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CH2MHILL

March 5, 2012

427930.DI.DR

Mike Monasmith
Senior Project Manager
Systems Assessment & Facility Siting Division
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814

Subject: Data Response, Set 1B-4
Hidden Hills Solar Electric Generating System (11-AFC-2)

Dear Mr. Monasmith:

On behalf of Hidden Hills Solar I, LLC; and Hidden Hills Solar II, LLC, please find attached electronic copies of Data Response, Set 1B-4, which provides the following documents:

- DR52-1 Hidden Hills January 2012 Golden Eagle Use Survey (Technical Memorandum)
- DR55-2 Hidden Hills SEGS Winter 2012 Bat Survey (Technical Memorandum)
- DR59-1 Hidden Hills SEGS Winter 2012 Burrowing Owl Survey (Technical Memorandum)

Hard copies will be sent out tomorrow. Please call me if you have any questions.

Sincerely,

CH2M HILL

John L. Carrier, J.D.
Program Manager

Encl.

c: POS List
Project file

Data Response 1B-4

Hidden Hills

Solar Electric Generating System

(11-AFC-2)

Application for Certification

Hidden Hills Solar I, LLC; and Hidden Hills Solar II, LLC

March 2012

With Technical Assistance from

CH2MHILL®

IS061411043744SAC

Hidden Hills Solar Electric Generating System (HHSEGS)

(11-AFC-2)

Data Response, Set 1B-4
(Responses to Data Requests 52, 55 and 59)

Submitted to the

California Energy Commission

Submitted by

Hidden Hills Solar I, LLC; and
Hidden Hills Solar II, LLC

March 5, 2012

With Assistance from

CH2MHILL
2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833

Contents

Introduction

Attached are Hidden Hills Solar I, LLC, and Hidden Hills Solar II, LLC (collectively, "Applicant") additional responses to the California Energy Commission (CEC) Staff's data requests numbers 52, 55 and 59 for the Hidden Hills Solar Electric Generating System (HHSEGS) Project (11-AFC-2). The CEC Staff served these data requests on November 4, 2011. The responses are presented in numerical order.

Additional documents (e.g., Attachments) submitted in response to a data request are grouped together at the end of this document and are also numbered to match the data request number. The attachments are also in numerical order.

Biological Resources (52, 55 and 59)

GOLDEN EAGLE

BACKGROUND: Due to recent changes in the U.S. Fish and Wildlife Service's (USFWS) survey protocols and management of golden eagle, staff needs additional information on the occurrence of golden eagle nests within the project area. The applicant's golden eagle surveys provided in Appendix 5.2D of the AFC did not completely follow the most recent survey protocol for this species, *Interim Golden Eagle Inventory and Monitoring Protocols and other Recommendations* (Pagel et al 2010). Staff contacted USFWS Migratory Bird Program staff (Heather Beeler) on September 6, 2011, and learned that helicopter surveys were highly recommended for this project and if there were conflicts with bighorn sheep lambing season, helicopter surveys could be flown prior to the lambing season to ensure all potential eagle nests are located. Staff also learned that upon completion of the helicopter survey, ground surveys could be conducted for the identified nest locations. Heather Beeler also indicated the applicant's golden eagle surveys included in Appendix 5.2D suffice as a preliminary, reconnaissance-level survey effort but are not thorough enough to draw any conclusions about eagle use of the project area during the breeding season or throughout the year. At staff's request, the applicant contacted Heather Beeler on September 7, 2011, to clarify aerial and ground survey needs and appropriate survey timing for golden eagles for this project.

Based on consultation with resource agencies, previous Energy Commission siting cases for large solar thermal projects in the Mojave Desert have considered a cumulative impact radius of 140 miles from the project site to golden eagle territories, since the local golden eagle population is defined as eagles that occur within the average natal dispersal distance of the nests under consideration (Pagel et al 2010). Heather Beeler also indicated that observational points are suggested for golden eagle migration data in which observers watch for golden eagle activity from fixed locations for a minimum of two hours to assess occurrence and habitat use of the project area by golden eagles; observational points are also useful to assess general raptor habitat use in the project area.

The following data requests are based on the preliminary agency conversations and guidance included in Records of Conversations provided by the applicant during Data Adequacy review (California Department Fish and Game (CDFG), Jeff Villepique; Sacramento USFWS, Heather Beeler; Ventura USFWS, Ashleigh Blackford; Nevada Department of Wildlife, Brad Hardenbrook).

DATA REQUEST

52. Once the agencies have approved the study proposal and the fall 2011 helicopter survey(s) has been completed, please provide staff a fall 2011 helicopter survey report that will include the "minimum data collected at

known golden eagle territories" identified in Pagel et al 2010 (See Section IX, Documentation and Accepted Notation). Once winter/spring 2012 ground surveys have been completed, please provide staff a complete Golden Eagle Study Report.

Response: Following agency guidance, golden eagle use studies were conducted mid-day during the winter avian point count surveys (December 20, 2011 and January 11, 2012). A technical memorandum providing the results of those surveys is provided as Attachment DR52-1.

