

**DOCKET**

**09-AFC-9**

DATE APR 09 2010

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April 9, 2010

Eric Solorio  
Project Manager  
California Energy Commission  
1516 Ninth Street  
Sacramento, CA 95814

RE: Ridgecrest Solar Power Project (RSPP), Docket No. 09-AFC-9, 2010 Biological Survey Methodologies

Dear Mr. Solorio:

On March 30, 2010, Ridgecrest Solar I, LLC submitted to Mr. Rick York of the Energy Commission, a summary of biological resource survey studies and methodologies planned or currently being implemented for 2010 for the Palen, Blythe, and Ridgecrest Solar Power Project Sites. Copies were also submitted at that time to representatives of the BLM, CDFG and USFWS. A copy of that transmittal and a document of the studies and methodologies specific to the Ridgecrest site are enclosed and being docketed, for your information.

If you have any questions, please feel free to contact me at 510-809-4662 (office) or 949-433-4049 (cell).

Sincerely,



Billy Owens  
Director, Project Development



**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT  
COMMISSION OF THE STATE OF CALIFORNIA  
1516 NINTH STREET, SACRAMENTO, CA 95814  
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**APPLICATION FOR CERTIFICATION  
For the *RIDGECREST SOLAR  
POWER PROJECT***

**Docket No. 09-AFC-9**

**PROOF OF SERVICE  
(Revised 3/2/2010)**

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**DECLARATION OF SERVICE**

I, Elizabeth Copley, declare that on April 9, 2010, I served and filed copies of the attached Ridgecrest Solar Power Project (Docket No. 09-AFC-9) Biological Survey Methodology for the Ridgecrest Solar Power Project Site, 2010. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:

[\[http://www.energy.ca.gov/sitingcases/solar\\_millennium\\_ridgecrest\]](http://www.energy.ca.gov/sitingcases/solar_millennium_ridgecrest).

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

***(Check all that Apply)***

**For service to all other parties:**

- sent electronically to all email addresses on the Proof of Service list;
- by personal delivery;
- by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses **NOT** marked "email preferred."

**AND**

**For filing with the Energy Commission:**

- sending an original paper copy and one electronic copy, mailed and emailed Respectively, to the address below (preferred method);

**OR**

- depositing in the mail an original and 12 paper copies, as follows:

**CALIFORNIA ENERGY COMMISSION**

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I declare under penalty of perjury that the foregoing is true and correct.

  
\_\_\_\_\_



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March 30, 2010

Mr. Rick York  
California Energy Commission  
1516 Ninth Street, MS-40  
Sacramento, CA 95814-5512

**Subject: Biological Survey Methodologies for the Blythe, Palen and Ridgecrest Solar Power Project Sites, 2010**

Dear Mr. York:

On behalf of Solar Millennium, LLC, AECOM is submitting to the California Energy Commission (CEC) the attached summary of biological resource survey studies and methodologies planned or currently being implemented for 2010 for the Palen, Blythe, and Ridgecrest Solar Power Projects (Projects) in the Mojave and Colorado Desert areas of California. The three plant sites include the Ridgecrest plant site located south of Ridgecrest in Kern County, the Palen and Blythe plant sites located near Desert Center and Blythe, respectively, in Riverside County. The purpose of this letter is to inform CEC and relevant resource agencies of our biological survey approach and methodologies for these three Project sites in 2010.

As a result of Project modifications and the development of Project alternatives (as required by the Bureau of Land Management [BLM] environmental review process) that occurred after surveys were completed in 2009, the AECOM Team is undertaking additional technical surveys and studies in 2010. These additional surveys are necessary to satisfy Data Requests issued by the CEC during the Applications for Certification (AFC) process and to support related environmental documentation for these three Projects, as required for Project approval. Survey results will also be used to update environmental baseline information to support permit applications to other federal, state, and local agencies. In particular the survey results will be used to update and fully characterize the existing biological resource conditions on the project sites (including alternatives) as requested by the CEC in its Data Requests, to support determinations regarding Project (or alternative) impacts, to further formulate mitigation requirements, and to provide specific data needs of reviewing agencies.

Key to providing Project updates in support of necessary Project approvals and permits described above is the collection of data concerning the occurrence and distribution of biological resources within previously unsurveyed portions of the three Project sites (including alternatives) and associated buffers. The biological surveys and data collection planned and currently being implemented for 2010 take into account the physical characteristics of areas to be surveyed, the life histories of the target species, and the guidelines and protocols promulgated by the resource agencies.

Consistent with what was requested by the agencies in 2009, the AECOM Team is providing a written summary of the 2010 survey approach and methodologies, together with detailed maps of areas planned for survey at each of the three Project sites. Maps of planned survey areas for each biological resource at each of the three Project sites are enclosed. Please note that the maps showing planned survey areas are consistent with current Project (and alternative) design and may change with further refinement of the Projects or alternatives. In the event that the Project sites or alternatives are further modified after submittal of this letter, survey areas may be adjusted accordingly to meet the same purpose and intent of documenting and evaluating the environmental baseline for biological resources on each Project site. The following biological surveys have already been initiated at one or more of the Project sites (see attached document): desert tortoise surveys, botanical surveys, and golden eagle surveys. Burrowing owl surveys and jurisdictional waters delineation surveys have not yet been initiated on each Project site.



Mr. Rick York  
California Energy Commission  
March 30, 2010  
Page 2

In submitting this information, it is our hope to keep CEC, and the other resource management agencies (BLM, CDFG, and USFWS) that have been involved in the review and approval of these three Projects, apprised of our efforts related to biological resource surveys on these three Project sites. It is Solar Millennium's desire to ensure that the surveys conducted at these three Projects reflect the most current CEC and resource agency guidance and that the methodologies being implemented are communicated to CEC and resource agencies early in the survey season.

Please call Bill Graham at (619) 233-1454 if you have any questions.

Sincerely,

William Graham  
Principal  
Bill.Graham@aecom.com

Enclosures:

Blythe Palen Ridgecrest Solar Power Projects Proposed 2010 Survey Protocols  
Figures B-1 through B-5. Blythe Solar Power Project Preliminary Survey Maps 2010  
Figures P-1 through P-5. Palen Solar Power Project Preliminary Survey Maps 2010  
Figures R-1 through R-5. Ridgecrest Solar Power Project Preliminary Survey Maps 2010

cc: Janet Eubanks, BLM  
Holly Roberts, BLM  
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**PROPOSED SURVEY APPROACH AND METHODOLOGIES FOR THE  
RIDGECREST SOLAR I, LLC PARABOLIC TROUGH  
RIDGECREST SOLAR POWER PROJECT**

***Prepared by:***

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**March 2010**



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### **Attachment 1 - Figures**

- Figure R1 - Ridgecrest Solar Power Project DT Survey Areas - Spring 2010
- Figure R2 - Ridgecrest Solar Power Project WBO Survey Areas - Spring 2010
- Figure R3 - Ridgecrest Solar Power Project Vegetation Mapping and Rare Plant Surveys - Spring 2010
- Figure R4 - Ridgecrest Solar Power Project Jurisdictional Waters Survey Areas - Spring 2010
- Figure R5 - Ridgecrest Solar Power Project GOEA Survey Areas - Spring 2010

### **Attachment 2 - Target List of Special Status Plant Species for 2010 Surveys**



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# Proposed Survey Approach and Methodologies for the Ridgecrest Solar I, LLC Parabolic Trough Ridgecrest Solar Power Project 2010

## Biological Resource Survey Approach

After submittal of the Application for Certification (AFC) to the California Energy Commission (CEC) September 1, 2009, the Ridgecrest Solar Power Project (RSPP or Project) was reconfigured. Additionally, various Project design refinements were made related to transmission line route and the water line route.

As a result of the design changes at the Project site, additional biological resource technical surveys are necessary in 2010 to fill in the survey gaps in support of Project review, approval, and permitting. The following biological resource surveys will be conducted at the Project site during 2010: desert tortoise (*Gopherus agassizii*; DT) survey, burrowing owl (*Athene cunicularia*; WBO) survey, botanical survey (vegetation community mapping and rare plant surveys), golden eagle (*Aquila chrysaetos*; GOEA) survey, and jurisdictional waters delineation. Mohave ground squirrel (*Spermophilus mohavensis*; MGS) surveys will not be conducted during 2010. A MGS habitat assessment of the RSPP site, which included the reconfigured RSPP disturbance area, was previously conducted in 2009 by species expert Phil Leitner; hence, no additional surveys for this species will be conducted during 2010.

All protocols to be implemented in 2010, and described herein, are consistent with 2009 survey protocols, with the exception of a few modifications to the DT protocol (see "Desert Tortoise Protocol" below), rare plant surveys (see "Botanical Surveys" below), and jurisdictional waters surveys (see "Jurisdictional Waters Delineation" below). DT protocol surveys for 2010 were initiated earlier than in 2009, and earlier than specified in established protocols (with U.S. Fish and Wildlife Service concurrence). Botanical surveys in 2010 will address additional special-status plant species not previously included in 2009 surveys (see "Botanical Surveys" below). The jurisdictional waters delineation in 2010 will also include surveys of a 250-foot buffer of Project disturbance areas not included in the 2009 surveys.

GOEA surveys were initiated at the RSPP site on March 26, 2010; a second follow up survey at the RSPP will be conducted at the end of April. The following have not yet been initiated for 2010: WBO surveys and jurisdictional waters delineation surveys.

