

**U.S. Department of the Interior  
Bureau of Land Management**

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**Environmental Assessment**

**DOI-BLM-NV-S010-2010-0184-EA**

**July 2010**

**Silver State Solar, LLC, Bore Holes and Test Well**

**PREPARING OFFICE**

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**Environmental Assessment:  
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0184-EA**

**July 2010**



# Table of Contents

|  |           |
|--|-----------|
| <b>1. Introduction .....</b>   | <b>1</b>  |
| 1.1. Identifying Information .....   | 1         |
| 1.1.1. Title, EA number, and type of project: .....                                  | 1         |
| 1.1.2. Location of Proposed Action: .....  | 1         |
| 1.1.3. Name and Location of Preparing Office: .....                                  | 12        |
| 1.1.4. Identify the Subject Function Code, Lease, Serial, or Case File Number: ..... | 12        |
| 1.1.5. Applicant Name: .....   | 12        |
| 1.2. Purpose and Need for Action: .....  | 12        |
| 1.3. Scoping, Public Involvement and Issues: .....                                   | 12        |
| <b>2. Proposed Action and Alternatives .....</b>                                     | <b>13</b> |
| 2.1. Description of Proposed Action: .....   | 15        |
| 2.2. Geotechnical Investigation .....  | 15        |
| 2.3. Test Water Well Installation .....  | 16        |
| 2.4. Access .....  | 18        |
| 2.4.1. Geotechnical Investigation .....  | 18        |
| 2.4.2. Test Water Well Installation .....  | 18        |
| 2.5. Description of Alternatives Analyzed in Detail: .....                           | 18        |
| 2.6. Alternative Considered but not Analyzed in Detail .....                         | 18        |
| 2.7. No Action Alternative .....   | 18        |
| 2.8. Conformance .....   | 18        |
| <b>3. Affected Environment: .....</b>  | <b>21</b> |
| 3.1. Migratory Birds .....   | 23        |
| 3.2. Wildlife .....  | 23        |
| 3.2.1. BLM Sensitive Wildlife Species .....  | 23        |
| 3.3. Recreation .....  | 23        |
| 3.4. Threatened, Endangered or Candidate Animal Species .....                        | 24        |
| 3.5. Water Resources— Quality (drinking-surface-ground) .....                        | 24        |
| <b>4. Environmental Effects: .....</b>   | <b>25</b> |
| 4.1. Migratory Birds .....   | 27        |
| 4.1.1. No Action Alternative .....   | 27        |
| 4.1.2. Mitigation .....  | 27        |
| 4.2. Recreation .....  | 27        |
| 4.2.1. No Action Alternative .....   | 27        |
| 4.2.2. Mitigation .....  | 27        |
| 4.3. Threatened, Endangered or Candidate Animal Species .....                        | 27        |
| 4.3.1. No Action Alternative .....   | 28        |
| 4.3.2. Mitigation .....  | 28        |
| 4.4. Water Resources-Quality (drinking-surface-ground) .....                         | 28        |
| 4.4.1. No Action Alternative .....   | 28        |

4.4.2. Mitigation ..... 29

**5. Tribes, Individuals, Organizations, or Agencies Consulted: ..... 31**

**6. List of Preparers ..... 35**

**List of Figures**

Figure 1.1. Project map with test pits and bore hole locations identified ..... 3  
Figure 1.2. BV1 Location Flagged ..... 4  
Figure 1.3. Figure 7-7 BV2-TP2 Location Flagged ..... 5  
Figure 1.4. Figure 7-8 BV3-TP3 Location Flagged ..... 6  
Figure 1.5. Figure 7-9 BV4-TP4 Location Flagged ..... 7  
Figure 1.6. Figure 7-10 BV5 Location Flagged ..... 8  
Figure 1.7. Figure 7-11 TP1 Location Flagged ..... 9  
Figure 1.8. Figure 7-12 TP5 Location Flagged ..... 10  
Figure 1.9. Proposed water well location ..... 11



**List of Tables**

|  |    |
|--|----|
| Table 1.1. Boring/Test Pit Location Information .....                  | 1  |
| Table 1.2. Water Well Location Information .....                       | 10 |
| Table 5.1. List of Persons, Agencies and Organizations Consulted ..... | 33 |
| Table 6.1. List of Prepares .....                                      | 37 |



# **Chapter 1. Introduction**



Silver State Solar, LLC submitted a Land Use Application and Permit (LUP) on March 8, 2010 to conduct geotechnical testing and for installation of an 8-inch-diameter test water well in support of the Silver State Solar Photovoltaic (PV) Projects NVN-085077 and NVN-085801, located in Primm, Nevada.

Use of these lands will allow Silver State Solar, LLC to determine the engineering characteristics of local soils and geology to develop a geological profile of the area. Geotechnical data collected will be analyzed to select the type and size of foundations required for the various project structures and equipment. Additionally, data about the soil resistance to electric current flow will be collected and used for the electrical grounding design to ensure the proposed project meets electrical safety codes.

