

**BEACON SOLAR ENERGY PROJECT (08-AFC-02)  
CEC STAFF DATA REQUEST NUMBERS 71-78**

**Technical Area: Biological Resources**

**Response Date: October 13, 2008**

**Data Request 71:**

Please provide a detailed discussion of the design of the rerouted desert wash and clarify any discrepancies and inconsistencies between information in the AFC and the July 16, 2008 Data Response #17.

**Response:**

Information in response to this comment was included in Applicant's Supplemental Data Responses to CEC Staff Data Request Set 1, submitted on August 18, 2008; please see Page BR-1 and BR-2. As indicated in these Supplemental Data Responses on pages BR-1 and BR-2, the conceptual design of the rerouted wash has been revised to provide unlined sections. Please see sheets C1 through C7 included in Attachment DR-45 of the Supplemental Data Request Responses, submitted to the California Energy Commission (CEC) on August 18, 2008 that show the revised design of the re-routed wash.

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**Data Request 72:**

Please provide a revised Drainage Study and channel design that would create the appropriate conditions in the proposed rerouted desert wash to promote natural hydrological/geomorphological processes and establish native vegetation.

**Response:**

Information in response to this comment was included in Applicant's Supplemental Data Responses to CEC Staff Data Request Set 1, submitted on August 18, 2008; please see Page BR-1 and BR-2. As indicated in these Supplemental Data Responses on pages BR-1 and BR-2, the conceptual design of the rerouted wash has been revised to provide unlined sections. Please see sheets C1 through C7 included in Attachment DR-45 of the Supplemental Data Request Responses, submitted to the CEC on August 18, 2008 that show the revised design of the rerouted wash.

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**Data Request 73:**

With respect to the reference on page BR-7, please discuss the frequency and duration of biological monitoring (via cameras, human observers, etc.) that has occurred at Harper Lake SEGS.

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**Response:**

As described in the Harper Lake SEGS Biological Resource Mitigation Implementation Plan (BRMIP) Compliance Reports (2<sup>nd</sup> Quarter 2002 to 2<sup>nd</sup> Quarter 2008), the following monitoring activities were conducted at Harper Lake SEGS areas VIII and IX.

Weekly Monitoring

Weekly monitoring began in 1989/1990 at the beginning of facility operations; however, the following discussion is based on the monitoring events conducted from April 6, 2002, to June 28, 2008. Quarterly reports summarizing both the weekly and monthly monitoring events were obtained from Glen King, Environmental Compliance Manager at Harper Lake SEGS. Weekly evaporation pond bird monitoring was performed as required by the BRMIP for Harper Lake SEGS.

Visual monitoring was the primary method of observation and was conducted by vehicle or on foot. Surveys were conducted by one to two environmental compliance monitors and occurred for a duration of 15 minutes to one hour, although the average survey length was 30 minutes. The weekly surveys were conducted sometime between 0700 and 1300 hours. Most of the surveys were completed before 1100 hours.

Each survey documented the quantity of birds observed for four bird type categories: waterfowl (e.g., ducks and geese), water birds (e.g., herons and gulls), small shorebirds (e.g., sandpipers and killdeer), and large shorebirds (e.g., avocets and stilts). Birds were not identified by genus or species. The quantity of birds in each category was documented for each of the three ponds. If sick, injured, or nesting birds were identified, then the bird species, the location relative to the evaporation ponds, and any other pertinent information were documented.

The date and survey start and stop time were recorded in addition to general site conditions, including air temperature, cloud cover, precipitation, and wind. The surveyor(s) also recorded the water level for each evaporation pond as well as any notable damage to the dikes, liners, or fences surrounding the evaporation ponds. The results of the weekly monitoring events were summarized in the quarterly BRMIP Compliance Reports.

Quarterly Monitoring

Quarterly evaporation pond bird surveys were conducted for Harper Lake SEGS by contract biologists beginning in 1989/1990 at the start of facility operations and continuing today. Reports for quarterly monitoring were reviewed from 2<sup>nd</sup> Quarter 2002 through 2<sup>nd</sup> Quarter 2008. The results were summarized and submitted in a "Memorandum for the Record," and were further summarized in the quarterly BRMIP Compliance Reports.