In general, surveys at the Project site will occur within 1) proposed Project disturbance areas (reconfigured or refined; hereafter referred to as Project disturbance areas) and, 2) Project disturbance area buffer zones that were not previously surveyed in 2009. A detailed description of the survey locations and methods for each biological resource survey being implemented in 2010 is provided below.

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## Biological Resource Survey Protocols

This section identifies the specific locations in which biological resource surveys have already been completed (i.e., survey extent [2009]) and will be conducted in 2010 (i.e., survey areas [spring 2010] and buffer survey areas [spring 2010]) at the Project site (Figures R-1 through R-5; see Attachment 1 for all figures), and describes the detailed survey methodologies (i.e., protocols) that will be implemented in 2010. If Project disturbance areas are further modified after the date listed on this document, survey areas and protocols may be modified accordingly to meet the purpose and intent of documenting and evaluating the environmental baseline for biological resources on the Project site.

### Desert Tortoise Protocol

DT surveys will include a combination of Presence-or-Absence surveys (i.e., 100 percent coverage surveys), and additional transect-based sign surveys within a Project buffer zone. DT Presence-or-Absence surveys will occur in suitable habitat within proposed Project disturbance areas for which surveys were not previously conducted in 2009 (Figure R-1). Sign surveys will occur along CEC-required buffer transects (placed at 1,000-foot, 0.75-mile, and 1-mile intervals from disturbance areas) that were not previously surveyed in 2009 (Figure R-1); see below for more complete description of CEC-required buffer transects. A habitat assessment for DT has already been completed at the Project site in February 2010 and areas to be surveyed in 2010 were determined to be potentially suitable for DT.

### **Presence-or-Absence Surveys**

Presence-or-Absence surveys (100 percent coverage surveys) for DT during 2010 will follow the guidelines published in the 1992 U.S. Fish and Wildlife Service (USFWS) survey protocol (USFWS 1992), with the following exception: no surveys of the five zone of influence (ZOI) transects that are typically required outside of and parallel to the disturbance area at 100, 300, 600, 1,200, and 2,400 feet will be conducted. Use of the USFWS 1992 protocol with the exception of ZOI transects (as occurred in 2009), rather than the revised 2009 protocol (USFWS 2009), was agreed upon by USFWS, California Department of Fish and Game (CDFG), U.S. Bureau of Land Management (BLM), and CEC in 2009 prior to survey initiation per an email communication dated March 10, 2009, from Julie Vance (refer to Section 2.2.1 of the AFC).

In accordance with the 1992 USFWS protocol, previously unsurveyed portions of the Project disturbance area at the site will be surveyed using transects spaced approximately 30 feet apart along transects oriented north to south or along transects that are parallel to the edges of the disturbance areas. The survey will be conducted by slowly and systematically walking linear transects while surveyors visually search for DT and sign. Particular emphasis will be placed on searching around the bases of shrubs and along the banks of shallow washes. All types of DT sign (live tortoises, shells, bones, scutes, limbs, scat, burrows, pellets, tracks, egg shell fragments, drinking sites etc.) will be recorded using a Global Positioning System (GPS) unit. If vegetation or topography reduces the surveyor's ability to see DT sign, the spacing between survey transects will be reduced, as necessary. This would occur in areas with high vegetation density or where topography obscures the surveyor's ability to see DT sign.

Any DTs observed will be measured at middle carapace length (MCL) and evaluated for health. Photographs of DT observations will be taken when possible (e.g., animal not deep in burrow). Photographs of large carcasses and/or unusual sign will also be taken. Burrows, scat, and shell remains will be classified using the Information Index for Desert Tortoise Sign: Burrows and Dens, Scats and Shell Remains as in the USFWS protocol (USFWS 1992).

Presence-or-Absence surveys will be initiated as soon as April 6 at the RSPP site or slightly earlier if it can be determined that DTs on the RSPP site are active. DT surveys will continue roughly until the end of April or until the survey effort is completed (prior to May 31).

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After completion of Presence-or-Absence surveys, results will be used to calculate estimated adult DT (> 160-mm MCL) abundance within disturbance areas surveyed in 2010. Abundance estimates will be calculated according to the 2009 survey protocol (*Preparing for Any Action That May Occur within the Range of the Mojave Desert Tortoise (Gopherus agassizii)* [USFWS 2009]) if protocol assumptions are met (e.g., minimum of 20 DTs are detected within the survey area).

### **Buffer Transect Sign Surveys**

To comply with the recommendations of the draft CEC *Recommended Biological Resources Field Survey Guidelines for Large Solar Projects* (CEC 2007a), transects outside of and parallel to proposed Project disturbance areas will also be surveyed for DT and their sign. These CEC-required buffer transects will be placed at 3,960 feet (0.75 mile) and 5,280 feet (1 mile) from and parallel to the edge of nonlinear portions of the Project site(s) disturbance area as well as at 1,000 feet from the edge of linear portions of the Project site(s) disturbance area (e.g., transmission line). Surveys along buffer transects will be conducted in a similar fashion as for transects described for Presence-or-Absence surveys, by slowly and systematically walking linear transects while surveyors visually search for DT, their sign, or other special-status species and their sign. Particular emphasis will be placed on searching around the bases of shrubs and along the banks of shallow washes. These transects are more broadly focused than the DT Presence-or-Absence protocol transects, described above, and are not a part of the 1992 USFWS DT protocol requirements. However, they provide additional information on DT occurrence and habitat suitability as well as other biological resources in the area surrounding Project disturbance areas.

### **Western Burrowing Owl Protocol**

WBO surveys will focus on suitable habitat in proposed Project disturbance areas and surrounding buffer zones that were not surveyed in 2009 (Figure R-2). Surveys will follow the *Burrowing Owl Survey Protocol and Mitigation Guidelines* prepared by The California Burrowing Owl Consortium (CBOC) (1993). In accordance with the protocol, a habitat assessment (Phase I survey) for WBO will be conducted in previously unsurveyed portions of the Project disturbance areas and in the surrounding 150-meter (approximately 492-foot) buffer zone. Following the Phase I survey, a focused burrow survey (Phase II survey) and WBO survey (Phase III survey) will be conducted in suitable habitat within proposed disturbance areas and the surrounding 492-foot buffer zone. Also, a more general survey of habitat suitability and occurrence of WBO, other special-status species, and sign will be conducted within a 1-mile CEC buffer surrounding the Project disturbance area (according to the CEC's Draft *Recommended Biological Resources Field Survey Guidelines for Large Solar Projects* [CEC 2007a]), if accessible to the biologists conducting the surveys (see "General Biological Survey Details," below).

The following describes, in more detail, the WBO survey approach and methodology that will be followed in 2010, and is consistent with surveys conducted in 2009.

#### **Phase I Survey: Habitat Assessment**

A habitat assessment (Phase I survey) for WBO will be conducted by qualified biologists in early spring 2010. The unsurveyed portions of proposed Project disturbance areas and the surrounding 150-meter (approximately 492-foot) buffer zone will be evaluated for suitability for WBO, as well as unsurveyed areas within a 1-mile buffer of proposed disturbance areas. Suitable habitat for WBO includes open habitat with available burrowing opportunities, including agricultural fields (active and fallow), Mojave creosote scrub, desert saltbush, ephemeral washes, and ruderal areas. Suitable habitat will be mapped in the field using high-resolution field maps and GPS units. Any WBOs or WBO sign (e.g., whitewash, pellets, feathers) observed during the Phase I survey will be recorded and mapped.

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## **Phase II Survey: Burrow Mapping**

The Phase II burrow survey will be initiated in early spring and will mostly be conducted concurrently with focused Presence-or-Absence DT surveys. The Phase II burrow survey will occur in suitable WBO habitat within previously unsurveyed portions of proposed Project disturbance areas, as well as within the 492-foot buffer zone, as required by the CBOC protocol. Where the Phase II burrow survey is conducted concurrently with Presence-or-Absence DT surveys, it will be conducted along pedestrian transects spaced at a maximum of 10 meters (approximately 30 feet) apart; otherwise, spacing between transects may extend up to 30 meters (approximately 100 feet), in accordance with the CBOC protocol. Biologists conducting the Phase II survey will record and map potentially suitable burrows (based on burrow dimensions and characteristics); they will also record and map WBO observations, presence and types of WBO sign (e.g., whitewash, pellets, feathers) observed, and active or potentially active WBO burrows (based on the presence and quality of sign at suitable burrows). These features will be recorded electronically using GPS units and on data forms; WBO observations and potentially active burrows will also be mapped on field maps. Phase II burrow data will also include the type of burrow, if known (e.g., kit fox [*Vulpes macrotis*]; DT), and a GPS identity code.

## **Phase III Survey: Burrowing Owl Surveys, Census, and Mapping**

Phase III surveys will be initiated and completed during the peak breeding season (April 15 through July 15, as defined in the CBOC protocol) and will continue until all burrows with WBO sign have been visited on four separate days. Phase III surveys are intended to determine owl presence on the site and how the site is being used by WBO. It is anticipated that surveys will be completed by the end of May 2010. During the first survey visit of Phase III, previously mapped (during Phase II) suitable burrows will be surveyed by biologists carefully approaching on foot to determine the presence of WBOs and/or WBO sign, in order to assess potential burrow status. Subsequent survey visits (i.e., visits 2–4) will focus on burrows with WBO sign. Based on 2009 survey results, the Project sites are known to include several burrows with WBO sign that is old and degraded, sparse, and absent of any indication of current or recent use. Although all burrows with confirmed WBO sign (including those with old, degraded or sparse sign) will be surveyed four times, only burrows with sign of current or recent occupancy by WBOs will be identified as “potentially active” for purposes of this survey. For any potentially active WBO burrows (i.e., burrows with sign of current or recent occupancy by WBO) identified during visit 1, the burrow areas will be observed during subsequent visits (i.e., visits 2–4) using binoculars or a spotting scope, using the vehicle as a blind (if possible); all other burrows with sign will be approached on foot. It is important to minimize disturbance near active/occupied burrows; if WBOs are detected in association with a burrow, attempts will be made to determine the burrow status without approaching the burrow too closely on foot.