Installation of the test water well will allow Silver State Solar, LLC to test the capacity of the underlying aquifer to assess its potential use to meet project development water demand. If the aquifer yield is satisfactory, the well will be left in place for subsequent use as a source of water for construction and operation of the proposed project. If the Silver State Solar proposed project does not proceed, NextLight will properly abandon the well at the Bureau of Land Management's (BLM) request.

## 1.1. Identifying Information

### 1.1.1. Title, EA number, and type of project:

Silver State Solar, LLC, Test Water Well, Bore Holes and Test Pits, DOI-BLM-NV-S010-2010-0184-EA

### 1.1.2. Location of Proposed Action:

The proposed project is located immediately west of Primm, Nevada in the Mount Diablo Meridian, Nevada, T. 27 S., R. 59 E. Sections 2, 3, 11, 14, 15.

Below are two tables showing the specific latitude and longitude for the bore holes, test pits, and water well location.

Table 1.1, "Boring/Test Pit Location Information" (p. 1)

**Table 1.1. Boring/Test Pit Location Information**

| Boring/Test Pit Name (Figure 7-1) | Latitude            | Longitude            | Area of Disturbance (sq. ft.) | Section (Figure 2-1) <sup>a</sup> | Location Photograph | Direction of Photograph |
|-----------------------------------|---------------------|----------------------|-------------------------------|-----------------------------------|---------------------|-------------------------|
| BV-1                              | 35° 36'<br>45.77" N | 115° 20'<br>28.41" W | 600                           | 11                                | 7-6                 | NNW                     |
| BV-2                              | 35° 36'<br>35.78" N | 115° 20'<br>3.24" W  | 600                           | 11                                | 7-7                 | NNW                     |

| <b>Boring/Test Pit Name (Figure 7-1)</b> | <b>Latitude</b>     | <b>Longitude</b>            | <b>Area of Disturbance (sq. ft.)</b> | <b>Section (Figure 2-1)<sup>a</sup></b> | <b>Location Photograph</b> | <b>Direction of Photograph</b> |
|--|---------------------|-----------------------------|--------------------------------------|---|----------------------------|--------------------------------|
| BV-3                                     | 35° 37'<br>14.35" N | 115° 21'<br>34.33" W        | 600                                  | 3                                       | 7-8                        | NW                             |
| BV-4                                     | 35° 37'<br>44.30" N | 115° 21'<br>27.05" W        | 600                                  | 3                                       | 7-9                        | W                              |
| BV-5                                     | 35° 37'<br>54.32" N | 115° 20'<br>22.83" W        | 600                                  | 2                                       | 7-10                       | NNW                            |
| TP-1                                     | 35° 36'<br>20.59" N | 115° 20'<br>19.81" W        | 800                                  | 14                                      | 7-11                       | NNW                            |
| TP-2                                     | 35° 36'<br>35.78" N | 115° 20'<br>3.24" W         | 800                                  | 11                                      | 7-7                        | NNW                            |
| TP-3                                     | 35° 37'<br>14.35" N | 115° 21'<br>34.33" W        | 800                                  | 3                                       | 7-8                        | NW                             |
| TP-4                                     | 35° 37'<br>44.30" N | 115° 21'<br>27.05" W        | 800                                  | 3                                       | 7-9                        | W                              |
| TP-5                                     | 35° 35'<br>37.52" N | 115° 21'<br>35.55" W        | 800                                  | 15                                      | 7-12                       | NNW                            |
| All                                      |                     | Total Disturbance (Sq. Ft.) | 7,000                                |   |                            |                                |
| All                                      |                     | Total (Acres)               | 0.16                                 |   |                            |                                |

<sup>a</sup> all Sections are T27S,R59E MDM.