EFFECTS OF POWER TOWERS ON BAT AND BIRD SPECIES

BACKGROUND: In the AFC and two supplements, the applicant addresses the potential for occurrence and project impacts to four bat species, two of which are BLM Sensitive and California Species of Concern, the pallid bat and Townsend's big-eared bat. The applicant identifies the site as supporting potentially suitable night-time foraging habitat for these species, but indicates the likelihood for use of the site for foraging is low due to distance of the project site from roost site occurrences being greater than their known foraging distances. The applicant states that bats or their sign were not observed during field surveys and the site does not provide suitable bat roost habitat, but does not describe the types of bat surveys conducted or how the determination was made that roost habitat does not occur on the project site.

The applicant relied primarily on CDFG's California Natural Diversity DataBase (CNDDB) occurrence information although that bat occurrence information may not be very complete since bat survey information is not commonly reported to the CNDDB. Four other special-status bat species identified as occurring within the Northern Eastern Mojave (NEMO) plan area were not addressed by the applicant as potentially occurring and include the occult little brown bat, western mastiff bat, spotted bat, and California leaf-nosed bat which are also identified as California Species of Concern.

Staff needs to analyze the potential for project impacts to roosting and foraging habitat of special-status bats. The applicant has indicated due to lack of roost habitat and low likelihood to forage onsite, impacts are expected to be less than significant and no mitigation would be necessary for special-status bat species. Based on a reconnaissance-level site visit performed by staff in March 2011 and review of aerial photography, staff believes the orchard trees and abandoned home structures located along the southern portion of the project may provide potential bat roost habitat. Based on a conference call between staff and other resource agencies on October 20, 2011, BLM field staff recommends two years of acoustic collection data to provide baseline data for projects on bat species occurrence and habitat use within the project area. Staff believes the site and surrounding area may provide bat roost and foraging habitat and a more in-depth field surveys and data are needed to determine an environmental baseline for determining the project's potential for impacts to special-status bats. While 2 years of data are requested, this will not impact the timeline of the staff's assessment documents. As mentioned previously, the USFWS Regional Migratory Bird Program has indicated there is concern about

the effects of large power tower projects to birds, bats, and eagles due to the potential for direct take from the super-heated air surrounding the tower and indirect take due to loss of foraging habitat. The USFWS Region 8 has issued interim guidelines[1] on the development of Avian and Bat Protection Plans and indicate "…of concern are the cumulative effects of renewable energy projects in initiating or contributing to the decline of some bird and bat populations, as well as other affected species."

The applicant claims that since the power plant would operate during the day, the potential for impacts to bat species foraging at night over the site is low. Staff needs to analyze the potential for direct and indirect impacts to special-status bats (and migratory bird species) from the project's two 750-foot tall power towers and the heat that will be emitted from the towers; however, the applicant has not provided temperature data expected to be emitted by the towers and over the mirror field.

DATA REQUESTS

55. Please describe the bat surveys that have been conducted to date and how the determination was made that no roost habitat occurs within the site. Please perform an assessment of bat roost habitat within the site and immediate surrounding areas, specifically the abandoned orchards and residential structures, and provide an assessment of the likelihood for bats foraging on site.

Response: Two CH2M HILL biologists completed four rounds of bat observations at the Hidden Hills Project Site between December 20, 2011 and January 11, 2012 from 30 minutes prior to sunset until 30 minutes after sunset. In addition, the Applicant has installed an AnaBat™ bat detection system on the meteorological tower at the site. Attachment DR55-2 provides the results of the winter survey and an update on the AnaBat results.

WESTERN BURROWING OWL

BACKGROUND The applicant performed burrowing owl surveys concurrently with desert tortoise surveys and reported the results of field surveys for both of these species in one report, Appendix 5.2 F (Desert Tortoise Survey Report). Burrowing owls were identified during field surveys (at least 1 owl and 8 active owl burrows) and the applicant provided field survey forms for these surveys in Data Adequacy Supplement B. However, Appendix 5.2 F and the field data forms do not indicate that Phase II (burrow survey) or Phase III (burrowing owl surveys, census, and mapping) surveys were performed in accordance with the California Burrowing Owl Consortium survey protocol and mitigation guidelines (CBOC 1993). The applicant indicated in a biology workshop on October 21, 2011, that Phase I and Phase II surveys were performed for burrowing owl and the most appropriate time for conducting Phase III season surveys would be during the peak nesting season, April 15 to July 15, per CBOC 1993 survey guidelines.

[1] USFWS, Region 8, Interim Guidelines for the Development of a Project-specific Avian and Bat Protection Plan for Solar Energy Plants and Related Transmission Facilities (USFWS Region 8 September 2010).

The burrowing owl survey protocol for burrowing owl (CBOC 1993) calls for breeding season surveys and a census map (Phase III surveys) if burrows or burrowing owls are recorded during field surveys. Phase III burrow census surveys consist of four site visits on separate days to observe owl activity at burrows identified during the initial site visit. Staff needs Phase III burrow survey data to determine how burrowing owls are using the site, to perform an impact analysis, determine appropriate mitigation, and ultimately develop a condition of certification for this species.

DATA REQUESTS

59. Please perform focused burrowing owl Phase III surveys that would include at least four site visits to burrows with sign and provide a map of occupied burrows per the burrowing owl survey protocol (CBOC 1993). As indicated in this survey protocol, a nesting season survey can begin as early as February 1st of any year. Following the completion of the Phase III surveys, please provide staff a summary report following Phase IV reporting guidelines (CBOC 1993).

