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DOCKET
08-AFC-2
DATE JAN 06 2009
RECD. JAN 06 2009

January 6, 2009

BY HAND DELIVERY

Docket Unit, No. 08-AFC-2
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Beacon Energy Solar Project, AFC No. 08-AFC-2

Dear Docket Clerk:

Attached are 21 hard copies and 22 disk copies of the Beacon Application for Incidental Take of Threatened and Endangered Species Section 2081 of the California Endangered Species Act. An original and two disks are for docketing with the docket unit. 20 hard copies and 20 disks are for Eric Solorio. Mr. Solorio requested that once you docket the document you call him and he will come down and pick up the 20 hard copies and 20 disks. I am also enclosing a copy of the cover of the document for docket-stamping and returning in the enclosed envelope.

If you have any questions please don't hesitate to contact me.

Very truly yours,

DOWNEY BRAND LLP

Sophia Rowlands

Sophia J. Rowlands

:ln

Attachments

977250.1

Beacon Solar Energy Project

Application for Incidental Take of Threatened and Endangered Species Section 2081 of the California Endangered Species Act

In Accordance with California Code of Regulations, Title 14, Division 1, Subdivision 3, Chapter 6, Article 1, Section 783.2

Docket No.: 08-AFC-2

Submitted to:

California Department of Fish and Game
Central Region
1234 E. Shaw Avenue
Fresno, California 93710

Contact: Julie Vance

Submitted by:

Beacon Solar, LLC
700 Universe Boulevard
Juno Beach, Florida 33408

Contact: Kenneth Stein

March 28, 2008
(revised December 22, 2008)

Beacon Solar Energy Project

Application for
Incidental Take of Threatened and Endangered Species
Section 2081 of the California Endangered Species Act

CALIFORNIA CODE OF REGULATIONS
TITLE 14, NATURAL RESOURCES, DIVISION 1, FISH AND GAME COMMISSION – DEPARTMENT OF FISH AND GAME

SUBDIVISION 3. GENERAL REGULATIONS

CHAPTER 6. REGULATIONS FOR IMPLEMENTATION OF THE CALIFORNIA ENDANGERED SPECIES ACT

ARTICLE 1. TAKE PROHIBITION; PERMITS FOR INCIDENTAL TAKE OF ENDANGERED SPECIES, THREATENED SPECIES, AND CANDIDATE SPECIES

---

§783.2. Incidental Take Permit Applications.

(a) Permit applications. Applications for permits under this article must be submitted to the Regional Manager.

The following application for incidental take of endangered and threatened species under the California Endangered Species Act is being submitted to:

Bill Loudermilk
Regional Manager, Central Region
California Department of Fish and Game
1234 E. Shaw Avenue
Fresno, CA 93710

and

John Koch
Director
California Department of Fish and Game
1416 Ninth Street
Sacramento, CA 95814

(1) Applicant's full name, mailing address, and telephone number(s). If the applicant is a corporation, firm, partnership, association, institution, or public or private agency, the name and address of the person responsible for the project or activity requiring the permit, the president or principal officer, and the registered agent for the service of process.

Applicant:	Beacon Solar, LLC
Name and Title of Principal Officer:	Ryan O'Keefe (561) 304-5237
Mailing Address:	700 Universe Boulevard Juno Beach, Florida 33408

(2) The common and scientific names of the species to be covered by the permit and the species' status under the California Endangered Species Act (CESA), including whether the species is the subject of rules and guidelines pursuant to Section 2112 and Section 2114 of the Fish and Game Code.

Species:	Desert tortoise, Mojave population (*Gopherus agassizii*; DT)
Status:	State-threatened
Species:	Mohave ground squirrel (S*permophilus mohavensis*; MGS)
Status:	State-threatened

(3) A complete description of the project or activity for which the permit is sought.

Beacon Solar, LLC, (Beacon) proposes to develop approximately 2,012 acres for a 250-megawatt solar energy facility called the Beacon Solar Energy Project (BSEP or Project). The construction phase of this Project is estimated to take approximately 25 months, while the operational lifetime of the Project is anticipated to be up to approximately 30 years. The solar array field and related power plant facilities will be located east of California State Route 14 (SR-14), while a relatively small area west of the highway is proposed to be used for interconnection with an existing Los Angeles Department of Water and Power (LADWP) high voltage transmission line at LADWP's existing Barren Ridge Switching Station.

The BSEP will utilize parabolic trough solar thermal technology based on the technology in use at existing Solar Electric Generating System (SEGS) facilities located at Harper Lake, Kramer Junction, and Daggett in the Mojave Desert. This technology involves a modular solar array

field comprising many parallel rows of solar collectors normally aligned in a north-south axis. Each solar collector has a linear parabolic-shaped reflector that focuses the sun's direct beam radiation on a receiver located at the focal point of the parabola. This linear receiver contains a heat transfer fluid (HTF), a synthetic oil that heats up to approximately 740 degrees Fahrenheit (°F) as it circulates through the receiver and returns to a series of heat exchangers where the fluid is used to generate steam that drives a steam turbine to generate electrical power. A wet cooling tower is proposed to provide cooling for the power generating equipment.

The Project includes the Plant Site (solar array, power generating equipment, support facilities, evaporation ponds, and access roads) and the Project's linear facilities (transmission line, switchyard, and natural gas supply pipeline) (Figure 1). The power block and solar arrays (i.e., where the steam turbine generator will be located) will occupy approximately 1,266 acres of the 2,012-acre Plant Site. Additionally, a rerouted drainage channel, evaporation ponds, access road, administration buildings and other support facilities, bioremediation areas, and some open areas will be fenced, for a total "Plant Site" of approximately 2,012 acres. Each of the major components of the Project is described in detail below.

3.1 PLANT SITE

The layout of the Project's Plant Site (2,012 acres) includes the solar array and power block area and onsite support facilities (e.g., administration building and warehouse). An existing dirt road off SR-14 will be upgraded (paved) to provide access to the solar array, power block, and support facilities on the Plant Site. The entire property will be fenced with low maintenance fencing (e.g. single or double strand barbed-wire fence) to prevent human access; in addition, DT-proof fencing will be erected around the Plant Site to deter DT and other wildlife entrance onto the Plant Site.

Onsite facilities also include three, 8.3-acre evaporation ponds in a highly disturbed area of the Plant Site to handle the waste stream from the Project's water treatment and cooling water system (Figure 1). The evaporation ponds will include a double liner system with a leak collection and recovery system. The liner system will consist of a primary 60-mil high density polyethylene (HDPE) liner, an interstitial leak detection and collection layer, a secondary 40-mil HDPE layer, and a compacted 2-foot base of onsite low permeability soil. All or a portion of the liner system will be armored to facilitate potential maintenance activities with reduced risk of liner damage. The ponds will have sufficiently steep slopes to deter nesting, with at least two feet of freeboard to prevent birds from watering at the berm edges. The evaporation ponds will be designed to contain any accumulated bottom solids for the life of the Project. If waste needs to be removed for pond maintenance reasons, it would be transported offsite for disposal as

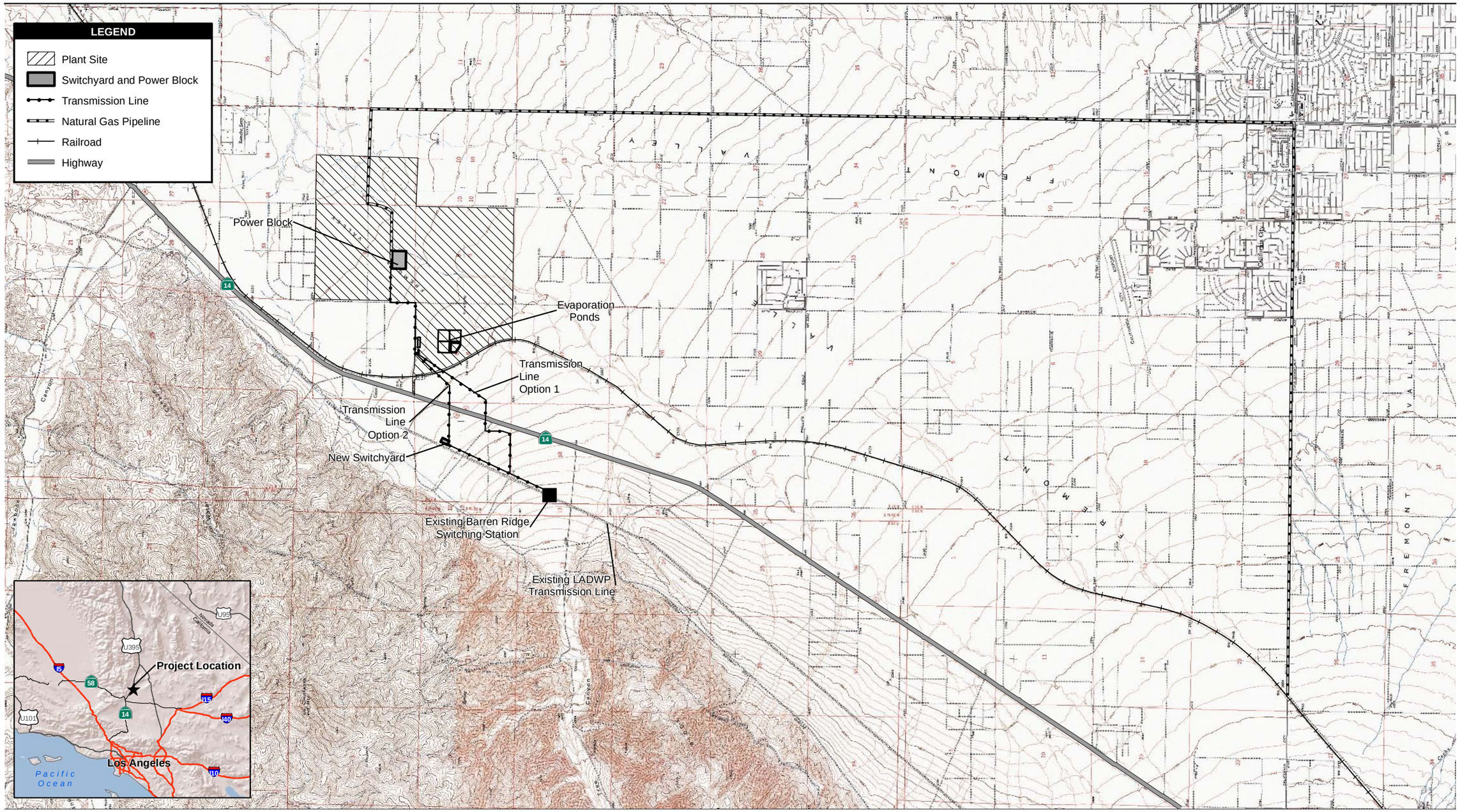
nonhazardous waste in accordance with applicable laws and regulations. In addition, a bioremediation area is planned in a disturbed area of the Plant Site to handle soil impacted by incidental leaks and spills of HTF.

The Plant Site is traversed diagonally from southwest to northeast by Pine Tree Creek Wash, a dry desert wash (Figure 2). The U.S. Army Corps of Engineers (USACE) issued an approved jurisdictional determination on February 5, 2008, that concluded the aquatic features occurring on the Plant Site are not jurisdictional waters of the U.S. (USACE, February 5, 2008). A delineation of the Plant Site identified 16.00 acres of waters of the State of California (state waters) that will require a Streambed Alteration Agreement (SAA) with the California Department of Fish and Game (Department). These state waters include 14.96 acres of Pine Tree Creek Wash and 1.04 acres of an unnamed dry railroad wash.

Pine Tree Creek Wash is approximately 10,900 linear feet and bisects the Plant Site. It will be rerouted along and inside the eastern property boundary, outside the DT fencing but within a low maintenance security fence. A smaller, unnamed dry wash occurring within the Plant Site is approximately 2,150 linear feet and crosses under the railroad tracks. It will also be rerouted and a channel created to transport water north and then west to east across the site, joining with Pine Tree Creek Wash at the eastern boundary of the Plant Site.

The washes are mainly devoid of vegetation with seven random reaches (totaling 2,990 linear feet) in Pine Tree Creek Wash characterized by low vegetation cover (approximately 15 percent). The rerouted dry wash will be a trapezoidal channel approximately 14,000 feet long with 3:1 gradient slopes and a minimum bottom width of 345 feet (to a maximum of about 2,900 feet at the end of transition to match the sheet flow path). The proposed rerouted wash will have an average depth of approximately eight feet, with an earthen bottom and banks and riprap reinforcement in areas prone to erosion. The rerouted channel will match the original sheet flow drainage path and be revegetated with native vegetation to minimize habitat disturbance in accordance with the SAA.

Mass grading of the Plant Site will occur at the beginning of the Project construction period, following installation of DT-proof fencing around the Plant Site and clearance surveys. Approximately 5,160,000 cubic yards of earth will be moved. Because the preliminary site-grading plan is designed to be balanced, no import or export of soil is expected for general earthwork. Earthwork associated with the proposed Project will include excavation for foundations and underground systems.



Source: TetraTech 2007; Kern County 2007; WorleyParsons 2008; ESRI 2003, 2008; USGS 2008; USGS 7.5' Topo Quad Mojave NE 1994, Cinco 1994, Cantil 1973, Sanborn 1973, California City North 1973, California City South 1973

1 0.5 0 1 Miles

Scale: 1:63,360; 1 inch = 1 mile

Figure 1
Beacon Solar
Energy Project

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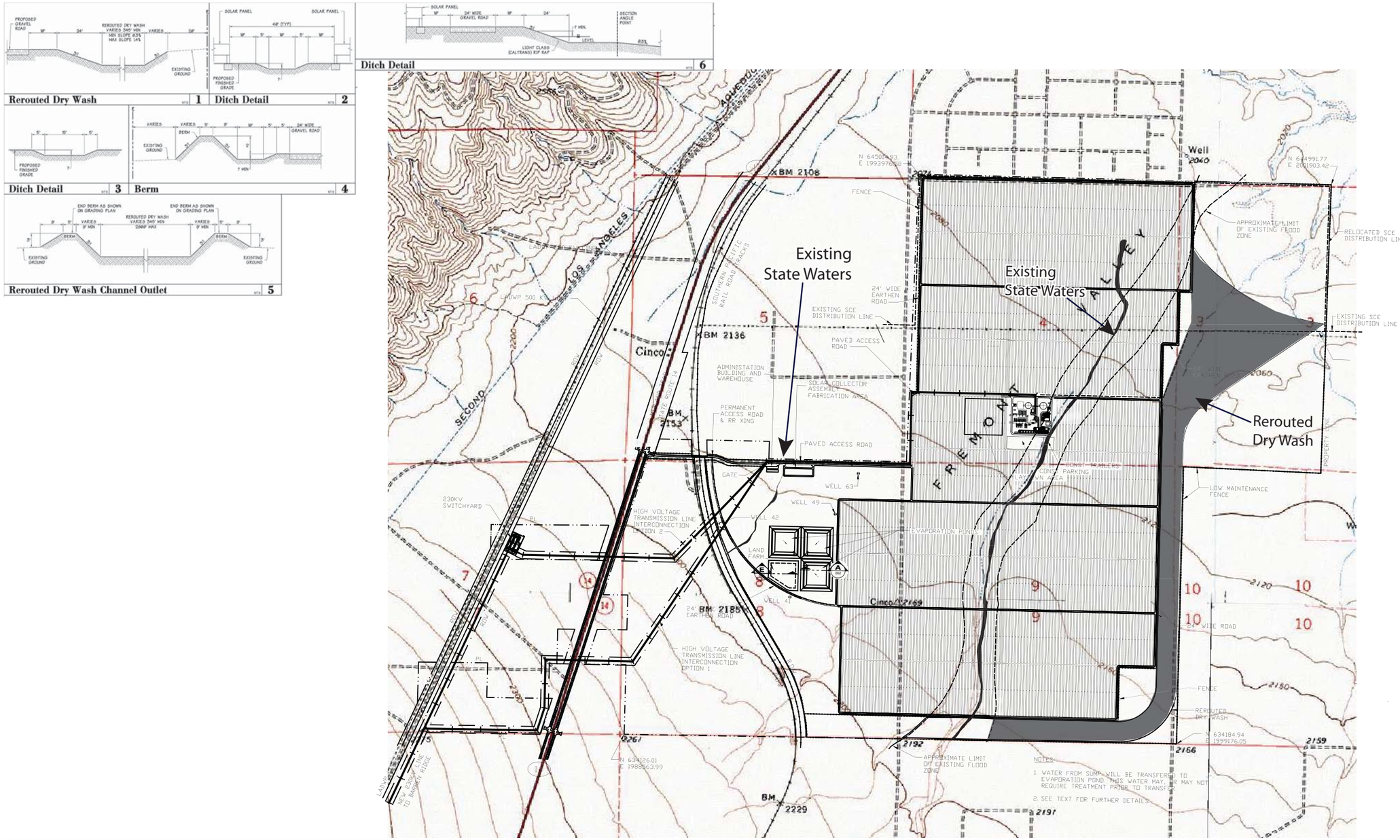

Source: Worley Parsons Resources & Energy 2007

1,500 750 0 1,500 Feet

Figure 2
Facilities Layout and Rerouted Wash

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3.2 NATURAL GAS PIPELINE

A 17.6-mile, eight-inch natural gas pipeline will be constructed to provide fuel for startup and emergency operations (Figure 1). The pipeline will connect to an existing Southern California Gas pipeline in the California City area via Neuralia Road and California City Boulevard, with a 1.8-mile segment extending from Neuralia Road into the Plant Site along an existing distribution line and through a cleared, ruderal area. Of the 1.8-mile segment, 1.3 miles is within the Plant Site, and the remaining 0.5 mile is between the Plant Site and Neuralia Road. This pipeline will be constructed within a 15- to 20-foot right-of-way (ROW), entirely within previously disturbed road shoulders and along disturbed access roads, thereby avoiding native vegetation. The pipeline construction will involve nearly simultaneous trenching, laying of pipe, and backfilling so that no open trenches will be left unattended during daylight hours. Any open trenches that cannot be backfilled will be covered with steel plates at night. Spoils will be stockpiled in disturbed areas presently lacking native vegetation. These areas will be delineated with stakes and flagging prior to construction to avoid natural resources where possible and to define the limits where stockpiling can occur.

3.3 TRANSMISSION LINE AND TOWER STRUCTURES

LADWP's 230-kilovolt (kV) Barren Ridge Substation is located across SR-14 southwest of the BSEP Plant Site (Figure 1). Two options are being considered as a potential means for interconnecting the Project to the existing Barren Ridge facility. It is important to note that Options 1 and 2 are not Project alternatives as discussed in Section 15125(a) of the California Environmental Quality Act (CEQA) Guidelines, and future transmission studies will determine which of these options will ultimately be built. The applicant has fully evaluated the impacts associated with each option, and has proposed avoidance, minimization, and mitigation measures that would fully mitigate the impacts of each option.

Under either transmission option, each pole location would require construction of a 50-foot-by-50-foot pole pad. Pole height would range from 75 to 110 feet, depending on terrain and span length. Span length would range between 440 to 560 feet, averaging about 500 feet. During construction of the transmission line, pole site work areas and pull/splicing sites would be required. The pole site work areas measure 50 feet by 50 feet. The pull sites for the transmission lines average 50 feet by 140 feet each. The splicing site for the transmission line measures 95 feet by 200 feet. There would be no grading at the pole site work areas or the pull and splicing site; rather, vegetation would be crushed. Periodic maintenance activities for the transmission line could include cleaning of the line conductors and repair of equipment damaged by wind, dust, or accident. Activities could also include road and drainage structure repairs.