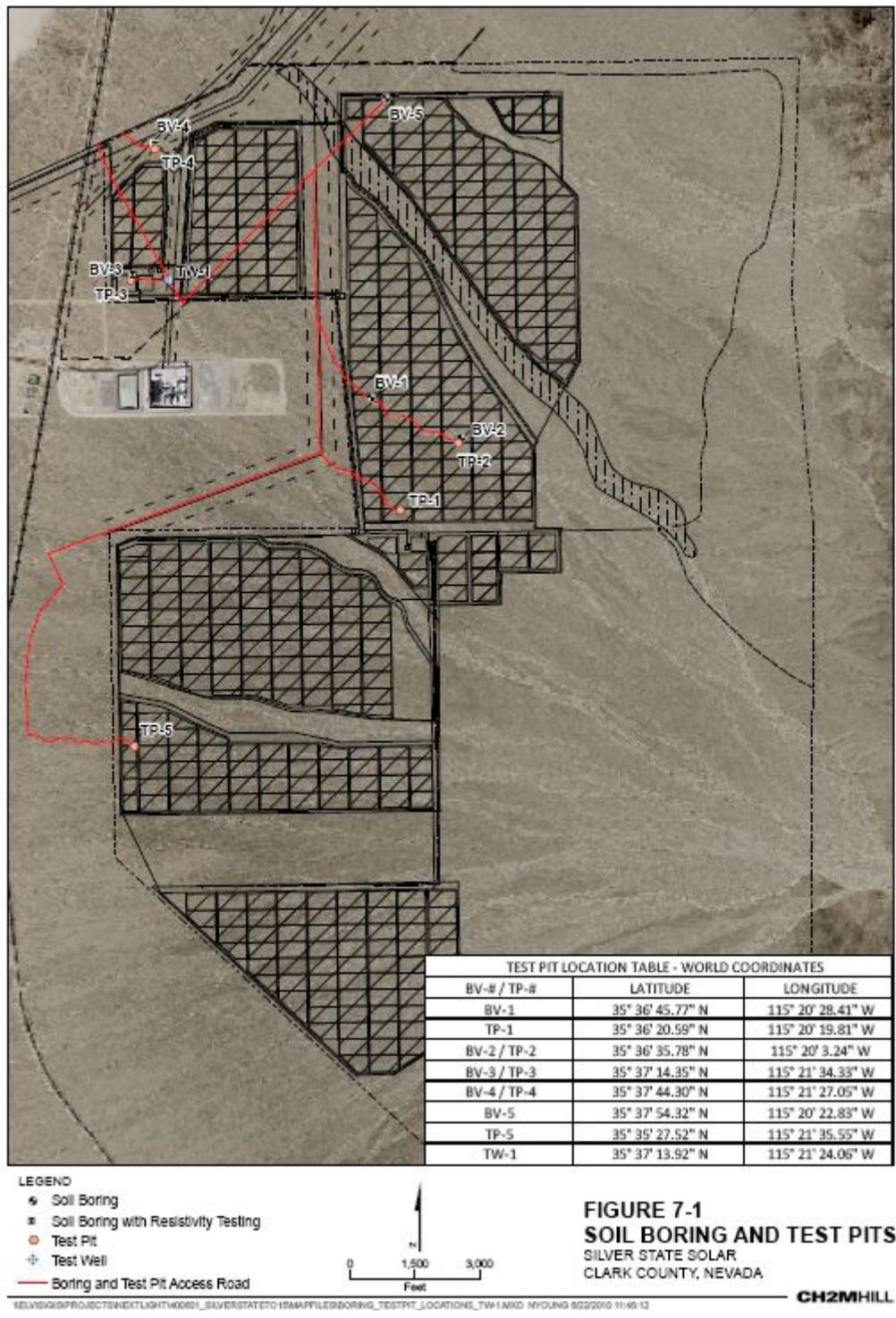


Figure 1.1. Project map with test pits and bore hole locations identified



**Figure 1.2. BV1 Location Flagged**



**Figure 1.3. Figure 7-7 BV2-TP2 Location Flagged**



**Figure 1.4. Figure 7–8 BV3-TP3 Location Flagged**



**Figure 1.5. Figure 7-9 BV4-TP4 Location Flagged**



**Figure 1.6. Figure 7–10 BV5 Location Flagged**



**Figure 1.7. Figure 7–11 TP1 Location Flagged**



**Figure 1.8. Figure 7-12 TP5 Location Flagged**

Table 1.2, “Water Well Location Information” (p. 10)

**Table 1.2. Water Well Location Information**

| Latitude         | Longitude         | Area of Disturbance (sq. ft.) | Section (Figure 2-1) <sup>a</sup> |
|------------------|-------------------|-------------------------------|-----------------------------------|
| 35° 37' 13.92" N | 115° 21' 24.06" W | 5,600 (approx 0.13 acre)      | 3                                 |

<sup>a</sup>all Sections are T27S, R59E MDM.



Proposed water well location will be about 6ft to the right of the Napkin in the roadway

**Figure 1.9. Proposed water well location**

July 2010

Chapter 1 Introduction  
Location of Proposed Action:

### **1.1.3. Name and Location of Preparing Office:**

Las Vegas Field Office  
4701 N. Torrey Pines, Drive  
Las Vegas, Nevada 89130

### **1.1.4. Identify the Subject Function Code, Lease, Serial, or Case File Number:**

Case file number NVN-088284

### **1.1.5. Applicant Name:**

Silver State Solar, LLC

## **1.2. Purpose and Need for Action:**

The proposed right-of-way (ROW) is required to determine the engineering and mechanical needs of the proposed solar facility by studying the soil characteristics and to determine the available water level in the project area via a test well.

The BLM's purpose and need is to respond to Silver State Solar, LLC's application under Title III of the Federal Land Policy Management Act of October 21, 1976 (FLPMA) for a land use permit (LUP) to construct, operate, maintain, and terminate a test well, bore holes, and test pits in accordance with 43 C.F.R. Part 2900 and other applicable Federal laws. The BLM will decide whether to approve, approve with modification, or deny issuance of a LUP to Silver State Solar, LLC for a LUP.

## **1.3. Scoping, Public Involvement and Issues:**

The proposed project has been scoped internally by the BLM Las Vegas Field Office staff. Resource issues were identified in the affected resources table.

# **Chapter 2. Proposed Action and Alternatives**



## 2.1. Description of Proposed Action:

Silver State Solar, LLC submitted a Land Use Application and Permit (LUP) on March 8, 2010 to conduct geotechnical testing and for installation of an 8-inch-diameter test water well in support of the Silver State Solar photovoltaic (PV ) Projects NVN-085077 and NVN-085801, located in Primm, Nevada.