Response: The Burrowing Owl Protocol (CBOC 1993) states that if no owls are observed using the site during the breeding season, a winter survey is required. Since sign was found, but no burrowing owls were observed using the site during the Spring Survey (see Attachment DR 58-1, Data Response Set 1B), winter surveys were performed. Attachment DR 59-1 provides the results of the winter survey. As stated in the attachment, burrowing owls were not observed onsite during either breeding season or winter surveys.

ATTACHMENT DR52-1

TECHNICAL MEMORANDUM CH2MHILL

Hidden Hills January 2012 Golden Eagle Use Survey

PREPARED FOR: James Marble/SCO

PREPARED BY: Morgan Peters/SCO
Dan Williams/SCO

DATE: February 28, 2012

PROJECT NUMBER: 420246.AP.FS.AV

This report was prepared in response to California Energy Commission Staff's Data Request 52. Golden eagle winter use surveys were conducted based on a modified Hawk Migration Association of North America (HMANA) protocol (2006). The purpose of the survey was to estimate the level and type of golden eagle use of the HHSEGS project site during the winter season.

Methods

Biologists conducted eagle site use surveys for wintering individuals using a modified HMANA protocol. HMANA has generated a first version of a generalized site data collection protocol. This protocol may be used by individual raptor observers as a starting point in the generation of their own operating protocols (HMANA, 2006). The protocol generated requires that observation points be at least 800 meters apart, use different vantage points of the project footprint, and be conducted during the time of day when eagles would be more likely to be active (late morning through afternoon).

Using this protocol, two CH2M HILL biologists (Morgan Peters and Dan Williams) conducted four rounds of focused golden eagle surveys at eight survey points on the Hidden Hills Project Site near Calvada Springs in Inyo County, California between December 20, 2011 and January 11, 2012. The survey points were located on transects that run across the site along section lines within the Hidden Hills Project Site boundaries (see Figure 1, all figures are at the end of this memo). The eagle observation points were selected from among those used in the general avian point counts; one at each end of the transects, and one in the middle of Transects 2 and 3, so as to have observation time spent at the most vantage points possible throughout the project footprint.

The two biologists chose their survey points for each new session by way of a blind drawing, selecting the points from pieces of paper in a container. Each biologist then surveyed two points for an hour each, sweeping the skies with binocular and spotting scope and recording the flight direction of any raptors observed within and beyond an 800-meter radius. This method was repeated the following day at remaining observation points so that eight points in all were surveyed per week. Eagle surveys were conducted between 1030 and 1630 hours.

Site Description

Two natural vegetation types occur at the HHSEGS site: Mojave Desert scrub and shadscale scrub. These are common plant community types throughout the Mojave Desert. The site is crossed by a few intermittent washes, and sits in a wide valley framed by mountains. Elevation on the site ranges from approximately 2,585 to 2,685 feet.

Results

A total of 13 eagle observations (12 during avian point counts or mid-day eagle surveys and one incidental[1] observation) were recorded on 5 separate days. Sitings ranged from none to five per day. The approximate location of the eagles at the time of observation is shown in Figure 1.

Observations of Foraging

Eagles were observed actively foraging on two separate days (January 5 and 10, see Table 1). On January 5, 2012, an adult golden eagle was observed hunting from a power pole along Stateline Road, approximately 80 feet outside the project site boundary. The biologist witnessed the bird leave the pole to drop down to the ground on several occasions; however, the eagle was not successful in catching prey. On January 10, 2012, three eagles were observed on the project site. One individual was observed from point 03-1 flying from Immigrant Pass into the project area (Figure 1). The second eagle was observed at the same time foraging low over the project area to the northeast. The second eagle spent several minutes soaring before diving to the ground. The first eagle observed flying from Immigrant Pass, joined the second eagle on the ground and they both remained there for the duration of the survey. In addition, a third eagle was seen soaring high above the project area to the northwest. Later that afternoon, an adult eagle was observed flying directly through the project area to perch on a power pole on Stateline Road. (This eagle may have been one of the two adult eagles seen foraging in the project area earlier that day.)

Observations of Perching

On four separate occasions, a single eagle was seen perched along the power line that runs along the Nevada side of the Stateline. In one other instance, two eagles were observed perched together on a power pole (see Figure 2). It is possible that there might have been as many as five eagle individuals seen at different times perched along the power lines running parallel to Stateline Road. However, it is more likely that there were three individuals and that the biologists made repeated observations of the same three individuals (the pair plus the third bird that was observed at the same time), but it is difficult to be certain of the total number of separate individuals observed. However, since pairs are generally territorial, the pair plus the sub-adult seen at the same time, are likely residents of the area and would chase any other eagles away.

On January 11, 2012, a pair of adult golden eagles (probably the same pair seen foraging together the day before) was observed and photo documented (Figure 2) perched on the power line paralleling Stateline Road.

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[1] Incidental observations are made in the course of other activities and do not involve time or distance/area components.

Distribution of Observations

Of the 13 total golden eagle observations, 7 (observations 1, 4, 5, 6, 7, 8 and 10 in Table 1) were actually on or over the site. The next most frequent observation locations (observations 2, 3, 9, 11 and 12) were on powerline poles offsite. The remaining observation (13) was incidental and far off of the site.