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Each quarterly survey event included four consecutive sessions (two morning and two evening sessions) over the course of two days. Morning surveys began no later than one hour after sunrise and evening surveys ended approximately one hour before sunset. Surveyors (usually one) drove or walked the perimeter of each pond and recorded observations. Both binoculars and a spotting scope were used to assist in the detection and identification of bird species. Each pond was surveyed independently with the survey time ranging anywhere from five minutes to 60 minutes depending on the size of the pond, weather conditions, and the quantity of bird species and individuals observed.

Unlike the weekly surveys, bird species was recorded for all observations (not just bird type) in addition to the quantity observed. As with the weekly surveys, sick, injured, or nesting birds were identified along with the location relative to the evaporation ponds and any other pertinent information. In addition, the date and survey start and stop time were recorded as well as general site conditions including air temperature, cloud cover, precipitation, and wind. The surveyor(s) also recorded the water level for each evaporation pond as well as any notable damage to the dikes, liners, or fences surrounding the evaporation ponds.

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**Data Request 74:**

Please explain the method and frequency for equalizing water in all evaporation ponds.

**Response:**

It is undesirable to maintain low quantities of water in the Beacon Solar Energy Project (BSEP) ponds because shallow water could result in an increase in pond salinity and could potentially attract wading birds. Therefore, the wastewater discharge to the ponds will be managed to maintain a minimum water level of one foot in all active evaporation ponds (i.e., during periods when ponds are not dry).

The BSEP pond system was designed based on a calculated monthly water balance between plant wastewater discharge and evaporation. In designing the ponds, the average monthly wastewater discharge and average monthly evaporation, based on local meteorological data, were used to calculate a design pond surface area that would result in the ponds theoretically drying out at least once each year. (It is important to note that while these calculations form the design basis for a properly functioning evaporation pond, they are an approximation and the actual volume of water in the ponds at any given time will vary with actual climatic conditions.) The analysis on which the pond design was based indicates that during the months of October through February, less water is generally needed for the cooling towers, and the predicted evaporation, if all three ponds are used, exceeds the volume of water discharged to the ponds by approximately one to two million gallons per month. During the remainder of the year, the volume of water discharged and the evaporation rates (using all three ponds) are in closer equilibrium.

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As a result, the ponds will contain varying quantities of water throughout the year and may be dry some of the time.

Based on the above evaluation, wastewater will be actively discharged to all three ponds at an equal rate during much of the year, but, as described below, the discharge will be managed during other times of the year to dilute and maintain higher water levels in some ponds while the other, inactive, ponds are allowed to go dry. As part of the evaporation pond water quality monitoring plan, each actively used evaporation pond will be outfitted with a level gauge for daily water level measurements, a hydrometer for daily salinity measurements, and a direct reading thermometer with the temperature data recorded at least diurnally. During periods when evaporation significantly exceeds discharge and pond water levels drop below an initial threshold of one foot in depth,<sup>1</sup> the Environmental Compliance Monitor (ECM) will route the wastewater discharge to only one or two of the ponds as needed to maintain the water levels above a depth of one foot in those ponds. The water in the inactive pond(s) will be pumped into the active pond(s) to allow the inactive pond to quickly dry up. In addition, if the average overnight water temperature in the active evaporation ponds is at or below 4 degrees Celsius (Woebser and Howard, 1987; Gordus et al., 2002), the ECM will conduct a visual survey of the ponds immediately the following morning. If the ECM observes evidence of recent increases in salt crystallization anywhere within the pond(s) (e.g., at or near the waterline), the ECM will route all of the wastewater into one or two ponds and pump the remaining pond(s) dry as noted above.

Calculations were performed for several pond management scenarios and indicate the ponds can be managed to maintain the water levels at depths equal to or greater than one foot but below the minimum pond freeboard requirement of two feet by initially filling the ponds one at a time and then periodically rotating the ponds to which the discharge is routed during the periods of managed discharge. In the event that climatic conditions are such that evaporation must be increased to maintain pond levels below the freeboard limits, evaporative disposal nozzles (see for example <http://www.bete.com/applications/disposal.html>) will be used to increase wastewater evaporation rates. Data from the evaporation pond water quality monitoring program, once the facility is in operation, will be used to adapt the pond discharge management approach to best meet the objective of avian protection and may suggest additional pond management practices.

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<sup>1</sup> One foot was selected as the starting threshold for implementation of flow management based on best professional judgment to minimize the potential for pond use by wading birds and balance dilution of salinity with the need to maintain adequate evaporation rates for water disposal. It should be noted that a particular salinity threshold has not been established at this time, and the salinity that corresponds with a one-foot pond depth has not been established. Pond depth, temperature, and water quality data gathered during implementation of the evaporation pond monitoring program will be used to better define and adjust pond operating thresholds, as warranted.

