

GRENIER & ASSOCIATES, INC.

ENVIRONMENTAL PLANNING • LICENSING & PERMITTING • REGULATORY COMPLIANCE

July 27, 2011

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Mr. Craig Hoffman
Compliance Project Manager
California Energy Commission
1516 Ninth Street MS-2000
Sacramento, CA 95661

Subject: Rice Solar Energy Project (Docket No. 09-AFC-10C)
Condition of Certification BIO-22
Habitat Management Plan

Dear Craig:

In accordance with the requirements of Condition of Certification BIO-22, attached for your review and approval in consultation with CDFG, Western, and BLM is the Habitat Management Plan for the Rice Solar Energy Project. Should you have any questions or require additional information related to this submittal, please contact me at (916) 780-1171.

Sincerely,



Andrea E. Grenier
Permitting and Compliance Manager

Attachment



Draft

**Streambed Impact Minimization
and Compensation Measures
Condition of Certification
BIO-22, Item 4
Rice Solar Energy Project
(09-AFC-10C)**

Submitted to the:
California Energy Commission

Submitted by:

SOLARRESERVE

With Technical Assistance by:



July 2011

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Acronyms and Abbreviations

AFC	Application for Certification
BLM	U.S. Bureau of Land Management
BRMIMP	Biological Resources Mitigation Implementation and Monitoring Plan
CDFG	California Department of Fish and Game
CEC	California Energy Commission
CNDDDB	California Natural Diversity Data Base
COC	Condition of Certification
CPM	Compliance Project Manager
kV	kilovolt
MW	megawatt
NFWF	National Fish and Wildlife Foundation
PAR	Property Analysis Record
RSE	Rice Solar Energy, LLC
RSEP	Rice Solar Energy Project
SR	State Route
USFWS	U.S. Fish and Wildlife Service
Western	Western Area Power Administration

SECTION 1

Introduction

The Streambed Impact Minimization and Compensation Measures included in the California Energy Commission's (CEC) Decision on the Rice Solar Energy Project (RSEP) as Condition of Certification (COC) BIO-22, is a project-specific program intended to reduce the impacts of RSEP construction; minimize and mitigate for direct and indirect impacts of the RSEP to waters of the State; and to satisfy requirements of California Fish and Game Code sections 1600 and 1607.

COC BIO-22, Item 4, requires the preparation and implementation of a Habitat Management Plan that describes site-specific enhancement measures for the acquired compensation lands, as described in COC BIO-16. Compensation lands are lands that the project owner may acquire to mitigate the project's effects on habitat of the desert tortoise and other special-status species.

The Project Vicinity Map and the Site Location Map appear in Figures 1-1 and 1-2, respectively.

1.1 Plan Purpose

This document provides the Habitat Management Plan required by COC BIO-16 and BIO-22, and includes site-specific enhancement measures for all drainages on compensation lands that will be used to fulfill the requirements of COC BIO-16. Any additional lands that may be required for compliance with this COC beyond those required for compliance with COC BIO-16 are also included in this Plan.

COC BIO-16 requires the acquisition, management, and preservation of similar habitats of equal or greater quality at a one-to-one (1:1) ratio for permanent impacts to the solar field site and a 3:1 ratio for permanent impacts along the transmission line route and at the interconnection substation to mitigate impacts to desert tortoise habitat. The estimated acreage of compensation lands is 1,522 acres, including 37 acres of compensation lands for impacts to public lands managed by the U.S. Bureau of Land Management (BLM) along the transmission line route and at the interconnection substation. These mitigation lands will provide similar habitat, including vegetation communities, to the lands that would be impacted by the RSEP, and preservation of these desert shrublands would compensate for impacts onsite (CEC, 2010).

COC BIO-16 is intended to offset project-specific impacts to a variety of wildlife species, vegetation communities, and state jurisdictional waters. To meet the California Department of Fish and Game (CDFG) requirement of protection in perpetuity, any lands acquired and subsequently donated to BLM will have either a deed restriction or conservation easement in title that will preclude future development of the land. RSEP is required to tender security to ensure the acquisition, dedication, and protection of compensation lands. RSEP may elect to purchase and permanently protect compensation lands itself or to fund the acquisition and initial improvement of compensation lands through the National Fish and

Wildlife Foundation (NFWF) by depositing funds for that purpose into NFWF's Renewable Action Energy Team (REAT) Account (CEC, 2010).

The full text of BIO-22, Item 4 of which this plan addresses, is provided as follows; bolding is added to Item 4:

BIO-22 Streambed Impact Minimization and Compensation Measures

The project owner shall implement the following measures to avoid, minimize and mitigate for direct and indirect impacts to waters of the State and to satisfy requirements of California Fish and Game Code sections 1600 and 1607.

- 1. Eliminate Proposed Storm Water Detention Basins.** The project owner shall eliminate the proposed detention basins from the project design. The owner shall design and construct the perimeter road at existing grade in the southern portion of the project site to allow runoff to cross the road freely, as shown in the applicant's Response to CEC Staff Workshop Query 12 (SR 2010a). The project owner may adopt the road design as submitted (SR 2010a) or provide an alternate design to minimize potential for road damage during heavy rains (e.g., the owner may elect to pave the road or install periodic low-water crossings that would not impede runoff).
- 2. Finalize Acreages of Impacts to State Waters.** Staff estimates that 82.8 acres of state-jurisdictional waters would be directly or indirectly impacted by the project. Upon completion of final engineering, the project owner shall review and quantify the project's permanent and long-term impacts to state-jurisdictional waters. The calculated acreage of permanent and long-term impacts shall include all ephemeral drainages impacted by construction within or adjacent to the fenced boundary of the solar field site, including the proposed logistics and lay-down areas and diversion channels, as well as impacts to drainages resulting from the construction or widening of access for new or existing transmission line access road; transmission line tower access; logistics, staging, and lay-down areas; road turnouts; pull sites; interconnection substation; and any other project-related disturbance to jurisdictional waters.
- 3. Acquire Off-Site State Waters.** Permanent and long-term impacts to waters of the State shall be mitigated by compensation at a 1:1 ratio. The project owner shall acquire, in fee or in easement, a parcel or parcels of land that includes at least the same acreage of State jurisdictional waters as would be impacted by construction of the project, as determined in Item 1 above. The parcel or parcels comprising the off-site State waters shall include similar vegetation and habitat types as those mapped in the project footprint. The terms and conditions of this acquisition or easement shall be as described in Condition of Certification **BIO-16**. Mitigation for impacts to State waters shall occur within the surrounding watersheds, as close to the project site as possible. State waters occurring on desert tortoise compensation lands (Condition of Certification **BIO-16**) may be used to fulfill the requirements of this condition. Additional off-site State waters shall be acquired if desert tortoise compensation lands do not contain the minimum acreage of State waters as required for compliance with this Condition of Certification.

