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Revised
Bird and Bat Conservation Strategy

Genesis Solar Energy Project
Eastern Riverside County, California

Prepared For:

Genesis Solar, LLC

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Approved January 2011,
Revised March 2014

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1 INTRODUCTION

Genesis Solar, LLC (Genesis Solar) a wholly owned subsidiary of NextEra Energy Resources, LLC, has developed a 250-megawatt (MW) solar thermal power generating facility located in Riverside County, CA, between the community of Desert Center and the City of Blythe (Figure 1). The Genesis Solar Energy Project (Project) is located on land managed by the Bureau of Land Management (BLM). The Plant Site includes two units which collectively contain two power blocks, power generating equipment (arrays of mirrored parabolic troughs), support facilities, and evaporation ponds. The Linear Facilities include a transmission line, distribution line, natural gas pipeline, and a main access road that are mostly co-located for approximately 10.5 kilometers (6.5 miles) (Figure 2).

To monitor and manage Project-related avian and bat injuries and/or fatalities, the California Energy Commission (CEC) and BLM established BIO-16 as part of their Conditions of Certification/Mitigation Measures for the Project (Appendix A), which requires Genesis Solar to develop an Avian Protection Plan (APP). This APP was initially prepared and approved by the CEC, BLM, California Department of Fish and Wildlife (CDFW), and U.S. Fish and Wildlife Service (USFWS) (collectively referred to as the Renewable Energy Action Team [REAT] or agencies) in January 2011. Due to additional avian and bat mortality information obtained during project construction, this document is being revised at the request of the REAT and will now be referred to as the Bird and Bat Conservation Strategy (BBCS) to be consistent with current nomenclature. This BBCS was based on the following sources:

- The results of biological resource surveys conducted to date.
- The CEC's Staff Assessment/Draft Environmental Impact Statement, Revised Staff Assessment, Supplement to the Revised Staff Assessment for the Project, and the Final Decision.
- The BLM's Plan Amendment / Final Environmental Impact Statement for the Project.
- On-going consultation with the REAT.
- The incidental avian construction monitoring results for the Project and First Solar's Desert Sunlight solar project.

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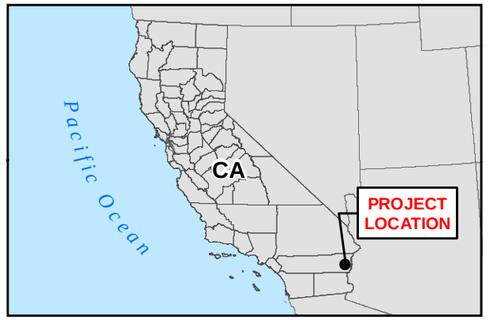
GENESIS SOLAR ENERGY PROJECT RIVERSIDE COUNTY, CA



Legend

- Genesis Solar Energy Project Plant Site
- Linear Facilities
- SCE Colorado River Substation
- State Boundary
- County Boundary
- Airport
- Urban Area
- River
- Dry Lake
- Interstate
- Highway

N

0 2.5 5 10
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, BLM,Tt.

FIGURE 1
REGIONAL LOCATION MAP

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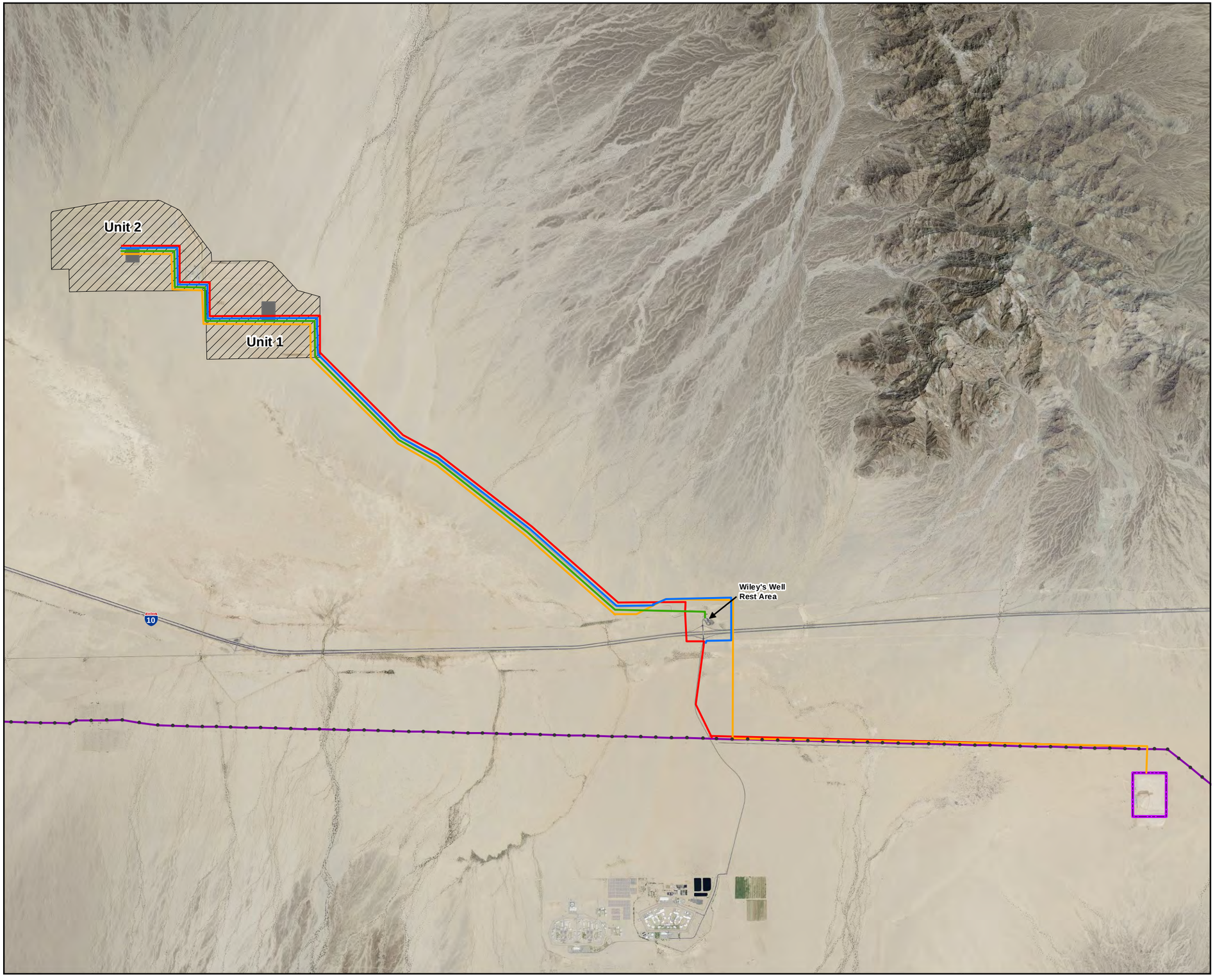
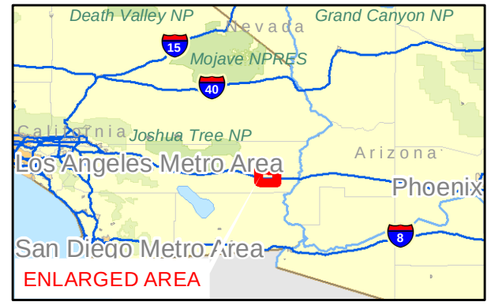
Genesis Solar, LLC

GENESIS SOLAR ENERGY PROJECT
RIVERSIDE COUNTY,
CALIFORNIA





Legend

- Genesis Plant Site
- Transmission Interconnect
- Gas Line
- Access Road
- Distribution Line/Redundant Communication Line
- Blythe Energy Project Transmission Line
- Power Block
- Blythe Energy Project Transmission Line Structure
- Colorado River Substation (SCE)

N

0 0.5 1 1.5 2

Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, TTEC, USDA, Riverside County

FIGURE 2
FACILITY LAYOUT

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1.1 PROJECT DESCRIPTION

The Project is located approximately 40 kilometers (25 miles) west of the City of Blythe, in an undeveloped area of the Sonoran Desert. Surrounding features include the McCoy Mountains to the east, the Palen Mountains (including the Palen/McCoy Wilderness Area) to the north, and Ford Dry Lake (a dry lakebed) to the south. The majority of the vegetation within the Project Area is Sonoran Creosote Bush Scrub. Patches of Stabilized and Partially Stabilized Sand Dunes, and Playa and Sand Drifts over Playa also occur in and around the Project Area. There are no perennial water bodies, cliffs, or agricultural lands in the Project Area or in the immediate vicinity (Figure 2).

The Project is a concentrated solar electric generating facility which uses parabolic trough technology. The Project consists of two independent concentrated solar electric generating facilities (a.k.a. power plants or plant) with a nominal net electrical output of 125 MW each, for a total net electrical output of 250 MW. Electrical power is produced using steam turbine generators fed from solar steam generators (SSG). The SSG receives heated heat transfer fluid (HTF) from solar thermal equipment comprised of arrays of mirrored parabolic troughs that collect energy from the sun.

The Project uses dry cooling for power plant cooling. In dry-cooling systems, fans blow air over a radiator system to remove heat from the system via convective heat transfer. In the air-cooled condenser (ACC), steam from the steam turbine exhausts directly to a manifold radiator system that expels heat to the atmosphere, condensing the steam inside the radiator.

Each 125-MW unit has one double-lined evaporation pond located within the Power Block area. Each pond has a surface area of one acre. As a requirement of the CEC/BLM permits, these ponds are netted to protect wildlife from the materials accumulating in the ponds. Residue from the facilities' water treatment system is contained within these ponds. The average pond depth is eight feet and residual precipitated solids will be removed approximately every seven years to maintain a solids depth no greater than approximately three feet for operational and safety purposes. The ponds were designed and permitted as Class II Surface Impoundments in accordance with Colorado River Regional Water Quality Control Board requirements, as well as the requirements of the California Integrated Waste Management Board.

A transmission line (also referred to as a generation tie-line), distribution line, access road, and a natural gas pipeline are co-located in one linear corridor to serve the Plant Site. A primary fiber-optic communication line is mounted on the transmission line poles. A secondary fiber-optic communication line is mounted on the distribution line poles and/or buried underground within existing, disturbed access/maintenance roads. The generation tie-line extends an additional mile to the south, crosses Interstate 10 (I-10), and ties into the Blythe Energy Project Transmission Line (BEPTL). The generation tie-line is mounted on the existing pole structures of the BEPTL to interconnect with Southern California Edison's Colorado River Substation (CRS) to the east.

The Project Disturbance Area, which includes both permanent and temporary disturbance, is 1,819.5 acres, and includes 1,727 acres for the Plant Site and 92.5 acres for the Linear Facilities.

1.2 REGULATORY FRAMEWORK

Native birds in North America are protected under federal and state regulations: these include the Endangered Species Act (ESA), the Migratory Bird Treaty Act (MBTA), the Bald and Golden Eagle Protection Act (BGEPA), and California Department of Fish and Game (CDFG) codes. These regulations are described in the following sub-sections.

1.2.1 Endangered Species Act

The purpose of the ESA is "to provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved, and to provide a program for the conservation of these species." Section 9 of the ESA prohibits "take" of threatened or endangered species, which includes killing, injuring or harming a listed species or its habitat. Any activity that may result in the "incidental take" of a threatened or endangered species requires permits issued from the USFWS under Sections 7 or 10 of the ESA.

The 1988 amendment to the Fish and Wildlife Conservation Act mandates the USFWS to identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the ESA. In an effort to accomplish this, the USFWS's Division of Migratory Bird Management maintains a list of Birds of Conservation Concern, which identifies species, subspecies, and populations of migratory and non-migratory birds in need of additional conservation actions.

1.2.2 Migratory Bird Treaty Act

Under the MBTA it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any native migratory bird, part, nest, egg or product. The USFWS has established a permitting scheme for a variety of intentional activities, such as hunting and scientific research, but has not done so for the incidental take of migratory birds during otherwise lawful activities. As a result, there is no permitting framework that allows a solar energy company to protect itself from the liability of take at solar facilities.

1.2.3 Bald and Golden Eagle Protection Act

The BGEPA prohibits the take of any bald (*Haliaeetus leucocephalus*) or golden eagle (*Aquila chrysaetos*), alive or dead, including any part, nest, or egg. "Take" is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" a bald or golden eagle. "Disturb" means to agitate or bother an eagle to a degree that causes, or is likely to cause, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. The final rule allowing for permits under the BGEPA to offset take or disturbance went into effect in November 2009.

1.2.4 California Department of Fish and Game Codes

CDFG Code Section 2050-2085 – These codes encompass the applicable declarations and definitions of the California Endangered Species Act.

CDFG Code Sections 3503 and 3503.5 – These codes state that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird (including birds of prey) or take, possess, or destroy birds of prey, except as otherwise provided by this code or any regulation made pursuant thereto.

CDFG Code Sections 3511, 4700, 5050, and 5515 – These state laws classify and prohibit the take of "fully protected" birds, mammal, amphibian/reptile, and fish species in California.

CDFG Code Section 3513 – This code prohibits any take or possession of birds that are designated by the MBTA as migratory non-game birds except as allowed by federal rules and regulations promulgated pursuant to the MBTA.

CDFG Code Sections 4150 – This code defines all mammals that naturally occur in California as non-game mammals with exceptions for those defined as game mammals, fully protected mammals, or fur-bearing mammals. Non-game mammals or parts thereof may not be taken or possessed except as otherwise provided by this code or any regulation made pursuant thereto.

1.3 CORPORATE POLICY AND THE GENESIS SOLAR ENERGY PROJECT BBCS

Genesis Solar is dedicated to making environmental compliance and conservation an integral part of the company's core values. Genesis Solar, as a wholly owned subsidiary of NextEra Energy Resources, LLC, fully embraces the NextEra Energy "Environmental Commitment." This commitment establishes a core environmental policy as part of the company's Code of Business Conduct and Ethics. Genesis Solar's intent is to conduct its business in an environmentally responsible manner. Accordingly, Genesis Solar strives to comply with the spirit and intent, as well as the letter, of environmental laws, regulation, and standards; incorporate environmental protection and stewardship as an integral part of the design, construction, operation, and maintenance of its facilities; encourage the wise use of energy to minimize the impact on the environment; communicate effectively on environmental issues; conduct periodic self-evaluations, and report performance.

2 BACKGROUND

This section discusses the avian surveys that have been conducted of the Project Area and vicinity to date, and the results of those surveys. This section also discusses the avian injury/fatality data observed during construction.

2.1 ENVIRONMENTAL SETTING

On the Solar Plant Site, vegetation communities are primarily composed of Sonoran Creosote Bush Scrub with some Stabilized and Partially Stabilized Sand Dunes in the eastern portion of the Project (Holland 1986). Common shrubs throughout the Project include creosote bush, white bursage, and galleta grass.

The Project is located in an area that naturally lacks unique habitat features that serve as major bird and bat attractants. There are no perennial water bodies, cliffs, known major migration corridors, or dense vegetation within the Project, nor does it contain any of the key habitats (i.e., wetlands or riparian thickets) identified within the Lower Colorado River Valley Important Bird Area (National Audubon Society 2012) which is located near Blythe's agricultural areas and the Colorado River. Additionally, the results of biological surveys show that mean use of the Project by bird species is low (Tetra Tech and Karl 2010). The closest large bodies of water that could be considered major bird attractants are the Colorado River (38.6 kilometers [24 miles] to the east of the Project), the Salton Sea (61.2 kilometers [38 miles] southwest of the Project), and Lake Havasu (101.4 kilometers [63 miles] to the northeast of the Project). Because of this, and because the Project is located within the Pacific Flyway, migrating birds will pass over the Project and vicinity during the spring and fall. The Pacific Flyway refers to a general migratory front that includes states west of the Rocky Mountains. Stopover areas listed above are crucial to successful migration; however, birds may occur throughout the region depending on resource availability and weather conditions (Newton 2010).

