Preference	Potential to Occur
Martes pennanti	Fisher	C	LE	Mature, closed-canopy coniferous forests with some deciduous trees present, primarily along riparian corridors.	Unlikely. Rare in Washington State.
Canis lupus	Gray wolf	LE	LE	Dense, unfragmented coniferous forests.	Unlikely. Only one wolf known to occur in Washington State, in southeast Washington.

* Status Codes:

LE = Listed Endangered (Federal or Washington status)
LT = Listed Threatened (Federal or Washington status)
SoC = USFWS Species of Concern
C=Federal Candidate for Listing
SC = Washington State Candidate for Listing

Source: USFWS, 2009.

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Field Investigation. Results indicated a total of five natural habitat types within the survey area. Most of these can be named by using the Chappel et al. (2001) system of vegetation classification. Survey area natural vegetation types are as follows:

- Ponderosa Pine Forest and Woodlands
- Open Water—Lakes, Rivers, and Streams
- Herbaceous Wetlands
- Riparian
- Upland Aspen Forest

These habitat types are illustrated on Figure 3 (Appendix A) and described below. Appendix D contains photos of typical habitat types that occur in the survey area.

Ponderosa Pine Forest and Woodlands

The Ponderosa Pine Forest and Woodland habitat (Appendix D: Photo 1) within the survey area is the most abundant of the five habitat types. The survey area has been actively managed as commercial timberlands for the past 100 years. The area was last logged in 2001-2002, leaving relatively few trees per acre and open stands of predominantly ponderosa pine (*Pinus ponderosa)* trees with Douglas-fir (*Pseudotsuga menzeisii*) present as a subdominant species. Stands typically consist of an overstory of 50-year-old ponderosa pine trees with an understory of mid-successional trees and saplings. There is a mixed herbaceous understory comprised of several co-dominants. Species include arrowleaf balsamroot (*Balsamorhiza sagittata),* yarrow (*Achillea millefolium*), bulbous bluegrass (*Poa bulbosa*), ventenata (*Ventenata dubia*), and several species of fescue (*Festuca* spp.), wheatgrass (*Agropyron* spp.), and lupine (*Lupinus* spp.). Populations of Oregon checker-mallow (*Sidalcea oregana var. procera*) and sticky purple geranium (*Geranium viscossimum*) were also observed.

Open Water—Lakes, Rivers, and Streams

Several intermittent streams and one artificially ponded area (Appendix D: Photo 2) are found within or crossing the survey area. All of the streams were dry at the time of the field visits and all were vegetated to varying extents. Typical vegetation within most channels includes herbaceous grass and forb species, including Brewer's navarretia (*Navarretia brewerii),* poverty oatgrass (*Danthoia spicata),* and small tarweed (*Madia exigua*). Other channels were dominated by dense shrub and herb species including wild rose (*Rosa woodsii*), snowberry (*Symphoricarpos albus*), cinquefoil (*Potentilla* spp.), and Oregon checkermallow (*Sidalcea oregana var. procera*).

Herbaceous Wetlands

Herbaceous Wetland habitats within the survey area consist of depressional wetlands dominated by herbaceous vegetation (Appendix D: Photo 3). Exposed soils were cracked, evidence of altering drying and wetting periods (Appendix D: Photo 3). These systems are not hydrologically connected to any stream or drainage ditch. Water arrives as either snowmelt or precipitation. These wetlands support hydrophytic herbaceous vegetation, and met the criteria for hydric soils and wetland hydrology. Common plant species within these wetlands were creeping spikerush and ventenata.

Riparian

The Riparian habitat (Appendix D: Photo 4) is found adjacent to some of the intermittent stream channels in the survey area. It generally consists of a dense shrub layer immediately

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adjacent to the stream gradually transitioning to ponderosa pine forest. Typical species include oceanspray (*Holodiscus discolor*), mountain spiraea (*Spiraea betulifolia),* Oregon checkermallow (*Sidalceae oregana* var. *procera),* Wood's rose (*Rosa woodsii*), and ponderosa pine.

Upland Aspen Forest

A small patch of aspen (*Populus tremuloides*) forest occurs along a drainage and around an artificially impounded pond in the southwestern portion of the survey area (Appendix D: Photo 5). Associated species include ponderosa pine, snowberry, and wild rose.

Species Observed. Wildlife observed during the field survey consisted of 10 bird and 2 mammal species. Evidence of wildlife (e.g., scat, burrows) observed in the survey area indicate the presence of rodents and coyote (*Canis latrans*).

Table 5 presents the list of all wildlife species observed during the field surveys.

TABLE 5
Wildlife Species Observed, June-July 2009 Field Investigation

Common Name	Scientific Name
Red-tailed hawk	*Buteo jamaicensis*
Stellar's jay	*Cyanocitta stelleri*
Common raven	*Corvus corax*
White-headed woodpecker	*Picoides albolarvatus*
Hairy woodpecker	*Picoides villosus*
Northern flicker	*Colaptes auratus*
White-crowned sparrow	*Zonotrichia albicollis*
Chipping sparrow	*Spizella passerina*
Western tanager	*Piranga ludoviciana*
Western wood peewee	*Contopus sordidulus*
Mule deer	*Odocoileus hemiones*
Rocky Mountain Elk	*Cervus canadensis nelsoni*

No state or federally listed threatened or endangered wildlife species were observed within the survey area. A state candidate species, the white-headed woodpecker, was observed in the northwest portion of the survey area. Both male and female woodpeckers were observed close to the main access road. The male was observed foraging in a stand of adult ponderosa pine, while the female was located excavating a nest in a snag approximately 10 feet from the road.

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4.0 Conclusions and Recommendations

CH2M HILL biologists conducted surveys for rare plant and wildlife species throughout the survey area. The purpose of the surveys was to identify potential populations of special status species and to determine whether proposed project activities will affect these populations.

4.1 Conclusions

The surveys identified 81 plant species, 12 wildlife species, and 5 habitat types. No state or federally listed endangered or threatened species were observed in the survey area during field surveys. The following conclusions were derived:

- Three habitat types in the survey area, Upland Aspen, Riparian, and Herbaceous Wetlands, are considered Washington Priority Habitats (Aspen Stands, Riparian, and Freshwater Wetlands). Impacts to these habitats from construction and operation of the project will not occur as facilities were microsited to avoid these areas.

Deleted: Because these habitats comprise only a small portion of the survey area, impacts to these habitats from construction and operation of the project can likely be avoided.

- Back-backed woodpeckers are unlikely to be impacted by the development of this project, as activities relating to this project will not involve the documented area. Black-backed woodpeckers require habitat that includes stands of mature conifers that have experienced a burn event within the last 5 years. No stands of burned, mature conifer trees exist in the survey area. In addition, the proposed project is unlikely to impact any mountain quail or northern goshawk habitat, as no activities related to this project will occur near the PHS listing.
- Both the mule deer and elk PHS regions are located outside the proposed project area, and will not be impacted by project activities
- Potential suitable habitat for several listed species does occur within the Ponderosa Pine Forest and Woodland habitat. However, habitats within the survey area have been disturbed and fragmented by commercial forest practices and by residential development in the surrounding area. State or federal resource agencies may require additional surveys to determine if any rare plants or listed wildlife species occur in the survey area.
- The proposed project is not expected to result in any significant impacts to special status species. However, potentially suitable habitat may be temporarily and permanently impacted. Temporary impacts may occur in conjunction with the placement and use of heavy equipment during project construction. Permanent impacts will occur due to habitat alteration and tree removal. Removal of trees for project placement will disturb and fragment the existing forested habitat.

4.2 Recommendations

4.2.1 Best Management Practices (BMPs)

Best management practices (BMPs) will be implemented during construction to avoid and reduce temporary and permanent impacts to the extent practicable. In the event that a state

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or federally listed threatened or endangered plant or wildlife species is observed during project development, work will be halted immediately and a qualified biologist notified.

BMPS will be implemented wherever surface disturbances occur. These measures include, but are not limited to, the following:

- Protect trees, shrubbery, and other vegetation not designated for removal from damage caused by the project construction.
- Seed areas of temporary soil disturbance with the specified temporary seed mix.
- Install filter bags, sediment fences, sediment filter fabric traps, and graveled construction accesses as necessary for erosion control.
- Cover stockpiles with impervious materials when unattended or during rainfall.
- Locate construction staging areas for storage, maintenance, and fueling of construction equipment minimum of 150 feet from creeks or wetlands. Show staging areas on the construction plans.
- Prevent petroleum products and other harmful material from entering wetland or waterways.

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- Upon completion of construction, seed or plant all areas temporarily disturbed by construction activities with native plants.

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4.2.2 Mitigation

All recommended surveys have been completed. It is still possible that individuals or populations of rare plant species may be encountered in the course of project construction. In the event of such a discovery, a qualified botanist will be retained to verify identity of the plant(s) and make recommendations for addressing the situation. All efforts will be made to avoid disturbance to such species. If disturbance cannot be avoided, efforts will be employed to minimize disturbance to the maximum extent practicable. If such efforts are not possible, mitigation for impacts to the plant(s) will be required. Mitigation measures will be specific to each plant species.

Possible avoidance and mitigation measures may include the following:

- Implement micrositing: slight relocations of project facilities to avoid rare plant populations.
- Remove and conserve plants; replant following construction.
- Replant areas temporarily disturbed by construction activities with seed obtained from a qualified cultivator of rare plants.

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- Mitigate by seeding an approved offsite area with the same species.
  - Mitigation will require approval of the agencies, as well as monitoring for a defined period of time.

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5.0 References

5.1 Cited in Text

Chappell, C.B., R.C. Crawford, C. Barrett, J. Kagan, D.H. Johnson, M. O'Mealy, G.A. Green, H.L. Ferguson, W.D. Edge, E.L. Greda, and T.A. O'Neill. 2001. "Wildlife Habitats: Descriptions, Status, Trends, and System Dynamics." Pages 22-114 *in* D.H. Johnson and T.A. O'Neil, managing directors. *Wildlife-Habitat Relationships in Oregon and Washington*. Oregon State University Press, Corvallis.

Nelson, J.R. 1994. "Guidelines for Assessing Effects of Proposed Developments on Rare Plants and Plant Communities." *In:* Skinner and Pavlik, ed. *Inventory of Rare and Endangered Vascular Plants of California* (5th ed.). California Native Plant Society. Sacramento, California. Page 29.

Natural Resource Conservation Service (NRCS). 2009. *Soil Survey, Kittitas County Area, Washington*. http://www.or.nrcs.usda.gov/pnw_soil/wa_reports.html

Seattle Audubon Society. 2009. Birdweb. http://www.birdweb.org/birdweb/index.aspx

U.S. Fish and Wildlife Service (USFWS). 1993. *Plant Taxa for Listing as Endangered or Threatened Species; Notice of Review*. *Federal Register* 58(188): 51144-51190. September 30.

U.S. Fish and Wildlife Service (USFWS). 1996a. "Endangered and Threatened Species; Notice of Reclassification of 96 Candidate Taxa." *Federal Register* 61(40):7457-7463. February 28.

U.S. Fish and Wildlife Service (USFWS). 1996b. "Endangered and Threatened Wildlife and Plants; Review of Plant and Animal Taxa that are Candidates for Listing as Endangered or Threatened Species." *Federal Register* 61(40):7596-7613. February 28.

U.S. Fish and Wildlife Service (USFWS). 2008. *Federally Listed Threatened, Endangered, Proposed, Candidate Species, and Species of Concern Which May Occur within Kittitas County, Washington.* July 24, 2008.

U.S. Geological Survey (USGS). 1985 Provisional Edition. *Topographic Map of the Teanaway, Washington Quadrangle*

Washington Department of Fish and Wildlife (WDFW). 2008. *State of Washington Priority Habitats and Species (PHS) List*.

Washington Department of Fish & Wildlife (WDFW). 2009. *Species of Concern in Washington State*. http://wdfw.wa.gov/wlm/diversty/soc/soc.htm. June 2009.

Washington Natural Heritage Information System (WNHIS). 2009. *List of Known Occurrences of Rare Plants in Washington: Kittitas County.* http://www1.dnr.wa.gov/nhp/refdesk/lists/plantsxco/kittitas.html. February 2009.

Whiteaker, L., J. Henderson, R. Holmes, L. Hoover, R. Lesher, J. Lippert, E. Olson, L. Potash, J. Seevers, M. Stein, and N. Wogen. 1998. Survey Protocols for Survey and Manage

Strategy 2 Vascular Plants. Unpublished report. United States Department of Agriculture Forest Service and United States Department of the Interior Bureau of Land Management. On file with the Regional Ecosystem Office, P.O. Box 3623, Portland, Oregon. December.

5.2 Background Research—Plant Identification

Cooke, S.S. 1997. *A Field Guide to the Common Wetland Plants of Washington and Northwestern Oregon*. Seattle Audubon Society. Seattle, Washington.

Guard, B.J. 1955. *Wetland Plants of Oregon and Washington*. Lone Pine Publishing. Renton, Washington.

Hitchcock, C.L. 1971. *Manual of Grasses of the United States*. Dover Publications. New York, New York.

Hitchcock, C.L. and A. Cronquist. 1973. *Flora of the Pacific Northwest*. University of Washington Press. Seattle and New York.

Hitchcock, C.L., A. Cronquist, M. Ownbey, and J.W. Thompson. 1969. *Vascular Plants of the Pacific Northwest. Part 1: Vascular Crytograms, Gymnosperms, and Monocotyledons*. University of Washington Press. Seattle, Washington.

Hitchcock, C.L., A. Cronquist, M. Ownbey, and J.W. Thompson. 1964. *Vascular Plants of the Pacific Northwest. Part 2: Salicaceae to Saxifragaceae*. University of Washington Press. Seattle, Washington.

Hitchcock, C.L., A. Cronquist, M. Ownbey, and J.W. Thompson. 1961. *Vascular Plants of the Pacific Northwest. Part 3: Saxifragaceae to Ericaceae*. University of Washington Press. Seattle, Washington.

Hitchcock, C.L., A. Cronquist, M. Ownbey, and J.W. Thompson. 1959. *Vascular Plants of the Pacific Northwest. Part 4: Ericaceae through Campanulaceae*. University of Washington Press. Seattle, Washington.

Hitchcock, C.L., A. Cronquist, M. Ownbey, and J.W. Thompson. 1955. *Vascular Plants of the Pacific Northwest. Part 5: Compositae*. University of Washington Press. Seattle, Washington.

Niehaus, T.F. and C.L. Ripper. 1976. *A Field Guide to Pacific States Wildflowers: Washington, Oregon, California, and Adjacent Areas*. The Peterson Field Guide Series. Houghton Mifflin Company. Boston and New York.

Pojar, J. and A. MacKinnon. 1994. *Plants of the Pacific Northwest Coast: Washington, Oregon, British Columbia, & Alaska*. Lone Pine Publishing. Redmond, Washington.

Taylor, R.J. 1990. *Northwest Weeds*. Mountain Press Publishing Company. Missoula, Montana.

University of Washington Herbarium. 2009. *WTU Image Collection: Plants of Washington, Lichens of Washington*. Burke Museum of Natural History and Culture. http://biology.burke.washington.edu/herbarium/imagecollection.php?

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Washington Natural Heritage Program (WNHP). 2008. *Field Guide to Selected Rare Plants of Washington*. Washington State Department of Natural Resources. http://www1.dnr.wa.gov/nhp/refdesk/fguide/htm/fgmain.htm

Whitson, T. (ed.). 2000. *Weeds of the West*. Western Society of Weed Science. University of Wyoming.