Use of these lands will allow Silver State Solar, LLC to determine the engineering characteristics of local soils and geology to develop a geological profile of the area. Geotechnical data collected will be analyzed to select the type and size of foundations required for the various project structures and equipment. Additionally, data about the soil resistance to electric current flow will be collected and used for the electrical grounding design to ensure that the proposed project meets electrical safety codes.

Installation of the test water well will allow Silver State Solar to test the capacity of the underlying aquifer to assess its potential use to meet project development water demand. If the aquifer yield is satisfactory, the well will be left in place for subsequent use as a source of water for construction and operation of the proposed PV project. If the Silver State Solar proposed project does not proceed, Silver State Solar, LLC will properly abandon the well at the Bureau of Land Managements (BLM) request according to Nevada Revised Statutes.

## 2.2. Geotechnical Investigation

Field work for the geotechnical studies associated with this LUP will take place and be complete within 60 days of the permit being issued. Once the consultant commences the field work, it is anticipated that all field work will be completed within 15 business days, subject to weather, heat and sensitive species avoidance delays. Sixty days provides sufficient time to accommodate scheduling and weather delays.

The geotechnical investigation will involve drilling five soil borings to a depth of 25 feet, and excavating five test pits to a depth of approximately 10 feet. The borings would be completed by a truck-mounted, soil-boring machine, and the test pits would be completed by a rubber-tired backhoe.

In addition, at each test pit and boring location, a steel test post (6-8" in width) will be driven into the ground to a depth of 6 to 12 feet. A light-duty truck-mounted impact post pounder will be used. Static tests will be performed to measure the strength of the embedded post. Once the testing is completed, the post will be removed and the hole backfilled with native soil and returned to its native state. The steel test post will be located within the previously disturbed area associated with the above mentioned test pits and borings.

Exact locations of borings and test pits will be flagged prior to disturbance, as well as the route to each test site and corners of the work areas. If directed by BLM, NextLight will schedule a field review of flagging, with the BLM Biologist.

Soil boring activities will require a work area approximately 20 by 30 feet at each location. A truck-mounted drilling rig will use hollow-stem auger drilling equipment to bore an approximately 5- to 6-inch-diameter hole to a depth of 25 feet. At completion of each soil boring, the bore hole will be backfilled with the material removed during boring, unless state and local regulations require more stringent backfilling methods.

Test pit excavation will require a work area approximately 20 by 40 feet at each location. A rubber-tired backhoe will be used to excavate to an approximate depth of 10 feet. Each test pit will be approximately 3 feet wide and 10 feet long at the bottom. For worker safety and to minimize the area of disturbance, trench shields will be used, of which the ATS Series Aluminum Trench Shield is an example. The shields are Professional Engineer certified to comply with Occupational Safety and Health Administration requirements.

Before excavation, the top 4 inches of soil will be removed from the test pit excavation and spoil pile area. Topsoil will be stockpiled for replacement at the site once test pit sampling has been completed and the test pit backfilled. Waste material from the excavation will be placed adjacent to each side of the test pit. After inspection, recording of data, and collection of soil samples (approximately 50 pounds total at each test pit) by an engineer or geologist, the pit will be backfilled by the backhoe using the front end loader bucket. Backfill material will be compacted to the natural density of the adjacent soil. Testing of the compaction of the backfill will not be conducted.

Soil electrical resistivity measurements will be obtained at each of the above locations using equipment brought to the test location in a pick-up truck. As noted above, access to resistivity testing locations will be restricted to existing roads. The equipment is portable and will be carried by personnel during testing. Soil resistance measurements will be taken with four 3/8-inch metal rods, which are connected by 20-gauge wire to an electrical source—a 12 volt DC battery that will remain within the road limits. The rods will be inserted 3 to 6 inches into the ground such that the four rods form a straight line with the electrical source in the middle. Each rod will be inserted into the ground nine different times at an overall distance of 5 to 90 feet from the electrical source. The test will be repeated at a right angle to the first test. Upon completing the sampling, boring holes and test pits will be backfilled, excess materials will be removed, and surfaces will be regraded and smoothed at work sites and along access routes.

### **2.3. Test Water Well Installation**

The installation of the test water well will allow Silver State Solar to test the capacity and water quality of the underlying aquifer to assess its potential to meet Project development water demand. If the aquifer yield is satisfactory, the well will be left in place for subsequent use as a source of water for construction and operation of the project. However, if the yield is not satisfactory, or if it is determined that the well will not be used for project development, or upon BLM request, it will be abandoned and decommissioned in accordance with applicable State and County requirements.

The water well will consist of a single, 8-inch-diameter well to an anticipated depth of approximately 600 feet below ground surface. The well will be located at the side of an existing road as shown in Figure 7-13 and identified as TW-1 (test well). As noted on Figure 1.1, “Project map with test pits and bore hole locations identified” (p. 3), access to the well site will via existing roads and washes. Well location may be moved up to 100 feet along the access route if required to avoid sensitive resources. A work area approximately 80 feet by 70 feet (approximately 0.13 acre) will be required for well drilling operations. Table 7-2 provides coordinates and work area requirements. Photos of the well location are shown in Figure 7-14. Installation and testing of the well is anticipated to require 2 to 4 consecutive weeks.