4. **Preparation and Implementation of Habitat Management Plan for Off-site Compensation Land.** The project owner shall prepare and implement a Management Plan that describes site-specific enhancement measures for the acquired compensation lands, as described in Condition of Certification BIO-16. The Management Plan, as developed for Condition of Certification BIO-16, shall include site-specific enhancement measures for all drainages on compensation lands that will be used to fulfill the requirements of this Condition of Certification. Any additional lands beyond those required for compliance with Condition of Certification BIO-16 that may be required for compliance with this Condition of Certification shall also be included in the Management Plan. The management plan shall be submitted for the CPM'S review in consultation with CDFG, Western, and BLM. (bolding added)
5. **Code of Regulations.** The project owner shall provide a copy of the Streambed Impact Minimization and Compensation Measures from the Energy Commission Decision and Western and BLM Records of Decision to all contractors, subcontractors, and the project owner's project supervisors. Copies shall be readily available at work sites at all times during periods of active work and must be presented to any CDFG personnel or personnel from another agency upon demand. The CPM reserves the right to issue a stop work order or allow CDFG to issue a stop work order after giving notice to the project owner and the CPM, if the CPM in consultation with CDFG determines that the project owner has breached any of the terms or conditions or for other reasons, including but not limited to the following:
 - a. The information provided by the project owner regarding streambed alteration is incomplete or inaccurate
 - b. New information becomes available that was not known to it in preparing the terms and conditions; or
 - c. The project or project activities as described in future environmental documentation or in decision documents prepared by the Energy Commission, Western or BLM have changed.
6. **Best Management Practices.** The project owner shall also comply with the following conditions to protect drainages near the Project Disturbance Area:
 - a. The project owner shall not operate vehicles or equipment in ponded or flowing water except as described in this condition.
 - b. With the exception of the detention basin(s) and drainage control system installed for the project, the installation of bridges, culverts, or other structures shall be such that water flow (velocity and low flow channel width) is not impaired. Bottoms of temporary culverts shall be placed at or below stream channel grade.
 - c. When any activity requires moving of equipment across a flowing drainage, such operations shall be conducted without substantially increasing stream turbidity.
 - d. Vehicles driven across ephemeral drainages when water is present shall be completely clean of petroleum residue and water levels shall be below the vehicles' axles.

- e. The project owner shall minimize road building, construction activities, and vegetation clearing within ephemeral drainages to the extent feasible for all project components both within and outside the perimeter fence.
- f. The project owner shall not allow water containing mud, silt, or other pollutants from grading, aggregate washing, or other activities to enter off-site state-jurisdictional waters or be placed in locations that may be subjected to high storm flows.
- g. The project owner shall comply with all litter and pollution laws. All contractors, subcontractors, and employees shall also obey these laws, and it shall be the responsibility of the project owner to ensure compliance.
- h. Spoil sites shall be located and protected as necessary to prevent spoils from eroding into any off-site state-jurisdictional waters. No spoils shall be placed in locations that may be subjected to high storm flows, where spoils might be washed back into drainages.
- i. Raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to vegetation or wildlife resources, resulting from project-related activities, shall be prevented from contaminating the soil and/or entering off-site state-jurisdictional waters. These materials, if placed within or where they may enter a drainage by the project owner or any party working under contract or with the permission of the project owner, shall be removed immediately.
- j. No broken concrete, debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, oil or petroleum products or other organic or earthen material from any construction or associated activity of whatever nature shall be allowed to enter into, or placed where it may be washed by rainfall or runoff into, off-site state-jurisdictional waters.
- k. When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high water mark of any category 3, 4, or 5 streambed or any streambed greater than 10 feet wide.
- l. No equipment maintenance shall occur within 150 feet of any category 3, 4, or 5 streambed or any streambed greater than 10 feet wide and no petroleum products or other pollutants from the equipment shall be allowed to enter these areas or enter any off-site state-jurisdictional waters under any flow.
- m. Stationary equipment such as motors, pumps, generators, and welders, located within or adjacent to a drainage, shall be positioned over drip pans. Stationary heavy equipment shall have suitable containment to handle a catastrophic spill/leak. Clean up equipment such as booms, absorbent pads, and skimmers shall be on site prior to the start of construction.
- n. The cleanup of all spills shall begin immediately. The CPM, Western, CDFG, and BLM shall be notified immediately by the project owner of any spills and shall be consulted regarding clean-up procedures.