Phase III surveys will be conducted between 1 hour before and 2 hours after sunrise, and between 2 hours before and 1 hour after sunset. Phase III surveys will not be conducted during inclement weather (e.g., wind speeds > 20 miles per hour, heavy rain or fog, etc.). Field data recorded during each survey visit will include date; survey number; weather conditions (temperature, wind, precipitation, cloud cover); surveyor name; start and stop times for each survey visit; location of burrows surveyed during each visit; the suitability of each burrow, based on burrow dimensions and characteristics (collected during first visit to the burrow); presence, absence, and type of WBO sign (if present) at each burrow; occupancy status (active, potentially active, inactive, based on presence and condition of sign); documentation of any WBO detections, including abundance, age, sex, and behavior; and other wildlife species observed. Photographs will be taken of all potentially active burrow locations. In addition, photographs of individual WBOs and active burrows would be taken, if possible without disturbing owls. Any special-status species or their sign observed during these surveys will be recorded electronically using GPS and on data forms.

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## **Botanical Surveys**

Botanical surveys in 2010 will include vegetation community mapping (to be conducted during spring) and rare plant surveys (to be conducted during spring and fall, depending on the timing and amount of 2010 precipitation). Vegetation community mapping will occur within proposed Project disturbance areas, and within associated one-mile CEC buffers that either were not previously surveyed or need to be resurveyed using a smaller minimum mapping unit (MMU) (refer to “survey areas (Spring 2010)” and “buffer survey areas (Spring 2010)” on Figure R-3). Rare plant surveys will occur within the Project disturbance areas and associated 1-mile CEC buffer areas that were not previously surveyed in 2009 (Figure R-3).

### **Vegetation Community Mapping**

Vegetation community mapping during spring 2010 will be conducted in accordance with the same methods as 2009 mapping efforts, with minor updates based on 2009 field experience. These updates include the following topics:

- Scale of field maps: Field maps used for vegetation mapping will have a scale of 1 inch = 700 feet. Maps at a 200-foot scale (used in 2009) were determined to exceed the resolution of the aerial imagery available and were found to be too cumbersome given the large size of the Project sites being surveyed.
- Clarification of mapping intensity: Similar to 2009, survey intensity in 2010 will vary according to the MMU of disturbance areas versus the 1-mile CEC buffers; areas with smaller MMUs (disturbance areas) will be surveyed with greater intensity than areas with larger MMUs (1-mile CEC buffer areas). To accomplish this, field biologists will walk transects at a spacing that allows visual coverage of all unique vegetation signatures having an area equal to or greater than the defined MMU size.

A detailed methodology for 2010 vegetation community mapping is provided below.

Field biologists will use orthotopographic maps at a scale of 1 inch equals 700 feet for both vegetation mapping and recording rare plant points or polygons (see “Rare Plant Surveys” below). If rare plants are documented during vegetation mapping, these sites will be noted and revisited during focused rare plant surveys in order to map plants in more detail and accurately delineate species populations using GPS equipment. Vegetation communities will be classified according to Holland (1986). Sawyer and Keeler-Wolf (1995) and CDFG (2003) classifications will be used to provide additional detail where appropriate, such as denoting special or sensitive vegetation communities that are either known or believed to be of high priority for inventory in the California Natural Diversity Database (CNDDB) due to their unique nature, limited distribution (i.e., rarity), or importance for special status wildlife species.

Vegetation mapping within proposed Project disturbance areas may be conducted concurrently with rare plant surveys, by having surveyors walk meandering transects; transect spacing will be based on habitat complexity and topography, and will be close enough to allow visual coverage of vegetation signatures at the minimum mapping unit (0.01 acre for riparian areas and 1.0 acre for all other cover types within proposed Project disturbance areas). Within the buffer, the MMU for all land cover types, including riparian, will be 1.0 acre. Vegetation mapping within the 1-mile CEC Project buffer areas will therefore be conducted by walking transects within native habitat that are spaced wider than those walked within disturbance areas, but allow visual coverage of vegetation signatures that are 1.0 acre in size or larger. Developed land and agricultural areas will be surveyed by a combination of walking transects and selecting key vantage points from existing dirt access roads.

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Dominant plant species present within each riparian and upland vegetation community mapped on site will be recorded according to the 50/20 dominance rule (U.S. Army Corps of Engineers [USACE] 1987). According to this rule, dominant plant species are defined as those that, when ranked in order of abundance, collectively make up 50 percent relative cover. Each dominant species individually makes up at least 20 percent relative cover, or is needed to surpass the 50 percent relative cover threshold. Once the dominant plant species are identified according to this method, they will be grouped according to relative cover: species below 20 percent, species ranging from 20 to 50 percent cover, and species exceeding 50 percent cover.

Additionally, a description of each vegetation community mapped on site will be recorded including the extent of disturbance, presence of special soils, potential jurisdictional waters, and habitat suitability for rare plant species (see "Rare Plant Surveys", below). Invasive species listed by the California Invasive Plant Council (Cal-IPC) as A-1, A-2, and B status species (Cal-IPC 2009) will be noted when occurring in high concentrations (approximately 108 square feet and larger) and in nearly monotypic stands. Potential invasive plant species that may be encountered during 2010 surveys on the RSPP site include tamarisk (*Tamarix* spp.), Saharan mustard (*Brassica tournefortii*), Mediterranean grass (*Schismus* sp.), red brome (*Bromus madritensis*), and cheat grass (*Bromus tectorum*).

### **Rare Plant Surveys**

Rare plant surveys during spring 2010 will be conducted in accordance with the same methods as 2009 surveys, with updates based on 2009 field experience and CEC guidance. These updates include the following:

- Survey intensity: Detailed descriptions are now provided to explain the differences between survey intensity within the disturbance area versus that in the 1-mile CEC buffer, especially with respect to habitat suitability.
- Habitat suitability: methods for determining habitat suitability have been enhanced at the request of CEC.
- Complete tracklog: each biologist will have a GPS unit recording their path during surveys, and these data will be compiled and submitted with the deliverable.
- Search image: biologists will visit reference sites and/or herbaria specimens to obtain a search image for each targeted California Native Plant Society (CNPS) List 1B or List 2 plant species during the reconnaissance phase of surveys.
- Coachella Valley milkvetch (*Astragalus lentiginosus* var. *coachellae*) focused surveys: if suitable habitat is defined within the disturbance areas and surrounding 1-mile CEC buffers, these areas will be intensively surveyed according to the Coachella Valley milkvetch survey plan (described below). The need for focused Coachella Valley milkvetch surveys is unlikely based on research to date (see below). The survey plan has been created as a precaution.
- Deliverable enhancements: the botanical survey report will include all raw field data as attachments and will contain discussion of special status plant species occurrences with respect to onsite conditions as well as known species ranges and suitable habitats.
- Fall surveys: while late-season surveys were not feasible in 2009 due to limited rainfall, 2010 may have adequate late-summer rainfall to warrant fall surveys and additional consideration has been given to four fall-blooming special status plant species.

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A detailed methodology for 2010 rare plant surveys is provided below, which includes 2009 methods as well as the updates noted above.

Rare plant surveys will follow survey guidelines from the following resources: 1) Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants (USFWS 2000); 2) Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFG 2009)<sup>1</sup>; 3) CNPS Botanical Survey Guidelines (CNPS 2001); and 4) Survey Protocols for Survey and Manage Strategy 2: Vascular Plants (Whiteaker et. al. 1998).

Target species for rare plant surveys will include special-status plant species that meet at least one of the following criteria:

- Covered under the Federal or California Endangered Species Act (ESA and CESA, respectively) (CDFG 2009)
- Listed as rare under the California Native Plant Protection Act (Fish and Game Code Section 1900 et seq.)
- BLM sensitive species (BLM Sensitive) (BLM 2009)
- CNPS List: 1A (presumed extinct in California), 1B (rare, threatened, and endangered in California and elsewhere), or 2 (rare, threatened, or endangered in California, but more common elsewhere) species are considered special status plant species if they meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Sections 2050 through 2098 (CESA) (CNPS 2009)
- CNPS List: 3 (plants about which we need more information a review list), or 4 (plants of limited distribution—a watch list was also recorded here) (CNPS 2009)
- Locally significant species, covered under the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) (BLM 2002) or the West Mojave Plan (WEMO) (BLM 2005)

At the direction of BLM, cottontop cactus (*Echinocactus polycephalus*), hedgehog cactus (*Echinocereus* spp.), and all varieties of California barrel cactus (*Ferocactus cylindraceus*) encountered on site will also be recorded and mapped during rare plant surveys (LaPre 2009). The CEC has identified 11 additional target species above and beyond those considered in 2009 to be specifically targeted during 2010 rare plant surveys (see Attachment 1). Attachment 2 contains the complete list of plant species that will be targeted during 2010 rare plant surveys.