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**Data Request 75:**

Please provide a chronology of the summer 2007 waterfowl deaths and the factors leading to the conclusion that equalizing water levels in each evaporation pond would prevent recurrences of salt toxicosis.

**Response:**

The following table summarizes the chronology of waterfowl deaths recorded in the summer of 2007 at Harper Lake SEGS, based on the quarterly Harper Lake SEGS BRMIP Compliance Reports. This information was collected from the 3<sup>rd</sup> quarter monitoring report and includes the months of July through September 2007. No sick or dead birds were observed during the 1<sup>st</sup> or 2<sup>nd</sup> quarter of 2007.

Scientific Name	Common Name	Date Observed	Quantity	Pond Location
<i>Anas acuta</i>	Northern pintail	August 22, 2007	1	VIII West Pond (Pond A)
<i>Anas acuta</i>	Northern pintail	August 24, 2007	1	VIII West Pond (Pond A)
<i>Anas clypeata</i>	Northern shoveler	August 24, 2007	10	VIII West Pond (Pond A)
<i>Unidentified</i>	unknown	August 24, 2007	3	VIII West Pond (Pond A)
<i>Anas clypeata</i>	Northern shoveler	August 31, 2007	2	VIII West Pond (Pond A or B)*
<i>Oxyura jamaicensis</i>	Ruddy duck	August 31, 2007	1	VIII West Pond (Pond A or B)*
<i>Aythya americana</i>	Redhead duck	September 7, 2007	1	VIII West Pond (Pond A)

\* Three dead ducks were reported on August 31, 2007 (two northern shovelers and one ruddy duck); however, the exact pond location was not described, only that two ducks were collected from Pond A and one duck was collected from Pond B.

Harper Lake SEGS personnel contacted the Designated Biologist immediately after the discovery of bird remains at the evaporation ponds. The Project Biologist verified the species and determined if there were any additional reporting requirements (e.g., a state-listed species). A total of 19 salt-encrusted waterfowl (3 unverified) were found dead at the evaporation ponds in the late summer of 2007. All but one bird was collected from the VIII West Pond A. One bird was collected from VIII West Pond B; however, the report does not distinguish which species (northern shoveler or ruddy duck). On August 27, 2007, the Project Biologist (Richard Erickson, LSA Associates) collected 11 carcasses from the Harper Lake SEGS facility and delivered them to the San Bernardino Branch of the California Animal Health and Food Safety Laboratory for

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analysis. A final report submitted on September 17, 2007 by Dr. Francisco A. Uzal (Attachment 4 to the 2007, 3<sup>rd</sup> Quarter BRMIP Compliance Report) verified that the birds had died of salt toxicity. He stated that “the high level of sodium detected in the brains of five ducks tested confirmed a diagnosis of salt toxicity.”

It had been noted that the water level in the VIII West Pond had been reduced to an unusually low level from late August and into early September, which most likely resulted in higher than normal salinity levels. In reviewing data from Regional Water Quality Control Board waste discharge reports, the TDS concentration in composite samples from the ponds during this period was approximately 250,000 mg/L, based on May and December semiannual monitoring events. It is therefore suspected that TDS concentrations in the SEGS VIII West pond would be higher than 250,000 mg/L. As stated by the Project Biologist (cover letter and Attachment 4 to the 2007 3<sup>rd</sup> Quarter BRMIP Compliance Report), lowering of water levels is thought to have contributed to the entrapment and subsequent death of these birds.

In late October 2007, six more bird mortalities were discovered at the evaporation ponds (see table below). No evidence is available to suggest that these deaths are related to salt toxicosis; however, no autopsies or other analyses were reported that identified the cause of death in the quarterly report.

<b>Scientific Name</b>	<b>Common Name</b>	<b>Date Observed</b>	<b>Quantity</b>	<b>Pond Location</b>
<i>Oxyura jamaicensis</i>	Ruddy duck	October 22, 2007	4	VIII East Pond B
<i>Aythya collaris</i>	Ring-necked Duck	October 23, 2007	1	VIII East Pond B
<i>Aythya affinis</i>	Lesser Scaup	October 24, 2007	1	VIII East Pond B

Following the fall bird mortality event, the water levels in the Harper Lake SEGS ponds were increased using blow-down water from the cooling system. No additional bird mortalities occurred following the increase in water volume. Harper Lake SEGS has continued to manage pond water levels to prevent low levels that could result in unusually high TDS concentrations. No additional bird mortalities have been documented.