The exact location of the test well and work area will be flagged prior to disturbance, as well as the route to the site. If directed by BLM, NextLight will schedule a field review of flagging, with the BLM Biologist.

The well will be installed by a State of Nevada certified well driller. The well will be completed by specialized well-drilling equipment, likely using a typical direct-mud rotary procedure, a method that is not uncommon in the project area. Equipment anticipated to be used during the drilling operations includes a 600-hp drill rig and 500-hp air compressor. The equipment will access the test well location using only previously disturbed dirt roads on the project site as shown in Figure 7-13. The equipment will only travel to and from the site one time and will remain on-site during the drilling work (subject to equipment operational issues). In addition to the equipment required for the drilling operations, two pickup truck, used as support vehicles, will be used and will access the project site and test well location daily during the test well drilling.

The drill rig will install an 8-inch-diameter well casing to a depth of 600 feet. The top four inches of soil will be removed from the work area prior to drilling the water well. The salvaged soil will be placed back over the work area at the completion of well installation. In the direct-mud rotary well casing installation method, the bore hole is advanced by rapid rotation of a drill bit mounted on the end of drill rods. The bit cuts and breaks the material at the bottom of the hole into small pieces (cuttings). The cuttings are removed by pumping drilling fluid (water, or water mixed with bentonite or other BLM-approved fluid enhancers) down through the drill rods and bit, and up the space between the bore hole and the drill rods. The drilling fluid also serves to cool the drill bit, stabilize the bore hole walls and prevent the flow of fluids into the surrounding earth materials.

Well construction will include the installation of a steel casing and well screen, cement grout and cap. As a part of the well installation process, the well will be pumped or agitated via compressed air to remove fine soil material that collects at the bottom of the well within the well screen area. This process will be performed until the water flows clear, approximately 8 to 12 hours. All water and fine soil will be discharged on to the ground surface. Installation materials and procedures required for well installation will be determined by a State of Nevada licensed well driller. All auger cuttings and drilling fluids will be removed from the work site for disposal in accordance with applicable rules and regulations.

At the completion of well development, the well will be pump tested to verify the aquifer capacity. The well would be pumped continuously at the design rate for approximately 24 hours. All water from the pump test will be discharged to the ground surface within an existing wash or road. Water quality samples will be taken for laboratory analysis.

At completion of the well installation and testing, the temporary work area will be restored to existing conditions with only the well remaining. The well will be capped and locked. The well will be incorporated into the Silver State Solar permanent facilities. If the Silver State Solar project does not proceed, NextLight will properly abandon the well at BLM's request in accordance with applicable State and County requirements.

Protective measures will be required to protect the well from damage from recreational uses. Protective measures will include placing four 6 inch diameter steel posts three feet into the ground and projecting three feet above ground. The posts will be placed approximately 3 feet from the well casing.

## **2.4. Access**

### **2.4.1. Geotechnical Investigation**

Access routes for equipment and personnel to get to the test sites are shown on Figure 7-1. This figure also identifies site coordinates. Table 1 identifies the soil boring and test pit sites (as shown on Figure 7-1), longitude and latitude, Section (as shown on Figure 2-1), and test site photograph of locations. Figures XX through XX are photographs of the proposed locations for borings and test pits.

### **2.4.2. Test Water Well Installation**

The well will be located at the side of an existing road as shown in Figure 1.9, "Proposed water well location" (p. 11) and identified as TW-1 (test well) located about 6ft to the right of the Napkin in the roadway. As noted on Figure 1.1, "Project map with test pits and bore hole locations identified" (p. 3), access to the well site will via existing roads and washes. Well location may be moved up to 100 feet along the access route if required to avoid sensitive resources.

## **2.5. Description of Alternatives Analyzed in Detail:**

The alternative action is the no action alternative. In this action Silver State Solar, LLC, would have to rely on U.S. Geological Survey soil maps. These maps do not provide geological profile information needed to base their engineering design specifications.

## **2.6. Alternative Considered but not Analyzed in Detail**

No other alternatives were considered.

## **2.7. No Action Alternative**

Under the no action alternative, Silver State Solar, LLC, would not be allowed to conduct their geotechnical work or drill a test well. Therefore, there would be no impact to resources from their proposed action.

## **2.8. Conformance**

The EA is in conformance with the Las Vegas Resource Management Plan and Final Environmental Impact Statement.

Date Approved: October 5, 1998

Decision: The proposed action is in conformance with the LUP, even though it is not specifically provided for, because it is clearly consistent with the following LUP decision(s) (objectives, terms, and conditions) :

### **Lands Management**

Objective

## Land Use Authorizations

### **LD-2.**

All public lands within the planning area, unless otherwise classified, segregated or withdrawn, and with the exception of Areas of Critical Environmental Concern and Wilderness Study Areas, are available at the discretion of the agency, for land use leases and permits under Section 302 of Federal Land Policy and Management Act and for airport leases under the authority of the Act of May 24, 1928, as amended.