Rare plant surveys will be “intuitive controlled” (per Whiteaker et al. 1998). The surveys will be conducted by walking transects placed systematically throughout Project disturbance areas and associated 1-mile CEC buffers while searching for target plant species and suitable habitats. In disturbance areas not previously surveyed during 2009, botanists will traverse all representative habitats, providing complete visual coverage in areas determined to be suitable for target plant species (including microhabitats) (see Attachment 1 for target plant list). This will include closely spaced transects in the desert washes, incised channels, and sandy dune habitats (50-100 feet, possibly less depending on topographic complexity) and wider spacing in the flat creosote bush scrub and desert pavement (approximately 100-200 feet, or more depending on visibility). Transects will follow topographic relief rather than predefined survey grids, for the purpose of providing focused coverage of the desert washes.

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1. This document replaced the DFG document entitled “Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened and Endangered Plants and Natural Communities.”

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Resurveys will occur as many times as necessary to ensure the blooming periods of all target rare plant species have been covered.<sup>2</sup> Additionally, disturbance areas that were previously surveyed in 2009 would be revisited systematically, as deemed appropriate based on field conditions, in order to comply with the December 2009 CEC data request for consideration of 11 additional special-status plant species and detailed mapping of ribbed cryptantha (*Cryptantha costata*).

In the 1-mile CEC buffer areas, suitable habitats associated with the major desert washes or sandy dune habitats will also be surveyed with complete visual coverage but the areas may not be resurveyed with the same rigor as the disturbance area and isolated microhabitats (areas much less than 1 acre in size and not associated with the desert washes or larger dune complexes) may not be examined with complete visual coverage at the discretion of the lead field botanist.

Suitable habitats will be determined based on geography, slope aspect, soil substrate, vegetation community, associated plant species, and familiarity with each species based on reference populations and historical surveys conducted in the region. Unsuitable habitats may be traversed while traveling between areas of suitable habitat, providing partial survey coverage in these areas. Each field botanist will carry a GPS to record their path through the Project site(s) each day.

The exception to the “intuitive controlled” method described above is with respect to the Coachella Valley milkvetch surveys. This federally endangered plant species must receive more focused attention in areas of suitable habitat where the species has potential to occur. Andrew Sanders has determined that Coachella Valley milkvetch is not currently documented outside of the Coachella Valley area. To reach this conclusion, Mr. Sanders thoroughly reviewed the vouchered collections (identified as Coachella Valley milkvetch) from the Desert Center area (Dice 980324-2; Dice 980324-3; and Sears 1173) and other collection data (e.g., <http://ucjeps.berkeley.edu/consortium/> and University of California at Riverside (UCR) herbaria specimens). After careful consideration, Mr. Sanders found the Desert Center collections (i.e., all Coachella Valley milkvetch collections outside the Coachella Valley) to be *Astragalus lentiginosus* var. *variabilis* rather than *A. lentiginosus* var. *coachellae*.

Therefore, focused surveys for Coachella Valley milkvetch will not be necessary at the RSPP site unless the species is observed on site or Andrew Sanders encounters additional information leading to a reversal of his findings. Prior to the end of the survey window for Coachella Valley milkvetch (late May), a letter from Andrew Sanders will be provided to USFWS, CDFG, CEC, and BLM to finalize and defend the treatment of Coachella Valley milkvetch during 2010 rare plant surveys.

In the event that focused surveys for Coachella Valley milkvetch do occur, a survey plan has been prepared and is located below (see “Supplemental Survey Methods for Coachella Valley Milkvetch (if Necessary)”, below).

The timing of rare plant surveys will be based on the most phenologically appropriate time for each target plant species; surveys will occur when reproductive structures (i.e., flowers and fruits) and distinctive leafy parts are present and easily identifiable. When possible, known locations of rare plants in the vicinity of the Project site(s) will be visited to verify the status of these species during the 2010 growing season (germinating, flowering, seeding, etc.). If reference site visits are not possible, specimens from the UCR Herbarium will be studied to inform field biologists of important keying characters.

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2. In DR-BIO-81 of the AECOM Response to the CEC Data Request (December 2009), it was suggested that biologists should walk 10-20 meter parallel transects within all habitats of the disturbance areas, regardless of habitat suitability. This approach has been revised, since habitat complexity will dictate how far each botanist will be able to see and will therefore dictate the necessary spacing. AECOM botanists have consulted with regional experts including Andy Sanders and David Silverman to conclude that intuitive controlled surveys per Whiteaker et al. 1998 are sufficient for documenting a complete floral inventory on site (including the target special status plant species).

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In general, the ideal survey window for 2010 will be closely associated with the rainfall pattern, considering both rainfall totals and the timing of precipitation. Several survey visits may be necessary to accommodate the distinct phenologies of each target rare plant species with potential to occur on the Project site, including surveys during both spring and fall (if rainfall is sufficient for fall-blooming species). It is anticipated that approximately 2-5 survey visits may be necessary to complete rare plant surveys.

During rare plant surveys (spring or fall) each field botanist will record a complete floral inventory, including the phenology(ies) observed (to document the blooming period and calibrate the timing of additional surveys). Plant nomenclature will follow that of *The Jepson Desert Manual* (Baldwin et. al. 2002). Additionally, scientific names will be used in all records to avoid confusion between taxa. Time will be allotted as necessary to confirm the identity of unknown species to the taxonomic level necessary to determine whether it is a target rare plant species or not (e.g., genus, species, or subspecies/variety).

If a target rare plant population is located, the population will be assessed for vigor and possible threats (e.g., off-road vehicle activity and invasive plants) and the number of individuals will be counted (or subsampled and population size estimated in the event of large populations). All sensitive plant locations identified will be recorded directly with submeter handheld GPS units and will be subsequently mapped on aerial photo-based field maps (700-foot scale orthotopographic maps). Rare plant detections will be mapped either as individual point locations (for single plants) or as occupied polygons (for groups of plants). The threshold distance for distinguishing point locations from polygons will be 7 meters; for example, plants occurring within 7 meters of each other will be included in a polygon, and plants beyond the 7-meter threshold will be documented using individual points).

In addition to mapping special status species occurrences, suitable habitat for the target species will be assessed and mapped. In many cases, not enough information is known about microhabitat preferences of a species to define its habitat beyond the level of vegetation communities.

CNDDDB forms will be completed and submitted to CDFG (as publically available data) for all special-status plant species observed. Voucher specimens of special-status plant species will be collected if it is determined that such collection would not jeopardize the existing population. These collections will be submitted to the UCR herbarium.

### **Additional Survey Considerations**

During vegetation mapping and rare plant surveys, field botanists will document any creosote bush rings observed if they are readily distinguishable.

Regional experts will be consulted for guidance through all phases of survey work for concurrence with the methods employed by AECOM survey teams. This includes botanists such as David Silverman (of Xeric Specialties Consulting) and Andrew Sanders (of the UCR Herbarium). These experts will receive copies of this methodology for approval, and once in the field they will train crews on species identification, conduct expert habitat assessments, and provide guidance on optimal survey timing for the targeted special status plant species.

### ***Supplemental Survey Methods for Coachella Valley Milkvetch (if Necessary)***

All surveys for rare plants will be conducted in compliance with the standardized guidelines issued by the regulatory agencies (USFWS 2000, CDFG 2000, and the CNPS 2001). The species specific methods presented below are intended to be a supplement to the standardized guidelines.

Surveys for Coachella Valley milkvetch will be conducted from approximately February through May 2010, depending upon climactic conditions. The number of surveys required will depend upon the phenology of the populations at the reference sites. It is presumed that two to three separate surveys will

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be required. Prior to initiating surveys, vouchered specimens deposited at the UCR herbarium will be studied to insure survey personnel are familiar with the species. Visits to one or more known locations of Coachella Valley milkvetch will be conducted to determine current phenology and detectability.

Systematic surveys will be conducted to detect presence and determine distribution of Coachella Valley milkvetch within the survey area. The survey area will only include areas of suitable Coachella Valley milkvetch habitat along the substation and transmission line disturbance area and buffer area. For systematic surveys, biologists will walk parallel transects 5 to 10 meters apart throughout the entire survey area. The survey transects will be recorded with a GPS track log using a submeter handheld GPS. Survey crews will include at least one member who has seen Coachella Valley milkvetch in its natural habitat. Other survey members will be trained using photographs and/or herbarium specimens.

If Coachella Valley milkvetch is detected within the survey area results will be recorded as described below. One herbarium specimen will be deposited at the UCR herbarium, if it is determined that collection will not jeopardize the existing population.

### **Jurisdictional Waters Delineation**

A formal delineation for potential jurisdictional waters of the United States and of the State will occur at the site within portions of the Project disturbance area, and within a 250-foot buffer of these areas, for which surveys were not previously conducted in 2009 (Figure R-4). Additionally a qualitative functions and values assessment for ambient conditions and projected post-project conditions of these areas will also be conducted.