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**Data Request 76:**

Please provide data on migratory bird activity at Harper Lake SEGS in the months subsequent to the summer 2007 events.

**Response:**

The following is a summary of migratory bird activity recorded during the Harper Lake SEGS quarterly monitoring events in the months subsequent to the summer 2007 bird mortalities,

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including the 4<sup>th</sup> Quarter of 2007 (October – December 2007) and the 1<sup>st</sup> and 2<sup>nd</sup> Quarter of 2008 (January – June 2008). Data have been presented for the weekly reports but are not discussed in detail as the sighted birds are grouped into bird type categories (waterfowl, water birds, small shorebirds, and large shorebirds) with no genus or species-specific identification recorded (unless bird mortality occurs).

The following table summarizes the migratory bird activity documented during the Harper Lake SEGS 4<sup>th</sup> Quarter 2007 (November) quarterly monitoring event.

Scientific Name	Common Name	Count*	Comments
<b>4<sup>th</sup> Quarter 2007 (November 28-29, 2007)</b>			
<i>Anas clypeata</i>	Northern shoveler	33	-
<i>Branta canadensis</i>	Canada goose	6	-
<i>Podiceps nigricollis</i>	Eared grebe	2	-
<i>Calidris minutilla</i>	Least sandpiper	2	-
<i>Larus delawarensis</i>	Ring-billed gull	1	-
<i>Gavia pacifica</i>	Pacific loon	1	More likely a common loon, <i>Gavia immer</i> , based on Project Biologist
Total Number Based on Highest Count		45	

\* In an effort to avoid double counting birds moving between ponds, the count represents the greatest number of individuals counted during any single monitoring session.

The following table summarizes the migratory bird activity documented during the Harper Lake SEGS 1<sup>st</sup> Quarter 2008 (March) quarterly monitoring event.

Scientific Name	Common Name	Count*	Comments
<b>1<sup>st</sup> Quarter 2008 (March 12-13, 2008)</b>			
<i>Larus californicus</i>	California gull	67	-
<i>Larus delawarensis</i>	Ring-billed gull	27	-
<i>Recurvirostra american</i>	American avocet	3	-
<i>Stelgidopteryx serripennis</i>	Northern rough-winged swallow	3	-
<i>Charadrius vociferus</i>	Killdeer	2	-
<i>Anas cyanoptera</i>	Cinnamon teal	1	-
Total Number Based on Highest Count		103	

\* In an effort to avoid double counting birds moving between ponds, the count represents the greatest number of individuals counted during any single monitoring session.

Five of the six species observed during the 1<sup>st</sup> Quarter 2008 (March) monitoring event were not observed during the 4<sup>th</sup> Quarter 2007 (November) monitoring event. These are the California gull (*Larus californicus*), American avocet (*Recurvirostra american*), rough-winged swallow

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(*Stelgidopteryx serripennis*), killdeer (*Charadrius vociferous*), and cinnamon teal. Conversely, five species that were recorded in the 4<sup>th</sup> Quarter 2007 (November) monitoring event were not observed in the 1<sup>st</sup> Quarter 2008 (March) monitoring event: northern shoveler (*Anas clypeata*), Pacific loon, eared grebe, least sandpiper, and Canada goose. For comparison, in the 2007, 1<sup>st</sup> Quarter monitoring event 18 species of birds were observed compared to six species in 2008.

The following table summarizes the migratory bird activity documented during the Harper Lake SEGS 2nd Quarter 2008 (June) quarterly monitoring event.

<b>Scientific Name</b>	<b>Common Name</b>	<b>Count*</b>	<b>Comments</b>
<b>2<sup>nd</sup> Quarter 2008 (June 18-19, 2008)</b>			
<i>Larus californicus</i>	California gull	27	-
<i>Phalaropus tricolor</i>	Wilson's phalarope	26	-
<i>Recurvirostra americana</i>	American avocet	5	-
<i>Himantopus mexicanus</i>	Black-necked stilt	5	-
<i>Anas discors</i>	Blue-winged teal	2	-
<i>Anas cyanoptera</i>	Cinnamon teal	2	-
<b>Total Number Based on Highest Count</b>		<b>67</b>	

\* In an effort to avoid double counting birds moving between ponds, the count represents the greatest number of individuals counted during any single monitoring session.

