

CHAPTER 2 – ALTERNATIVES AND PROPOSED FEDERAL ACTIONS

2.1 INTRODUCTION

The Silver State Solar Energy Project as reviewed in the 2010 Final EIS included a proposal to construct, operate, maintain, and decommission a 400-MW_{AC} solar PV power plant and related facilities on *between 2,967 and 4,819* acres of BLM-administered public lands approximately 2 miles east of Primm, Nevada. The 2010 Final EIS considered three alternatives: the No Action Alternative (Alternative 1), the Proposed Action (Alternative 2), and a Modified Site Layout Alternative (Alternative 3). Alternatives 2 and 3 were similar except for a modified drainage control system and the solar array layout. On October 10, 2010, the BLM issued a ROD approving Phase I of the Silver State Solar Energy Project as a component of the full project identified under Alternative 2. Pursuant to the ROD, the build out of the remaining phases (Phases II and III) may require supplemental NEPA analysis, which is the subject of this Supplemental EIS/PRMPA analysis.

Alternatives considered in this Supplemental EIS/PRMPA include 1) Alternative A - the No Action Alternative; 2) Alternative B – *Proposed Action* (as described in Silver State’s Plan of Development dated July 2011); 3) Alternative C – *Alternative Layout* (analyzed as Phases II and III of Alternative 2 in the 2010 Final EIS); 4) Alternative D – *Modification to Proposed Action Layout* (developed in consideration of comments received during scoping for the Supplemental EIS/PRMPA); and *the BLM Preferred Alternative which was developed to address public and agency concerns related to desert tortoise demographic connectivity within the Ivanpah Valley and agency and public interest in a reduced-scale alternative. The Project would be designed to produce 350 MW_{AC} of solar-generated electricity, with output based on the Project layout and the outcome of Power Purchase Agreement (PPA) negotiations.*

2.1.1 Federal Agency Proposed Action

The BLM’s Proposed Action is to approve, approve with modification, or deny issuance of a ROW grant to the Applicant for the Silver State Solar South Project. Modifications may include the proposed use or location of the proposed facilities (43 CFR 2805.10(a)(1)). The BLM will also consider concurrent amendment of the LVFO RMP to:

- 1) Remove the Project footprint from the Jean Lake/ Roach Lake SRMA;
- 2) Revise the VRM classification of lands within the Project footprint from VRM Class III to VRM Class IV to ensure management is consistent with existing and planned land use; and
- 3) Designate a *30,912-acre or 31,859-acre* ACEC and identify management prescriptions for a portion of the proposed ACEC nomination area in accordance with 43 CFR Section 1610.7 - 2 - *Designation of areas of critical environmental concern.*

2.1.2 Applicant's Objectives

The Applicant's objective is to construct, operate, maintain and eventually decommission a ~~350-~~~~MW_{AC}~~-utility-scale solar PV project within the State of Nevada, south of Las Vegas, where it can interconnect directly into the California and Nevada transmission system. The Applicant's specific objectives for the Project are:

- To construct and operate a cost-competitive solar energy facility using First Solar's proven thin-film PV technology to provide a renewable and reliable source of power;
- To locate the Project on contiguous lands with high solar insolation and relatively flat terrain at sufficient scale to maximize operational efficiency while minimizing environmental impacts and water use;
- To minimize environmental impacts and land disturbance by locating the Project near existing transmission infrastructure and roads and by avoiding sensitive environmental areas, recreational resources and wildlife habitats (e.g., Desert Wildlife Management Areas [DWMA], ACECs, designated Wilderness Areas, Wilderness Study Areas, and other restrictive land use designations); and
- To develop a source of renewable electric power that can be placed into service in an expeditious manner by interconnecting to the existing transmission grid at a substation location with existing capacity.

The proposed Project could potentially help displace older fossil-fuel electric generating facilities with clean, renewable power, which would contribute to the reduction of greenhouse gas (GHG) emissions. In addition, the proposed Project would further the objectives of the President Obama's Climate Action Plan (June 2013) to eliminate or reduce GHG emissions and promote the deployment of renewable energy technologies.

2.2 SELECTION OF ALTERNATIVES

A number of alternatives were recommended during the scoping period and public comment period for the Draft Supplemental EIS/PRMPA. These suggested alternatives were similar to those suggested during the EIS process for the Silver State Solar Energy Project, including consideration of alternative technologies; alternative locations (i.e., brownfield development, alternative BLM lands and lands in California); and alternative size and layout.

Following the Draft Supplemental EIS/PRMPA public comment period, the BLM reviewed all comments to identify substantive issues that warranted consideration or further analysis in the Final Supplemental EIS/PRMPA. Concerns surrounding impacts to desert tortoise connectivity led to the development of the BLM's Preferred Alternative that considers a modification of the Project layout and reduction in output from 350 MW_{AC} to 250 MW_{AC}. (Section 2.3.1 below). The BLM's Preferred Alternative, similar to Alternative D, contains designation of an ACEC and identifies management prescriptions for a portion of the nominated ACEC.

Other suggested alternatives such as alternative technologies and locations were eliminated from further analysis as they were not viable and did not meet BLM's purpose and need. Specific details describing why these alternatives are not viable are provided in Section 2.2.3 in the 2010 Final EIS; this Supplemental EIS/PRMPA tiers from that analysis.

2.3 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

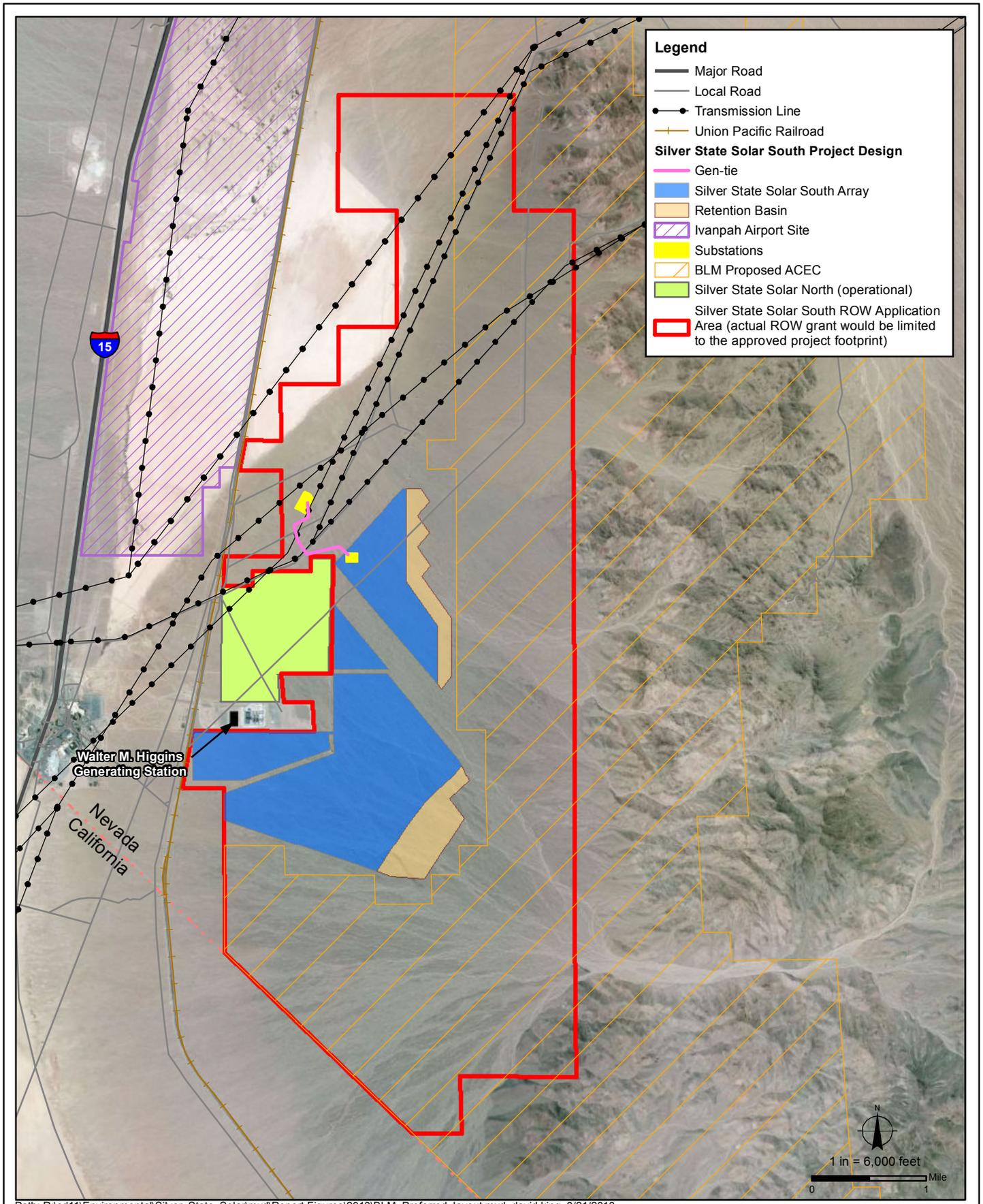
2.3.1 *BLM Preferred Alternative*

The BLM Preferred Alternative was developed by the Applicant after the Draft Supplemental EIS/PRMPA was published through close consultation with the USFWS, BLM, and USACE to reduce impacts to the desert tortoise and jurisdictional waters (Figure 2-1). During this consultation, the Applicant developed iterations of a revised Project layout that were reviewed by USFWS, BLM and USACE and refined based on agency feedback.

The BLM Preferred Alternative is smaller in area and electricity generation capacity is reduced as compared to other action alternatives – 250 MW_{AC} for the BLM Preferred Alternative versus 350 MW_{AC} for Alternative B, C, or D. The BLM Preferred Alternative incorporates site layout modifications based on ongoing discussions with resource agencies, stakeholder groups, and comments received during the Draft Supplemental EIS/PRMPA public comment period (October 12, 2012 through January 11, 2013). The layout has been designed to address concerns associated with desert tortoise connectivity corridor characteristics and impacts to jurisdictional waters of the US, and continues to minimize impacts to recreational areas in the Jean Lake/Roach Lake SRMA. The proposed footprint remains within the area evaluated in the 2010 Final EIS and Draft Supplemental EIS/PRMPA, and incorporates a 31,859-acre ACEC similar to Alternative D (Figure 2-2). This alternative would also require the BLM to reduce the acreage of the SRMA by the Project footprint, and change the VRM class from VRM Class III to IV for the Project footprint.

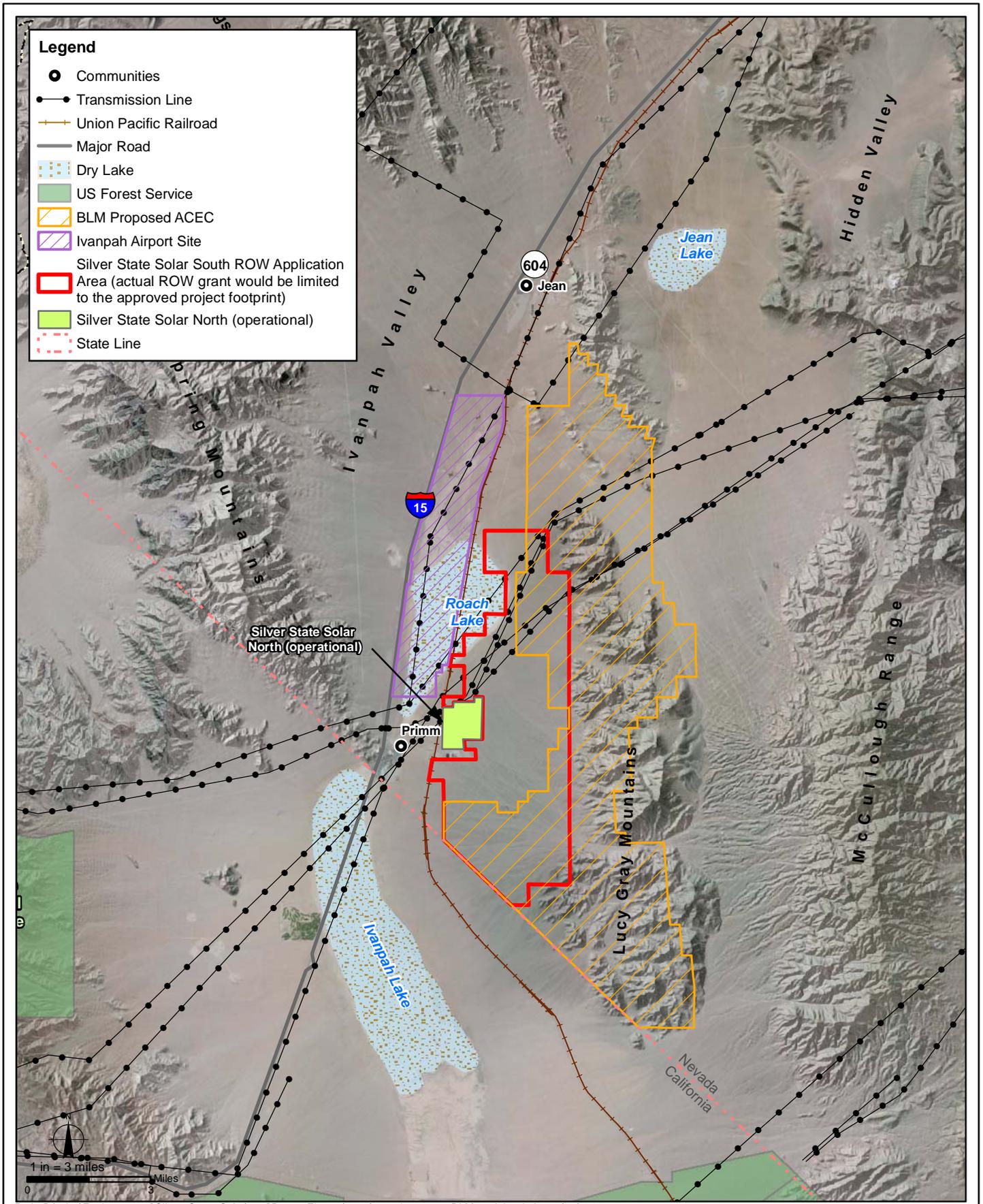
The layout for the BLM Preferred Alternative is shown in Figure 2-1, and would include facilities for interconnection to Southern California Edison's (SCE) transmission system via the proposed Primm Substation. Construction of the Project facilities and related infrastructure would disturb a total area of 2,427 acres. The solar field and ancillary facilities, including internal circulation roads would occupy approximately 1,898 acres inside the perimeter fencing. About 529 acres of the facility footprint would be located outside the perimeter fencing including drainage facilities, the Primm Substation and associated infrastructure, including 12-kilovolt (kV) distribution line from the NV Energy Bighorn Substation along the Project access road, interconnection facilities, and a maintenance road that would intersect the site. The maintenance road would allow public access through the Project area by connecting existing recreational routes that traverse the Project area. Acreages associated with other Project components under the BLM Preferred Alternative are listed in Table 2-1.

Drainage controls under the BLM Preferred Alternative would consist of detention basins and associated drainage channels. The drainage structures would be located along the eastern edge of the solar arrays, and would result in a permanent disturbance of 374 acres. As noted in



**BLM Preferred Alternative - Proposed Action Site Layout
Silver State Solar South Project**

**FIGURE
2-1**



**Proposed Area of Critical Environmental Concern –
BLM Preferred Alternative
Silver State Solar South Project**

**FIGURE
2-2**

Table 2-1, and depending on final design, the drainage facilities may be located inside or outside the perimeter fence. In addition, the BLM Preferred Alternative would avoid drainages delineated by the USACE as jurisdictional waters of the US.

2.3.2 Alternative A - No Action Alternative

NEPA regulations require that EIS alternative analyses “include the alternative of no action” (40 CFR §1502.14[d]). The No Action Alternative is included in the analysis so that the EIS clearly evaluates the effects of not amending the LVFO RMP and not developing the Silver State Solar South Project. For this analysis, the No Action Alternative includes the following:

- The BLM would deny the ROW application and not amend the LVFO RMP. Existing management of the area would continue in accordance with the current LVFO RMP.
- The Silver State Solar South Project would not be built on this site, and any environmental and socioeconomic impacts associated with construction and operation at this site would not occur, including the benefits associated with a utility-scale 350-MW_{AC} renewable energy source.