#### **Formal Delineations for Potential Jurisdictional Waters of the United States**

Jurisdictional waters of the United States are defined in 33 CFR 328.3 (Definitions). Previously unsurveyed portions of the proposed Project disturbance area at the Project site have the potential for the presence of, at a minimum, two types of federally regulated waters, warranting the following:

1. Formal delineations for waters of the United States in the form of wetlands based on the three-parameter method.<sup>3</sup> The three-parameter method for identifying and delineating wetlands is outlined in and in accordance with Federal guidance and procedure following the *Corps of Engineers Wetlands Delineation* (Manual) (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (2008 Supplement) (Environmental Laboratory 2008).<sup>4</sup>
2. Formal delineations for other waters of the United States to define and identify the jurisdictional lateral extent of nonwetland waters using field indicators of ordinary high water mark (OHWM) as defined by 33 CFR 238.3(e), Federal guidance and procedure outlined in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual* (USACE 2008), and *Distribution of Ordinary High Water Mark (OHWM) indicators and their reliability in identifying the limits of "Waters of the United States"* (Lichvar et al. 2006).
3. Other relevant Federal guidance and procedural documents (e.g., Regulatory Guidance Letter, Special Public Notices, and USACE Los Angeles District specific guidance)

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3. The three-parameter method is the simultaneous presence (co-occurrence) of wetland hydrology, hydric soil, and hydrophytic vegetation.

4. The Manual and 2008 Supplement are guidance documents for delineating jurisdictional waters in the form of wetlands only.

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## Formal Delineations for Potential Jurisdictional Waters of the State

The California Code of Regulations (Title 14 CCR 1.72) defines a stream as: "...a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation." Under Section 1600 *et seq.* of the California Fish and Game Code (CFGC), CDFG regulates activities that would alter the flow, bed, channel, or bank of streams and lakes. The limits of CDFG jurisdiction are defined in CFGC Section 1600 *et seq.* as the "bed, channel or bank of any river, stream or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit." However, in practice, CDFG usually extends its jurisdictional limit and assertion to the top of a bank of a stream, the bank of a lake, or outer edge of the riparian vegetation, whichever is wider.

CFGC Section 1602(a) is based on Title 14 CCR 720: "For the purpose of implementing Sections 1601 and 1603 of the Fish and Game Code which requires submission to the department of general plans sufficient to indicate the nature of a project for construction by or on behalf of any person, governmental agency, state or local, and any public utility, of any project which will divert, obstruct or change the natural flow or bed of any river, stream or lake designated by the department, or will use material from the streambeds designated by the department, all rivers, streams, lakes, and streambeds in the State of California, including all rivers, streams and streambeds which may have intermittent flows of water, are hereby designated for such purpose".

Boundaries for xeric riparian waters of the State will be determined (and recorded) by the presence of shelving and/or scour resulting in an established bank, bed, and channel of an ephemeral wash feature and its associated riparian areas (where applicable). In specific areas within the ephemeral wash channels, where evidence of shelving or scour is absent, subsurface investigations will be undertaken to identify established channel banks. Although some portions of the ephemeral washes present shelving with smooth-toe transitions, these features are composed of friable sand and are evidence of recent sand deposition covering the bank features.

For wetlands and other aquatic habitats occurring in California, CDFG relies on the USFWS wetland definition and classification system, which is based on *Classification of Wetland and Deepwater Habitats of the United States* (Cowardin et al. 1979). Therefore, jurisdictional wetland delineations within proposed Project disturbance areas will be conducted based on the one-parameter<sup>5</sup> method outlined in CDFG/USFWS guidance documents and classification manual(s) to define presence and State jurisdictional extent. The Cowardin method requires diligence to avoid false positive conclusions (e.g., concluding that an area with no transitional relation to the aquatic system is a wetland based on presence of vegetation equally likely to be found in wetland or nonwetland circumstances).

## Functions and Values Assessments

A qualitative assessment of the functions and values will also be conducted for ephemeral stream (i.e., xeric riparian) features identified in unsurveyed portions of proposed Project areas at the Project site. This qualitative assessment utilized the Hydrogeomorphic Approach (HGM) to assess the physical, chemical, and biological functions and values of xeric riparian features utilizing a synthesis of the methodologies and definitions outlined in:

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5. For Federal jurisdictional waters, a determination for the presence of wetland is based on the presence of three parameters occurring simultaneously at the area of investigation and study. These three wetland parameters are 1) hydrophytic vegetation, 2) hydric soils, and 3) wetland hydrology. Therefore, for State-defined wetlands, only one of these three wetland criteria is required to be present for the State to consider an aquatic feature a wetland.

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1. *A Hydrogeomorphic Classification for Wetlands as a guide* (Brinson et al. 1995)
  2. *An Approach for Assessing Wetland Functions Using Hydrogeomorphic Classification, Reference Wetlands, and Functional Indices* (Smith et al. 1995)
  3. *Wetland Values: Concepts and Methods for Wetlands Evaluation* (USACE 1979)
  4. *The Ecological and Hydrological Significance of Ephemeral and Intermittent Streams in the Arid and Semi-arid American Southwest* (U.S. Environmental Protection Agency [USEPA] 2008)
  5. USEPA Watershed Academy: *Wetland Functions and Values* (USEPA 2009)
  6. U.S. Geologic Survey (USGS) Water Supply Paper 2425: *Wetland Functions, Values, and Assessment* (USGS 1996)

The assessment will be based on observations made during above-mentioned jurisdictional delineation field surveys and other resource surveys (e.g. cultural, botanical, and wildlife) occurring in 2010. The assessment is intended to quantitatively evaluate ambient and projected post-project desert aquatic (including xeric riparian) features without a reference site. Since the assessment will not be based on a comparison to an actual reference site in the field, the qualitative rankings of variables used for the assessment of the quality of functions and values will be confined to the quality of the habitats within the study area.

Brinson et al. (1995), Smith et al. (1995), and USEPA (2008) will be used as the primary guidance documents for assessing xeric riparian function, which include assessment of the following four major functional categories:

1. Hydrologic Function
2. Biogeochemical Function
3. Plant Habitat Function
4. Animal Habitat Function

USACE (1979), USEPA (2009) and USGS (1996) will be used as the primary guidance documents for assessing xeric riparian values, which include assessment of the following seven major value categories:

1. Aquifer Recharge (including Base Flow and Water Supply)
2. Flood Protection
3. Water Quality
4. Economic
5. Aesthetic
6. Recreational
7. Cultural

Xeric riparian values 1 through 4 will be incorporated within xeric riparian functions because wetland values also arise from the many ecological functions associated with wetlands (USEPA 2009). Xeric riparian values 5 through 7 will be ascertained through subjective review during the jurisdictional delineation field assessment, a review of related documents such as cultural resources reports, the Riverside or Kern County General Plans, and speaking with resource agency personnel.

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## **Golden Eagle Surveys**

Prior to conducting field surveys, existing applicable studies conducted in the vicinity of the Project site, other related data and reports, and any potentially relevant correspondence from the resource agencies regarding golden eagles shall be reviewed. Included shall be the review of BLM's historic documents.

Helicopter-based raptor surveys shall be conducted, following the USFWS Interim Guidelines for GOEA surveys (USFWS 2010), to record and report occupancy (Phase 1) and productivity (Phase 2) of resident golden eagles including, but not limited to, the following:

- individual activities,
- nests and territories on and surrounding the subject solar farm project, and within an approximate 4- to 10-mile radius of the proposed Project (assumed USFWS requirement)

The Phase 1 GOEA survey for the RSPP site was initiated on March 26, 2010. The extent of the GOEA survey area at the RSPP site is shown on Figure R-5.

The surveyors shall also record activity of any raptors/sensitive species (e.g., Swainson's hawk [*Buteo swainsoni*], etc.). During flight, 2 biologists shall be observing at all times while 1 shall be recording and marking data when appropriate. If possible, at least one biologist with knowledge of bighorn sheep (*Ovis Canadensis*; BHS) biology will be present in surveys. Two GPS units, 1 primary and 1 backup, shall be used to document geographic locations of importance and the routes taken. A manual back up of these coordinates shall be entered in field notes as part. The pilots shall have experience flying cliff ecosystem raptor surveys and high power transmission lines, but shall not be responsible for raptor observation. Two helicopter surveys are part of this proposal, based on the recent changes to the Eagle Protection Act. The first (Phase 1) was conducted in March 2010 and the second (Phase 2) in late April/early May 2010.

If at any time during helicopter surveys BHS are detected (e.g., flushed), helicopter surveys will be terminated in areas within approximately 0.75 miles of the detection. In addition, the BHS detection will be recorded on survey data forms, including the GPS location of the detection and any information about what was seen, and the appropriate resource agency biologist (s) will be notified as soon as possible. If the area for which surveys were terminated requires further survey for GOEA occupancy, surveyors will return to the area on foot.

Based on the results of the helicopter surveys, ground monitoring of GOEA territories for nesting success may be required. The ground monitoring methodology shall follow Section VII.c Ground Surveys of the USFWS Interim Guidelines for Golden Eagle surveys. Observation Posts (OPs) will be set up no closer than 300 meters (approximately 985 feet), and no further than 700 meters (approximately 2,300 feet) if feasible, for monitoring territories. Where terrain interferes with monitoring, the maximum allowable OP distance would be 1600 meters (1-mile). There shall be 2 monitoring periods per nest, separated by a minimum of 30 days. Each period shall consist of at least 4 hours of monitoring per known nest site, or until territory occupancy can be confirmed.

All dates shall be recorded for: each monitoring visit, fledging success, confirmation of nesting failure, or other pertinent nesting data. The criteria used to conclude the success or failure of a nest will be recorded.

Phase 1 helicopter surveys shall be initiated within one week of receiving authorization for surveys and Phase 2 a minimum of 30 days after completion of the Phase 1 survey. Fieldwork was completed for Phase 1 in late March 2010, and Phase 2 in late April/early May of 2010.

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## General Biological Survey Details

In addition to above-described protocols, the following general surveys actions/approaches will be taken by the AECOM survey team.