TABLE 1.
Locations of Golden Eagle Observations

Observations	Date	Time	Comments
1	12/29/11	1325	Observation Point 03-10, at 600-1000' headed northeast toward Front Sight
2	1/4/12	1420-1625	Observation Point 02-14 and 02-08, perched on Stateline power pole.
3*	1/5/12	0810-0830	Observation Point 03-17 and 03-16, hunting from Stateline power pole
4	1/5/12	1150	Observation Point 03-10, flew through plot at 250m lost to the west at 800m high
5	1/5/12	1155	Observation Point 03-19 well to west (probably same bird as above)
6 & 7	1/10/12	1420	Observation Point 03-01, two foraging low, then perched on ground within site
8	1/10/12	1430-1443	Observation Point 03-19, circled high over dry lakebed, disappeared high and far west
9	1/10/12	1525	Observation Point 01-01, perched on Stateline power pole
10	1/10/12	1530	Observation Point 03-10, well to north flying across to Stateline power pole
11* & 12*	1/11/12	0730-0800	Pair at beginning of day perched on Stateline power pole together
13	1/11/12	1230	Incidental observation on the Nevada side of Tecopa Highway while leaving the area, probably one of Stateline Road pair seen earlier today

* Observations of eagles recorded during early-morning migratory bird point count surveys (3), rather than during mid-day golden eagle use surveys.

Golden Eagle and Incidental Raptor Observations – Winter 2012

In addition to the golden eagles that were observed, other raptors that were observed during the timed mid-day periods at observation points are provided in Table 2. This table includes the one incidental eagle observation from Table 1 (observation 13) and the observations of other raptor species that occurred during the Golden Eagle Use survey.

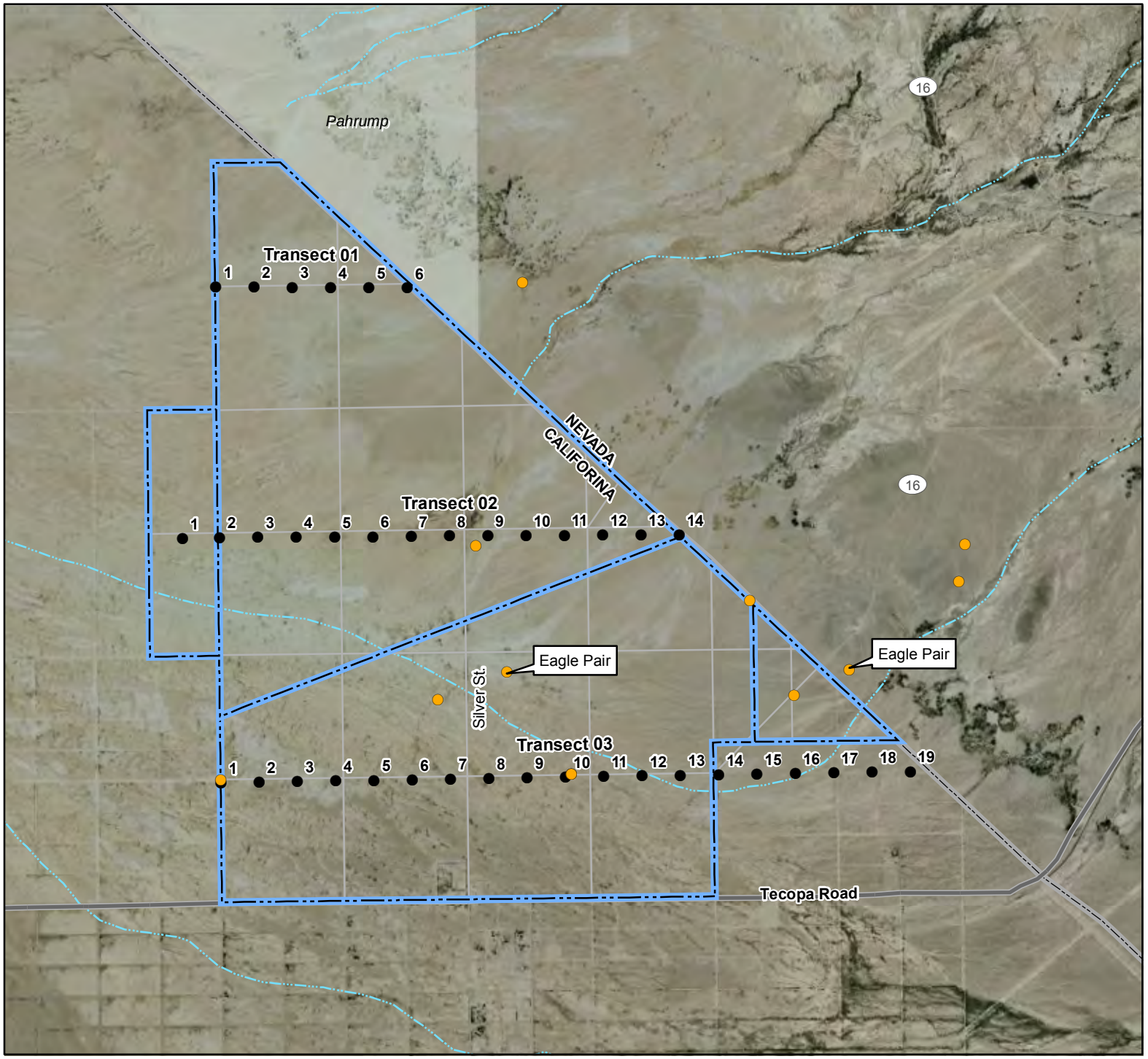
TABLE 2.
Raptors Observed During Eagle Use Surveys Conducted During Winter 2011/2012, at the Hidden Hills SEGS site.