7. **Non-Native Vegetation Removal.** The project owner shall remove any non-native vegetation (Consistent with the Weed Management Plan, Condition of Certification **BIO-11**) from any drainage on the project site that requires the placement of a bridge, culvert, or other structure. Removal shall be done at least twice annually (Spring/Summer) throughout the life of the project.
8. **Reporting of Special-Status Species.** Consistent with Condition of Certification **BIO-2**, if any special-status species are observed on or in proximity to the project site, or during project surveys, the project owner shall submit California Natural Diversity Data Base (CNDDDB) forms and maps to the CNDDDB within five working days of the sightings and provide the regional CDFG office with copies of the CNDDDB forms and survey maps. The CNDDDB form is available online at: www.dfg.ca.gov/whdab/pdfs/natspec.pdf. This information shall be mailed within five days to: California Department of Fish and Game, Natural Diversity Data Base, 1807 13th Street, Suite 202, Sacramento, CA 95814, (916) 324-3812. A copy of this information shall also be mailed within five days to the CPM, Western, USFWS, CDFG, and BLM.
9. **Avoidance (North of Desert Center Alternative).** If the North of Desert Center Alternative is selected, project design and implementation shall avoid direct or indirect impacts to the primary wash on the site and a 100-foot buffer area surrounding the wash, including associated native vegetation.
10. **Notification.** The project owner shall notify the CPM, Western, BLM, and CDFG, in writing, at least five days prior to initiation of project activities in jurisdictional areas and at least five days prior to completion of project activities in jurisdictional areas. The project owner shall notify the CPM, Western, BLM, and CDFG of any change of conditions to the project, the jurisdictional impacts, or the mitigation efforts, if the conditions at the site of the proposed project change in a manner which changes risk to biological resources that may be substantially adversely affected by the proposed project. The notifying report shall be provided to the CPM, Western, BLM, and CDFG no later than 7 days after the change of conditions is identified. As used here, change of condition refers to the process, procedures, and methods of operation of a project; the biological and physical characteristics of a project area; or the laws or regulations pertinent to the project, as described below. A copy of the notifying change of conditions report shall be included in the annual reports.
 - a. **Biological Conditions.** A change in biological conditions includes, but is not limited to, the following: 1) the presence of biological resources within or adjacent to the project area, whether native or non-native, not previously known to occur in the area; or 2) the presence of biological resources within or adjacent to the project area, the status of which has changed to endangered, rare, or threatened, as defined in section 15380 of Title 14 of the California Code of Regulations.
 - b. **Physical Conditions.** A change in physical conditions includes, but is not limited to, the following: 1) a change in the morphology of a river, stream, or lake, such as the lowering of a bed or scouring of a bank, or changes in stream form and configuration caused by storm events; 2) the movement of a river or stream channel to a different location; 3) a reduction of or other change in vegetation on the bed, channel, or bank

- of a drainage, or 4) changes to the hydrologic regime such as fluctuations in the timing or volume of water flows in a river or stream.
- c. **Legal Conditions.** A change in legal conditions includes, but is not limited to, a change in Regulations, Statutory Law, a Judicial or Court decision, or the listing of a species, the status of which has changed to endangered, rare, or threatened, as defined in section 15380 of Title 14 of the California Code of Regulations.

Verification: Within 30 days of the completion of final engineering, the project owner shall notify the CPM, Western, BLM, and CDFG of the total acreage of impacts to jurisdictional waters. No fewer than 30 days prior to the start of any site or related facilities mobilization activities, the project owner shall implement the construction-related mitigation measures described above, shall verify that appropriate compensation lands have been identified, and shall submit a draft Habitat Management Plan for the identified compensation lands. No fewer than 30 days prior to the start of work potentially affecting waters of the State, the project owner shall provide written verification (i.e., through incorporation into the BRMIMP) to the CPM, Western, BLM, and CDFG that the above best management practices will be implemented and provide a discussion of planned work in waters of the State in Compliance Reports for the duration of the project.

Within 30 days after completion of the first year of project construction, the project owner shall provide to the CPM, Western, BLM, and CDFG for review and approval a report identifying that appropriate compensatory mitigation lands have been obtained, that the Habitat Management Plan has been reviewed and approved by all responsible agencies, that implementation as specified in the Plan has been initiated, verification of ongoing enhancement techniques, and a summary of all modifications made to the existing channels.

Verification of non-native vegetation removal from drainages onsite, and reporting of special-status species shall be included in monthly and annual compliance reports (Condition of Certification **BIO-2**). Verification of implementation and completion of the compensation land Habitat Management Plan shall be as specified in that Plan.

Study Area

2.1 Project Description

Rice Solar Energy, LLC (RSE), a wholly owned subsidiary of SolarReserve, LLC, proposes to construct, own, and operate the project. The RSEP will be capable of producing approximately 450,000 megawatt hours (MWh) of renewable solar energy annually, with a nominal net generating capacity of 150 megawatts (MW).

The facility will use concentrating solar power (CSP) technology, with a central receiver tower and an integrated thermal storage system. The RSEP's technology generates power from sunlight by focusing energy from a field of sun-tracking mirrors called heliostats onto a central receiver. Liquid salt,¹ which has viscosity and appearance similar to water when melted, is circulated through tubes in the receiver, collecting the energy gathered from the sun. The heated salt is then routed to an insulated storage tank where it can be stored with minimal energy losses. When electricity is to be generated, the hot salt is routed to heat exchangers (a steam generation system). The steam is then used to generate electricity in a conventional steam turbine cycle. After exiting the steam generation system, the salt is sent to the cold salt thermal storage tank, and the cycle is repeated. The salt storage technology was demonstrated successfully at the U.S. Department of Energy-sponsored 10-MW *Solar Two* project near Barstow, California, in the 1990s.

2.2 Project Location

The RSEP site is a privately owned parcel in eastern Riverside County, California (Figure 1-1). The site is adjacent to State Route (SR) 62, which parallels a portion of the Arizona-California Railroad and the Colorado River Aqueduct, near the junction of SR 62 and Blythe-Midland Road, and near the sparse remains of the abandoned town of Rice, California. The nearest occupied residence is approximately 15 miles northeast at the rural crossroads community of Vidal Junction, California. The nearest town is Parker, Arizona (population 3,181), approximately 32 miles east. A small permanent residential settlement is located at the Metropolitan Water District of Southern California's Iron Mountain Pumping Plant, approximately 17 miles west.

The RSEP is within a larger 3,324-acre privately owned holding (the ownership property). Within this larger property, the RSEP is sited within a new square-shaped parcel (the project parcel) that was created by merging four different assessor's parcels, each a discrete section (square mile) of land, resulting in a single 2,560-acre parcel. This project parcel will contain the administration buildings area, heliostat field with power block, and evaporation pond areas, totaling 1,410 acres, which will be surrounded by a security fence (collectively, the

¹ The salt is a mixture of sodium nitrate (a common ingredient in fertilizer) and potassium nitrate (a fertilizer and food additive). These mineral products will be mixed onsite as received directly from mines in solid crystallized form and used without additives or further processing, other than mixing and heating.

project site or facility site). Areas outside the facility site but within the project parcel will not be fenced, developed, or disturbed as part of the RSEP.