Three of the six species observed during the 2nd Quarter 2008 (June) monitoring event were not observed during the 1<sup>st</sup> Quarter 2008 (March) monitoring event. These are the Wilson's phalarope, black-necked stilt (*Himantopus mexicanus*), and blue-winged teal (*Anas discors*). Conversely, three species that were recorded in the 1<sup>st</sup> Quarter 2008 (March) monitoring event were not observed in the 2nd Quarter 2008 (June) monitoring event: ring-billed gull, killdeer, and rough-winged swallow. For comparison, in the 2007, 2<sup>nd</sup> Quarter monitoring event nine species of birds were observed compared to six in 2008.

The following table summarizes the weekly bird activity documented from the 4<sup>th</sup> Quarter 2007 to the 2<sup>nd</sup> Quarter 2008 (October 2007 – June 2008). As mentioned above, no species-specific data are recorded during the weekly surveys. The total number of birds recorded for each bird type category and the total number of birds observed for each sampling date are presented below.

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Date	Survey Start Time	Bird Type Categories (No. Observed)				Total
		Water Fowl (e.g., ducks and geese)	Water Birds (e.g., herons and stilts)	Small Shorebirds (e.g., sandpipers and killdeer)	Large Shorebirds (e.g., avocets and stilts)	
<b>4<sup>th</sup> Quarter 2007, Weekly Survey Results</b>						
October 6, 2007	1400	12	7	0	0	19
October 13, 2007	0734	13	0	0	0	13
October 20, 2007	0908	0	0	0	0	0
October 27, 2007	1041	8	0	0	0	8
November 3, 2007	0736	0	0	0	0	0
November 10, 2007	0645	0	0	0	0	0
November 17, 2007	0630	1	0	0	0	1
November 24, 2007	0700	9	1	0	0	10
December 1, 2008	0800	0	0	0	0	0
December 8, 2007	0930	0	0	0	0	0
December 15, 2007	0835	2	0	6	2	10
December 21, 2008	0750	0	0	6	7	13
December 29, 2008	0810	0	0	0	0	0
<b>4<sup>th</sup> Quarter 2007 Total</b>		<b>45</b>	<b>8</b>	<b>12</b>	<b>9</b>	<b>74</b>
<b>1<sup>st</sup> Quarter 2008, Weekly Survey Results</b>						
January 5, 2008	0840	0	0	10	0	10
January 12, 2008	0650	0	0	25	1	26
January 19, 2008	0850	7	0	14	1	22
January 26, 2008	0800	0	0	18	0	18
February 2, 2008	0810	0	3	34	0	37
February 9, 2008	0708	14	0	0	0	14
February 16, 2008	0848	11	0	0	0	11
February 23, 2008	0640	0	0	0	0	0
March 1, 2008	0730	0	0	0	0	0
March 8, 2008	0905	0	3	0	8	11
March 15, 2008	0905	0	0	3	2	5
March 22, 2008	0702	24	0	0	1	25
March 29, 2008	0920	1	0	0	0	1
<b>1<sup>st</sup> Quarter 2008 Total</b>		<b>57</b>	<b>6</b>	<b>104</b>	<b>13</b>	<b>180</b>

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Date	Survey Start Time	Bird Type Categories (No. Observed)				Total
		Water Fowl (e.g., ducks and geese)	Water Birds (e.g., herons and stilts)	Small Shorebirds (e.g., sandpipers and killdeer)	Large Shorebirds (e.g., avocets and stilts)	
<b>2<sup>nd</sup> Quarter 2008, Weekly Survey Results</b>						
April 5, 2008	0745	2	3	0	0	5
April 12, 2008	0730	7	0	0	3	10
April 19, 2008	0730	7	4	0	0	11
April 26, 2008	0630	0	0	25	21	46
May 3, 2008	0921	1	0	15	3	19
May 10, 2008	0632	2	1	23	4	30
May 17, 2008	0620	16	0	28	6	50
May 24, 2008	0855	11	24	9	0	44
May 31, 2008	0653	2	44	0	0	46
June 7, 2008	0648	21	4	2	0	27
June 14, 2008	0720	0	26	0	0	26
June 21, 2008	1048	0	21	0	1	22
June 26, 2008	0835	0	19	17	0	36
<b>2<sup>nd</sup> Quarter 2008 Total</b>		<b>69</b>	<b>146</b>	<b>119</b>	<b>38</b>	<b>372</b>

In reviewing migratory bird activity at Harper Lake SEGS, it is important to note that the Harper Lake SEGS site is located near an existing marsh that would be expected to attract greater numbers of birds than BSEP throughout the life of the project due to the proximity to this resource.