2.2 AVIAN SURVEYS PRIOR TO PROJECT APPROVAL AND CONSTRUCTION

Comprehensive biological resource surveys, which included focused avian surveys, were conducted between Winter 2007 and Spring 2010 (see Tetra Tech and Karl 2009, 2010a, 2010b, Tetra Tech 2010 for detailed methods; Figure 3). Multiple survey techniques were used to target all special-status wildlife and plant species as well as their habitats, and included spring and winter avian point count surveys per BLM protocols (BLM 2009), golden eagle nest surveys per USFWS recommended guidelines (Pagel et al. 2010), and western burrowing owl surveys per California Burrowing Owl Consortium guidelines (CBOC 1993). Survey methods were reviewed and agreed to by the CEC, BLM, USFWS, and CDFG prior to implementation of surveys. Collectively, these surveys are described below.

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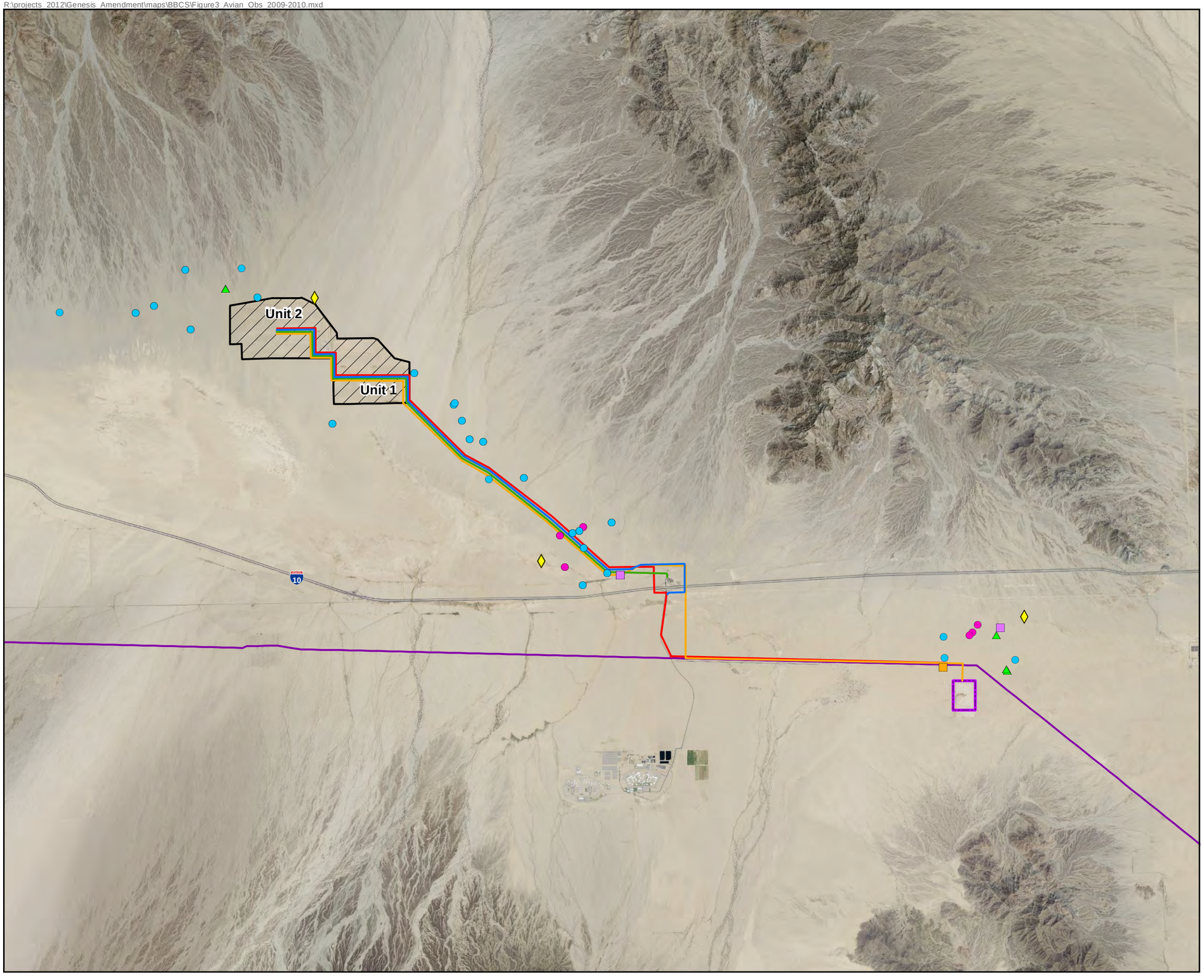

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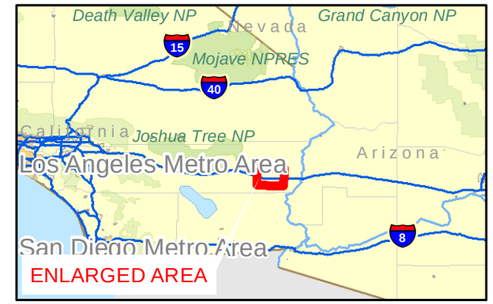
RIVERSIDE COUNTY,
CALIFORNIA



Legend

Avian Observations
- Burrowing Owl
- Cooper's Hawk
- Ferruginous Hawk
- Loggerhead Shrike
- Northern Harrier
- Swainson's Hawk

- Solar Plant Site
- Transmission Interconnect
- Gas Line
- Access Road
- Distribution Line/Redundant Communication Line
- Blythe Energy Project Transmission Line
- Colorado River Substation (SCE)

N

0 1 2 3 4
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, TTEC, USDA, Riverside County

FIGURE 3
SPECIAL-STATUS BIRD OBSERVATIONS
2009-2010

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2.2.1 Avian Point Count Surveys

Avian point count surveys were conducted in the spring and winter of 2009 in order to determine avian use of the Project Area (Tetra Tech and Karl 2009, 2010b). One point count transect was located in each square mile of the right-of-way for a total of seven transects. Each transect consisted of eight point count locations spaced 820 feet apart with a 328 foot survey radius. During point count surveys, a biologist continuously scanned the 328 foot radius circle for 10 minutes and recorded the species, number of individuals, and behavior of birds observed.

- A total of 336 birds were detected during spring avian point count surveys and 274 birds during winter avian point count surveys.
- The horned lark (*Eremophila alpestris*) was the most commonly observed species during both spring and winter avian point count surveys. Other commonly detected species included the black-throated sparrow (*Amphispiza bilineata*) and cliff swallow (*Hirundo pyrrhonota*) during spring point count surveys, and the sage sparrow (*Amphispiza belli*) during winter point count surveys. All other species comprised less than 6 percent of the total number of birds observed during either survey season.
- No ESA listed threatened or endangered species were detected during spring or winter avian point count surveys; however, other special-status species were detected. Special-status species detected during spring point count surveys included one state-threatened species (Swainson's hawk [*Buteo swainsoni]*), three California Species of Special Concern (loggerhead shrike [*Lanius ludovicianus*], northern harrier [*Circus cyaneu]*, and short-eared owl [*Asio flammeus*]), and two USFWS Birds of Conservation Concern (Brewer's sparrow [*Spizella breweri*] and Le Conte's thrasher [*Toxostoma lecontei*])[1]. The loggerhead shrike and northern harrier were also detected during winter point count surveys[2].
- No bald or golden eagles were observed during avian point count surveys or incidentally during any field surveys.

The species observed during Project point-count surveys represent approximately half of species detected during a nine-year period of Breeding Bird Survey (BBS) data (Sauer et al. 2012). The southern end of the 51.5 kilometer (32.0 mile) Blythe survey route (BBS route 90) is located approximately 8.0 kilometers (5.0 miles) east of the Project and stretches north from this point for 8.9 kilometers (5.5 miles) before it turns northwest and travels parallel to McCoy Wash along Midland Road. It terminates north of the Project on the other side of the Little Maria Mountains. Of the 55 species detected during BBS surveys, 29 were detected during point-count surveys. Of the five species with the highest relative abundance during BBS surveys (red-winged blackbird, house sparrow, mourning dove, European starling, yellow-headed blackbird), only mourning dove was detected during Tetra Tech point count surveys (Table 2-1).

[1] The Brewer's sparrow, Swainson's hawk, and loggerhead shrike were observed during spring avian surveys; the Le Conte's thrasher, northern harrier, and short-eared owl were observed as incidentals to spring avian surveys (i.e., outside of the 10-minute survey window or 328 ft survey radius).

[2] The loggerhead shrike was observed during winter avian surveys; the northern harrier was observed as an incidental to winter avian surveys (i.e., outside of the 10-minute survey window or 328-ft survey radius).

Approximately 8.0 kilometers (5.0 miles) of the Blythe BBS survey route are located within irrigated agricultural fields with scattered buildings and is not representative of landcover found in the GSEP. Thus, the common species are representative of this agricultural stretch and not always reflective to the habitats found within the GSEP.

Table 2-1. Relative Bird Abundance of Breeding Bird Surveys Conducted along the Blythe Survey Route During 1989-1998, Riverside County, California.

Common Name	Scientific Name	Relative Abundance[1]	Observed During GSEP Surveys?[2]
Abert's Towhee	*Pipilo abert*	0.67	No
American Coot	*Fulica americana*	0.67	No
American Kestrel	*Falco sparverius*	0.33	No
Ash-throated Flycatcher	*Myiarchus cinerascens*	9.00	Yes
Barn Swallow	*Hirundo rustica*	3.83	Yes
Black-chinned Hummingbird	*Archilochus alexandri*	0.33	No
Black-tailed Gnatcatcher	*Polioptila melanura*	5.50	Yes
Black-throated Sparrow	*Amphispiza bilineata*	7.50	Yes
Brown-headed Cowbird	*Molothrus ater*	1.50	No
Bullock's Oriole	*Icterus bullockii*	1.83	No
Burrowing Owl	*Athene cunicularia*	3.17	Yes
Cactus Wren	*Campylorhynchus brunneicap*	2.00	No
Cliff Swallow	*Petrochelidon pyrrhonota*	2.83	Yes
Common Ground-Dove	*Columbina passerina*	0.83	No
Common Moorhen	*Gallinula chloropus*	0.33	No
Common Raven	*Corvus corax*	0.33	Yes
Common Yellowthroat	*Geothlypis trichas*	1.50	No
Costa's Hummingbird	*Calypte costae*	1.33	Yes
Crissal Thrasher	*Toxostoma crissale*	0.17	No
European Starling	*Sturnus vulgaris*	27.67	No
Gambel's Quail	*Callipepla gambelii*	16.50	Yes
Great Blue Heron	*Ardea herodias*	0.33	No
Greater Roadrunner	*Geococcyx californianus*	2.67	No
Great-tailed Grackle	*Quiscalus mexicanus*	9.00	Yes
Horned Lark	*Eremophila alpestris*	2.17	Yes
House Finch	*Carpodacus mexicanus*	7.33	Yes
House Sparrow	*Passer domesticus*	68.50	No
Killdeer	*Charadrius vociferus*	1.00	No
Ladder-backed Woodpecker	*Picoides scalaris*	0.33	No
Lark Sparrow	*Chondestes grammacus*	0.67	No
Le Conte's Thrasher	*Toxostoma lecontei*	0.50	Yes
Lesser Goldfinch	*Carduelis psaltria*	4.83	No
Lesser Nighthawk	*Chordeiles acutipennis*	0.17	Yes
Loggerhead Shrike	*Lanius ludovicianus*	7.17	Yes
Mourning Dove	*Zenaida macroura*	47.17	Yes
Northern Mockingbird	*Mimus polyglottos*	5.83	Yes
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	10.50	Yes
Phainopepla	*Phainopepla nitens*	1.17	Yes
Pied-billed Grebe	*Podilymbus podiceps*	0.17	No
Prairie Falcon	*Falco mexicanus*	0.17	Yes
Red-tailed Hawk	*Buteo jamaicensis*	0.83	Yes
Red-winged Blackbird	*Agelaius phoeniceus*	195.67	No
Rock Dove	*Columba livia*	2.83	No
Rock Wren	*Salpinctes obsoletus*	0.17	Yes
Sage Sparrow	*Amphispiza belli*	0.17	Yes
Say's Phoebe	*Sayornis saya*	1.67	Yes
Swainson's Hawk	*Buteo swainsoni*	0.17	Yes
Turkey Vulture	*Cathartes aura*	4.00	Yes

Common Name	Scientific Name	Relative Abundance[1]	Observed During GSEP Surveys?[2]
Verdin	*Auriparus flaviceps*	16.00	Yes
Western Kingbird	*Tyrannus verticalis*	13.50	Yes
Western Meadowlark	*Sturnella neglecta*	1.50	Yes
Western Wood-Pewee	*Contopus sordidulus*	0.83	No
White-throated Swift	*Aeronautes saxatalis*	0.83	No
White-winged Dove	*Zenaida asiatica*	14.83	No
Yellow-headed Blackbird	*Xanthocephalus xanthocepha*	23.50	No

1. Relative abundance should be interpreted as an index and not as a measure of mean use (e.g. number of individuals observed/time period; Sauer et al. 2012). Counts were summed across 10-stop segments to calculate a total count per route per species. Counts were then averaged across years then divided by the number of survey years in the analysis period.
2. Species observed during point count surveys conducted at GSEP between March 2009 and April 2010 are noted.

2.2.2 Golden Eagle Nest Surveys

Helicopter surveys for golden eagles and their nests were conducted in 2010 and 2011 by the Wildlife Research Institute following USFWS protocols (Pagel et al. 2010). The 2010 surveys were conducted on March 25-26 and April 2-3, and a second survey was conducted on May 14, to revisit active or potentially active territories that were identified in the initial surveys (WRI 2010). Surveys were conducted within a 16.1-kilometer (10 mile) survey radius from the BLM ROW boundary (Tetra Tech 2010). In 2011, additional golden eagle helicopter surveys were conducted for the nearby McCoy Solar Energy Project; the survey area of those surveys included the McCoy Mountains, which are within 17 kilometers (10 miles) of the Project. Those surveys were conducted on March 23 and 24 and on May 5, 6, and 7 (WRI 2011a, 2011b). All wildlife observations, including other raptors, were recorded during surveys.

2010 Surveys:

- Three golden eagle nests were identified within the 10 mile survey radius (Figure 4). These consisted of one inactive nest in the McCoy Mountains (13.3 kilometers [8.3 miles] from the Plant Site); and two nests, one inactive and one potentially active, within the Palen Mountains (both nests located about 15.8 kilometers [9.8 miles] from the Plant Site). These nests likely represent two eagle territories, one in the McCoy Mountains and one in the Palen Mountains.
- One prairie falcon (*Falco mexicanus*, USFWS Bird of Conservation Concern) was also observed nesting within the Palen Mountains during these surveys, on the same cliff on which the golden eagle nest was observed (approximately 15.8 kilometers [9.8 miles] from the Plant Site).
- No golden eagles were observed.
- No eggs or nestlings were detected at any of the golden eagle nests detected.

2011 Surveys:

- Four inactive golden eagle nests were identified in the McCoy Mountains (Figure 4). All inactive nests were between 11.4 and 15.3 kilometers (7.1 and 9.5 miles) from the

Project. The southernmost nest in the McCoy Mountains was also found during 2010 surveys

- No golden eagles were observed.
- No eggs or nestlings were detected at any of the golden eagle nests detected.