Such activity would occur infrequently, perhaps once per year. Existing dirt roads west of SR-14 would provide construction and O&M access to transmission line structures whenever possible. DT-proof secure gates would be installed where access roads leave SR-14 and enter the Plant Site; no access roads outside of the Plant Site would be fenced.

3.3.1 Transmission Option 1

Option 1 would involve constructing a new, approximately 3.5-mile 230-kV transmission line (of which approximately 1.6 miles would be within the 2,012-acre Plant Site boundary), that would run west and southwest from the power block, cross SR-14 and extend south along an expanded LADWP ROW, where it would tie into the existing Inyo-Rinaldi 230-kV transmission line at the existing Barren Ridge Substation. The Option 1 Project transmission line would be installed on 36 new steel/concrete monopoles. Potential new access roads (14 feet by 1.9 miles), in addition to spur roads (averaging 12 feet by 110 feet) to 10 pole sites, also would be built under Option 1.

3.3.2 Transmission Option 2

Option 2 would involve constructing a new, approximately 2.3-mile 230-kV transmission line (of which approximately 1.6 miles would be within the Plant Site boundary) to a new switching station to be constructed at the location where the Project's transmission line first meets LADWP's existing transmission ROW west of SR-14. A second, approximately one-mile 230-kV transmission line would then be constructed within the expanded LADWP ROW to the Barren Ridge Substation (Figure 1). As with Option 1, the Option 2 Project transmission line would be installed on 36 new steel/concrete monopoles and would tie into the existing Inyo-Rinaldi 230-kV transmission line at the existing Barren Ridge Switching Station. Under Option 2, however, a new electrical switchyard would be built in association with the Project. The switchyard would be accessed from the existing graded patrol road that runs along the Inyo-Rinaldi line and chain-link security fencing and DT fencing would be installed around the switchyard. Potential new access roads (14 feet by 1.0 mile), in addition to spur roads (averaging 12 feet by 110 feet) to 17 poles sites, also would be built under Option 2.

(4) The location where the project or activity is to occur or to be conducted.

4.1 PROJECT COMPONENT LOCATIONS

The proposed Project is located in Kern County along SR-14, approximately four miles north of the northern boundary of California City, approximately 15 miles north of the Town of Mojave, and approximately 24 miles northeast of the City of Tehachapi (Figure 1). The site occurs at the

intersection of four U.S. Geological Survey quadrangles: Mojave Northeast, Cinco, Cantil, and California City North. Landmarks in the area include Red Rock Canyon State Park to the north, Koehn Lake to the east-northeast, and the Desert Tortoise Natural Area (DTNA) to the east.

Under both Transmission Option 1 and Transmission Option 2, the 230-kV transmission line would extend from the power block within the Plant Site east of the Union Pacific railroad tracks that run parallel to and east of SR-14, across the highway and west (southwest under Option 2 to a new Project-associated electrical switchyard) and then southwest parallel to the LADWP transmission lines to the Barren Ridge Switching Station (Figure 1). The natural gas pipeline will travel along California City Boulevard and Neuralia Road, with a 0.5-mile segment extending from Neuralia Road into the northeastern area of the Plant Site along the disturbed corridor of an existing distribution line, and will continue for another 1.3 miles through the Plant Site to the power block (Figure 1). The entire natural gas pipeline will be placed within disturbed areas (Figure 3a).

Access to the Plant Site would occur from SR-14 along an upgraded existing dirt road. Access to the transmission line route west of SR-14, under either transmission line option, would be constructed using the existing LADWP transmission line access roads where possible to reduce land disturbance, with construction of new stub access roads from the existing access roads to each of the new transmission tower locations, where necessary.

4.2 PROJECT SITE VEGETATION COMMUNITIES AND COVER TYPES

The proposed 2,012-acre Plant Site is located on abandoned agricultural land that is primarily barren, with approximately 369.2 acres revegetated with disturbed allscale (*Atriplex polycarpa*) scrub (see Fallow Agricultural-Disturbed Atriplex Scrub in Figure 3b). A summary of the total acreages for each vegetation community identified within the Project footprint areas of permanent and temporary disturbance (Plant Site, Natural Gas Pipeline Route, and Transmission Line Options), is provided in Table 1 below. The entire natural gas pipeline will be placed within disturbed areas (Figure 3b).

(5) An analysis of whether and to what extent the project or activity for which the permit is sought could result in the taking of species to be covered by the permit.

This section discusses whether and to what extent the BSEP could result in the taking of the two Covered Species, DT and MGS. Table 2 depicts each Project component by phase and its potential impact to each Covered Species**.**

Table 1
Acreage of Vegetation Communities and Other Cover Types for the Beacon Solar Energy Project Area

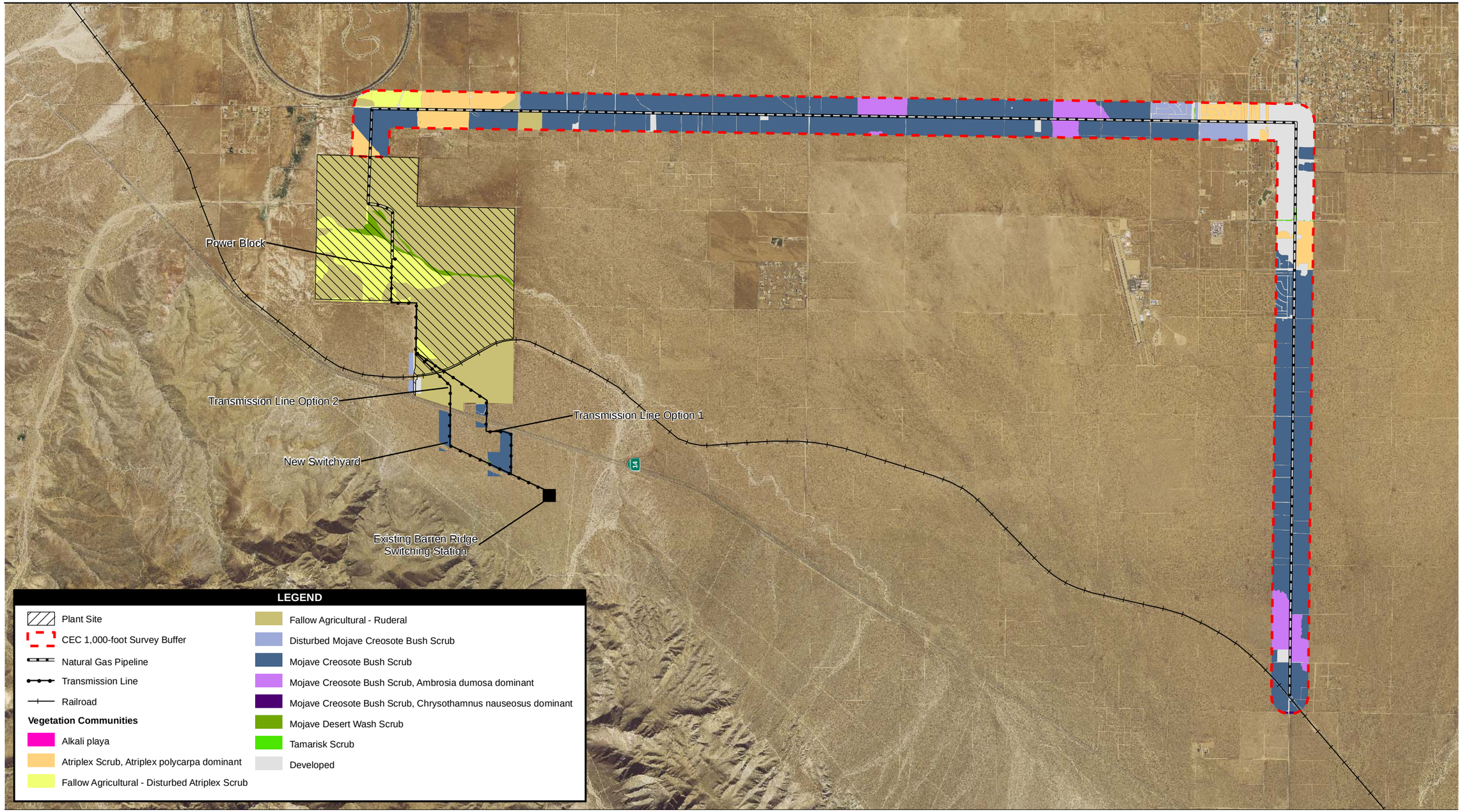
Vegetation Communities and Other Cover	Total Acreage
PLANT SITE	
Mojave Desert Wash Scrub	60.3
Developed	2.7
Fallow Agricultural-Ruderal	1,579.7
Fallow Agricultural-Disturbed Atriplex Scrub	369.2
Waters of the State[1]	16.0
Subtotal Plant Site	*2,011.9*[1]
LINEAR FACILITIES	
Transmission Line Options	
Mojave Creosote Bush Scrub	
Option 1	5.0
Option 2	5.8
Fallow Agricultural-Ruderal	0.9
Natural Gas Pipeline	
Developed (road/road shoulder)	60.0
Subtotal Linear Facilities (with Option 1)	*65.9*
Subtotal Linear Facilities (with Option 2)	*66.7*
Total with Transmission Option 1 Acres	**2,077.8**[1]
Total with Transmission Option 2 Acres	**2,078.6**[1]

[1] Acreage of waters of the state not added to total as area is counted within other vegetation communities.

5.1 DESERT TORTOISE (DT)

5.1.1 DT Surveys

Protocol presence/absence surveys for DT were conducted between May 1 and May 21, 2007, on the Plant Site, the area between the Union Pacific railroad tracks and SR-14, and parcels west of SR-14 that were available under the terms of an option to purchase at the time surveys were conducted (Figure 4a). Additional biological resource surveys were conducted in 2008 due to expansion of the Project limits and the inclusion of a 17.6-mile natural gas pipeline component in the Project design. These additional surveys were conducted between March 25 and May 11, 2008, and included an 80-acre and a 14-acre parcel, the two transmission line options, and the natural gas pipeline route, as well as relevant buffers required by U.S. Fish and Wildlife Service (USFWS) and California Energy Commission (CEC) protocols (see below and Figure 4b).



Source: NAIP 2005; EDAW 2007; TetraTech 2007; WorleyParsons 2007; Kern County 2007

1 0.5 0 1 Miles

Scale: 1:63,360; 1 inch = 1 mile

Figure 3a
Vegetation Communities Along the Natural Gas Pipeline and Surrounding Survey Area

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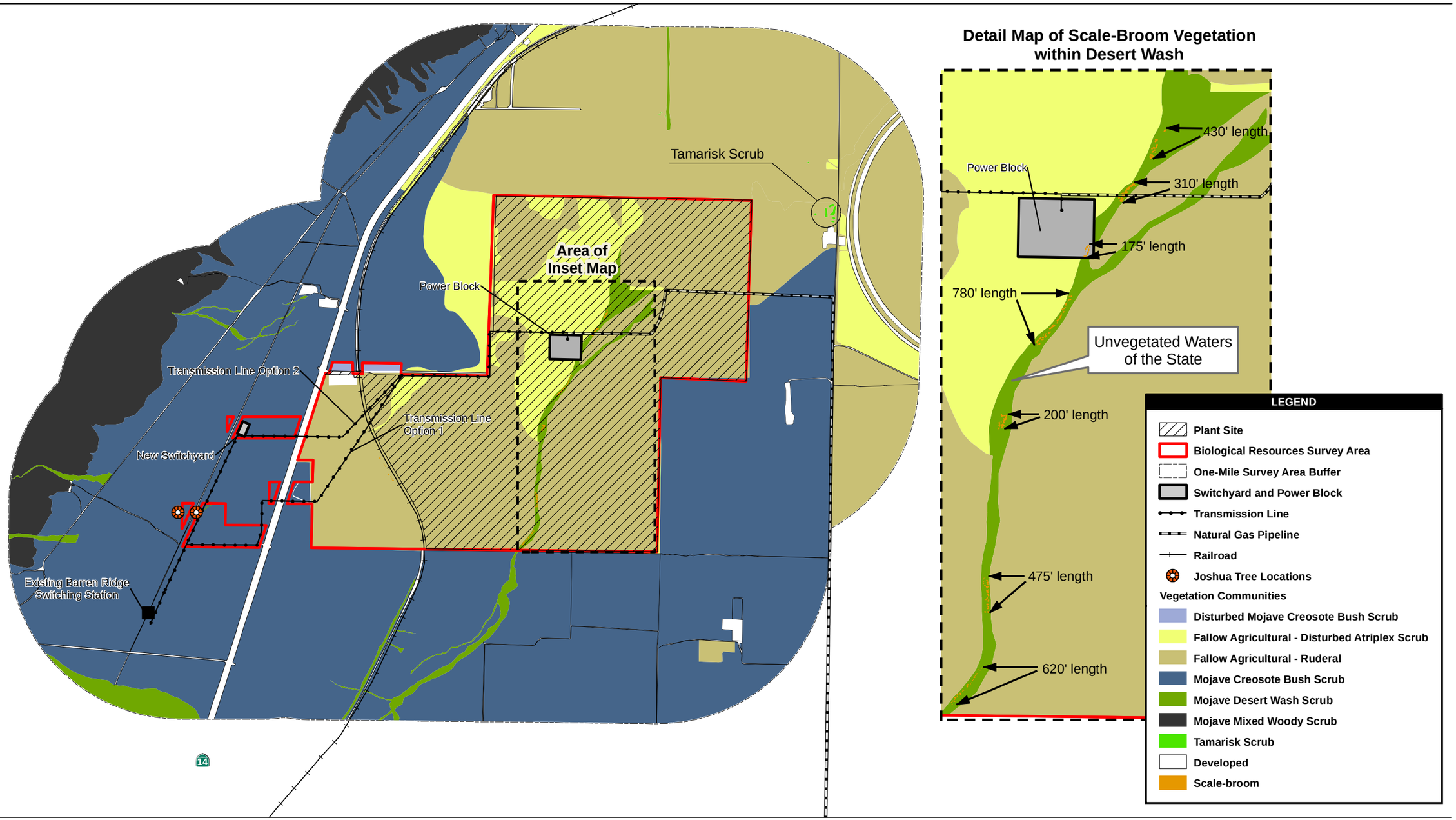

Source: EDAW 2007; TetraTech 2007; WorleyParsons 2007; Kern County 2007

3,000 1,500 0 3,000 Feet

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

Figure 3b
Vegetation Communities of the Plant Site, Transmission Line Options and Surrounding Survey Area

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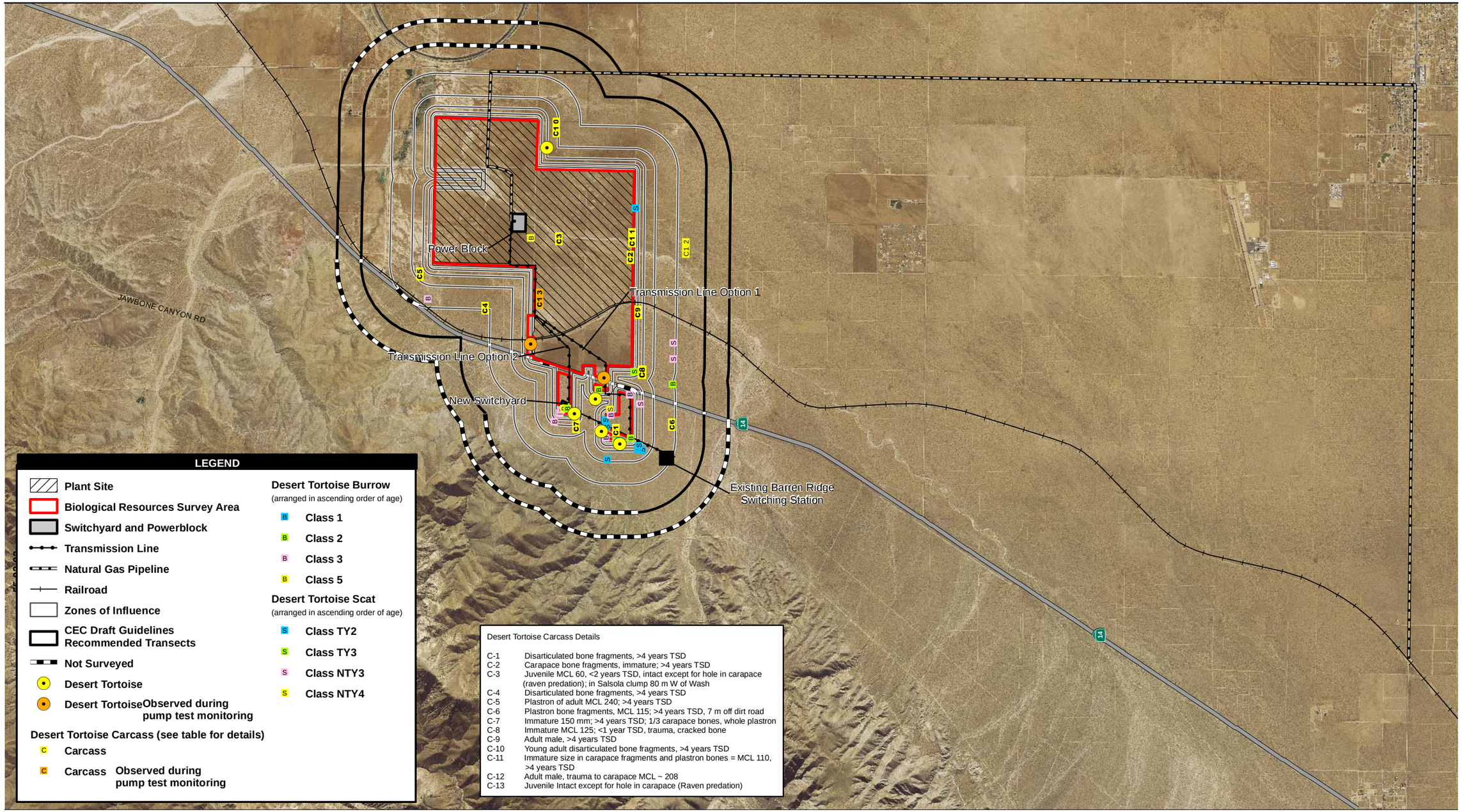

Source: TetraTech 2007; Kern County 2007; USGS 2007; CNDDB 2007; Peggy Wood 2007; EDAW 2007; NAIP 2005; WorleyParsons 2007