## Management Direction

### **LD-2-a.**

Land use lease or permit applications and airport lease applications will be addressed on a case-by-case basis, where consistent with other resource management objectives and local land uses. Special terms and conditions regarding use of the public lands involved will be developed as applicable.



## **Chapter 3. Affected Environment:**



### 3.1. Migratory Birds

Under the Migratory Bird Treaty Act of 1918 and subsequent amendments (16 U.S.C. 703-711), it is unlawful to take, kill, or possess migratory birds. A list of the protected bird species can be found in 50 C.F.R. § 10.13. The list of birds protected under this regulation is extensive and the project area has potential to support many of these species. Typically, the breeding season is when these species are most sensitive to disturbance. This is generally considered to occur from March 15 through July 30.

### 3.2. Wildlife

The proposed project area supports wildlife characteristic of the Mojave Desert. Biological diversity varies according to topography, plant community, and proximity to water, soil type, and season.

Several common species of reptiles that may be present in the vicinity of the proposed project site may include the western whip-tail (*Cnemidophorus tigris*), desert iguana (*Dipsosaurus dorsalis*), side-blotched lizard (*Uta stansburiana*), zebra-tail lizard (*Callisaurus draconoides*), desert tortoise (*Gopherus agassizii*), western shovel-nosed snake (*Chionactis occipitalis*) and garter snake (*Thamnophis* sp.).

Common bird species that may be present in the vicinity of the proposed project site may include the rock wren (*Salpinctes obsoletus*), black-throated sparrow (*Amphispiza quinquestriata*), turkey vulture (*Cathartes aura*), common raven (*Corvus corax*), phainopepla (*Phainopepla nitens*), red-tailed hawk (*Buteo jamaicensis*), and western burrowing owl (*Athene cunicularia hypugaea*).

Common mammal species include the black-tailed hare (*Lepus californicus*), the desert cottontail (*Sylvilagus audubonii*), coyote (*Canis latrans*), badger (*Taxidea taxus*), kit fox (*Vulpes macrotis*) and many species of rodents.

#### 3.2.1. BLM Sensitive Wildlife Species

Western burrowing owl (*Athene cuniculari hypugaea*) The Western burrowing owl is a diurnal bird of prey specialized for grassland and shrubsteppe habitats in western North America. The owls are widely distributed throughout the Americas and can be found from central Alberta, Canada to Tierra del Fuego in South America. Burrowing owl habitat typically consists of open, dry, treeless areas on plains, prairies, and desert floors. Burrowing owls most frequently use mammal burrows created by other animals such as prairie dogs (*Cynomys* spp.), ground squirrels (*Spermophilus* spp.), coyotes (*Canis latrans*) or desert tortoises (*Gopherus agassizii*). The burrows are used for nesting, roosting, cover, and caching prey. In recent decades, the range and species count have been declining primarily due to agricultural, industrial, and urban development that reduce burrow availability.

### 3.3. Recreation

The proposed project is located in the Jean Lake/Roach Lake Special Recreation Management Areas (SRMA). The Off-Highway Vehicle use designation for this area limited to existing roads, trails, and dry washes. The proposed project area is also part of the SNDO's OHV race course for truck and buggy events. This course is used up to four times per year for various racing events.

### **3.4. Threatened, Endangered or Candidate Animal Species**

Threatened and endangered species are placed on a Federal list by the U.S. Fish and Wildlife Service (USFWS) and receive protection under the Endangered Species Act of 1973, as amended. The only threatened or endangered species known to occur in the vicinity of the project area is the threatened Desert Tortoise (*Gopherus agassizii*).

In the Mojave region, the desert tortoise occurs primarily on flats and bajadas with soils ranging from sand to sandy-gravel characterized by scattered shrubs and abundant inter-shrub space for herbaceous plant growth. They are also found on rocky terrain and slopes.

Historical survey data indicates that the area surrounding the project site is low density tortoise habitat.

### **3.5. Water Resources— Quality (drinking-surface-ground)**

The proposed action is in the Central Region of Nevada's Hydrographic Regions. It is located within the Ivanpah Valley (Northern) Hydrographic Basin (No. 164A). This basin has an estimated perennial yield of 700 acre-feet and over 2,100 acre-feet per year in appropriated water rights. This basin's aquifers are basin or alluvial fill aquifers, composed of unconsolidated Quaternary-aged sand and gravels. Groundwater recharge occurs through infiltration of runoff from the mountain and alluvial fan slopes, as well as from direct rainfall. Water levels in wells near the proposed action have been measured at around 200 feet below the surface. Groundwater quality in Basin No. 164A is generally considered marginal to inferior, with high levels of calcium, sodium, and fluoride. Surface water resources in the area of the proposed action include Ivanpah Dry Lake, Roach Lake, and numerous ephemeral washes. Both lakes are also ephemeral and have no outlets.

# **Chapter 4. Environmental Effects:**



## 4.1. Migratory Birds

Proposed Action: Migratory birds, including the BLM sensitive species the western burrowing owl (*Athene cunicularia*), may be present on the project site.