Golden Eagle Inventory Surveys during Construction

A golden eagle survey was conducted during the first year of construction, as required by Condition of Certification/Mitigation Measure BIO-28, to determine if golden eagles were nesting within one mile of the Project boundary (Tetra Tech 2011). The biologists surveyed all potentially suitable golden eagle nesting habitat within a one-mile radius of Project boundary, including a stretch of existing transmission lines from the Project's gen-tie interconnection with the Blythe Energy Project Transmission Line, to the CRS, which is 7.2 kilometers (4.5 miles) to the east (Figure 2). Ground surveys included driving, walking, and scanning with 10 x 50 binoculars all potential nesting habitats (e.g., rock outcrops, large trees, existing transmission/distribution structures) for stick nests. No golden eagles or potential golden eagle nests were observed; however, five other avian species were noted including common ravens (*Corvus corax*), red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk, turkey vulture (*Cathartes aura*), and white-tailed kite (*Elanus leucurus*, Fully Protected) (Tetra Tech 2011).

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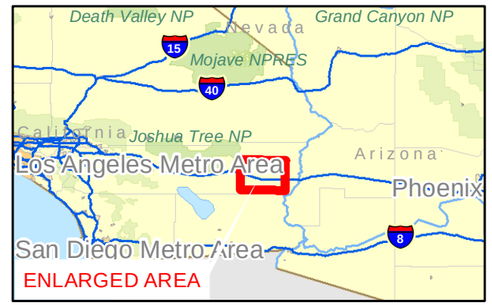
RIVERSIDE COUNTY,
CALIFORNIA



Legend

2010 Observations
- Active Golden Eagle Nest
- Inactive Golden Eagle Nest

2011 Observations
- Inactive Golden Eagle Nest
- Project Requested ROW
- Plant Site
- 10 Mile Survey Radius from Project ROW Boundary
- 10 Mile Survey Radius of McCoy Solar Energy Project
- Proposed Access Road (6.1
- Proposed Gas Line (5.9 Miles)
- Proposed Transmission Interconnect (7.5 Miles)
- Blythe Energy Project Transmission Line

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI; WRI, Inc.

N

0 1.25 2.5 5
Miles

FIGURE 4
2010 AND 2011 OBSERVATIONS
GOLDEN EAGLE NEST LOCATIONS

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2.2.3 Burrowing Owl Surveys

To assess the presence of burrowing owls (*Athene cunicularia*) within the Project Area, surveys were conducted according to the California Burrowing Owl Consortium (CBOC) Guidelines (CBOC 1993) and included three survey phases. The Phase I Habitat Assessment was completed in December 2007 during the initial reconnaissance survey. Because burrowing owls were detected during the Phase I survey, a Phase II survey was conducted in 2009 in order to locate burrows within the Project Area. Subsequently, because the Project Area contained burrows, breeding-season Phase III surveys were conducted during Spring 2009. As no direct observations of burrowing owls were made during the breeding season Phase III surveys, a winter Phase III survey was conducted. Details regarding the methods used for these surveys can be found in Tetra Tech and Karl (2009, 2010a, 2010b).

- During the Phase I survey biologists identified burrowing owl habitat throughout the Project Area and observed one burrowing owl.
- During the Phase II survey biologists identified recent burrowing owl sign (burrows, whitewash, feathers, and pellets) as well as two burrowing owls (Figure 3).
- During the breeding season Phase III survey biologists did not identify any burrowing owls; however, two burrowing owl sightings were made during the winter Phase III survey and one occupied burrow was identified (Figure 3). No active nests were detected.

Burrowing Owl Pre-construction Clearance Surveys

Pre-construction clearance surveys for burrowing owl, as required by Condition of Certification BIO-18, were conducted from January 3 to 14, 2011 (perimeter fence and access road) and from April 3 to April 7, 2011 (Plant Site). No burrowing owls or their sign were detected; therefore, constructed commenced with no further action required.

Table 2-2. Special-status Species with the Potential to Occur within the Genesis Solar Energy Project, Riverside County, California.*

Common Name	Scientific Name	Resident Classification[1]	GSEP[2]	BCC[3]	FWS Status[4]	CDFW Status[5]	BLM Status[6]
Bald Eagle	*Haliaeetus leucocephalus*	Winter	No	Yes	Delisted 2007	Endangered	Sensitive
Bell's Vireo	*Vireo bellii*	Summer	No	Yes	Endangered (*pusillus* ssp.)	Endangered (*arizonae and pusillus* ssp.)	Sensitive (*arazonae* ssp.)
Bendire's Thrasher	*Toxostoma bendirei*	Summer	No	Yes	–	SSC	Sensitive
Black-chinned Sparrow	*Spizella atrogularis*	Rare	No	Yes	–	–	–
Black Rail	*Laterallus jamaicensis*	Year-round	No	Yes	–	Threatened (*coturniculus* ssp.)	Sensitive (*coturniculus* ssp.)
Black Skimmer	*Rynchops niger*	Summer	No	Yes	–	SSC	–
Burrowing Owl	*Athene cunicularia*	Summer	Yes	Yes	–	SSC	Sensitive
Costa's Hummingbird	*Calypte costae*	Summer	No	Yes	–	–	–
Crissal Thrasher	*Toxostoma crissale*	Year-round	No	No	–	SSC	–
Elf Owl	*Micrathene whitneyi*	Summer	No	Yes	–	Endangered	Sensitive
Ferruginous Hawk	*Buteo regalis*	Winter	Yes	No	–	–	–
Gila Woodpecker	*Melanerpes uropygialis*	Year-round	No	Yes	–	Endangered	Sensitive
Gilded Flicker	*Colaptes chrysoides*	Year-round	No	Yes	–	Endangered	Sensitive
Golden Eagle	*Aquila chrysaetos*	Winter	No	No	–	Fully Protected	Sensitive
Gray Vireo	*Vireo vicinior*	Rare	No	Yes	–	SSC	Sensitive
Greater Sandhill Crane	*Grus canadensis*	Migrant	No	No	–	Threatened (*tabida* ssp.)	Sensitive
Gull-billed Tern	*Sterna nilotica*	Summer	No	Yes	–	SSC	–
Lawrence's Goldfinch	*Carduelis lawrencei*	Winter	No	Yes	–	–	–
Least Bittern	*Ixobrychus exilis*	Winter	No	Yes	–	SSC	–
Le Conte's Thrasher	*Toxostoma lecontei*	Year-round	Yes	Yes	–	–	–
Loggerhead Shrike	*Lanius ludovicianus*	Year-round	Yes	No	–	SSC	–
Long-billed Curlew	*Numenius americanus*	Winter	No	Yes	–	–	–
Lucy's Warbler	*Vermivora luciae*	Summer	No	Yes	–	SSC	Sensitive

Common Name	Scientific Name	Resident Classification[1]	GSEP[2]	BCC[3]	FWS Status[4]	CDFW Status[5]	BLM Status[6]
Marbled Godwit	*Limosa fedoa*	Rare	No	Yes	–	–	–
Mountain Plover	*Charadrius montanus*	Winter	Yes	Yes	–	SSC	Sensitive
Northern Harrier	*Circus cyaneus*	Winter	Yes	No	–	SSC	–
Peregrine Falcon	*Falco peregrinus*	Migrant, Winter	No	Yes	Delisted 1999	Fully Protected (*anatum* ssp.)	–
Prairie Falcon	*Falco mexicanus*	Year-round	Yes	Yes	–	–	–
Red Knot	*Calidris canutus*	Migrant	No	Yes	–	–	–
Rufous-winged Sparrow	*Aimophila carpalis*	Rare	No	Yes	–	–	–
Short-eared Owl	*Asio flammeus*	Rare	Yes	No	–	SSC	–
Swainson's Hawk	*Buteo swainsoni*	Migrant	Yes	No	–	Threatened	–
Western Snowy Plover	*Charadrius nivosus*	Rare	No	Yes	Threatened (*nivosus* ssp.)	SSC	–
Whimbrel	*Numenius phaeopus*	Migrant	No	Yes	–	–	–
Yellow-billed Cuckoo	*Coccyzus americanus*	Summer	No	Yes	Candidate (W. US DPS)	Endangered	Sensitive
Yellow-breasted Chat	*Icteria virens*	Summer, Migrant	No	No	–	SSC	–
Yellow Warbler	*Dendroica petechia*	Winter	No	Yes	–	SSC (*sonorana* ssp.)	–

1. Resident classification taken from Sibley 2000.
2. Genesis Solar Energy Project, Riverside County, California. Yes = observed within Project during protocol surveys; No = not observed during protocol surveys; Off-Site = observed outside of the Project area, not during protocol surveys.
3. U.S. Fish and Wildlife (FWS) Birds of Conservation Concern, Bird Conservation Region 33 (FWS 2008)
4. Designated by FWS as Threatened, Endangered or Candidate species under the Endangered Species Act; yellow-billed cuckoo refers to the federal-listed western United States Distinct Population Segment, the status of the yellow-billed cuckoo was recently proposed as Threatened (FWS 2013b); (–) indicates species is not listed, ssp.= subspecies.
5. Designated by the California Department of Fish and Wildlife (CDFW; formerly Department of Fish and Game) as Threatened, Endangered or Species of Special Concern (SSC) under the California Endangered Species Act of 1984 (CDFG 2011); (–) indicates species is not state-listed, ssp.= subspecies.
6. Designated by the Bureau of Land Management (BLM) as a sensitive species (BLM 2010); (–) indicates species is not listed by the BLM, ssp. = subspecies.

* List primarily derived from BCC list at FWS request and is not necessarily inclusive of all state-listed birds that could occur within the area.

2.3 INCIDENTAL AVIAN DATA COLLECTED DURING CONSTRUCTION

During construction of the Project, avian fatalities and injuries were recorded incidentally. These records provide an indication of which species may be impacted by the Project during operations, but it is important to note that many of the activities associated with construction that may have contributed to fatalities (e.g., erection of temporary buildings, use of laydown areas) will not be present during operations. A total of 168 birds representing 62 species were recorded as fatalities at the Project (Table 2), with the majority of fatalities reported during July and August 2013 (Figure 5). Species groups with the greatest number of fatalities were songbirds (97 fatalities), waterbirds (35 fatalities) and raptors (14 fatalities). Locations of fatalities are shown on Figure 6; however, it is unknown whether a similar pattern of fatalities will occur during operations.

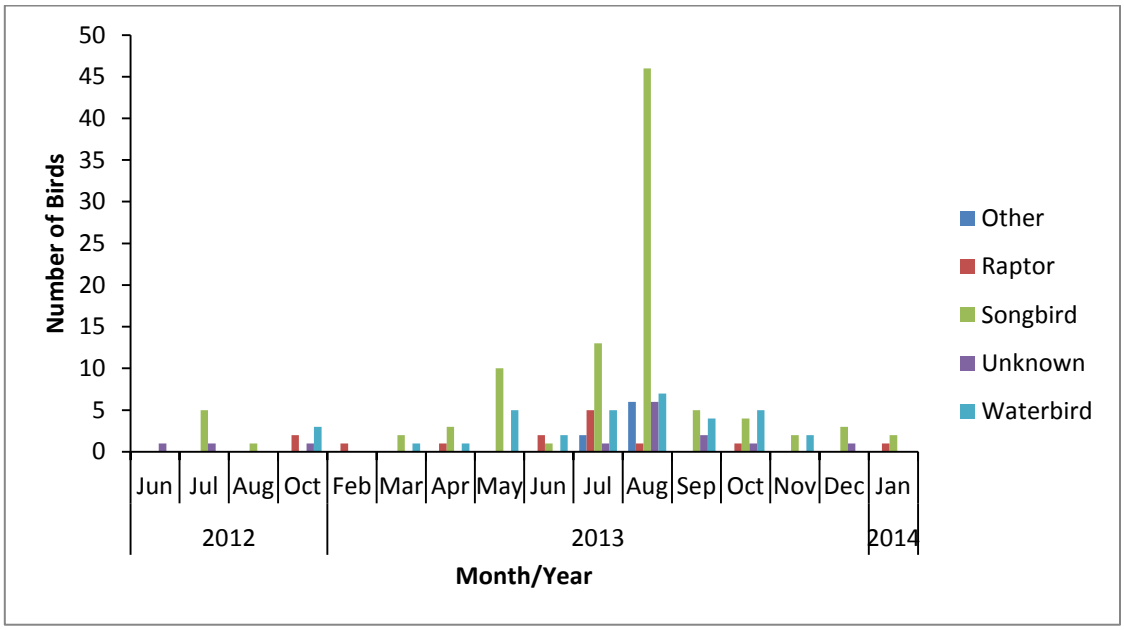
Table 2-3. Incidental Records of Avian Fatalities during Project Construction by Species

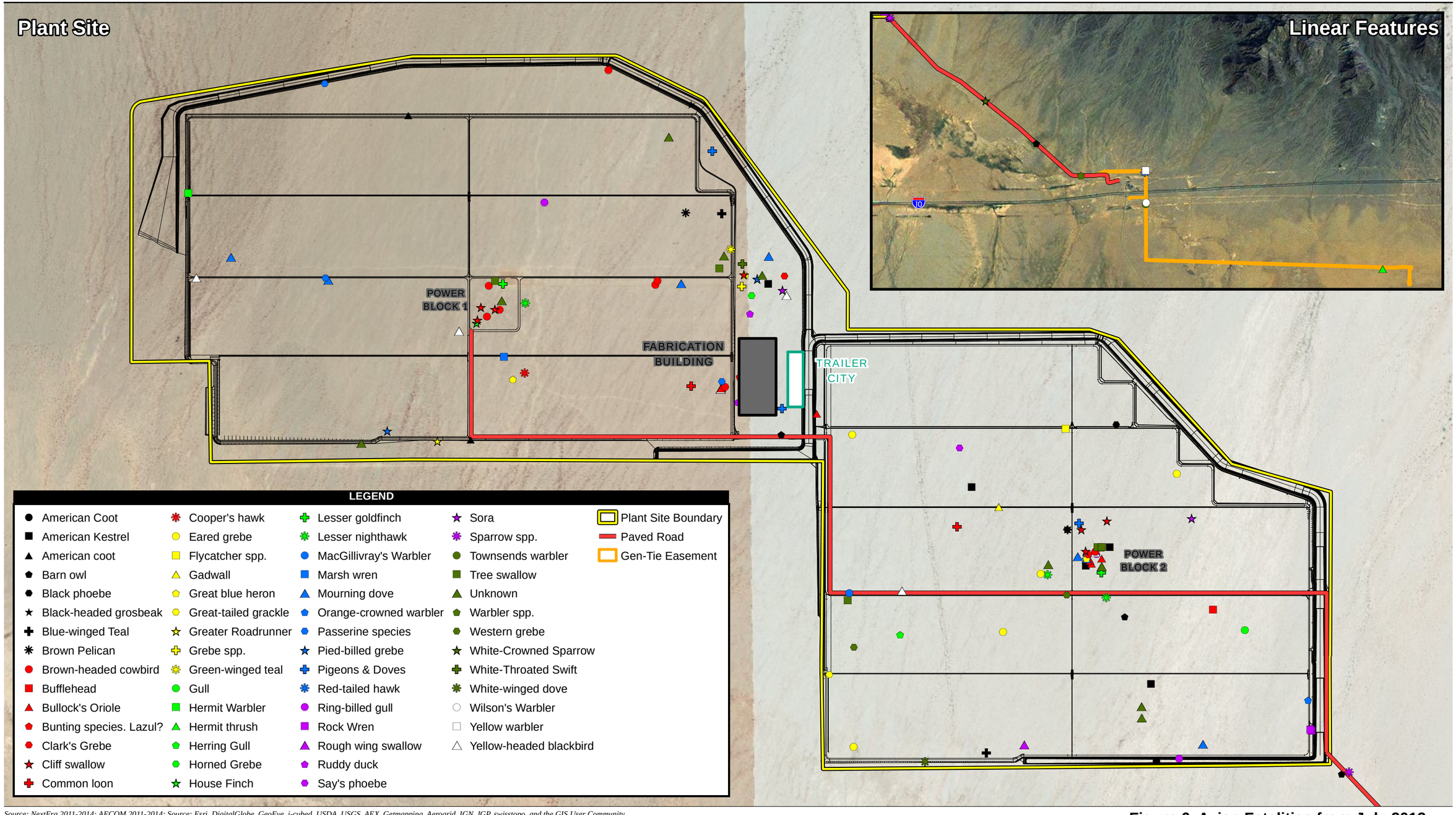
Species	Fatality Location											
	Air-cooled condenser	Access road	Buildings	Drainage channel	Evaporation pond	Other	Power line	Power block	Road	Solar trough	Transmission line	Total
Other				**1**		**2**				**5**		**8**
Greater Roadrunner						1						1
Unidentified Gull Species										1		1
Herring Gull										1		1
Lesser Nighthawk						1				2		3
Ring-billed Gull				1						1		2
Raptor		**2**	**1**		**1**	**2**		**2**		**5**	**1**	**14**
American Kestrel					1	1		1		2		5
Barn Owl		2	1					1		2		6
Cooper's Hawk										1		1
Red-tailed Hawk						1					1	2
Songbird	**9**	**6**	**2**		**2**	**32**	**3**	**19**	**1**	**17**	**6**	**97**
Black Phoebe										1		1
Black-headed Grosbeak						1						1
Black-throated Grey Warbler						1						1
Brewer's Blackbird			1			1						2
Brown-headed Cowbird	3		1			3		4		2		13
Bullock's Oriole	2					3				2		7
Unidentified Bunting Species						2						2
Cliff Swallow	2				1			4				7
Domestic Pigeon						2						2
Unidentified Flycatcher Species		1										1
Great-tailed Grackle										1		1