- While conducting biological resource surveys at the Project site in 2010 (e.g., DT surveys, WBO surveys, vegetation mapping and rare plant surveys, etc.) biologists will also be looking for and recording occurrences of all sensitive, listed, or other special-status wildlife species or their sign, including but not limited to:
  - Potential bat roosting sites—caves, abandoned buildings, cliffs etc.
  - Nelson’s bighorn sheep
  - American badger (*Taxidea taxus*)
  - Mohave ground squirrel
  - Desert kit fox (*Vulpes macrotis*)
  - Mojave fringe-toed lizard (*Uma scoparia*)
  - Loggerhead shrike (*Lanius ludovicianus*)
  - Bendire’s thrasher (*Toxostoma bendirei*)
  - Crissal thrasher (*Toxostoma crissale*)
  - Gilded flicker (*Colaptes chrysoides*)
  - Gila woodpecker (*Melanerpes uropygialis*)
  - Raptors
    - Northern harrier (*Circus cyaneus*)
    - White-tailed kite (*Elanus leucurus*)
    - Cooper’s hawk (*Accipiter cooperii*)
    - Peregrine falcon (*Falco peregrinus*)
    - Prairie falcon (*Falco mexicanus*)
    - Swainson’s hawk
    - Golden eagle
    - Ferruginous hawk (*Buteo regalis*)
- All surveyors will be given Desert Tortoise Awareness training.
- All surveyors will be briefed on potential rare plants within their survey area, including descriptions and photographs/drawings. Biologists will record coordinates and take photographs of any potential occurrences of rare plants and communicate this information to an AECOM Team botanist for verification immediately.
- Within areas of the 1-mile Project disturbance area survey buffer not previously surveyed, a more general survey of habitat suitability and occurrence of special-status species and their sign will be conducted within a 1-mile CEC buffer surrounding the Project disturbance area (according to the CEC’s Draft Recommended Biological Resources Field Survey Guidelines for Large Solar Projects [CEC 2007]), if accessible to the biologists conducting the surveys.

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## **Attachment 1**

### **Figures**



## **Attachment 2**

### **Target List of Special Status Plant Species for 2010 Surveys**



**Attachment 2**  
**Target List of Special Status Plant Species for 2010 Surveys**  
**Ridgecrest Solar Power Project**

Scientific Name	Common Name	Status <sup>3</sup>	Expected Fall or Spring <sup>4</sup>
<i>Calochortus striatus</i>	Alkali mariposa-lily	CNPS: List 1B.2 BLM: Sensitive WEMO	Spring
<i>Carex vulpinoidea</i>	Brown fox sedge	CNPS List 2.2	Spring
<i>Carlquistia muirii</i>	Muir's tarplant	CNPS: List 1B.3 BLM: Sensitive	Spring
<i>Deinandra arida</i>	Red Rock tarplant	CESA: Rare CNPS: List 1B.2 WEMO	Spring or Fall
<i>Deinandra mohavensis</i>	Mojave tarplant	CESA: Endangered CNPS: List 1B.3 WEMO	Spring or Fall
<i>Echinocactus polycephalus</i> <i>var. polycephalus</i> <sup>2</sup>	cottontop cactus	No special status (considered but rejected)	Spring
<i>Echinocereus engelmannii</i> <sup>2</sup>	hedgheg cactus	CNPS List 1B.1 ( <i>var. howei</i> )	Spring
<i>Echinocereus triglochidiatus</i> <sup>2</sup>	hedgheg cactus	No special status	Spring
<i>Ericameria gilmanii</i>	Gilman's goldenbush	CNPS: List 1B.3	Fall
<i>Erigeron aequilifolius</i>	Hall's daisy	CNPS: List 1B.3 BLM: Sensitive WEMO	Spring or Fall
<i>Eschscholzia minutiflora</i> ssp. <i>twisselmannii</i>	Red Rock poppy	CNPS: List 1B.2 BLM: Sensitive	Spring
<i>Ferocactus cylindraceus</i> <sup>2</sup>	California barrel cactus	No special status	Spring
<i>Mentzelia tridentata</i>	Creamy blazing star	CNPS: List 1B.3 BLM: Sensitive	Spring
<i>Monardella beneolens</i>	Sweet-smelling monardella	CNPS: List 1B.3 BLM: Sensitive WEMO	Spring or Fall
<i>Phacelia nashiana</i>	Charlotte's phacelia	CNPS: List 1B.2 BLM: Sensitive WEMO	Spring
<i>Phacelia novemmillensis</i>	Nine-mile canyon phacelia	CNPS: List 1B.2 BLM: Sensitive WEMO	Spring
<i>Saltugilia latimeri</i>	Latimer's woodland-gilia	CNPS: List 1B.2	Spring
<i>Sclerocactus polyancistrus</i>	Mojave fish-hook cactus	CNPS: List 4.2	Spring

**Notes:** See following page for Table Notes.

## Target List of Special Status Plant Species for 2010 Surveys Ridgecrest Solar Power Project

### **Table Notes:**

1. Species requested to be surveyed by CEC (AECOM 2010a and 2010b)
2. Species requested to be surveyed by BLM (LaPre 2009)
3. Sensitivity Status Key

**ESA** Federal Endangered Species Act (ESA) Threatened

**CNPS** California Native Plant Society Lists:

1B: Considered rare, threatened, or endangered in California and elsewhere

2: Plants rare, threatened, or endangered in California, but more common elsewhere

3: Plants for which we need more information – Review list

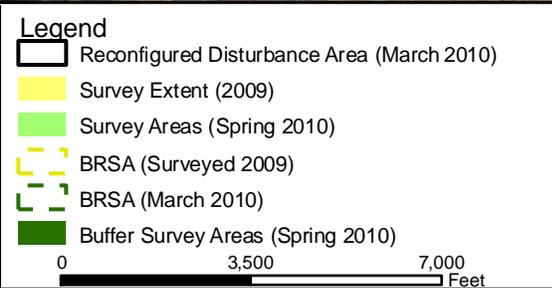
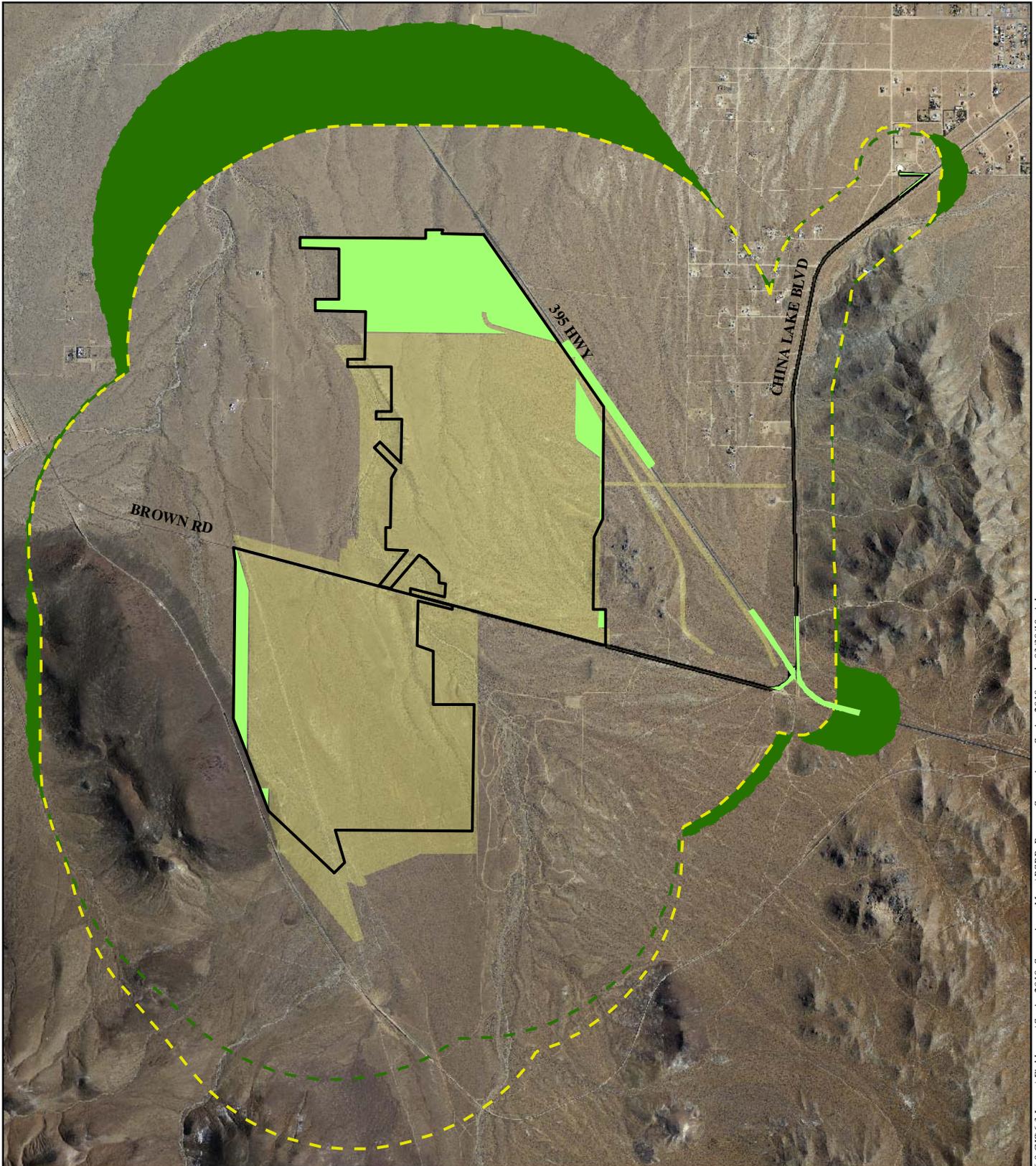
4: Plants of Limited Distribution – A Watch list

Decimal notations: .1 – Seriously endangered in California, .2 – Fairly endangered in California, .3 – Not very endangered in California

**BLM** Special Status Plants (Palm Springs Field Office)

**WEMO/NECO** Special-status species considered in analysis of the West Mojave Plan (BLM 2005) or Northern and Eastern Colorado Coordinated Management Plan (BLM 2002).