A new 230-kilovolt (kV) generator tie-line will interconnect to Western's 161-kV/230-kV Parker-Blythe No. 2 transmission line. The generator tie-line will extend for 10.0 miles from the RSEP fence line southeast to a new interconnection substation by way of an overhead transmission line on 75- to 115-foot-high tubular steel poles (Figure 1-2).

2.3 Project Construction and Schedule

Construction of the generating facility, from site preparation and grading to commercial operation, is expected to occur from the third quarter of 2011 to the second quarter of 2014 (30 months total). Major milestones are listed in Table 2-1.

TABLE 2-1
Project Construction Schedule

Event Description	Expected Dates
Anticipated construction start date	September 1, 2011
Start construction of the project boundaries, clearing and grubbing, and sediment/wildlife fence installation	September/October 2011
Start construction of laydown, parking, and construction offices	Third Quarter 2011
Start power plant construction	October 2011
Start transmission line construction	Fall 2012
Facility startup and commissioning activities	Fourth Quarter 2013
Commercial operation	March 2014

A peak workforce of approximately 438 construction craft people, supervisory, support, and construction management personnel will be onsite during construction. The peak construction site workforce level is expected to occur between months 8 and 20.

Construction activities will occur generally between 5 a.m. and 7 p.m. on weekdays and Saturdays. Construction at times may occur on a 24-hour, 7-days-per-week basis to compensate for schedule deficiencies, to work around extreme midday heat during summer months and other extreme weather events, or to complete critical construction activities (for example, pouring concrete at night during hot weather or working around time-critical shutdowns and constraints). During the commissioning phase of the project, some limited work activities may continue around the clock.

2.4 Impacts to Wildlife Species

The Habitat Management Plan for compensatory lands is intended to offset impacts to a variety of wildlife species, as well as to vegetation communities and state jurisdictional waters.

Table 2-2, an excerpt from the CEC Decision document (CEC, 2010), summarizes the staff impact estimates and compensation ratios.

TABLE 2-2
Biological Resources Impact Estimate and Compensation Ratios

Biological Resources Table 5			
Summary of Impact Estimates and Compensation Ratios for Desert Tortoise Habitat^a			
Project Component	Disturbance Acreage	Compensation Ratio	Compensation Acreage
Solar generator site, including permanent and long-term disturbance within and outside perimeter fence; all applicant-owned land.	1,411.5 acres	1:1	1,411.5 acres
Total permanent and long-term disturbance for generator tie-line, access road, and interconnector substation.	36.9 acres	3:1	110.7 acres ^b
Acreage Totals	1,448.4 acres		1,522.2 acres

^aFor the purpose of estimating project impacts, staff includes all impacts except the 6-acre concrete pad and uses the higher acreage for each project component where an acreage range is indicated. See Biological Resources Tables 2 and 3.

^bCompensation for impacts to BLM land may consist of 2:1 habitat compensation and 1:1 habitat enhancement (financial contribution to be based on estimated cost of acquisition).

Source: CEC, 2010

The impacted wildlife species include:

- Desert tortoise
- Kit fox
- Badger
- Burrowing owl
- Golden eagle
- Prairie falcon
- Nesting birds
- Mammals and reptiles within the project perimeter
- Upland bird species in the area, including loggerhead shrike and others
- Wintering birds such as merlins, sharp-shinned hawks, and ferruginous hawks

2.5 Impacts to Vegetation Communities

Impacts to vegetation communities are expected to occur through various mechanisms. These include:

- Effects of erosion or sedimentation that could result from altered hydrology on the site (that is, plants, their habitat, or their seed banks occurring downslope of disturbed soils could be eroded away or could be covered in sediment)
- Changes in the hydrology from alterations in the drainage patterns of the site (for example, to desert washes)

- The introduction of new weeds or spread of weeds already present in the area from the solar fields into the surrounding habitat
- Greater than normal dust levels
- Effects of herbicide drift on vegetation
- An increased risk of fire (CEC, 2010)

2.6 Impacts to State Jurisdictional Waters

The RSEP will contribute incrementally to cumulative impacts of state-jurisdictional waters in the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) Planning Area. Jurisdictional waters in the northern part of the Rice Valley consist of dry desert washes and small, ephemeral drainages that drain from the north to the south over the aqueduct siphons and beneath the railroad line. Most of the state-jurisdictional waters on the RSEP site are minor ephemeral channels that originate onsite, though the project also will affect larger channels along its eastern and western margins and along the generator tie-line alignment. Further, with few exceptions, jurisdictional waters on the site do not support specialized riparian or desert wash vegetation or other special habitat values. The RSEP solar generator and generator tie-line will impact 82.8 acres of state jurisdictional waters. This compensatory mitigation requirement will be fulfilled through the conservation and management of jurisdictional drainages on the desert tortoise compensatory mitigation lands required under COC BIO-16 (CEC, 2010).

The ephemeral drainages in the project area provide beneficial functions and values such as:

- Groundwater recharge
- Flood peak attenuation
- Floodwater storage
- Wildlife corridors and habitat (CEC, 2010)

Plan Details

The measures described in this section will be applied to all compensation lands. Several of the management measures will benefit all of the impacted resources described in the preceding section.

3.1 Location of Compensation Lands

RSEP will convey the unoccupied portion of the ownership property as compensation lands. This is the portion of the ownership property that lies outside of the project fence line and within the property ownership boundary. The Project Owner owns 3,324 acres in Rice Valley. The power plant will occupy 1,448.4 acres of a larger newly created parcel of 2,560 acres located adjacent to, and immediately south of, SR 62. This portion of the parcel and the balance of the ownership property totals 1,875.6 acres. The disturbance to the ownership property will total 1,411.5 acres and will be compensated at a ratio of 1:1 (Table 2-2).

A portion of the disturbance acreage (36.9 acres) is associated with the BLM right-of-way for the generator tie-line, access road, and interconnector substation. It will be mitigated at a ratio of 3:1. Compensation for impacts to BLM land may consist of 2:1 habitat compensation and 1:1 habitat enhancement (financial contribution to be based on estimated cost of acquisition). The total compensation acreage is 1,522.2 acres, which is less than the unoccupied balance of the ownership property, 1,875.6 acres.