Species	Fatality Location											
	Air-cooled condenser	Access road	Buildings	Drainage channel	Evaporation pond	Other	Power line	Power block	Road	Solar trough	Transmission line	Total
Hermit Thrush											1	1
Hermit Warbler		1										1
House Finch						1						1
House Wren						1						1
Lesser Goldfinch		1				1		1				3
MacGillivray's Warbler									1			1
Marsh Wren						1						1
Mourning Dove	1					2		3		5		11
Orange-crowned Warbler						1	1					2
Unidentified Passerine Species		1				5						6
Unidentified Pigeons/Doves						1						1
Rock Wren											1	1
Rough-winged Swallow										1		1
Say's Phoebe								1		1		2
Unidentified Sparrow Species		1										1
Townsends Warbler											1	1
Tree Swallow						2		4		2		8
Unidentified Warbler Species		1										1
Western Meadowlark						1						1
Western Tanager										1		1
White-crowned Sparrow											1	1
White-winged Dove						1						1
Wilson's Warbler											1	1
Yellow Warbler							2				1	3
Yellow-headed Blackbird	1				1	2		2		1		7
Unknown		**1**	**1**		**1**	**2**		**3**		**6**		**14**
Unknown bird		1	1		1	2		3		6		14
Waterbird		**1**			**7**	**5**		**2**	**1**	**19**		**35**
American Coot						1			1	2		4
Blue-winged Teal										2		2
Brown Pelican								1		1		2
Bufflehead										1		1
Clark's Grebe					1							1
Common Loon						1				1		2
Eared Grebe										5		5
Gadwall										1		1

Species	Fatality Location											
	Air-cooled condenser	Access road	Buildings	Drainage channel	Evaporation pond	Other	Power line	Power block	Road	Solar trough	Transmission line	Total
Great Blue Heron					1			1		1		3
Unidentified Grebe Species					1							1
Green-winged Teal						2						2
Horned Grebe					1							1
Pied-billed Grebe					2					1		3
Ruddy Duck						1						1
Sora					1					1		2
Western Grebe		1								3		4
Total	**9**	**10**	**4**	**1**	**11**	**43**	**3**	**26**	**2**	**52**	**7**	**168**

Figure 5. Incidental Records of Avian Fatalities during Project Construction by Date and Species Group





Source: NextEra 2011-2014; AECOM 2011-2014; Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

1,250 625 0 1,250 Feet

Scale: 1:15,000; 1 inch = 1,250 feet

Figure 6. Avian Fatalities from July 2012 – February 14, 2014

Genesis Solar Energy Project

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2.4 BAT SURVEYS PRIOR TO PROJECT APPROVAL AND CONSTRUCTION

Of the 47 bat species in the United States, 21 potentially occur within the Project based on known distribution ranges and habitat requirements (Table 3, BCI 2013). None of the 21 bat species with potential to occur in the Project have state or federal regulatory protection. However, 13 bat species are considered Species of Special Concern by CDFW or BLM Sensitive Species indicating these species have experienced population declines or have limited distribution making them vulnerable to extinction.

In spring 2009 biologists searched for potential bat roosts and hibernacula such as abandoned mines and caves during comprehensive biological surveys (Tetra Tech and Karl 2009). Surveys were conducted using 30-foot (9.1-meter) transects within a 4,640-acre (1,878 ha) area that encompasses the original Project Disturbance Area. In addition, buffer surveys were conducted out to 1 mile surrounding this area (one 30-ft transect every 100 feet out to 500 feet, plus a transect at 1,200, 2,400, 3,960, and 5,280 feet from the survey area boundary). Two proposed linear facility routes and associated buffer transects were also surveyed (see Tetra Tech and Karl 2009 for detailed survey area and methods). The following provides a summary of the survey results:

- No bat roosts or hibernacula were found during baseline surveys; however, incidental observations of bats were made within and surrounding the Project and one roost was observed in a temporary structure during construction.
- Based on these observations, bats use the Project and surrounding area to roost and forage.

Table 2-4. Bat Species Potentially Occurring within the Genesis Solar Energy Project.

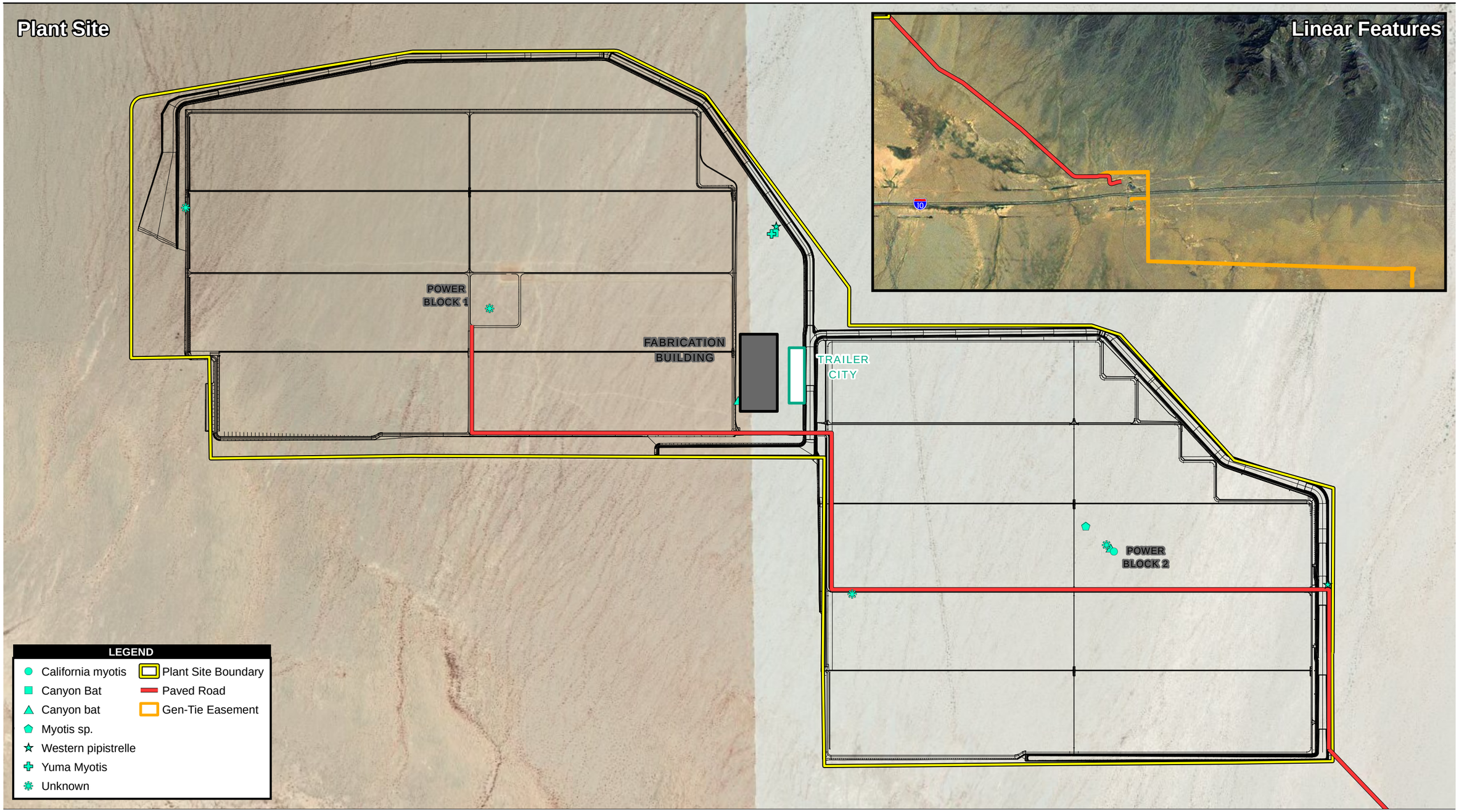
Common name	Scientific Name	GSEP	FWS Status[1]	BLM Status[2]	CDFW Status[3]	Western Bat Working Group Priority Level[4]
Arizona Myotis	*Myotis occultus*	No	–	–	SSC	Medium
Big Brown Bat	*Eptesicus fuscus*	No	–	–	–	Low
Big Free-tailed Bat	*Nyctinomops macrotis*	No	–	–	SSC	Medium
California Leaf-nosed Bat	*Macrotus californicus*	No	–	Sensitive	SSC	High
California Myotis	*Myotis californicus*	Yes	–	–	–	Low
Canyon Bat (formerly Western Pipistrelle)	*Pipistrellus hesperus*	Yes	–	–	–	Low
Fringed Myotis	*Myotis thysandodes*	No	–	Sensitive	–	Medium
Hoary Bat	*Lasiurus cinereus*	No	–	–	–	Medium
Little Brown Bat	*Myotis lucifugus*	No	–	–	–	Medium
Long-legged Myotis	*Myotis volans*	No	–	–	–	Medium
Mexican Free-tailed Bat	*Tadarida brasiliensis*	No	–	–	–	Low
Mexican Long-tongued Bat	*Choeronycteris mexicana*	No	–	–	SSC	High
Pallid Bat	*Antrozous pallidus*	No	–	Sensitive	SSC	Low
Pocketed Free-tailed Bat	*Nyctinomops femorosaccus*	No	–	-–	SSC	Medium
Southwestern Cave Myotis	*Myotis velifer brevis*	No	–	Sensitive	SSC	Medium
Spotted Bat	*Euderma maculatum*	No	–	Sensitive	SSC	Medium
Townsend's Big-eared Bat	*Corynorhinus townsendii*	No	–	Sensitive	SSC	High

Common name	Scientific Name	GSEP	FWS Status[1]	BLM Status[2]	CDFW Status[3]	Western Bat Working Group Priority Level[4]
Western Mastiff Bat	*Eumops perotis californicus*	No	–	Sensitive	SSC	Medium
Western Small-footed Myotis	*Myotis ciliolabrum*	No	–	Sensitive	–	Medium
Yuma Myotis	*Myotis yumanensis yumanensis*	Yes	–	Sensitive	–	Low

1. United States Fish and Wildlife Service Threatened, Endangered or Candidate species under the Endangered Species Act of 1973; (–) indicates species is not listed.
2. Bureau of Land Management Sensitive Species; (–) indicates species is not considered Sensitive (BLM 2010).
3. California Department of Fish and Wildlife; SSC = Species of Special Concern, (–) indicates species is not listed (CDFG 2011).
4. Status derived from Western Bat Working Group Regional Priority Matrix Region 8; Low = Overall status of the species is believed to be secure, Medium = More information is needed to adequately assess species status, High = Species are imperiled or are at high risk of imperilment (WBWG 2007).

2.5 Incidental Bat Data Collected During Construction

During construction of the Project bat fatalities and injuries were recorded incidentally. These records provide an indication of which species may be impacted by the Project during operations, but it is important to note that many of the activities associated with construction that may have contributed to fatalities (e.g., erection of temporary buildings, use of laydown areas) will not be present during operations. A total of 14 bat fatalities or injuries were reported during construction, consisting of one California myotis (*Myotis californicus*), one Yuma myotis (*Myotis yumaensis yumaensis*), five canyon bats (*Pipistrellus hesperus*; formerly western pipistrelle), one unidentified *Myotis*, and six unidentified bats. The bats were found in a temporary building used to assemble solar trough components (3 bats), the solar arrays, primarily in power block 2 (7 bats), the perimeter fence (2 bats), the air-cooled condenser of power block 1 (1 fatality), and the administration building (1 bat) (Figure 7).



Source: NextEra 2011-2014; AECOM 2011-2014; Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Figure 7. Bat Fatalities from July 2012 – February 14, 2014

Genesis Solar Energy Project

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3 AVIAN IMPACT ASSESSMENT

At this time, no systematic impact surveys have been conducted for PV technology; therefore, impacts will be evaluated in the initial years of operations. Potential types of impacts are summarized based on information from other technologies. To mitigate potential Project avian concerns, the CEC and BLM developed various Conditions of Certification/Mitigation Measures that contain requirements for avoidance and minimization aimed at limiting the potential impacts to bird species. Specific concerns are discussed below; detailed avoidance and mitigation measures to address these concerns, as well as other measures that will minimize impacts, are addressed in Section 5.0.

3.1 HABITAT LOSS OR CREATION

The construction of the Project will result in some habitat loss. Breeding bird composition on the Project is typical of densities found in arid desert species. The habitat that will be disturbed or removed is not unique or limiting on the landscape; therefore, birds should have other comparable or better breeding, foraging and roosting opportunities within the surrounding areas that are nearer to the mountains or a reliable water source, such as the Colorado River. Regardless, the effects of habitat loss will be minimized and offset by acquiring off-site habitat (compensatory mitigation) as well as the general avoidance and minimization measures outlined in Section 5.0.

There is also potential for the Project to create new habitat for some species, particularly those that may take advantage of any new standing water associated with the drainage channels around the Units. The REAT has raised concern regarding the potential for open water to enhance habitat for ravens, and the Project will prevent this effect to the extent practicable by netting the evaporation ponds. Other potential positive impacts to resident avian species may occur as a result of shade associated with the trough rows and nesting substrates provided by Project structures.

3.2 LIGHTING

Artificial lighting can disturb birds nesting in adjacent habitats, as well as attract flying birds towards structures, potentially resulting in collisions of night migrants (USFWS 2000). Prior to construction of the facility, artificial lighting in the Project Area included intermittent vehicles traveling along I-10 as well as fixed light sources at the California State Prisons and Wiley's Well Rest Area, approximately 11 kilometers (7 miles) and 8 kilometers (5 miles) southeast the Project, respectively. During construction, lighting will include lights from construction vehicles when construction occurs during nighttime hours, external lights on buildings and in the power block, down-shielded street lights on access roads within the plant site and any temporary lighting necessary for worker safety during nighttime construction. During operations, lighting will include lights on buildings, structures within the power block, street lights on a few sections of roads within the plant site (i.e., dangerous turns) and truck lights associated with the mirror washing, which is conducted at night. Given the lack of artificial night lighting in the Project Area prior to development, the overall change in ambient lighting conditions could disturb the nesting, foraging, or migratory activities of birds. Effects of lighting will be minimized through Condition of Certification/Mitigation Measure VIS-2 (Section 5.1.2).