**Data Request 77:**

Please provide electronic copies of the references that support the proposed compensation ratios for the Mohave ground squirrel and desert tortoise.

**Response:**

Electronic copies of the reference documents that pertain to the Mohave ground squirrel density estimate (described on page BR-17), and the desert tortoise density estimate, were provided electronically by Jennifer Guigliano, EDAW, to the CEC by email to Shaelyn Stratton and Susan Sanders on September 29, 2008. References provided include:

1. Berry, K.H., 1997. Demographic Consequences of Disease in Two Desert Tortoise Populations in California, USA. Proceedings: Conservation, Restoration, and Management of Tortoises and Turtles—An International Conference, pp. 91–99.

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2. Harris, J.H. and P. Leitner, 2004. Home-range Size and Use of Space by Adult Mohave Ground Squirrels, *Spermophilus mohavensis*. Journal of Mammalogy, 85(3):517-523.
3. Harris, J.H. and P. Leitner, 2005. Long-distance Movement of Juvenile Mohave Ground Squirrels, *Spermophilus mohavensis*. The Southwestern Naturalist, 50(2):188–196.

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**Data Request 78:**

Please provide additional detailed, site-specific information as to how and where owls would be relocated off-site and how lands would be managed in the vicinity of the site for long-term preservation of this species. This relocation/preservation plan should reflect close coordination with the California Department of Fish and Game and the U.S. Fish and Wildlife Service and should include the following elements:

- a. A figure depicting the location of the off-site relocation area at a scale no less than 1 inch = 1000 feet;
- b. A description of the ownership of the relocation area, an assessment of habitat suitability of the area for burrowing owls, and a discussion of proposed management of habitat within the relocation site;
- c. A description of how lands would be managed near the Plant to promote long-term maintenance of a viable burrowing owl population; and
- d. A figure, at a scale of no less than 1 inch = 1000 feet, depicting the areas that would be subject to burrowing owl management.

**Response:**

Management of burrowing owls will consist of two activities: (1) passive relocation of owls from the construction area, and (2) acquisition of offsite lands suitable for burrowing owl. The purpose of the passive relocation is to avoid direct impacts to any onsite burrowing owls from the proposed Project. Mitigation for the loss of burrowing owl habitat on the Project site will be offset by the acquisition of suitable burrowing owl habitat offsite.

The Project proposes the passive relocation of onsite burrowing owls to artificial burrows located off site. The artificial burrows will be located within a 14.39-acre parcel under the control of Beacon Solar, LLC. (Beacon) (Assessors Parcel Number [APN] 469-14-011), located just outside of the Plant Site boundary, east of State Route 14 (SR-14) and north of the facility access road (Figure BR78-1). The proposed relocation area is characterized by Mojave creosote scrub (*Chrysothamnus nauseosus*, dominant). Two potential burrowing owl burrows were identified in

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the area during the spring 2007 and 2008 biological resource surveys, although neither was active and there was no burrowing owl sign associated with the burrows. One burrowing owl was observed immediately south of this area, inside the Project boundary. Figure BR78-1 shows a portion of the 14.39-acre parcel controlled by Beacon, proposed for artificial burrows construction in support of passive relocation. A thorough discussion of the proposed passive relocation effort was included with the Supplemental Response to CEC Staff Data Request No. 20 submitted on August 18, 2008.

To support protection and conservation of the burrowing owl within the relocation area, Beacon has agreed to establish a conservation easement over approximately six (6) acres of the parcel located north of the access road and east of SR-14 to protect the lands in perpetuity (Figure BR78-1). A total of four (4) artificial burrows will be constructed in this area to facilitate passive relocation of two pairs of burrowing owls identified previously on the Plant Site. The artificial burrows will be constructed as close to the northern border of the parcel as feasible to maximize distance between construction areas and the access road in an effort to decrease indirect disturbance and increase the potential for occupancy by burrowing owls.

The area will be surveyed for burrowing owls prior to construction of the artificial burrows to evaluate the baseline conditions and burrowing owl presence/absence. Following relocation efforts, the conservation area will be surveyed for one year, during spring and winter seasons, to evaluate use of burrows. Surveys will follow the protocol survey methodology for surveys (to include Phase II and III) identified in the Burrowing Owl Consortium Guidelines.