COC BIO-22, Item 4, specifies that, "... additional lands beyond those required for compliance with Condition of Certification BIO-16 that may be required for compliance with this Condition of Certification shall also be included in the Management Plan."

As part of RSEP, the initial enhancement work on the property will be completed and then it will be conveyed to CDFG for long-term maintenance and management. RSE will provide an endowment in an amount established by a Property Analysis Record (PAR) or PAR-like analysis. PAR is a database method developed by the Center for Natural Lands Management, which calculates the costs of in-perpetuity land management activities for a particular parcel (CEC, 2010).

3.2 General Enhancement Measures

Several of the measures that will be implemented on the compensation lands will benefit more than one resource. This section describes the general measures.

3.2.1 Protection from Development

RSE will take measures to protect the mitigation land from development or conversion to non-habitat use. The California Endangered Species Act (CESA) and CDFG require compensation lands to ensure in-perpetuity protection. Any lands acquired and

subsequently donated to BLM will have either a deed restriction or conservation easement in title that will preclude future development of the land.

3.2.2 Signage and Boundary Protection

The acquired property boundaries will be surveyed and marked to facilitate management. Access points will be signed to inform the public that it is a conservation site and will present information appropriate to the site and season regarding trespass, restrictions of travel to established roads, fire precautions, littering, hunting, camping, noise, and other appropriate measures. Signage will include contact information to report damage or potential threats. Fencing may be appropriate in some areas to prevent entry by the public, but will be balanced against impacts to wildlife movement.

3.2.3 Environmental Site Assessment

RSE will conduct a Phase 1 Environmental Site Assessment of the compensation parcels prior to implementing enhancement measures. The assessment will use any available previous site assessments and may include additional field inspections.

3.2.4 Trash and Waste Removal

Restoration activities at the site will include the mapping of surface trash and waste dump sites and any accumulation of litter from human activities for the purpose of removing the materials. Trash removal will depend on the amount and type of trash and its potential impacts on wildlife. A Phase 1 Environmental Site Assessment will identify any potentially hazardous materials at dump sites. RSE will implement special techniques to safely contain and remove the materials, if needed. RSE will remove trash and waste and transport it to an approved landfill or approved waste disposal site. RSE will implement trash and waste removal as part of the habitat enhancement effort.

If the removal of trash and rubble is necessary, habitat that has been damaged by the presence of trash or by the use of heavy equipment will be enhanced. Vegetation enhancement activities may be implemented on the cleared sites by techniques described in Section 3.5 and following subsections.

3.2.5 Invasive Plant Removal

Enhancement activities will include the mapping of invasive plant populations to facilitate long-term monitoring. Assessment of the level of impact from invasive weeds on the protected resources will direct the timing, location and techniques of noxious weed removal. Weed removal will be coordinated with other habitat enhancement efforts. The Designated Biologist will coordinate efforts and select treatments and sites in collaboration with the agencies. Applications will be implemented under direction of a pesticide applicator, who is certified and licensed in California to apply herbicides.

Data relating to the locations of treatment sites and the treatments applied will be provided to CDFG for use in continuing management and maintenance activities.

3.2.6 Herbicide and Rodenticide Use

Selective and limited uses of herbicide may be appropriate in some areas. Special application techniques may be employed (for example, contact applicators) to prevent the

accidental contact with desirable vegetation or persistence in the environment. The use of rodenticide is not contemplated as part of the enhancement effort.

3.2.7 Removal of Roads

A number of dirt roads cross the compensation lands. Some are remnants of the site's former use as a military installation. Others appear to be unauthorized roads pioneered by members of the public. Roadways tend to impede movement of some wildlife and to fragment habitat. Unmaintained and unengineered dirt roads also adversely affect waterway functions, particulate levels in the air, and resistance to invasive weed establishment. Additional impacts from continuing access and associated uses result from continued public use.

In those cases where roads are not under a right-of-way or valid easement, managers will evaluate the utility and impacts of allowing use of the road to continue. Roads needed for management uses may be maintained with restricted access. In cases where an existing road serves no beneficial purpose, the road will be closed and reclaimed to the extent that reclamation would benefit the protected resources.

3.2.8 Monitoring and Authorized Uses

Monitoring will be the responsibility of the managing entity after it is conveyed by RSE. It is expected that the long-term benefits of the initial habitat enhancements by RSE will be ensured by monitoring of the conservation lands to detect any damage or changes that would affect the protected resources. Monitoring is anticipated to include regular inspections of the property and habitat conditions as well as the condition of fences, signage, roads, habitat conditions, and any features or habitat improvements. The monitoring program may identify the need for additional inventories to address unanticipated problems.

Enforcement measures and use restrictions will be accomplished by the managing entity and through cooperation with local law enforcement agencies to the extent allowed by law.

3.3 Adaptive Management

Decisions about the uses and modifications of compensation lands will be made by the managing entity after conveyance of the land. It is anticipated to be an Adaptive Management process. Adaptive management is an ongoing and iterative collaboration process that improves management practices and policies by monitoring and evaluating the results of program actions and modifying future management accordingly. This process will include BLM, USFWS, CDFG, and other stakeholders as appropriate and as agreed by the manager and named agencies. Active adaptive management programs experimentally compare policies or practices by testing alternative hypotheses about the system being managed.

The general steps of adaptive management include assessment, design, implementation, monitoring, evaluation, and adjustment. This cycle serves to allow managers to anticipate or respond to changing conditions and to modify practices based on new information.

3.4 Enhancement of Drainages

Natural drainages on the compensation lands have been altered by several projects, including construction of the Rice Army Airfield, SR 62, the railroad currently owned by the California and Arizona Railroad Company, and diversion dikes built to capture runoff from the Turtle Mountains and channel water beneath the railroad tracks. Runoff generated between SR 62 and the RSEP site will be conveyed around the site's perimeter by a natural bottom channel.