4. Based on the known blooming periods of these plant species, many of these species are opportunistic with respect to rainfall. While they have been listed in this table as occurring Spring, Fall, or Both, actual blooming times will correlate more closely with the climate than the calendar. Field surveys will be comprehensive, not selective; all plants on this list will be considered during all surveys, regardless of the probability of finding them. A complete floral inventory will be recorded for the site as well.



**Ridgecrest Solar Power Project  
Figure R-3**

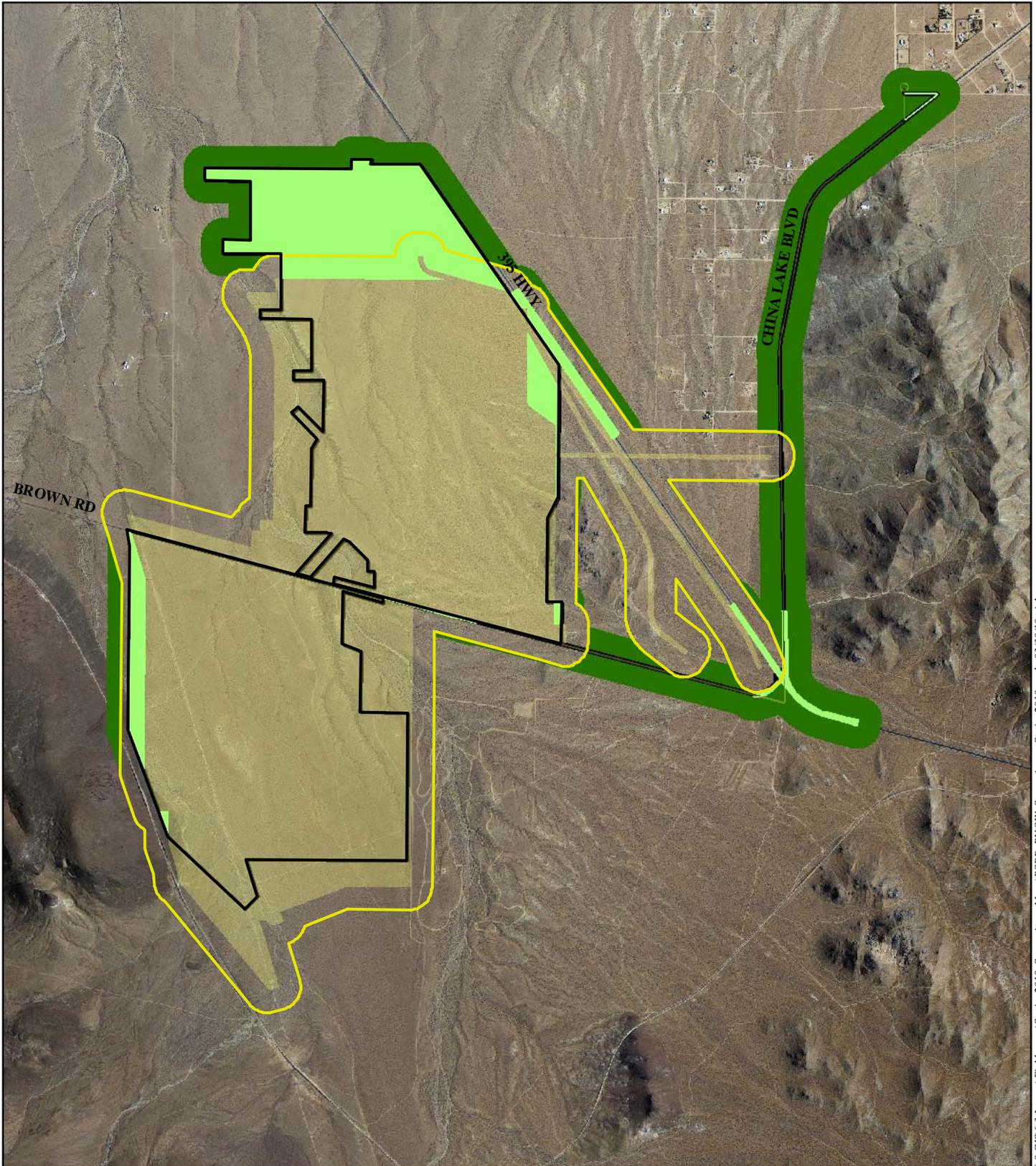
**Vegetation Mapping and Rare Plant Survey Areas Spring 2010**

Source: NAIP 2009; AECOM 2010

1 inch = 3,500 feet



Date: March 2010



**Legend**

- Reconfigured Disturbance Area (March 2010)
- Survey Extent (2009)
- Survey Areas (Spring 2010)
- Buffer Survey Extent (2009)
- Buffer Survey Areas (Spring 2010)

0 3,000 6,000 Feet

**Ridgecrest Solar Power Project**  
**Figure R-2**

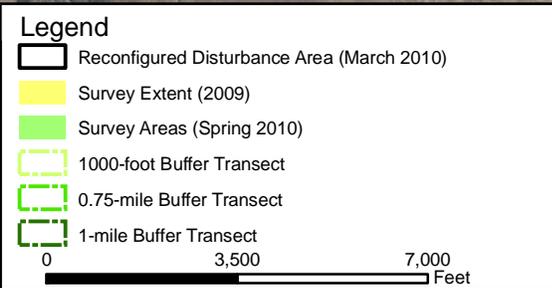
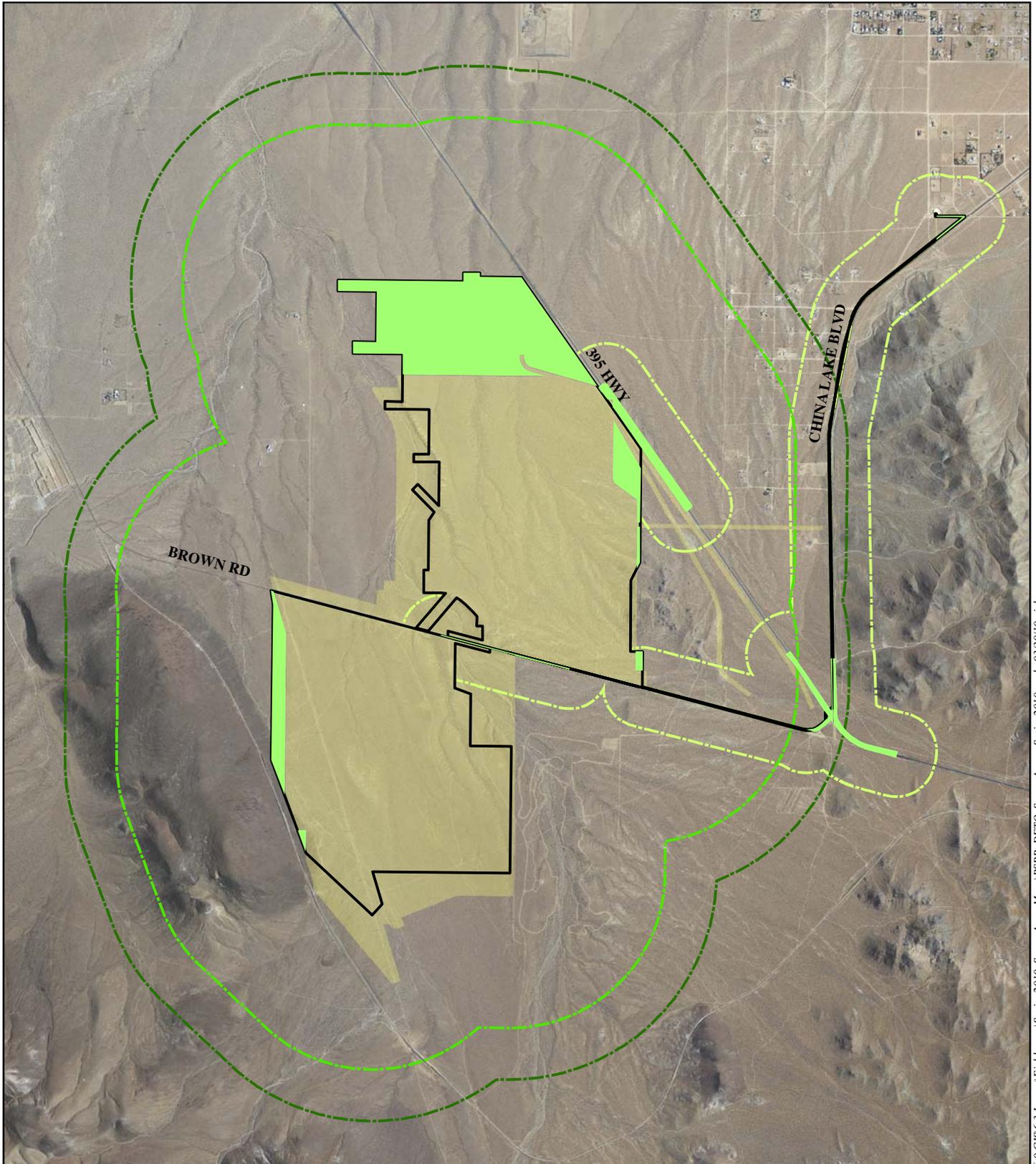
**WBO Survey Areas**  
**Spring 2010**