In addition, Beacon will conduct ongoing maintenance and monitoring of the conservation area for exotic weed control for a 5-year period following construction of the burrows.

In addition to the passive relocation to avoid direct impacts, Beacon will mitigate for the loss of burrowing owl habitat by the acquisition and preservation of land offsite. The offsite mitigation lands will include the six acres adjacent to the Project area that will be placed into a conservation easement to protect the relocation area and artificial burrows; however, additional acreage will be acquired at a second location, to be determined, to ensure that a minimum of a total of 20 acres will be purchased and managed to mitigate for the loss of two pairs of burrowing owls on site. A thorough discussion of proposed compensatory mitigation lands and proposed management of offsite mitigation areas can be found in the Supplemental Response to CEC Staff Data Request No. 18 (August 18, 2008). Additional information on criteria for offsite mitigation lands is provided below.

**Location and characteristics of lands proposed for compensatory mitigation.**

The following qualitative criteria for compensation lands will facilitate optimum compensation for the loss of occupied habitat at BSEP. This information would be applicable to the burrowing owl in addition to the desert tortoise (DT) and Mohave ground squirrel (MGS).

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1. Compensation lands should be part of a larger block of lands that are either already protected or planned for protection (e.g., the Desert Tortoise Research Natural Area [DTNA] and its proposed expansion area), or feasibly could be protected by a public resource agency (e.g., California Department of Fish and Game [CDFG]) or a private biological reserve organization (e.g., the Desert Tortoise Preserve Committee [DTPC]).
2. Parcels should have inherently moderate to good habitat that is likely to regenerate naturally when current disturbances are removed. Parcels should not be subject to such intensive recreational, grazing, or other uses that recovery is rendered unlikely or lengthy. Nor should those invasive species that are likely to jeopardize habitat recovery (e.g., Saharan mustard [*Brassica tournefortii*]) be present in uncontrollable numbers, either on or immediately adjacent to the parcels under consideration.
3. Parcels should provide habitat that is as good or better than the habitat being impacted by the Project. Preferably, the lands would comprise sufficiently good habitat that they are either currently occupied or will likely be occupied by the three species once they are protected from anthropogenic impacts and/or otherwise enhanced.
4. The parcels should be connected to known, occupied lands. Preferably, the existing population on these occupied lands would represent a population that is stable, recovering, or likely to recover.

To meet these objectives for acquiring compensation lands, the Project has initially focused on the region east of the Project area, in the vicinity west of the DTNA. This region was targeted for potential acquisition because (1) it achieves all of the goals identified above, (2) has the potential to support the same suite of high-profile special status species that are present on or adjacent to the BSEP, and (3) is within the same geographic area as the populations of special-status species at or near BSEP. Within this area are lands that adjoin the DTNA and are in the DTNA expansion area targeted by the DTPC. Acquisition of lands here would incorporate them into the protection and management program for the entire preserve. This consolidation of lands would increase the block of protected, high-quality habitat currently provided by the DTNA, an important conservation and recovery measure for all three special species in question. Furthermore, as land ownership would be ultimately transferred to CDFG or the DTPC, this action would be consistent with Objective No. 1 of the DTNA Management Plan's *Goals and Objectives*, which promotes protection, conservation, and enhancement of habitat in and around the DTNA. To the extent that land cannot be acquired in this particular area due to availability or cost, other areas as similar as possible to the area surrounding the DTNA will be pursued.

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While the BSEP team has begun identifying the location and characteristics of lands that could be used for compensatory mitigation, the acquisition of compensation lands is dependent upon all parties agreeing upon the number of acres that need to be acquired, since that can affect availability and cost. The ultimate goal is to acquire compensatory lands that would offset the loss of the biological values associated with construction and operation of the BSEP that cannot be completely addressed on site. Species specialists who are knowledgeable about the habitat requirements of DT, MGS, and burrowing owl would evaluate candidate properties. As potential compensatory lands are identified, the BSEP team, or third party approved by the agencies, would coordinate closely with the CEC, CDFG, and U.S. Fish and Wildlife Service to obtain consensus that the targeted lands are suitable. A Property Analysis Record (PAR), or a PAR-like analysis, would be conducted on compensation lands that are provisionally acceptable to both BSEP and the resource agencies or are similar to lands likely to be acquired. The PAR would model the anticipated costs associated with the acquisition of land, as well as management expenses (e.g., fencing, habitat enhancement, monitoring, etc.), while accounting for escalation in costs associated with inflation. The result of the PAR model would be an accurate estimate of the long-term endowment costs that would be required to fully implement all compensation measures. The funding associated with the PAR was addressed in the response to Data Request 25.