Enhancement measures specific to the compensation lands will be designed to increase beneficial functions and values such as:

- Groundwater recharge
- Flood peak attenuation
- Floodwater storage
- Wildlife corridors and habitat

The measures contemplated for implementation on the compensation lands include the following:

- Construction or repair of damages to diversion structures impacted by previous land uses
- Stabilization of stream crossings of roads closed as described in Section 3.2.7
- Stabilization of stream crossings of roads intended to be retained for use

Stabilization techniques contemplated include installation of culverts, stream bank revetments, vegetation enhancement, diversions, and stream bank recontouring. RSE will examine impacted portions of affected streambeds and consider installing periodic low-water crossings that would not impede runoff (Arizona crossings). Water spreading or pitting of drainages may be implemented in connection with vegetation enhancement efforts.

3.5 Enhancement of Vegetation Communities

The compensation site has three vegetation communities. They are creosote bush scrub, white bursage scrub, and smoke tree woodland. Creosote brush scrub covers most of the site. It is dominated by creosote bush and white bursage. White bursage scrub covers some of the northwest portion of the property. Smoke tree woodland covers just over 5 acres adjacent to the solar generator site. It is characterized by smoke tree, although smaller shrubs may have greater cover. In the compensation area, burrobrush cover is approximately equal to smoke tree cover in this woodland. Blue palo verde is also present in the tree layer, and white bursage and creosote bush are present in the shrub layer. The non-native, invasive annual, Sahara mustard, is common in the herb layer. This community is ranked by CDFG as a special-status vegetation type, with state rarity ranking of S3. It is one of several communities included within broader vegetation types called desert wash woodland or microphyll woodland. The evidence indicates that project construction will not directly affect smoke tree woodland (CEC, 2010).

3.5.1 Enhancement Goals for Vegetation Communities

Enhancement of the compensation land vegetation communities will support the goals of reestablishing natural vegetation wherever it has been damaged by previous use, and the control of non-native invasive plant species.

Invasive plant removal is a general measure, which will be applied as described in Section 3.2.5.

Reestablishing natural vegetation will be guided by an assessment of existing conditions on the compensation lands. The purpose of the assessment will be to attempt to (1) identify the current conditions of those sites and (2) to identify appropriate measures to reestablish some of the physical processes and biological components of the native vegetation community, in order to establish stable communities that can perform some of the ecological functions of the surrounding community (Newton and Claassen, 2003).

The goals for this effort are (1) invasive weeds will occupy less than 10 percent of the compensation lands, and (2) less than 10 percent of the compensation lands will be untreated disturbance areas.

3.6 Anticipated Enhancement Techniques

A number of techniques are available to enhance natural plant communities. Each site will have different conditions and may need a different combination of techniques. The selection of techniques is guided by the intent to use the least disruptive techniques to avoid additional damage. The techniques of vegetation enhancement may include the following:

- Removal of invasive species, where populations are large enough for effective treatment
- Seedbed preparation, including decomposition and surface dressing
- Seeding with native species acquired by the techniques described in Section 3.7
- Outplanting² of containerized plants grown from seed of local populations
- Limited irrigation to reestablish outplanted stock.

3.7 Seed Collection Guidelines

Seed collections for habitat enhancement from plants in surrounding undisturbed areas or within the compensation lands will be made according to the following guidelines:

1. Seed collection will be implemented as soon as appropriate permissions from the BLM are obtained, and will continue only until enough seed has been collected to accomplish the planned habitat enhancement.
2. The potential for inbreeding will be reduced by collecting seed from a large number (50 to 100) of widely spaced (100 meters) individuals, rather than from a few closely related plants.
3. The potential for genetic contamination will be reduced by avoiding donor plants growing nearby exotic species of closely related taxa.

² Outplanting means the planting of seedlings raised in a greenhouse or nursery planting bed into the field.

4. Seed of local origin will be collected at elevations and in vegetation similar to that at the RSEP site. Seed may be collected directly from the RSEP project area before site disturbance, if conditions are suitable. Seed collection will be from sources occurring within 50 miles of the site to ensure that local ecotypes adapted to local climate, soil, and other site conditions are employed. Bulk seed can be collected by direct harvest from plants, underneath shrubs, and from windblown debris caught in depressions and washes; areas near roadsides or invasive plants will be avoided.
5. To avoid overharvest of a specific area, no more than 40 percent of seeding plants in a collection area will be harvested. Each collection area will be visited as frequently as necessary during the seed production period of the year, staying within these specified parameters.
6. Access to collection areas will be via open, well-traveled routes, or on foot, with no cross-county vehicle travel.
7. Contractor will collect mature seed from healthy, robust stands. To increase genetic diversity, collect no more than 10 percent by weight of each collection from an individual plant.
8. Collectors will make separate-species collections of seed, emphasizing native plants on the seed mix palette with sufficiently mature seed present.
9. Collectors will record site characterization and track seed lots, including collection date, collection location, elevation, dominant species at location, stand conditions, test data, bulk weight and net weight (as pure live seed).
10. Contractor will not collect from areas with noxious weeds present, unless collected directly from native plants in the area.

3.8 Seed and Nursery Stock

Only seed or potted nursery stock of locally occurring native species will be used for revegetation. A plant palette and sample seed mix is presented Table 3-1. The term “plant palette” refers to the list of species that will be included in a revegetation plan. The proportions of the seed mix are for the Sonoran creosote bush scrub vegetation community. The proportions may be changed to increase white bursage for areas of the white bursage scrub community. The species and the seeding rates are selected to quickly establish native colonizing species on disturbed sites and move the community development on a trajectory toward a natural community. Species were selected that compete with non-native grasses and provide establishment microsites for native species. Some plants were included because they also provide appropriate wildlife nutrition, specifically high potassium excreting potential (PEP) for desert tortoise. The collected seed will be analyzed for live seed content and other parameters to ensure viability. This palette can be modified using species available on or near the site.