Source: NAIP 2009; AECOM 2010

1 inch = 3,000 feet

**AECOM**

Date: March 2010



**Ridgecrest Solar Power Project  
Figure R-1**

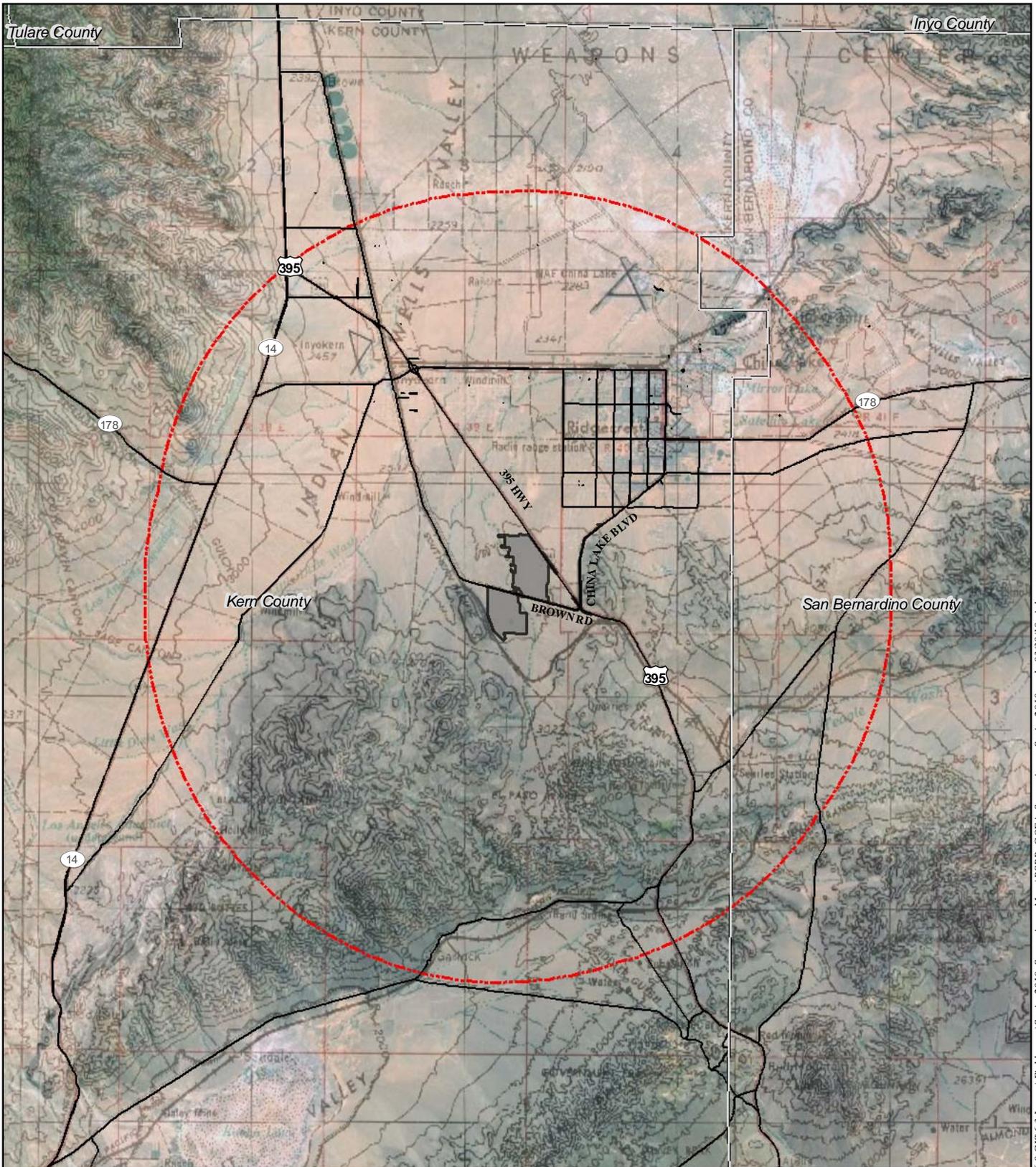
**DT Survey Areas  
Spring 2010**

Source: NAIP 2009; AECOM 2010

1 inch = 3,500 feet

**AECOM**

Date: March 2010



**Legend**

- Reconfigured Disturbance Area (March 2010)
- Disturbance Area 10-mile Buffer

0 4 8 Miles

**Ridgecrest Solar Power Project**  
**Figure R-5**

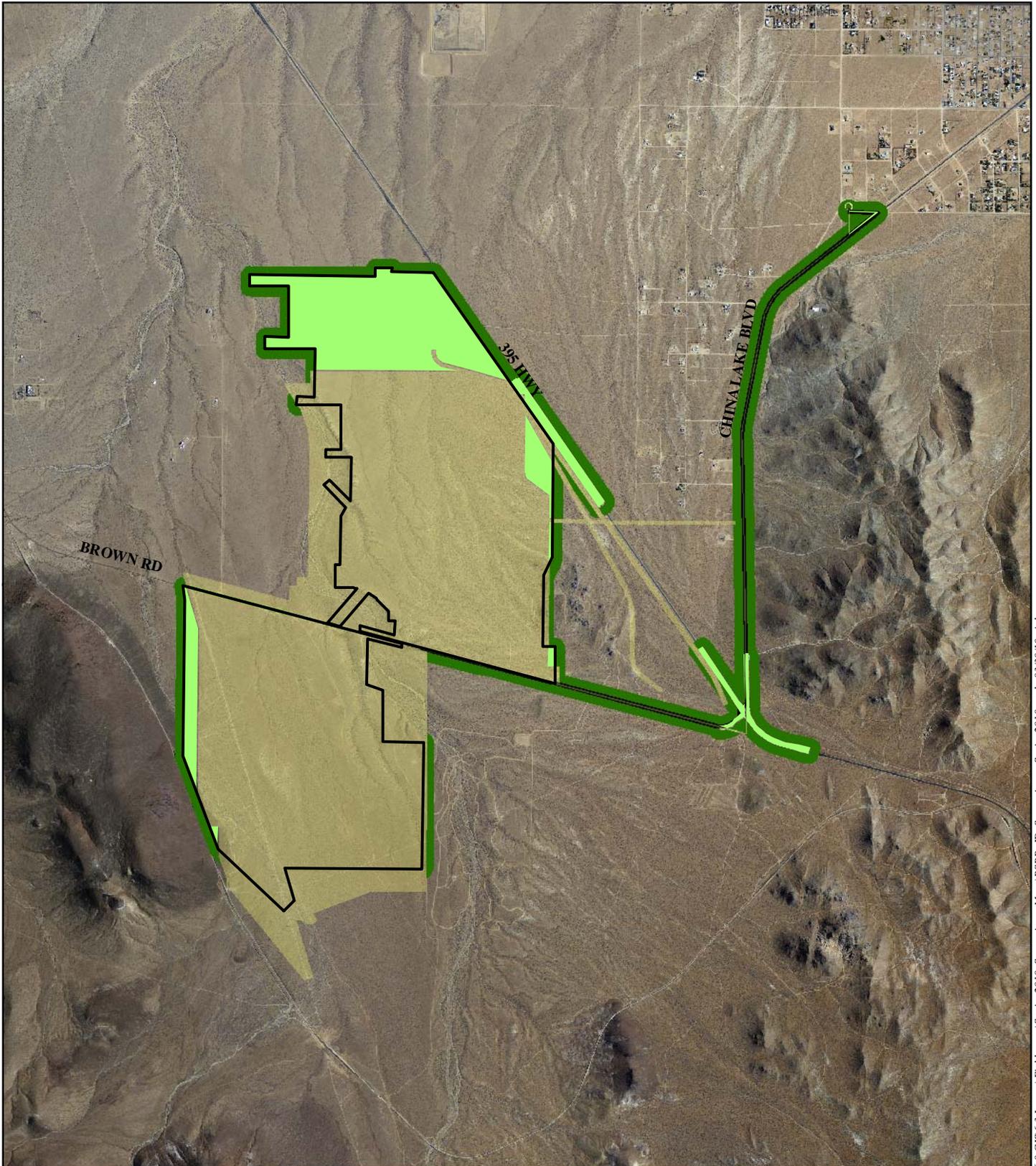
**GOEA Survey Areas**  
**Spring 2010**

Source: NAIP 2009; AECOM 2010

1 inch = 4 miles

**AECOM**

Date: March 2010



**Legend**

- Reconfigured Disturbance Area (March 2010)
- Survey Extent (2009)
- Survey Areas (Spring 2010)
- Buffer Survey Areas (Spring 2010)

0 3,500 7,000 Feet

**Ridgecrest Solar Power Project**  
**Figure R-4**

**State Waters Survey Areas**  
**Spring 2010**

Source: NAIP 2009; AECOM 2010

1 inch = 3,500 feet

**AECOM**

Date: March 2010