Common Name	Scientific Name	GOEA Use Survey Count	Incidental Observation	MBTA Winter Point Count GOEA Observations	Total GOEA Use Observations
Northern Harrier	*Circus cyaneus*	21	--	--	--
Golden Eagle	*Aquila chrysaetos*	9	1	3	13
Red-tailed Hawk	*Buteo jamaicensis*	5	--	--	--
Ferruginous Hawk	*Buteo regalis*	5	--	--	--
Prairie Falcon	*Falco mexicanus*	2	--	--	--
Merlin	*Falco columbarius*	1	--	--	--
American Kestrel	*Falco sparverius*	4	--	--	--
Total		**47**			

GOEA = golden eagle

References

Hawk Migration Association of North America (HMANA). 2006. Standard Data Collection Protocol for Raptor Migration Monitoring. Unpublished manuscript. Available online at: http://www.rpi-project.org/data_collection.php



LEGEND

- Golden Eagle Sighting
- Avian Point Count Locations (250 meters)
- Wash
- Local Road
- Major Road
- State Boundary
- Project Boundary

Note:
Acreages shown on the map should be considered approximate.

N

0 1,500 3,000
Feet

Figure 1
Avian Transects and Point Counts
Golden Eagle Use Survey
Hidden Hills Solar Energy Generating System

Pair of adult golden eagles observed January 11, 2012 along Stateline Road. The female is on the left and the male on the right.

FIGURE 2
Eagle Pair Observed
Hidden Hills Solar Electric Generating System

ATTACHMENT DR55-2

TECHNICAL MEMORANDUM

CH2MHILL®

Hidden Hills SEGS Winter 2012 Bat Survey

PREPARED FOR: James Marble/SCO

PREPARED BY: Morgan Peters/SCO
Dan Williams/SCO

DATE: February 10, 2012

PROJECT NUMBER: 420246.AP.FS.AV

In response to Data Request 55, issued by California Energy Commission Staff on November 4, 2011, Hidden Hills Solar I, LLC, and Hidden Hills Solar II, LLC (collectively, "Applicant") installed an AnaBat™ bat detection system and conducted winter observation surveys to collect data on bat presence at the Hidden Hills Solar Electric Generating System ("Hidden Hills SEGS") project site. Bat observation surveys were conducted in the evenings of the avian point count surveys. The avian point counts were performed to determine bird use and diversity within the Hidden Hills SEGS project site during the winter. The results of the winter avian point counts will be provided in a separate report.

Methods

For four consecutive weeks, observations for bats were conducted one day each week[1] for one hour at sunset (one half hour before to one half hour after sunset). Observations were made from Tecopa Road at the former orchard located on the Hidden Hills SEGS site. The orchard is located on the project site's southern boundary, and is the only location that provides trees for foraging and roosting. CH2M HILL biologists (Morgan Peters and Dan Williams) conducted the bat surveys between December 20, 2011 and January 11, 2012.

Site Description

The habitat on the site is generally described as open desert scrub populated extensively with creosote (*Larrea tridentata*), bursage (*Ambrosia* spp.) and sagebrush (*Artemesia* spp.), crossed by a few intermittent washes, and sitting in a wide valley framed by mountains. Elevation on the site ranges from approximately 2,585 to 2,685 feet.

Results

Similar to the results of the spring surveys conducted in 2011 (see Attachment DR55-1, Data Response Set 1B), no bats were seen or heard anywhere on or near the HHSEGS site during the course of these surveys.

Anabat Monitoring Results

Baseline bat activity in HHSEGS is currently being collected through remote passive monitoring using an AnaBat SD1 stationary bat detector. Baseline data collection began on December 21, 2011 and will continue to December 31, 2012. One monitoring station containing a microphone and "bat hat" were posted on the existing HHSEGS met tower at approximately 8 meters above ground. The Anabat SD1 and associated equipment is protected by a waterproof case. Initially, data was collected on a compact flash memory card. However, on January 24, a remote download system was installed and confirmed as operational. Data gathered on the compact flash memory card and by the remote download system were accessed by a bat specialist. A mammalogist from O'Farrell Biological Consulting analyzed the AnaBat data in 1-minute increments to determine presence or absence of bat species. The mammalogist identified bat species calls based on frequency characteristics, call shape, and comparison with a library of vocal signatures.

[1] Surveys were done December 20, 28; 2011 and January 4 and 10, 2012.

Based upon the data collected from December 21, 2011 to February 15, 2012, a total of three bat calls have been recorded and identified from the AnaBat equipment. Two calls were identified as big brown bats (*Eptesicus fuscus*) and one call was identified as a canyon bat (*Parastrellus hesperus*). Both are common species, and neither are state or federally listed as an endangered, threatened, or rare species.

A report will be prepared for submission to the CEC at the end of each quarter. Species richness (number of species verified as present) and an index of abundance will be derived and included in the quarterly report.