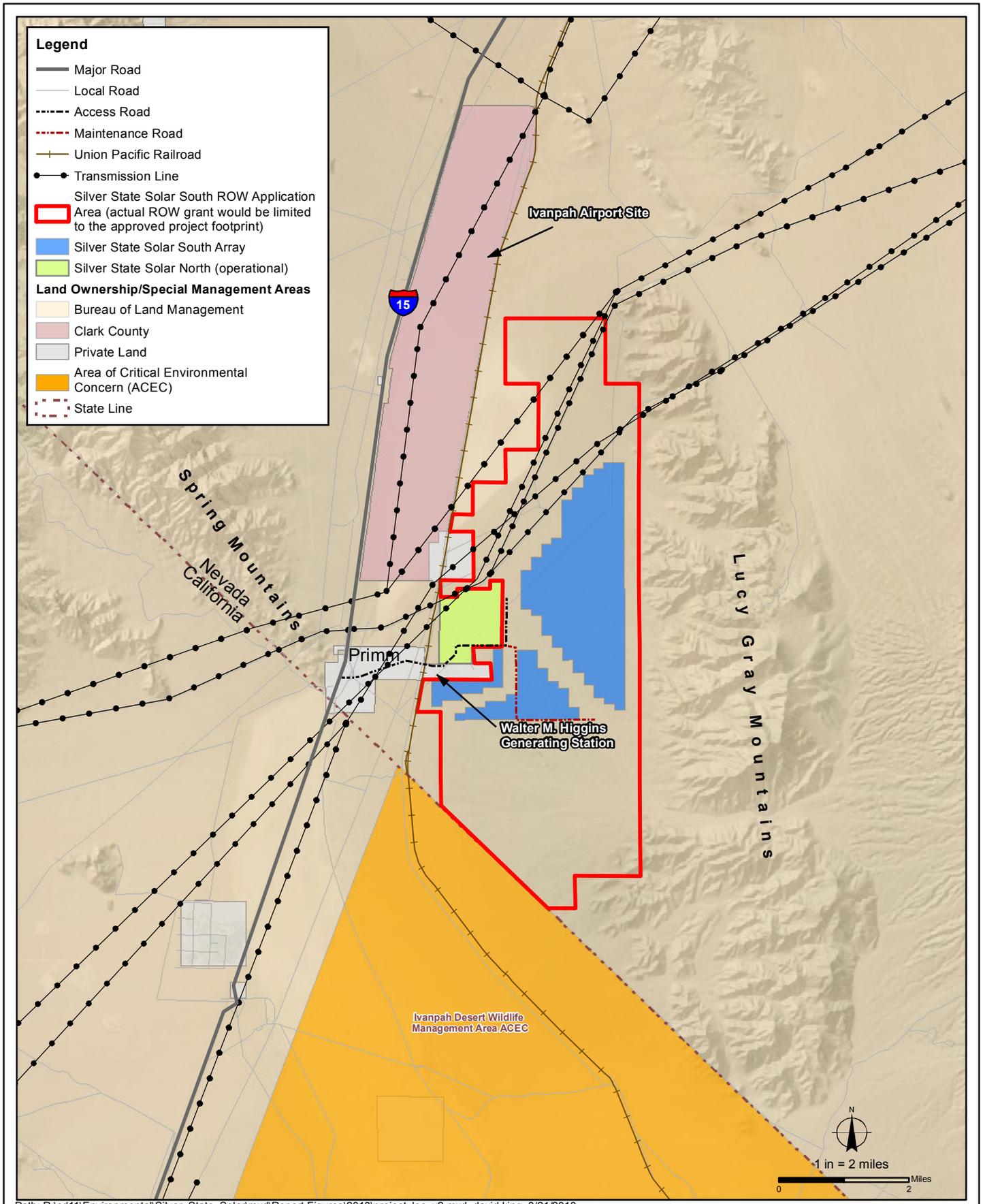
Figure 2-3 depicts the current land use in the ROW application area and vicinity. Under the No Action Alternative, land use would remain the same.

2.3.3 Alternative B – Proposed Action

Alternative B is the Applicant’s proposal as described in their draft Plan of Development (CH2M HILL 2011). It is similar to Phases II and III of the Proposed Action (Alternative 2) evaluated in the 2010 Final EIS, but the layout of the Project, including solar arrays, drainage facilities and appurtenant structures, has been revised since 2010 to avoid potential impacts to resources, particularly to jurisdictional waters of the United States. The proposed generating capacity remains the same (350 MW_{AC}) as evaluated in the 2010 Final EIS.

Project facilities under Alternative B are proposed to be sited north of the location evaluated in the 2010 Final EIS, encompassing portions of the revised ROW application area not analyzed in the 2010 Final EIS. This revised layout avoids impacts to waters of the U.S. Construction of the Project facilities and related infrastructure would disturb a total area of 3,881 acres, of which 1,640 acres would be located in the portion of the ROW application area not analyzed in the 2010 Final EIS. This alternative would require the BLM to reduce the acreage of the SRMA by the Project footprint, and change the VRM class from VRM Class III to IV for the Project footprint.

Project and related facilities inside the perimeter fence under Alternative B would cover approximately 3,796 acres. This would include limited amounts of open space between the perimeter roads and the arrays, as well as drainage facilities. Limited development would also occur outside the perimeter fencing, with approximately 102 acres that would include the Primm Substation and associated infrastructure, including a 12-kV distribution line from the NV Energy Bighorn Substation along the Project access road, an approximately 1-mile long 220-kV transmission line, a First Solar switchyard, temporary construction mobilization area, perimeter



**Project Location
Silver State Solar South Project**

**FIGURE
2-3**

roads around the exterior of the site, and 2.87 miles of maintenance roads that intersect the site. The maintenance roads would allow public access through the Project area by connecting an existing recreation route from the northwest of the Project area to an existing recreation route to the southeast. Proposed drainage controls include two drainage basins connected by a drainage channel. The drainage basins and connecting channel would be directly aligned with the eastern edge, and on the inside, of the perimeter fence and outside delineated jurisdictional waters.

Acreages associated with each Project component under Alternative B are listed in Table 2-1. These disturbance areas would be removed from the SRMA and their VRM classification would be changed from III to IV.

Table 2-1. Facility Features of Each Action Alternative

Project Components	<u>BLM Preferred Alternative</u>	<u>Proposed Action (Alternative B)</u>	<u>Alternative Layout (Alternative C)</u>	<u>Modification to Proposed Action Layout (Alternative D)</u>
<i>Project Within Perimeter Fence^a (Approximate Acres)</i>				
Solar Field and Ancillary Facilities	<u>1,898</u>	3,796	2,449	2,609
<i>Facilities Outside Perimeter Fence^a (Approximate Acres)</i>				
Drainage Facilities	<u>374^b</u>	Included in the solar field	29	364
Primm Substation and Laydown	<u>34</u>	<u>34</u>	<u>34</u>	<u>34</u>
220 kV Transmission Line (Silver State South Substation to the <u>Primm Substation</u>)	<u>28^c</u>	23	16	13
34.5-kV Collection Lines	<u>0</u>	6	4	0
Temporary Construction Mobilization Area	<u>28</u>	8	4	28
Maintenance Road	<u>65</u>	14	11	63
Total Disturbance Acreage	<u>2,427 acres</u>	<u>3,881 acres</u>	<u>2,546 acres</u>	<u>3,110 acres</u>
Previously Disturbed Silver State North Access Road to Be Used	<u>12 acres</u>	12 acres	12 acres	12 acres

^a The tortoise fence is considered the perimeter fence for the purposes of these calculations.

^b The location of drainage facilities relative to the perimeter fence will be determined during final design, and will be documented in the subsequent Plan of Development. For the purposes of this table, the drainage facilities are presented as being outside the perimeter fence.

^c The acreage provided represents the upper range of potential disturbance associated with 220 kV and/or 230 kV transmission lines for interconnection to the California or Nevada markets.

When comparing the acreages of the four action alternatives (Table 2-1), it is important to note that the difference in acreages between Alternative B, C, and D are primarily related to drainage control design. Since the 2010 Final EIS, the Applicant has conducted further analysis of the drainages originating in the Lucy Gray Mountains to the east. This analysis has led to the design of detention basins and drainage channels for Alternatives B and D to ensure that the downstream discharge of storm water flow does not exceed pre-Project conditions. The proposed detention facilities for the BLM Preferred Alternative, Alternative B, and D require more acreage than the berm and channel system proposed for Alternative C. However, Alternatives B, D, and the BLM Preferred Alternative have the benefit of eliminating impacts to jurisdictional drainages identified for Alternative C.

Figure 2-4 shows the proposed site layout for Alternative B.

2.3.4 Alternative C – Alternative Layout

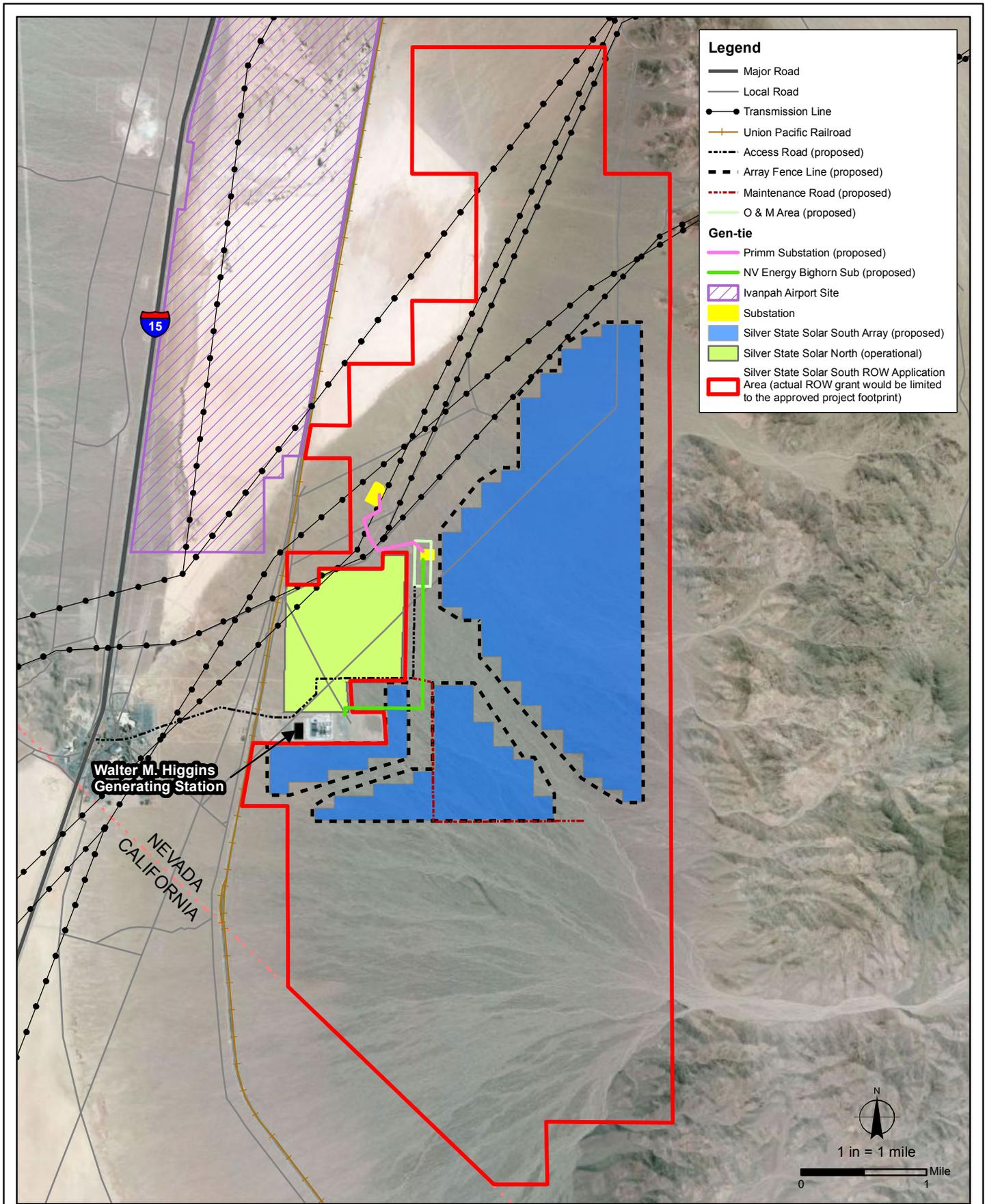
Alternative C represents Phases II and III of the Proposed Action (Alternative 2) as described in *Section 2.2.2* of the 2010 Final EIS (BLM 2010). Project and related facilities would disturb a total area of 2,546 acres, all within the 7,925-acre ROW application area analyzed in the 2010 Final EIS. Acreages for major Project components under Alternative C are listed in Table 2-1. Figure 2-5 shows the proposed site layout for Alternative C. *This alternative would require the BLM to reduce the acreage of the SRMA by the Project footprint, and change the VRM class from VRM Class III to IV for the Project footprint.*

The maintenance roads would allow public access through the Project area by connecting an existing recreation route from the northwest of the Project area to an existing recreation route to the southeast. Drainage controls under Alternative C would consist of a series of up to five earthen drainage control berms that would contain surface runoff flows to existing primary drainages (storm water flow corridors) across the site. The berms would be constructed to a height of 3 to 5 feet above grade with a top width of approximately 15 feet. The 2010 Final EIS identified that the Alternative C drainage structures (Alternative 2 in the 2010 Final EIS) would result in impacts to waters of the U.S.