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APPENDIX A
Figures

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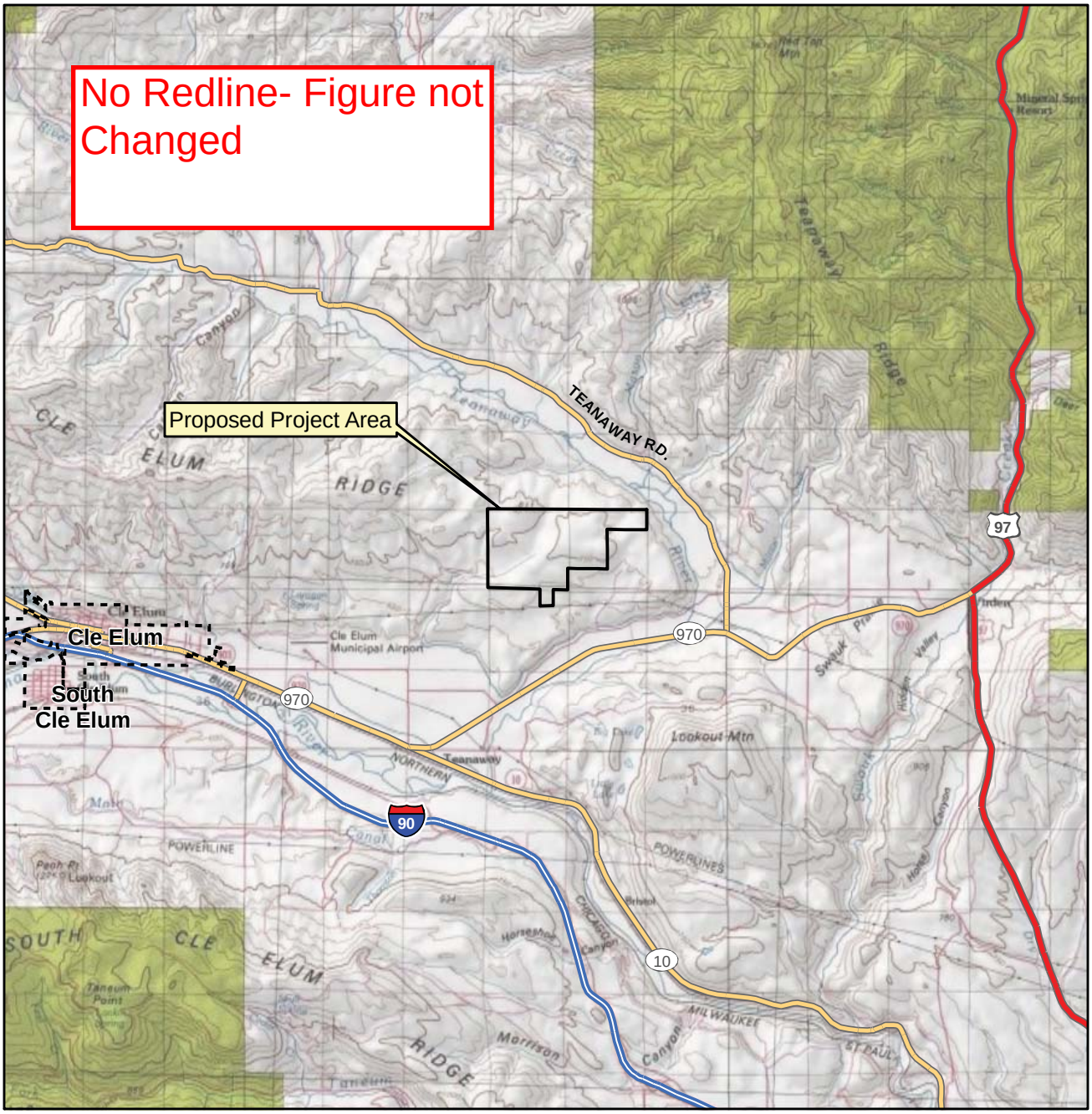
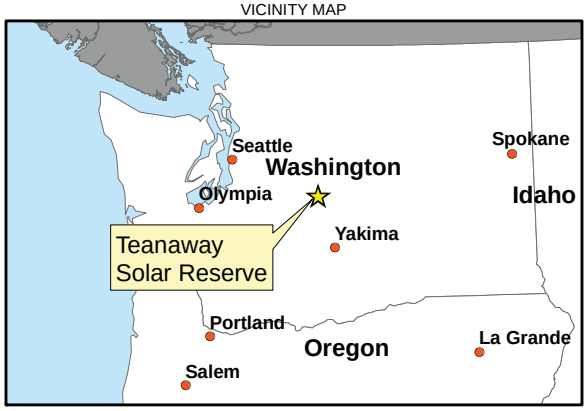


LEGEND

- Proposed Project Area
- City Boundary
- Interstate
- Highway
- Major Road

VICINITY MAP



Note:
1. USGS 100K Quadrangle: Wenatchee.

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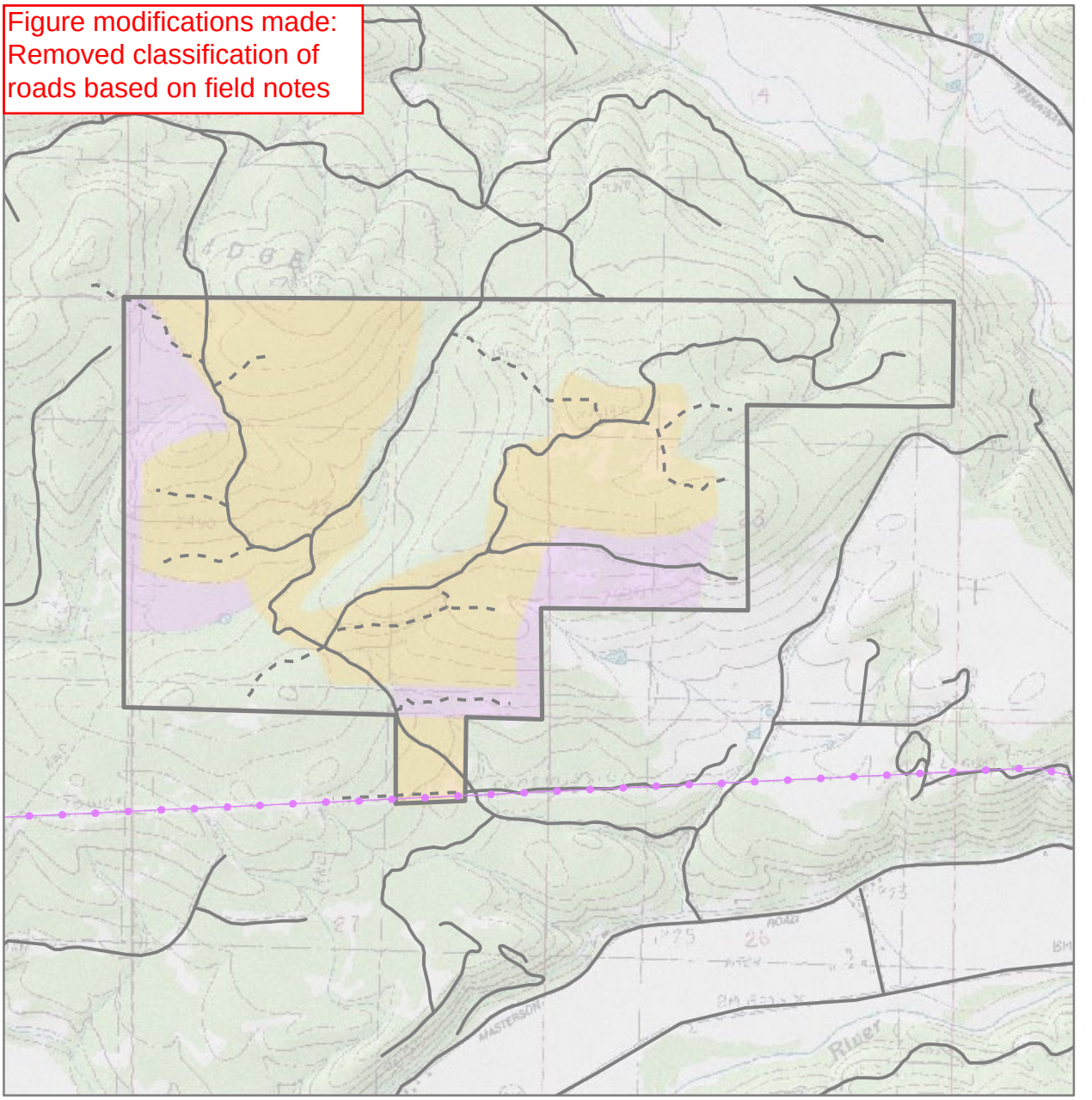
FIGURE 1
Vicinity Map
Sensitive Species Surveys Report
Teanaway Solar Reserve
Kittitas County, Washington

Figure modifications made:
Removed classification of roads based on field notes



LEGEND

- Proposed Project Area
- July 2009 Survey Area
- June 2009 Survey Area
- Existing BPA Transmission Line
- Road
- Minor Dirt Road

VICINITY MAP

Note:
1. USGS 24K Quadrangle: Teanaway.

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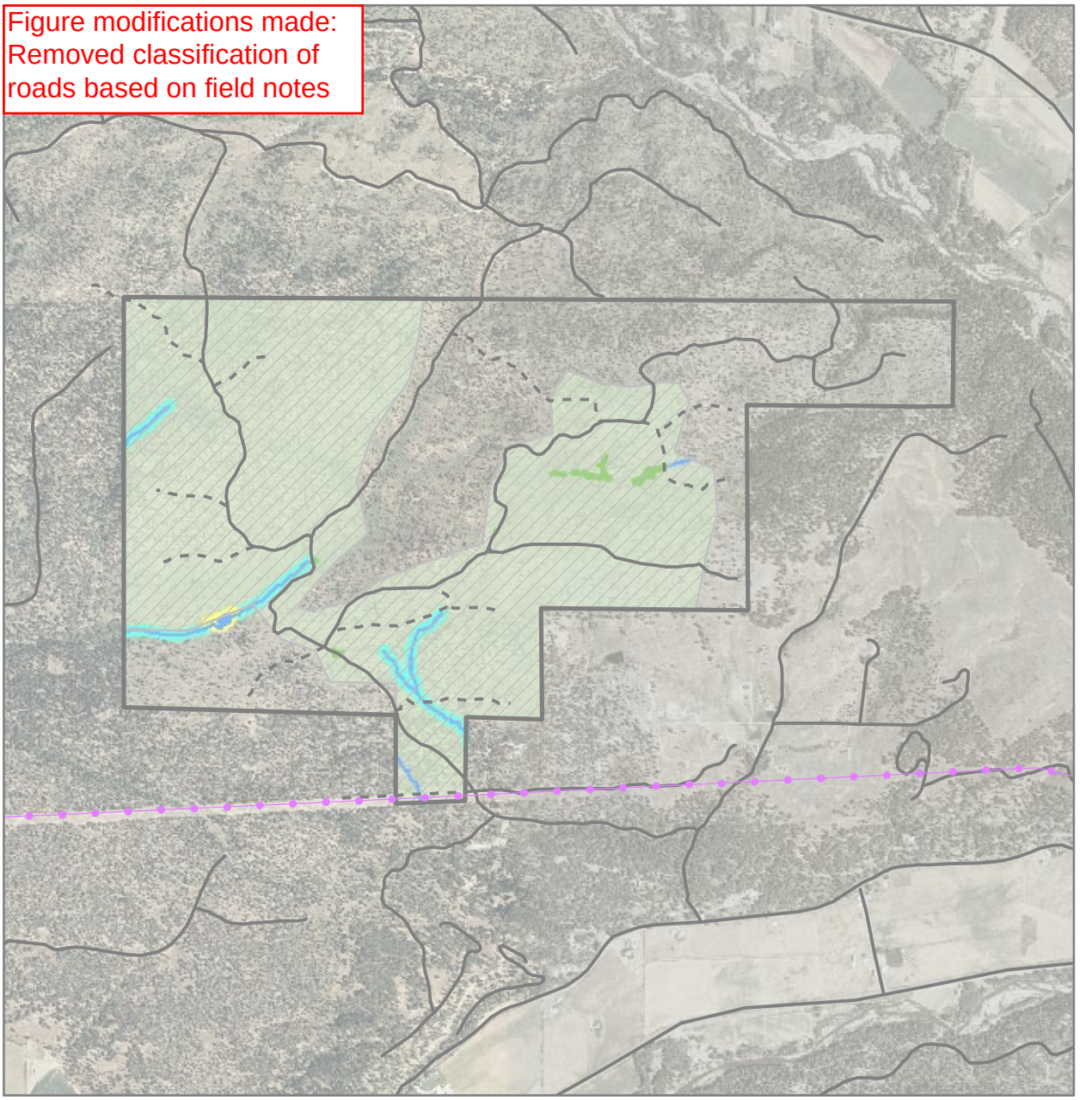
FIGURE 2
Survey Area Map
Sensitive Species Surveys Report
Teanaway Solar Reserve
Kittitas County, Washington

Figure modifications made:
Removed classification of roads based on field notes



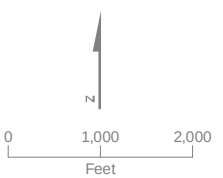
LEGEND

- Proposed Project Area
- Biological Survey Area
- Existing BPA Transmission Line
- Road
- Minor Dirt Road

Habitat

- Herbaceous Wetlands
- Open Water
- Ponderosa Pine Forest and Woodlands
- Riparian
- Upland Aspen

Note:
1. Aerial Imagery: 2006 1m NAIP.



VICINITY MAP

FIGURE 3
Habitat Types
Sensitive Species Surveys Report
Teanaway Solar Reserve
Kittitas County, Washington

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APPENDIX B

U.S. Fish and Wildlife Service Species List

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APPENDIX C

Washington Natural Heritage Program Species List

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APPENDIX D

Site Photographs

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Report

Teanaway Solar Reserve Wetland Delineation Report Kittitas County, Washington

Prepared for

Teanaway Solar Reserve, LLC

February 2010

Deleted: August 2009

Prepared by

CH2MHILL

Printed on Recycled and Recyclable Paper

Contents

Appendices

Tables

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Figures (*Provided in Appendix A*)

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1.0 Introduction

CH2M HILL conducted a wetlands and other waters delineation in June and July 2009 for the proposed Teanaway Solar Reserve project (project), a solar facility on private land in an unincorporated area of Kittitas County, Washington. Twelve wetlands and six ephemeral streams were delineated.

The 982-acre proposed project area is located on the eastern slopes of the Cascade Mountains on Cle Elum Ridge (see Figure 1 in Appendix A). The solar facility and associated components will include solar panels, a substation on approximately 6 acres, and potentially a transmission line (up to 200-foot wide right-a-way required) to connect the substation to the existing Bonneville Power Administration (BPA) 345-kilovolt (kV) Rocky Reach-Maple Valley transmission line.

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Subsequent sections of this report are organized as follows:

- 2.0—Landscape Setting and Land Use (Historical and Current)
- 3.0—Site Alterations
- 4.0—Precipitation Data and Analysis
- 5.0—Methods
- 6.0—Description of Wetlands and Other Waters
- 7.0—Mapping Method
- 8.0—Results and Conclusions
- 9.0—References

Report figures are presented in Appendix A. U.S. Army Corps of Engineers (USACE) wetland data forms are included in Appendix B. Site photographs are in Appendix C. Washington wetland rating forms and maps are in Appendix D. Washington State Department of Ecology function assessment forms are in Appendix E. Background information supporting these forms is available upon request.

2.0 Landscape Setting and Land Use (Historical and Current)

The proposed project site is located approximately 4 miles northeast of Cle Elum, Washington, in Township 20N, Range 16E, within Sections 22, 23, and 27 (see Figure 1 in Appendix A for the site location map). The site is located on the eastern slopes of the Cascade Mountains on Cle Elum Ridge, which runs generally from east to west at elevations ranging from approximately 2,200 to 2,600 feet. The Teanaway River is approximately 1 mile to the northeast of Cle Elum Ridge. The site is accessed from Highway 970 by way of County roads such as Red Bridge Road, private roads such as Loping Lane, and Wiehl Road, which is a dedicated public road that is maintained privately and not by the County.