TECHNICAL MEMORANDUM CH2MHILL

Hidden Hill SEGS Wintering Burrowing Owl Survey

PREPARED FOR: James Marble/SCO

PREPARED BY: Morgan Peters/SCO; William (BJ) Lukins/SCO

DATE: February 13, 2012

PROJECT NUMBER: 420246.AP.FS.BU

Introduction

Hidden Hills Solar I, LLC; and Hidden Hills Solar II, LLC (collectively, the "Applicant") are wholly owned subsidiaries of BrightSource Energy, Inc. The Hidden Hills Solar Electric Generating System (HHSEGS) will be located on privately owned land in Inyo County, California, adjacent to the Nevada border. It will comprise two solar fields and associated facilities: the northern solar plant (Solar Plant 1) and the southern solar plant (Solar Plant 2). Each solar plant will generate 270 megawatts (MW) gross (250 MW net), for a total net output of 500 MW. Each of these LLC entities will own its respective plant individually, and together they will own the shared facilities located in an onsite common area as tenants in common. HHSEGS is located in Inyo County, California, west of Las Vegas, Nevada, and approximately 18 miles south of the town of Pahrump, Nevada. It is located along the California-Nevada border on privately owned land, with the solar facility being situated within California (Figure 1, all figures are at the end of the document).

Regulatory Context

The burrowing owl (*Athene cunicularia*), a CDFG species of special concern, is a migratory species protected by international treaty under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 C.F.R. Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R. 21). Sections 3505, 3503.5, and 3800 of the California Department of Fish and Game Code (CDFG) prohibit the take, possession, or destruction of birds, their nests or eggs. To avoid violation of the take provisions of these laws generally requires that project-related disturbance at active nesting territories be reduced or eliminated during the nesting cycle (February 1 to August 31). Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) may be considered "take" and is potentially punishable by fines and/or imprisonment.

Site Description

The proposed HHSEGS project is situated in the axial basin of Pahrump Valley about 3.5 miles southeast of the dry lakebed of Pahrump Playa. It's nearly flat topography is subject to flash flooding. The project area is generally underlain by a carbonate-rich silt that is friable and possesses little structure and horizonation. The surface lithology of the project area consists of fine-grained material (silt and clay) overlain by a gravel lag in some areas, and by sandy alluvium in the eastern portion of the project site. The habitat on the site is generally described as open desert scrub. Creosote bush (*Larrea tridentata*) -

burrobush (*Ambrosia dumosa*) scrub on sandy alluvium gives way to the west to saltbush (*Atriplex confertifolia, A. canescens*) scrub carbonate-rich silts of the basin. Elevation on the site ranges from approximately 2,585 to 2,685 feet while peaks over 6,000 feet stand within 10-miles to the west, and peaks over 10,000 feet stand within 25 miles to the northeast.

Methods

Winter burrowing owl surveys were conducted in accordance with recommended survey protocols described in the Burrowing Owl Survey Protocol and Mitigation Guidelines (CBOC, 1993) and to California Department of Fish and Game Staff Report on Burrowing Owl Mitigation (CDFG, 1995).

The protocol requires four site visits on four separate days between December 1 and January 31. During the initial visit, burrows are to be examined for owl sign and the locations of occupied burrows mapped. Subsequent site visits should be conducted from fixed point locations that provide visual coverage of the burrows. The protocol states that surveys should be conducted from one hour prior to sunrise to two hours after sunrise, or from two hours prior to sunset to one hour after sunset.

Burrowing owls are known to maintain strong nest site fidelity returning year after year to former nest locations (Plumton et al., 1999; Rich, 1984; Feeney, 1992). For this reason it is important to return to burrow locations previously observed to have burrowing owl sign.

Day One (January 30, 2012): Previously documented burrows (Sundance, 2011) within the project site were visited in the morning (1 hour before sunrise to 2 hours after sunrise). Burrows were checked for occupancy and any fresh sign of burrow use (that is, fresh white wash, pellets or prey remains). Burrow condition was documented and any collapsed burrows were noted. The project site was broken up into three survey areas based on burrow concentrations (Figure 2). In the evening (2 hours before sunset to 1 hour after sunset), a biologist visited each of the survey areas scanning the entire area for burrowing owl presence using binoculars. Each survey area was observed with binoculars or spotting scope from a suitable distance for one or more hours each.

Days 2, 3 and 4 (January 31-February 2, 2012): The survey protocol was repeated in the morning (1 hour before sunrise to 2 hours after sunrise) and again in the evening. (2 hours before sunset to 1 hour after sunset). No evening observation period was conducted on day 4.

Results

During the initial site visit, previously documented (Sunrise, 2011) burrowing owl burrows were visited and checked for sign of recent use. One of the previously reported burrowing owl burrows (HHs-020) was found to be collapsed and no burrowing owl sign was observed at this collapsed burrow. No burrow was found to be occupied and no fresh sign of burrow use (that is, fresh white wash, pellets, prey remains) was present at any of the 9 previously identified burrowing owl burrows within the project site or the 150-meter buffer (Figure 2). Furthermore, visual surveys of the project area and buffer, conducted by CH2MHILL, did not yield any burrowing owl sightings.