TABLE 3-1
Potential Restoration Seed Mix List for Sonoran Creosote Bush Scrub

Common Name	Scientific Name	Pounds per Acre
Shrubs		
Burro bush	<i>Ambrosia dumosa</i>	1.5
Desert saltbush	<i>Atriplex polycarpa</i>	1
Brittle bush	<i>Encelia farinosa</i>	1
Cheesebush	<i>Hymenoclea salsola</i>	2
Creosote	<i>Larrea tridentata</i>	0.5
Jojoba	<i>Simmondsia chinensis</i>	0.5
Grasses		
Purple three awn	<i>Aristida purpurea</i>	2
Fluff grass	<i>Dasyochloa pulchella (Erioneuron pulchellum)</i>	2
Six-weeks fescue	<i>Vulpia octaflora</i>	2
Forbs		
Arizona lupine	<i>Lupinus arizonicus</i>	1
Desert daisy	<i>Perityle emoryi</i>	1
Indian wheat	<i>Plantago ovata</i>	1
Desert globemallow.	<i>Sphaeralcea ambigua</i>	1
Total		16.5

3.9 Seeding Techniques

Seeding will be coordinated with other enhancement activities to occur as soon after seedbed preparation as possible. Because hydroseeding requires subsequent watering, drill seeding, soil pitting, or other methods may be considered in coordination with BLM. However, all seeding methods have drawbacks. For example, drill seeding can result in rows when germination occurs and may not appear natural. Both pitting and imprinting have limitations relative to seeds left exposed to predation.

Broadcast seeding is an appropriate method for the area. Seed will be broadcast using manually operated cyclone-type bucket spreaders, mechanical seed spreaders, blowers, or rubber-tired all-terrain vehicles equipped with mechanical broadcast spreaders. Seed in the spreader hoppers will be mixed to discourage separation of the component seed types. Where broadcast seeding is employed, seeded areas will be raked or harrowed to cover the seed.

3.10 Irrigation

Irrigation will be applied only if outplanting is selected for application. Irrigation will be used to water-in outplantings and will be applied periodically over a reestablishment period, depending on the season and natural rainfall.

3.11 Control of Exotic Species

Any soil disturbance creates opportunities for exotic species to establish on a site after soil disturbance. The use of appropriate native species at adequate densities will increase competition with non-native species and increase the likelihood of establishing native species on the site. Applications of vegetation treatments to reduce non-native plant species will be subject to the measures and practices described in the Weed Management Plan prepared in compliance with COC BIO-11.

Monitoring

4.1 Monitoring Elements

Monitoring of enhancement measures will be limited to the time needed to assure that habitat enhancement measures are implemented and to measure the success of vegetation enhancements. The frequency and nature of monitoring will change as the habitat enhancement efforts are implemented. It is anticipated that monitoring will be less frequent and at a lower level of effort as the enhancement efforts are accomplished.

Reporting

5.1 Verification Report

Within 90 days after completion of the first year of the field monitoring effort, the project owner will provide to the CPM a written report identifying which habitat enhancement measures have been completed and a summary of all enhancement measures still outstanding. It will include an evaluation of the success of the efforts and the modifications proposed based on new information or changes in conditions.

5.2 Annual Revegetation Activities Report

On January 31st of each year following construction until the completion of the habitat enhancements, the Designated Biologist will provide a report to the CPM that includes: a summary of enhancement activities for the year, an evaluation of the success of the efforts, and recommendations for alternate enhancement actions, if warranted, planned for the upcoming year.