2.3.5 Alternative D – Modification to Proposed Action Layout

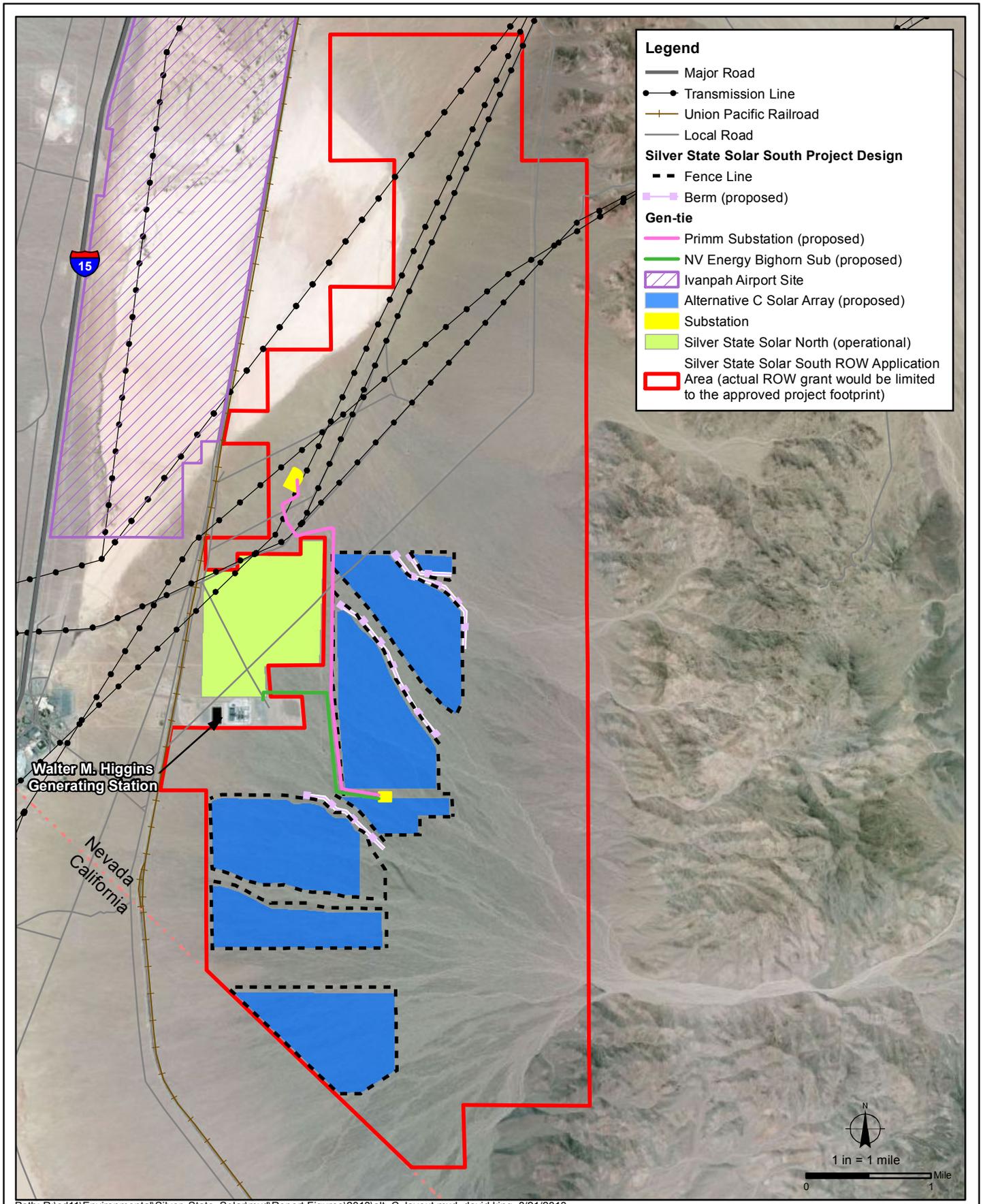
The Project layout for Alternative D is similar to Alternative B, but includes modifications based on comments received during the public scoping period (September 1, 2011 through October 31, 2011). The layout has been designed to avoid impacts to interstate drainages, reduce impacts to desert tortoise and other special status species, and minimize impacts to recreational areas in the Jean Lake/Roach Lake SRMA. Construction of the Project facilities and related infrastructure would disturb a total area of 3,110 acres. *This alternative would require the BLM to reduce the acreage of the SRMA by the Project footprint, and change the VRM class from VRM Class III to IV for the Project footprint.*

Under Alternative D, the solar field and ancillary facilities, including internal circulation roads would occupy approximately 2,609 acres inside the perimeter fencing. About 518 acres of the facility footprint would be located outside the perimeter fencing, including *the Primm Substation and associated infrastructure, including 12-kV distribution line from the NV Energy Bighorn*



**Alternative B - Proposed Action Site Layout
Silver State Solar South Project**

**FIGURE
2-4**



**Alternative C - Phase 2 and 3 as Analyzed in the Final EIS
Silver State Solar South Project**

**FIGURE
2-5**

Substation along the Project access road, an approximately 1-mile long 220 kV transmission line, perimeter roads around the exterior of the site and 2.45 miles of maintenance roads that would intersect the site. The maintenance roads would allow public access through the Project area by connecting existing recreational routes that traverse the Project area. Acreages associated with other Project components under Alternative D are listed in Table 2-1. Figure 2-6 shows the proposed layout for Alternative D.

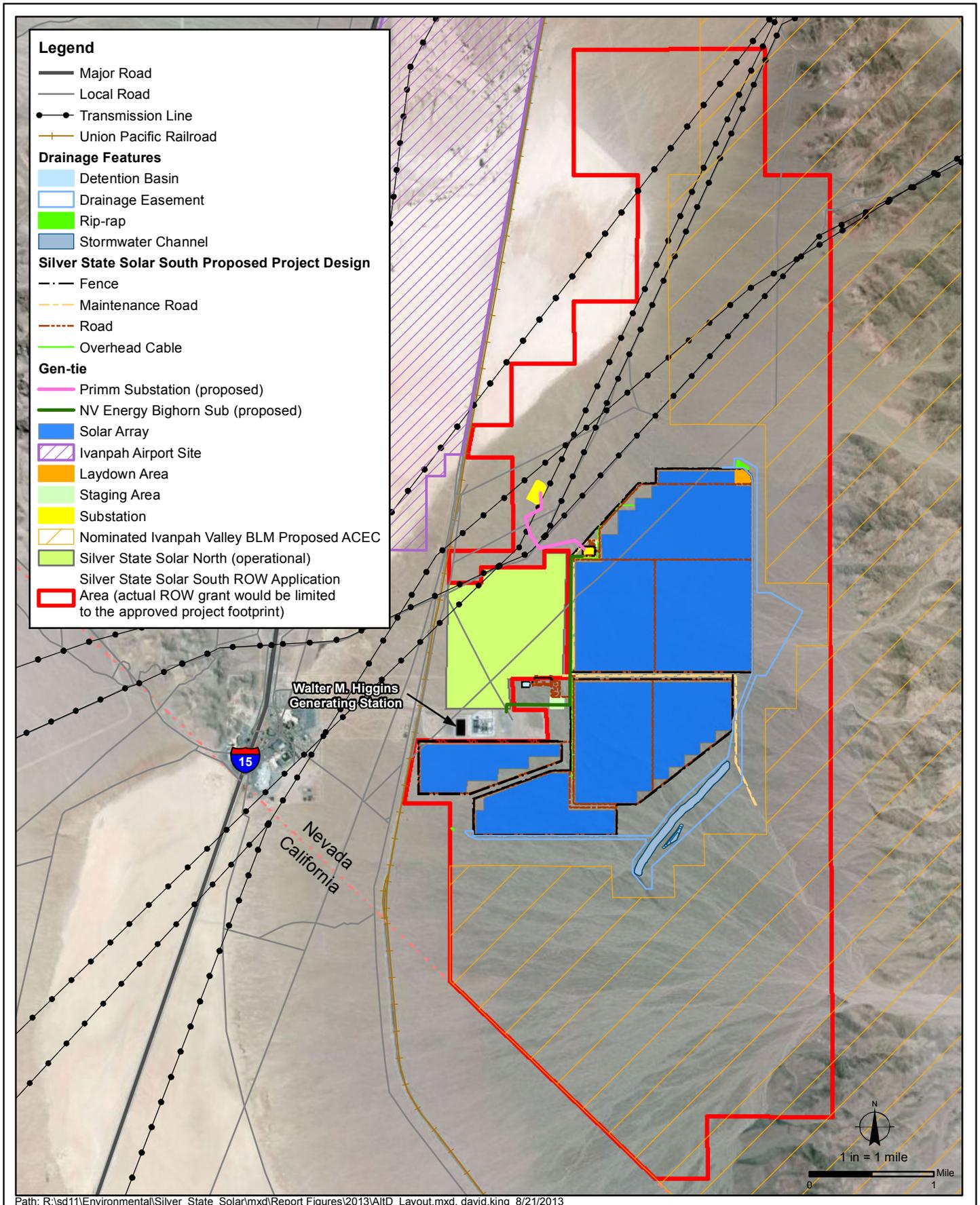
Drainage controls located outside the perimeter fence would consist of two detention basins and associated drainage channels. The drainage structures would result in a temporary disturbance of more than 500 acres during construction, and the permanent disturbance would be 364 acres.

Alternative D includes an area designated as an ACEC (Figure 2-7) and management prescriptions that would be required for the designated ACEC (Table 2-2). The ACEC under consideration was nominated by Basin and Range Watch to include a total of 129,379 acres in California and Nevada. The nominated area within Nevada is 98,300 acres. Basin and Range Watch identified their proposed ACEC as being important for several sensitive species. Their nomination states, “The Ivanpah Valley contains an important habitat that supports a variety of rare and important species as well as important visual and cultural resources. The Ivanpah Valley is also undergoing pressure to develop various land uses. Golden Eagle, Western Burrowing Owl, Peregrine Falcon, chuckwalla and Gila monster occur here, as well as many rare plants from Nevada and California.”

To be eligible for designation as an ACEC, an area must meet the relevance and importance criteria described in 43 CFR 1610.7-2 and BLM Manual 1613. The BLM interdisciplinary team determined that 40,180 of the 98,300 nominated acres in Nevada meet criteria for both relevance and importance. Of the 40,180 acres, a 30,912-acre ACEC is included as part of Alternative D and a 31,859-acre ACEC is included as part of the BLM Preferred Alternative because they meet the relevance and importance criteria for the Agassiz’s desert tortoise (refer to Appendix B for detailed assessment of relevance and importance). A BLM interdisciplinary team determined that the area does not meet the criteria of relevance and importance for cultural values and natural hazards. BLM acknowledges the value of many of the fish and wildlife species and natural process or systems nominated that did not meet the importance criteria. Many of the current ACECs in the 1998 RMP contain these resources and provide adequate protection. In addition, the RMP contains objectives and minimization measures to provide protection for these resources outside designated ACEC areas.

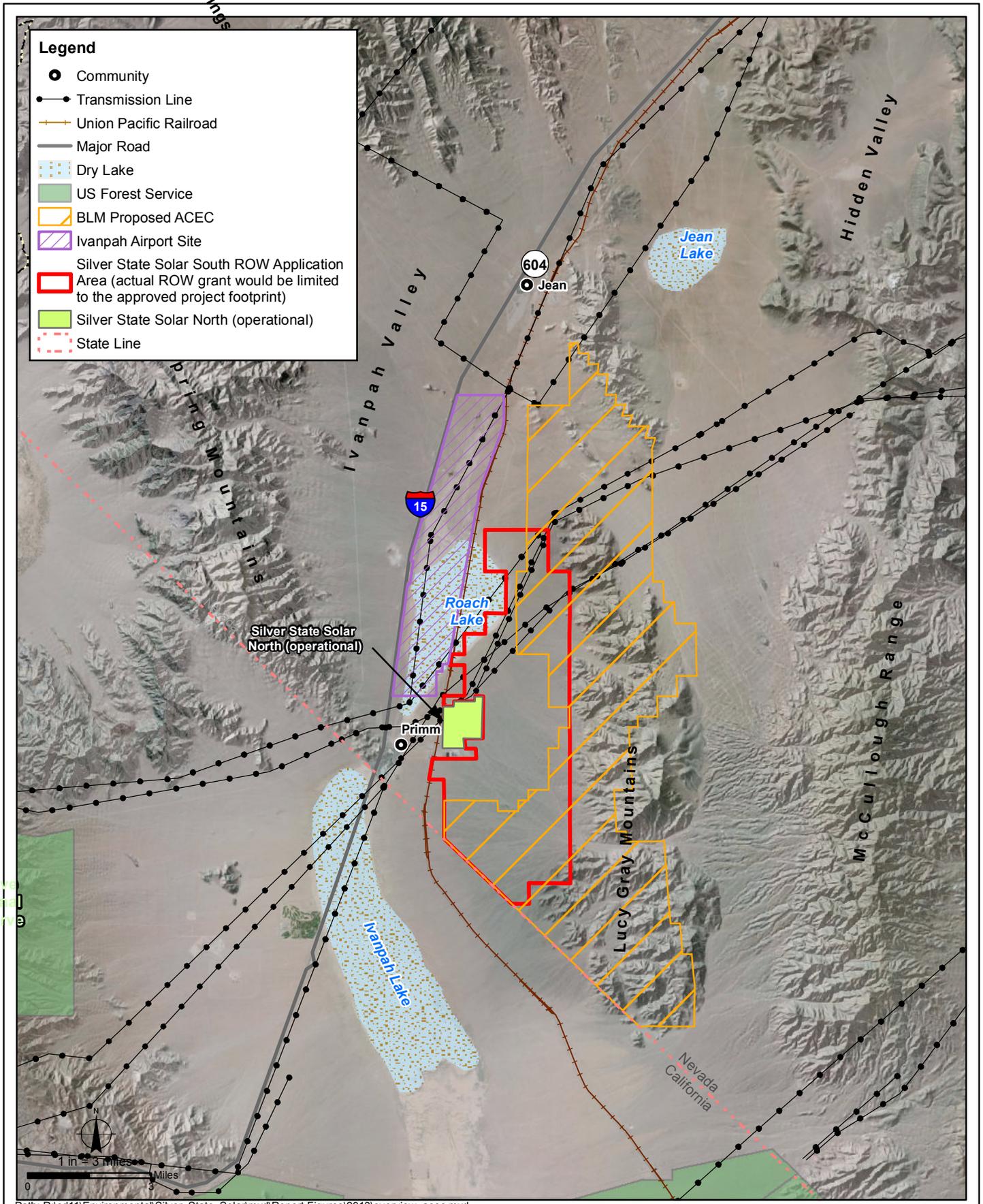
2.4 PROJECT COMPONENTS COMMON TO ALL ACTION ALTERNATIVES

Project components and the construction, operation, and decommissioning described in Section 2.5 in the 2010 Final EIS are mostly the same for all action alternatives considered in this Supplemental EIS/PRMPA. Therefore, to avoid redundancy, detailed information about Project components (what they are and how they work) and the construction and operation process have been summarized and the reader is referred to the appropriate section of the 2010 Final EIS for more detailed information. Where components and construction practices differ from what was described in the 2010 Final EIS, additional information is provided. Comparative information about the four action alternatives is provided in Table 2-1 and Figure 2-8.



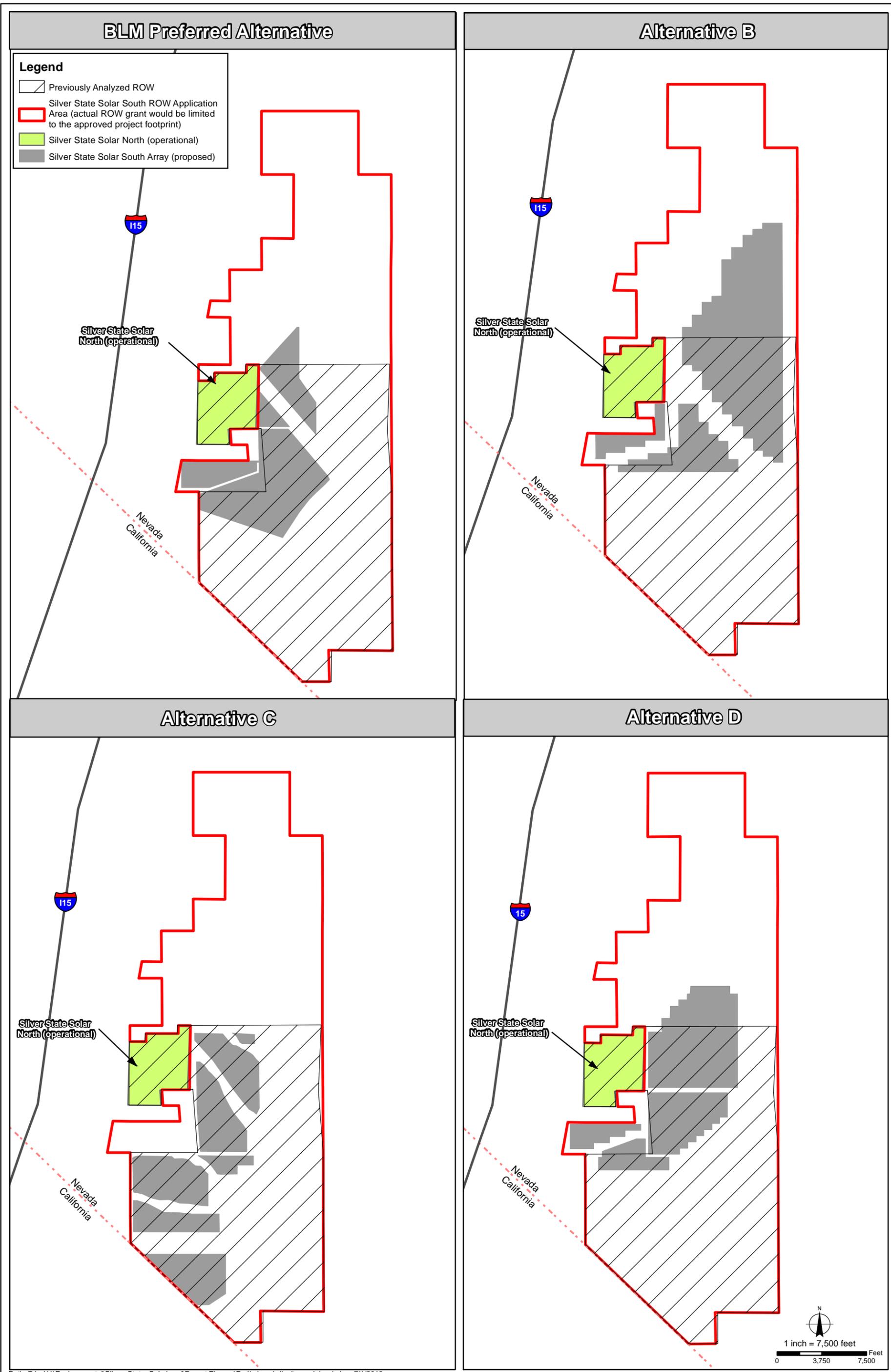
**Alternative D - Refined Project Site Layout
Silver State Solar South Project**