1 0.5 0 1 Miles

Scale: 1:63,360; 1 inch = 1 mile

Figure 4a
Desert Tortoise and Sign from 2007 Surveys and Site Visits

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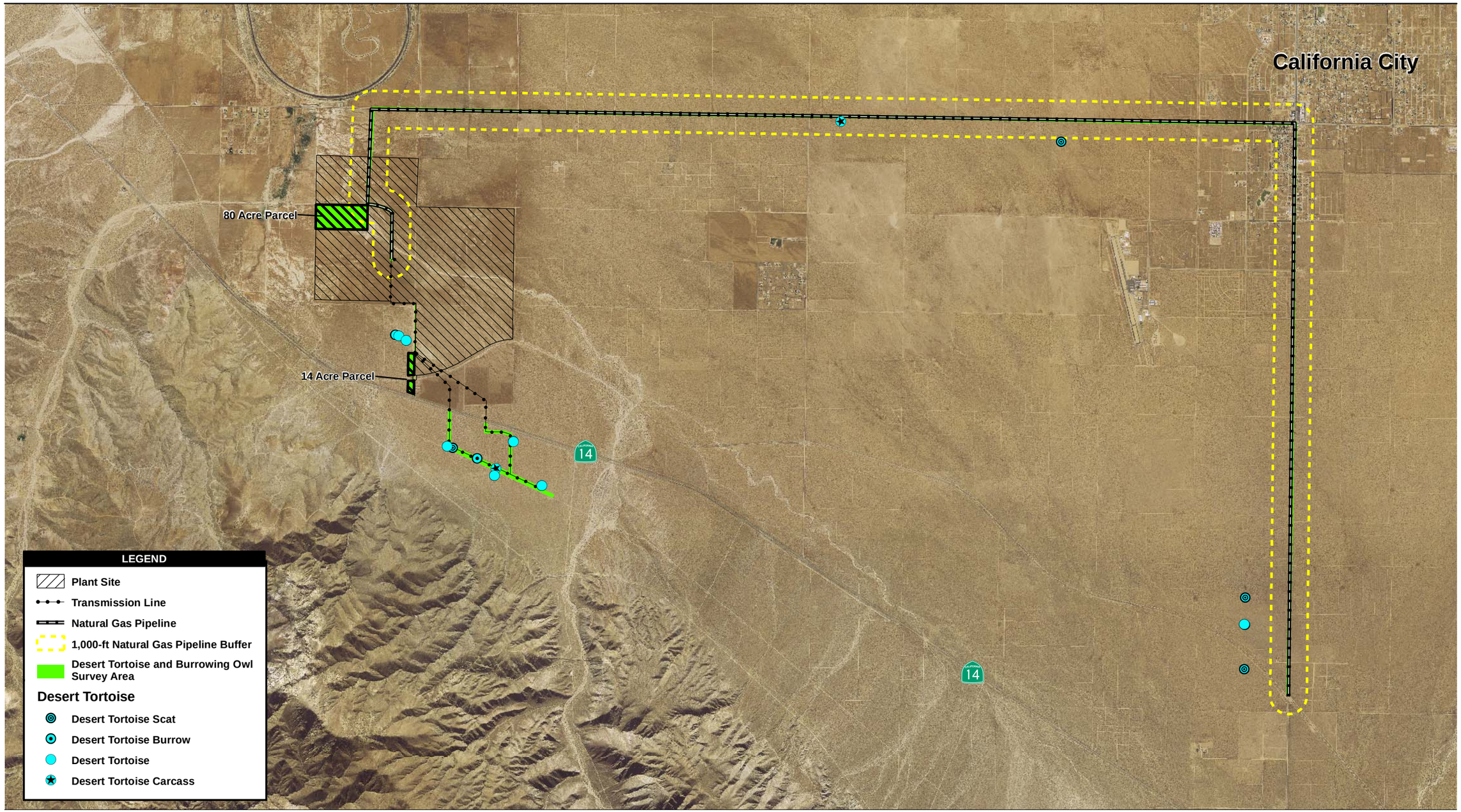

Source: NAIP 2005; EDAW 2008; TetraTech 2007; WorleyParsons 2007

1 0.5 0 1 Miles

Scale: 1:63,360; 1 inch = 1 mile

Figure 4b
Desert Tortoise and Sign from 2008 Surveys and Site Visits

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Table 2
Project Beacon
Project Component by Phase and Potential Impact to Listed Wildlife Habitat

Project Component	Occurrence During Project Phase		Potential Impact to Listed Wildlife Habitat			
			Option 1		Option 2	
	Construction	Operations & Maintenance	Desert Tortoise[1]	Mohave Ground Squirrel[1]	Desert Tortoise[1]	Mohave Ground Squirrel[1]
			Permanent	Permanent	Permanent	Permanent
Plant Site						
	NA	NA	0 acres	0 acres	0 acres	0 acres
Natural Gas Pipeline						
	X	X	0 acres	0 acres	0 acres	0 acres
Transmission Line						
Pole Pads	X	X	10 pads 0.6 acres	9 pads 0.6 acres	17 pads 1.0 acres	17 pads 1.0 acres
Pull Sites	X		3 sites 0.5 acres	3 sites 0.5 acres	3 sites 0.5 acres	3 sites 0.5 acres
Splice Sites	X		1 site 0.4 acres	1 site 0.4 acres	1 site 0.4 acres	1 site 0.4 acres
Switchyard	X	X	0 acres	0 acres	1.7 acres	1.7 acres
Access Road	X	X	3.2 acres	3.2 acres	1.7 acres	1.7 acres
Spur Roads	X	X	0.3 acres	0.3 acres	0.5 acres	0.5 acres
Total of Permanent Impacts			**5.0 acres**	**5.0 acres**	**5.8 acres**	**5.8 acres**
Overall Total Impact			**5.0 acres**	**5.0 acres**	**5.8 acres**	**5.8 acres**

[1] All desert tortoise (DT) habitat and potential Mohave ground squirrel (MGS) habitat co-occur (i.e., the same areas that are considered DT habitat are also considered potential MGS habitat, and vice versa, except for a small area east of SR-14, where 2,500 square feet (0.06 acre) of impact was classified as suitable for the DT, but not suitable for MGS. The impact numbers associated with the pole pads under Option 1 are displayed as the same value (i.e., 0.6 acres), due to rounding to one decimal place.

The 2007 and 2008 surveys followed the guidelines published in the USFWS *Field Survey Protocol for any Non-Federal Action That May Occur within the Range of the Desert Tortoise* (protocol) (USFWS 1992), which includes five Zone of Influence (ZOI) transects outside of and parallel to the site boundary at 100, 300, 600, 1,200, and 2,400 feet (see Figure 4a). In addition, to comply with the recommendations of the Draft Recommended Biological Resources Field Survey Guidelines for Large Solar Projects (CEC 2007), additional transects were surveyed at 3,960-foot (.75-mile) and 5,280-foot (one-mile) intervals from and parallel to the edge of the survey area boundary. While these additional transects are more broadly focused than the DT protocol transects and are not a formal part of the DT survey, they provide information on DT presence as well as on other biological resources in the vicinity of the survey area.

For the two transmission line options surveyed in 2008, and in accordance with USFWS and Department concurrence, ZOI transects were conducted at 330, 660, and 1,000 feet, because this area had already been surveyed in 2007.

The 2008 survey of the natural gas pipeline included the ZOI transects, as described, above. ZOI transects and the CEC buffer transects for the 80-acre addition, the narrow strip on the north side of the access road, and the transmission line option surveys were covered by the 2007 surveys (see Figures 4a and 4b).

For both the 2007 and 2008 surveys, the entire Project (100 percent coverage) was surveyed according to protocol by spacing transects 10 meters apart. The survey was conducted by slowly and systematically walking linear transects while surveyors visually searched for DT and sign. Particular emphasis was placed on searching around the bases of shrubs and along the banks of shallow washes. The USFWS ZOI transects were surveyed in suitable and accessible off-site desert scrub habitat and therefore were not surveyed on SR-14 or at the Honda Test Track east of Neuralia Road to the east of the site. All sign, including burrows, tracks, and scat, was recorded. All sign locations were recorded using Global Positioning System (GPS) equipment.

5.1.1.1 Transmission Line Survey Results West of SR-14

Within the transmission line routes west of SR-14, live DT, burrows, scat, eggshells, and carcasses were observed in 2003 (EDAW 2004) and in 2007 (Figure 4a). Based on these data, DT are known to occur within the proposed transmission line corridor west of the Plant Site and west of SR-14.

5.1.1.2 Plant Site Survey Results

Surveys of the Plant Site in 2007 and 2008 found only two DT sign within the Plant Site boundary: an intact juvenile carcass that had been depredated by a raven and a deteriorated adult burrow (Figures 4a and 4b). In the 2007 survey, two other sets of old (greater than four years since death) bone and carapace fragments were found near the southern edge of the Plant Site boundary. The 2008 survey documented two live DT north of the Plant Site and east of the railroad tracks, one associated with a burrow (Figure 4b). There was no evidence that DT currently inhabit the Plant Site. Following the 2007 surveys, another juvenile DT carcass, also preyed upon by a raven, was observed during subsequent work at the site. In addition, one live adult DT was also detected on the northwestern edge of the Plant Site boundary, along the main access road, and was likely a transient from adjacent habitat (EDAW 2007; 2008a).

5.1.2 Potential for Desert Tortoise Take -- Transmission Line Routes and West of SR-14

Optimal DT habitat consists of Mojave Creosote Bush Scrub vegetation, supporting a variety of moisture-rich ephemeral vegetation on which the species feeds. Suitable DT habitat occurs outside of the Plant Site, west of SR-14, in the area spanned by proposed Project transmission lines, where Mojave Creosote Bush Scrub provides suitable habitat for the species

Direct permanent impacts to the DT could potentially result from Project-related construction activities west of SR-14. Impacts include installation of 10 poles (under Option 1) or 17 poles (under Option 2) within suitable DT habitat and use of temporary work areas associated with installation of the proposed 230-kV transmission line. The pole site work areas, pull sites, and splicing sites within DT habitat would result in temporary disturbance that would be considered permanent based on slow recovery time of habitats in desert ecosystems. In addition, up to 1.7 acres of DT habitat would be impacted by construction and Operations and Management (O&M) activities associated with the construction of the Option 2 switchyard and associated electrical tie-in. Potential new access roads created under Option 1 would affect up to 3.2 acres and under Option 2 would affect up to 1.7 acres. Additionally, spur roads would be created to access 10 pole sites under Option 1 (up to 0.3 acre) and 17 pole sites under Option 2 (up to 0.5 acre).

In summary, based on habitat assessments, 5.0 acres (under Option 1) or 5.8 acres (under Option 2) of suitable DT habitat would be directly impacted by the Project (Table 1). During construction and O&M activities, direct impacts to DT could result from vehicle strikes if DT attempt to cross nearby roads.

The BSEP would only contribute to a minor loss of habitat west of SR-14, and would implement a series of conservation measures to ensure that impacts to the species are avoided and

minimized to the greatest extent feasible, and that habitat acquisition and conservation would mitigate for any unavoidable impacts to the species.

5.1.3 Potential for Desert Tortoise (DT) Take - Plant Site

In August 2007, Dr. Alice Karl assessed the Plant Site and immediate vicinity for DT habitat quality (Karl 2008, Attachment 2). Dr. Karl concluded that the BSEP Plant Site is not suitable for either DT population maintenance or recovery based on the following points and discussion:

- Onsite habitat quality;
  - Vegetation - species composition, shrub cover, shrub patchiness
  - Soil characteristics
  - Hydrology
- Adjacent habitat quality;
- Extent and type of existing disturbance;
- Lack of value of the habitat to long-term and current use by DT; and,
- Lack of connectivity.

The majority of the Plant Site has no potential to host DT because it is either devoid of vegetation or shrub cover is less than 2 percent. In areas where shrubs are regrowing, the Fallow Agricultural-Disturbed Atriplex Scrub is unlike the native community adjacent to the Plant Site. Portions of the surrounding area are native Mojave Creosote Bush Scrub, whereas the regrowth area is a nearly monotypic allscale stand. This area has patchy shrub cover with broad barren areas, has poor soil friability (i.e., fine, slightly hard soils), and shows evidence of periodic inundation by water, potentially hazardous to DT. While there is potential that a DT could be observed in these shrub patches or in the wash that crosses the Plant Site, the use of these areas would be attributable to the proximity of the adjoining native habitat outside of the Plant Site and would likely be temporary due to the poor habitat potential within the Plant Site. Additionally, even the Mojave Creosote Bush Scrub north of the Plant Site is only poor-to-fair quality DT habitat and is substantially disrupted by historic agriculture; consequently, DT density is expected to be low in these areas.

The Plant Site lies on a broad area of non-DT habitat that has been unusable by DT for decades as a consequence of agricultural activities. The area therefore has had no value for DT population persistence or recovery for many years. DT have also been excluded from the allscale-dominated regrowth community in the northern portion of the Plant Site by a chicken-wire perimeter fence that was originally erected to exclude rabbits from the agricultural fields. Long segments of this chicken-wire fence are intact, thus constituting an effective block to most

DT movement into the Plant Site. There is a possibility that a transient DT might be observed within the Plant Site; however, this would largely be due to the proximity of native habitat outside of the area.

It is highly unlikely that the Plant Site and the associated wash through the site are currently serving as movement corridors between suitable DT habitats. The regrowth area is merely a patch on the northwest side of the Plant Site, bounded on the east and south by large barren areas, so it does not lead to any habitat. While DT are known to walk across small bare patches or along edges of large barren patches, the large expanses of barren areas on the Plant Site are likely to be too inhospitable for travel because of their size (up to 0.5 mile wide between vegetation patches) and lack of cover. Therefore, dispersal across these large areas is highly unlikely. Further, such large patches would not be included within a DT's home range, so a DT would have no reason to be traveling across them. Finally, Pine Tree Creek Wash, which crosses the eastern-central portion of the Plant Site, is characterized by poor shrub diversity and poor, discontinuous shrub cover with barren sections up to 1,875 feet long (EDAW 2008b). This wash is mostly bordered by barren land and its northern terminus is dominated by stands of exotic Russian thistle. The wash also transitions from moderately suitable habitat south of the Project to nonhabitat in the northeast within and adjacent to the Plant Site. These factors strongly suggest that DT are not using the wash as a movement corridor. Continuous habitat exists on the east side of the site that begins and ends at the same place as the wash and provides useful connective habitat. This area will also be augmented by the relocated and revegetated wash.

Potential Direct Impacts

No impacts to DT are expected within the Plant Site boundary area due to a lack of suitable habitat, although it is recognized that a low possibility exists that one or a few transient DT may be found in regrowth areas that connect to native habitat offsite (e.g., in the wash or in saltbush scrub). The Plant Site consists of highly degraded, remnant habitat (the wash) and vegetative regrowth that is both unrepresentative of native habitat and contains undesirable biotic and abiotic features. There are 369.2 acres of Fallow Agricultural-Disturbed Atriplex Scrub and 60.3 acres of Mojave Desert Wash Scrub within the Plant Site boundary, for a total of 429.5 acres of vegetated cover that is not deemed to be suitable habitat for the DT but has a low potential to be occupied by transient DT. Given the poor quality of this vegetative cover for the species and the limited amount of suitable adjoining habitat from which animals might disperse, a generous estimate of the number of transient DT that might be temporarily present within the Plant Site boundary during the life of the Project, primarily during the construction phase prior to installation of DT-proof exclusion fencing, would be two individuals. The adjacent habitat nearest the vegetative regrowth on the Plant Site that might host this species is the disturbed

Mojave Creosote Bush Scrub and Fallow Agricultural-Disturbed Atriplex Scrub outside the Plant Site boundary to the west. DT surveys and observations indicate a very low density of animals in this area.

Although the development within the Plant Site would result in the loss of disturbed and degraded lands that have a low potential for occasional use by transient DT, loss of this transient use, if any, would be offset by the acquisition and conservation of valuable habitat for this species that would provide for the long-term maintenance of an equal or greater number of individuals.

Potential Indirect Impacts

Potential indirect impacts associated with erosion and deposition from grading at the Plant Site would be avoided by implementation of best management practices (BMPs) and Project Design Features (PDFs) to control erosion and sedimentation during construction. A Drainage Study and a Mitigation Plan completed for the BSEP as part of the SAA, include the design of the new desert wash channel to ensure the water containing capacity and associated structure match that of the original wash. This includes the new wash terminating at the same location as the existing wash (Figure 2). Additionally, some portions of the rerouted wash channel will be revegetated with native vegetation and will be accessible to DT and other wildlife for foraging and cover. Based on the PDFs, no take of DT or DT habitat will occur as a result of rerouting the wash.

The proposed Project has the potential to indirectly impact DT populations by increasing the attraction of common ravens (*Corvus corax*) into the area and thereby potentially increasing raven predation on juvenile DT. While potential attractants associated with the Project are not within DT habitat, the movement of ravens throughout the area and over potential DT habitat adjacent to and in the vicinity of the Project Area could increase the chances of a raven encountering and depredating a DT. A Raven Monitoring, Management, and Control Plan (RMMCP) has been created to monitor raven activity and specify management and control measures that will avoid, minimize, or mitigate impacts. Many of the Project components, such as the evaporation ponds, waste management, dust suppression, and potential perching locations have been designed to limit their attractiveness to ravens. The RMMCP will monitor the success of these features and determine if additional management and control measures are needed.

Finally, DT of all size might also briefly fence-walk the Plant Site barrier fence, once the fence is constructed, thereby potentially making them more susceptible to predation by coyotes (*Canis latrans*); however, this potential impact has a low probability of occurring. First, there are few DT adjacent to the site. Second, the site already presents a barrier to DT, as evidenced by the

distribution of live DT sign, which virtually stops immediately outside the Plant Site boundary wherever observed (Figure 4a). (There is also a discontinuous chicken-wire fence along the border that has presented a barrier since agriculture began on the site.) Third, fence-walking would be temporary, as DT become habituated to the fence (A. Karl, field notes for Hyundai Motor America Test Track Project; B. Boarman, pers. comm. to A. Karl on Fort Irwin Expansion Project translocated DT). Finally, depredation on adult DT by coyotes appears to occur only in or following drought years, when other prey is unavailable. Prey availability during Project construction cannot be predicted at this time.

5.2 MOHAVE GROUND SQUIRREL (MGS)

The MGS inhabits desert areas, including alluvial fans, basins, and plains with deep sandy or gravelly friable soils with an abundance of native herbaceous vegetation. This species is typically associated with a variety of habitats, (e.g., Mojave Creosote Bush Scrub, Shadscale Desert Scrub, Alkali Scrub, and Joshua Tree Woodland). The species feeds on green vegetation and seeds but may also eat carrion. The MGS remains underground from August through February and is active during the spring and summer.

Dr. Phil Leitner performed two habitat assessments of the Project study area, one on August 10, 2007 and one on October 15, 2007 (Leitner 2007). Dr. Leitner also evaluated relevant published and unpublished data, including the California Natural Diversity Database (CNDDB), and 30 years of his personal research on the habitat requirements of the MGS. This section presents a discussion of the key analyses conducted by Dr. Phil Leitner analyzing the BSEP site for MGS suitability (Leitner 2008, Attachment 2).

5.2.1 Potential for Mojave Ground Squirrel (MGS) Take -- West of SR-14

The only vegetation community in the Project area capable of supporting MGS is the Mojave Creosote Bush Scrub west of SR-14. This area is located on a large alluvial fan deposited by outflows from Pine Tree Canyon. The dominant shrub species are creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*). Because of disturbance from periodic surface water flows, desert senna (*Senna armata*) and cheesebush (*Hymenoclea salsola*) are also abundant. No winterfat (*Krascheninnikovia lanata*) or spiny hopsage (*Grayia spinosa*), two shrubs that provide important food resources for MGS (Leitner and Leitner 1998), were observed. This relatively undisturbed habitat has moderately diverse vegetation that could provide adequate forage and cover for MGS. The habitat on this portion of the survey area appears suitable for the species but is not of high quality.

Direct permanent impacts to potential MGS habitat could result from Project-related construction activities west of SR-14 (Figure 1). Impacts include installation of nine poles (under Option 1) or 17 poles (under Option 2) and use of temporary work areas associated with installation of the proposed 230-kV transmission line. With the exception of one less pole pad, the impact acreages for MGS are the same as for DT as described in Section 6.1.1 above and summarized in Table 2. Based on habitat assessments, 5.0 acres (under Option 1) or 5.8 acres (under Option 2) of potential MGS habitat would be directly impacted by the Project (see Table 2). During Project construction, direct impacts to MGS, if present, could result from vehicle strikes or burial in burrows; vehicle strikes also could occur during O&M activities if MGS are present.