3.3 NOISE

Elevated construction and operation noise levels could alter bird behavior (e.g., foraging, breeding) including disturbance that could lead to nest failure or abandonment. Ambient noise levels prior to Project development comprised aircraft and I-10 traffic, wind, and wildlife (BLM 2010). Noise sources from Project construction activities occurred throughout the Project Area due to use of construction equipment. The majority of the Project's operational noise will be caused by routine maintenance and operation of the power blocks (BLM 2010) centrally located approximately 3,200 feet (0.6 mile) from the Project boundary (Figure 2). Therefore, it is anticipated that construction noise (as well as any operations noise) will attenuate and typically be less than 65 decibels, A-scale (dBA) surrounding the Project Area. A noise level of 65 dBA is approximately equivalent to the noise created by an air conditioning unit or a conversational level of speech. The CEC determined (though consultation with the USFWS, CDFW, and BLM) that noise levels at or below this are not likely to adversely affect birds (CEC 2010). Effects of Project noise on birds will be avoided and minimized through implementation of the Nesting Bird Monitoring and Management Plan (Section 5.3).

3.4 COLLISION

The Project includes structures (e.g., mirrored parabolic troughs), ancillary buildings (e.g., air cooled condenser structure, administration building, control room, steam turbine generator building), linear features (transmission lines, distribution lines, fiber optic telecommunication lines), and a perimeter fence that could create collision hazards for birds.

At this time, no systematic impact studies have been published for concentrated solar trough technology, and as a result, impacts of this form of solar energy on birds are not well understood. The only formal study of impacts at a solar energy facility was conducted at a facility using power tower technology (McCrary et al. 1986). Although the study showed that birds collide with the mirrored heliostats (structures that concentrate sunlight onto the centralized tower), many of the deaths were attributable to the close proximity of evaporation ponds and agriculture, which served as an attractant to resident and migrant birds.

Incidental reporting during construction at the Project and Desert Sunlight Solar Energy Facility (Ironwood Consulting 2012, 2013a, 2013b, as cited in Riverside County Planning Department 2013) also suggest that photovoltaic and solar trough facilities may present a collision risk to birds; however, because of the lack of operational studies, the level of this impact is unknown. Although NextEra has not conducted standardized fatality monitoring at its other operational solar trough facilities (located in Florida and Spain), only low numbers of collision-related fatalities have been observed incidentally (J.Field, NextEra, pers.comm.). Species documented as fatalities at Genesis during construction include raptors (e.g., kestrels and hawks), songbirds (e.g., warblers, sparrows), and waterbirds (i.e., grebes and rails). Collisions may occur if the solar troughs reflect the environment, appear to be water, or give other false cues regarding the solid state of the solar troughs (McCrary et al. 1986, Klem 1989, Gelb and Delacretaz 2006). Although McCrary et al. (1986) identified that greater than 75 percent of the documented fatalities came from collisions with the mirrored heliostats at a power tower facility, the incidentally collected Project data for Genesis indicate that the majority of fatalities have been associated with situations related to construction. For example, many fatalities occurred

beneath tarps or materials in the laydown areas, and this may have occurred because of the temporary shade and structure available in the laydown areas during construction. These fatalities are not necessarily indicative of patterns of fatalities that may occur during operations. The level of collisions with solar trough structures are unknown, but are unlikely to pose a significant risk to resident or migratory birds because 1) the Project is located outside of known major migratory corridors, 2) mean use is naturally low due to the extreme conditions in the desert and 3) the Project and immediate vicinity does not contain unique habitat features (e.g., permanent waterbodies, agriculture, cliffs) that can serve as attractants to avian species. However, some have hypothesized that solar facilities may appear to some waterbirds as a water body, and this may potentially attract them to the Project.

With respect to linear features, when collisions occur with utility lines, it is typically because they are unmarked and or otherwise not visible to birds (Barrientos et al. 2011). Within the Project Area, distribution lines are bundled with fiber optic lines resulting in wider, more visible lines than other types of distribution lines. Outside of the Project Area, the majority of transmission lines are co-located with other transmission lines, thus minimizing potential collisions. Similarly, the chain-link security fence has been constructed with 3-inch-wide vinyl slats, spaced approximately an inch apart, which increases visibility and will help minimize bird collision.

Although Project troughs and other structures are not expected to pose a significant collision risk to resident or migratory birds, rigorous post-construction fatality monitoring will be conducted to assess actual impacts and inform adaptive management strategies (See Section 5.4 and the Post Construction Mortality Monitoring Program in Appendix C). Collision impacts will be minimized through design measures to the extent practicable and Project-specific avoidance and minimization measures (Section 5.0).

3.5 ELECTROCUTION

Utility lines (transmission and distribution) can potentially result in electrocution of bird species that have wing-spans large enough that the bird can simultaneously contact two conductors or a conductor and grounded hardware (e.g., large raptors). Therefore, any structures that allow for circuit completion (i.e., flesh-to-flesh contact between energized parts or an energized and grounded part) pose an electrocution risk. To protect raptors, including eagles, from possible electrocution, Avian Power Line Interaction Committee (APLIC) recommends a horizontal separation of 60 in and a vertical separation of 40 in between phase conductors or between a phase conductor and grounded hardware. Potential Project electrocution impacts will be minimized by following APLIC guidelines (APLIC 2006, see Section 5.1.2).

3.6 EVAPORATION PONDS

Processed water generated at the Project will be collected and contained within two 1-acre evaporation ponds By creating a water source in an area where water is scarce, the evaporation ponds could serve as an attractant to a variety of birds, including migratory waterfowl and shorebirds that seasonally inhabit or may try to use the evaporation ponds as resting, foraging, and nesting areas (McCrary et al. 1986). To avoid and minimize access to evaporation ponds, the Project was required to install a mesh net, elevated above the water line, to prevent bird access to the pond. Additionally, flagging has been installed to help visually deter birds from the

netting. Data from weekly post-construction monitoring at the evaporation ponds will be used to make adaptive management decisions regarding the netting and monitoring at the Project (Section 5.4.1).

3.7 SPECIES-SPECIFIC CONCERNS

Golden Eagles

The golden eagle is protected under the BGEPA, MBTA, and is a California Fully Protected species. As discussed above in Section 2.1, no golden eagles were detected in the Project Area during avian surveys; however, helicopter surveys identified three golden eagle nests representing 2 breeding pairs 13.3 kilometers (8.3 miles;1 nest) and 15.7 kilometers (9.8 miles; 2 nests) from the Plant Site (Tetra Tech 2010), indicating that they breed in the general area (Section 2.2). Because of the distance of the Project from eagle nests, the Project is unlikely to disturb the nesting eagles (Tetra Tech 2010). Eagle electrocutions are unlikely as the utility lines have been designed and installed in accordance with APLIC recommendations (APLIC 2006, Section 5.1.2).

Current literature varies regarding the recommended distances between activities and golden eagle nests necessary to limit the potential for disturbance. Known disturbances to golden eagle nests in California deserts include off highway vehicle traffic, camping, mining/development, shooting, and climbing (WRI 2008). Richardson and Miller (1997) summarized recommended buffer distances for active golden eagle nests, with respect to human disturbance, noise, and visual impacts, as 0.1 to 1.6 kilometers (0.1 to 1 miles). Suter and Joness (1981) suggested that construction buffers from nests should be at least 1 kilometer (0.6 miles). Holmes et al. (1993) evaluated flushing distance for golden eagles as 0.1 to 0.4 kilometers (0.07 to 0.25 miles) for pedestrian disturbance and 0.01 to 0.19 kilometers (0.009 to 0.12 miles) for vehicle disturbance. Multiple authors have stated that disturbance is minimized when it is not within line of sight of the nest (e.g., Suter and Joness 1981; Richardson and Miller 1997). The distances between Project activities and the eagle nests identified during surveys are substantially greater than the recommended buffers outlined above. Additionally, all identified nests are located on slopes that do not afford views of the Project Area. Therefore, construction and operation of the solar facility is unlikely to disturb golden eagle nesting.

The construction of the Project resulted in the removal of vegetation and, potentially, prey habitat, which could result in disturbance to golden eagle foraging patterns. It is unknown if golden eagles that nest in the Palen and McCoy Mountains utilize the Project Area for foraging. Conservatively assuming that they do, impacts to golden eagle foraging are likely to be minimal because the area leased for the Project represents 0.75 percent of the area within a 10-mile radius of the eagle pair in the Palen Mountains and 0.83 percent of the area within a 10-mile radius of the eagle pair in the McCoy Mountains. Additionally, the habitat that will be disturbed or removed is not unique or limiting on the landscape and does not represent a known prey concentration (Dr. Larry LaPré, BLM, pers. comm.). Eagles should have other comparable or better foraging opportunities within the surrounding areas. Therefore, the construction and operation of the Project is not expected to disturb the foraging of the two eagle pairs within 16 kilometers (10 miles) of the Project.

Burrowing Owls

Burrowing owls (California Species of Special Concern) are known to occur within the Project Area. Burrowing owls are highly sensitive to ground clearing activities due to their use of subterranean burrows. In addition, burrowing owls are known to occur in the Project Area year round (Tetra Tech and Karl 2009, 2010a, 2010b). Potential impacts of the Project's construction and operation on the burrowing owl include direct mortality, destruction of subterranean burrows, loss of foraging habitat, and increased predation rates due to predators attracted to the Project Area. These impacts will be minimized by implementation of the mitigation and minimization measures outlined in Section 5.2 and a separate mitigation and monitoring plan specific to burrowing owls (Section 5.3).

Common Ravens

Common ravens are of concern because Project features or activities could attract common ravens to the Project Site, thus increasing predation on birds and their nests, as well as other special-status species (e.g., desert tortoise [*Gopherus agassizii*] and Mojave fringe-toed lizard [*Uma scoparia]*). Common ravens are scavengers and predators and occur within the Project Area. The Project could provide new subsidies such as temporary ponding from construction dust suppression; creation of new perching, roosting, and nesting sites; and food from Project-generated trash (e.g., human food). These attractants may result in an increase in the local raven population that could adversely affect populations of prey species. These impacts will be minimized by implementation of the mitigation and minimization measures outlined in Section 5.2 and a separate monitoring and control plan specific to common ravens (Section 5.3).

Waterbirds

Incidental reports of fatalities at the Project during construction (See Section 2.2) suggest that waterbirds may be of concern. Despite the desert location of the Project, fatalities of waterbirds were detected incidentally at the evaporation ponds, drainage channels, and solar trough arrays. To determine whether the Project is impacting these species, fatality monitoring at the Project will track this ecological guild and prepare a fatality rate estimate for the guild or the smallest taxonomic unit within the guild experiencing at least 10 fatalities in a given year (see Appendix C).

4 BAT IMPACT ASSESSMENT

At this time, no systematic bat impact surveys have been conducted for operational concentrated solar trough facilities; therefore, impacts will be evaluated in the initial years of Project operations. Potential types of impacts are summarized based on information from other technologies, below. The BLM and CEC developed various measures that contain requirements for avoidance and minimization that would help limit the potential impacts to bat species. Specific concerns are discussed below; detailed avoidance and mitigation measures to address these concerns are addressed in Sections 5.0.

4.1 HABITAT LOSS OR CREATION

The construction of the Project may result in habitat loss for foraging and roosting bats. The foraging habitat that was disturbed or removed by the Project is not unique or limiting on the landscape; therefore, bats should have other comparable or better foraging opportunities within the surrounding areas such as more vegetated areas closer to the mountains or a reliable water source. It is not clear how bats will interact with the Project; however, effects of habitat loss will be minimized and offset by acquiring off-site habitat (compensatory mitigation) as well as the general avoidance and minimization measures outlined in Section 5.0.

There is also potential for construction of the Project to result in the creation of habitat for foraging or roosting bats. In particular, Project infrastructure may provide novel roosting opportunities for bats, as demonstrated by bats that roosted in some temporary construction buildings (J. Field, NextEra, pers. comm.). It is also possible that the evaporation ponds will attract insects that may, in turn, attract foraging bats, thereby creating new foraging opportunities. At the Harper Lake Solar Facility, located 282 kilometers (175 miles) west of the Project, researchers found aquatic insects successfully hatching in the evaporation ponds (Herbst 2006). An increase in insects could provide the benefit of an additional, concentrated food source in the desert.

4.2 LIGHTING

No research has been conducted on the effects of lighting on the potential collision risk for bats at solar energy plants; however, artificial lighting may increase collision risk with Project structures. Prior to construction of the facility, artificial lighting in the Project Area included intermittent vehicles traveling along I-10 as well as fixed light sources at the California State Prisons and Wiley's Well Rest Area, approximately 11 kilometers (7 miles) and 8 kilometers (5 miles) southeast the Plant Site, respectively. During construction, lighting will include lights from construction vehicles when construction occurs during nighttime hours, external lights on buildings and in the power block and down-shielded street lights on access roads within the plant site and any temporary lighting necessary for worker safety during nighttime construction. During operations, lighting will include lights on buildings, structures within the power block street lights on a few sections of roads within the plant site (i.e., dangerous turns) and truck lights associated with the mirror washing, which is conducted at night. Given the lack of artificial night lighting in the Project Area prior to development, the Project lighting could increase the potential for bats to collide with Project infrastructure (Orbach and Fenton 2010, McGuire and Fenton 2010). Additionally, if the Project lights attract insects, they may create a concentrated

food source for insect-eating bats, and may increase bat collision risk at structures where lights are located (Longcore and Rich 2004). Although it is unknown how bats will interact with the Project, rigorous post-construction fatality monitoring will be conducted to assess actual impacts and inform adaptive management strategies (Section 5.4; Appendix C). Effects of lighting will be minimized through Project design (Section 5.1.2).

4.3 NOISE

Impacts from noise may result in displacement of foraging bats. Studies have shown a negative correlation between bat foraging activity, foraging success, and vehicle noise levels (e.g., Schaub et al. 2008). Prior to Project development, ambient noise within the Project included vehicle traffic on I-10, wind, and wildlife (BLM 2010). Elevated construction and operation noise levels could result in interference with bat foraging behavior. However, because of the lack of natural roosting habitat and decrease in construction noise during the evening and night, noise will not likely have a significant effect on bat roosting and foraging. During operations, the majority of the Project noise will occur within the power blocks that are centrally located approximately 3,200 feet (0.6 mile) from the Project boundary. For this reason, foraging and roosting in natural habitat adjacent to the Project would not likely be substantially impacted by Project noise.

4.4 COLLISION

The solar trough structures may present some risk of collision to bats. Recent research on bats indicates that the echo-reflection properties of smooth objects can lead them to mistake these objects for water particularly with increased environmental darkness (Greif and Siemers 2010). Bats attempting to drink from smooth mirrored panels are potentially subject to collision, although no collisions were observed during experiments (Greif and Siemers 2010). There is evidence; however, that bats may learn from context to avoid non-water surfaces (Russo et al. 2012). Although it is unknown how bats will interact with the Project, rigorous post-construction fatality monitoring will be conducted to assess actual impacts and inform adaptive management strategies (Section 5.4; Appendix C).

4.5 EVAPORATION PONDS

The netted evaporation ponds are expected to exclude foraging bats, but could attract insects and provide an increase in prey for insectivorous bats (Bell 1980). At the Harper Lake Solar Facility, located 282 kilometers (175 miles) west of MSEP, researchers found aquatic insects successfully hatching in the evaporation ponds (Herbst 2006). Therefore, the increase in insects could provide the benefit of an additional, concentrated food source in the desert. Although it is unknown how bats will interact with the evaporation ponds, weekly monitoring of the evaporation ponds will be conducted to assess actual impacts and inform adaptive management strategies (Section 5.4).

5 DESIGN, AVOIDANCE, AND MINIMIZATION MEASURES

Genesis Solar has designed the Project and continues to implement avoidance and minimization measures in the construction and operations phases to avoid and minimize Project-related bird and bat injury and fatalities. Implementation of several Conditions of Certification/Mitigation Measures is required to comply with the CEC license and BLM Right-of-Way Grant issued for the Project. To avoid duplication, specific plans pertaining to monitoring, management, and control of resources during construction and operations are referred to within this document; details of each BIO Condition of Certification/Mitigation Measure are included in the Project's Biological Resource Mitigation Implementation and Monitoring Plan (BRMIMP). A summary of the avian and bat protection-related Conditions of Certification/Mitigation Measures are summarized in Table 5-1. Any Condition of Certification/Mitigation Measure that is not addressed in the BRMIMP is presented in detail in the following sections.