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The proposed project area consists of 982 acres. Based on site surveys, the project will utilize approximately 477 acres within the proposed project area. Solar arrays will be placed on approximately 399 acres. The remaining acres are currently undeveloped open space. Approximately 193 acres of the remaining open space will be preserved as part of the wildlife mitigation plan (see Attachment H, *Wildlife Mitigation Plan*). An open corridor will be maintained to allow for wildlife migration through the site.

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Vegetation communities within the proposed project area are early to mid-successional ponderosa pine (*Pinus ponderosa*) forests and sloped hillside meadows where logging has

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occurred more recently. Current and historical land uses in the vicinity of the project site are ranching and commercial tree farming.

The proposed project is located in the Teanaway River and Yakima River watersheds within the Yakima River basin and Upper Yakima subbasin. Tributaries within the project site flow into ponds, ditches, and vegetated swales. Water from these tributaries not used for irrigation practices may eventually flow into the Yakima River several miles to the south with the exception of one unnamed tributary (S6), which flows directly into the Teanaway River. Wetlands within the project site are hydrologically connected to these tributaries.

3.0 Site Alterations

Trees within the project site have been selectively harvested. The most recent harvest was in 2001 and 2002. An old earthen berm crosses stream S4 and has created or enlarged wetland W12 (see Section 6.0 for description of wetlands and other waters).

4.0 Precipitation Data and Analysis

Annual precipitation in the region averages approximately 23.07 inches of rain and 86.5 inches of snow for the water year (NRCS, 2002). Precipitation data were reviewed for the nearest weather station located approximately 5 miles west of the project site in Cle Elum, Washington. This weather station is approximately 400 feet lower in elevation than the project site. Precipitation for the water year beginning October 2008 through June 2009 was 18.35 inches (Table 1).

TABLE 1
Monthly Precipitation Data (NRCS, 2002; KWACLEEL Weather Station, 2009)

	Actual Precipitation (in inches)	Normal Range* (in inches)	Outside Normal Range (in inches)
October 2008	1.36	0.72 - 2.14	
November 2008	5.96	2.61 - 4.61	+1.35
December 2008	1.48	3.05 - 5.27	-1.70
January 2009	4.36	2.31 - 4.60	
February 2009	0.52	1.52 - 3.04	-1.00
March 2009	2.48	1.12 - 1.99	+0.49
April 2009	0.83	0.79 - 1.38	
May 2009	1.08	0.57 - 1.12	
June 2009	0.28	0.57 - 1.16	-0.29
Total	**18.35**	**13.26 – 25.31**	

* "Normal Range" is the range within which precipitation for the given period has a 70 percent chance of occurring.

Table 2 presents the precipitation data for the 2-week period preceding the field investigation dates of June 9, 10, 16, and 17, 2009. Precipitation totaled 0.28 inch.

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TABLE 2
Daily Precipitation Data (KWACLEEL3 Weather Station, 2009)

Date	Precipitation (in inches)
May 27, 2009	0.0
May 28, 2009	0.0
May 29, 2009	0.0
May 30, 2009	0.0
May 31, 2009	0.0
June 1, 2009	0.0
June 2, 2009	0.0
June 3, 2009	0.0
June 4, 2009	0.12
June 5, 2009	0.0
June 6, 2009	0.0
June 7, 2009	0.0
June 8, 2009	0.0
June 9, 2009	0.16
June 10, 2009	0.0
June 11, 2009	0.0
June 12, 2009	0.0
June 13, 2009	0.0
June 14, 2009	0.0
June 15, 2009	0.0
June 16, 2009	0.0
Total:	**0.28**

Table 3 presents the precipitation data for the 2-week period preceding the field investigation date of July 9, 2009. Precipitation totaled 0.0 inch.

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TABLE 3
Daily Precipitation Data (KWACLEEL3 Weather Station, 2009)

Date	Precipitation (in inches)
June 27, 2009	0.0
June 27, 2009	0.0
June 28, 2009	0.0
June 29, 2009	0.0
June 30, 2009	0.0
July 1, 2009	0.0
July 2, 2009	0.0
July 3, 2009	0.0
July 4, 2009	0.0
July 5, 2009	0.0
July 6, 2009	0.0
July 7, 2009	0.0
July 8, 2009	0.0
July 9, 2009	0.0
Total:	**0.0**

Based on the above precipitation data, precipitation for the water year prior to the fieldwork was within the normal range. June precipitation was 0.29 inch below the normal range and there was no precipitation in July. However, the actual precipitation amounts were only slightly below the normal range and were unlikely to be significant enough to affect the observation and interpretation of wetland hydrological indicators or stream flow duration indicators at that time of year.

5.0 Methods

Before the field investigation began, the following information was reviewed:

- Watercourses mapped by the Washington State Department of Natural Resources (WADNR) (2006)
- U.S. Geological Survey (USGS) 24K topographic maps: Teanaway quadrangle
- National Wetland Inventory (NWI) 24K maps: Teanaway quadrangle
- Soil Survey Geographic Database of Kittitas County , Washington (2002) (see Figure 4 in Appendix A)
- Hydric Soils List of Kittitas County, Washington
- True color aerial photographs flown in various years

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One NWI-mapped wetland is in the southwest corner of section 22. It is labeled as *palustrine emergent, semi-permanently flooded*. Five streams were mapped by WADNR. All five are classified as *non-fish, seasonal*. There are no mapped hydric soil units within the project site.

Fieldwork was conducted on June 9, 10, 16, and 17, and July 9, 2009. Potential waters and wetlands identified in the office review were field verified. Additional potential waters and wetlands were observed during fieldwork and were delineated.

In addition, all swale areas and land topography signatures that indicated water passage were walked during field visits. Areas identified as "wet meadows" by adjacent land owners were investigated. Areas identified in aerial photographs containing color signatures that suggest the presence of water were also investigated.

Data collection and analysis followed procedures in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valley and Coast* (USACE, 2008). The routine onsite wetland determination method was used to observe vegetation, soils, and hydrological conditions at representative locations. Paired sample plots were used to document wetland and upland areas adjacent to wetland boundaries. The *National List of Plant Species that Occur in Wetlands: Northwest (Region 9)* (USFWS, 1988) and the 1993 supplement (USACE, 1993) were used to determine hydrophytic status of vegetation.

The widths of stream channels were estimated in the field (Ordinary High Water Mark to Ordinary High Water Mark [OHWM to OHWM]).

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Wetlands were rated using the Department of Ecology's *Wetland Rating System for Eastern Washington* (Hruby, 2004).

6.0 Description of Wetlands and Other Waters

Twelve wetlands and six ephemeral streams were delineated (see Figure 5 in Appendix A).

6.1 Wetlands

Twelve wetlands were delineated (see Table 4 in Section 9.2.3). They total 0.97 acre within the project site. All of the wetlands were determined to be palustrine emergent (PEM) (Cowardin). Eleven wetlands were depressional (HGM) wetlands. Wetland W12 was riverine (HGM).

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Wetlands W1, W3, and W6 and wetlands W4, W5, and W7 formed two complexes in the northeast portion of the survey area. Wetlands W8, W9, and W11 were adjacent to road fill and were probably created or enlarged by the fill backing up water. W11 appeared to be an excavated roadside ditch and W8 was at the outlet of a culvert that carried water under the road from W11. Wetland W10 was created or enlarged by road fill across the headwaters of stream S4 that backs up water due to a perched culvert. Wetland W12, which corresponded to the NWI-mapped wetland, was created or enlarged by an old earthen berm across stream S4.

The hydrologic source of all wetlands within the project site is precipitation and snowmelt. No springs or seeps were observed. Washington soil surveys characterize soil units within the study area as moderately well drained with a water table depth of 39 and 51 inches. Inundation and saturation were only observed at wetland W12. Primary hydrologic indicators observed were predominantly surface soil cracks (B6); however, some wetlands had sparsely vegetated concave surface (B8), and algal mat or crust (B4) indicators. The secondary indicator of geomorphic

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position (D2) was observed for all the wetlands. These indicators suggest that precipitation and snowmelt pond in depressional areas during the wet season and dry out during the summer.

Hydric soil indicators observed in soil pits included Depleted Matrix (F3) and Redox Dark Surface (F7). Soils were predominantly silt loams with some clay soils occurring below 6 inches. Most of the wetlands had a restrictive layer of rock and gravel, usually at about 12 inches.

Dominant wetland plants included *Ventenata dubia* (NOL), *Juncus parryi* (FAC), *Gnaphalium palustre* (FAC), and *Eleocharis palustris* (OBL). Other wetland plants included *Plagiobotrys scouleri* (FACW), *Carex feta* (FACW), *Potentilla gracilis* (FAC), *Camassia quamash* (FACW), and *Ranunculus acris* (FACW). Some wetlands were sparsely vegetated and contained little or no vegetation. The hydrophytic vegetation criterion was met for many of the wetlands through problematic vegetation procedures, because they were dominated by *Ventenata dubia,* an invasive annual species that presumably dominates depressional areas in dryer years or as the depressions dry out.

6.2 Other Waters

Six ephemeral streams were delineated within the project site (see Table 5 in Section 9.2.3). Indicators observed during site visits that suggest ephemeral water flow included moderately apparent bed and banks, scour marks, and cobble, gravel, and sand stream substrate. Abrupt headcuts and defined and continuous bed and banks were used to determine the extent of streams. No springs, seeps, or evidence of groundwater was observed along stream corridors indicating the source of hydrology is solely precipitation and snow melt. Lack of water-dependant organisms (fish, amphibians, macro invertebrates, streamer mosses) within stream corridors suggests that water does not persist in streams longer than the wet season.

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7.0 Mapping Method

Wetland sample plot locations and wetland other waters boundaries were mapped within the project site using a hand-held Trimble GeoXT geographical positioning system (GPS) unit with sub-meter accuracy capability. Acreages of wetlands within the project site boundaries were calculated using geographical information system (GIS) software.

Estimated accuracy of mapped wetland boundaries and sample plot locations is +/- 3 feet.

8.0 Wetland Ratings

All of the wetlands rated as Category 3. Wetland rating forms and associated figures are provided in Appendix D.

9.0 Results and Conclusions

Twelve wetlands totaling 0.97 acre and six ephemeral streams were delineated in the project site. All of the waters and wetlands identified in this report are potentially subject to federal or state jurisdiction. Jurisdictional determinations, including the applicability of exemptions, are made on a case-by-case basis by the Washington State Department of Ecology (Ecology) and the USACE.

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9.1 Waters of the State

"Surface waters of the state" include lakes, rivers, ponds, streams, inland waters, saltwaters, wetlands, and all other surface waters and water courses within the jurisdiction of the state of Washington (Washington Administrative Code 173-201A-020). All of the delineated streams and wetlands at the project site are naturally occurring features of the landscape and are likely waters of the state.

9.2 Waters of the United States

USACE asserts jurisdiction over the following waters:

- Traditional navigable waters (TNWs)
- Wetlands adjacent to TNWs
- Non-navigable tributaries of TNWs that are relatively permanent waters (RPWs) where the tributaries typically flow year-round or have continuous flow at least seasonally (i.e., typically 3 months)
- Wetlands that directly abut (i.e., have a continuous surface connection to) such tributaries (U.S. Environmental Protection Agency [EPA] and USACE, 2008)

USACE will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a TNW:

- Non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary (EPA and USACE, 2008)

A "significant nexus" is determined through analysis of "the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream TNWs" (EPA and USACE, 2008).

USACE will decide jurisdiction over isolated (i.e., nonadjacent) wetlands and waters based on a fact-specific analysis to determine whether impacts to those wetlands or waters could affect interstate commerce.

9.2.1 Traditional Navigable Waters

There are no traditional navigable waters in the project site. The nearest TNW is the Yakima River (USACE Seattle District, 2008b, 2008c).

9.2.2 Relatively Permanent Waters and Abutting Wetlands

There are no RPWs in the project site.

9.2.3 Non-RPWs and Adjacent Wetlands

All of the non-RPWs (i.e., ephemeral streams) are natural tributaries to the Teanaway and Yakima rivers. The Teanaway River flows into the Yakima River, a TNW. These streams and their adjacent wetlands in the proposed project area potentially have a significant nexus to the Yakima River, which is the nearest downstream TNW, based on their contributions of water supply,

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nutrients, and flood flow attenuation to the Yakima. They are all presumed to be jurisdictional until a final determination has been made by USACE.

Tables 4 and 5 provide a summary of potentially jurisdictional wetlands and waters within the project site boundaries.

TABLE 4
Wetlands Summary Table

Wetland ID	Wetland Acreage	Cowardin Type	HGM Type	Wetland Adjacent to RPW	Wetland Adjacent to Non-RPW	USACE Jurisdiction	State Jurisdiction
W1	0.010	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W2	0.004	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W3	0.030	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W4	0.067	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W5	0.004	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W6	0.253	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W7	0.231	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W8	0.027	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W9	0.013	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W10	0.019	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W11	0.006	PEM	Depressional	NO	YES	Potentially – if significant nexus to TNW	YES
W12	0.312	PEM	Riverine	NO	YES	Potentially – if significant nexus to TNW	YES

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TABLE 5
Other Waters Summary Table

Water ID	Width (feet)	Flow Regime	Nearest TNW	Non RPW	RPW	USACE Jurisdiction	State Jurisdiction
S1	2-5	Ephemeral	Yakima River	YES	NO	Potentially – if has significant nexus to TNW	YES
S2	2-6	Ephemeral	Yakima River	YES	NO	Potentially – if has significant nexus to TNW	YES
S3	2-5	Ephemeral	Yakima River	YES	NO	Potentially – if has significant nexus to TNW	YES
S4	2-4	Ephemeral	Yakima River	YES	NO	Potentially – if has significant nexus to TNW	YES
S5	2-5	Ephemeral	Yakima River	YES	NO	Potentially – if has significant nexus to TNW	YES
S6	1-2	Ephemeral	Yakima River	YES	NO	Potentially – if has significant nexus to TNW	YES

10.0 References

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. USFWS, FWS/OBS-79/31.

Google, Inc. 2009. Google Earth Aerial Image Overlays. http://earth.google.com/. Accessed June 9, 2009.

Hitchcock, C. L. and A. Cronquist. 1973. *Flora of the Pacific Northwest*. University of Washington Press. Seattle, WA.

Hruby, T. 2004. *Washington State Wetland Rating System for Eastern Washington*. Revised. Washington State Department of Ecology Publication # 04-06-15.

KWACLEEL3 Weather Station. 2009. Weather Data for Cle Elum, Washington. http://www.wunderground.com/weatherstation/WXDailyHistory.asp?ID=KWACLEEL3. Accessed June and July 2009.

Munsell Soil Color Charts. 1990. Munsell Soil Color Charts. Kollmorgen Instruments Corporation, Macbeth Division, Baltimore, MD.

StreamNet. 2008. Fish Distribution Information [map info]. http://map.streamnet.org/. Accessed on June 9, 2009.

U.S. Army Corps of Engineers (USACE). 1993. *Supplement to National List of Plant Species that Occur in Wetlands: Northwest (Region 9)*. U.S. Army Corps of Engineers, Washington, DC. Special Information Public Notice.

U.S. Army Corps of Engineers (USACE). 2008a. *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valley and Coast Region*. Ed. J.S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-06-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center. December 2008.

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U. S. Army Corps of Engineers (USACE), Seattle District. 2008b. *Section 10 Navigable Waters*. http://www.nws.usace.army.mil/publicmenu/DOCUMENTS/REG/Navigable_waters.pdf. Accessed June 2009. December 31, 2008.