5.2.2 Potential for Mojave Ground Squirrel (MGS) Take -- Proposed Plant Site

Within the Plant Site boundary, 369.2 acres of Fallow Agricultural-Disturbed Atriplex Scrub and 60.3 acres of degraded Mojave Desert Wash Scrub have been identified, for a total of 429.5 acres that support scattered perennial vegetation. The remainder of the Plant Site is classified as Fallow Agricultural-Ruderal. This 1,582-acre area is essentially barren and has no perennial vegetation. An extensive area of Mojave Creosote Bush Scrub immediately adjoins the Plant Site to the east and south. It appears to provide suitable habitat for the MGS, although there are no occurrence records and no evidence of any trapping attempts.

The entire Plant Site was formerly an alfalfa farm. The land surface was completely graded in preparation for agricultural production and all natural vegetation was removed. After the land was taken out of alfalfa production and abandoned, a species of saltbush, allscale (*Atriplex polycarpa*), and a few invasive herbaceous plant species became established in the northwest portion of the site, in the area designated as Fallow Agricultural-Disturbed Atriplex Scrub (Figure 4a). The Mojave Desert Wash Scrub forms a narrow discontinuous band of degraded perennial vegetation contiguous with the eastern side of the Fallow Agricultural-Disturbed Atriplex Scrub and extending south into the Fallow Agricultural-Ruderal area. The scattered patches of shrubs in the wash are primarily of two species: creosote bush and scale-broom (*Lepidospartum squamatum*). It appears that browsing by sheep following abandonment of alfalfa growing was responsible for the damaged appearance of the surviving perennials here. The northern terminus of the wash is dominated by dense stands of exotic Russian thistle (*Salsola tragus*).

The 429.5 acres of the Plant Site that have some perennial plant cover are not suitable habitat for the MGS because they do not have the food resources necessary to support resident animals. According to the best dietary information available, MGS require forage from a variety of native shrub and herbaceous species to sustain them through their active season (Leitner and Leitner

1998, 2008). MGS will eat saltbush foliage and are known to consume small amounts of two nonnative herbs: red-stemmed filaree (*Erodium cicutarium*) and Mediterranean grass (*Schismus arabicus*). These three plant species are present in the Fallow Agricultural-Disturbed Atriplex Scrub found on the Plant Site. However, there is no evidence that MGS can maintain themselves on a diet made up of only these plants. In a nine-year study of 754 fecal samples collected at four sites in the Coso Range of Inyo County, there was not a single case in which the diet consisted of only one or any combination of these three food items. Creosote bush and scale-broom, the two shrubs found along the northern portion of the desert wash, are known to have toxic foliage. They are rarely eaten by herbivores, generally only during drought conditions when there is no other forage. MGS will take small amounts of creosote bush foliage, as well as the seeds, but again this is very inadequate to sustain them.

In addition to dietary studies, demographic evidence supports the position that this type of vegetative cover is not suitable MGS habitat because it is not capable of supporting a resident population.

During the Coso Grazing Exclosure Monitoring Study (1988-1996), long-term studies of MGS populations were conducted on four sites (Leitner and Leitner 1998). One of these sites was unique in that the shrub vegetation was almost entirely made up of saltbush. Two species were present: shadscale (*A. confertifolia*) and allscale. Although strongly dominated by saltbush, this site provided much better habitat than the BSEP Plant Site in that it was a natural desert plant community with a few other shrub species, good production of native annual plants in years with adequate winter rainfall, and undisturbed desert soil profile.

This *Atriplex*-dominated site was the only one of the four Coso study sites that did not support a permanent MGS population. In 1988, the first year of the study and a good reproductive year, only transient juveniles were captured here. No MGS were trapped over the next four years. A few adults were resident from 1993-1996, but were found only in a small area on the northeastern edge of the study site where the shrub diversity was highest and a few individual shrubs of species known to be important in the diet were found. This occupied area was continuous with better quality habitat to the east. The great majority of the site, where the shrub community was essentially a monotypic stand of Atriplex, never supported resident MGS during the nine-year study period.

Finally, protocol trapping data also support the position that monotypic saltbush scrub like that found in the northwest portion of the BSEP Plant Site is not likely to be occupied by MGS. On May 5, 2008, an e-mail was sent to all biologists who currently hold a Memorandum of Understanding authorizing them to conduct MGS trapping studies. They were asked if they had

ever trapped in the type of disturbed Atriplex scrub that exists on the BSEP Plant Site and, if so, whether they had captured MGS. Replies were received from six of them. Two of these biologists had actually trapped in this type of vegetation, but never detected MGS. Although the sample size is not large, these trapping surveys were conducted at six different locations in Los Angeles and San Bernardino counties. In all cases, the trapping was carried out on previously disturbed land that had been invaded by Atriplex, the same situation found at the Plant Site. These six sites had varying degrees of connectivity to nearby suitable habitat, but none was completely isolated.

Based upon these three lines of evidence, it is concluded that the disturbed vegetation on the Plant Site is incapable of supporting a resident MGS population. Any claim to the contrary would require clear and convincing factual evidence.

A desert wash runs through the center of the Plant Site, from the southwest to the northeast. This area is not suitable for occupancy by MGS because the shrub vegetation is sparse, plant diversity is low, and there is little cover or forage appropriate for the species. In general, this wash vegetation appears disturbed, with shrubs widely separated and damaged and extensive bare ground.

The Plant Site has no value as a movement corridor for MGS. Although dispersing juveniles might attempt to enter the Plant Site from adjoining creosote bush habitat to the west, south, or east, they would not cross the wide bands of barren fallow agricultural land. This conclusion is based upon research in the Coso area of Inyo County showing that a small playa acted as a complete barrier to the dispersal movements of radio-collared juveniles (Harris and Leitner 2005). There is no evidence indicating that this species would attempt to traverse extensive areas without cover. The degraded wash that crosses the Plant Site would not serve as a movement corridor because its vegetative cover is highly discontinuous, with some barren stretches as long as 1,875 feet.

Potential Direct Impacts

Similar to the DT, no impacts to MGS are expected within the Plant Site. Although the 429.5 acres of disturbed vegetation on the Plant Site would not support resident MGS, it is not possible to rule out the occasional presence of transient individuals. The Fallow Agricultural-Disturbed Atriplex Scrub on the Plant Site is isolated from suitable MGS habitat by wide areas of barren Fallow Agricultural-Ruderal land to the south, east, and north. The only possible way in which transient MGS could access this 429.5-acre area is from the area of Mojave Creosote Bush Scrub to the west, toward SR-14. A reasonable estimate, based upon population studies in the Coso

area, is that this nearby habitat could support three to six adult MGS. It is possible that adults or their offspring could temporarily move into the Fallow Agricultural-Disturbed Atriplex Scrub area on the Plant Site. However, the risk to transient individuals is quite small, since vegetation removal and grading will take place over a brief period (i.e., approximately three months) at the beginning of the plant construction phase. Once vegetation removal has been completed, it is very unlikely that animals would enter the Plant Site. Based on this information, a generous estimate of the number of transient MGS that might be temporarily present within the Plant Site boundary during the life of the Project would be two individuals.

Although the development within the Plant Site could result in the incidental take of up to two transient MGS that could occasionally enter these disturbed and degraded lands, the loss would be offset by the acquisition and conservation of valuable habitat for this species that would provide for the long-term maintenance of an equal or greater number of individuals

Potential Indirect Impacts

Potential indirect impacts to MGS, if present, could result from increased predation by common ravens. PDFs, such as the addition of new perches in the form of transmission poles and lines and water source from a new evaporative wastewater pond, have the potential to increase raven use of the area. These PDFs are being designed to limit these potential impacts to the greatest extent possible. In addition, ongoing monitoring will allow for adaptive management.

Potential indirect impacts associated with erosion and deposition from grading at the Plant Site would be avoided by implementation of BMPs to control erosion and sedimentation during construction. A Drainage, Erosion, and Sediment Control Plan has been prepared to manage sediment on the site and was included in the SAA Notification Package (Worley Parsons 2008). In addition, compliance with the Clean Water Act Section 402, State Water Resources Control Board (SWRCB) General Construction, and General Industrial Permits will include preparation and implementation of appropriate Storm Water Pollution Prevention Plans (SWPPPs) that will define the BMPs and facilitate management of erosion, sediment, and water quality during both the construction and operation phases of the Project. No impacts to listed species from erosion or sediment during construction are anticipated.

(6) An analysis of the impacts of the proposed taking on the species.

6.1 DESERT TORTOISE (DT) IMPACTS

The DT was listed by the USFWS as threatened on August 20, 1980, and by the Department as threatened on August 3, 1989. Regional and local population monitoring efforts have indicated that the DT population has declined over the last 20 years, but that encounter rates (a general indicator of population density) have remained relatively stable between 2002 and 2004 (USFWS 2005). DT in the immediate vicinity of the Project are not in a Critical Habitat Unit designated by the USFWS (USFWS 1994a) nor in a DWMA as designated by the USFWS Recovery Plan (USFWS 1994b) or West Mojave Plan (BLM 2005). Historic densities in the valley in which the Project lies were 0 to 20 DT per square mile (Berry and Nicholson 1984). Recent sampling north of the Project area suggested very low DT densities, less than four adult DT per square kilometers (km) (Keith et al. 2005).

The DT population has fluctuated range-wide, with population levels varying within regions. For instance, within the Upper Virgin River Recovery Unit, the species density has decreased by approximately 41 percent between 1998 and 2003, while the Eastern Mojave Recovery Unit has shown a generally stable DT population (USFWS 2005). The western portion of the species' range includes the Western Mojave Recovery Unit, which encompasses the Joshua Tree, Ord-Rodman, Superior-Cronese, and Fremont-Kramer Desert Wildlife Management Areas (DWMAs). The population densities within each of the Western Mojave Recovery Unit DWMAs are highly variable, but overall, the DT population has steadily decreased since monitoring efforts began. The Fremont-Kramer DWMA DT population is the closest monitoring area to the BSEP, and provides the best indicator of the local level of DT "take." Based on encounter rates, the population density of DT within the local area has been relatively stable, ranging from a 2002 encounter rate of 0.10, to a 2004 encounter rate of 0.13 along monitoring transects (USFWS 2005). However, monitoring data suggest that the DT population within the local area has continued to decline over the past 20 years, primarily due to OHV activity (USFWS 2005).

The Plant Site has had no value for DT population persistence or recovery for many years. As discussed above in Section 783.2(a)(6), the Plant Site comprises a sizable block of nonhabitat that has been excluded from DT use for decades due to farming. Even the allscale regrowth area in the north is moderately well excluded from DT use by the chicken-wire perimeter fence (originally erected to keep rabbits out of the alfalfa) that has remained intact for long segments. This fence would effectively block much of the movement of DT onto the site. The Plant Site also does not represent a corridor between habitats because it is not DT habitat. While it is

anticipated that there would be no or very few DT on the Plant Site, any DT found on the site during clearance surveys would remain in the population by being placed into viable DT habitat, outside of the DT-proof fencing, but on Project property.

For either transmission line option, direct take from construction and O&M activities is likely to be minor to negligible. The loss of habitat is minor and discontinuous, occurring in small patches that are still usable by DT. This habitat can also be considered degraded due to proximity to existing transmission line corridors and SR-14. Data from several studies (Nicholson 1978; Karl 1989; Boarman 1994; LaRue 1993; Marlow et al. 1997) strongly support the hypothesis that heavily traveled roads are mortality sinks for DT, so impacts from the highway on the local DT population are already likely.

6.2. MOJAVE GROUND SQUIRREL (MGS) IMPACTS

The MGS was originally listed by the State as rare in 1971 and then reclassified as threatened by the State in 1984 and in spite of its protected status, very little is known of its population status, habitat extent, and needs. This can be attributed to the behavioral and demographic aspects of the species, which is inactive throughout much of the year, in addition, abundance and duration of surface activity varies from year to year. In many areas within its historic range, there are no recent records.

All MGS detections in the region of the proposed Project are shown in Figure 5. The CNDDB contains nine records of MGS occurrence within 10 miles of the Project area. Three locations occur in Jawbone Canyon, from a point just west of SR-14 to Blue Point. A fourth occurrence is near the southern edge of Red Rock Canyon State Park on the west side of SR-14. MGS have also been recently observed to the southeast on Cache Creek near the western boundary of the DTNA. Three occurrences are farther east, but within the DTNA. There are 10 other records within 12.4 miles that have not been entered into the CNDDB (Figure 5). All of these additional detections are associated with the DTNA.

The MGS is known to occupy portions of Inyo, Kern, Los Angeles, and San Bernardino counties in the western Mojave Desert. The species ranges from near Palmdale on the southwest to Lucerne Valley on the southeast, Olancha on the northwest and the Avawatz Mountains on the northeast. The MGS is threatened by loss of habitat and degradation of habitat due to urban, suburban and rural development, agriculture, military activities, energy development, livestock grazing, and OHV use.

Potential MGS habitat occurs west of the Plant Site and SR-14. Potential take of this species is being determined based on assumed presence of this species within suitable habitat within the area spanned by the proposed transmission line. Either of the transmission line route options, associated access roads, and the substation facility west of SR-14 could result in direct impacts to potential MGS habitat. However, associated loss of habitat is minor and discontinuous, occurring in small patches that are still usable, albeit degraded due to proximity to existing transmission lines and SR-14. The abandoned agricultural lands east of SR-14 do not provide suitable habitat for this species. The only shrub vegetation within the Plant Site consists of several patches of allscale and a narrow strip of scattered shrubs along the dry desert wash. This area does not provide the cover and diverse food resources that are necessary to support a MGS population (Leitner and Leitner 1998, Leitner 2007).

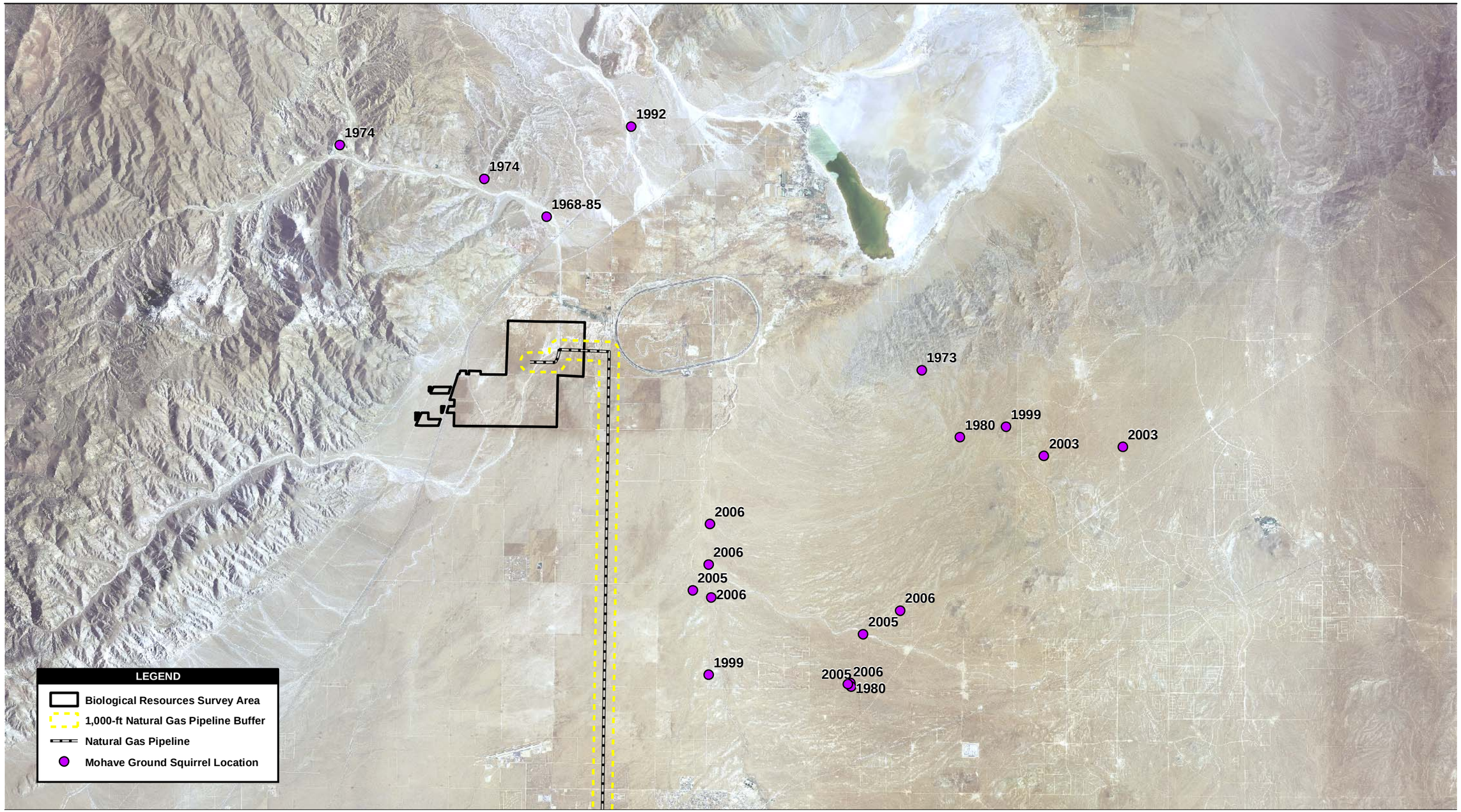
(7) An analysis of whether issuance of the incidental take permit would jeopardize the continued existence of a species. This analysis shall include consideration of the species' capability to survive and reproduce, and any adverse impacts of the taking on those abilities in light of (A) known population trends; (B) known threats to the species; and (C) reasonably foreseeable impacts on the species from other related projects and activities.

The lack of DT habitat on most of the Project area, implementation of Project avoidance and minimization measures such as site fencing, a preconstruction DT clearance, and a raven control program, and minor impacts to no more than 5.8 acres of DT habitat strongly supports the conclusion that the authorization of take for the Project will neither jeopardize the continued existence of the DT nor cause significant impacts to the local population.

Although the proposed Project may affect the MGS, if present, through loss of habitat and direct take during transmission facility construction and operations and maintenance activities west of SR-14, the potential impacts are minor and would be limited to a very small subset of the MGS population. Therefore, it is unlikely that the authorization of take associated with these activities would jeopardize the continued existence of the MGS in the immediate Project area or throughout the species' range.

(8) Proposed measures to minimize and fully mitigate the impacts of the proposed taking.

This section includes a summary of proposed avoidance, minimization, and mitigation measures to avoid and fully mitigate potential impacts.



Source: NAIP 2005; Leitner 2007

10,000 5,000 0 10,000 Feet

Scale: 1:120,000; 1 inch = 10,000 feet

Figure 5
Known Mohave Ground Squirrel Locations

Path: P:\2008\08080001 Proj Beacon Solar\5GIS\MXD\2081 Incidental Take Permit\Known MGS Locations.mxd, 12/16/08, AugelloP

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8.1 PROPOSED COMPENSATORY MITIGATION FOR POTENTIAL IMPACTS TO COVERED SPECIES

Potential take of MGS and DT would be fully mitigated with the acquisition of up to 115 acres (under Option 1) or up to 117.4 acres (under Option 2) (Table 3) of habitat suitable for MGS and DT. A description of the proposed compensation for take within the Plant Site in included in Section 8.1.1 and for take in areas west of SR-14 in Section 8.1.2. A summary of total compensation for take associated with the BSEP is provided in Section 8.1.3.