Table 5-1. Avian Protection-Related Conditions of Certification

Condition of Certification	Description
BIO-6	Worker Environmental Awareness Program
BIO-8	General Avoidance and Minimization Measures, including a measure for nest avoidance, monitoring, and management.
BIO-12	Compensatory Mitigation
BIO-13	Raven Management, Monitoring, and Control
BIO-14	Weed Management and Monitoring
BIO-18	Burrowing Owl Avoidance, Mitigation, and Monitoring
BIO-21	Evaporation Pond Netting, Monitoring, and Management
BIO-28	Golden Eagle Monitoring and Management
VIS-2	Specifies lighting design measures to minimize impacts to wildlife

5.1 PROJECT SITING

5.1.1 Location

The Project is located within a Solar Energy Zone (SEZ), an area designated through the Solar Energy Development Programmatic Environmental Impact Statement (EIS) process as being appropriate for large utility scale solar development. As stated on the home page of the PEIS website, "A SEZ is defined by the BLM as an area well-suited for utility-scale production of solar energy where BLM will prioritize solar energy and associated transmission infrastructure development." The Project was conceptualized in 2007, and the chosen location was the result of a lengthy study and analysis of the area. Numerous alternative sites were considered but eliminated, generally due to environmental constraints. The original ROW was more than 4,000 acres, and Genesis Solar went through a careful process of eliminating areas with high ecological value and other constraints that would make solar development difficult, which reduced the ROW to the current Project footprint of 1819.5 acres. Genesis Solar deliberately avoided sites in wilderness areas, Areas of Critical Environmental Concern, desert tortoise critical habitat, as well as areas with vegetation that would be good foraging habitat for

mammals, reptiles, or avian species. The Genesis Project site met all of those criteria when the Project was planned and sited.

As discussed in detail in Section 3.4, although some birds utilize this desert region, the Project is located in an area that naturally lacks unique habitat features that serve as major bird attractants. There are no perennial waterbodies, agricultural areas, cliffs, major migration corridors, or dense vegetation within the Project Area or immediate vicinity, nor is the area identified as an Important Bird Area (National Audubon Society 2014). This limits the number and extent of areas near the Project that can serve as attractants to bird species, thereby reducing the abundance of bird species expected in the general area. Additionally, the results of the avian point count surveys show that mean use of the Project Area by bird species is low (Tetra Tech and Karl 2009, 2010a, 2010b).

5.1.2 Design

Utility Poles and Lines

In order to minimize impacts on birds, the utility lines were designed to prevent bird injury and fatalities due to electrocution. Utility lines were built in compliance with APLIC guidelines (2006) to prevent electrocution (Condition of Certification BIO-8). APLIC guidelines include recommended distances that phase conductors should be separated (minimum of 60 inches), or the use of perch diverters and/or specifically designed avian protection materials in areas where this distance is not feasible (APLIC 2006). The 230-kilovolt (kV) transmission line transformers will be >60 in (150 cm), thus minimizing the risk for golden eagle electrocution. The approximately 6 mile construction power/alternative back feed power distribution system will be below 60 kV. These lines have smaller separations than transmission lines which increase the risk of electrocutions; therefore, Genesis Solar followed APLIC electrocution guidelines to minimize the risk of golden eagle, other raptors and avian species electrocutions.

To further minimize impacts, structures are monopole designs versus lattice tower design to minimize perching and nesting opportunities, and conductor and telecommunication lines were buried to further minimize the risk of bird collisions. The Project distribution lines are bundled with fiber optic lines resulting in wider, more visible lines than other types of distribution lines. Outside of the solar plant site, the majority of transmission lines are co-located with other transmission lines, thus minimizing potential collisions.

Perimeter Fencing

The chain-link security fence has been constructed with 3-inch-wide vinyl slats, spaced approximately an inch apart, to increase visibility and minimize bird collision.

Lighting

The Project was designed to minimize lighting, as required by Condition of Certification BIO-8 and in accordance with Condition of Certification VIS-2. To the extent feasible, consistent with safety and security considerations, all permanent exterior lighting and all temporary construction lighting was designed and installed such that a) lamps and reflectors are not visible from beyond the Project site, including any off-site security buffer areas; b) lighting does not cause excessive

reflected glare; c) direct lighting does not illuminate the nighttime sky, except for required Federal Aviation Administration (FAA) aircraft safety lighting; and d) illumination of the Project and its immediate vicinity is minimized. Specific design features include the following:

- Lighting incorporates fixture hoods/shielding, with light directed downward or toward the area to be illuminated;
- Light fixtures that are visible from beyond the Project boundary have cutoff angles that are sufficient to prevent lamps and reflectors from being visible beyond the Project boundary, except where necessary for security;
- All lighting is of minimum necessary brightness consistent with operational safety and security;
- No high intensity, steady burning, bright lights such as sodium vapor or spotlights were used;
- Lights in high illumination areas not occupied on a continuous basis (such as maintenance platforms) have switches, timer switches, or motion detectors so that the lights operate only when the area is occupied. To the greatest feasible extent, Project lighting shall be used on an 'as needed' basis and turned off at other times.

5.2 GENERAL AVOIDANCE AND MINIMIZATION MEASURES

Several avoidance and minimization measures, required by BIO-8 unless otherwise indicated, will avoid and minimize impacts to birds during construction and/or operations.

Compensatory Mitigation. Genesis Solar has provided compensatory mitigation at a 1:1 ratio for impacts to 1750 acres, and at a 5:1 ratio for impacts to 24 acres of critical desert tortoise habitat, per BIO-12. Compensatory mitigation was directed toward desert tortoise; however, bird and bat species will benefit from this habitat acquisition and protection.

Trash Abatement. During construction, all trash and food-related waste will be placed in self-closing containers and removed daily from the site. This will prevent trash from being exposed or blown around the Project Area, and will prevent predators from being attracted to the Project.

Traffic Control. Speed will be limited to 40 kilometers per hour (25 miles per hour) on dirt roads and 72 kilometers per hour (45 miles per hour) on the paved main access road.

Minimize Disturbance Impacts. Equipment and vehicle travel will be limited to existing roads or specific construction pathways during construction. Construction traffic, parking, and lay-down areas will occur within previously disturbed lands to the extent feasible.

Worker Environmental Awareness Program (WEAP). A site-specific WEAP (BIO-6) will inform Project personnel about the biological constraints of the Project. The WEAP will be presented by a Project biologist and all Project personnel must attend the training prior to working on-site. The WEAP will include information regarding the sensitive biological resources, restrictions, protection measures, individual responsibilities associated with the Project, and the consequences of non-compliance. Written material will be provided to employees at orientation and participants will sign an attendance sheet documenting their participation.

Minimize Standing Water. Water applied to dirt roads and construction areas (trenches or spoil piles) for dust abatement will use the minimal amount needed to meet safety and air quality standards in an effort to prevent the formation of puddles, which could attract birds and other wildlife.

Dispose of Road-killed Animals. During construction, road killed animals or other carcasses detected by personnel on roads associated with the Project will be reported and removed promptly. Appropriate permits would be obtained, if required, prior to removal of road kill.

Minimize Wildfire Potential. Fire prevention measures will be implemented during construction and operations to minimize wildfire potential. Site personnel will be required to abide by the Fire Prevention Plan (as required by Condition of Certification Worker Safety-2).

Weed Control. Minimization of the spread of weeds and introduction of new weed species will be managed by implementing the Weed Management Plan (as required by Condition of Certification BIO-14).

5.3 OTHER AVIAN-SPECIFIC MEASURES

Burrowing Owl Relocation and Mitigation. The potential impacts of the Project on burrowing owls will be minimized through the implementation of the Project's Burrowing Owl Relocation and Mitigation Plan (as required by Condition of Certification/Mitigation Measure BIO-18).

Nest Avoidance. Genesis Solar will conduct surveys prior to initiation of construction activities to identify nesting or breeding wildlife species. If nesting birds are detected, biologists will implement the avoidance measures set forth in Condition of Certification/Mitigation Measure BIO-8, as outlined below, and details of which can be found in the BRMIMP and the Nesting Bird Monitoring and Management Plan:

- If nests are discovered in the construction zone (or within a 500 feet of the construction zone), Genesis Solar will maintain the appropriate buffer distances (as determined through consultation with the CDFW) until the young have fledged.
- If nests are not found within the construction zone, or clearing can occur entirely outside of the breeding season, the ground will be cleared in order to prevent ground-nesting birds from nesting in the Project Area and subsequently being disturbed.

Raven Monitoring, Management, and Control. The risk of attracting common ravens to the Project Area, which could result in increased predation pressures on prey species, would be controlled through implementation of the Common Raven Monitoring, Management, and Control Plan (as required by Condition of Certification/Mitigation Measure BIO-13).

Incidental Monitoring during Construction. During construction, onsite personnel notified the DB when an injured or dead bird or bat was observed. The DB coordinated with USFWS and maintained records of all injuries and fatalities.

Standardized Reporting as Requested by FWS. At the request of FWS, Genesis Solar obtained a temporary SPUT Permit and abided by the reporting requirements of the permit.

Ongoing Consultation with the REAT. During construction, Genesis Solar consulted with the REAT on avian injuries and Fatalities, and worked with FWS Law Enforcement for bird carcass collection and shipment to the appropriate labs for analysis.

5.4 OPERATIONS AVOIDANCE AND MINIMIZATION MEASURES

In addition to the measures discussed above, Genesis Solar will implement the following avoidance and minimization measures during the operations and maintenance phase of the Project to minimize impacts to birds.

5.4.1 Post Construction Avian and Bat Fatality Monitoring Plan

Post-construction fatality monitoring will be conducted at the Project to assess avian and bat fatality rates and patterns and determine whether or not measures should be implemented to further reduce impacts. Post-construction fatality monitoring will comprise two types of monitoring conducted by trained personnel: standardized and operational. Standardized fatality monitoring consists of regular, systematic searches of a sample of mirrored solar troughs that are used to estimate fatality rates for birds and bats at the Project during the initial two years of operation. Operational monitoring will consist of searches of the evaporation ponds, gen-tie, and perimeter fence by operations personnel who have received specialized training during the initial two years of operation; however, the data will not be used to generate estimates of fatality rates. The detailed post construction fatality monitoring plan is attached (Appendix C). All monitoring will be conducted by personnel who have undergone training in bird identification and survey techniques. Training of the survey personnel will be carried out prior to the start of surveys by a highly qualified avian biologist, and collection of sufficient data to support identification will be emphasized. The highly qualified avian biologist will also verify and finalize species identifications on a periodic basis throughout the monitoring period using photos of the carcasses and preserved carcasses as needed.

5.4.2 Nest Management

Birds may utilize Project facilities for nesting. Any bird nests found will not be touched until the on-site Environmental Manager is consulted. If a nest is found, the on-site Environmental Manager will check the nest for activity. Nests that contain eggs or young are considered active and are protected for species listed under the MBTA and CDFG code. Therefore, active nests will be left in place. Genesis Solar will consult the CPM, CDFW, and USFWS if an active nest or a nest belonging to an eagle or threatened or endangered species is identified as a problem nest, and needs to be addressed. Nests that are confirmed to be inactive (i.e., do not contain eggs or young), do not belong to eagles or other threatened or endangered species, and will cause operational problems, will be removed.

5.4.3 Wildlife Response Reporting System

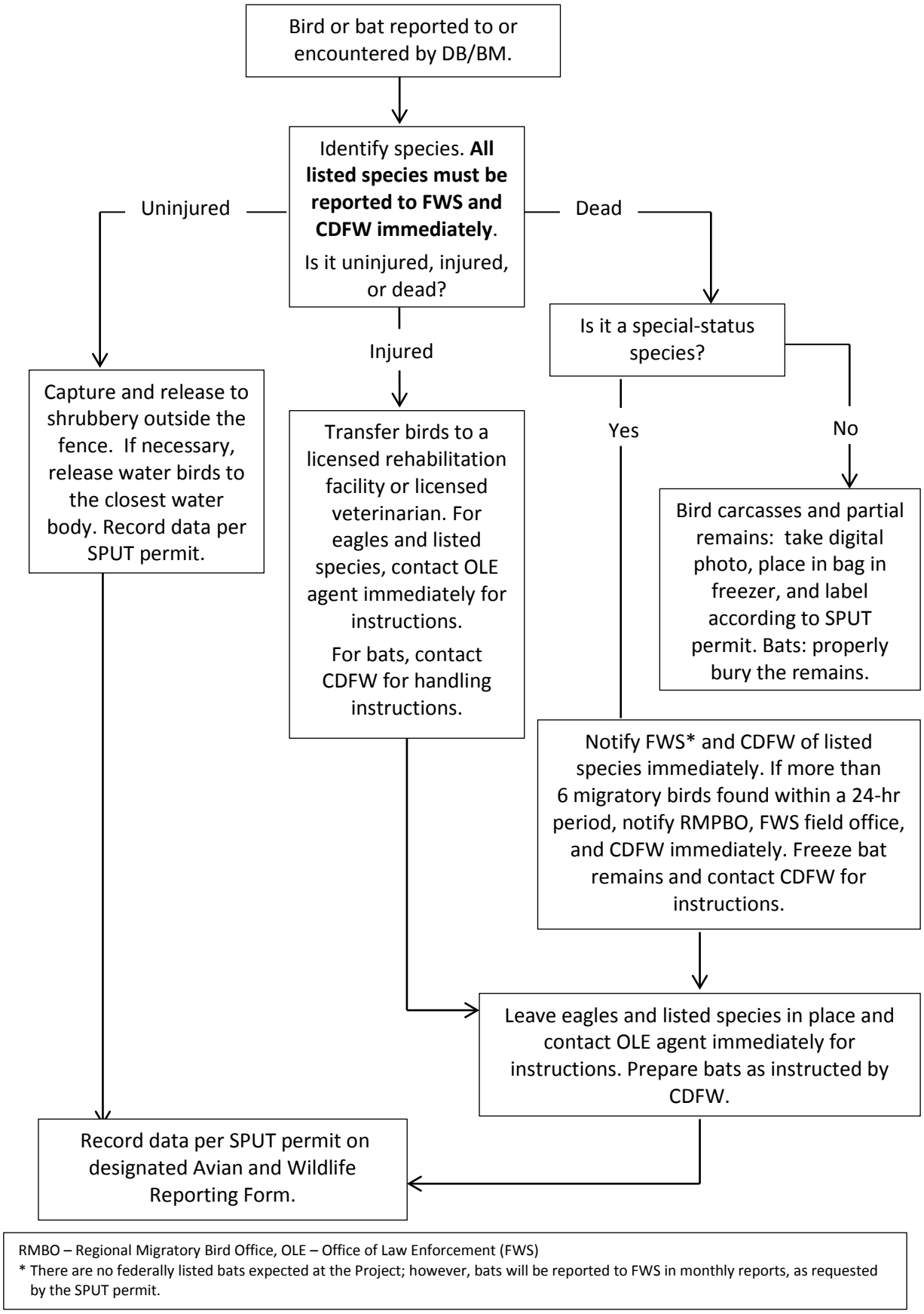
- Following implementation of the post-construction mortality monitoring program described in Appendix C, the Project will implement a Wildlife Response Reporting System (WRRS), which will be used by site personnel who discover carcasses incidentally to formal carcass surveys such as during general solar field or transmission line maintenance activities. For each incidentally discovered carcass, site personnel will

identify, photograph, and record data for the carcass as would be done for carcasses found during scheduled surveys; however, they will report these carcasses as incidental discoveries. The WRRS will be utilized for the life of the Project. The data will be logged in a tracking spreadsheet maintained by the on-site Environmental Manager, and presented in the annual reports to the CPM, CDFW, and USFWS.