U. S. Army Corps of Engineers (USACE), Seattle District. 2008c. *Section 404 Traditional Navigable Water (TNW) Determinations within the Seattle District, Corps of Engineers Regulatory Boundary*. http://www.nws.usace.army.mil/PublicMenu/documents/REG/NWS_Sec_404_TNW_Determination_List_(Aug_2008)_For_Web.pdf. Accessed June 2009. August 2008.

U.S. Environmental Protection Agency (EPA) and U.S. Army Corps of Engineers (USACE). 2008. Clean Water Act Jurisdiction Following the U.S . Supreme Court's Decision in *Rapanos v. United States & Carabell v. United States*. Memorandum issued December 2, 2008.

U.S. Department of Agriculture, Natural Resources Conservation Service. 2002. Cle Elum, Washington WETS Table. Kittitas County, Oregon.

U.S. Department of Agriculture, Natural Resources Conservation Service. 2002. GIS Soils Data for Kittitas County, Washington.

U.S. Department of Agriculture, Natural Resources Conservation Service. 2007. Hydric Soils List, Kittitas County, Washington.

U.S. Fish and Wildlife Service (USFWS). 1958. National Wetlands Inventory Map: 7.5-minute Topo Quad: Teanaway, Washington. USDI Fish and Wildlife Service, Washington, DC.

U.S. Fish and Wildlife Service (USFWS). 1988. National List of Plant Species that Occur in Wetlands: Northwest (Region 9). USDI Fish and Wildlife Service, Washington, DC. Biological Report 88(26.9).

Washington Department of Natural Resources. 2006. *Washington State Watercourse Hydrography*.

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No modifications made to this appendix

APPENDIX A

Figures

No modifications made to this appendix

APPENDIX B

U.S. Army Corps of Engineers Wetland Determination Data Forms

No modifications made to this appendix

APPENDIX C

Site Photographs

No modifications made to this appendix

APPENDIX D

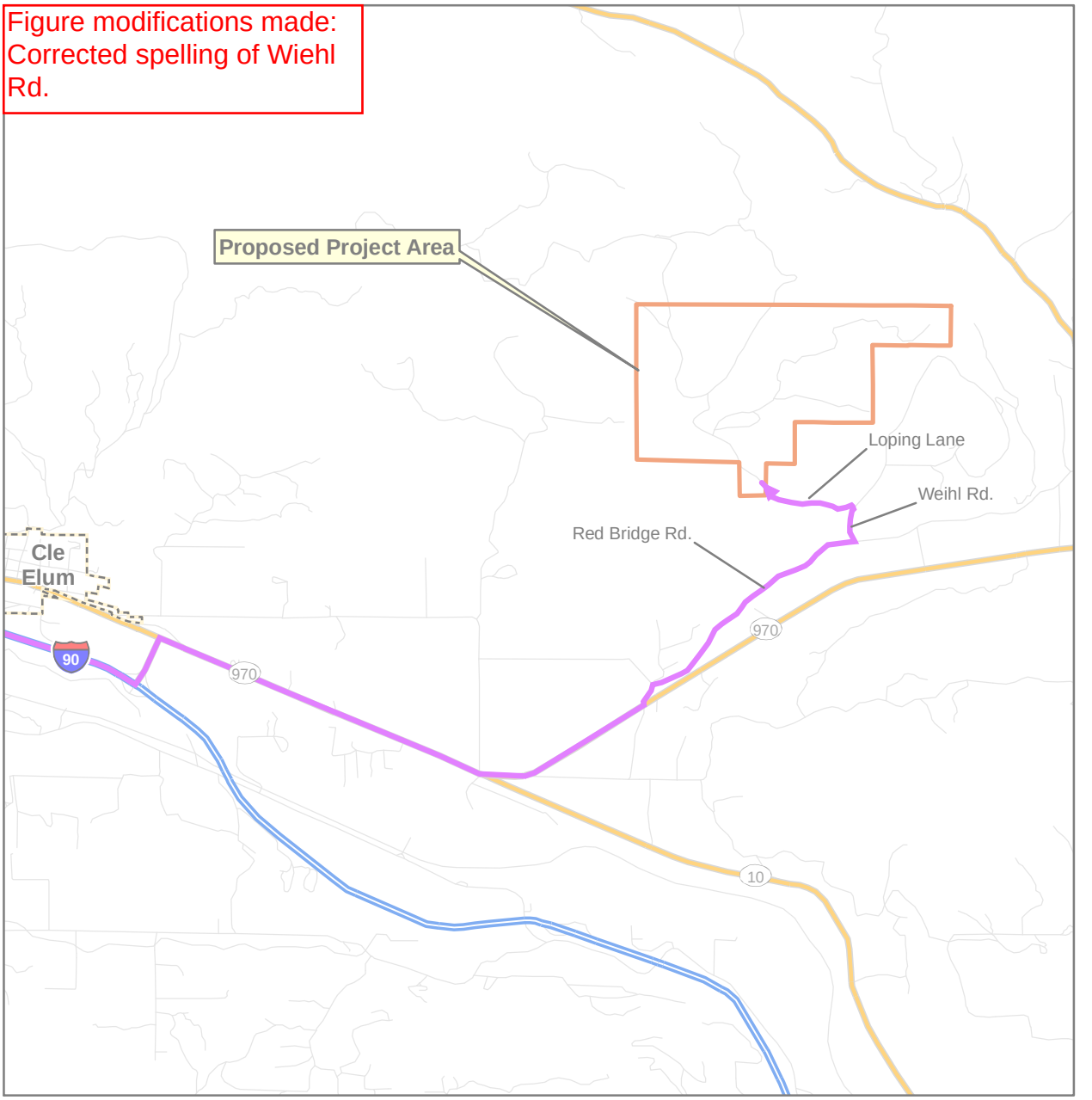
Washington Wetland Rating Forms and Associated Figures

No modifications made to this appendix

APPENDIX E

Washington State Department of Ecology Function Assessment Forms

Figure modifications made:
Corrected spelling of Wiehl Rd.



LEGEND
- Proposed Project Area
- Site Access Route
- City Boundary
- Interstate
- Highway
- Major Road
- Minor Road

Note:
1. Street Data: 2002 ESRI StreetMap USA.

N

0 0.5 1
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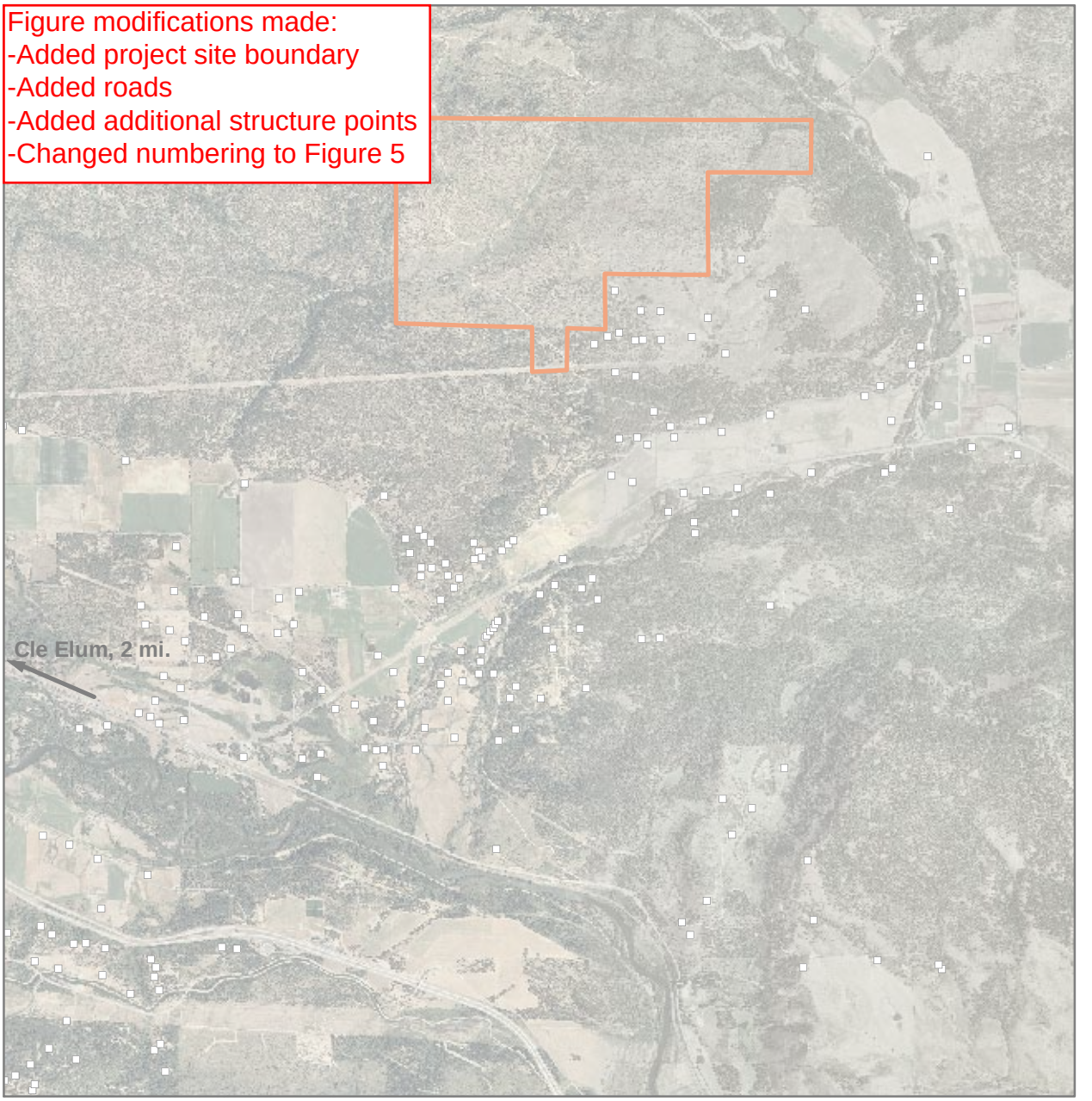
VICINITY MAP

FIGURE 3
Site Access Map
Teanaway Solar Reserve
Kittitas County, Washington

Figure modifications made:
-Added project site boundary
-Added roads
-Added additional structure points
-Changed numbering to Figure 5



LEGEND

Proposed Project Area

Identified Structure

VICINITY MAP

Notes:
1. Aerial Imagery: 2006 1m NAIP.
2. Structures identified from aerial, not ground verified.

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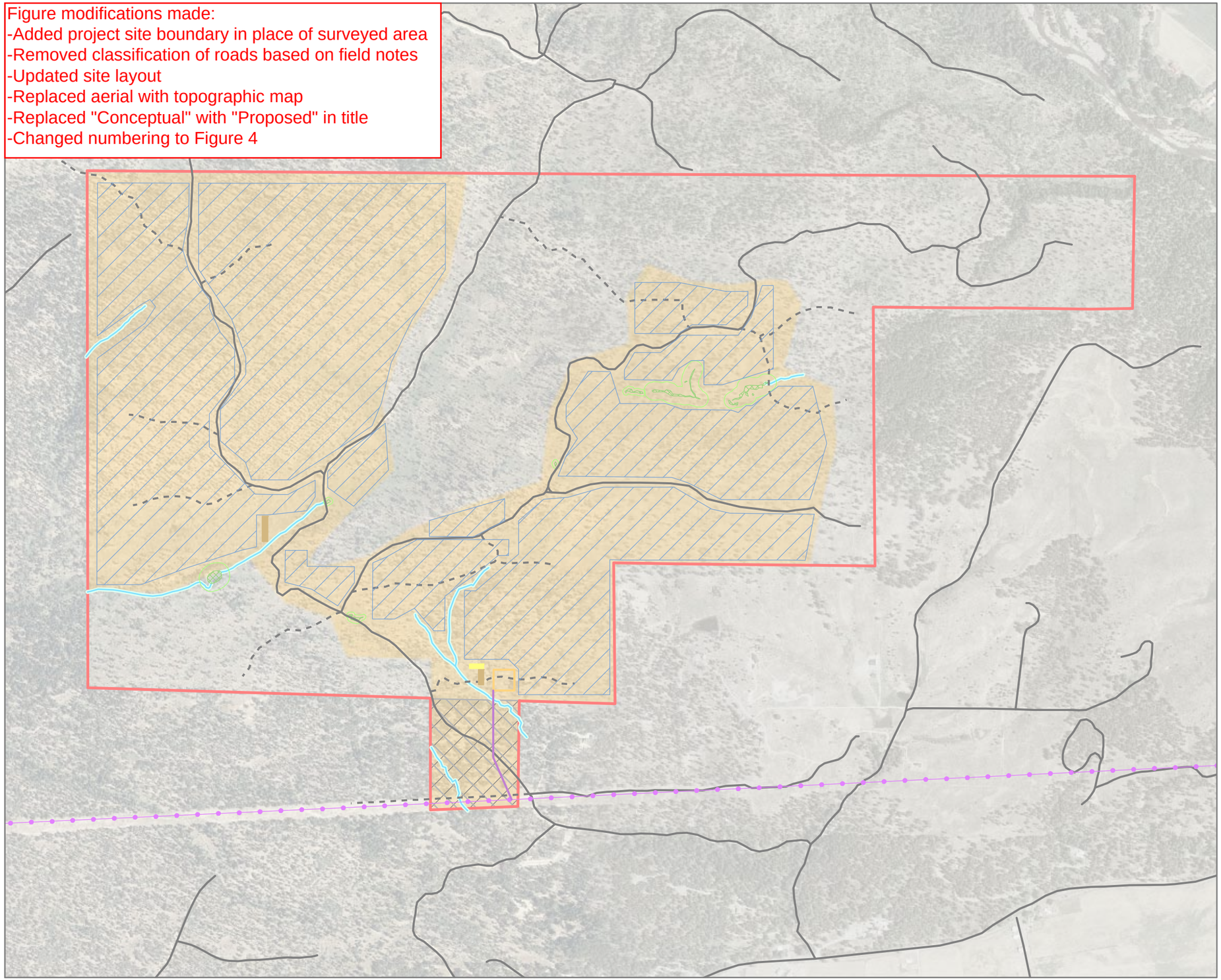
Feet

FIGURE 4
Identified Structure Map
Teanaway Solar Reserve
Kittitas County, Washington

Figure modifications made:
-Added project site boundary in place of surveyed area
-Removed classification of roads based on field notes
-Updated site layout
-Replaced aerial with topographic map
-Replaced "Conceptual" with "Proposed" in title
-Changed numbering to Figure 4



LEGEND
- Proposed Project Area
- Surveyed Area (580 acres)
- Proposed Powerline Route to Grid
- Potential Module Placement Area
- Proposed O&M Facility
- Proposed Substation
- Proposed Switchgear
- Transmission and Access Corridor
- Existing Transmission Line
- Road
- Minor Dirt Road
- Wetland
- Wetland Buffer
- Stream
- Stream Buffer

Note:
1. Aerial Imagery: 2006 1m NAIP.