Table 3.
Beacon Solar Energy Project:
Anticipated Mitigation for Potential Impacts to Special Status Wildlife Species.

Listed Species	Total Impact[1]	Total Mitigation Acreage
Within Plant Site Boundary		
Desert Tortoise	Up to 2 transients	20
Mohave Ground Squirrel	Up to 2 transients	100
Total Within Plant Site Boundary		*100*[2]
Transmission Line Corridor West of Plant Site Boundary (see AFC Section 5.3.3.1 for details)		
With Option 1		
Desert Tortoise	5.0 acres	5.0 (1:1 ratio)
Mohave Ground Squirrel	5.0 acres	15.0 (3:1 ratio)
Total West of Plant Site Boundary (with Option 1)		*15.0*
With Option 2		
Desert Tortoise	5.8 acres	5.8 (1:1 ratio)
Mohave Ground Squirrel	5.8 acres	17.4 (3:1 ratio)
Total West of Plant Site Boundary (with Option 2)		*17.4*
Grand Total Project (with Option 1)		115[2]
Grand Total Project (with Option 2)		117.4[2]

[1] The temporary impacts are considered permanent in this desert ecosystem.
[2] Acreage values assume compensation lands can be acquired that are simultaneously suitable for both species.

8.1.1 Compensation for Potential Impacts within Plant Site Boundary

There are 369.2 acres of Fallow Agricultural-Disturbed Atriplex Scrub and 60.3 acres of Mojave Desert Wash Scrub within the Plant Site boundary, for a total of 429.5 acres of vegetated cover that is not deemed suitable habitat for MGS or the DT but has a low potential to be occupied by transient MGS and DT. Given the poor quality of this vegetative cover for the species and the limited amount of suitable adjoining habitat from which animals might disperse, a generous estimate of the number of MGS and DT that might be temporarily present within the Plant Site boundary during the life of the Project, primarily during the construction phase, would be two of each species. The habitat that could likely provide a source for transient individuals of these species is the patch of Mojave Creosote Bush Scrub outside the Plant Site boundary to the west of the Fallow Agricultural-Disturbed Atriplex Scrub. DT surveys and observations indicate a very low density of animals in this area outside the Plant Site boundary. MGS population studies suggest that this area of medium quality habitat might support three to six individuals.

8.1.1.1 Desert Tortoise (DT)

Beacon is proposing the acquisition of off-site habitat to compensate for possible incidental take of up to two transient DT. The most recent published population density estimates of DT within the DTNA are approximately 25 individuals per square kilometer in 1992 (or 25 DTs per 247.11 acres, equivalent to approximately one DT per 10 acres) (Berry 1997). The purchase, protection, and enhancement of DT habitat in the vicinity of the DTNA is anticipated to support the species at similar densities. Therefore, the acquisition of 20 acres of high-quality habitat suitable for the DT would be expected to provide habitat for a minimum of two animals. This would adequately compensate for the potential loss of transient use by DT of highly degraded vegetative cover within the Plant Site boundary, primarily prior to installation of exclusionary fencing at the start of construction.

Although the development within the Plant Site boundary could result in the loss of disturbed and degraded lands that have a low potential for occasional use by transient DT, loss of this transient use, if any, would be offset by the acquisition and conservation of high-quality habitat for these species that would provide for the long-term maintenance of a greater number of individuals of both species.

8.1.1.2 Mohave Ground Squirrel (MGS)

Beacon is proposing the acquisition of off-site habitat to compensate for possible incidental take of up to two transient MGS. Mitigation for impacts to the state-listed MGS at the Plant Site should be based on the best available biological evidence. This analysis integrates what is

known about habitat requirements of the species with the ecological characteristics of the proposed Plant Site (Leitner 2008, Attachment 2).

As stated previously, although the 429.5 acres of disturbed vegetation on the Plant Site would not support resident MGS, it is not possible to rule out the occasional presence of transient individuals. Beacon has proposed to acquire sufficient offsite habitat to compensate for the possible incidental take of two transient MGS on 429.5 acres of degraded land within the Plant Site boundary. This section explains the method used for determining the amount of compensation land that must be acquired.

First, it is necessary to estimate the difference between the current carrying capacity of potential mitigation lands (e.g., near the DTNA) and their future carrying capacity after acquisition and improvement. The future carrying capacity of good quality, protected habitat was estimated by reference to studies at two Coso sites during the period 2001-2008. Over this eight-year period, the number of MGS recorded each year averaged 5.1 at one site and 6.5 at the other. Each of the two trapping grids had an area of 62 acres, indicating a density of roughly one individual per 10 acres.

There are some empirical data on the current carrying capacity of lands in the vicinity of the DTNA. In the spring of 2008, the Department trapped a section (640 acres) in this area that was recently purchased as mitigation land for DT and MGS. Sheep grazing and OHV activity had adversely impacted the area prior to being purchased as conservation land. No MGS were captured in the trapping effort this spring, although one DT was observed. The entire 640 acres was not completely sampled by trapping and there was only one trapping session, so MGS may have been present but not detected. However, these results strongly indicate that the population density of the species on this parcel is currently very low, possibly approaching zero.

The Department property where the trapping was conducted is immediately adjacent to a site in southwest corner of the DTNA where two MGS were captured during a single trapping session in spring 1999 (Leitner 2001). These two animals were trapped on a 22-acre grid, suggesting a population density of about one individual per 10 acres in an area that had enjoyed long-term protection. This information on carrying capacity of protected lands is consistent with the Coso data.

These two field studies suggest that acquiring and protecting land in the vicinity of the DTNA could increase the MGS density from approximately zero to one per 10 acres. The Department property adjacent to the DTNA that had been unprotected until 2007 appeared to have a MGS population density close to zero, while adjoining land that had been managed for conservation for greater than 20 years supported about one animal per 10 acres. Based upon this evidence,

there are two ways to determine appropriate mitigation based on carrying capacity as stated below.

Purchasing 20 acres where current carrying capacity is close to zero would yield habitat that could support 2 individuals after protection, compensating for the possible incidental take of 2 MGS at the Plant Site. However, a more conservative approach would be to assume that potential conservation lands subject to OHV use and livestock grazing currently support MGS, but at somewhat low densities than protected lands.

A generous estimate for carrying capacity of unprotected land would be 0.8 animal per 10 acres, as compared to one animal per 10 acres in a protected area. If such land were purchased for conservation and protected by fencing to improve habitat quality, it should certainly increase carrying capacity by 25 percent or 0.2 animal per 10 acres. Then, based upon this projected increase in the carrying capacity of compensation lands from 0.8 animal per 10 acres to one animal per 10 acres, the acreage of compensation land that is needed can be determined. The increase of 0.2 individual per 10 acres protected will require the purchase of 100 acres to compensate for the incidental take of up to two MGS on the Plant Site.

8.1.2 Compensation for Potential Impacts to the Area West of SR-14

BSEP west of SR-14 associated with the transmission line facilities would require MGS and DT compensation for loss of suitable habitat through the acquisition of up to an additional 15 acres (under Option 1), and up to 17.4 acres (under Option 2) of habitat suitable for both species. Based on the quality of habitat and potential for use by covered species, mitigation acreage was calculated based on a 1:1 mitigation ratio for the DT and a 3:1 mitigation ratio for the MGS (Table 3).

8.1.3 Compensation Acreage Summary

Compensation for impacts to Covered Species as described above would include a total of up to 115 acres (with Transmission Line Option 1) or up to 117.4 acres (with Transmission Line Option 2). Mitigation acreage requirements will be accomplished by land acquisition acceptable to the USFWS, Department and CEC. Direct permanent and temporary impacts to potential DT and MGS habitat would be mitigated as described in Sections 8.1 and 8.2 above. Funding for the long-term management of the preserved land will also be included as described in Section 9 below.

In addition to the avoidance and minimization measures outlined above, the Project proponent would implement any measures required by the CEC, the Department, and USFWS as a condition of Project certification.

8.2 MITIGATION MEASURES

This section includes general measures followed by mitigation measures specifically for the DT and the MGS, respectively.

8.2.1 General Measures (GM)

The following is a list of general impact avoidance and minimization measures that would apply to all Project activities. These measures are standard practices designed to prevent environmental degradation, and the Project applicant will ensure implementation of these measures to avoid and minimize impacts to the greatest extent feasible.

GM-1 Visual preconstruction surveys for DT and MGS will be completed within all temporary and permanent impact areas no more than 30 days prior to commencement of construction activities in the survey area. Rare plant species and special status wildlife species habitat will be identified during rare plant surveys and flagged for avoidance. If construction occurs during or following a high-rainfall year, rare plant surveys will be conducted to identify and flag newly detected populations.

GM-2 The construction contractor(s)/crew(s) will be educated about the biological constraints of the Project. All construction personnel who work in the survey area will attend a contractor education program, developed and presented by a Project biologist prior to the commencement of construction activity. This Worker Environmental Awareness Program (WEAP) will be included in the Mitigation, Monitoring, and Reporting Program (MMRP), which comprehensively describes avoidance, minimization, and mitigation measures; documents their implementation; and monitors their effectiveness (Attachment 3). The construction crews and contractor(s) will be responsible for unauthorized impacts from construction activities to sensitive biological resources that are outside the areas defined as subject to impacts by the CEC and other agencies who must issue approvals for the Project.

GM-3 Construction crews and contractors will be responsible for avoiding all shrubs and trees within the construction zone to the extent feasible. Shrubs and trees will be flagged during rare plant surveys to indicate priority for avoidance.

GM-4 The anticipated impact zones, including staging areas, equipment access, and disposal or temporary placement of spoils, will be delineated with stakes and flagging prior to construction to avoid natural resources where possible. Construction-related activities outside of the impact zone will be avoided.

GM-5 New and existing roads that are planned for either construction or widening will not extend beyond the planned impact area as delineated under GM-4. All vehicles passing or turning around will do so within the planned impact area or in previously disturbed areas. Where new access is required outside of existing roads (e.g. new spur roads associated with both transmission line options) or the construction zone, the route will be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.

GM-6 Spoils should be stockpiled in disturbed areas presently lacking native vegetation. Stockpile areas should be marked to define the limits where stockpiling can occur.

GM-7 BMPs will be employed to prevent loss of vegetation due to erosion caused by Project-related impacts (i.e., grading or clearing for new roads). All detected erosion will be remedied within two (2) days of discovery.

GM-8 Fueling of equipment will take place within existing paved roads and not within or adjacent to drainages or native desert vegetation. Contractor equipment will be checked for leaks prior to operation and repaired as necessary. Spill kits will be available to respond to potential spills.

GM-9 Construction activity will be monitored by a Biological Monitor (BM) and oversight will be provided by an Authorized Biologist ([AB] qualified to handle DT) to ensure compliance with avoidance and minimization measures.

GM-10 Beacon is supportive of funding a monitoring program to document potential nesting ravens. The details of the funding mechanism and monitoring program will be coordinated with the USFWS, Department, and CEC prior to initiation of the Project ground-disturbance activity. (See desert tortoise mitigation measure DT-22 and the RMMCP for details of the proposed Raven Monitoring Program.)

GM-11 A MMRP will be created to comprehensively describe avoidance, minimization, and mitigation measures; document their implementation; and monitor their effectiveness. A Draft MMRP is included in Attachment 3 as referenced under 783.2(a)(9), below.

GM-12 The introduction of exotic plant species will be controlled by implementation of measures described in the MMRP. The introduction of exotic plant species will be avoided and

controlled wherever possible, and may be achieved through physical or chemical removal and prevention. Preventing exotic plants from entering the Plant Site via vehicular sources will include measures such as implementing Trackclean or other methods of vehicle cleaning for vehicles coming and going from the Plant Site. Earth-moving equipment shall be cleaned prior to transport to the Project site. Weed-free rice straw or other certified weed-free straw shall be used for all hay employed for erosion control.

GM-13 The Project applicant will mitigate for permanent impacts to habitat deemed suitable for occupancy by listed species including DT and MGS. Mitigation will primarily include the offsite purchase of in-kind habitat of equal or greater value than that of the impacted habitat. Long-term management of the land by an appropriate organization that is approved by the resource agencies shall include necessary enhancements and reporting to the resource agencies. This will be funded as part of the land acquisition fees. The location of the preserved land and the management program would be negotiated between the resource agencies (including the CEC) and the Project applicant.

GM-14 The pipeline construction will involve nearly simultaneous trenching, laying of pipe, and backfilling so that no open trenches will be left unattended during daylight hours. Any open trenches that cannot be backfilled will be covered with steel plates at night. BMs will oversee pipeline construction to ensure that sensitive resources including DT and MGS are avoided or when possible relocated to a safe location.

8.2.2 Desert Tortoise (DT)

Direct and indirect impacts to DT will be avoided, minimized, and fully mitigated through implementation of the following measures.

DT-1 Prior to ground disturbance, the entire Plant Site (east of the railroad tracks) will be fenced with a permanent DT-proof fence to keep DT in habitat adjacent to the site from entering the site during construction and operations phases. The fencing type will be one-inch by two-inch vertical mesh galvanized fence material, extending at least two feet above the ground and buried at least one foot. Where burial is impossible, the mesh will be bent at a right angle toward the outside of the fence and covered with dirt, rocks, or gravel to prevent the DT from digging under the fence. DT-proof gates will be established at all site entry points. Any utility corridors and tower locations will be temporarily fenced to prevent DT entry during construction. Temporary fencing must follow guidelines for permanent fencing and supporting stakes will be sufficiently spaced to maintain fence integrity. All fence construction will be monitored by qualified biologists to ensure that no DT are harmed. Following installation, the fencing will be

inspected monthly and during all major rainfall events. Any damage to the fencing will be repaired within two days of observing damage.

DT-2 A clearance for any DTs that may be on the Plant Site east of SR-14 and the railroad tracks by virtue of connection to adjacent native habitat will be conducted in all areas with shrub cover after installation of exclusion fencing. A minimum of two clearance passes must be completed and these must coincide with heightened DT activity from late March through May and during October. This will maximize the probability of finding all DT. It is anticipated that no or very few DT will be found. Any DT found will be moved to a location outside of the Project boundaries using techniques approved by the CEC, Department, and USFWS. Relocation should occur only when daily ground temperatures do not exceed 108°F and air temperatures fall below 90°F (i.e., early spring or fall), so that animals can safely find refuge in potentially unfamiliar areas without the added constraints of lethal temperatures. No DT will be moved between mid-April and early October, unless ambient temperatures are favorable. If the schedule of construction requires that clearance surveys continue past the safe time to relocate DT (i.e., past early April), then continued searches for DT would include temporarily affixing found DT with transmitters for ease of relocating them and relocating them during autumn, at a safe time for translocation. Once the site is deemed free of DTs after two consecutive clearance passes, heavy equipment will be allowed to enter the site to perform construction activities.

DT-3 West of SR-14, all DT will be removed from fenced construction zones to artificial burrows outside the temporary fencing. DT may be moved during seasons when daily ambient temperatures exceed lethal levels, but only late in the day when ground temperatures fall below 108°F and air temperatures fall below 90°F. These DT will be temporarily monitored to ensure that their behaviors resulting from relocation do not affect their survival.

DT-4 Following site clearance, a report will be prepared by the AB to document the clearance surveys, the capture and release locations of all DT found, individual DT data, and other relevant data. This report will be submitted to the Department, USFWS, and CEC (Agency Representatives).

DT-5 An AB and BMs will be appointed to oversee compliance with the protection measures for the DT and other species. The AB or BM will be onsite during fencing activities. The AB or BM will have the right to halt all activities that are in violation of the DT protection measures. Work will proceed only after hazards to the DT are removed and the species is no longer at risk, or the AB has moved the individual from harm's way. The AB and BM will have in their possession a copy of all the compliance measures while work is being conducted onsite. The AB

and BM will be responsible for awareness trainings, surveys, compliance monitoring, and reporting.

DT-6 The Project proponent will submit the names and statement of qualifications of all proposed ABs and BMs to Agency Representatives for review and approval at least 30 days prior to initiation of any DT handling, clearance, and pre-activity surveys. Project activities will not begin until the ABs and BMs are approved by the aforementioned agencies. Only ABs will be allowed to handle and relocate DT when necessary. BMs will ensure compliance with the protection measures but will not be allowed to survey for or handle DT. Workers will notify the AB or BM of all DT observations.

DT-7 The AB and BM will be responsible for awareness trainings, surveys, compliance monitoring, and reporting.

DT-8 Impacts from vehicle strikes are minimized by employee education on the proper procedures for operating vehicles on the Project site. Personnel will utilize established roadways (paved or unpaved) in traveling to and from the survey area and will utilize existing tracks onsite whenever possible. Cross-country vehicle and equipment use outside designated work areas will be prohibited. To minimize the likelihood for vehicle strikes of DT, a speed limit of 25 miles per hour will be established for travel within DT habitat areas.

DT-9 A trash abatement program will be established. Trash and food items will be contained in closed containers and removed daily to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs.

DT-10 Workers will be prohibited from bringing pets and firearms to the Plant Site.

DT-11 As much as is feasible, parking and storage will occur within the DT exclusion fencing. Anytime a vehicle or construction equipment is parked for longer than two minutes in unfenced DT habitat, the ground under the vehicle will be inspected for the presence of DT before it is moved. If a DT is observed, it will be left to move on its own. If it does not move within 15 minutes, the AB will remove and relocate the animal to a safe location outside of the Project boundary.

DT-12 All vehicles and equipment will be in proper working condition to ensure that there is no potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The AB and BM will be informed of any hazardous spills within 24 hours.

Hazardous spills will be immediately cleaned up and the contaminated soil will be properly disposed of at a licensed facility.

DT-13 Intentional killing or collection of either plant or wildlife species including listed species such as the DT in the survey area and surrounding areas will be prohibited. The AB, BM, and Agency Representatives will be notified of any such occurrences within 24 hours.

DT-14 For emergency response situations, the AB will notify the Agency Representatives within 24 hours. As a part of this response, the Agency Representatives may require additional measures to protect the DT. During any responses related to human health, fire, hazardous waste, or repairs requiring off-road vehicle and equipment use, the Agency Representatives may also require measures to recover damaged habitat.

DT-15 Water will be applied to the construction ROW, dirt roads, trenches, spoil piles, and other areas where ground disturbance has taken place to minimize dust emissions and topsoil erosion. During the DT active season, a BM will patrol these areas to ensure water does not puddle for long periods and attract DT, common ravens, and other wildlife to the site.

DT-16 Upon locating a dead or injured DT, the AB will make initial notification to the Agency Representatives within 24 hours of its finding. The notification must be made by telephone and writing to the nearest USFWS Field Office. The report will include the date and time of the finding or incident (if known), location of the carcass, a photograph, cause of death (if known), and other pertinent information. DT fatally injured as a result of Project-related activities may be submitted for necropsy using methods in Berry (2003), if desired by the Agency Representatives. DT with fewer major injuries will be transported to a nearby-qualified veterinarian for treatment at the expense of the Project proponent. If an injured animal recovers, the offices of the Agency Representatives will be contacted for final disposition of the animal.

DT-17 On a monthly basis until construction is completed, the AB will prepare a brief report for the Agency Representatives, documenting the effectiveness and practicality of the protection measures that are in place and making recommendations for modifying the measures to enhance species protection, as needed. The report will also provide information on the overall biological resources-related activities conducted, including the WEAP, clearance/pre-activity surveys, monitoring activities, and any observed DT including injuries and fatalities.