No fresh burrowing owl sign was observed during the surveys. As with the Sundance (2011) spring surveys, no burrowing owls were observed onsite during the surveys conducted over the 4-day period during both the morning and evening crepuscular periods, when the probability of activity, and hence, detection is greatest.

TABLE 1
Burrowing Owl Winter Survey Results, January 2012

Burrow ID[a]	Burrow Type	Burrow Description[b]	Owls Observed	Fresh Sign Observed	Lat.	Long.
02	Level Ground	BUOW	None	None	36.011667	-115.910815
03	Level Ground	BUOW	None	None	36.011550	-115.908853
04	Level Ground	BUOW	None	None	36.011113	-115.911400
05	Level Ground	BUOW	None	None	36.010118	-115.913056
06	Level Ground	BUOW	None	None	36.006325	-115.909347
07	Level Ground	BUOW	None	None	35.997389	-115.918101
08	Level Ground	BUOW	None	None	35.989691	-115.889586
09	Level Ground	Collapsed	None	None	35.984233	-115.917837
10	Level Ground	BUOW	None	None	35.980889	-115.877652

[a] Sundance ID number. Documented by Sundance Biological in spring 2011 to have fresh sign (Sundance, 2011)
[b] BUOW: Burrowing Owl burrow.

Discussion

It is likely that burrows on this landscape are temporary and short-term due to the fine silt and clay soils and the impacts that rain events have on it. It is likely that burrowing owls using habitats within this ancient lake bed are often displaced by collapsing burrows, flash flooding and sediment filling. (For example, HHs-20, which contained fresh sign during the spring 2011 survey, had collapsed by January 20, 2012).

Soil horizons, including caliche ledges, are absent from most areas of the project site. Where carbonate horizons have been seen, near the southwestern corner of the site, they are not exhumed by erosion, and therefore, are not available to serve as “roofs” for burrows. Also, these fine grained sediments easily collapse and are not conducive to the long-lived preservation of burrows. On the east side of the site, where tortoise habitat is better, this fine-grained valley fill (Qbf) is overridden by younger sandy alluvium that also possesses little structure, is poorly indurated (quite loose), and therefore, also collapses easily (CH2MHILL, May 2011).