### 4.1.1. No Action Alternative

The LUP would not be issued and there would be no new disturbance to migratory birds.

### 4.1.2. Mitigation

- Migratory birds, including the BLM sensitive species the western burrowing owl (*Athene cunicularia*), may be present on the project site. 1) To prevent undue harm, habitat-altering projects or portions of projects should be scheduled outside bird breeding season. In upland desert habitats and ephemeral washes containing upland species, the season generally occurs between March 15th - July 30th.
- If a project that may alter any breeding habitat has to occur during the breeding season, then a qualified biologist must survey the area for nests prior to commencement of construction activities. This shall include burrowing and ground nesting species in addition to those nesting in vegetation. If any active nests (containing eggs or young) are found, an appropriately-sized buffer area must be avoided until the young birds fledge.

## 4.2. Recreation

Proposed Action: This project is located within the Jean-Roach SRMA. This area receives a high volume of casual use recreation as well as numerous permitted events. There are two up coming proposed high speed truck and buggy events; the SCORE/Primm 300 September 6 — 13, 2010 and the BITD Classic December 2 — 6, 2010. During these two events the race course which encompasses the project area will be subject to closure for safety reasons

### 4.2.1. No Action Alternative

The LUP would not be issued and there would be no new disturbance recreation activities.

### 4.2.2. Mitigation

- The bore holes, and trenches would not be left open over night for public safety.
- In addition, due to a permitted OHV races in the area, the Silver State Solar, LLC bore hole crews would be restricted from operating from September. 6 - 16, 2010 and December 2 - 6, 2010.

## 4.3. Threatened, Endangered or Candidate Animal Species

This project will disturb a total of 0.16 acres of tortoise habitat. Since tortoise sign has been found in the vicinity and undisturbed habitat exists in the area, there is potential for tortoises

to wander into the project area. This project will have no affect on any other federally listed species or designated critical habitat. Section 7 Consultation for this project is covered under the Programmatic Biological Opinion for Multiple Use Activities (1-5-97-F-251) contingent on compliance with the attached terms and conditions for Area C. The proponent will not be required to pay remuneration fees as this action will disturb less than 0.25 acres of tortoise habitat. Historical survey data indicates that the area within and surrounding the project sites are in low density tortoise habitat. Since tortoises have been found in the vicinity and undisturbed habitat exists on the project sites, there is potential for tortoises to wander into the project area. If not noticed and avoided during construction activities, desert tortoises could be either injured or killed (by crushing) or they may be harassed (being moved out of harm's way).

### **4.3.1. No Action Alternative**

The LUP would not be issued and there would be no new disturbance to threatened, endangered or candidate animal species.

### **4.3.2. Mitigation**

- The proponent is required to have an authorized biologist monitor routes to proposed bore holes that do not follow existing roads to prevent crushing of tortoises and burrows. Specifically, the authorized biologist will walk in front of vehicles while travelling over undisturbed habitat.
- Furthermore, the authorized biologist will survey bore hole sites prior to drilling wherein vegetation will be removed and remain onsite during drilling operations.
- Water discharged from test well onto ground surface, either on road or existing wash, will attract wildlife, including desert tortoise to the area. Roads or washes with discharged water should be avoided for travel; if they do need to be used for travel, an authorized biologist should be present to monitor route for desert tortoise and other wildlife to avoid impacts.
- The trenches shall be dug in such a manner that the side and/or end walls are contoured to allow any animals that inadvertently fall in, a means to climb out. If such contouring compromises the excavation goals, the trenches can be covered with ply board or similar materials during hours of inactivity.

## **4.4. Water Resources-Quality (drinking-surface-ground)**

The disturbance and material stockpiling associated with the test pits may increase erosion on site, thereby increasing sediment loads in surface runoff. This could result in the degradation of surface water quality. Additionally, the proposed actions may involve dredging or filling of Waters of the U.S., which would require the cooperation of the U.S. Army Corps of Engineers. Improperly abandoned wells can act as conduits for contaminants to enter groundwater.

### **4.4.1. No Action Alternative**

The LUP would not be issued and there would be no new disturbance to water resources/ quality (drinking/ surface/ground).