The main purposes of the WRRS are:

- To provide a means of recording and collecting information on incidental avian and wildlife species found dead or injured within the Project Area by site personnel.
- To provide a set of standardized instructions for site personnel to follow in response to wildlife incidents in the Project (Figure 8).
- To keep site personnel mindful of wildlife interactions.

Figure 8. Avian and Bat Incident Flow Chart



RMBO – Regional Migratory Bird Office, OLE – Office of Law Enforcement (FWS)
* There are no federally listed bats expected at the Project; however, bats will be reported to FWS in monthly reports, as requested by the SPUT permit.

6 REPORTING REQUIREMENTS AND SCHEDULE

Reporting requirements are presented as those outlined in the CEC Conditions of Certification as well as additional reporting as a result of this BBCS.

6.1 CONSTRUCTION

CEC and BLM Reporting Requirements

During construction, the project DB will maintain records of the avian and bat injuries and fatalities observed by biological monitors and others Project personnel. The DB will generate a monthly report that is submitted as part of the Genesis Monthly Compliance Report to the CEC. This report will be available to all of the REAT agencies. Additionally, the DB will complete the SPUT reporting spreadsheet and email those data monthly to the USFWS.

6.2 POST-CONSTRUCTION AVIAN AND BAT FATALITY REPORTING

CEC and BLM Reporting Requirements

Quarterly Reports. The DB will prepare and submit quarterly reports to the CPM, CDFW, and USFWS during the first year of operations. Quarterly monitoring reports will provide the dates, duration, and results of monitoring, including a detailed description of any Project-related bird deaths or injuries detected during the monitoring study or at any other time, and describe adaptive management measures implemented to avoid or minimize deaths or injuries. Original data sheets, photographs, and relevant shape files (if any) will be attached to the reports.

Annual Reporting. Following the completion of the fourth quarter of monitoring, the Environmental Manager will prepare an annual report that summarizes the year's WRRS data, analyzes any Project-related bird fatalities or injuries detected, and provides recommendations for future monitoring and any adaptive management actions needed. The report will be submitted to the CPM, CDFW, and USFWS no later than January 31st of every year.

After two years of data collection the DB will prepare an overall report that describes the study design and results of the avian and bat fatality monitoring. This 2nd year report will serve as the annual report for the second year of monitoring, as well as the overall report that covers both years of monitoring. This report will be used to determine whether the monitoring design needs to be changed or if monitoring can be terminated. The report will be submitted to the CPM, CDFW, and USFWS no later than the third year after onset of Project operation.

Additional BBCS Reporting

Semi-Annual Meeting: Genesis Solar will meet with the REAT agencies once every six months to review and discuss the monitoring results during the post-construction mortality monitoring.

Annual Report: Genesis Solar will submit an annual report based on the results from the post-construction mortality monitoring that summarizes the year's WRRS data, analyzes any Project-related bird fatalities or injuries detected, and provides recommendations for future monitoring and any adaptive management actions needed includes bias corrected fatality estimates and species lists.

7 ADAPTIVE MANAGEMENT

GSEP will be managed adaptively during operations to evaluate the Projects potential impact on birds and bats and to minimize impacts. Adaptive management is a flexible process where measured outcomes are used to inform management decisions (Williams and Brown 2012). Adaptive management treats management actions as hypotheses to be tested and relies on monitoring to collect information and make iterative adjustments to management. The process of siting and designing GSEP has utilized adaptive management to minimize environmental impacts to the extent practicable, and a similar approach will be applied to construction and operation of the Project.

Adaptive management actions may be triggered by regular assessment of data collected during the first two years of project operations, primarily from post-construction mortality monitoring and operational monitoring. Given the limited information pertaining to avian and bat mortality at operational large-scale thermal solar energy facilities, the establishment of specific adaptive management thresholds is not possible prior to post-construction fatality monitoring. Therefore, during the post-construction monitoring program, Genesis Solar will meet every six months with the REAT agencies to discuss the monitoring data. These discussions will focus on the following questions:

1. Do specific species or taxonomic groups appear to be at risk?
2. Do fatalities appear to represent ecologically significant impacts?
3. Are there particular areas or facilities that appear to be higher risk?
4. Are there time periods that seem to represent higher risk?
5. Are there avoidance and minimization measures that can be tested or implemented that are logically feasible and where the costs are proportional to the impacts?
6. Are there deterrent technologies and/or potential pilot scale studies that may be warranted?

Additionally, these meetings may also include an evaluation and discussion of potential research questions that the REAT agencies would like to see the solar industry support to better inform new solar energy projects currently in development.

During post-construction monitoring, small-scale adaptive measures may be implemented by staff if trends are being observed at site specific locations (e.g., evaporation ponds, specific location within a solar array, fence line or access roads). For example, if fatalities are regularly observed at the evaporation ponds, installation of additional flagging or other flashy visual deterrents could be installed. Similarly, if regularly fatalities are observed along the facility access roads, better signage, reduced speed limits or additional educational awareness will be implemented. Adaptive measures that may be considered as responses to small-scale issues on a case by case basis include, but are not limited to:

- Visual deterrents such as flags or eagle cutouts
- Auditory deterrents

- Physical barriers to deter perching and roosting
- Additional or different netting of ponds
- Modification of signage or speed limits
- Modification of lighting

Implementation and monitoring of any of these adaptive measures will be documented and reviewed with the REAT agencies during the regularly scheduled meetings.

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APPENDIX A

Condition of Certification BIO-16

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CEC Condition of Certification BIO-16 Avian Protection Plan

The Project owner shall prepare and implement an Avian Protection Plan to monitor the death and injury of birds from collisions with facility features such as transmission lines, reflective mirror-like surfaces and from heat, and bright light from concentrating sunlight. The Project owner shall use the monitoring data to inform and develop an adaptive management program that would avoid and minimize Project-related avian impacts. Project-related bird deaths or injuries shall be reported to the CPM, CDFG, and USFWS. The CPM, in consultation with CDFG and USFWS, shall determine if the Project-related bird deaths or injuries warrant implementation of adaptive management measures contained in the Avian Protection Plan. The study design for the Avian Protection Plan shall be approved by the CPM in consultation with CDFG and USFWS, and, once approved, shall be incorporated into the project's BRMIMP and implemented.

Verification: *No less than 30 days prior to the start of construction-related ground disturbance activities the Project owner shall submit to the CPM, USFWS, and CDFG a final Avian Protection Plan. Modifications to the Avian Protection Plan shall be made only after approval from the CPM.*

For one year following the beginning of power plant operation the Designated Biologist shall submit quarterly reports to the CPM, CDFG, and USFWS describing the dates, durations, and results of monitoring. The quarterly reports shall provide a detailed description of any Project-related bird deaths or injuries detected during the monitoring study or at any other time, and describe adaptive management measures implemented to avoid or minimize deaths or injuries. Following the completion of the fourth quarter of monitoring the Designated Biologist shall prepare an Annual Report that summarizes the year's data, analyzes any Project-related bird fatalities or injuries detected, and provides recommendations for future monitoring and any adaptive management actions needed.

No later than January 31st of every year the Annual Report shall be provided to the CPM, CDFG, and USFWS. Quarterly reporting shall continue until the CPM, in consultation with CDFG and USFWS determine whether more years of monitoring are needed, and whether mitigation and adaptive management measures are necessary. After two years of data collection the project owner or contractor shall prepare a report that describes the study design and monitoring results of the Avian Protection Plan. The report shall be submitted to the CPM, CDFG and USFWS no later than the third year after onset of Project operation.

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APPENDIX B

AVIAN AND WILDLIFE REPORTING FORM

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Potential Avian and Wildlife Reporting Form

***** All Fields Must Be Filled Out. Do Not Leave Any Field Blank. *****

INCIDENT DETAILS

Observation Made During (circle one):

Evaporation Pond Monitoring / Scheduled Fatality Survey / Incidental

Date Observed: _____ Date Collected: _____

Observer: _____

Type of Incident (circle one): Injury / Fatality / Nest

Condition (circle one): Intact Carcass / Dismembered Carcass / Feathers Only

Age of Remains (days) (circle one):

1-5 (fluid filled eyes) / 6-30 (maggots) / 30+ (bones)

Photo No. _____

Carcass Condition Details, Behavior of Injured Animal or Nest Details:

_____

_____

_____

LOCATION

DATUM: _____

UTM N: _____ UTM E: _____

Found Near (circle one):

Solar Trough / Evaporation Pond / Road / Power Line / Other (explain below)

Location Details: _____

_____

_____

_____

IDENTIFICATION

Bird / Bat / Unknown / Other (circle one)

Species (if unknown, write 'unknown'):_____

Color/Markings: _____

Sex (circle one): Male / Female / Unknown

Age (circle one): Adult / Juvenile / Unknown

Is Animal Tagged? (circle one): Yes / No

Identification Remarks: _____

_____

_____

_____

ENVIRONMENTAL CONDITION

Weather (circle one): Clear / Fog / Cloudy / Rain

Approx. Temperature (circle one) °F / °C: _____

Wind (circle one): Calm / Gusty / Storm / Violent Storm

Habitat (circle all that apply):

Bare Ground / Creosote Bush Scrub / Sand Dunes /

Sand Drifts over Playa / Ephemeral Wash / Desert Pavement

NOTIFICATION

Who was Notified, and When? _____

_____

Actions Taken (e.g., left in place, taken to rehab): _____

_____

_____

COMMENTS: _____

_____

_____

* Turn in completed form and incident photos to the on-site Environmental Manager.
* Report any incidental observations of dead birds or other wildlife at the evaporation ponds to the Designated Biologist within one day of the detection of the carcass.
* Report any nests immediately to the on-site Environmental Manager.

APPENDIX C

POST CONTRUCTION MONITORING PLAN

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Table of Contents

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1.0 Introduction

1.1 QUESTIONS TO BE ADDRESSED

Post-construction monitoring is a tool that has been used regularly by the wind industry to evaluate the species and number of fatalities due to the operation of wind turbines (Strickland et al. 2011). Similarly, based on incidentally reported bird and bat fatalities at solar facilities, wildlife agencies and solar companies are beginning to evaluate post-construction monitoring at industrial scale solar facilities. Genesis Solar reviewed the U.S. Fish and Wildlife Service (USFWS) *Region 8 Interim Guidelines for the Development of a Project Specific BBCS for Solar Energy Project and Related Transmission Facilities* (USFWS 2012) and used the Guidelines as a point of reference to develop the following list of questions that can be practicably addressed by post-construction monitoring at the Genesis Solar Energy Project (Project):

1. *What are bird and bat fatality rates due to facility operation?* Genesis Solar notes that question 1 can be answered for broad taxonomic groups, but unless the detected fatalities for a species exceed 5 annually, the currently available fatality rate estimators cannot estimate species-level fatality rates with sufficient accuracy (M. Huso, pers. comm. 2013). Therefore, fatality estimation to answer question 1 will focus on total birds, total bats, and broad taxonomic subgroups.

2. *What is the composition of fatalities in relation to migrating and resident species*? Genesis Solar will attempt to determine, based on species identity and seasonal timing of fatality events, whether fatalities represent resident species or species that are migrating through the region.

3. *Do estimated fatality rates vary within the Project site in relation to site characteristics, seasonally, or among years?* Fatality rate estimation will be stratified by season and site characteristics such as location (i.e., unit) if sample sizes of detected fatalities are sufficient to compare strata.

4. *How do the estimated fatality rates compare to those documented for existing projects in similar landscapes with similar species composition and use*? Currently, fatality data for solar energy facilities are generally absent from the public domain. Genesis Solar will compare its estimated fatality rates to published rates for renewable (wind and solar) energy facilities in desert regions of the western U.S. This comparison will use data available in the public domain at the time of the preparation of the post-construction report.

5. *Do fatality data suggest the need for measures to reduce impacts?* Genesis Solar will compare fatality rates estimated by the post-construction fatality monitoring program to population data for affected species to determine whether an adaptive management response is warranted. In the event that fatalities are sufficient to trigger an adaptive management response to reduce impacts, adaptive management will proceed according to the plan described in the BBCS.

2.0 Post-construction Avian and Bat Fatality Monitoring

Post-construction fatality monitoring will comprise two types of monitoring conducted by trained personnel: standardized and operational. Standardized fatality monitoring consists of regular, systematic searches of a sample of mirrored solar troughs (troughs) that are used to estimate

fatality rates for birds and bats at the Project during the initial years of operation. Operational monitoring will consist of searches of the evaporation ponds, gen-tie, and perimeter fence by operations personnel who have received specialized training; however, the data will not be used to generate estimates of fatality rates. Post-construction fatality monitoring is anticipated to begin at the start of the first full seasonal interval after both Units are fully operational (i.e., sending power to the electrical grid) and the BBCS is approved by the REAT. Monitoring will not be permitted during construction due to safety and access issues. Based on the current construction schedule, the estimated completion date is in April, 2014; therefore, the anticipated start of monitoring would be on June 1, 2014 to capture the first full season.

2.1 STANDARDIZED FATALITY MONITORING – TECHNICAL APPROACH

The following sections describe the protocol for standardized fatality monitoring. This monitoring framework consists of standardized carcass searches conducted at a sample of the Project troughs. The number of fatalities found during searches represents a minimum number of fatalities at a project because not all fatalities that occur are found by observers. Therefore, carcass persistence trials and searcher efficiency trials will be conducted concurrently with standardized fatality monitoring to account for the bias attributable to carcass removal by scavengers and searcher efficiency. Annual fatality rates (e.g., birds/trough row/year and birds/operational MW/year) will then be estimated using statistical methods that adjust the number of carcasses found for these detection biases. Per-trough row and per-MW estimates provide different ways of scaling fatality information to be comparable to other projects. Annual fatality rates will be calculated for all bird species combined, small (≤ 10 inches [25 cm]) and large (>10 inches [25 cm]) birds, raptors, and special-status species groups (as defined by USFWS, California Department of Fish and Wildlife [CDFW], and BLM regulations). In some cases, the sample size for a species group of interest, such as eagles or other sensitive species, may be too small to allow for the calculation of accurate fatality estimates (see Section 2.1.6). In these cases, numerical counts of total fatalities detected during standardized and operational searches for each of these species or species groups will be substituted in place of rate estimates (see Section 2.1.6 and Table 1).

Because little is known about causes or patterns of fatalities associated with solar projects, the methods outlined in this section are derived from those used on wind energy projects. Methods and timing outlined here may be modified adaptively over the course of the study as Project-specific information is gained to maximize the effectiveness and efficiency of the monitoring program (e.g., search interval, number of trough rows searched, plot size, analytical method).

2.1.1 Standardized Carcass Searches – Birds and Bats

This section outlines the methods for the standardized carcasses searches, which constitutes the initial step in generating the fatality estimate (i.e., finding the carcasses). These values then will be adjusted to account for detection bias (see Section 2.1.5). The methods for standardized carcass searches include the sampling duration and intensity, search plot configuration, and fatality documentation (Table 1).

The objectives of the standardized bird and bat fatality monitoring are to answer the questions outlined in the introduction to Section 1.0, above.

Table 1. Comparison of Standardized and Operational Bird and Bat Post-Construction Fatality Sampling Design.