References

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ATTACHMENT DR59-1

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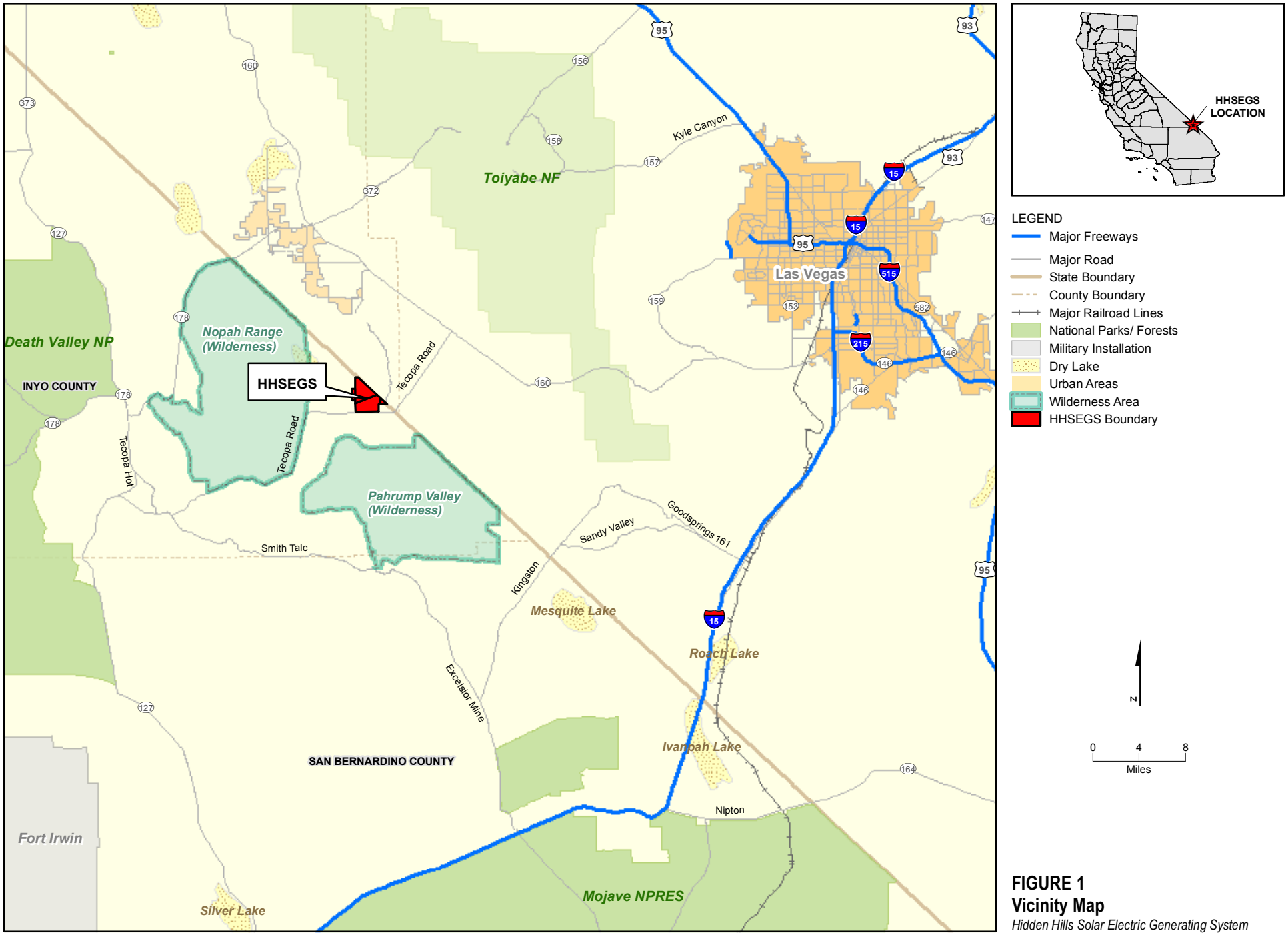
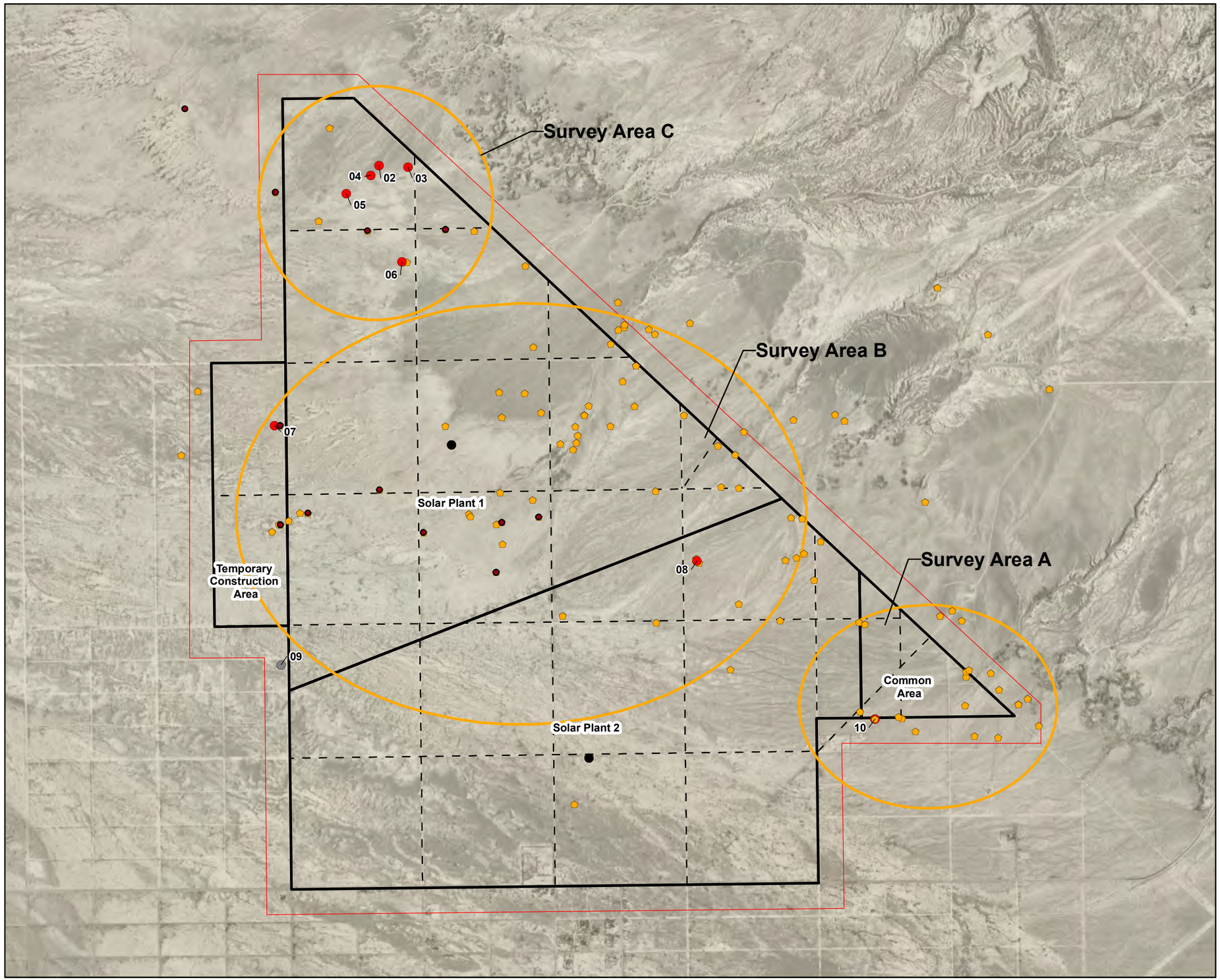


FIGURE 1
Vicinity Map
Hidden Hills Solar Electric Generating System



VICINITY MAP

LEGEND

- Solar Power Tower
- Badger Burrow (Sundance)
- Tortoise Burrow (Sundance)
- Burrowing Owl Burrow (Sundance)
- Collapsed Burrow
- Site Road
- HHSEGS Boundary
- Burrowing Owl 150-ft Buffer Zone
- Survey Area

Source: Sundance Biology, Inc.

N

0 1,000 2,000
Feet

Figure 2
Burrowing Owl Burrow Locations
Hidden Hills Solar Electric Generating System