DT-18 The Project proponent will compensate for impacts to potential DT habitat in the area west of the Plant Site potentially affected during construction activities related to both transmission line options (5.0 acres Option 1 or 5.8 acres Option 2). This will be accomplished

either by land acquisition acceptable to the USFWS, Department, and CEC or an assessed financial contribution calculated based on the final construction footprint. Direct permanent and temporary impacts to potential DT habitat would be mitigated at a 1:1 ratio. Funding for the long-term management of the preserved land will also be included.

DT-19 The project proponent will compensate for the potential impact to two transient DT that may enter the Plant Site based on anticipated increase in carrying capacity. Beacon will purchase 20 acres to compensate for the incidental take of up to two transient DT on the Plant Site. As with the DT-18 land acquisition, the location must be approved by the Department and CEC and include funding for the long-term management of the preserved land (on a per-acre of impact basis) and a fee title or conservation easement shall be granted to the Department or other Department-approved nonprofit entity.

DT-20 Upon completion of compensatory lands acquisition, Beacon, or an acceptable third party such as the Desert Tortoise Preserve Committee, will prepare a Mitigation Land Acquisition report that will discuss the habitat characteristics of the parcel(s) of land, and how they meet the requirements of the DT and MGS. The report would be submitted to the Agency Representatives.

DT-21 Annual monitoring reports will be prepared addressing the habitat enhancement and conservancy of the mitigation lands acquired to compensate for impacts to covered species. The reports will be prepared by the entity or organization to which Beacon assigns the compensation lands. That entity will be responsible for conducting the habitat enhancement (which may include habitat restoration, construction and maintenance of protective fencing, etc.), habitat monitoring, and annual reporting. The report will address the level of success of the habitat enhancement, and any suggestions for devising or implementing adaptive management strategies to improve the long-term viability of the covered species associated with the acquired lands. The annual report will be submitted to Beacon, CEC, the Department, and USFWS at the end of each calendar year, for no less than five years.

DT-22 The design of the rerouted wash will incorporate no greater than 30-degree interior slopes, whenever feasible. This design will prevent DT from being trapped within the rerouted wash. The only exception to this is at the first turn (Turn 1) where the wash is initially redirected. The side slopes at Turn 1 will be 2:1 to accommodate anticipated flows and hydraulic energy (see the Mitigation Plan for more detail on the rerouted wash).

DT-23 A RMMCP will be designed and implemented to identify the conditions of concern specific to the Project that may attract ravens to the area and to define a monitoring,

management, and control plan that will (1) monitor raven activity and (2) specify management and control measures that will avoid, minimize, or mitigate impacts. The monitoring effort is intended to provide qualitative data that can be interpreted by the BM and AB to determine if PDFs are working or if additional management and control measures are needed to mitigate impacts to DTs.

Plan objectives include:

1. Clearly identify how the Project would utilize PDFs to manage the conditions of concern specific to the BSEP that may attract ravens to the area.
2. Document the effectiveness of PDFs in addition to raven management and control measures implemented at the BSEP.
3. Specify how and when mitigation measures would be selected and implemented if the monitoring suggests the need for additional controls.
4. Define triggers for modification of management and control measures using adaptive management principles.

DT-24 In the unlikely event that a DT is found on the Project site during Project Operations, the DT will be captured, boxed in a clean, escape-proof box, and temporarily maintained in a cool, quiet, safe location until the AB can arrive to remove it from the site, but no more than one day. The capture location will be recorded. If ambient temperatures exceed lethal levels on a daily basis, the AB will confer with the Department and USFWS representatives prior to transporting the DT outside the DT-proof fence. By moving tortoises outside the Plant Site boundary, the Project would be maintaining tortoises within their home range, not translocating them. All tortoises moved, whether from the Plant Site, during fence construction, or during construction for linear facilities, would be monitored to ensure their safety. All handling would be conducted within the constraints detailed in DT2 and DT3.

8.2.3 Mohave Ground Squirrel (MGS)

Direct and indirect impacts to MGS will be avoided, minimized, and fully mitigated through implementation of the following measures.

MGS-1 A qualified biologist will conduct onsite monitoring of ground-disturbance activities in all areas with the potential to support the MGS, primarily in the western portion of the survey area, west of SR-14 where portions of both transmission line options would be constructed. During construction activities, monthly and final compliance reports shall be provided to the

Department and other relevant regulatory agencies documenting the effectiveness of mitigation measures and the level of take associated with this Project.

MGS-2 Impacts from vehicle strikes are minimized by employee education on the proper procedures for operating vehicles on the site. Personnel will utilize established roadways (paved or unpaved) in traveling to and from the survey area and will utilize existing tracks onsite whenever possible. Cross-country vehicle and equipment use outside designated work areas will be prohibited. To minimize the likelihood for vehicle strikes of MGS, a speed limit of 25 miles per hour will be established for travel within MGS habitat.

MGS-3 A trash abatement program will be established. Trash and food items will be contained in closed containers and removed daily to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs.

MGS-4 The Project proponent will compensate for the direct permanent and temporary impacts to potential MGS habitat associated with both transmission line options (5.0 acres Option 1 or 5.8 acres Option 2) at a ratio of 3:1. All MGS compensation lands will be suitable for DT and therefore will also compensate for potential losses to DT habitat. As with the DT land acquisition, the location must be approved by the Department and CEC and include funding for the enhancement and long-term management of the compensation land (on a per-acre of impact basis). Fee title or a conservation easement shall be conveyed to the Department or other Department-approved nonprofit entity.

MGS-5 Beacon will purchase 100 acres to compensate for the incidental take of up to two transient MGS on the Plant Site. As with the MGS-4 land acquisition, the location must be approved by the Department and CEC and include funding for the enhancement and long-term management of the compensation land (on a per-acre of impact basis). Fee title or a conservation easement shall be conveyed to the Department or other Department-approved nonprofit entity.

(9) A proposed plan to monitor compliance with the minimization and mitigation measures and the effectiveness of the measures.

A Draft MMRP has been prepared, and is included in Attachment 3. Mitigation includes acquisition of compensation lands in addition to other avoidance, minimization, and mitigation measures.

Upon completion of compensatory lands acquisition, Beacon, the Department, or an acceptable third party such as the Desert Tortoise Preserve Committee, will prepare a Mitigation Land Acquisition report that will discuss the habitat characteristics of the parcel(s) of land, and how they meet the requirements of the DT and MGS. The report would be submitted to the CEC, Department, and USFWS.

Annual monitoring reports will be prepared addressing the habitat enhancement and conservancy of the mitigation lands acquired to compensate for impacts to Covered Species. The reports will be prepared by the entity or organization to which Beacon assigns the compensation lands and submitted by that entity to the Regulatory Agencies per the final agreement with the Department.

(10) A description of the funding source and the level of funding available for implementation of the minimization and mitigation measures.

The funding sources and conditions for mitigation land acquisition are provided below.

10.1 MITIGATION SECURITY

Beacon will provide financial assurances to guarantee that an adequate level of funding is available to implement all avoidance, minimization, and compensation measures identified in the CESA Section 2081 permit. These funds will be used solely for implementation of the measures associated with the Project.

Beacon shall complete acquisition of the proposed Compensation Lands prior to initiating ground-disturbing Project activities, unless financial assurance is provided to the Department in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security") approved by the Department Office of the General Counsel, to ensure funding in the amount of $299,000 (if Option 1 is adopted) or $305,240 (if Option 2 is adopted).

The amount of the Security is calculated as follows:

1. Land acquisition costs for compensation lands, calculated at $1,000/acre for 115 acres (117.4 acres if Option 2 is adopted): $115,000; or $117,400 (if Option 2 is adopted)

2. Costs of enhancing compensation lands, calculated at $250/acre for 115 acres (117.4 acres if Option 2 is adopted): $28,750; or $29,350 (if Option 2 is adopted)

3. Costs of establishing an endowment for long-term management of compensation lands, calculated at $1,350/acre for 115 acres (117.4 acres if Option 2 is adopted): $155,250 or $158,490 (if Option 2 is adopted)

If Security is provided, Beacon, the Department, or a third-party entity approved by the Department, CEC, and USFWS, shall complete the proposed Compensation Lands acquisition within eighteen (18) months of the start of Project ground-disturbing activities. A minimum of three months prior to acquisition of the 115.0 acres (117.4 acres if Option 2 is adopted) of Compensation Lands, Beacon, or a third-party entity approved by the Department, CEC and USFWS, shall submit to the Department for approval a formal acquisition proposal identifying specific properties comprising the acres that will be purchased. The Department, CEC, and USFWS would approve all of the parcels comprising the 115.0 acres (117.4 acres if Option 2 is adopted) in advance of purchase. The Compensation Lands are expected to be acquired in the western Mojave Desert and are expected to promote conservation of both the DT and MGS and will be subject to the conditions listed in section 10.2 below.

10.2 COMPENSATION LANDS ACQUISITION CONDITIONS

In conjunction with the Beacon funding obligations related to the Compensation Land actions and following the Department's field review and approval of the proposed 115 acres (117.4 acres if Option 2 is adopted) to be purchased, Beacon, the Department, or a third-party entity approved by the Department, CEC, and USFWS, shall comply with the following conditions:

a) Preliminary Report: Provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary documents for the proposed 115 acres (117.4 acres if Option 2 is adopted [and/or conservation easement]). All documents conveying or conserving Compensation Lands and all conditions of title/easement are subject to the approval of the Department, the California Department of General Services and, if applicable, the Fish and Game Commission.

b) Title/Conveyance: Transfer fee title to the 115 acres (117.4 acres if Option 2 is adopted) of Compensation Lands to the Department or an organization approved by the Department under terms approved by the Department. Convey a conservation easement on the 115 acres (117.4 acres if Option 2 is adopted) of Compensation Lands to the Department or an organization approved by the Department under terms approved by the Department and Beacon.

c) Enhancement Fund (as necessary): Fund the initial protection and enhancement of the 115 acres (117.4 acres if Option 2 is adopted) by providing to the Department, or a third-party entity approved by the Department, CEC, and USFWS, an appropriate amount as determined by the Department field review of the land as discussed above.

d) Endowment Fund: Prior to ground-disturbing expansion Project activities, provide to the Department, or a third-party entity approved by the Department, CEC, and USFWS, a permanent capital endowment in the amount determined through the Property Analysis Record (PAR) or PAR-like analysis that will be conducted for the 115 acres (117.4 acres if Option 2 is adopted) of Compensation Lands. Interest from this amount shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the Compensation Lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action designed to protect or improve the habitat values of the Compensation Lands. The endowment principal shall not be drawn upon unless such withdrawal is deemed necessary by the Department, or a third-party entity approved by the Department, CEC, and USFWS, to ensure the continued viability of the species on the 115 acres (117.4 acres if Option 2 is adopted). Monies received by the Department pursuant to this provision shall be deposited in a special deposit account established pursuant to Government Code §16370. The Department may pool the endowment with other endowments for the operation, management, and protection of the 115 acres (117.4 acres if Option 2 is adopted) for local populations of the Covered Species.

e) Security Deposit: Beacon may proceed with ground-disturbing Project activities before fully performing its duties and obligations as set forth above only if Beacon secures its performance by providing to the Department funding, or the Department approves administrative proof of funding, necessary to cover land acquisition and easement costs, fencing/cleanup costs and, as necessary, initial protection and enhancement of the acquired 115 acres (117.4 acres if Option 2 is adopted). If the Security is provided to allow the commencement of Project disturbance prior to completion of compensation actions, Beacon, the Department, or a third-party entity approved by the Department, CEC, and USFWS, must complete the required actions no later than 18 months after the start of the ground-disturbing activities. The Security will provide that the Department, or a third-party entity approved by the Department, CEC, and USFWS, may draw on the principal sum if it is determined that Beacon has failed to comply with the Conditions of Approval of the CESA 2081 Permit. The Security will be returned to Beacon upon completion of the legal transfer of the Compensation Lands to the Department, or upon completion of an implementation

agreement with a third-party mitigation banking entity, acceptable to the Department, CEC, and USFWS, to acquire and/or manage the Compensation Lands.

f) Reimbursement Fund: Provide reimbursement to the Department for reasonable expenses incurred during title, easement, and documentation review; expenses incurred from other state agency reviews; and overhead related to providing Compensation Lands to the Department.

If all actions for Compensation Lands described above are not completed within 18 months of initial ground-disturbing activity, Beacon shall consult with USFWS and the Department and possibly develop alternate compensation land proposals subject to the above requirements.

Beacon is responsible for all Compensation Lands acquisition/easement costs, including but not limited to title and document review costs, as well as expenses incurred from other state agency reviews and overhead related to providing Compensation Lands to the Department; escrow fees or costs; toxic waste clearance; and other site cleanup measures.

(11) Certification

I certify that the information in this application is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to suspension or revocation of this permit and to civil and criminal penalties under the laws of the state of California.

Ryan O'Keefe
Vice President
Beacon Solar, LLC

ATTACHMENT 1

REFERENCES

REFERENCES REVIEWED AND/OR CITED

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ATTACHMENT 2

SPECIAL STATUS SPECIES
TECHNICAL EXPERT MEMORANDA

Phil Leitner, 2008 Memorandum (MGS)
Alice Karl, 2007 Memorandum (DT)

BEACON SOLAR ENERGY PROJECT

BIOLOGICAL BASIS FOR MOHAVE GROUND SQUIRREL MITIGATION

Philip Leitner

December 5, 2008

Mitigation for impacts to the state-listed Mohave ground squirrel (*Spermophilus mohavensis*) at the BSEP Plant Site should be based on the best available biological evidence. This analysis integrates what is known about habitat requirements of the species with the ecological characteristics of the proposed Plant Site.

Habitat Suitability at the Proposed Plant Site

Within the boundary of the proposed 2012 acre Plant Site, we have identified 369.2 acres of Fallow Agricultural-Disturbed Atriplex Scrub and 60.3 acres of degraded Mojave Desert Wash Scrub, for a total of 429.5 acres that support scattered perennial vegetation. The remainder of the Plant Site is classified as Fallow Agricultural-Ruderal. This 1582.5 acre area is essentially barren and has no perennial vegetation.

The entire Plant Site was formerly an alfalfa farm. The land surface was completely graded in preparation for agricultural production and all natural vegetation was removed. After the land was taken out of alfalfa production and abandoned, a saltbush shrub (allscale or *Atriplex polycarpa*) and a few invasive herbaceous plant species became established in the northwest portion of the site, in the area designated as Fallow Agricultural-Disturbed Atriplex Scrub (Fig. 3 Spring 2008 Survey Report). The Mojave Desert Wash Scrub forms a narrow discontinuous band of degraded perennial vegetation contiguous with the eastern side of the Fallow Agricultural-Disturbed Atriplex Scrub and extending south into the Fallow Agricultural-Ruderal area. The scattered patches of shrubs in the wash are primarily of two species: creosote bush (*Larrea tridentata*) and scale-broom (*Lepidospartum squamatum*). It appears that browsing by sheep following abandonment of alfalfa growing was responsible for the damaged appearance of the surviving perennials here. The northern terminus of the wash is dominated by dense stands of exotic Russian thistle (*Salsola tragus*).

The 429.5 acres of the Plant Site that have some perennial plant cover are not suitable habitat for the Mohave ground squirrel, because they do not have the food resources necessary to support resident animals. According to the best dietary information available, Mohave ground squirrels require forage from a variety of native shrub and herbaceous species to sustain them through their active season (Leitner and Leitner 1998, 2008). Mohave ground squirrels will eat saltbush foliage and are also known to consume small amounts of two non-native herbs: red-stemmed filaree (*Erodium cicutarium*) and Mediterranean grass (*Schismus arabicus*). These three plant species are present in the Fallow Agricultural-Disturbed Atriplex Scrub found on the Plant Site. However, there is no evidence that Mohave ground squirrels can maintain themselves on a diet made up of only these plants. In a nine-year study of 754 fecal samples collected at four sites in the Coso Range of Inyo County, there was not a single case in which the diet consisted of only

one or any combination of these three food items. Creosote bush and scale-broom, the two shrubs found along the northern portion of the desert wash, are known to have toxic foliage. They are rarely eaten by herbivores, generally only during drought conditions when there is no other forage. Mohave ground squirrels will take small amounts of creosote bush foliage, as well as the seeds, but again this is totally inadequate to sustain them.

In addition to dietary studies, demographic evidence supports the position that this type of vegetative cover is not suitable Mohave ground squirrel habitat, in that it is not capable of supporting a resident population.

During the Coso Grazing Exclosure Monitoring Study (1988-1996), long-term studies of Mohave ground squirrel populations were conducted on four sites (Leitner and Leitner 1998). One of these sites was unique in that the shrub vegetation was almost entirely made up of saltbush. Two species were present: shadscale (*A. confertifolia*) and allscale (*A. polycarpa*). Although strongly dominated by saltbush, this site provided much better habitat than the Beacon Plant Site in that it was a natural desert plant community with a few other shrub species, good production of native annual plants in years with adequate winter rainfall, and undisturbed desert soil profile.

This *Atriplex*-dominated site was the only one of the four study sites that did not support a permanent Mohave ground squirrel population. In 1988, the first year of the study and a good reproductive year, only transient juveniles were captured here. No Mohave ground squirrels were trapped here over the next four years. A few adults were resident from 1993-1996, but were found only in a small area on the northeastern edge of the study site where the shrub diversity was highest and a few individual shrubs of species known to be important in the diet were found. This occupied area was continuous with better quality habitat to the east. The great majority of the site, where the shrub community was essentially a monotypic stand of *Atriplex*, never supported resident Mohave ground squirrels during the nine year study period.

Finally, protocol trapping data also support the position that monotypic saltbush scrub like that found in the northwest portion of the Beacon Plant Site is not likely to be occupied by Mohave ground squirrels. On May 5, 2008, an e-mail was sent to all biologists who currently hold an MOU authorizing them to conduct Mohave ground squirrel trapping studies. They were asked if they had ever trapped in the type of disturbed *Atriplex* scrub that we have identified on the Beacon Plant Site and, if so, whether they had captured Mohave ground squirrels. We received replies from six of them. Two of these biologists had actually trapped in this type of vegetation, but never detected Mohave ground squirrels. Although the sample size is not large, these trapping surveys were conducted at six different locations in Los Angeles and San Bernardino counties. In all cases, the trapping was carried out on previously disturbed land that had been invaded by *Atriplex polycarpa*, the same situation found at the Plant Site. These six sites had varying degrees of connectivity to nearby suitable habitat, but none was completely isolated.

Based upon these three lines of evidence, we would conclude that the disturbed vegetation on the Plant Site is incapable of supporting a resident Mohave ground squirrel population. Any claim to the contrary would require clear and convincing factual evidence.

The Proposed Plant Site in Regional Context

Although the 429.5 acres of disturbed vegetation on the Plant Site would not support resident Mohave ground squirrels, it is not possible to rule out the occasional presence of transient individuals. The California Natural Diversity Data Base contains nine records of Mohave ground squirrel occurrence within 16 km (10 mi) of the Beacon project site. Four of them are to the north, in Jawbone Canyon and near the southern edge of Red Rock Canyon State Park. Mohave ground squirrels have also been detected recently to the southeast on Cache Creek near the western boundary of the Desert Tortoise Natural Area.