**FIGURE
2-6**



**Proposed Area of Critical Environmental Concern – Alternative D
Silver State Solar South Project**

**FIGURE
2-7**



Alternatives B, C, D & BLM Preferred Silver State Solar South Project

FIGURE

2-8

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Table 2-2. Proposed Management Prescriptions for ACEC (*BLM Preferred Alternative and Alternative D*)

Lands
1. Retain in federal ownership.
2. BLM facilities that provide resource protection, enhancement of the Relevance and Importance (R&I) values and/or address human health and safety would be allowed on a case-by-case basis.
3. Designate ACECs as linear ROW avoidance area. <i>Rights-of-way for construction and operation of the Southern Nevada Supplemental Airport (Airport) and associated facilities are allowed in the ACEC, subject to an approved Airport Final Environmental Impact Statement and Record of Decision and subject to compliance with the Endangered Species Act, 16 U.S.C. § § 1531-1544.</i>
4. Ensure access to private property.
5. Exclude large site-type ROWs (greater than 5 acres). <i>Rights-of-way for construction and operation of the Southern Nevada Supplemental Airport (Airport) and associated facilities are allowed in the ACEC, subject to an approved Airport Final Environmental Impact Statement and Record of Decision and subject to compliance with the Endangered Species Act, 16 U.S.C. § § 1531-1544.</i>
6. Temporary disturbance would be restored to meet the standard BLM restoration standards.
7. Land Use Authorizations and small site-type ROWs (5 acres or less) would be considered on a case-by-case basis.
Minerals
1. Open to locatable mineral resources.
2. Closed to solid leasable mineral resources.
3. Fluid leasables – Controlled surface use; BLM may require that a proposed facility or activity be relocated by more than 200 meters from a proposed location if necessary to achieve the desired level of resource protection.
4. Salable mineral disposals that provide resource protection, enhancement of the R&I values and/or address human health and safety would be allowed on a case-by-case basis.
Range
1. Closed to livestock grazing.
Recreation
1. Limit recreation facility development to those necessary for resource protection.
2. Limit off-highway vehicle (OHV) use to existing routes.
3. Permitted non-speed recreation activities in the ACEC will require a desert tortoise spotter during the tortoise active season. BLM will monitor the activities to ensure there are no adverse impacts to tortoises.
Sensitive Species
1. Allow prescribed fire use to meet resource objectives and habitat enhancement purposes in appropriate areas to support habitat recovery objectives.
2. Allow use of approved herbicides following ground-disturbing activities to implement invasive species control methods and support habitat recovery objectives.
3. Do not authorize military maneuvers.

Table 2-2. Proposed Management Prescriptions for ACEC (*BLM Preferred Alternative and Alternative D*)

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| <p>4. Activities that result in loss or degradation of tortoise habitat will require reclamation so that pre-disturbance condition may be reached within a reasonable time frame (<i>i.e., at the termination of the lease</i>). Reclamation may include, but is not limited to, salvage and transplant of cactus and yucca, recontouring of the area, scarification of compacted soil, soil amendments, seeding, and transplant of seedling shrubs. Subsequent seeding or transplanting efforts may be required, if monitoring indicates that the original effort was not successful.</p> |
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2.4.1 Proposed Project Components

The proposed Project includes the construction and operation of a 350-MW_{AC} solar PV power generation plant (*or 250-MW_{AC} for the BLM Preferred Alternative*) and appurtenant facilities within 13,184 acres of BLM-administered public lands. The current ROW application area includes 7,373 of the 7,925 acres analyzed in the 2010 Final EIS (BLM 2010) as well as the expanded ROW application area consisting of 5,610 acres mostly to the north of the previously analyzed ROW area. The Project development area, or footprint, would encompass between 2,427 acres and 3,881 acres in size depending upon the alternative chosen and final site configuration. If approved, the remaining acreage within the larger ROW application area would be relinquished and the ROW grant would only be issued for lands needed for Project development. *Under Alternatives B, C, or D, the Project would be designed to produce up to 350 MW_{AC} of solar-generated electricity, developed in two distinct construction phases. Phase I would include 250 MW_{AC} of generation to be delivered to the SCE transmission system via the Primm Substation, and Phase II would include 100 MW_{AC} of generation to be delivered to either the California or Nevada market based on the outcome of Power Purchase Agreement (PPA) negotiations. Under the BLM Preferred Alternative, only 250 MW_{AC} of generation capacity would be constructed and would be delivered to California under the Applicant's PPA with SCE.*

The general location of the Project footprint and relationship to the ROW application areas under *the BLM Preferred Alternative and Alternatives B, C, and D* is shown on Figure 2-8. The Project footprint under *the BLM Preferred Alternative or Alternative B, C, or D* would include the following components:

Generating Facility Components

- The PV solar array field would be comprised of First Solar's PV solar modules on fixed-tilt mounting systems (including tilt brackets and tabletops) or single-axis, horizontal tracker structures supported by driven steel posts or other embedded foundation design, or a combination of both. The PV modules would convert sunlight into direct current electricity. 1.25 MW to 2.5 MW arrays of PV-generated direct current power would be collected from each of the multiple rows of PV modules through one or more combiner boxes and conveyed to an inverter (housed in the power conversion station shelter). The inverter would convert the direct current power to alternating current power, which would then flow to a medium-voltage transformer that converts the output of the inverter to 34.5 kV. Multiple medium-voltage transformers would be connected in parallel in a daisy chain configuration and power delivered to the South substation, where the power would be stepped up to 220/230 kV for delivery to the transmission system.

Buildings

- A 5-acre operation and maintenance (O&M) area would be developed to accommodate an O&M building (up to 10,000 square feet), parking area, and other associated facilities. Associated facilities in the O&M area would include above ground water storage tanks, septic system, security gate, signage, and flagpoles. The O&M area would be equipped with exterior lighting. Lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives and would be shielded and oriented to focus illumination on the desired area. The design and construction of the O&M building would be consistent with applicable Clark County building standards.

Roads, Fencing and Security

- Two access roads would be constructed from the existing Silver State Solar North Project maintenance road to the proposed Project facilities. An approximately 1-mile long access road would be constructed to the Phase I operations and maintenance area under all action alternatives, and an approximately 2-mile-long access road would be constructed to the Phase II substation under Alternatives B, C, or D. The Project access roads may be compacted earth or improved to an aggregate or paved surface if determined appropriate by the Applicant or if necessary to comply with Clark County requirements. The existing Silver State Solar North Project maintenance road would be widened to accommodate additional vehicle traffic associated with the Project.
- Depending on the selected alternative, up to 26 miles of new perimeter and access roads would be located immediately within the site's perimeter fence and within the solar field area around specific blocks of equipment. The perimeter/access roads would be compacted earth and constructed to allow access by maintenance and security personnel. The perimeter fence would be 7 feet high, composed of a 6-foot high chain-link fence with 1-foot high barbed-wire security strands at the top. To discourage burrowing by tortoise, the perimeter fencing would include a 0.5-inch hardware cloth metal mesh against the lower 2 feet of the fence that would be extended an additional 1 foot below the ground angled off site.
- A maintenance road up to 3 miles in length would be constructed immediately outside the security fence (within the tortoise fence perimeter). The maintenance road would be constructed as a graded/compacted earth road, or improved to an aggregate surface if determined appropriate by the Applicant or if necessary to comply with Clark County requirements.
- A BLM-approved desert tortoise exclusion fence would be constructed before any ground-disturbing activities commence. Desert tortoise exclusion fencing will follow the specifications provided in the Desert Tortoise Field Manual (USFWS 2009).
- A 20-foot wide fire break may be constructed around the exterior of the perimeter fence within the tortoise fence. Shrubs and other large vegetation would be removed from the firebreak. Periodic maintenance would be required to maintain the firebreak.
- Site security facilities including perimeter security fencing, controlled access gates, and signage. Some support facilities (e.g., substation) would be secured with an 8-foot-high fence composed of a 7-foot high chain link fence with 1-foot high barbed wire strands at

the top. Controlled access gates would be located at the site entrance and along the perimeter road to allow maintenance and security access to all portions of the Project site.

Substations, Transmission Lines, and Interconnections

- An onsite substation for Phase I, designated the South Substation and owned by Silver State, with 34.5-kV to 220-kV step-up transformer, breakers, buswork, protective relaying and associated substation equipment. The South Substation would provide interconnection to deliver renewable energy from the proposed Project to the California market via the Primm Substation and SCE's Eldorado to Ivanpah 220-kV transmission line. The South Substation area would be approximately 500 feet square. The highest point within the South Substation would be approximately 85 feet above grade, at the interconnection point with the 220-kV transmission line.
- Under Alternative B, C, or D, an onsite substation for Phase II with characteristics similar to the Phase I substation above, but with either 220-kV or 230-kV step-up transformers depending on which transmission system, SCE's Primm Substation, or NV Energy's Bighorn Substation, is required for Project interconnection. Figure 2-1 identifies a potential Phase II substation location. The final location will be determined based on the Phase II interconnection location, and final design considerations.
- An approximately 1-mile long 220-kV transmission line to interconnect the South Substation with SCE's Eldorado to Ivanpah 220-kV transmission line via the proposed Primm Substation.
- Under Alternative B, C, or D, an approximately 3.7- or 4.2-mile-long 220-kV transmission line to interconnect Phase II facilities to SCE's Primm Substation, or a 2.3- or 3.7-mile-long 230-kV transmission line to interconnect Phase II facilities to NV Energy's Bighorn Substation depending on which market is being served. The location and length of the transmission line will depend on the Phase II substation location selected.
- The Primm Substation will be within an area approximately 600 feet by 310 feet and will include all of the equipment required for the 220-kV interconnection of the transmission line from the South Substation to SCE's Eldorado-Ivanpah transmission line. Silver State will own the gen-tie up to the "dead end structure" (the last transmission pole before the Primm Substation), and SCE will own and operate the Primm Substation. The Primm Substation would be an unattended, automated, switchrack with three positions equipped and an ultimate build out of five positions. This switching station (no power transformation) would be surrounded by a wall with two gates. For more information, see Primm Substation Project Technical Description, attached as Appendix E.
- The Primm Substation would be connected to the Eldorado-Ivanpah 220-kV Transmission Line No. 2 via loop-in transmission segments. The proposed loop-in of the existing Eldorado-Ivanpah 220-kV No. 2 transmission line would require approximately three double-circuit transmission lattice steel tower structures of 110 to 150 feet in height to enter the Primm Substation.

- Overhead 12-kV transmission lines and poles would be installed by NV Energy from Bighorn Substation along the Project access road to provide power for construction and operation of the Project, including the Primm Substation and required communication facilities (refer to Appendix E). The design of these elements is preliminary at this time, but have been included in the disturbance area for the Project.

Communication Facilities

The Project would require a communication system to the site from a local service provider. In addition, the Project will require a communication system between the South Substation and the Primm Substation as well as between the Primm Substation and the Ivanpah Substation. Redundant paths are required between the Primm Substation and the Ivanpah Substation and from Primm Substation to Eldorado Substation to provide reliability within the electrical transmission system. Two different types of communication (microwave and fiber) are preferred for redundancy. Detailed specifications for the communications facilities are provided in Appendix E.

- Fiber optic cable would be installed from a local service provider to the Project. Cable would be installed underground or on overhead lines along the Project access road to the O&M building and South Substation. In addition, cable would be installed within the transmission line corridor between the South Substation and Primm Substation.
- Diverse fiber optic cable would be installed from Primm Substation to a new microwave site approximately 2 miles south of Primm Substation in Nevada, east of Big Horn Substation. The new microwave site is approximately 125 feet by 125 feet; the microwave site would include a communication building, microwave tower, generator/fuel tank and fiber cable entry facility. A microwave path would be constructed from this microwave site to the Ivanpah Substation.
- At the Ivanpah Substation, a microwave antenna/cable would be installed on the existing microwave tower/facility at Ivanpah Substation to communicate over the air path to the new microwave site.
- A microwave dish would be installed at both the Project site and the Ivanpah Substation to provide a redundant communication path. The microwave dish located at the Project site would be installed on a monopole or lattice structure. Two redundant fiber optic cable communication lines would be installed underground from the Primm Substation to the microwave dish location. The communication cable would be installed within the proposed gen-tie corridor and along non- Project security fence.
- Approximately 1,500 feet of underground fiber would be constructed from the Primm substation to an Eldorado-Ivanpah 220-kV transmission line tower northeast of Primm substation to connect to the optical ground wire on that transmission line tower. This is for the communication path to the Eldorado Substation.
- Approximately 1,500 feet of underground fiber would be constructed from the Primm substation to an Eldorado-Ivanpah 220-kV transmission line tower southwest of the Primm substation to connect to the optical ground wire on that transmission line tower. This is for the communication path to the Ivanpah Substation.

Other Ancillary Facilities

- Weather stations (steel lattice towers) up to 33 feet in height mounted on concrete foundations.

Water Supply

Under the terms of its Water Service Agreement with Las Vegas Valley Water District (LVVWD) and in conjunction with the prior approval of the Silver State Solar North Project, Silver State implemented a program whereby it will treat all of the waste water generated by the Jean Prison in Jean, Nevada, to “Class B” standards (as defined by the NDEP) and infiltrate the treated waste water back to the groundwater basin through rapid infiltration basins in the Jean area (LVVWD 2011). The wastewater treatment facility is associated with the Gold Strike Hotel and Casino in Jean. The agreement required Silver State to complete this facility by January 1, 2013, which it did. In return, LVVWD will supply a maximum of 21 acre-feet per year (AFY) of water through an existing groundwater well which will be used by the Silver State Solar North Project for long-term operations and maintenance.

In addition, the LVVWD shall supply additional water to the Silver State Solar South Project, through two proposed onsite groundwater wells, to be used for dust control during construction and a nominal amount of water for potable and sanitary supplies during operations. The water wells would be drilled to an estimated depth of 800 feet. Estimated well depth is based on existing groundwater basin information and actual depth may vary. The amount of water available to the Project for construction under the Water Services Agreement would be a minimum of 200 AFY or 600 AF total. The Project is expected to use between 800 AF and 1,185 AF in total for construction. Operational water for the Project would be drawn from the same 21 AFY allotment for the Silver State Solar North Project.

In addition to the Water Services Agreement, the Applicant is exploring other potential water sources to meet anticipated water demand of between 800 AF and 1,185 AF. This includes filing for additional temporary water (construction dust control) with the Nevada State Engineer and negotiating to obtain existing private water rights. This additional temporary water, if necessary, would be obtained from the on-site wells. Based on groundwater modeling (as described further in Section 4.5.2.2), the impacts associated with additional water use for the Project would not result in any significant increase in impacts compared with the impacts described in the Draft Supplemental EIS/PRMPA.

Temporary Facilities

Construction of the Project would require the following temporary facilities. These temporary facilities would be removed at the end of the construction period.

- Temporary water storage ponds would be constructed as needed to maintain dust control during construction.
- An approximately 30-acre temporary construction mobilization and laydown area. The temporary mobilization and laydown area would contain temporary construction trailers, owner and construction workforce parking, above-ground water tanks, materials receiving and materials storage. The temporary mobilization and laydown area would be graded/compacted earth.