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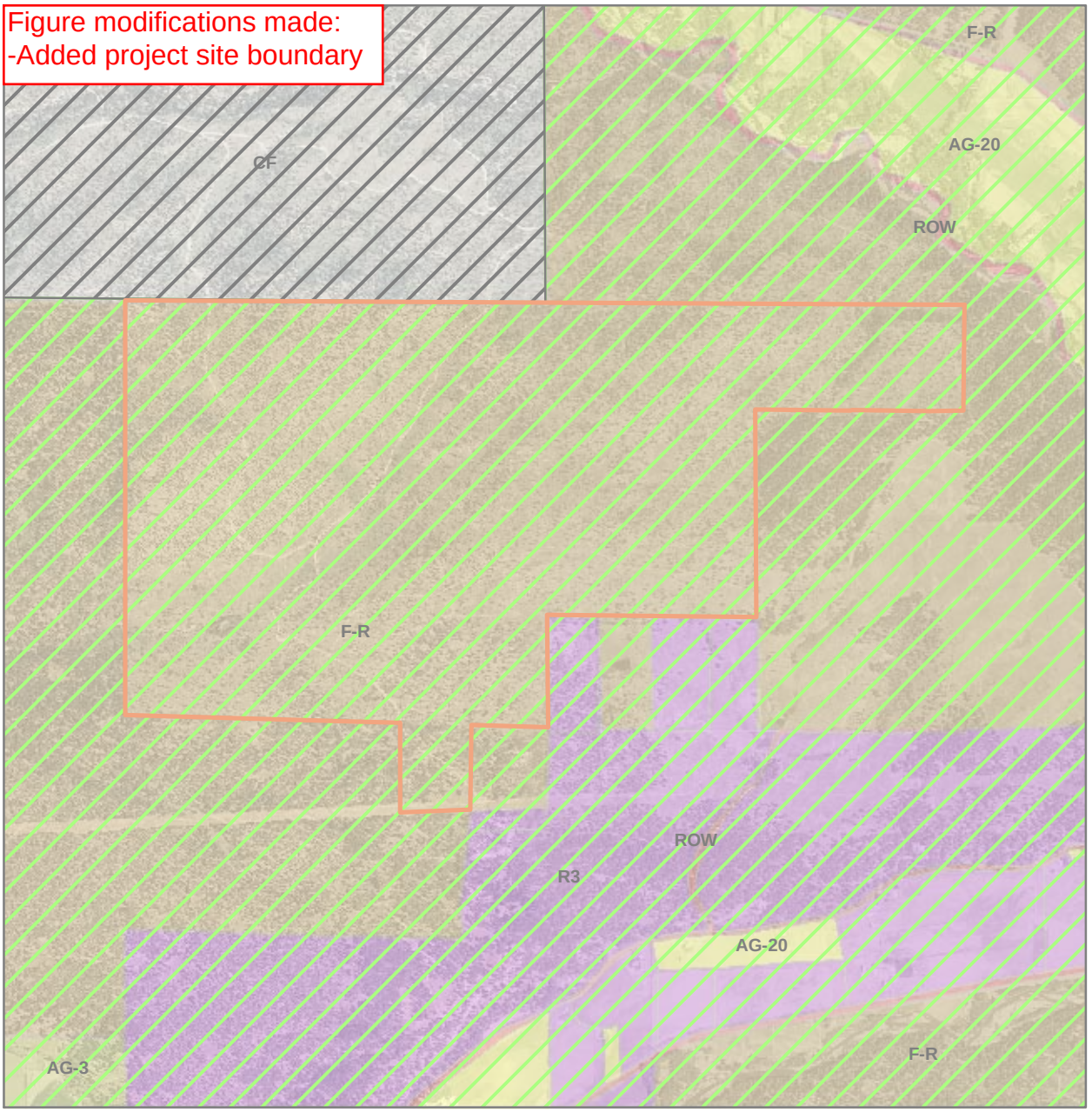
Feet

1 inch = 1,000 feet

FIGURE 5
Conceptual Site Layout
Teanaway Solar Reserve
Kittitas County, Washington

Inserted:
Figure 5a
Proximity to Closest residences

Figure modifications made:
-Added project site boundary



LEGEND

Proposed Project Area

Land Use

COMMERCIAL FOREST

RURAL

Zoning

AG-20, Agricultural 20

AG-3, Agricultural 3

CF, Commercial Forest

F-R, Forest & Range

R3, Rural 3

ROW, Right-of-Way

VICINITY MAP

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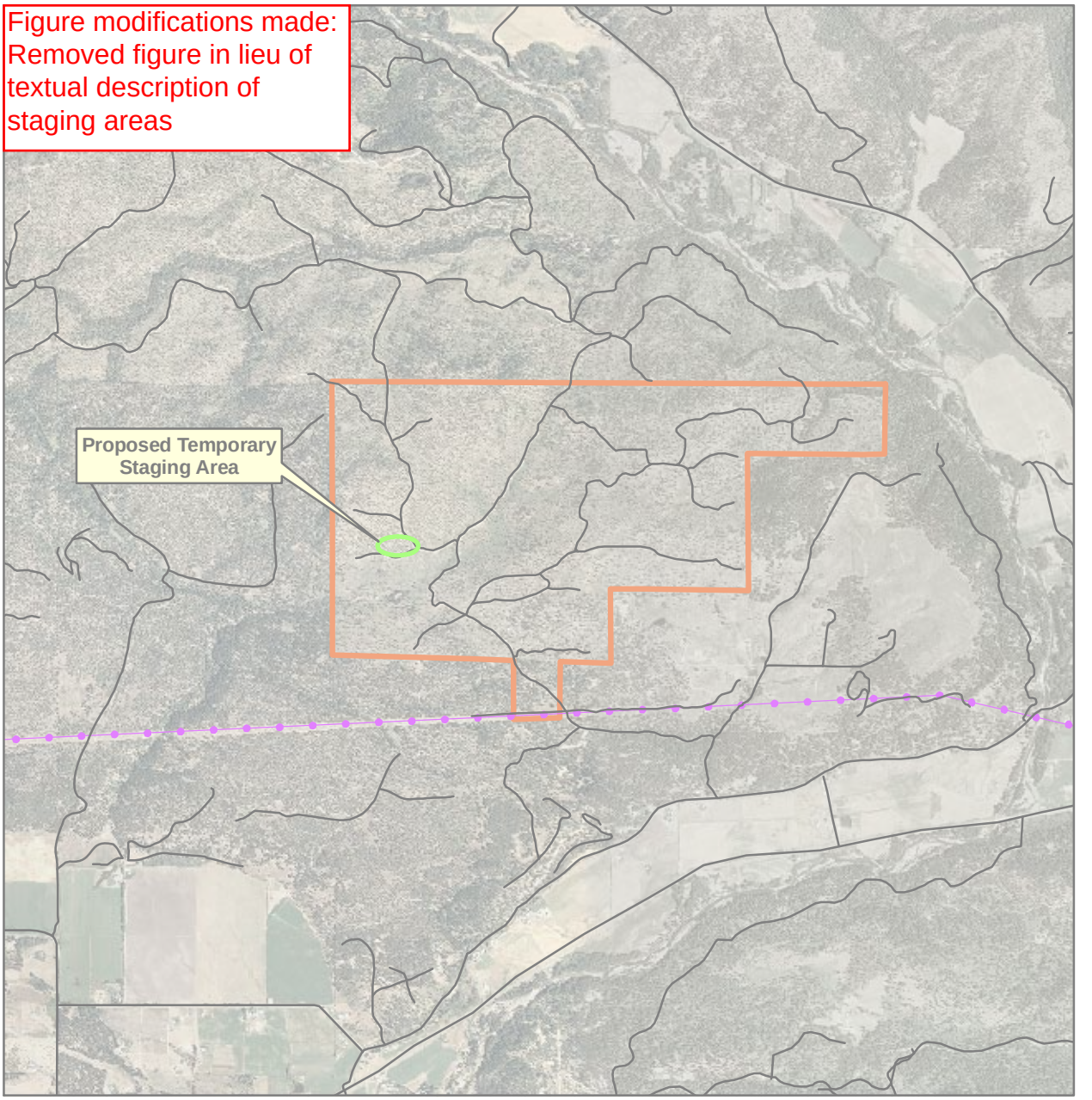
Note:
1. Aerial Imagery: 2006 1m NAIP.

FIGURE 6
Land Use/Zoning Map
Teanaway Solar Reserve
Kittitas County, Washington

Figure modifications made:
Removed figure in lieu of textual description of staging areas



LEGEND

- Proposed Project Area
- Proposed Temporary 5-Acre Staging Area
- Road
- Existing BPA Transmission Line

VICINITY MAP

Note:
1. Aerial Imagery: 2006 1m NAIP.

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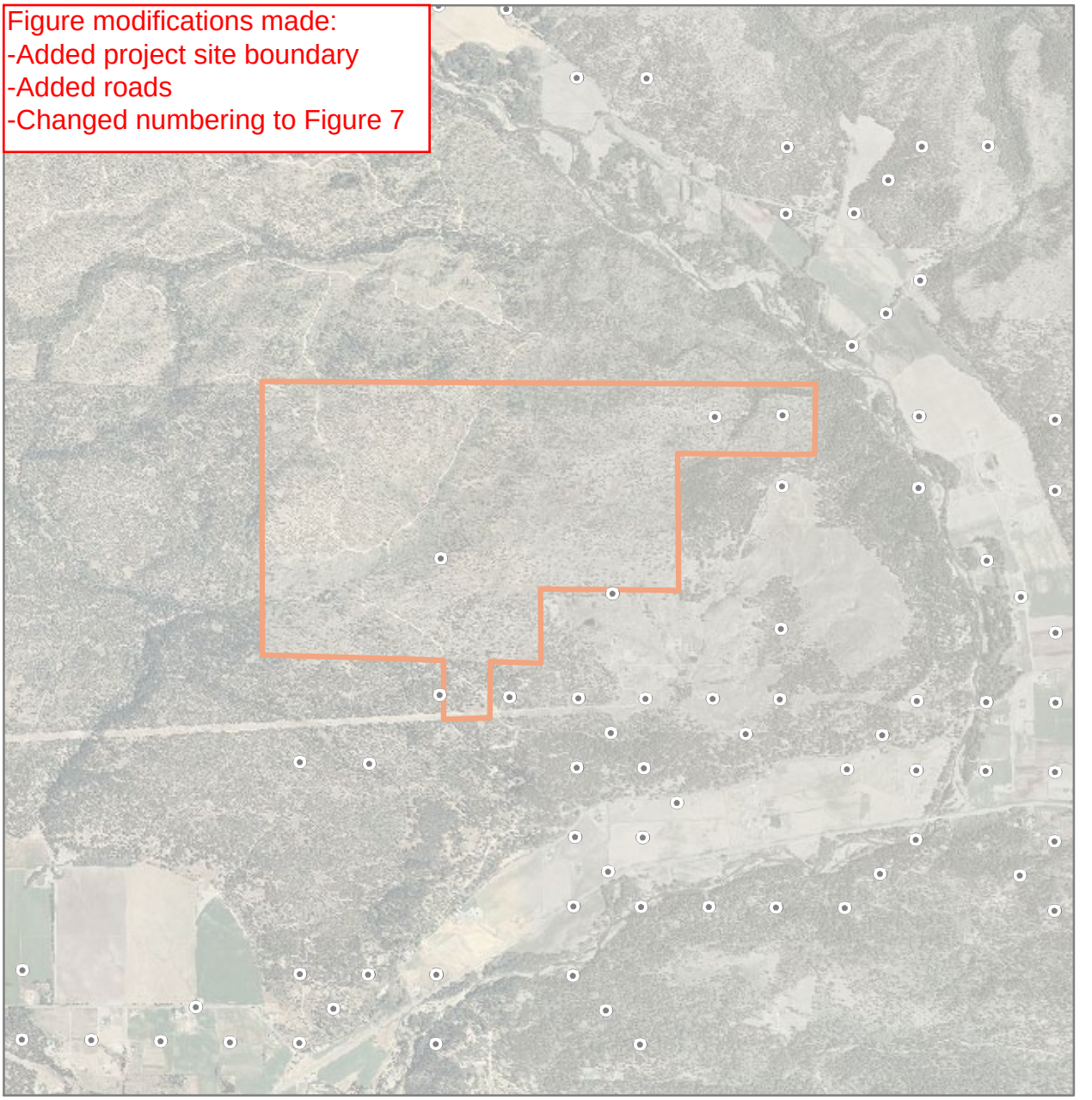
FIGURE 7
Staging Area Map
Teanaway Solar Reserve
Kittitas County, Washington

Figure modifications made:
-Added project site boundary
-Added roads
-Changed numbering to Figure 7



LEGEND

- Well Location
- Proposed Project Area

Notes:
1. Well Log Data: Washington State Department of Ecology Water Resources Program.
2. Aerial Imagery: 2006 1m NAIP.

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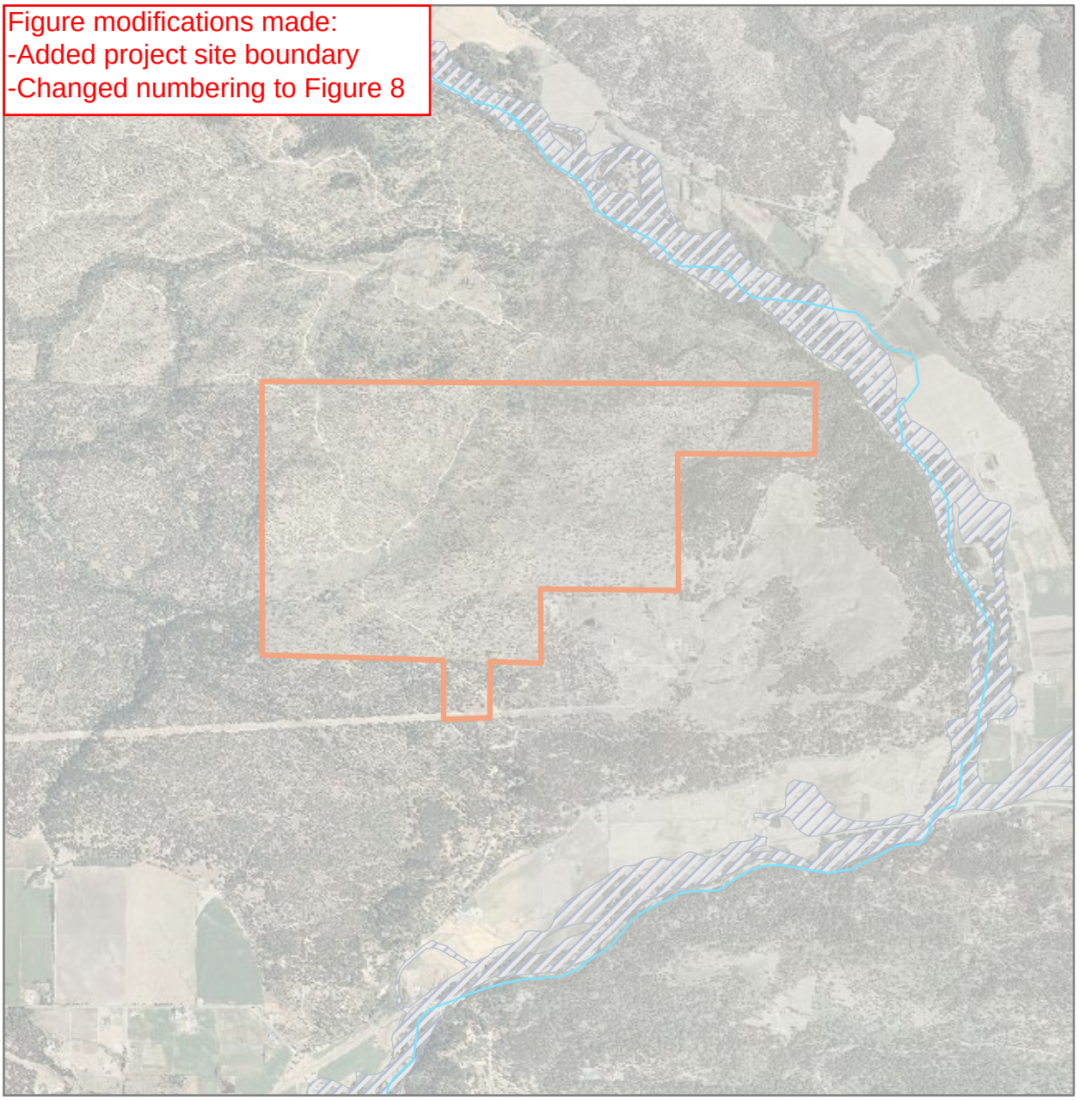
VICINITY MAP

FIGURE 8
Designated Critical Areas: Aquifer Recharge Areas
Teanaway Solar Reserve
Kittitas County, Washington

Figure modifications made:
-Added project site boundary
-Changed numbering to Figure 8



LEGEND

- Proposed Project Area
- FEMA 100-year Flood Zone
- Shoreline Management Act Stream (450 feet from proposed project area)

Notes:
1. Flood Data: Federal Emergency Management Agency Flood Insurance Rate Map.
2. Stream Data: Washington Department of Ecology.
3. Aerial Imagery: 2006 1m NAIP.