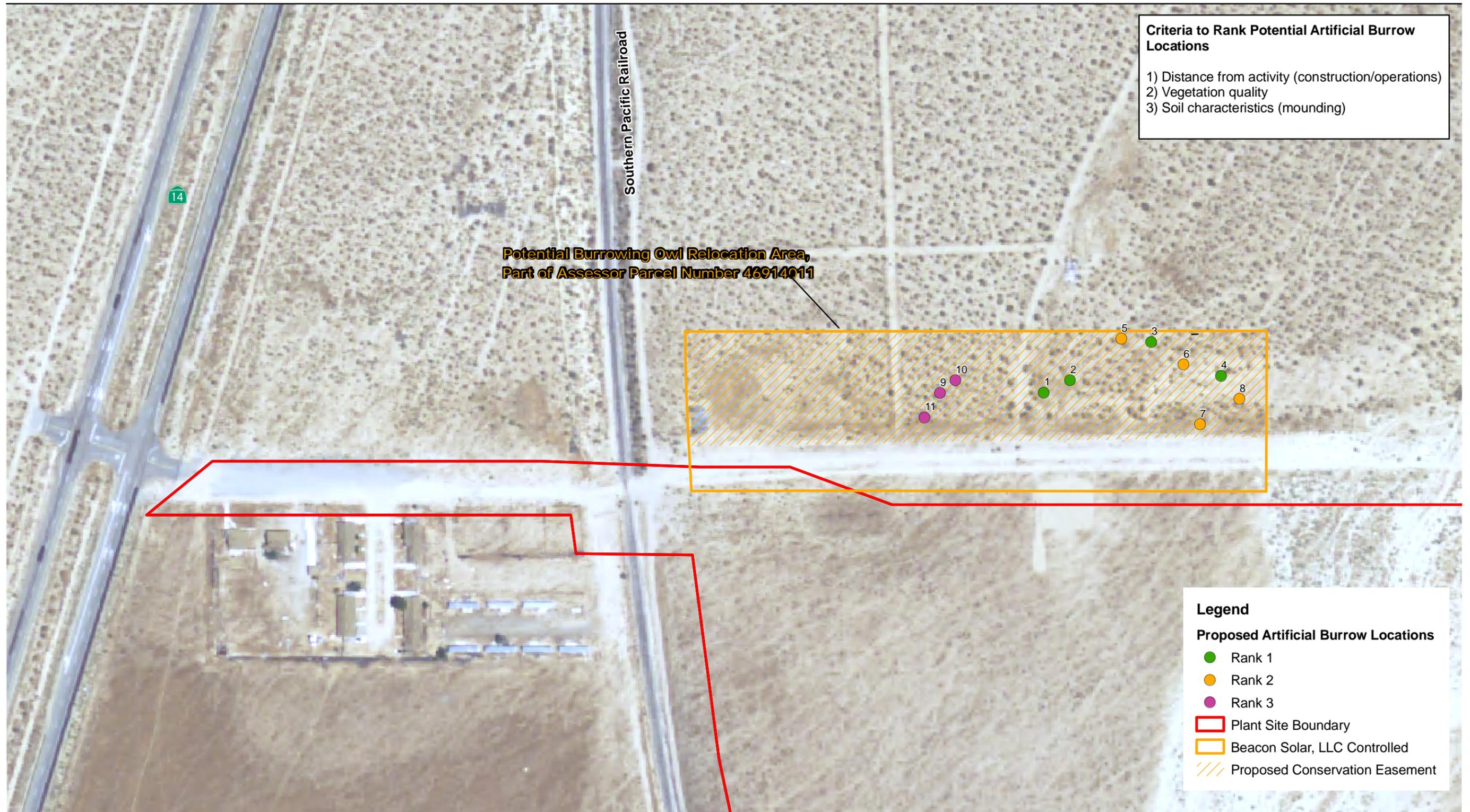
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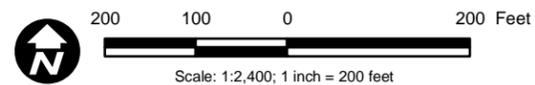
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Source: NAIP 2005, Kern County 2007



**Figure BR78-1**  
**Burrowing Owl Map**