- Temporary construction utilities would include temporary power connection to the NV Energy distribution or SCE transmission systems adjacent to the Project, temporary power generator, and temporary above-ground water line.

2.5 PROJECT CONSTRUCTION

Construction of the Project, from receipt of environmental clearances to commercial operation, is expected to take place as early as the third quarter of 2013 to the fourth quarter of 2016. The Project construction sequence and activities would be similar under any of the Project alternatives, but would occur over a shorter duration under the reduced-scale BLM Preferred Alternative. Major construction activities include:

- Environmental clearances
- Tortoise fence installation
- Preparation of the site access and laydown areas
- Construction of on-site wells and temporary water storage ponds
- Construction of drainage facilities
- Construction of maintenance road
- Solar field site preparation
- Preparation of the O&M area
- Installation of the drainage control facilities
- Construction of the substation and switchyard
- Construction and installation of transmission lines
- Installation of the PV equipment
 - Prepare trenches for underground cable
 - Install underground cable
 - Backfill trenches
 - Install steel posts and table frames and/or tracker systems
 - Install PV modules
 - Install concrete footings for inverters, transformers, and substation equipment
 - Install inverter and transformer equipment
 - Perform electrical terminations
 - Inspect, test, and commission equipment
- Energize solar facility/Begin commercial operation

A detailed description of the construction sequence and activities is provided in Chapter 2.6 in the 2010 Final EIS.

The onsite construction workforce would consist of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel. The onsite construction workforce is expected to be approximately 300 – 600 depending on the rate of construction. Construction would generally occur between 5:30 a.m. and 7:30 p.m., Monday through Friday. Additional hours and/or weekend work days may be necessary to account for schedule deficiencies, or to complete critical construction activities. For instance, during hot weather, it may be necessary to start work earlier to avoid work during high ambient temperatures. Further, construction requirements would include some night-time activity for installation, service or electrical

connection, inspection and testing activities. Night-time activities would be performed with temporary lighting.

Construction materials such as concrete, pipe, PV modules, wire and cable, fuels, reinforcing steel, and small tools and consumables would be delivered to the site by pickup or flatbed trucks. Access to the site would be from Primm Boulevard and would utilize the access road to the Project site. An approximately 1-mile-long Project access road would be constructed to connect with the Project site. The graded access road would be used for delivery of all Project components and by workers traveling to the site for construction. It is anticipated that most construction staff and workers would come daily to the jobsite from within Clark County. If determined necessary for dust control purposes, these roads may be upgraded to aggregate or paved surface.

Temporary construction parking would be provided on the site near the site entrance. This area would provide sufficient parking for the construction workforce traveling to the Project site in their personal vehicles. Parking areas for construction vehicles and laydown areas for construction materials would be prepared inside the solar field area.

Drainage control facilities are proposed upstream of the Project site. For the BLM Preferred Alternative and Alternatives B and D, these facilities include detention basins, channels, and conveyance facilities designed to capture offsite runoff and divert erosive storm water flows around the Project. Detention basins for this Project would be large volume facilities cut below existing grade to detain and discharge water at a lesser flow rate, at or below historic conditions downstream of the Project site. As part of the expected earthwork, additional diversions are proposed upstream of the detention basins to collect water into localized spillways. Alternative C would utilize large earthen berms to prevent the existing washes from migrating from their current path and to direct storm water into the existing washes.

Initial grading work would include the use of rubber-tired tractors, tillers and vibratory rollers, track-driven excavators, graders, scrapers, paddle wheels, dump trucks, and front end loaders. In addition, support pickups, water trucks, and cranes would be used as needed. Throughout the construction process, temporary above ground fuel storage tanks would be located at the site for construction equipment fueling. It is anticipated that fuel tanks in various sizes, ranging from 500 to 1,000 gallons, will be required to support equipment onsite. Fuel tanks may be repositioned during the course of construction to accommodate phasing of the Project. As the Project moves into the next stages of civil work, equipment for foundations and road construction would be brought in, including paving machines (if required), trenching machines, pumps, additional excavators for foundation drilling, tractors, and additional support vehicles.

2.6 PROJECT OPERATION, MAINTENANCE, AND DECOMMISSIONING

Project operation, maintenance and decommissioning would be the same for all action alternatives. Operation and maintenance of the Project would require a workforce of up to 15 full-time positions (or personnel hours totaling up to 15 full-time employee positions). This workforce would include administrative and management personnel, operators, and security and maintenance personnel. Maintenance and administrative staff would typically work 8-hour days,

Monday through Friday. During periods when non-routine maintenance or major repairs are in progress, the maintenance force would typically work evenings when the solar plant is naturally offline.

Periodic routine maintenance would include monthly, quarterly, semi-annual and annual inspections and service. The solar plant would use no processed water, gas, or fuels for the power generation process. The maintenance protocol would be mainly routine inspections. Operation and maintenance would require the use of vehicles and equipment including trucks for periodic panel washing, if needed, and crane trucks for minor equipment maintenance. Additional maintenance equipment would include forklifts, manlifts, and chemical application equipment for weed abatement. Any herbicide used would be approved for use on BLM lands and consistent with those analyzed in the *Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States Programmatic Environmental Impact Statement* (BLM 2007). Detention basin maintenance will be required depending on the frequency and magnitude of rainfall and agreements with the Clark County Regional Flood Control District.

At designated intervals, approximately every 10 to 15 years, major equipment maintenance would be performed. On occasions, large heavy-haul transport equipment, including cranes, would be brought on site. No heavy equipment would be used during normal plant operation.

2.6.1 Decommissioning

The economic lifespan of the Project is expected to be in the range of 20 to 30 years, depending upon the availability of agreements with utility off-takers. At the end of the Project's useful economic life, the facilities would be either repowered or decommissioned. Due to the excellent solar resource at the Project area, repowering is a potential option. This may involve retrofitting existing components with updated, more efficient components; thereby extending the useful economic life of the Project.

The procedures described for decommissioning in the 2010 Final EIS are designed to ensure public health and safety, environmental protection, and compliance with applicable regulations. Decommissioning would begin after cessation of commercial operations.

The Project goals for site decommissioning are as follows:

- Remove above-ground structures, unless converted to other uses
- Restore the lines and grades in the disturbed area of the Project area to match the natural gradients of the site
- Re-establish native vegetation in the disturbed areas

If approved, the ROW authorization for the proposed Project would include a required Performance and Reclamation bond to ensure compliance with the terms and conditions of the ROW authorization, consistent with the requirements of 43 CFR 2805.12(g). The Performance and Reclamation bond would consist of three components: hazardous materials; decommissioning and removal of improvements and facilities; and reclamation, revegetation, restoration, and soil stabilization.

2.7 APPLICANT-PROPOSED MEASURES AND MITIGATION MEASURES

Applicant Proposed Measures (APMs) include project design features or mitigation requirements that have been incorporated into the proposed Project or alternatives to avoid or reduce adverse impacts to the surrounding environment. Such measures are implemented through the design process to minimize such impacts or avoid them altogether, and also through the development of site-specific management and operation plans.

APMs include the preparation of management plans, which would be similar to those submitted to and approved by the BLM prior to issuance of the notice to proceed on the 50MW_{AC} Silver State Solar North project. The APMs for the proposed Project are listed in Table 2-3 below.

In addition, construction of the Project would be subject to agency-required mitigation measures that are intended to guide construction activities and development of facilities to minimize environmental and operational impacts. Required mitigation measures are provided in Table 2-4 below. These APMs and mitigation measures, unless otherwise stipulated, would be required for implementation of any of the action alternatives.

It is understood that First Solar and its contractors would implement the APMs it has proposed as part of its Project. Under the FLPMA, the BLM may impose conditions on any ROW grant it permits for the proposed Project. Additional requirements and mitigation measures may be included as specific conditions to the ROD issued by the BLM for this Supplemental EIS/PRMPA.

Table 2-3. Applicant-Proposed Measures

The following measures have been proposed and committed to by the Applicant as design features of the proposed Project. They would be implemented as warranted by site and resource conditions *for any of the action alternatives*.

APM-1 EROSION CONTROL

Soil stabilization measures will be used to prevent soil being detached by stormwater runoff. The Applicant will employ Best Management Practice (BMPs) to protect the soil surface by covering or binding soil particles. The Project will incorporate erosion-control measures required by regulatory agency permits and contract documents as well as other measures selected by the contractor, *upon BLM approval*. Site-specific BMPs will be designed by the contractor, and associated figures are to be included in the final Project Storm Water Pollution Prevention Plan (SWPPP).

Erosion Control Measures

At a minimum, the Project will implement the following practices for temporary and final erosion control:

Year-round:

- Monitor the weather using National Weather Service reports to track conditions and alert crews to the onset of rainfall events.
- Preserve existing vegetation where required and when feasible. Conduct clearing and grading only in areas necessary for Project activities and equipment traffic. Install temporary fencing prior to construction along the boundaries of the construction zone to clearly mark this zone, preventing vehicles or personnel from straying onto adjacent offsite habitat.
- Sequence construction activities with the installation of erosion control and sediment control measures. Arrange the construction schedule as much as practicable to leave existing vegetation undisturbed until immediately prior to grading.
- Protect slopes susceptible to erosion by installing controls such as seed-free hay bales, fiber rolls, and gravel bags.
- Stabilize non-active areas as soon as feasible after construction is complete and no later than 14 days after construction in that portion of the site has temporarily or permanently ceased. Reapply as necessary to maintain effectiveness.
- Place covers over stockpiles prior to forecasted storm events and during windy conditions. Place sediment controls (fiber rolls or gravel bags) around the perimeter of stockpiled materials year-round. Excess sand and gravel will be stockpiled for BLM material sale.
- Maintain sufficient erosion control materials on site to allow implementation in conformance with General Permit requirements and as described in the SWPPP. This includes implementation requirements for active areas and non-active areas that require deployment before the onset of rain.
- Promptly repair and reapply controls according to BMPs in areas for which erosion is evident.

During the rainy season:

- Implement temporary erosion control measures such as fiber rolls, straw bales, geotextiles and mats, and gravel bags at regular intervals throughout the defined rainy season and as needed determined by site conditions.
- Inspect and stabilize disturbed areas with temporary or permanent erosion control measures before rain events.

During the non-rainy season:

Conduct construction activities that will have an impact on waters of the United States during the dry season to the extent feasible to minimize erosion.

A combination of the following erosion controls may be used at the site:

- Scheduling of activities to avoid times of erosion susceptibility
- Preservation of existing vegetation
- Mulch and hydraulic mulch
- Straw mulch
- Geotextiles and mats
- Earth dikes and drainage swales
- Velocity dissipation devices
- Slope drains

Table 2-3. Applicant-Proposed Measures (Continued)

Streambank stabilization

BMPs will be deployed in a sequence to follow the progress of grading and construction. As the locations of soil disturbance change, erosion controls will be adjusted accordingly to control storm water runoff at the downgrade perimeter.

Sediment Control Measures

Sediment controls are intended to complement and enhance selected erosion control measures and reduce sediment discharges from active construction areas. Sediment controls are designed to intercept and settle out soil particles that have been detached and transported by the force of water. The Project will incorporate sediment control measures required by regulatory agency permits and contract documents as well as other measures selected by the contractor. The Project will implement the following practices for temporary sediment control:

Year-round:

- The installation of detention ponds to control all storm water flow off site. The ponds will be designed to control sediment transport off site. Sediment will be removed from the ponds periodically and transported off site to a designated fill area.
- Maintain the following temporary sediment control materials onsite: silt fence materials, gravel bags for linear barriers, and fiber rolls in sufficient quantities throughout the Project site to implement temporary sediment controls in the event of predicted rain and to respond to failures or emergencies, in conformance with General Permit requirements and as described in the SWPPP. Install gravel filter berms at the base of slopes adjacent to delineated sensitive areas. Native onsite stones/rocks will be used in construction of gravel filter berms or check dams.
- Install gravel filter berms along the boundaries of delineated sensitive areas, if any, within the boundaries of the Project site or areas that receive runoff from the Project site. Native onsite stones/rocks will be used in construction of gravel filter berms or check dams.

During the rainy season:

Implement temporary sediment controls at the draining perimeter of disturbed soil areas, at the toe of slopes, and at outfall areas.

During the non-rainy season:

Implement temporary sediment controls such as hay bales, fiber rolls, or gravel bags at the draining perimeter of disturbed soil areas. A combination of the following sediment controls may be used at the site:

- Silt fence
- Sediment basin
- Sediment trap
- Check dam
- Fiber rolls
- Gravel bag berm
- Street sweeping and vacuuming

BMPs will be deployed in a sequence to follow the progress of grading and construction. As the locations of soil disturbance change, sedimentation controls will be adjusted accordingly to control storm water runoff at the downgrade perimeter.

APM-2 EXCAVATION/GRADING

Prior to trench excavation, the area to be trenched will be graded and organic matter removed. Organic matter will be mulched and re-deposited within the site fill except under foundations and in trenches. Trench excavation will be performed with conventional trenching equipment. Excavated soil to be used as backfill will be maintained adjacent to the trench. Excessive soils may be balanced on site or transported to an offsite disposal facility. Sand slurry may also be used in the backfill, if the slurry composition is approved in advance by BLM. Excavated soil to be used as backfill will not be removed from the Project site. Temporary sheeting or bracing shall be used as necessary to support trench side walls in areas where soils are soft or collapsible. For trench work not conducted by SCE, the trench itself will be first backfilled with 3 to 4 inches of sand to provide suitable bedding for installed conductors, and then 3 to 4 inches of sand will be deposited on top of installed conductors. The remaining backfill will be composed of the native excavated soils or slurry and soils to be compacted to a density determined appropriate based on detailed geotechnical study findings and design requirements. During the backfill, underground utility

Table 2-3. Applicant-Proposed Measures (Continued)

<p>marking tape will be installed at <u>an appropriate depth</u> below grade to indicate the type of conductors installed beneath.</p> <p><u>SCE is not proposing to install any direct buried cable systems excluding ground conductor. Excavation work performed by SCE would typically be used to install a conduit system. Native soil, slurry, and/or encasement would be used to backfill the trench. Where native soil would be utilized, compaction would be performed at a minimum of 90 percent of standard proctor density.</u></p>
<p>APM-3 AIR / DUST CONTROL</p> <p>The Applicant would use water to control dust to comply with Clark County dust control requirements. The proposed Project would implement the following practices for fugitive dust and wind erosion control:</p> <ul style="list-style-type: none"> • Minimize grading and vegetation removal, and limit surface disturbance during construction to the time just before PV module support structure installation; • Limit vehicular speeds on non-paved roads; • Apply water to disturbed soil areas of the proposed Project site to control dust and maintain optimum moisture levels for compaction, as needed. Apply the water using water trucks. Minimize water application rates as necessary to prevent runoff and ponding; • During windy conditions (forecast or actual wind conditions of approximately 25 miles per hour or greater), apply dust control to haul roads to adequately control wind erosion. Cover exposed, stockpiled, material areas; • Suspend excavation and grading during periods of high winds; and • Cover all trucks hauling soil and other loose material or maintain at least 2 feet of freeboard.
<p>APM-4 SWPPP</p> <p>The Project design and plans will include BMPs to mitigate potential soil erosion caused by construction and operation of the Project. SWPPPs will be developed to assist with the management and protection of water resources throughout construction and the life of the Project.</p>
<p>APM-5 SPCC PLAN</p> <p>The Applicant would prepare a Spill Prevention, Control, and Countermeasures (SPCC) Plan in accordance with Federal regulations to protect the environment from spills of petroleum products.</p>
<p>APM-6 HEALTH AND SAFETY PROGRAM</p> <p>The Applicant will require that all employees and contractors adhere to appropriate health and safety plans and emergency response plans. All construction and operation contractors will be required by the Applicant to operate under a health and safety program that is approved by the Applicant and that meets industry standards. All contractors will be required to maintain and carry health and safety materials including the Material Safety Data Sheets of hazardous materials used on site.</p>
<p>APM-7 EMERGENCY RESPONSE PLAN</p> <p>An emergency response plan will be prepared for the Project. The plan will contain a section that presents the results of a comprehensive facility hazard analysis and, for each identified hazard, a response plan. Emergencies may include brush or equipment fires, transformer oil leaks or spills, attempted acts of sabotage, and airplane crashes. The emergency response plan will assign roles and actions for onsite personnel and responders and will designate assembly areas and response actions.</p>
<p>APM-8 WASTE MANAGEMENT PLAN</p> <p>The Applicant would prepare a Waste Management Plan that would describe the storage, transportation, and handling of wastes and would emphasize the recycling of wastes, where possible, and would identify the specific landfills that would receive wastes that could not be recycled. Construction wastes will be managed in accordance with the Resource Conservation and Recovery Act (42 USC 6901, et seq. and RCRA’s implementing regulations at 40 CFR 260, et seq.) and other applicable state and local regulations.</p>
<p>APM-9 NOXIOUS WEED CONTROL PLAN</p> <p>The Applicant would prepare and submit a Noxious Weed Control Plan to the BLM for review and approval before BLM issuance of a Notice to Proceed. The following are Project-specific measures that the Applicant would implement to control noxious weeds:</p> <ul style="list-style-type: none"> • Noxious Weed Risk Assessment Form. This form provides information about the types of weed surveys to be