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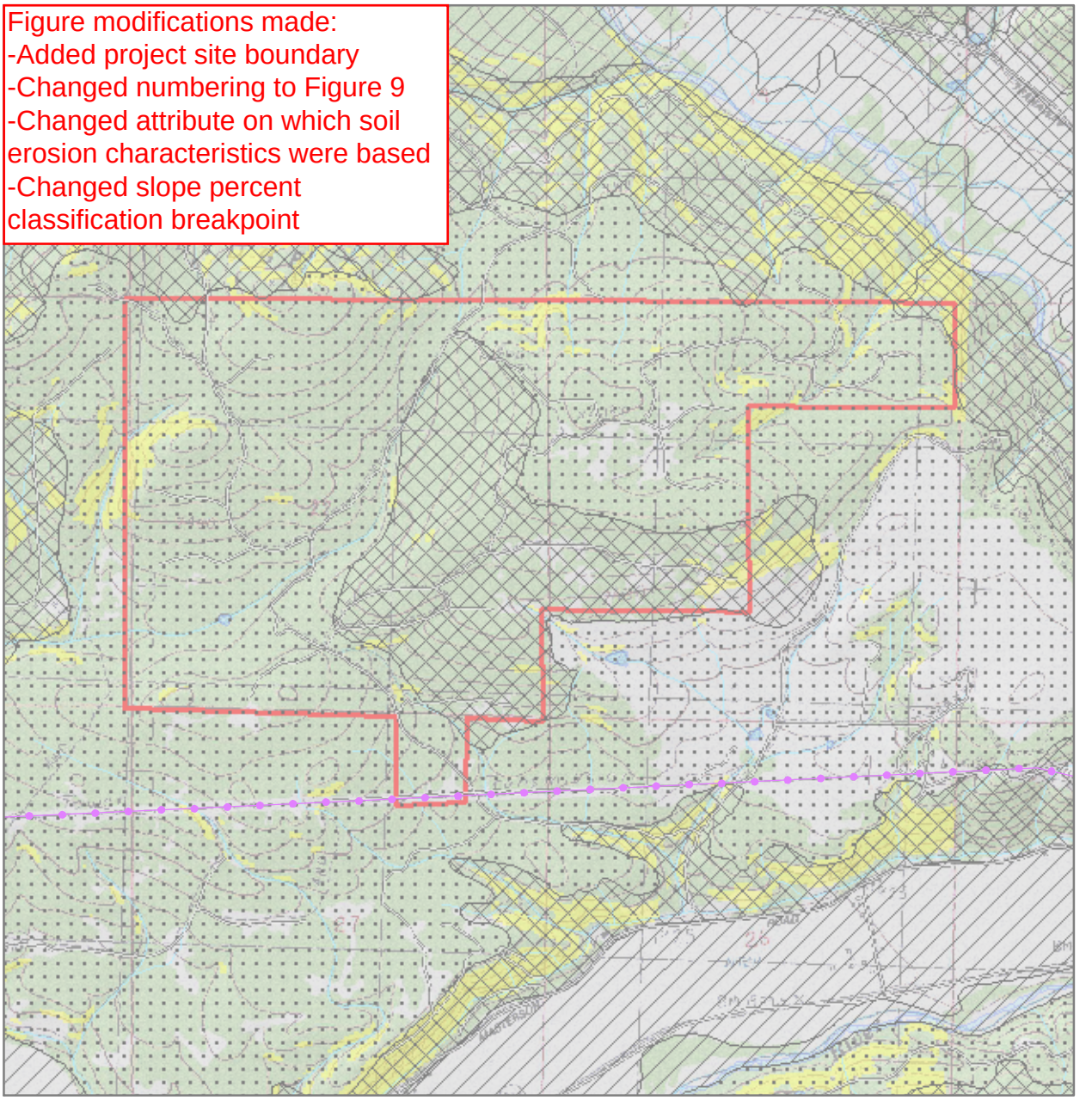
VICINITY MAP

FIGURE 9
Designated Critical Areas: FEMA Federal Insurance Rate Map for Kittitas County
Teanaway Solar Reserve
Kittitas County, Washington

Figure modifications made:
-Added project site boundary
-Changed numbering to Figure 9
-Changed attribute on which soil erosion characteristics were based
-Changed slope percent classification breakpoint



LEGEND

- Existing BPA Transmission Line
- Road
- Proposed Project Area
- Stream
- Waterbody

Slope
- 0 - 25% (not symbolized)
- 25%+

Soil Susceptibility to Erosion
- Slight
- Moderate
- Severe

Notes:
1. USGS 24K Quadrangle: Teanaway.
2. Soils Data: Soil Survey Geographic (SSURGO) Database.

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VICINITY MAP

FIGURE 10
Designated Critical Areas: Erosion-Prone Soils and Geologic Hazards
Teanaway Solar Reserve
Kittitas County, Washington

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Report

Teanaway Solar Reserve Potential Visual Impact Assessment Kittitas County, Washington

Prepared for

Teanaway Solar Reserve, LLC

February 2010

Prepared by

CH2MHILL

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Contents

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1.0 Introduction

The purpose of this updated technical report is threefold: (1) provide updated background documentation for the conclusions presented in the Aesthetics section of the Expanded SEPA Checklist Supplement, (2) assist Kittitas County in evaluating the potential visual impacts associated with the proposed project, and (3) respond to the letter from Kittitas County to CH2M HILL dated December 4, 2009 regarding the Teanaway Solar Reserve Conditional Use Permit (CU-09-00005) and Development Agreement.

2.0 Methodology

The first step in evaluating the potential visual impacts associated with the proposed project was to determine areas from which the project could potentially be visible. To achieve this goal, a geographic information system (GIS)-based visibility assessment, called a Zone of Visual Influence (ZVI) analysis, was conducted. The layout of the project that provided the basis for the August 2009 ZVI analysis was updated to reflect the layout as of January 2010. Environmental Systems Research Institute (ESRI) ArcGIS software was used for the analysis. The ZVI data were overlaid on a map of the general proposed project area in order to graphically depict areas from which the project would be potentially visible. Figure 1 in Appendix A illustrates an updated conceptual layout of the project. Figure 2 in Appendix A illustrates the potential collective visibility of solar panels in all four areas of the project site. Four maps (see Appendix A, Figures 3 to 6) were developed to show the potential visibility of solar panels in each one of the four areas.

To respond to the letter from Kittitas County dated December 4, 2009, requesting additional analysis within 1 mile of the project, "close up" ZVI maps were developed to indicate the potential visibility of the project components. The potential visibility of solar collectors to areas within 2 miles of the potential project site was developed (see Appendix A, Figure 7). Additional ZVI maps were also developed to illustrate the potential view of the part of the existing BPA transmission line near the project site (see Appendix A, Figure 8) and the project transmission line (see Appendix A, Figure 9). For readers who are familiar with the project area, the BPA transmission line ZVI map is useful in terms of seeing how the "potential" visibility depicted in a ZVI map relates to what is actually seen. The last additional ZVI map that was developed was for the project substation (see Appendix A, Figure 10). The software that was used to produce the ZVI measured 10-meter digital elevation models that were derived from multiple sources. These sources consisted of 7.5' (1:24,000) U.S. Geological Survey (USGS) topographic quadrangle maps, elevation manuscripts, and aerial photographs. The elevation models represent ground elevations.

The ZVI model calculated lines of sight between points that represent solar panels 10 feet above the adjacent terrain and ground areas from which they would be potentially visible. The ZVI model that was developed for the substation calculated lines of sight between points that were 120 feet above adjacent terrain to depict the tallest structure at the substation, the A-frame dead-end structure that connects the substation with its transmission line (none of the other components in the substation is taller than 30 feet). The ZVI model that was developed for the existing BPA transmission line near the project site

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and the proposed project transmission line tower (one) and poles (two) used points that were 150 feet above adjacent terrain.

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It is important to realize that the models do not take into account the presence of trees, buildings, or other features, so in many areas where project visibility is indicated, views will actually be screened by trees, other vegetation, or other structures. The ZVI models "overstate" the potential visibility of the project because the presence of trees, other vegetation, and other structures within the potential "seen" areas that would block or screen views are not taken into account when demarking areas from which evaluated projects would potentially be visible. In addition, ZVI models are line-of-sight models that do not account for attenuating factors such as distance, haze, humidity, background landscape, or weather, which would make the project invisible or barely visible from certain locations under many atmospheric or weather conditions.

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3.0 Project Viewpoints and Simulations

To respond to the December 4, 2009 letter from Kittitas County requesting additional analysis within 1 mile of the project area and to get a better idea of how visible the project would be, six new viewpoints (or locations) were added to the original four (see Appendix A, Figure 2). The 10 viewpoints represent locations from around the project area at varying distances. Photographs were taken from each location to depict existing views. Conceptual depictions or simulations of how the project would appear from eight of the locations were developed.

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Viewpoints were also used to depict existing visual conditions in the general project area and how they might change if the project were constructed. Viewpoints 1 and 2 were chosen to represent views of the project from areas south of Interstate 90 (I-90). Viewpoint 1 is located alongside Watson Cutoff Road just below the intersection with Upper Peoh Point Road. It is approximately 4 miles southwest of the project. Viewpoint 2 is approximately 3.5 miles to the southwest of the project and is located on Watson Cutoff Road at a lower elevation than Viewpoint 1 and is approximately 0.2 mile south of I-90. Both of these viewpoints were identified in the ZVI maps to be within the "seen" area of the project. Figure 1a of Appendix B depicts the existing view towards the project from Viewpoint 1, and Figure 1b is a conceptual depiction of what the view might look like with the project in place. Figures 2a and 2b of Appendix B illustrate similar views and conceptual depictions from Viewpoint 2. The project would be noticeable to viewers from these areas. It would appear as a series of low-lying dark objects located along the forested ridge that includes the project site. The project would be noticeable as a non-timber land use, but would likely be difficult for most viewers to identify what it is at this distance. Due to the low-lying nature of the solar collectors, the project would not block of obscure views of the mountains behind the project site.

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A number of v…iewpoints were selected…ls …

Viewpoints 3 and 4 are situated on Lookout Mountain south and southeast, respectively, of the project site. Despite much of the northwest side of Lookout Mountain being identified as an area from which the project would be potentially visible, it was difficult to find publically accessible locations on the northwest facing slopes of Lookout Mountain from which the project site can be seen. Based on several site visits and discussions with neighbors in the area on July 26, 2009, many, if not most, of the residences on the slopes of Lookout

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Mountain have views toward the project site that are obscured or at least partially screened by trees. Two areas were found that did have views of the project area.

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Viewpoint 3 is located on private property in a pasture above the main part of the ranch. It represents a very unobstructed and wide-open view of the project. Viewpoint 4 is located near the intersection of Ridgewater Drive and Lambert Road on public property. Both of these locations are approximately 1.5 miles from the closest edge of the project. These viewpoints were chosen to depict some of the closest elevated residential areas that could have views of the project. Figure 3a in Appendix B depicts the existing view from Viewpoint 3 looking toward the project area. Figure 3b is a conceptual depiction of what the view might look like if the project were constructed. Figures 4a and 4b in Appendix B illustrate similar views and conceptual depictions from Viewpoint 4.

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The view from Viewpoint 3 would change considerably with the project (although views farther down the slope near the ranch house would change less due to a lower viewing angle and some vegetation that would somewhat screen views). Views from Viewpoint 4 would also change with the project but would not be as noticeable from Viewpoint 3 and would be of short durations as people drive on Ridgewater Drive.

Deleted: Trees planted on the property could screen views of the project over time, but would also screen views of the Mt. Stewart. …iews …

Most residences on the north side of Highway 970 are closer to the project site than the residences on the northwest face of Lookout Mountain. However, none are higher in elevation than the project site and do not look down upon, or parallel to, it, so the project would not be a visible as it would from parts of Lookout Mountain. Four new viewpoints (5, 6, 7, and 10) within 1 mile of the project site were selected based upon the request from Kittitas County for closer viewpoints. Viewpoint 5 (see Figures 5a and 5b in Appendix B) is located at the intersection of Wiehl Road and a private drive and represents views that people driving by the area on a public road, or people driving to nearby residences, would have looking toward the project. Viewpoint 6 (see Figures 6a and 6b of Appendix B) is from a residence approximately 800 feet southeast of the nearest project panels. Viewpoint 7 (see Figures 7a and 7b in Appendix B) is from a nearby residence that is also located approximately 800 feet away from the closest project panels. Viewpoint 10 (see Figures 10a and 10b in Appendix B) is from the location where Loping Lane crosses the existing Bonneville Power Administration (BPA) transmission line. This view is seen by people accessing private properties and residences via Loping Lane.

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Viewpoints 8 and 9 were selected to illustrate views toward the project from two nearby public roads that are located in valleys below the project area. Viewpoint 8 (see Figure 8 in Appendix B) is located on Highway 970 approximately 0.5 mile south of the highways crossing of the Teanaway River. As seen in Figure 8, the sides of the upland area upon which the project would be built can be clearly seen, but the top cannot be. Viewpoint 9 is taken from Teanaway Road where the BPA transmission line crosses the road (see Figure 9 of Appendix B). Although project components would not be seen in this area, the location of this viewpoint is useful for depicting the BPA transmission line corridor in an area where it is very visible and viewing the north slope of the upland area on which the project would be constructed.

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As the conceptual depictions of the project from Viewpoints 5, 6, 7, and 10 illustrate, close-up views of the proposed facility would be largely screened by topography and vegetation. The removal of trees on the horizon would be noticed from Viewpoint 5, but project

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equipment would not be. The removal of trees would not greatly diminish the visual quality of the view from this location. The removal of trees will also be noticed from Viewpoint 6, and for several years after construction some panels will be seen. They would be located on a ridge and seen as a uniform horizontal shape that would differ from the irregular shape of the existing tree line. Trees planted near the perimeter of the facility, if desired, would help restore the irregular tree line and block views of parts of the panels within 3 to 10 years and would reduce the visibility of the project. The trees between Viewpoint 7 and the project would screen most views of the project from this location. The project would require the removal of some trees, which could be somewhat noticed between the trunks of closer trees that would remain. However, the removal of some trees would not greatly change the view from this location. Tree planted near the perimeter of the facility and/or on the property of the residence if desired, would screen the parts of it that might be seen from this location. People driving past Viewpoint 10 would see the project conductors (wires) connecting with the new structure that would be constructed as part of the project in the BPA right-of-way. Drivers might also notice where the 200-foot cleared right-of-way of the project would intersect at a right angle with the cleared 200-foot right-of-way of the BPA transmission line.