An extensive area of Mojave Creosote Bush Scrub immediately adjoins the Plant Site to the east and south. It appears to provide suitable habitat for the Mohave ground squirrel, although there are no occurrence records and no evidence of any trapping attempts. To the west of State Route 14 is a wide strip of Mojave Creosote Bush Scrub on the alluvial fans reaching down from the mountains. This area is characterized by vegetation and soil conditions that are suitable for Mohave ground squirrels. To the north and northeast of the Plant Site are fallow agricultural lands that do not provide Mohave ground squirrel habitat. Because the southern and northeastern sections of the Plant Site consist of barren Fallow Agricultural-Ruderal land, the Plant Site itself has no value as a movement corridor for Mohave ground squirrels. Although dispersing juveniles might attempt to enter the Plant Site from adjoining creosote bush habitat to the west, south, or east, they would not cross the wide bands of barren fallow agricultural land. This conclusion is based upon research in the Coso area of Inyo County showing that a small playa acted as a complete barrier to the dispersal movements of radiocollared juveniles (Harris and Leitner 2005). There is no evidence indicating that this species would attempt to traverse extensive areas without cover. The degraded wash that crosses the Plant Site would not serve as a movement corridor because its vegetative cover is highly discontinuous, with some barren stretches as long as 1800 feet.

The Fallow Agricultural-Disturbed Atriplex Scrub on the Plant Site is isolated from suitable Mohave ground squirrel habitat by wide areas of barren Fallow Agricultural-Ruderal land to the south, east, and north. The only possible way in which transient Mohave ground squirrels could access this 429.5 acre area is from the area of Mojave Creosote Bush Scrub to the west, toward State Route 14. A reasonable estimate, based upon population studies in the Coso area, is that this nearby habitat could support 3-6 adult Mohave ground squirrels. It is possible that adults or their offspring could temporarily move into the Fallow Agricultural-Disturbed Atriplex Scrub area on the Plant Site. However, the risk to transient individuals is quite small, since vegetation removal and grading will take place over a brief period (~3 months) at the beginning of the plant construction phase. Once vegetation removal has been completed it is very unlikely that animals would enter the Plant Site. Thus, we are proposing the acquisition of off-site habitat to compensate for possible incidental take of up to two transient individuals.

Methods for Determining Mitigation Requirement

We propose to acquire sufficient off-site habitat to compensate for the possible incidental take of two transient Mohave ground squirrels on 429.5 acres of degraded land within the Plant Site

boundary. This section explains our method for determining the amount of compensation land that must be acquired.

First, it is necessary to estimate the difference between the current carrying capacity of potential mitigation lands (e.g., near the DTNA) and their future carrying capacity after acquisition and improvement.

We can estimate the future carrying capacity of good quality, protected habitat by reference to studies at two Coso sites during the period 2001-2008. Over this 8-yr time period, the number of Mohave ground squirrels recorded each year averaged 5.1 at one site and 6.5 at the other. Each of the two trapping grids had an area of 62 acres, indicating that a density of roughly 1 individual / 10 acres.

We actually have some empirical data on the current carrying capacity of lands in the vicinity of the DTNA. In the spring of 2008, the DFG trapped a section (640 acres) in this area that was recently purchased as mitigation land for desert tortoise and Mohave ground squirrel. The area had been adversely impacted by sheep grazing and OHV activity prior to being purchased as conservation land. No Mohave ground squirrels were captured in the trapping effort this spring, although one tortoise was seen. The entire 640 acres was not completely sampled by trapping and there was only one trapping session, so Mohave ground squirrels may have been present but not detected. However, these results strongly indicate that the population density of the species on this parcel is currently very low, possibly approaching zero.

The DFG property where the trapping was conducted is immediately adjacent to a site in southwest corner of the DTNA where two Mohave ground squirrels were captured during a single trapping session in spring 1999 (Leitner 2001). These two animals were trapped on a 22 acre grid, suggesting a population density of about 1 individual / 10 acres in an area that had enjoyed long-term protection. This information on carrying capacity of protected lands is consistent with the Coso data.

These 2 field studies suggest that acquiring and protecting land in the vicinity of the DTNA could increase the Mohave ground squirrel density from approximately 0 to 1 per 10 acres. The DFG property adjacent to the DTNA that had been unprotected until 2007 appeared to have a Mohave ground squirrel population density close to zero, while adjoining land that had been managed for conservation for >20 years supported about 1 animal / 10 acres. **Based upon this evidence, purchasing 20 acres would yield habitat for 2 individuals, compensating for the possible incidental take of 2 Mohave ground squirrels at the Plant Site.**

However, a more conservative approach would be to assume that potential conservation lands subject to OHV use and livestock grazing currently support Mohave ground squirrels, but at densities below 1 animal / 10 acres. A generous estimate for unprotected land would be 0.8 animal / 10 acres, as compared to 1 animal / 10 acres in a protected area. If such land were purchased for conservation and protected by fencing to improve habitat quality, it should certainly increase carrying capacity by 25% or 0.2 animal / 10 acres.

Then, based upon this projected increase in the carrying capacity of compensation lands from 0.8 animal / 10 acres to 1 animal / 10 acres, we can determine the acreage of compensation land that is needed. **The increase of 0.2 individual per 10 acres protected would indicate that the purchase of 100 acres is required to compensate for the incidental take of up to 2 Mohave ground squirrels on the Plant Site.**

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Alice E. Karl, Ph.D.
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January 3, 2008

Mr. Arrie Bachrach
Senior Program Manager
ENSR
1220 Avenida Acaso
Camarillo, CA 93012

Re: Summary of August 10, 2007 site visit for FPLE Beacon Solar Energy Project

Dear Arrie,

On August 10, Manjunath Venkat (ENSR), Lyndon Quon (EDAW), Phil Leitner and I visited the FPLE Beacon Solar Energy Project (BSEP or Project) site in Fremont Valley to look at the habitat and determine whether it would be suitable for desert tortoises (my task) and Mohave ground squirrels (Phil's task). We drove around the site (all east of Highway 14, as we know that tortoises reside in the small Project area west of Highway 14) and walked through the habitat at several points. We described and photographed the habitat, partially mapped it, and also examined the habitat surrounding the site.

Below is a brief description of each area. Please refer to the vegetation map from EDAW labeled Fig. 2, "Vegetation Communities" (attached). For reference, I have labeled the areas on the map.

Area A - The area in the southwest, identified as Fallow Agricultural-Ruderal, is largely barren of shrubs. Split-grass (*Schismus arabicus*), plus annuals that are indicators of disturbance (*Salsola tragus, Ambrosia acanthicarpa*) are common, but split grass is the only available forage for tortoises. The soil is clay and relatively hard, although there is a shallow layer (about three inches) of depositional loamy sand over the top.

Area B - Within the barren area along the northern edge, there is a small patch of nearly monospecific allscale (*Atriplex polycarpa*) that is continuous to native habitat to the north. (This is identified as Fallow Agricultural-Disturbed Atriplex Scrub on the map.) The shrub community, while almost entirely one species, is fairly established, and about 22-25% cover. The soil is very fine and the area is replete with numerous tiny basins that obviously hold water temporarily. There is a shallow layer of depositional loamy sand over the clay lens.

Area C – This native habitat adjacent to Area B, north of the site boundary, is fair tortoise habitat. The shrub diversity is low, comprising mostly creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*), with occasional

goldenhead (*Acamptopappus sphaerocephalus*). Shrub cover is about 18%. The soil is generally fine and there are numerous tiny basins.

Area D - This area is similar to Area B, but appears to hold less water. The annual community is also more established and filaree (*Erodium cicutarium*) covers approximately 65% of the surface. The substrate is composed of about 20 % fine gravel and the soil is slightly hard. As in Area B, the site has been established almost exclusively by allscale, but there are large patches throughout the area that are devoid of vegetation. Even outside the barren patches, the allscale is represented by scattered small clumps of shrubs (a few yards in diameter) or individuals.

In the northern portion of this area and to the north, the basins become more common and the vegetation more sparse. The only tortoises here and to the north would likely be transients.

Area E - This area is nearly identical to Area D, but the barren patches are small, rather than large.

Swale – This swale, where the water has been artificially diverted from the wash onsite, is mostly vegetated by Russian thistle (*Salsola tragus*; an exotic annual indicative of disturbance and common in ruderal areas in this region) with some allscale and cheesebush (*Ambrosia salsola*). There are also a few scattered creosote bush and occasional other shrubs. Both the swale and connecting wash are typically dry, probably only holding water during high-intensity storms or possibly during historic agricultural practices. Each is bounded for most of both sides by nearly barren habitat, although there is some shrub cover northwest of the wash (Area D).

Area F - This entire area is essentially barren and has been bladed. The maximum cover is in the northeastern corner of Section 9, where there is about 1-2% shrub cover.

Area G - This entire area is essentially identical to Area F.

Native Habitat East of Section 9 - This area is creosote bush scrub dominated by creosote bush and allscale, with sudominant and common winterfat (*Krascheninnikovia lanata*). Goldenhead is fairly common towards the south. Shrub cover is about 18%. The topography is very gently undulating and the soil, while loose-sandy, is stabilized. The substrate has no coarse particles. Toward the southern portion of this section, there is more loam in the soil and fine gravel in the substrate.

We ran out of time and were unable to look at the habitat along the southern border. However, I looked at this on a subsequent site visit on November 13 and found it to be essentially barren.

Desert Tortoise Habitat Analysis

Below is a brief summary of the quality of the habitat for tortoises, followed by a detailed discussion:

Area A - This is not tortoise habitat.
Area B – It is poor tortoise habitat. There's a low possibility that a tortoise could be here because of connection to native habitat to the north.
Area C – (Section 5, north of site) This is fair tortoise habitat. Tortoises are probably here in very low numbers.
Area D – (Section 4) This is very poor tortoise habitat. There's a low possibility that one or two tortoises could be here because it is a sizeable patch and continuously connected to native habitat to the west. There is a decreasing possibility of tortoises in the northern part of the site in Section 4 as the habitat becomes increasingly sparse.

Note: The old chicken-wire fence along the northern border is mostly intact and would serve as a barrier to tortoises.

Area E - Same as Area D.
Swale - This is not tortoise habitat.
Area F - This is not tortoise habitat.
Area G - This is not tortoise habitat. The native habitat to the southeast is medium-quality tortoise habitat.

So, the only places where a tortoise might be found are Areas B, D and E or the wash. I don't think that there are any tortoises there, but it's possible because there's shrub cover that has been there quite awhile and because the areas are partially connected to tortoise habitat outside the site. However, I don't believe that these should be considered tortoise habitat or have any conservation value for desert tortoises, even if one or a few tortoises are found there. My rationale is based on the quality of this regrowth habitat, the broad area of adjacent non-habitat, the low quality of the adjacent intact habitat, the type and history of the disturbance, and the length of time that this block of land has been out of use by the local tortoise population. To explain:

> In areas where allscale has re-invaded the site, it is unlike the native community surrounding the survey area. The surrounding habitat is native Creosote Bush Scrub whereas the regrowth area is nearly a monotypic allscale stand. It is patchy, with broad, open areas, has poor soil friability (i.e., fine, slightly hard soils) and shows evidence of periodic inundation by water. So, even though tortoises are known to occupy native saltbush scrub communities in relatively low densities, those occupied native scrub communities are far different in vegetation

structure and composition, soil, and hydrology than the invaded area on the Project site.

While there is a possibility that a DT might be observed in the allscale shrub patches on the site or in the wash that extends through the eastern portion of the survey area (see below), this would largely be due to the adjoining native habitat outside of the Project boundary and is likely to be temporary use because of the poor quality. It should also be recognized that even the native habitat north of the site is only poor to fair tortoise habitat, so tortoise densities there are expected to be low to very low.

The wash through the eastern-central portion of the site has poor shrub diversity and cover and is largely bordered by barren land. The northern terminus ("swale") is dominated by stands of exotic Russian thistle. Poor habitat in the wash limits the wash's usefulness as occupiable habitat or a movement corridor. Furthermore, while there is good tortoise habitat south of the Project, there is little habitat that such a "corridor" could connect to this. There is no habitat north or east of the wash or for much of the area west of the wash; these areas are entirely denuded of vegetation by long-term agriculture. The only shrub-populated area is the area northwest of the wash (see above).

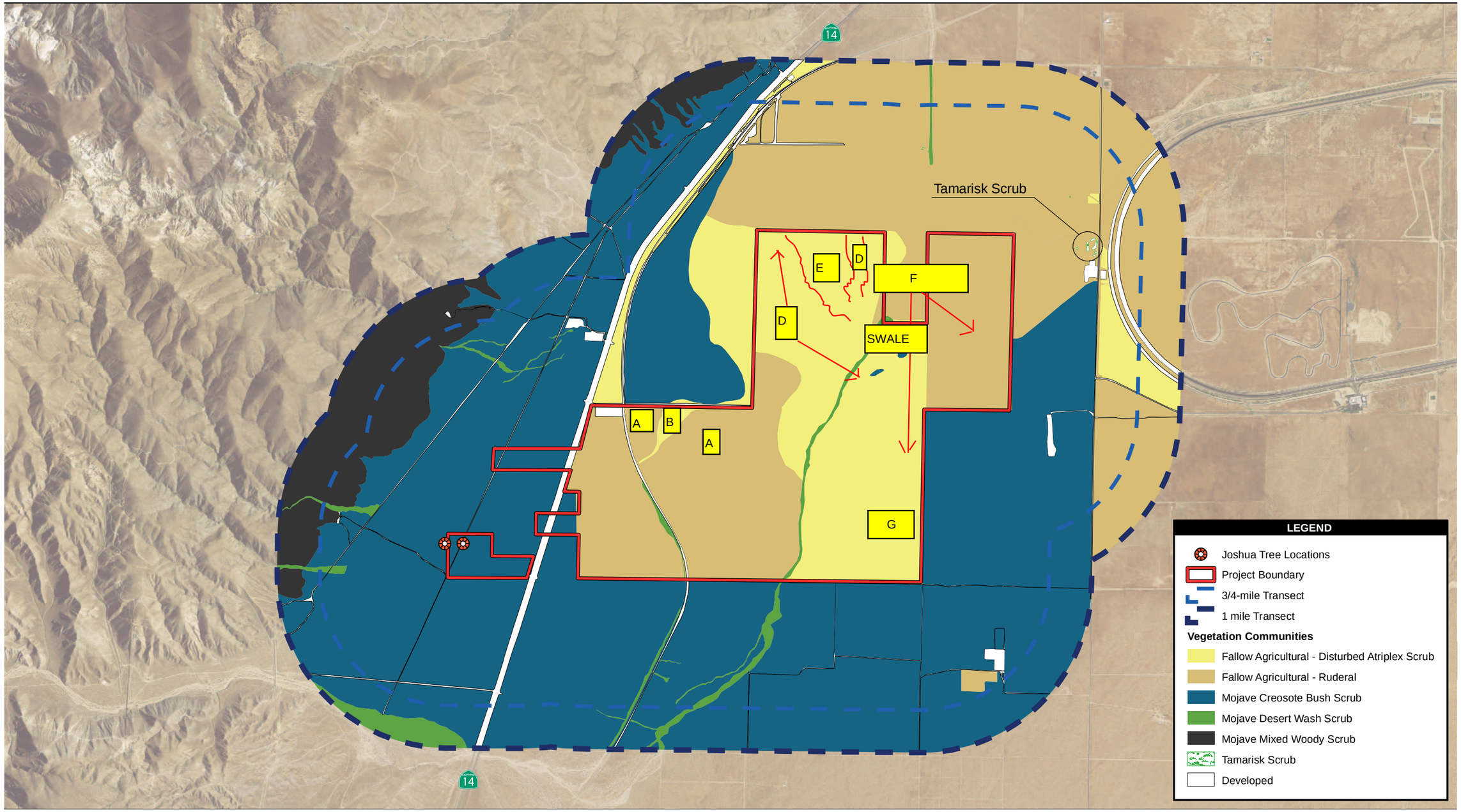
Not only does the site and some of the adjacent area to the east and northwest comprise a broad area of contiguous non-habitat, but this area also has been excluded from tortoise use for decades, due to farming. So, the area has had no value for population persistence or recovery for many years. Even the allscale-regrowth in the north is still moderately well excluded from tortoise use by the chicken-wire perimeter fence (originally erected to keep rabbits out of the alfalfa) that is intact for long segments. This fence would effectively block much of the movement of tortoises onto the site.

A clearance would be appropriate, after the entire site is fenced in tortoise-proof fencing. (This can be done at a fairly reasonable cost, using four-strand wire fencing and metal T-stakes, with tortoise fabric hung from the bottom 2-3 feet and buried.) I suspect that we won't find tortoises, but we may find a couple.

Respectfully,

Alice Karl

Cc: Kenny Stein
Lyndon Quon
Kim McCormick
Sara Head
Manjunath Venkat



Source: USDA NAIP Orthophotos 2005; EDAW 2007

3,000 1,500 0 3,000 Feet

Scale: 1:36,000; 1 inch = 3,000 feet

Figure 2
Vegetation Communities

Path: P:\2007\07080142 FPL California City Solar Proj\5GIS\MXD\Veg_RarePlants\Veg 2007.mxd, 07/16/07, marraccinib

ATTACHMENT 3

DRAFT
MITIGATION, MONITORING AND REPORTING PROGRAM

DRAFT MITIGATION, MONITORING, AND REPORTING PROGRAM (MMRP)
BEACON SOLAR ENERGY PROJECT

INTRODUCTION

Beacon Solar, LLC (Beacon), will adopt this Mitigation, Monitoring, and Reporting Program (MMRP) in accordance with California Energy Commission (CEC) Guidelines. The purpose of the MMRP is to ensure that the Beacon Solar Energy Project (BSEP) complies with all applicable environmental mitigation and permit requirements. Mitigation measures for the Project will be adopted by Beacon, in conjunction with the certification by the CEC. These mitigation measures have been integrated into this MMRP (Table A3-1). Within this document, approved mitigation measures are organized and referenced by biological issue area. Each of these measures has a numerical reference. Specific mitigation measures are identified, as well as the timing of verification and the responsible party that will ensure that each action is implemented.

Direct and indirect impacts associated with the BSEP are clearly identified in the Incidental Take Permit Application, Application for Certification with the CEC, and the Biological Technical Report. Mitigation measures applicable to the BSEP include avoiding certain impacts altogether, minimizing impacts by limiting the degree or magnitude of the action and its implementation, rectifying impacts by repairing, rehabilitating, or restoring the affected environment, and/or reducing or eliminating impacts over time by implementing preservation and maintenance measures during the life of the action. It is Beacon's responsibility to implement mitigation measures required to address potentially significant impacts resulting from the BSEP.