Table 2-3. Applicant-Proposed Measures (Continued)

<p>conducted and weed treatment and prevention method schedules appropriate for the types of noxious weeds likely to be present. This form identifies and evaluates the level of noxious weed management necessary.</p> <ul style="list-style-type: none"> • Pesticide Use Proposal. The Applicant shall prepare, submit, obtain, and maintain a herbicide use proposal for the proposed Project. The Applicant would coordinate weed control activities with the BLM Weed Coordinator, particularly regarding proposed herbicide treatments. Pesticide Application Reports will be provided annually, <u>or on an agreed upon interval</u>, to the BLM Weed Coordinator. • Weed Management Plan. Before ground-disturbing activities begin, the Applicant would prepare a <u>site-specific</u> Weed Management Plan. The plan would identify potential <u>existing</u> weed infestations at the proposed Project site and along the Project-associated linear facilities and would prescribe treatment. • Weed Infestation Prevention. The Applicant would limit ground disturbance to the minimum necessary to safely construct and operate the proposed Project. The Applicant would avoid creating soil conditions that promote weed germination and establishment. • Equipment <u>Inspection/Cleaning Sites.</u> The Applicant would establish equipment inspection/ cleaning sites to <u>check for and potentially</u> remove weed seeds, plant parts, or mud and dirt from vehicles. Project-related equipment and machinery would be <u>required to arrive on-site in a clean condition. However, if necessary, Project-related equipment and machinery would be</u> cleaned using compressed air or water to remove mud, dirt, and plant parts before moving into <u>the Project site. Additional inspection and potential cleaning will be undertaken for relatively weed-free areas if identified during pre-construction surveys.</u> Seeds and plant parts would be collected, bagged, and deposited in dumpsters destined for local landfills, when practical. <p>The following measures would be implemented to prevent infestations of noxious weeds at the proposed Project site and to control any potential infestations that may occur during Project construction and operation:</p> <ul style="list-style-type: none"> • Project construction workers would inspect, remove, and dispose of weed seed and plant parts found on their clothing and personal equipment, bag the product, and dispose of in a dumpster for deposit in a local landfill; • Certified weed-free hay bales would be used for erosion control and to contain vehicle station wash water; • Periodic monitoring of the construction site would be conducted to check for noxious weed infestations; and • Areas subject to construction, such as the transmission ROW, would be rehabilitated and revegetated in accordance with the Rehabilitation Plan.
<p>APM-10: SITE REHABILITATION PLAN AND FACILITY DECOMMISSIONING PLAN</p> <p>In order to ensure that the permanent closure of the facility does not have an adverse effect, a Facility Decommissioning Plan would be developed at least 6 months prior to commencement of site closure activities. The Facility Decommissioning Plan would be developed in coordination with the BLM, with input from other agencies as appropriate. The Facility Decommissioning Plan would address future land use plans, removal of hazardous materials, impacts and mitigation associated with closure activities, schedule of closure activities, equipment to remain on the site, and conformance of the plan with applicable regulatory requirements and resource plans. The Facility Decommissioning Plan would be consistent with requirements and goals set in the Site Rehabilitation Plan. The activities involved in the facility closure would depend on the expected future use of the site. Certain facility equipment may be utilized for future uses of the site, such as the O&M building, electrical transmission lines, and roads. Therefore, the extent of site closure activities would be determined at the time of the closure, in accordance with the Facility Decommissioning Plan. Closure activities may include:</p> <ul style="list-style-type: none"> • Removal of solar panels and supports; • Removal of foundations; • Removal of underground facilities to a depth of at least 2 feet below the ground surface; • Removal of inverters and transformers; • Removal of the substation; • Disposal of chemicals and hazardous waste; • Draining of transformers and disposal of dielectric oils (if transformers cannot be resold); • Demolition and removal of the O&M building and removal of building foundations; • Removal of on-site wooden transmission poles and conductors; • Removal of 220kv/230kv steel transmission <u>structures</u> and conductors, and removal of foundations to a depth of at least 2 feet below the ground surface; • Closure and abandonment of water wells and the septic tank; • Removal of site fencing;

Table 2-3. Applicant-Proposed Measures (Continued)

<ul style="list-style-type: none"> • Regrading and restoration of original site contours; and • Revegetation of areas disturbed by closure activities in accordance with the Site Rehabilitation Plan.
<p>APM-11 AERONAUTICAL CONSIDERATIONS Because of the proximity to the proposed Southern Nevada Supplemental Airport, the Applicant would file Notices of Proposed Construction or Alternation (Form 7460s) with the Federal Aviation Administration (FAA) prior to Project construction. The FAA review process will identify any aviation-related lighting requirements.</p>
<p>APM-12 VEGETATION TRIMMING <i>Except where excavation and grading is proposed,</i> vegetation will be trimmed to an average height of not more than 12 inches. <i>In these areas,</i> the root systems of existing vegetation will be left in place to provide soil stability.</p>
<p>APM-13 CULTURAL If archaeological properties are found to be eligible for National Register of Historic Places (NRHP) listing, the <i>BLM will</i> assess the potential adverse impact of the Project and would provide oversight for the preparation of a plan to mitigate any potentially adverse impacts in consultation with BLM and Nevada SHPO. <i>The Applicant shall be responsible for the costs to mitigate the discovery and any associated costs that may relate to curation.</i></p>
<p>APM- 14 ENVIRONMENTAL CLEARANCE Initial site mobilization activities in each construction section would include environmental clearance in which site activities are reviewed and approved for compliance with resource protection plans and approved construction-compliance documents. Environmental clearance activities would:</p> <ul style="list-style-type: none"> • Be performed in each of the proposed Project construction sections as they are constructed; • First be obtained for the site access roads, construction water storage pond and O&M area. Subsequent clearances would be obtained for each of the remaining major tasks; • Delineate and mark the boundaries of each construction area during each phase of environmental clearance; • Would use professional biologists to meet cactus salvage requirements, survey and relocate/translocate desert tortoise, and perform other sensitive species removal and mitigation; • Install security and tortoise fencing around the perimeter of each construction area to prevent the reintroduction of sensitive species to the area; and • Occur only during weather conditions permitted for the activity.
<p>APM-15 GENERAL DESIGN AND CONSTRUCTION STANDARDS The proposed Project would be designed in accordance with federal, state, local, and industrial code or standards.</p>
<p>APM- 16 ESTABLISH A PLANT NURSERY DURING CLEARING OF THE PROJECT SITE. The proposed Project would establish a plant nursery on site during clearing as necessary in order to store salvage plants, including cactus and yucca that are protected under Nevada state law (Nevada Revised Statutes [NRS] 527.060-120 and Nevada Administrative Code [NAC] 527). As determined necessary, before clearing, field crews would salvage cacti and yucca to meet requirements established by the State. As determined by the BLM, plants would be made available for commercial and public use.</p>
<p><u>APM-17 PESTICIDE USE PROPOSAL</u></p> <ul style="list-style-type: none"> • <i>Use of pesticides, insecticides, rodenticides, and herbicides (generally referred to here as pesticides) shall comply with all applicable Federal and State laws. Pesticides shall be used only in accordance with their registered uses within limitations imposed by the Secretary of the Interior. Prior to the use of the pesticides the Applicant shall obtain from the Authorized Officer, written approval of a Pesticide Use Proposal Plan showing the type and quantity of material to be used, pest(s) to be controlled, method of application, locations of storage and disposal of containers, and any other information deemed necessary by the Authorized Officer.</i> • <i>Only those chemicals (pesticides) listed on the BLM approved label list are authorized for use on public lands. A Pesticide Use Proposal must be submitted for each chemical used, and it cannot be used until approval has been obtained in writing from the Authorized Officer. The proposal needs to identify any surfactants or dyes used in the spraying operation. Applicator(s) of chemicals used must have completed pesticide certification training and have a current up to date Certified Pesticide Applicator's License. Pesticide application records for the areas and acres treated must be submitted to the Authorized Officer each year. This includes the following:</i> <ul style="list-style-type: none"> ○ <i>Brand or Product name</i>

Table 2-3. Applicant-Proposed Measures (Continued)

<ul style="list-style-type: none">○ <u>EPA registration number</u>○ <u>Total amount applied (use rate #A.I./acre)</u>○ <u>Date of application</u>○ <u>Location of application</u>○ <u>Size of area treated</u>○ <u>Method of treatment (air/ground)</u>○ <u>Name of applicator</u>○ <u>Certification number and dates</u>○ <u>Costs to treatment</u>○ <u>Amount of surfactants or dyes used in spraying operation</u> <p><u>The record information must be recorded no later than 14 calendar days following the pesticide application and must be maintained for ten years.</u></p>

Table 2-4. Proposed Mitigation Measures

<p>Air Quality and Climate (Section 4.1)</p> <p><i>Mitigation will be in accordance with the Project's dust control permit and Clark County regulations and BMPs.</i></p>
<p>Noise (Section 4.2)</p> <p><u>MM NOI-1: Conduct Construction Activities during Daytime Hours.</u> The Applicant shall conduct construction activity only during daytime hours while within 1,000 feet of the Desert Oasis apartment complex. Construction activities (including truck deliveries, pile driving, and vibration equipment use) shall be restricted to the least noise-sensitive times of day—weekday daytime hours between 7:00 a.m. and 10:00 p.m., within 1,000 feet of nearby residential uses ;</p> <p><u>MM NOI-2: Turn Off Idling Equipment.</u> <i>Construction personnel</i> shall turn off idling equipment when not in use.</p> <p><u>MM NOI-3: Notify Adjacent Residences.</u> The Applicant shall notify adjacent residents in advance of construction work through public mailings and signs directed toward residents, landowners, and recreational users within one mile of the site prior to construction. The notice shall state specifically where and when construction activities will occur in the area. The Applicant shall also provide a communication line or procedures to enable individuals to contact the contractor in the event that construction noise levels affect them.</p> <p><u>MM NOI-4: Install Acoustic Barriers.</u> The Applicant shall install acoustic barriers around stationary construction noise sources as necessary to maintain a noise level not to exceed 85 decibels (dBA) at the property boundary closest to the nearest residence.</p> <p><u>MM NOI-5: Proper Maintenance and Working Order of Equipment and Vehicles.</u> Construction equipment shall be maintained per manufacturers' recommendations. The Applicant shall ensure that all equipment is adequately muffled and maintained, to include:</p> <ul style="list-style-type: none">• Use of noise controls on standard construction equipment and shielding on impact tools;• Use of broadband noise backup alarms on mobile equipment; and• Installation of mufflers on exhaust stacks of all diesel, gasoline and natural gas-powered engines. <p><u>MM NOI-6: Construction Equipment Muffled.</u> The Applicant shall provide adequately muffled construction equipment.</p> <p><u>MM NOI-7: Ensure Proper Installation of Transformer Equipment.</u> The Applicant shall ensure proper installation of transformer equipment by:</p> <ul style="list-style-type: none">• Installing transformers within enclosures;• Using sound-dampening pads between each transformer and the mounting surface;• Using flexible conduit couplings between each transformer and the associated wiring system; and• Mounting the transformers on surfaces with a large mass to avoid <i>amplifying the sound</i>. <p><i>This measure would not apply to transformers installed by SCE related to the Primm Substation as those would not be high voltage (less than 50 kV) and would thus not require the sound reduction methods described.</i></p>
<p>Geology, Topography and Geologic Hazards (Section 4.3)</p> <p><u>MM GEO-1. Inspections After Geologic Events.</u> To minimize or avoid potential hazards from earthquakes and other geologic events, the Applicant shall have inspections performed by a BLM-approved appropriate professional (e.g., geologist, geophysicist, geologic engineer, or structural engineer) following geologic events in the vicinity of the proposed Project site. The appropriate professional shall perform the appropriate inspection and make recommendations to ensure that hazards are minimized for the next comparable or larger event. The Applicant shall implement the recommended corrective actions.</p> <p><u>MM GEO-2. Applicant's Insurance Coverage.</u> The Applicant shall acquire the appropriate insurance coverage to address potential off-site damage to structures or injury to people by facility structures that are moved off-site by a geologic event such as an earthquake or flash flood event.</p>
<p>Soil Resources (Section 4.4)</p> <p><u>MM SOILS-1: Ensure Soils are Free From Contaminants.</u> The Applicant shall ensure that imported soils are free from contaminants before use on the site. At the request of the BLM, soils shall be tested to ensure that hazardous materials are not present within the imported fill.</p>

Table 2-4. Proposed Mitigation Measures (Continued)

MM SOILS-2: Ensure Soils are of the Same Soil Type. The Applicant shall ensure that imported soils are consistent in texture and drainage characteristics to existing on-site soils before use on the site. At the request of the BLM, soils shall be tested to ensure they are of the same soil type as pre-construction soils.

MM SOILS-3: Cryptobiotic Soil Mitigation Study Funding. The Applicant shall provide \$50,000 in funding for a BLM study to analyze effective ways to mitigate the loss of cryptobiotic soils.

Water Resources/ Hydrology (Section 4.5)

MM WATER-1: Groundwater Monitoring Plan. The Applicant shall develop and implement a Groundwater Monitoring Plan during Project construction and operations. The plan shall include metering of Project wells and monthly reports to LVVWD and quarterly water use reports to the BLM and State Engineer.

MM WATER-2: Operational Phase Erosion and Sedimentation Control Measures. The Applicant shall develop and implement erosion and sedimentation control measures to be used to minimize impacts during the life of the Project. At a minimum, this plan shall include:

- Soil stabilization measures to offset loss in vegetation;
- Biannual and post-storm monitoring of erosion and sedimentation;
- Annual monitoring of the surface of Ivanpah Dry Lake and Roach Dry Lake to assess effects of sedimentation;
- Monitoring at Roach Dry Lake will be conducted in a manner that will not interfere with the Southern Nevada Supplemental Airport; and
- Adaptive management of actions if erosion and sedimentation control measures are found to be insufficient to control surface water at the site. Any changes must be approved by the BLM.

MM WATER-3: Flood Risk Control Measures. The Applicant shall develop and implement flood risk control measures to minimize impacts during the life of the Project. These measures shall include, as appropriate, adhering to the recommendations presented in the Applicant's Initial Site Drainage Plan for the project proposed in the 2010 Final EIS (BLM 2010). At a minimum, this plan shall include:

- PV panels will be installed to remain a minimum of 6 inches above the high water mark, based on flood depth estimates;
- Steel post foundations (8 to 12 feet in depth) in flood-prone areas would be designed to withstand a minimum of 1.5 feet of scour; and
- Adaptive management of actions if erosion and sedimentation control measures are found to be insufficient or excessive or if flooding proves to be destructive. Any changes must be approved by the BLM.
- Ensure construction facilities do not cause inadvertent flooding (e.g., ensure temporary roads do not block drainage outlets).