The visibility of the project transmission line would likely be similar to that of the adjacent BPA transmission line as indicated in Figures 8 and 9 of Appendix A. The project transmission line would connect with the existing BPA transmission line from the north and its cleared right-of-way would be visible from some areas depicted in Figure 9 of Appendix A. The one lattice structure (where it would tie into the BPA transmission line) and two pole structures would be potentially visible from essentially the same areas that the nearby BPA structures are. The transmission line would be visible from some areas near it, such as along the parts of the existing BPA transmission line right-of-way, as illustrated in Figure 10b of Appendix B. It would likely not be seen from most of the residences east of the project area (near Viewpoints 5, 6, and 7) due to topography and vegetation. The actual location of the transmission line will be likely be decided by the BPA, but the centerline and the 200-foot of cleared right-of-way will be at least 100 feet east of the nearest residence to the west of it and over 1,000 feet from the nearest residence to the east.

As indicated in Figures 10a and 10b of Appendix B, the substation would be less visible than the transmission line. The tallest structure (the 120-foot high "A-Frame") would potentially be seen from the residential area east of the project site. However, as with the project transmission line, topography and the presence of trees would likely screen most views of it from this area.

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Locations 3 and 4 were selected to represent views of the project from areas south of Interstate 90 (I-90). Location 3 is approximately 3.5 miles to the southwest of the project and Location 4 is approximately 4 miles to the southwest. Location 3 is alongside Watson Cutoff Road just below the intersection with Upper Peoh Point Road. Location 4 is on Watson Cutoff Road at a lower elevation than Location 3 and is approximately 0.2 mile from I-90. Both of these locations were identified in the ZVI maps to be within the seen area of the project. Figure 9a depicts the existing view towards the project from Location 3 and Figure 9b is a conceptual depiction of what the view might look like with the project in place. ...
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APPENDIX A
Figures

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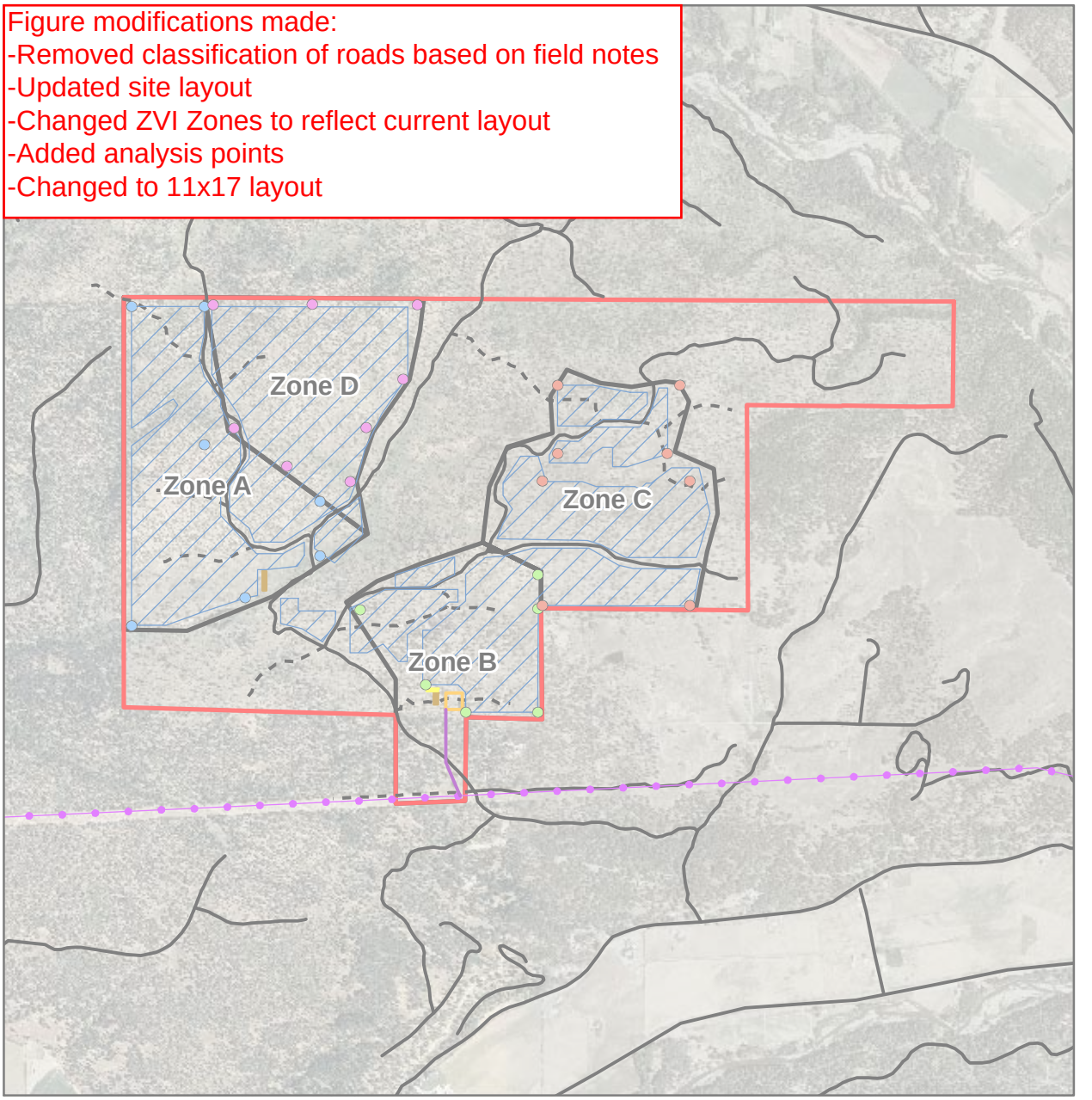
Figure modifications made:
-Removed classification of roads based on field notes
-Updated site layout
-Changed ZVI Zones to reflect current layout
-Added analysis points
-Changed to 11x17 layout



LEGEND

- Proposed Project Area
- ZVI Zone

ZVI Points

- Zone A
- Zone B
- Zone C
- Zone D

- Proposed Powerline Route to Grid
- Proposed Potential Module Location
- Proposed O&M Facility
- Proposed Substation
- Proposed Switchgear
- Road
- Minor Dirt Road
- Existing Transmission Line

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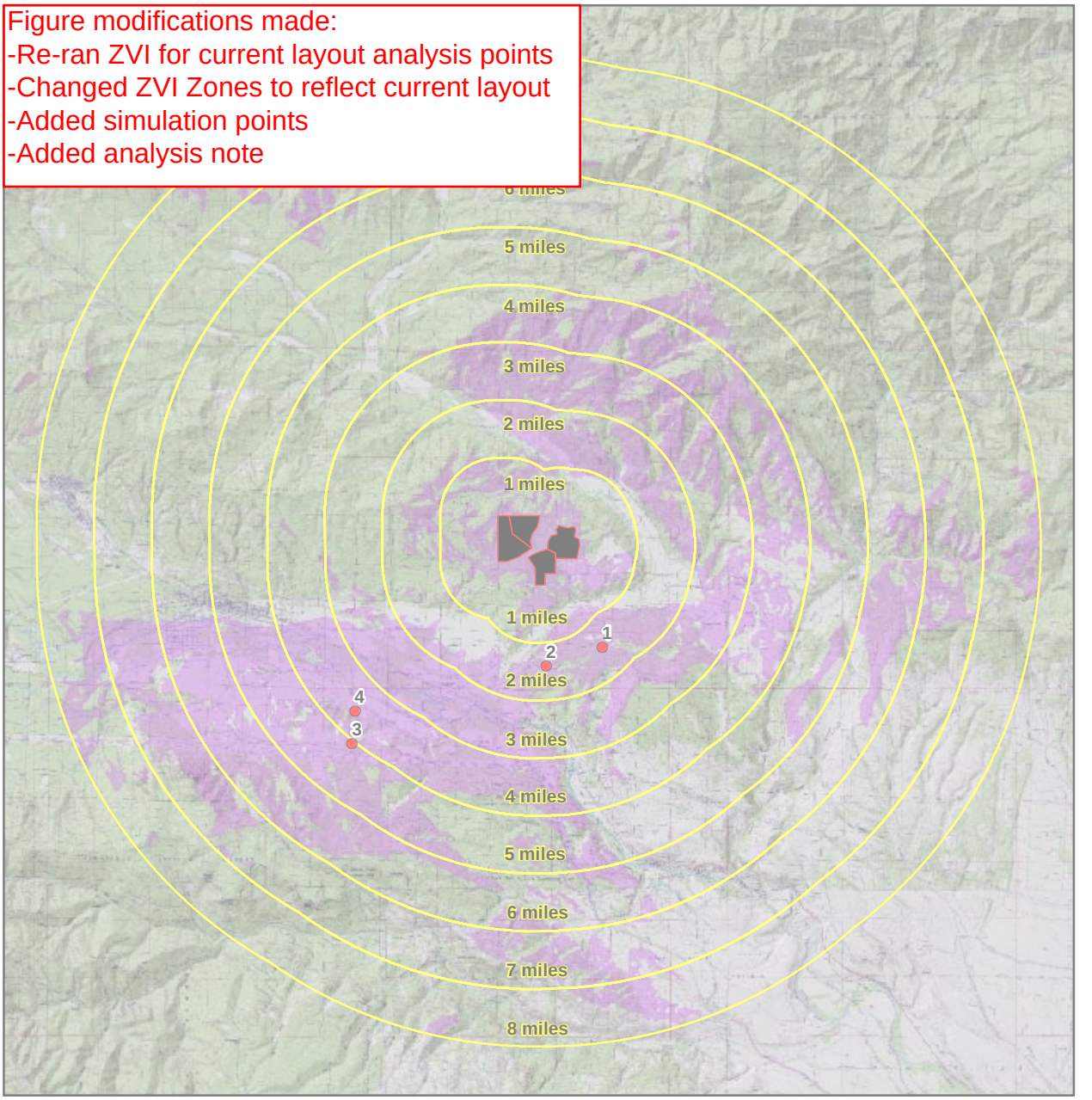
VICINITY MAP

FIGURE 1
ZVI Analysis Zone Points
Teanaway Solar Reserve
Kittitas County, Washington

Figure modifications made:
-Re-ran ZVI for current layout analysis points
-Changed ZVI Zones to reflect current layout
-Added simulation points
-Added analysis note



LEGEND

- Simulation Viewpoint
- Area Considered in ZVI
- ZVI Zone
- Distance from Project Area
- Zone of Potential Visual Influence

VICINITY MAP

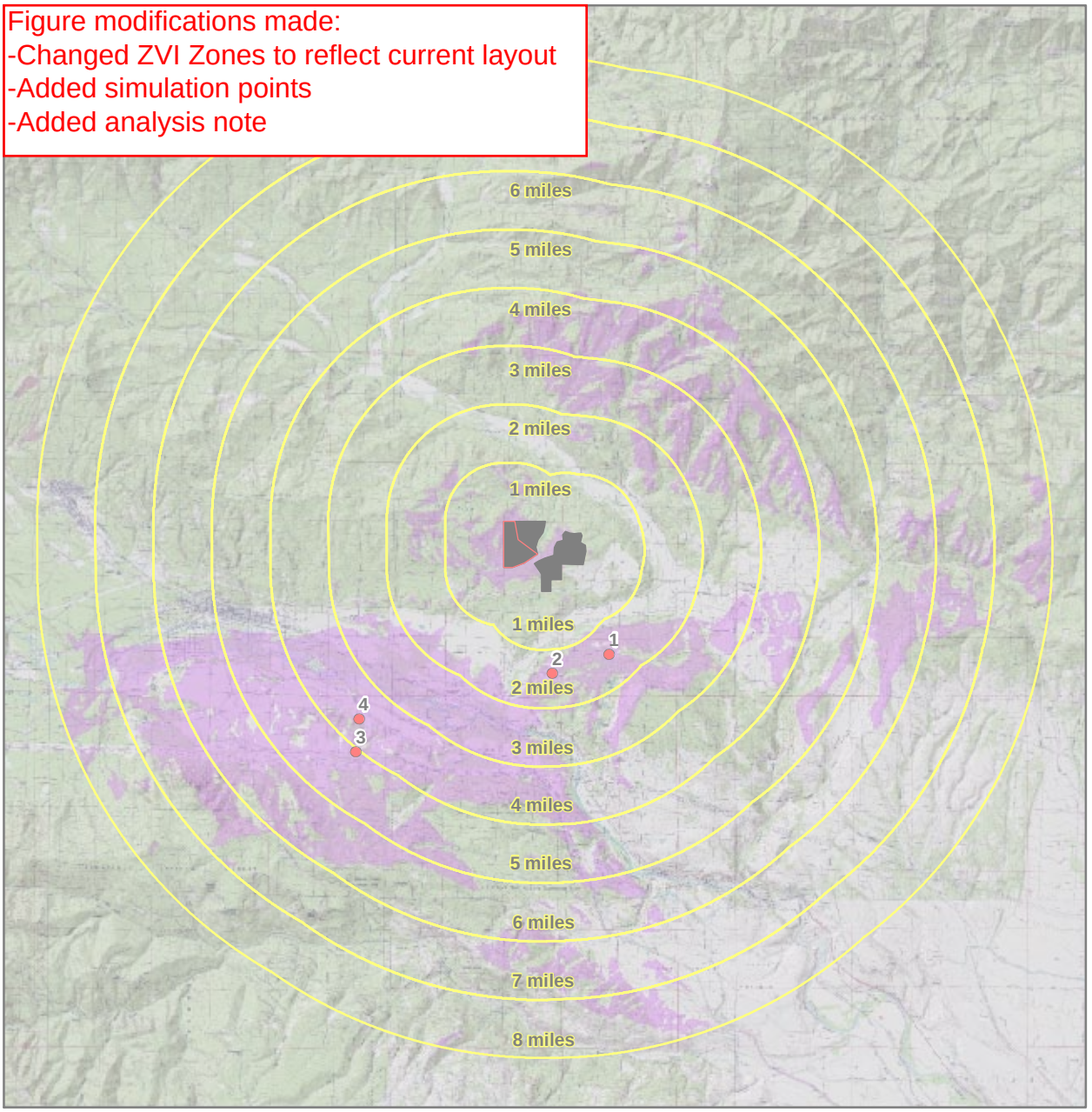
N

0 2.75

Miles

FIGURE 2
Zone of Visual Influence-All Zones
Teanaway Solar Reserve
Kittitas County, Washington

Figure modifications made:
-Changed ZVI Zones to reflect current layout
-Added simulation points
-Added analysis note



LEGEND

- Simulation Viewpoint
- Area Considered in ZVI
- ZVI Zone
- Distance from Project Area
- Zone of Potential Visual Influence