## 4.4.2. Mitigation

- Migratory birds, including the BLM sensitive species the western burrowing owl (*Athene cunicularia*), may be present on the project site. 1) To prevent undue harm, habitat-altering projects or portions of projects should be scheduled outside bird breeding season. In upland desert habitats and ephemeral washes containing upland species, the season generally occurs between March 15th - July 30th.
- If a project that may alter any breeding habitat has to occur during the breeding season, then a qualified biologist must survey the area for nests prior to commencement of construction activities. This shall include burrowing and ground nesting species in addition to those nesting in vegetation. If any active nests (containing eggs or young) are found, an appropriately-sized buffer area must be avoided until the young birds fledge.
- The bore holes, and trenches should not be left open over night for public safety.
- In addition due to a permitted OHV races in the area, the Silver State Solar, LLC bore hole crews should not be operating from September. 6 - 16, 2010 and December 2 - 6, 2010.
- The proponent is required to have an authorized biologist monitor routes to proposed bore holes that do not follow existing roads to prevent crushing of tortoises and burrows. Specifically, the authorized biologist will walk in front of vehicles while travelling over undisturbed habitat.
- Furthermore, the authorized biologist will survey bore hole sites prior to drilling wherein vegetation will be removed and remain onsite during drilling operations.
- Water discharged from test well onto ground surface, either on road or existing wash, will attract wildlife, including desert tortoise to the area. Roads or washes with discharged water should be avoided for travel; if they do need to be used for travel, an authorized biologist should be present to monitor route for desert tortoise and other wildlife to avoid impacts
- The trenches shall be dug in such a manner that the side and/or end walls are contoured to allow any animals that inadvertently fall in, a means to climb out. If such contouring compromises the excavation goals, the trenches can be covered with ply board or similar materials during hours of inactivity.
- The applicant will be required to properly plug and abandon any bore holes or wells in accordance with Chapter 534 of the Nevada Administrative Code.
- If the applicant chooses to keep the water well for use in a future project, the applicant is still responsible for the proper plugging and abandonment of that well if the future project does not get permitted.
- Any water used in the described actions, including the pump test, must be provided by an established utility or under permit or waiver issued by the Nevada State Engineer.
- If artesian water is located in any well or bore hole it should be controlled as required in NRS 534.060(3).

- Advise the applicant that water wells and bore holes will require prior approval from the Nevada Division of Water Resources.
- An analysis (theis analyses) should be completed to determine if the pump test will impact any surrounding wells.
- Minimization measures to reduce soil erosion and sedimentation as a result of increased runoff on disturbed areas would be implemented during construction and operation of the exploratory well.
- The erosion and sediment control measures and environmental protection measures would be based on the type of disturbance expected, soil type, and the location of the site relative to sensitive resources. Limiting soil erosion and sedimentation will reduce potential impacts to water quality.
- The applicant will comply with the Clean Water Act by obtaining any necessary permits.
- During installation of the exploratory well, the applicant will temporarily fence the disturbed area to minimize impacts to wildlife.
- Any drilling fluids or excess subsurface water encountered during drilling should be contained within the temporarily fenced site. Allow enough space for pits to retain drilling fluids and water if necessary. Once installation is complete, drilling fluids must be removed.
- After completion, the test well will be capped to minimize potential for groundwater contamination.
- Prior to the pump test, the applicant must provide information regarding rate and duration of test.
- If rate exceeds that used during construction and operations, applicant must perform an analysis to determine how the pump test will impact surrounding groundwater users. This may be a simple Theis analysis or other similar hydrologic tool.
- Any water used in the proposed actions, including the pump test, must be provided by an established utility or under permit or waiver issued by the Nevada State Engineer.
- The applicant is required to have prior approval and permits from the Nevada Division of Water Resources.
- Test wells must be properly plugged and abandoned in accordance with Chapter 534 of the Nevada Administrative Code.

## **Chapter 5. Tribes, Individuals, Organizations, or Agencies Consulted:**



**Table 5.1. List of Persons, Agencies and Organizations Consulted**

| <b>Name</b>    | <b>Purpose &amp; Authorities for Consultation or Coordination</b> | <b>Findings &amp; Conclusions</b> |
|----------------|---|-----------------------------------|
| None consulted |   |                                   |
| None consulted |   |                                   |



# **Chapter 6. List of Preparers**



**Table 6.1. List of Prepares**

| <b>Name</b>       | <b>Title</b>                           | <b>Responsible for the Following Section(s) of this Document</b>   |
|-------------------|--|--|
| Mark Chandler     | Realty Specialist                      | All, VRM, Land Uses  |
| Lisa Christianson | Air Resources Specialist               | Air Quality  |
| Mark Slaughter    | Natural Resources Specialist           | Migratory Birds, Areas of Critical Environmental Concern, Fish and Wildlife Excluding Federally Listed Species, Threatened, Endangered or Candidate Animal Species |
| Sendi Kalcic      | Wilderness Planner                     | BLM Natural Areas, Wilderness/WSA, Areas with Wilderness Characteristics   |
| Kathleen Sprowl   | Archeologist                           | Cultural Resources, Native American Religious Concerns, Paleontology   |
| John Evans        | Planning and environmental coordinator | Environmental Justice and Socio-Economics  |
| Krystal Johnson   | Wild horse burro specialist            | Farmlands (Prime or Unique), Livestock Grazing, Rangeland Health Standards, Wild Horses and Burros   |
| Sarah Peterson    | Hydrologist                            | Floodplains, Hydrologic Conditions, Soils, Water Resources/ Quality (drinking/ surface/ground), Wetlands/Riparian Zones  |
| Greg Marfil       | Fire Mitigation Specialist             | Fuels/Fire Management  |
| Lorri Dee Dukes   | Geologist                              | Geology / Mineral Resources/Energy Production  |
| Nora Caplette     | Weeds Coordinator                      | Invasive Species/ Noxious Weeds  |
| Chris Linehan     | Recreation Specialist                  | Recreation   |
| Fred Edwards      | Botonist                               | Woodland / Forestry  |
| Michael Moran     | Environmental Protection/<br>Hazmat    | Hazmat   |