MM WATER-4: Storm Water Monitoring and Response plan. The Applicant shall develop and implement a storm water monitoring and response plan to minimize impacts from flood damage during the life of the Project. At a minimum, this plan shall include:

- Visual surveys of all structures for scour following major storm events;
- Visual surveys of fencing to check for damage and/or debris;
- Cleanup of broken equipment if failures occur;
- Inspection and cleanup of downstream areas if debris is transported off site;
- Adaptive management of flood protection and erosion actions if the monitoring plan reveals routine damage to Project structures due to flooding. Any changes must be approved by the BLM.

MM WATER-5: Drainage Crossing Design. If drainages cannot be avoided by infrastructure placement, then the Applicant shall design drainage crossings to accommodate estimated peak flows and ensure that natural volume capacity can be maintained throughout construction and upon post-construction restoration. This measure is necessary to minimize erosion and degradation to which drainages are subject.

Biological Resources (Section 4.6)

MM BIO-1. Preconstruction Surveys. Preconstruction surveys shall be coordinated by the Applicant and conducted by qualified botanists. Areas to be surveyed shall include mowing areas, brush clearing areas, and ground disturbance areas within habitat deemed suitable for sensitive species. These surveys shall be conducted for the presence of special status plants and noxious weeds to prevent direct loss of plants and to prevent the spread of weeds.

Table 2-4. Proposed Mitigation Measures (Continued)

MM BIO-2. Best Management Practices. Crews will be directed by the Applicant to use BLM-approved BMPs, where applicable. These measures will be identified by the Applicant and approved by BLM prior to construction and incorporated into the construction operations.

MM BIO-3. Biological Monitors. Biological monitors shall be assigned by the Applicant to the proposed Project in areas of sensitive biological resources. The monitors shall be responsible for ensuring that impacts on special status species would be avoided to the fullest extent possible. Where appropriate, monitors shall flag the boundaries of areas where activities would need to be restricted to protect native plants or special status species. Those restricted areas shall be monitored to ensure their protection during construction.

MM BIO-4. Facility Siting. Final site layout and spur road locations shall be adjusted by the Applicant to avoid sensitive biological resources to the greatest extent feasible.

MM BIO-5. Yellow Twotone Beardtongue Measures. Specific mitigation measures to protect the yellow twotone beardtongue shall be developed by the Applicant through agency coordination and included in the restoration plan. Mitigation may include seed collection, nursery development, transplantation of individuals, and/or sponsorship of the plant into the Center for Plant Conservation National Collection of Endangered Plants at Missouri Botanical Garden.

MM BIO-6. Cactus and Yucca Salvage Plan. ~~The following measures shall be taken to maximize salvage of cactus and yucca species within the proposed Project area:~~

~~1. The BLM shall conduct a series of public and commercial sales to reduce the number of cacti and yucca present. The Applicant shall reimburse the BLM for costs associated with the sales through a cost reimbursable account (7122). BLM staff from renewable resources, law enforcement, and support services will be needed to arrange, advertise, and implement the sales. Sales shall take place after the area has been fenced and cleared of desert tortoises.~~

~~2. For the remaining cacti and yucca that are not purchased, the Applicant shall fund, establish, and maintain cactus and yucca stockpiles at three locations to assist with BLM habitat restoration, road closure, and mine reclamation programs. Stockpiles shall be set up at (1) on Ann Road in Las Vegas, (2) the Desert Tortoise Conservation Center in Las Vegas, and (3) near Searchlight. The Applicant shall contract with a BLM-approved company to establish and maintain the stockpiles. Set up shall include fencing 1 to 2 acre sites with T post and wire (or repairing existing fencing, if present), salvaging and transplanting cacti/yucca in trenches, and watering plants once a month, on average. The Applicant shall continue maintenance (watering) for one year.~~

~~3. The Applicant shall provide site access during construction for BLM restoration and reclamation crews to salvage cacti, yucca, and other plant related materials (e.g., shrubs) on an as needed basis.~~

~~Any cacti and yucca remaining after steps 1, 2, and 3 are completed will not be salvaged.~~

~~*The Applicant shall salvage and/or purchase, as directed by BLM, all cactus and yucca plants from temporary and permanent impact areas within the right of way lease/grant. The salvage requirements will be described in the Project revegetation plan and will be approved by the BLM botanist prior to construction.*~~

MM BIO-7. Worker Environmental Awareness Program. A Worker Environmental Awareness Program (WEAP) shall be prepared by the Applicant or their contractor. All construction crews and contractors shall participate in WEAP training prior to starting work on the proposed Project. The WEAP training shall include a review of the special status species and other sensitive resources that could exist in the Project area, the locations of sensitive biological resources and their legal status and protections, and measures to be implemented for avoidance of these sensitive resources. A record of all trained personnel shall be maintained.

MM BIO-8. Migratory Birds and Raptors Impacts Reduction Measures. To reduce impacts on migratory birds and raptors, the following will be done:

The Applicant shall fund biological monitors to monitor and enforce disturbance buffers around all active bird nests (for raptors and species protected by the Migratory Bird Treaty Act) found in the Project area during construction. The general bird breeding season for this area is late February to early July. ~~For raptors, specifically, the Applicant shall use the USFWS Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances (1999) to determine appropriate survey areas and disturbance buffers for active nests. BLM will coordinate with NDOW prior to biological monitoring to ensure communication and details of monitoring are approved.~~

Table 2-4. Proposed Mitigation Measures (Continued)

<ul style="list-style-type: none">• For all non-raptor bird species, biologists shall survey within the proposed Project area. Because there are no standardized disturbance buffers for active non-raptor bird nests, the Applicant shall consult with the appropriate agencies (BLM, USFWS, and NDOW) on a case-by-case basis when active nests are found in Project areas, unless directed to do otherwise by all these agencies.• Active bird nests shall not be moved during breeding season, unless the Project is expressly permitted to do so by the USFWS, BLM, and NDOW.• All active nests and disturbance or harm to active nests shall be reported within 24 hours of detection to the USFWS, BLM, and NDOW. Work shall be halted if it is determined by the biological monitor that active nests are being disturbed by construction activities, until further direction or approval to work is obtained from the appropriate agencies.• <u>All measures should be tailored for the local environment, and actions specific to ravens and other potential avian predators of desert tortoise and wildlife shall be addressed as well.</u> <p><u>MM BIO-9. Bird and Bat Conservation Strategy.</u> Due to the potential presence of golden eagles, raptors, and bat species within the Project area, a Bird and Bat Conservation Strategy shall be developed with the goal of reducing the potential risks for avian and bat mortality resulting from construction and operation of the Project. The objectives of this Strategy would be to:</p> <ul style="list-style-type: none">• Identify baseline conditions for raptor and bat species currently present at the Project site;• Identify construction and operational activities that may increase the potential of adverse effects to these species on and adjacent to the Project site, <u>including bird mortality associated with potential attraction to PV panels;</u>• Specify steps that should be taken to avoid, minimize, and mitigate any potential adverse effects on these species, <u>including necessary permits to collect and bird carcasses for data collection and research;</u> and• Detail long-term monitoring and reporting goals, <u>including collection and reporting of bird carcasses.</u> <p><u>Applicable approved protocols would be used for any surveys and/or monitoring conducted. Golden eagle surveys would be conducted where necessary, according to methods specified in the Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols (Pagel et al. 2010).</u></p> <p><u>MM BIO-10. Avian Protection.</u> All transmission and subtransmission towers and poles will be designed to be avian-safe in accordance with the Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006 (Avian Power Line Interaction Committee 2006). Additionally, a post-construction bird study shall be conducted by the Applicant with review by BLM to monitor for incidents of bird strikes during the operation of the proposed Project. The scope and protocol of post-construction monitoring and reporting of bird strikes will be determined from future consultation with the USFWS.</p> <p><u>MM BIO-11. Western Burrowing Owl Measures.</u> To reduce impacts on the western burrowing owl, the following will be done:</p> <ul style="list-style-type: none">• A qualified biologist will conduct preconstruction surveys for western burrowing owl not more than 30 days prior to construction within suitable habitat, and prior to breeding season (February 1 through August 31). All areas within 250 feet of the proposed Project area will be surveyed per <u>Arizona Burrowing Owl Working Group 2009</u> burrowing owl guidance.• If an active nest is identified, there will be no construction activities within 250 feet of the nest to prevent disturbance until the chicks have fledged, as determined by a qualified biologist.• The occurrence and location of any western burrowing owl will be documented by biological monitors in daily reports and submitted to the authorized biologist on a daily basis. Within 24 hours of all incidents of disturbance or harm to burrowing owls, the authorized biologist will report such incidents to the appropriate resource agencies (USFWS, BLM, and NDOW). <p><u>MM BIO-12. Gila Monster and Chuckwalla Measures.</u> The following measures are the current NDOW construction site protocols for the Gila monster (NDOW <u>2012</u>), and are also applicable for the chuckwalla. Through the WEAP, works and other Project personnel should know how to: (1) identify and distinguish Gila monsters from other lizards such as chuckwallas and banded geckos; (2) report any sightings of Gila monsters (in Nevada) to the biological monitor for notification to NDOW; (3) be alerted to the consequences of a bite resulting from carelessness or unnecessary harassment; and (4) be aware of protective measures provided under state law.</p> <ul style="list-style-type: none">• Live Gila monsters found in harm's way on the construction site shall be captured and then detained in a cool, shaded environment (<85 degrees Fahrenheit) by the proposed Project biologist or equivalent personnel until a

Table 2-4. Proposed Mitigation Measures (Continued)

NDOW biologist can arrive for documentation purposes. Despite the fact that a Gila monster is venomous and can deliver a serious bite, its relatively slow gait allows for it to be easily coaxed or lifted into an open bucket or box, carefully using a long-handled instrument such as a shovel or snake hook. A clean 5-gallon plastic bucket with a secure, vented lid or something similar may be used for safe containment. Additionally, written information identifying the capture location, date, time, and circumstances (e.g., biological survey or construction) and habitat description (e.g., vegetation, slope, aspect, and substrate) will also be provided to NDOW.

- Injuries to Gila monsters may occur during excavation, blasting, road grading, or other construction activities. If a Gila monster is injured, it should be transferred to a veterinarian proficient in reptile medicine for evaluation of appropriate treatment. Rehabilitation or euthanasia expenses are not covered by NDOW. However, NDOW shall be immediately notified during normal business hours. If an animal is killed or found dead, the carcass shall be immediately frozen and transferred to NDOW with a completed written description of the discovery and circumstances, habitat, and mapped location.
- Should NDOW's assistance be delayed, biological or equivalent acting personnel on the site may be requested to remove and release the Gila monster out of harm's way. Should NDOW not be immediately available to respond for photo-documentation, a digital camera shall be used to take good quality images of the Gila monster in situ at the location of live encounter or dead salvage. The images shall be provided to NDOW and include the following information: (1) encounter location (landscape with Gila monster in clear view); (2) a clear overhead shot of the entire body with a ruler next to it for scale; and (3) a clear, overhead close-up of the head.

~~MM BIO-12. Facility Siting. Final tower and spur road locations shall be adjusted to avoid sensitive biological resources to the greatest extent feasible.~~

MM BIO-13. Reduced Night Lighting. The Applicant and its contractors shall reduce night lighting in the proposed Project area and the surrounding non-developed areas to avoid unnecessary visual disturbance to wildlife. Night lighting during construction, operations, and maintenance shall be reduced in the proposed Project area and the surrounding non-developed areas using directed lighting, shielding methods, and/or reduced lumen intensity. The Applicant shall indicate anticipated measures to resource agencies for approval prior to construction.

MM BIO-14. Cover Steep-Walled Trenches or Excavations during Construction. To prevent entrapment of wildlife, all steep-walled trenches, auger holes, or other excavations shall be covered at the end of each day. Fencing shall be maintained around the covered excavations at night. For open trenches, earthen escape ramps shall be maintained at intervals of no greater than 0.25 miles. An Applicant-funded biological monitor shall inspect all trenches, auger holes, or other excavations a minimum of twice per day and also immediately prior to back-filling. Any wildlife found shall be safely removed and relocated out of harm's way. For safety reasons, biological monitors will, under no circumstance, enter open excavations. Tools such as a pool net may be used to retrieve wildlife, as necessary.

MM BIO-15. American Badger and Desert Kit Fox Impacts Reduction Measures. To reduce impacts to American badger and desert kit fox, the following shall be done:

- The qualified biological monitor shall be notified if badgers or foxes are observed within the proposed Project area during construction activities. Work shall be immediately stopped in the area if the biologists find occupied burrows within 100 feet of construction activities during preconstruction surveys. Notification of these sightings shall be provided within 24 hours to appropriate agencies (BLM, USFWS, and NDOW).
- Use of passive and active relocation techniques (if necessary) shall be developed, implemented and reviewed in coordination with NDOW.

MM BIO-16. Desert Bighorn Sheep Measures. *Although not anticipated, if desert bighorn sheep are identified on or immediately adjacent to the Project site,* the Applicant shall consult with the BLM, USFWS, and NDOW regarding conservation measures to avoid impacts on desert bighorn sheep during construction. Avoidance and minimization measures could include such elements as preconstruction surveys, biological monitoring, and timing construction activities to avoid bighorn sheep active seasons.

MM BIO-17. Desert Tortoise Measures. The BLM and USFWS are currently proceeding with Section 7 Consultation under the ESA. At this time, the *final* Biological Opinion has not been developed. The Biological Opinion will include information such as the translocation location(s) and stipulations associated with that activity. Additional specific conditions and requirements based on the findings of this consultation may supersede the mitigation measures provided below.

Table 2-4. Proposed Mitigation Measures (Continued)

- *Monitoring Program.* The Applicant shall fund monitoring studies analyzing demographic and genetic connectivity home range and distribution of tortoises in the area surrounding the Project area encompassing a 13,000-acre research area in the Ivanpah Valley in both California and Nevada. ~~The goal of this research is to obtain preliminary ecological data for resident desert tortoises by determining home range size, habitat use, and disease and contaminant prevalence and exposure. These goals are expected to (1) contribute to the existing knowledge base for desert tortoises in the Ivanpah Valley; (2) explore how anthropogenic pollutants may impact desert tortoises; and (3) inform potential future translocation events resulting from projects in the Valley. Additional studies may be funded to assess effects of Project development on the connectivity of desert tortoise populations north and south of the Project area.~~
- *Exclusion Fencing.* Prior to initiation of clearance surveys, desert tortoise exclusion fencing shall be constructed in accordance with the provisions of the Biological Opinion and BLM and USFWS guidelines.
- *Desert Tortoise Monitoring.* During construction of linear features (transmission lines, fencing, and access roads) or until the desert tortoise exclusion fencing is complete, all construction activities shall be conducted under the observation of Applicant-funded USFWS-approved desert tortoise biologists. These biologists shall meet all requirements of the USFWS and shall monitor all ground-disturbing activities associated with fence installation or that are conducted prior to completion of the tortoise exclusion fencing.
In addition, after initial fencing and clearance, an Applicant-funded biological monitor shall be available during all ground-disturbing activities. The biologist shall be available to ensure the conditions of the Biological Opinion are being met, including worker education guidelines, avoidance and minimization measures, and construction monitoring requirements.
- *Pre-construction Clearance Surveys.* It is anticipated that the Project area would be fenced in segments of approximately 700 acres to facilitate efficient and thorough clearance surveys. Clearance surveys shall be conducted per the USFWS Desert Tortoise Field Manual and current translocation guidance (USFWS 2009 and 2011). All tortoise burrows shall be excavated and eggs and tortoises translocated to the translocation area to be determined through agency consultation. Two complete passes in the fenced segment shall be completed without a desert tortoise being found before construction may commence within that area.
- *Translocation Plan.* A Desert Tortoise Translocation Plan shall be prepared for the Project. The purpose of the Plan is to describe the process of translocation and minimize mortality of desert tortoises. ~~and assess the effectiveness of the translocation effort through a long-term monitoring program.~~ Injured tortoises shall be transported to a rehabilitation facility approved by the USFWS and NDOW. Recently killed tortoises found shall be salvaged and transported to a veterinary pathologist familiar with desert tortoise and approved by the USFWS and NDOW. Procedures for salvaging and transport shall follow the Guidelines for the Field Evaluation of Desert Tortoise Health and Disease (Berry and Christopher 2001). Detailed health assessment on all live tortoises shall be conducted prior to translocation per current USFWS guidance by individuals approved and permitted by the USFWS to conduct such assessments. Any individual tortoise that exhibits clinical signs of upper respiratory tract disease (URTD) shall be transported to the Desert Tortoise Conservation Center near Las Vegas, Nevada for further evaluation.
- *Avoidance during Operation and Maintenance.* During the operation phase of the Project, all applicable desert tortoise protection measures identified under construction shall be implemented. This may include the need for a biological monitor outside the fenced facility during activities involving ground disturbance, annual WEAP refresher, and actions to take if a tortoise is encountered. The monitor shall be on site during all Project maintenance activities to ensure compliance with the desert tortoise measures included in the Biological Opinion. The monitor would have the authority to halt all non-emergency activities that are in violation of the measures. Work shall proceed only after hazards to desert tortoise are removed, the species is no longer at risk, or the individual has been moved from harm's way by an USFWS-authorized biologist. A compliance report would be submitted to the BLM annually.
- *Compensatory Mitigation.* To compensate for desert tortoise habitat loss, the Applicant shall pay remuneration fees to the BLM to partially offset the potential adverse effects of the Project. Fees would be collected following guidance in BLM's August 17, 2010, instruction memorandum (NV-2011-079) as listed in the Biological Opinion for the Silver State Solar Project and a separate Work Breakdown Structure (WBS) code would be established for these funds to accomplish on-site mitigation. Initial on-site mitigation would be to evaluate the health and genetics of the desert tortoises located within the LSTS to determine if the LSTS fence can be partially removed to allow the tortoises to move throughout the Ivanpah Valley. This evaluation would be coordinated with the USFWS and the Desert Tortoise Recovery Office. If the analysis proves feasible, the BLM