VICINITY MAP

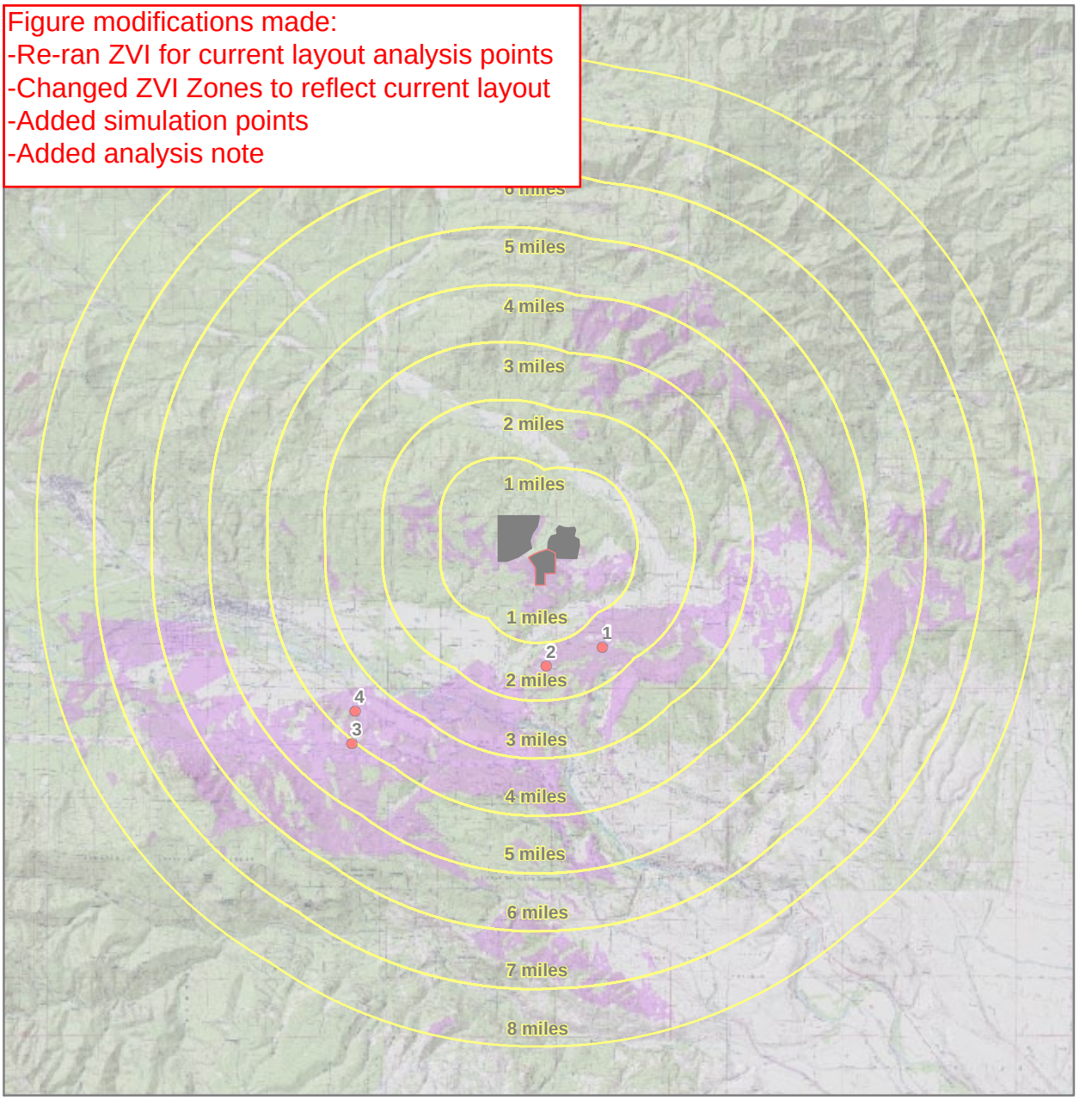
N

0 2.75

Miles

FIGURE 3
Zone of Visual Influence-Zone A
Teanaway Solar Reserve
Kittitas County, Washington

Figure modifications made:
-Re-ran ZVI for current layout analysis points
-Changed ZVI Zones to reflect current layout
-Added simulation points
-Added analysis note



LEGEND
- Simulation Viewpoint
- Area Considered in ZVI
- ZVI Zone
- Distance from Project Area
- Zone of Potential Visual Influence

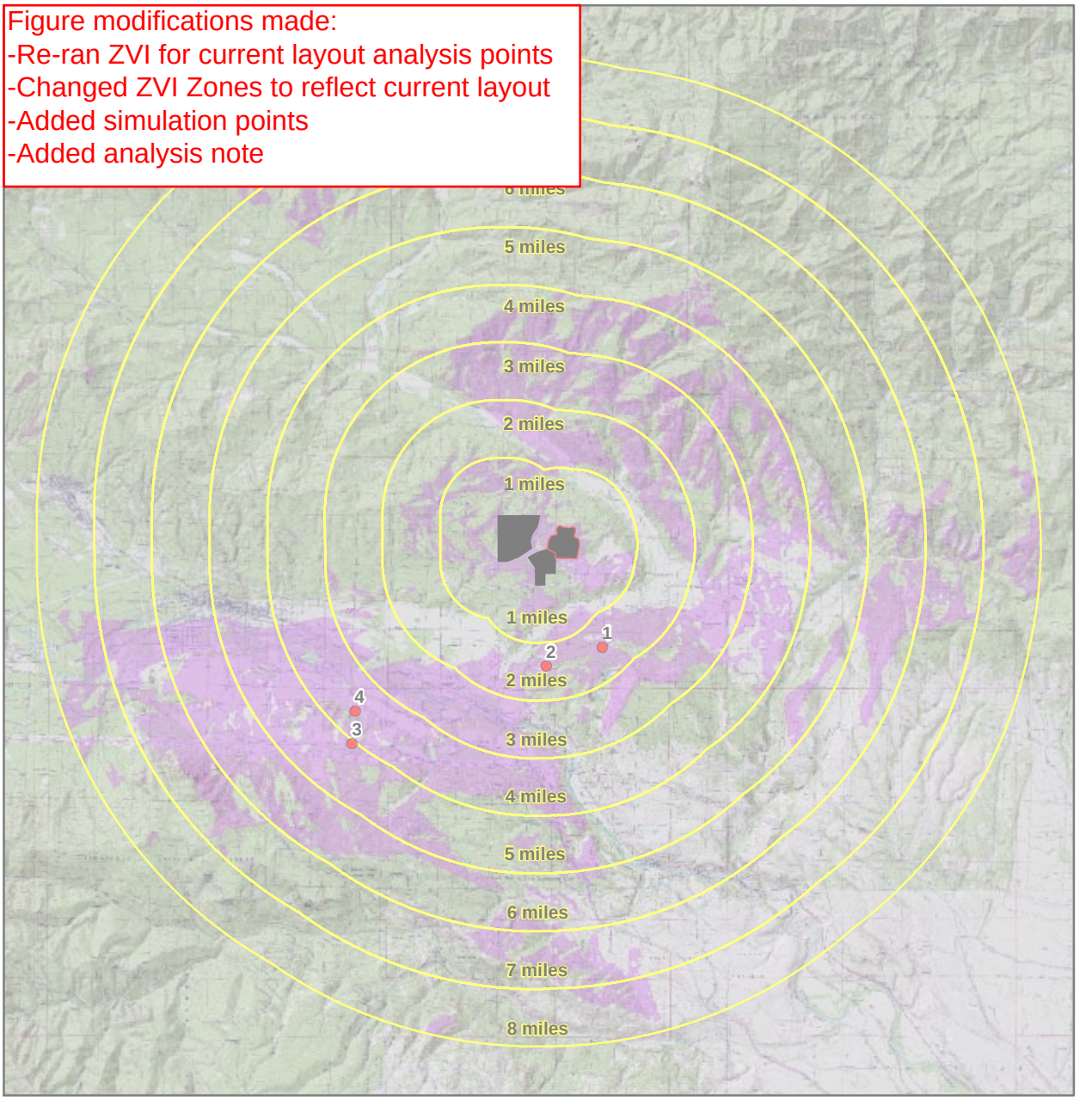
VICINITY MAP

N

0 2.75
Miles

FIGURE 4
Zone of Visual Influence-Zone B
Teanaway Solar Reserve
Kittitas County, Washington

Figure modifications made:
-Re-ran ZVI for current layout analysis points
-Changed ZVI Zones to reflect current layout
-Added simulation points
-Added analysis note



LEGEND
- Simulation Viewpoint
- Area Considered in ZVI
- ZVI Zone
- Distance from Project Area
- Zone of Potential Visual Influence

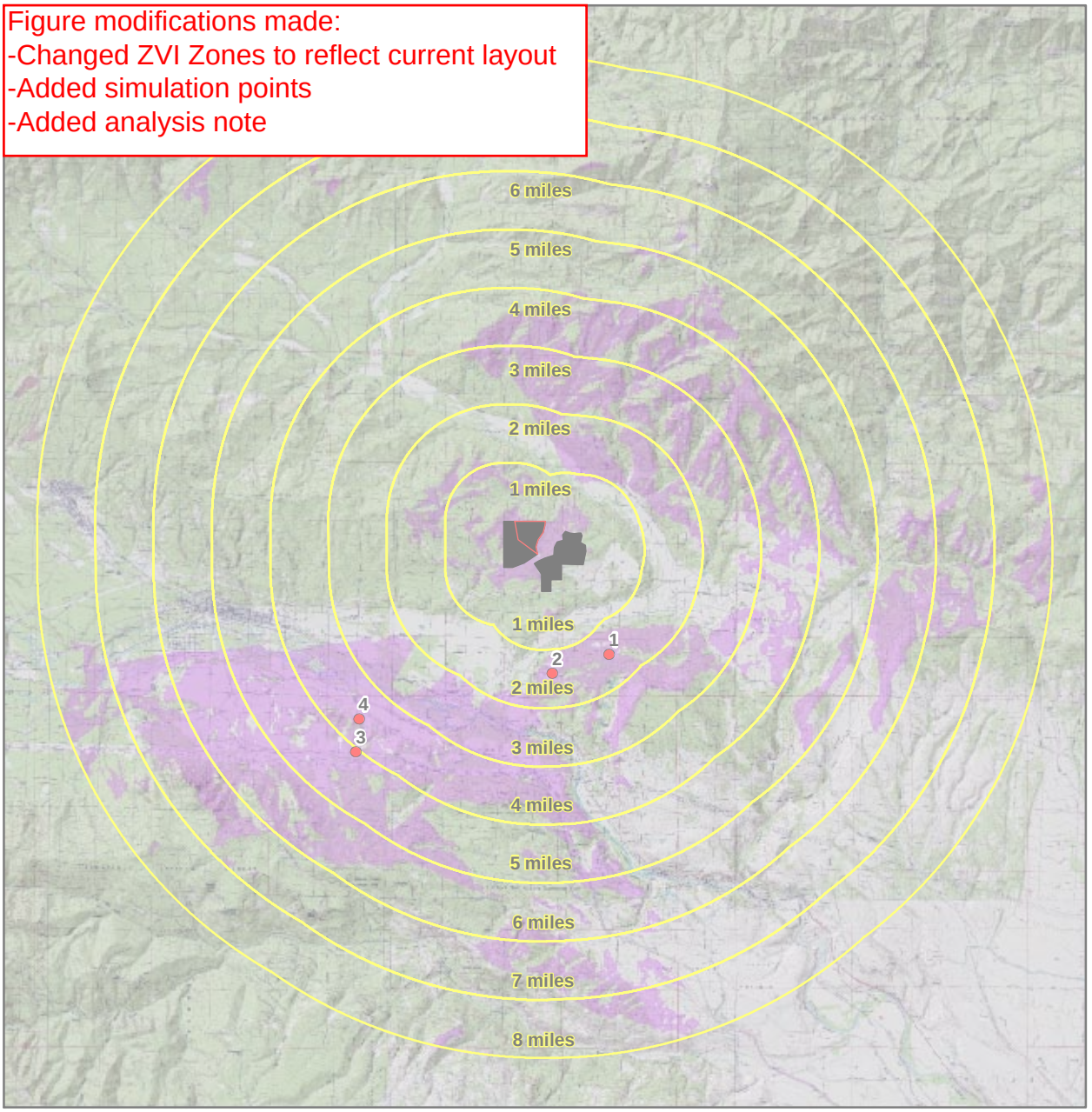
VICINITY MAP

N

0 2.75
Miles

FIGURE 5
Zone of Visual Influence-Zone C
Teanaway Solar Reserve
Kittitas County, Washington

Figure modifications made:
-Changed ZVI Zones to reflect current layout
-Added simulation points
-Added analysis note



LEGEND

- Simulation Viewpoint
- Area Considered in ZVI
- ZVI Zone
- Distance from Project Area
- Zone of Potential Visual Influence

VICINITY MAP

N

0 2.75

Miles

FIGURE 6
Zone of Visual Influence-Zone D
Teanaway Solar Reserve
Kittitas County, Washington

Inserted:
Figure 7
Proposed PV Array Blocks and Zone of Potential Visual Influence in Vicinity of Project Site

Inserted:
FIGURE 8
Existing 500 kV Transmission Line Zone of Potential Visual Influence in Vicinity of Project Site

Inserted:
FIGURE 9
Proposed Transmission Line Zone of Potential Visual Influence in Vicinity of Project Site

Inserted:
FIGURE 10
Project Substation Zone of Potential Visual Influence in Vicinity of Project Site

APPENDIX B

Photos and Simulations

Location 1 — Residence 1/4 Mile West of Lambert Road

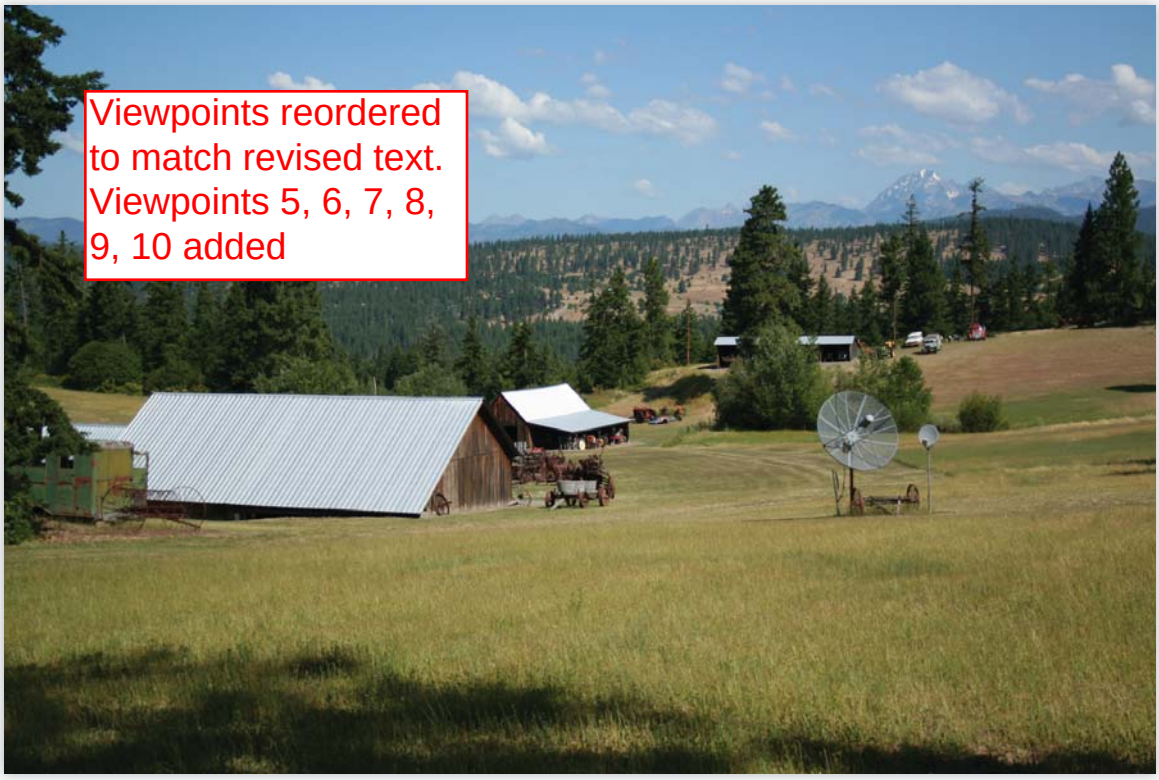


Figure 7a
Existing View Looking West at Project Site

Figure 7b
Conceptual Depiction of View with Project

Location 2 — Ridgewater Drive

Figure 8a
Existing View Looking West at Project Site

Figure 8b
Conceptual Depiction of View with Project

Location 3 — Watson Cutoff Road (Upper)

Figure 9a
Existing View Looking Northeast at Project Site

Figure 9b
Conceptual Depiction of View with Project

Location 4 — Watson Cutoff Road (Lower)

Figure 10a
Existing View Looking Northeast at Project Site

Figure 10b
Conceptual Depiction of View with Project