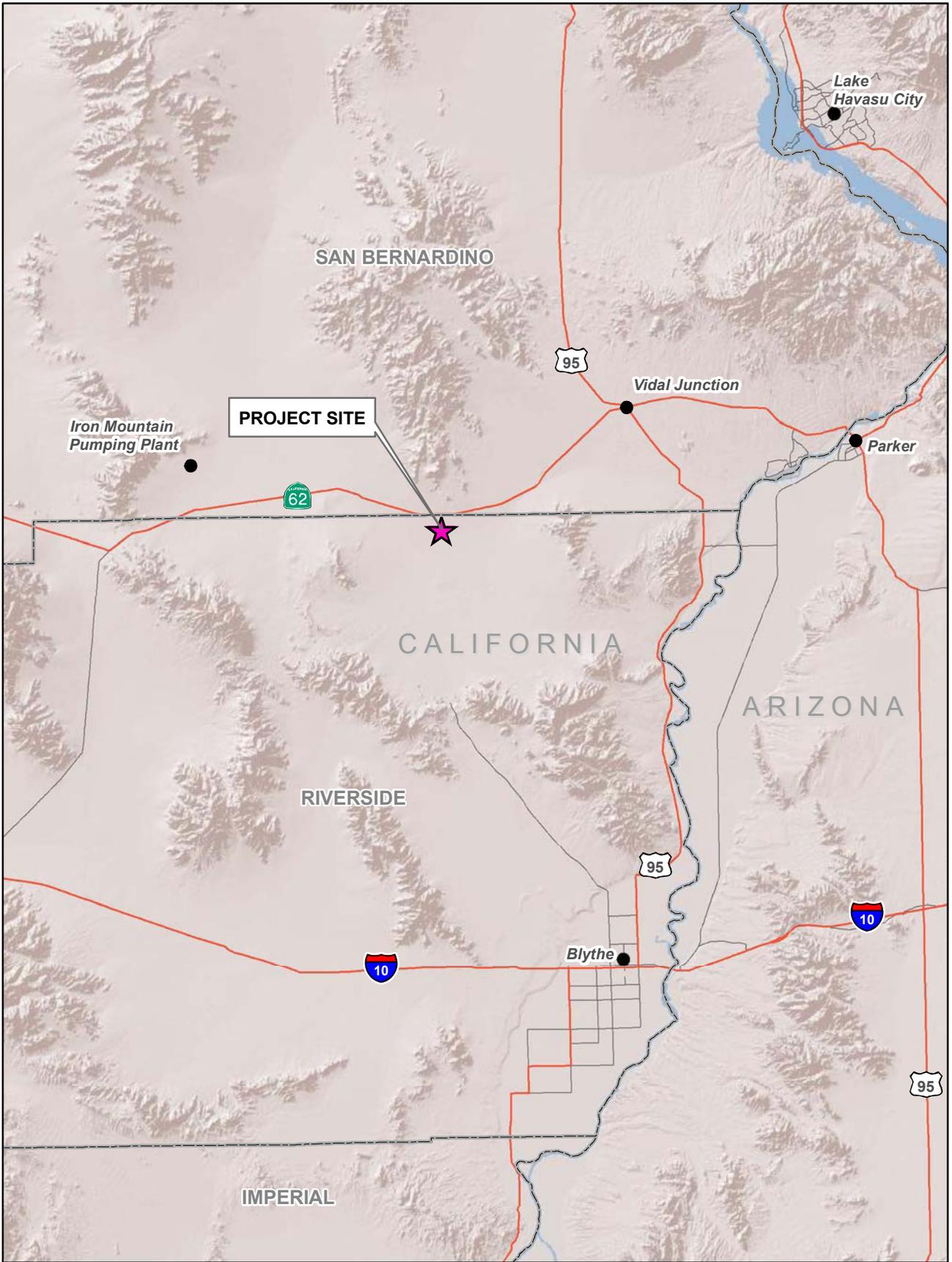
SECTION 6

References

California Energy Commission (CEC). 2010. Rice Solar Energy Project Commission Decision. December 2010. CEC-800-2010-019 CMF, Docket Number 09-AFC-10.

Newton, Gail A. and V.P. Claassen. 2003. *Rehabilitation of Disturbed Lands in California: A Manual for Decision-Making*. California Department of Conservation and California Geological Survey.

Figures



LEGEND

 PROJECT SITE

 COUNTY BOUNDARIES

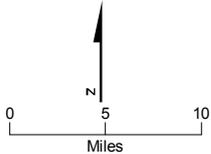
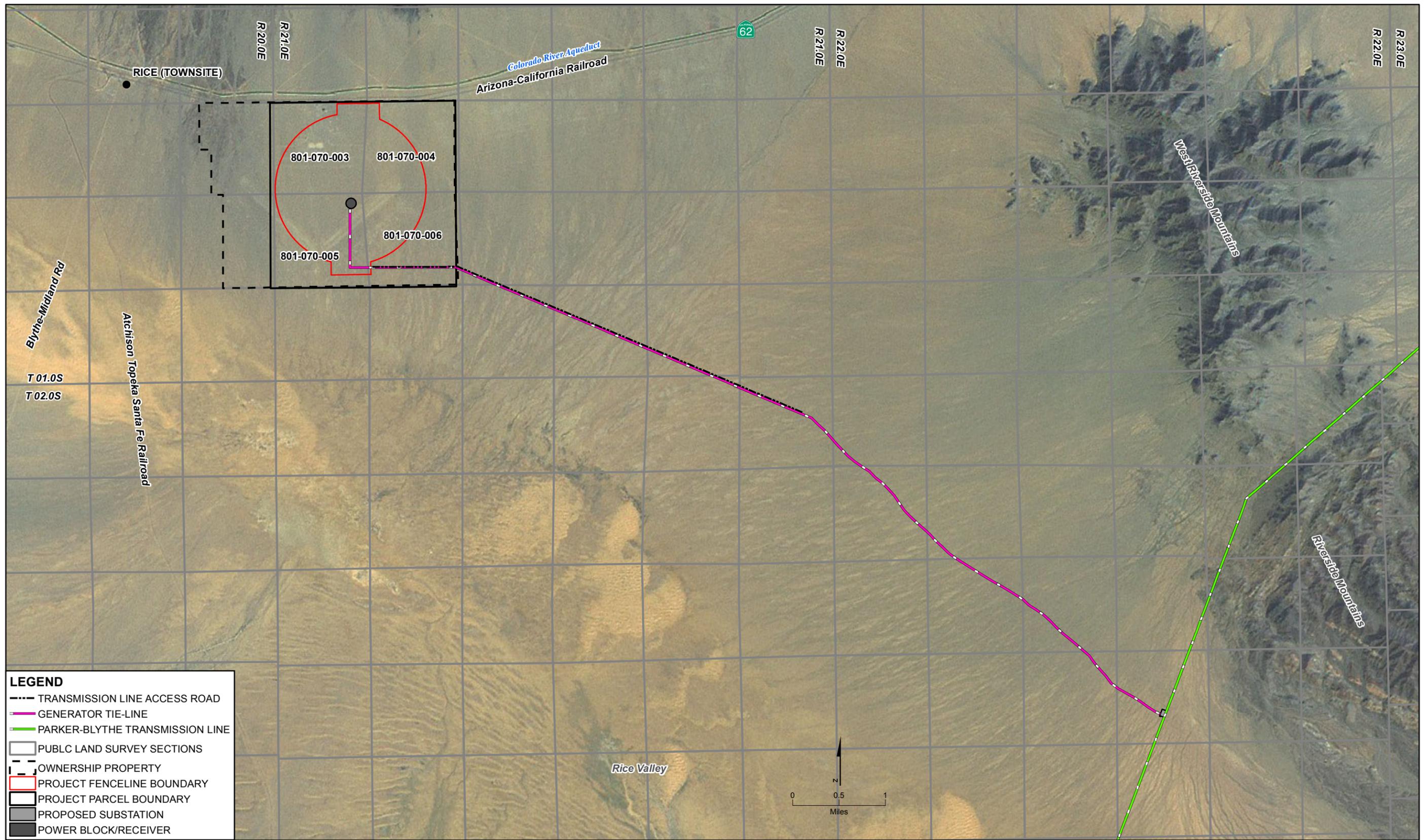


FIGURE 1-1
PROJECT LOCATION
 RICE SOLAR ENERGY PROJECT
 RIVERSIDE COUNTY, CALIFORNIA



LEGEND

- TRANSMISSION LINE ACCESS ROAD
- GENERATOR TIE-LINE
- - - PARKER-BLYTHE TRANSMISSION LINE
- PUBLIC LAND SURVEY SECTIONS
- - - OWNERSHIP PROPERTY
- ▭ PROJECT FENCELINE BOUNDARY
- ▭ PROJECT PARCEL BOUNDARY
- PROPOSED SUBSTATION
- POWER BLOCK/RECEIVER

FIGURE 1-2
SITE LOCATION
 RICE SOLAR ENERGY PROJECT
 RIVERSIDE COUNTY, CALIFORNIA

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.