Table 2-4. Proposed Mitigation Measures (Continued)

<p><i>in consultation with the Clark County Department of Aviation, the Nevada Department of Transportation, and the Union Pacific Railroad, will initiate separate NEPA analysis to evaluate the impacts to reconfiguring the current LSTS. LSTS reconfiguration could include installation of additional fencing on highways, culverts under Hwy 161 and eventually removing parts of the existing tortoise fence, removing cattle guards and working with the Railroad to repair underpasses to allow for tortoise movement. This would remove an identified linkage corridor pinch point on the west side of the Ivanpah Valley. If initial testing results or subsequent adaptive management strategies indicate that removal or reconfiguration of the LSTS perimeter fence is feasible, First Solar will fund removal or reconfiguration of the perimeter fence as appropriate in consultation with the USFWS. If testing indicates that improving connectivity through the LSTS is not feasible for genetic, disease, or other reasons, First Solar shall fund BLM efforts to fence portions of Highway 93 to reduce the mortality of desert tortoises. Additional mitigation would be used for restoration and law enforcement for three years to help protect the newly restored areas. Any remaining funds would be used for management actions expected to provide a benefit to the desert tortoise over time. Actions may involve habitat acquisition, population or habitat enhancement, increasing knowledge of the species' biological requirements, reducing loss of individual animals, documenting the species current status and trend, and preserving distinct population attributes (USFWS 2010).</i></p>
<p>Cultural Resources (Section 4.7)</p> <p>MM CULT 1: Avoidance of Known Cultural Resources. An Applicant funded qualified geoarchaeologist shall be present during land disturbing activities during construction of the proposed SCE transmission line substation to monitor and analyze the excavation(s) to determine the presence or absence of any cultural resources or the former Pleistocene Ivanpah Lake bottom and the amount of associated post lake deposition.</p> <p>MM CULT-1. Protection of Cultural Resources Human Remains. Although unlikely, any In the event that cultural materials, including human remains, are discovered during Project activities, they shall be protected by all Project personnel and construction crew members. by following the procedures set forth in Section VI of the October 26, 2009, State Protocol Agreement between the BLM and the Nevada State Historic Preservation Office. This includes at a minimum: The Proponent shall 1) it is the responsibility of the Proponent to notify the BLM authorized contracting officer and archaeologist immediately; 2) cease all construction activities within a 100 meter radius buffer area; and 3) ensure protection of the discovery from further damage or vandalism until a BLM authorized archaeologist evaluates the nature of the materials. If needed, mitigation procedures shall be developed by the BLM in consultation with the SHPO. The BLM will develop mitigation procedures following consultations with the SHPO and culturally affiliated Indian tribes. First Solar is responsible for all costs associated with consultations as well as the stabilization, treatment, reporting, curation, and/or reburial of discoveries.</p>
<p>Paleontological Resources (Section 4.8)</p> <p>MM PALEO-1. Paleontological Mitigation. Results of the data inventory and impact assessment confirm that the sediments present within the boundaries of the proposed Project area have a low potential to contain significant paleontological resources. Mitigation measures shall be implemented if significant subsurface paleontological resources are identified during construction. The BLM requires the following stipulation:</p> <p>The Proponent shall immediately notify the BLM authorized officer of any paleontological resources discovered as a result of operations under this authorization. The Proponent shall suspend all activities in the vicinity of such discovery until notified to proceed by the authorized officer, and shall protect the locality from damage or looting. The authorized officer will evaluate, or will have evaluated, such discoveries as soon as possible, but not later than 5 working days after being notified. Appropriate measures to mitigate adverse effects to significant paleontological resources will be determined by the authorized officer after consulting with the Proponent. The Proponent is responsible for the cost of any investigation necessary for the evaluation and for any mitigation measures, including museum curation. The Proponent may not be required to suspend operations if activities can avoid further impacts to a discovered locality or be continued elsewhere.</p>
<p>Lands and Realty (Section 4.9)</p> <p>MM LANDS-1. Ensure Compatibility with Airport Projects. The Applicant shall work closely with the Clark County Department of Aviation to ensure that all planning, construction, and operation remains compatible with airport projects and future airport operations.</p>

Table 2-4. Proposed Mitigation Measures (Continued)

<p>Special Management Areas (Section 4.10)</p> <p><i>No mitigation required.</i></p>
<p>Recreation (Section 4.11)</p> <p><u>MM REC-1 Signage Plan for Trail Identification.</u> In order to reduce new, unauthorized OHV trails due to the restriction of existing trails on the Project footprint, informational signs shall be placed by the Applicant in the areas surrounding the Project. The sign locations and designs will be determined by BLM to direct the public to the appropriate access to the Lucy Gray Mountains and will be identified in the traffic management plan.</p> <p><u>MM REC-2 Use of Project Access Road Outside of the Perimeter Fence.</u> In order to maintain public access, the proponent shall allow access to the Lucy Gray Mountains through the use of their Project access road, located outside of the Project fence. This road will be open to the general public for dispersed use and access to the Lucy Gray Mountains. This access would also be available to organized competitive OHV races, if the races have obtained necessary permits and are approved.</p>
<p>Visual Resources (Section 4.12)</p> <p><u>MM VIS-1 Reduce Visual Contrast.</u> The following selective mitigation measures shall be implemented by the Applicant to reduce visual contrast:</p> <ul style="list-style-type: none"> • Solar field access ways shall be offset at appropriate intervals to minimize the appearance of straight lines within the solar field. • <u>An experimental treatment with Permeon or a similar type of contrast-reducing product of the portions of the Project drainage control basins that are visible from Key Observation Points (KOPs). Treatment shall be conducted in test plots, with efficacy determined by the BLM. Depending on the outcome of the experimental treatment, Applicant shall treat the remaining portions of the drainage control basins visible from KOPs; according to BLM guidance.</u> • The exterior of the inverter boxes and the exterior of the O&M building, <u>walls or fences surrounding switchyard/ substation facilities, PCS stations, and lighting fixtures and poles,</u> will be factory treated with a non-specular dull finish or using the BLM-standard environmental color Shadow Gray or Covert Green to minimize contrast with the existing landscape. <u>If a fixed-tilt design is chosen, the PV panel mounting clips shall be treated with a non-specular dull finish or using the BLM-standard environmental color Shadow Gray or Covert Green. Whatever finish is chosen shall be used consistently for all structures to be color treated, not including transmission towers and fencing. The fence and weather station towers will be a non-specular dull finish to be approved by BLM prior to procurement and installation. Steel transmission or distribution towers or poles will be color treated of the rust exterior type (Corten or similar). Other panel support structures (i.e., posts, tables), temporary water tanks and other temporary construction support facilities, will not be color treated.</u> • <u>A Revegetation Plan shall be prepared and implemented to revegetate areas temporarily disturbed by construction including access roads that are not needed for operation, with a focus on softening harsh lines associated with clearings.</u> • <u>Where possible, use drive and crush access during construction and operation to avoid soil disturbance and need for revegetation.</u> • <u>The perimeter road shall be located at a variable distance from the perimeter fence to allow for feathering of the footprint and selective vegetation removal, with the intent to result in an organic or irregular line but shall not result in more disturbance than the original engineered design. Revegetation shall be delayed until after the post-Project drainage is evident and revisions to the drainage design, if necessary, have been made. Landform modifications associated with necessary berms and channel improvements shall be blended into the natural landscape. With BLM approval, Applicant may re-plant salvaged native vegetation in such a way as to screen Project structures.</u> • <u>If a fire break is not required and topographic and vegetation conditions allow, till and roll techniques would not be used in the following locations:</u> <ul style="list-style-type: none"> ○ <u>Construction area for the perimeter fence</u> ○ <u>Construction area for the desert tortoise exclusion fence</u> <u>Instead, vegetation would be cut to a height of 6 inches prior to fence construction.</u>

Table 2-4. Proposed Mitigation Measures (Continued)

Transportation/ Motorized Vehicle Access (Section 4.13)

MM TRAN-1. Traffic Management Plan. The Applicant shall produce a Traffic Management Plan that identifies BMPs to minimize construction-related traffic impacts. Specifically, the BMPs shall ensure an adequate flow of traffic in both directions by providing sufficient signage to alert drivers of construction zones, notifying emergency responders prior to construction, conducting community outreach, and control traffic around impacted intersections. The Traffic Management Plan shall include the following:

- Schedule deliveries of materials for off-peak hours to reduce effects during periods of peak traffic;
- Truck traffic shall be phased throughout construction;
- Truck traffic shall use designated truck routes when arriving to and departing from the proposed work sites;
- The Applicant shall encourage the construction workforce to carpool, rideshare or vanpool;
- Information on available local and regional programs shall be made available to the workforce through bulletin board postings and training programs;
- Signs and public notices regarding construction work shall be distributed before disruptions occur, identifying detours to maintain access, the use of flagmen or escort vehicles to control and direct traffic flow, and scheduling roadway work during periods of minimum traffic flow;
- In order to reduce new, unauthorized OHV trails due to the restriction of existing trails on the Project footprint, informational signs shall be placed by the Applicant in the areas surrounding the Project. The sign locations and designs will be determined by BLM to direct the public to the appropriate access to the Lucy Gray Mountains; and
- In order to maintain public access, the Applicant shall allow access to the Lucy Gray Mountains through the use of their Project access road, located outside of the Project fence. This road will be identified in the Traffic Management Plan and will be open to the general public for dispersed use and access to the Lucy Gray Mountains. This access would also be available to organized competitive OHV races, if the races have obtained necessary permits and are approved.

MM TRAN-2. Repair Damaged Streets. Before construction, the Applicant, a BLM representative, and a local representative shall document the condition of the access route, noting any pre-construction damage. After construction, any damage to public roads shall be repaired to pre-construction condition as determined by the local representative.

Health and Safety/ Hazardous Materials (Section 4.14)

MM HAZ-1. Hazardous Materials Handling Management. The Applicant shall implement a Hazardous Materials Handling Management Program or incorporate within their other program the items outlined below. Hazardous materials used and stored onsite for the Proposed Action activities shall be managed according to the specifications outlined below, in accordance with Federal, State and local laws and regulations:

- Hazardous Materials Handling Program. A Project-specific hazardous materials management program shall be developed before beginning construction. The program shall outline proper hazardous materials use, storage, and disposal requirements. The program shall identify types of hazardous materials to be used during construction activities. All personnel shall be provided with Project-specific training. This program shall be developed to ensure that all hazardous materials are handled in a safe and environmentally sound manner. Employees handling hazardous materials will receive hazardous materials training and will be trained in: hazardous waste procedures; spill contingencies; waste minimization procedures; and treatment, storage, and disposal facility training in accordance with OSHA Hazard Communication.
- Transport of Hazardous materials. Hazardous materials that will be transported by truck include fuel (e.g., diesel fuel, propane and gasoline), and oils and lubricants for equipment. Containers used to store hazardous materials shall be properly labeled and kept in good condition. Written procedures for the transport of hazardous materials shall be established in accordance with U.S. Department of Transportation (USDOT), and NDOT regulations. A qualified transporter shall be selected to comply with federal and state transportation regulations.
- Fueling and Maintenance of Construction Equipment: Written procedures for fueling and maintenance of construction equipment shall be prepared prior to construction. Vehicles and equipment shall be refueled on site or by tanker trucks. Procedures shall include the use of drop cloths made of plastic, drip pans, and trays to be placed under refilling areas to ensure that chemicals do not come into contact with the ground. Refueling stations shall be located in designated areas where absorbent pads and trays will be available. The fuel tanks

Table 2-4. Proposed Mitigation Measures (Continued)

shall also contain a lined area to ensure that accidental spills do not occur. Drip pans or other collection devices shall be placed under the equipment at night to capture drips or spills. Fuel and tank transfer equipment shall be inspected daily for potential leakage or failures. Hazardous materials such as paints, adhesives and solvents, shall be kept in an approved locker or storage cabinet.

MM HAZ-2: Solar PV Cell Recycling. The Applicant shall either return solar panel products to the original manufacturer or send them to a certified recycling facility after the solar PV cells are decommissioned. Solar panel material recycling and end-of-life disposal shall be done in compliance with the federal, state, and local regulations.

MM HAZ-3: Characterize Potentially Contaminated Soil/Groundwater. To ensure that workers, the public, and wildlife are not exposed to potential contaminants, if soil is unearthed that is discolored or has an odor, work shall be stopped in that area. The soil shall then be sampled and characterized prior to further site excavation activities in the area with discolored or odorous soils. If the soil is found to be contaminated based on federal or state regulations, then the Applicant shall implement the appropriate and relevant procedures to properly characterize, contain, and dispose of the contaminated material. If groundwater is encountered that has an odor or is discolored, it shall be sampled, characterized, addressed, and disposed of according to state and federal regulations.

MM HAZ-4: Adherence of the Health and Safety Program with 29 CFR, Part 1910. The Applicant shall ensure that all health and safety and emergency plans to be required for employees and contractors during construction, operations, and decommissioning of the Proposed Action comply with the Occupational Safety and Health Standards provided in federal regulation 29 CFR, Part 1910, as well as with applicable state and local occupational health and safety regulations.

MM HAZ-5. Construction Fire Prevention Measures. The following fire prevention measures shall be implemented by the Applicant or its contractor during Project construction.

- Maintain a list of all relevant fire fighting authorities near the Project site. The closest resources to respond to a wildland fire threatening the community of Primm would come from Clark County Fire Department Station 78 in Goodsprings;
- Have and maintain available fire suppression equipment in all construction areas, including but not limited to: water trucks, potable water pumps, and chemical fire extinguishers. Ensure an adequate supply of fire extinguishers for welding and brushing crews;
- Include mechanisms for fire suppression in all heavy equipment, including fire extinguishers and as applicable, spark arresters or turbo-charging (which eliminates sparks in exhaust);
- Remove any flammable wastes generated during construction on a regular basis;
- Vegetation clearing shall be accomplished in a manner that reduces vegetation and does not create a fire hazard;
- Store all flammable materials used at the construction site;
- Allow smoking only in designated smoking areas; and
- Require all work crews to park vehicles away from flammable vegetation, such as dry grass and brush. At the end of each workday, heavy equipment should be parked over mineral soil, asphalt, or concrete, where available, to reduce the chance of fire.