Component	Standardized bird and bat fatality monitoring	Operational monitoring
Components sampled	Solar trough rows	Evaporation ponds, perimeter fence, gen-tie
Component selection criteria	Stratified random	All
Percent area searched	30 percent	100 percent
Search interval	14 days	Monthly – fence and gen-tie Daily – evaporation ponds
Distance between transects	1.5 solar trough row widths – approximately 30 m	n/a
Searcher efficiency trials	Yes	No
Carcass persistence trials	Yes	No
Method of calculating estimated fatalities for the Project	Statistical estimator to be determined, fatalities per trough row and per megawatt	Total carcasses found

2.1.2 Sampling Intensity and Duration

Standardized post-construction fatality monitoring will consist of standardized searches of 30 percent of the troughs within the Project and will be conducted for the first two years of operations. After the second year of monitoring, Genesis Solar will evaluate the results and determine whether a third year of monitoring will be conducted. No searches will be conducted of the power blocks for reasons of safety for searchers and operations personnel. To avoid bias in the fatality estimate, sampling units will be selected in a stratified random manner based on position in the solar field following the design described below. All searches will be performed by two searchers driving the transects at a speed of 8 kilometers per hour (5 miles per hour) in a Gator™ or similar open-air vehicle. During periods of extreme heat (> 95°F), an enclosed vehicle may be used for searches so that the searchers have an air-conditioned environment, thereby reducing the risk of heat stress.

Spatial Arrangement. The Project consists of two units, each comprising rows of solar troughs arranged in blocks. Unit 1 contains 10 blocks and Unit 2 contains eight blocks (Figure 1). Because the area beneath the troughs is level and clear of any vegetation, searches will consist of searching the space between every other row of troughs, and visually scanning the space to the next transect; or approximately 30 meters (m) on each side of the transect. In other words, on each north-south transect, the searchers will visually search ½ of the distance to the next trough eastward on one (e.g., north) pass and ½ of the distance to the next trough westward on the return pass. Extra care will be taken to scan around the concrete foundations of the troughs, which are the only structures on the ground that might obscure a carcass from view.

The spatial design consists of sample plots of 30 trough rows, searched via 15 transects. To sample 30 percent of the troughs, Genesis Solar will search five sample plots within each unit (proposed sample plots are red rectangles on Figure 1). Blocks to be sampled within each row were assigned at random, stratified so that every row must have at least one sample plot and no block can have more than one sample plot. To reduce the chance of spatial sampling bias, sample plots were randomly assigned west, middle, or east starting points within rows. West starting points anchored the left edge of the sample plot at the westernmost trough in a block. Middle starting points centered the sample plot over the center of a block. East starting points anchored the right edge of the sample plot at the easternmost trough in a block. The same rows will be searched in all years of the baseline monitoring period to avoid confounding effects from location in the solar field with variation among years.

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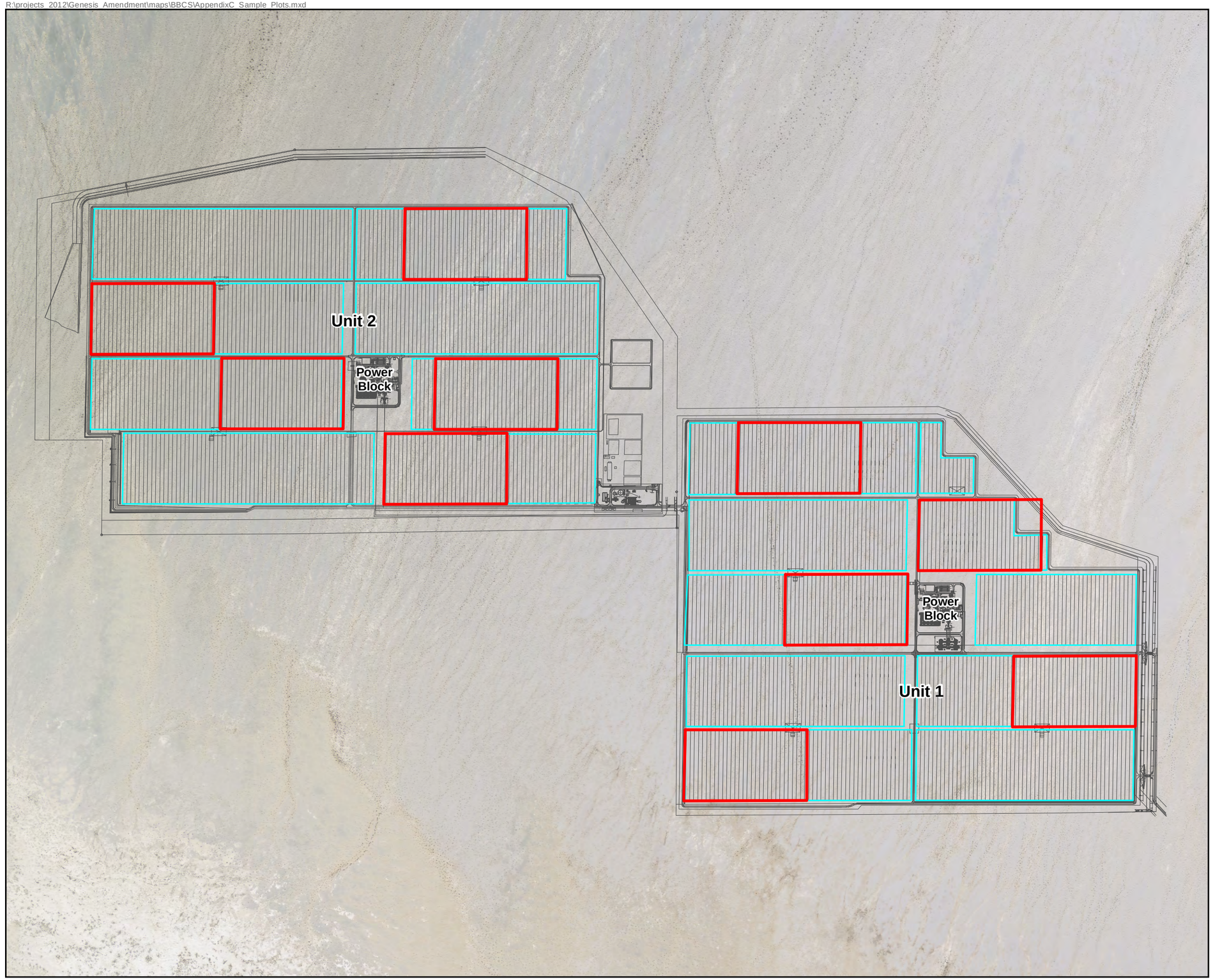
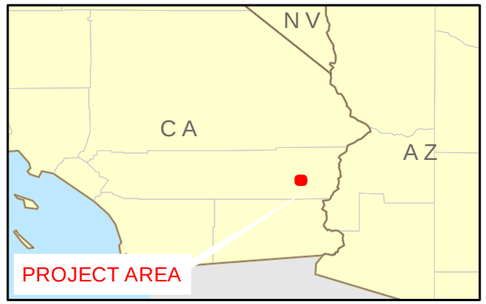
R:\projects_2012\Genesis_Amendment\maps\BBCS\AppendixC_Sample_Plots.mxd



GENESIS SOLAR ENERGY PROJECT

RIVERSIDE COUNTY, CALIFORNIA



Legend

- Solar Energy Project Site Layout
- Solar Trough Row
- Post Construction Avian and Bat Fatality Monitoring Sample Plot
- Blocks

N

0 500 1,000 2,000

Feet

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, TT, USDA, Fluor

FIGURE 1
APPENDIX C TO THE BBCS

PROPOSED SAMPLE PLOT LOCATIONS

TETRA TECH

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Sampling Frequency. The survey year will be divided into seasons to allow for the inclusion of season-specific searcher efficiency probabilities and carcass persistence times. A search interval of no greater than 14 days will be used initially in searches of the solar troughs to minimize the detection bias associated with carcass persistence time for small birds and bats (Strickland et al. 2011). The search interval may be adjusted to reduce bias (i.e., the interval between searches may be reduced or increased), if needed, based on searcher efficiency and carcass persistence after the first full year of searches.

Seasons will be defined as follows for sampling:

- Spring: March 1 to May 31.
- Summer: June 1 to August 15.
- Fall: August 16 to November 15.
- Winter: November 16 to February 28.

2.1.3 Fatality Documentation

During the set-up for carcass surveys, a sweep survey will be conducted to remove any fatalities that occur before the study is initiated. These carcasses will be documented in the same manner as those found during the standardized carcasses searches; however, they will not be included in the statistical analysis because it requires a known search interval (i.e., an estimate of when fatalities occurred).

Searchers will assume that carcasses found are due to the solar facility unless the cause of death can be clearly attributed to a non-facility cause. Although an unknown number of fatalities may result from natural predation, disease, or anthropogenic events (e.g., shooting), the condition of the carcasses when found rarely facilitates determining the cause of death.

Carcasses found during standardized carcass searches will be labeled with a unique number, and species, sex, age, date, time found, location (Global Positioning System [GPS] coordinate), condition (e.g., intact, scavenged, feather spot), observer, and any comments that may indicate cause of death will be collected. All carcasses will be photographed in situ. Once documented, carcasses, with the exception of eagles, which will be left in place, will be collected and placed in a dedicated freezer at the Project.

Searchers may discover carcasses incidental to standardized carcass searches (e.g., outside of a search plot or of a scheduled survey date). For each incidentally discovered carcass, the searcher will identify, photograph, and record data for the carcass as would be done for carcasses found during standardized scheduled searches, but will code these carcasses as incidental discoveries. Incidental discoveries will not enter into the statistical calculation of fatality rate for reasons noted above for carcasses found during initial set-up.

2.1.4 Carcass Persistence Trials

Carcass persistence time estimates the amount of time a carcass remains on-site prior to its disappearance from the search area due to scavenging or other means (e.g., due to forces such as wind and rain or decomposition beyond recognition). Carcass persistence trials will be conducted in each season to evaluate seasonal differences in carcass persistence (i.e., due to

changes in scavenger population density or type) and possible differences in the size of the animal being scavenged.

Carcasses used in the trials will be selected to best represent the size of a range of species. If sufficient carcasses have been collected as fatalities at the Project, and are sufficiently fresh, they will be used for these trials. If additional carcasses are needed, commercially available carcasses will be substituted. For large birds, carcasses may include domestic waterfowl, pheasant, or similar species legally obtained from game farms. For small birds, carcasses may include European starlings, house sparrows, or other non-native species not legally protected. For bats, carcasses may include house sparrows or brown mice. Assuming adequate carcass availability, one carcass persistence trial will be conducted during each of the spring, summer, fall, and winter seasons with a goal of at least 15 carcasses of each bird size class (large bird, small bird, bat) placed per season.

Estimates of the probability that a carcass persisted between search intervals and therefore was available to be found by searchers, will be used to adjust carcass counts for bias using methods presented in Huso (2011) or equivalent analysis method.

2.1.5 Searcher Efficiency Trials

The ability of searchers to detect carcasses is influenced by a number of factors including the skill of an individual searcher in finding the carcasses, the vegetation composition within the search area, and the characteristics of individual carcasses (e.g., body size, color). The objective of searcher efficiency trials is to estimate the percentage of fatalities that searchers are able to find. Estimates of searcher efficiency are then used to adjust carcass counts for detection bias. Searcher efficiency trials will be conducted in all seasons to account for seasonal differences in searcher efficiency. Carcass species used in the trials and marking and placement techniques will be the same as those in the carcass persistence trials.

Searcher efficiency trials will begin when standardized carcass searches start. Personnel conducting the searches will not know when trials are conducted or the location of the efficiency-trial carcasses. Trials will be conducted multiple times throughout each season and will incorporate testing of each member of the field crew. Tests will be blind, that is, the searcher will not know in advance when or where they are being tested. Assuming adequate carcass availability, a goal of at least 15 carcasses of each size class (large bird, small bird, bat) will be placed per season for searcher efficiency trials.

2.1.6 Fatality Rate Estimation

To calculate the Project-wide fatality rate (fatalities/MW/year) and the total Project fatalities, Genesis Solar will use the Huso estimator (Huso 2011) or other appropriate statistical methods (e.g., Warren-Hicks, Komer-Nievergelt). The fatality rate can be calculated for subgroups, including large birds, small birds, raptors (including eagles), bats, or special-status species (USFWS Birds of Conservation Concern, Bureau of Land Management Sensitive species, and CDFW Species of Special Concern) if at least 10 fatalities within the subgroup are found.

The estimation of fatality rates will incorporate fatalities documented during standardized carcass searches adjusted for bias. Specifically, fatality estimates will take into account:

- Search interval;

- Observed number of carcasses found during standardized searches during the monitoring year for which operation of the facility cannot be ruled out as the cause of death;
- Carcass persistence, expressed as the probability that a carcass is expected to remain in the study area (persist) and be available for detection by the searchers during carcass persistence trials; and
- Searcher efficiency, expressed as the probability of trial carcasses found by searchers during searcher efficiency trials.

2.2 OPERATIONAL MONITORING

Operational monitoring will consist of searches of the evaporations ponds, generation tie-line (gen-tie) and perimeter fence by operations personnel trained in finding and reporting fatalities.

2.2.1 Evaporation Pond Monitoring

Genesis Solar will also implement operational monitoring of the evaporation ponds, which will start immediately after full operation of Unit 1 begins. Evaporation pond monitoring is anticipated to continue for two years. The measures outlined below for monitoring impacts related to the presence of the evaporation ponds were determined through consultation with the CEC, USFWS, and CDFW, and are in compliance with the California Energy Commission's (CEC) Condition of Certification BIO-21. The CEC Condition of Certification specified searching the ponds on a once-per-month frequency; however, after discussion with the REAT agencies, NextEra increased the search frequency to weekly monitoring (one search per day), which will be maintained for the first two years of operations.

Netting and Flagging

Prior to the discharge of any materials to the evaporation ponds, Genesis Solar covered the ponds with 1.5-inch mesh netting designed to exclude birds and other wildlife from drinking or landing on the water. The pond was designed such that the netting does not come into contact with the water. Multi-colored flagging was installed at each pond as a visual deterrent in addition to the netting to dissuade wildlife from resting near these areas.

Monitoring

Monitoring will be conducted by a surveyor experienced with bird identification and survey techniques. Each survey will consist of the surveyor walking the perimeter of each evaporation pond a minimum of three times in a single day. To provide an accurate assessment of bird and wildlife use of the ponds during all seasons and times of day, surveys will be conducted a minimum of two hours following sunrise (i.e., dawn), one hour mid-day (i.e., 1100 to 1300), and two hours preceding sunset (i.e., dusk). The surveyor will record observations on the designated reporting form (Appendix A).

The onsite Environmental Manager will notify the Designated Biologist (DB) of any incidental observations of dead birds or other wildlife at the evaporation ponds within one day of the detection of the carcass. The DB will report any bird or other wildlife deaths or entanglements within two days of the discovery to the CPM, CDFW, and USFWS. Identities of any fatalities will be confirmed by a highly qualified avian biologist.

2.2.2 Generation-tie Line Monitoring

At the request of the REAT, Genesis Solar will search for avian and bat injuries/mortalities along the gen-tie from the solar plant site to the interconnection with the Blythe Energy Project Transmission Line (south of I-10 at Wiley's Well Rd.) Surveys will be conducted once a month. Each survey will consist of the surveyor driving this portion of the gen-tie at approximately 5 mph in a Gator™ or other open vehicle looking for dead or injured birds and bats. The surveyor will record observations on the designated reporting form. These methods are consistent or more intensive than those used by utility companies to survey transmission and other overhead utility lines (Liguori 2014).

2.2.3 Perimeter Fence Monitoring

The perimeter fence around the Project consists of chain link fencing with opaque, vertical, vinyl slats. These slats make the fence opaque and give it the appearance of a solid wall. It is therefore unlikely that birds or bats will collide with the fence. Because of this low probability of collisions, the perimeter fence will be searched once each month (search interval of 30 days), coinciding with the desert tortoise fence monitoring. Searches will be conducted by personnel trained in bird identification and survey techniques. Each survey will consist of the surveyor driving the perimeter fence at approximately 5 mph in a Gator™ or other open vehicle. The surveyor will record observations on the designated reporting form.

2.2.4 Reporting

Genesis Solar will submit annual reports providing an estimate of the Project fatalities and will submit additional information as directed by the SPUT permit.

3.0 References

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