Table A3-1
Draft Mitigation, Monitoring, and Reporting Plan -- Beacon Solar Energy Project

Mitigation Measure Number	Mitigation Measure	Timing of Verification		
		Project Design	During Construction	Post -Construction
General Mitigation Measures (GM)				
GM-1	Visual preconstruction surveys for DT and MGS will be completed within all temporary and permanent impact areas no more than 30 days prior to commencement of construction activities in the survey area. Rare plant species and special status wildlife species habitat will be identified during rare plant surveys and flagged for avoidance. If construction occurs during or following a high-rainfall year, rare plant surveys will be conducted to identify and flag newly detected populations.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**NA**
GM-2	The construction contractor(s)/crew(s) will be educated about the biological constraints of the Project. All construction personnel who work in the survey area will attend a contractor education program, developed and presented by a Project biologist prior to the commencement of construction activity. This Worker Environmental Awareness Program (WEAP) will be included in the Mitigation, Monitoring, and Reporting Program (MMRP), which comprehensively describes avoidance, minimization, and mitigation measures; documents their implementation; and monitors their effectiveness (Attachment 3). The construction crews and contractor(s) will be responsible for unauthorized impacts from construction activities to sensitive biological resources that are outside the areas defined as subject to impacts by the CEC and other agencies who must issue approvals for the Project.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**NA**
GM-3	Construction crews and contractors will be responsible for avoiding all shrubs and trees within the construction zone to the extent feasible. Shrubs and trees will be flagged during rare plant surveys to indicate priority for avoidance.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**NA**

Mitigation Measure Number	Mitigation Measure	Timing of Verification		
		Project Design	During Construction	Post -Construction
GM-4	The anticipated impact zones, including staging areas, equipment access, and disposal or temporary placement of spoils, will be delineated with stakes and flagging prior to construction to avoid natural resources where possible. Construction-related activities outside of the impact zone will be avoided.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**NA**
GM-5	New and existing roads that are planned for either construction or widening will not extend beyond the planned impact area as delineated under GM-4. All vehicles passing or turning around will do so within the planned impact area or in previously disturbed areas. Where new access is required outside of existing roads (e.g., new spur roads associated with both transmission line options) or the construction zone, the route will be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**
GM-6	Spoils should be stockpiled in disturbed areas presently lacking native vegetation. Stockpile areas should be marked to define the limits where stockpiling can occur.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**NA**
GM-7	BMPs will be employed to prevent loss of vegetation due to erosion caused by Project-related impacts (i.e., grading or clearing for new roads). All detected erosion will be remedied within two (2) days of discovery.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**NA**
GM-8	Fueling of equipment will take place within existing paved roads and not within or adjacent to drainages or native desert vegetation. Contractor equipment will be checked for leaks prior to operation and repaired as necessary. Spill kits will be available to respond to potential spills.	**NA**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**
GM-9	Construction activity will be monitored by a Biological Monitor (BM) and oversight will be provided by an Authorized Biologist ([AB] qualified to handle DT) to ensure compliance with avoidance and minimization measures.	**NA**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**

Mitigation Measure Number	Mitigation Measure	Timing of Verification		
		Project Design	During Construction	Post -Construction
GM-10	Beacon is supportive of funding a monitoring program to document potential nesting ravens. The details of the funding mechanism and monitoring program will be coordinated with the USFWS, Department, and CEC prior to initiation of the Project ground-disturbance activity. (See desert tortoise mitigation measure DT-22 and the RMMCP for details of the proposed Raven Monitoring Program.)	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**
GM-11	A MMRP will be created to comprehensively describe avoidance, minimization, and mitigation measures; document their implementation; and monitor their effectiveness. A Draft MMRP is included in Attachment 3 as referenced under 783.2(a)(9), below.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**
GM-12	The introduction of exotic plant species will be controlled by implementation of measures described in the MMRP. The introduction of exotic plant species will be avoided and controlled wherever possible, and may be achieved through physical or chemical removal and prevention. Preventing exotic plants from entering the Plant Site via vehicular sources will include measures such as implementing Trackclean or other methods of vehicle cleaning for vehicles coming and going from the Plant Site. Earth-moving equipment shall be cleaned prior to transport to the Project site. Weed-free rice straw or other certified weed-free straw shall be used for all hay employed for erosion control.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**NA**

Mitigation Measure Number	Mitigation Measure	Timing of Verification		
		Project Design	During Construction	Post -Construction
GM-13	The Project applicant will mitigate for permanent impacts to habitat deemed suitable for occupancy by listed species including DT and MGS. Mitigation will primarily include the offsite purchase of in-kind habitat of equal or greater value than that of the impacted habitat. Long-term management of the land by an appropriate organization that is approved by the resource agencies shall include necessary enhancements and reporting to the resource agencies. This will be funded as part of the land acquisition fees. The location of the preserved land and the management program would be negotiated between the resource agencies (including the CEC) and the Project applicant.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**
GM-14	The pipeline construction will involve nearly simultaneous trenching, laying of pipe, and backfilling so that no open trenches will be left unattended during daylight hours. Any open trenches that cannot be backfilled will be covered with steel plates at night. BMs will oversee pipeline construction to ensure that sensitive resources including DT and MGS are avoided or when possible relocated to a safe location.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**NA**

Mitigation Measure Number	Mitigation Measure	Timing of Verification		
		Project Design	During Construction	Post -Construction
Desert Tortoise Mitigation Measures (DT)				
DT-1	Prior to ground disturbance, the entire Plant Site (east of the railroad tracks) will be fenced with a permanent DT-proof fence to keep DT in habitat adjacent to the site from entering the site during construction and operations phases. The fencing type will be one-inch by two-inch vertical mesh galvanized fence material, extending at least two feet above the ground and buried at least one foot. Where burial is impossible, the mesh will be bent at a right angle toward the outside of the fence and covered with dirt, rocks, or gravel to prevent the DT from digging under the fence. DT-proof gates will be established at all site entry points. Any utility corridors and tower locations will be temporarily fenced to prevent DT entry during construction. Temporary fencing must follow guidelines for permanent fencing and supporting stakes will be sufficiently spaced to maintain fence integrity. All fence construction will be monitored by qualified biologists to ensure that no DT are harmed. Following installation, the fencing will be inspected monthly and during all major rainfall events. Any damage to the fencing will be repaired within two days of observing damage.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**NA**

Mitigation Measure Number	Mitigation Measure	Timing of Verification		
		Project Design	During Construction	Post -Construction
DT-2	A clearance for any DTs that may be on the Plant Site east of SR-14 and the railroad tracks by virtue of connection to adjacent native habitat will be conducted in all areas with shrub cover after installation of exclusion fencing. A minimum of two clearance passes must be completed and these must coincide with heightened DT activity from late March through May and during October. This will maximize the probability of finding all DT. It is anticipated that no or very few DT will be found. Any DT found will be moved to a location outside of the Project boundaries using techniques approved by the CEC, Department, and USFWS. Relocation should occur only when daily ground temperatures do not exceed 108°F and air temperatures fall below 90°F (i.e., early spring or fall), so that animals can safely find refuge in potentially unfamiliar areas without the added constraints of lethal temperatures. No DT will be moved between mid-April and early October, unless ambient temperatures are favorable. If the schedule of construction requires that clearance surveys continue past the safe time to relocate DT (i.e., past early April), then continued searches for DT would include temporarily affixing found DT with transmitters for ease of relocating them and relocating them during autumn, at a safe time for translocation. Once the site is deemed free of DTs after two consecutive clearance passes, heavy equipment will be allowed to enter the site to perform construction activities.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**NA**
DT-3	West of SR-14, all DT will be removed from fenced construction zones to artificial burrows outside the temporary fencing. DT may be moved during seasons when daily ambient temperatures exceed lethal levels, but only late in the day when ground temperatures fall below 108°F and air temperatures fall below 90°F. These DT will be temporarily monitored to ensure that their behaviors resulting from relocation do not affect their survival.	**NA**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**

Mitigation Measure Number	Mitigation Measure	Timing of Verification		
		Project Design	During Construction	Post -Construction
DT-4	Following site clearance, a report will be prepared by the AB to document the clearance surveys, the capture and release locations of all DT found, individual DT data, and other relevant data. This report will be submitted to the Department, USFWS, and CEC (Agency Representatives).	**NA**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**
DT-5	An AB and BMs will be appointed to oversee compliance with the protection measures for the DT and other species. The AB or BM will be onsite during fencing activities. The AB or BM will have the right to halt all activities that are in violation of the DT protection measures. Work will proceed only after hazards to the DT are removed and the species is no longer at risk, or the AB has moved the individual from harm's way. The AB and BM will have in their possession a copy of all the compliance measures while work is being conducted onsite. The AB and BM will be responsible for awareness trainings, surveys, compliance monitoring, and reporting.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**
DT-6	The Project proponent will submit the names and statement of qualifications of all proposed ABs and BMs to Agency Representatives for review and approval at least 30 days prior to initiation of any DT handling, clearance, and pre-activity surveys. Project activities will not begin until the ABs and BMs are approved by the aforementioned agencies. Only ABs will be allowed to handle and relocate DT when necessary. BMs will ensure compliance with the protection measures but will not be allowed to survey for or handle DT. Workers will notify the AB or BM of all DT observations.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**NA**
DT-7	The AB and BM will be responsible for awareness trainings, surveys, compliance monitoring, and reporting.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**

Mitigation Measure Number	Mitigation Measure	Timing of Verification		
		Project Design	During Construction	Post -Construction
DT-8	Impacts from vehicle strikes are minimized by employee education on the proper procedures for operating vehicles on the Project site. Personnel will utilize established roadways (paved or unpaved) in traveling to and from the survey area and will utilize existing tracks onsite whenever possible. Cross-country vehicle and equipment use outside designated work areas will be prohibited. To minimize the likelihood for vehicle strikes of DT, a speed limit of 25 miles per hour will be established for travel within DT habitat areas.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**
DT-9	A trash abatement program will be established. Trash and food items will be contained in closed containers and removed daily to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**
DT-10	Workers will be prohibited from bringing pets and firearms to the Plant Site.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**
DT-11	As much as is feasible, parking and storage will occur within the DT exclusion fencing. Anytime a vehicle or construction equipment is parked for longer than two minutes in unfenced DT habitat, the ground under the vehicle will be inspected for the presence of DT before it is moved. If a DT is observed, it will be left to move on its own. If it does not move within 15 minutes, the AB will remove and relocate the animal to a safe location outside of the Project boundary.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**
DT-12	All vehicles and equipment will be in proper working condition to ensure that there is no potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The AB and BM will be informed of any hazardous spills within 24 hours. Hazardous spills will be immediately cleaned up and the contaminated soil will be properly disposed of at a licensed facility.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**NA**

Mitigation Measure Number	Mitigation Measure	Timing of Verification		
		Project Design	During Construction	Post -Construction
DT-13	Intentional killing or collection of either plant or wildlife species including listed species such as the DT in the survey area and surrounding areas will be prohibited. The AB, BM, and Agency Representatives will be notified of any such occurrences within 24 hours.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**NA**
DT-14	For emergency response situations, the AB will notify the Agency Representatives within 24 hours. As a part of this response, the Agency Representatives may require additional measures to protect the DT. During any responses related to human health, fire, hazardous waste, or repairs requiring off-road vehicle and equipment use, the Agency Representatives may also require measures to recover damaged habitat.	**NA**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**
DT-15	Water will be applied to the construction ROW, dirt roads, trenches, spoil piles, and other areas where ground disturbance has taken place to minimize dust emissions and topsoil erosion. During the DT active season, a BM will patrol these areas to ensure water does not puddle for long periods and attract DT, common ravens, and other wildlife to the site.	**NA**	**Applicable: X** **Verified by:** **Date:**	**NA**
DT-16	Upon locating a dead or injured DT, the AB will make initial notification to the Agency Representatives within 24 hours of its finding. The notification must be made by telephone and writing to the nearest USFWS Field Office. The report will include the date and time of the finding or incident (if known), location of the carcass, a photograph, cause of death (if known), and other pertinent information. DT fatally injured as a result of Project-related activities may be submitted for necropsy using methods in Berry (2003), if desired by the Agency Representatives. DT with fewer major injuries will be transported to a nearby-qualified veterinarian for treatment at the expense of the Project proponent. If an injured animal recovers, the offices of the Agency Representatives will be contacted for final disposition of the animal.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**NA**

Mitigation Measure Number	Mitigation Measure	Timing of Verification		
		Project Design	During Construction	Post -Construction
DT-17	On a monthly basis until construction is completed, the AB will prepare a brief report for the Agency Representatives, documenting the effectiveness and practicality of the protection measures that are in place and making recommendations for modifying the measures to enhance species protection, as needed. The report will also provide information on the overall biological resources-related activities conducted, including the WEAP, clearance/pre-activity surveys, monitoring activities, and any observed DT including injuries and fatalities.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**NA**
DT-18	The Project proponent will compensate for impacts to potential DT habitat in the area west of the Plant Site potentially affected during construction activities related to both transmission line options (5.0 acres Option 1 or 5.8 acres Option 2). This will be accomplished either by land acquisition acceptable to the USFWS, Department, and CEC or an assessed financial contribution calculated based on the final construction footprint. Direct permanent and temporary impacts to potential DT habitat would be mitigated at a 1:1 ratio. Funding for the long-term management of the preserved land will also be included.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**
DT-19	The project proponent will compensate for the potential impact to two transient DT that may enter the Plant Site based on anticipated increase in carrying capacity. Beacon will purchase 20 acres to compensate for the incidental take of up to two transient DT on the Plant Site. As with the DT-18 land acquisition, the location must be approved by the Department and CEC and include funding for the long-term management of the preserved land (on a per-acre of impact basis) and a fee title or conservation easement shall be granted to the Department or other Department-approved nonprofit entity.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**NA**

Mitigation Measure Number	Mitigation Measure	Timing of Verification		
		Project Design	During Construction	Post -Construction
DT-20	Upon completion of compensatory lands acquisition, Beacon, or an acceptable third party such as the Desert Tortoise Preserve Committee, will prepare a Mitigation Land Acquisition report that will discuss the habitat characteristics of the parcel(s) of land, and how they meet the requirements of the DT and MGS. The report would be submitted to the Agency Representatives.	**NA**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**
DT-21	Annual monitoring reports will be prepared addressing the habitat enhancement and conservancy of the mitigation lands acquired to compensate for impacts to covered species. The reports will be prepared by the entity or organization to which Beacon assigns the compensation lands. That entity will be responsible for conducting the habitat enhancement (which may include habitat restoration, construction and maintenance of protective fencing, etc.), habitat monitoring, and annual reporting. The report will address the level of success of the habitat enhancement, and any suggestions for devising or implementing adaptive management strategies to improve the long-term viability of the covered species associated with the acquired lands. The annual report will be submitted to Beacon, CEC, the Department, and USFWS at the end of each calendar year, for no less than five years.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**NA**
DT-22	The design of the rerouted wash will incorporate no greater than 30-degree interior slopes, whenever feasible. This design will prevent DT from being trapped within the rerouted wash. The only exception to this is at the first turn (Turn 1) where the wash is initially redirected. The side slopes at Turn 1 will be 2:1 to accommodate anticipated flows and hydraulic energy (see the Mitigation Plan for more detail on the rerouted wash).	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**

Mitigation Measure Number	Mitigation Measure	Timing of Verification		
		Project Design	During Construction	Post -Construction
DT-23	A RMMCP will be designed and implemented to identify the conditions of concern specific to the Project that may attract ravens to the area and to define a monitoring, management, and control plan that will (1) monitor raven activity and (2) specify management and control measures that will avoid, minimize, or mitigate impacts. The monitoring effort is intended to provide qualitative data that can be interpreted by the BM and AB to determine if PDFs are working or if additional management and control measures are needed to mitigate impacts to DTs. Plan objectives include: 1. Clearly identify how the Project would utilize PDFs to manage the conditions of concern specific to the BSEP that may attract ravens to the area. 2. Document the effectiveness of PDFs in addition to raven management and control measures implemented at the BSEP. 3. Specify how and when mitigation measures would be selected and implemented if the monitoring suggests the need for additional controls. 4. Define triggers for modification of management and control measures using adaptive management principles.	**NA**	**NA**	**Applicable: X** **Verified by:** **Date:**

Mitigation Measure Number	Mitigation Measure	Timing of Verification		
		Project Design	During Construction	Post -Construction
DT-24	In the unlikely event that a DT is found on the Project site during Project Operations, the DT will be captured, boxed in a clean, escape-proof box, and temporarily maintained in a cool, quiet, safe location until the AB can arrive to remove it from the site, but no more than one day. The capture location will be recorded. If ambient temperatures exceed lethal levels on a daily basis, the AB will confer with the Department and USFWS representatives prior to transporting the DT outside the DT-proof fence. By moving tortoises outside the Plant Site boundary, the Project would be maintaining tortoises within their home range, not translocating them. All tortoises moved, whether from the Plant Site, during fence construction, or during construction for linear facilities, would be monitored to ensure their safety. All handling would be conducted within the constraints detailed in DT2 and DT3.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**
Mohave Ground Squirrel Mitigation Measures (MGS)				
MGS-1	A qualified biologist will conduct onsite monitoring of ground-disturbance activities in all areas with the potential to support the MGS, primarily in the western portion of the survey area, west of SR-14 where portions of both transmission line options would be constructed. During construction activities, monthly and final compliance reports shall be provided to the Department and other relevant regulatory agencies documenting the effectiveness of mitigation measures and the level of take associated with this Project.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**

Mitigation Measure Number	Mitigation Measure	Timing of Verification		
		Project Design	During Construction	Post -Construction
MGS-2	Impacts from vehicle strikes are minimized by employee education on the proper procedures for operating vehicles on the site. Personnel will utilize established roadways (paved or unpaved) in traveling to and from the survey area and will utilize existing tracks onsite whenever possible. Cross-country vehicle and equipment use outside designated work areas will be prohibited. To minimize the likelihood for vehicle strikes of MGS, a speed limit of 25 miles per hour will be established for travel within MGS habitat.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**
MGS-3	A trash abatement program will be established. Trash and food items will be contained in closed containers and removed daily to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**
MGS-4	The Project proponent will compensate for the direct permanent and temporary impacts to potential MGS habitat associated with both transmission line options (5.0 acres Option 1 or 5.8 acres Option 2) at a ratio of 3:1. All MGS compensation lands will be suitable for DT and therefore will also compensate for potential losses to DT habitat. As with the DT land acquisition, the location must be approved by the Department and CEC and include funding for the enhancement and long-term management of the compensation land (on a per-acre of impact basis). Fee title or a conservation easement shall be conveyed to the Department or other Department-approved nonprofit entity.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**
MGS-5	Beacon will purchase 100 acres to compensate for the incidental take of up to two transient MGS on the Plant Site. As with the MGS-4 land acquisition, the location must be approved by the Department and CEC and include funding for the enhancement and long-term management of the compensation land (on a per-acre of impact basis). Fee title or a conservation easement shall be conveyed to the Department or other Department-approved nonprofit entity.	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**	**Applicable: X** **Verified by:** **Date:**

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BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

APPLICATION FOR CERTIFICATION FOR THE BEACON SOLAR ENERGY PROJECT	DOCKET NO. 08-AFC-2 **PROOF OF SERVICE** (Revised 11/10/08)

INSTRUCTIONS: All parties shall either (1) send an original signed document plus 12 copies or (2) mail one original signed copy AND e-mail the document to the address for the docket as shown below, AND (3) all parties shall also send a printed or electronic copy of the document, which includes a proof of service declaration to each of the individuals on the proof of service list shown below:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 08-AFC-2
1516 Ninth Street, MS-14
Sacramento, CA 95814-5512
docket@energy.state.ca.us

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Eric K. Solorio, Project Manager esolorio@energy.state.ca.us	Public Adviser pao@energy.state.ca.us

DECLARATION OF SERVICE

I, Lois Navarrot, declare that on January 6, 2009, I deposited disk copies of the attached **Application for Incidental Take of Threatened and Endangered Species Section 2081 of the California Endangered Species Act** in the United States mail at Sacramento, California with first-class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above.

OR

Transmission via electronic mail was consistent with the requirements of the California Code of Regulations, title 20, sections 1209, 1209.5 and 1210. All electronic copies were sent to all those identified on the Proof of Service list above.

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

Lois Navarrot