

Appendix C
Biological Assessment

**BIOLOGICAL ASSESSMENT
FOR THE CHEVRON SOLAR PROJECT SITE
LUCERNE VALLEY, CALIFORNIA**

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EXECUTIVE SUMMARY

Chevron Energy Solutions (CES) and its development partners propose to design, construct, operate, and maintain a solar photovoltaic generating station in Lucerne Valley (Project) to meet the needs of California utilities for new renewable energy. The Chevron Solar Project site, comprising approximately 516 acres, is located on Bureau of Land Management lands just south of CA-247, approximately eight miles east of the junction of Barstow Road and Old Woman Springs Road in San Bernardino County, California (Figure 1). The Project includes construction of a solar field, control and maintenance building,, and substation. Construction is scheduled to begin in 2010.

The Federally threatened or endangered species potentially within the project area are included in the table below.

Species (Common/Latin)	Listing Status	Determination
desert tortoise <i>Gopherus agassizii</i>	Threatened	May affect, likely to adversely affect

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SECTION 1.0 – INTRODUCTION

1.1. PROJECT PURPOSE

The purpose of this Project is to build a solar photovoltaic site located in Lucerne Valley. Construction is scheduled to begin in 2010. California utilities will need in excess of 50,000 gigawatts per year (GW/yr) of new renewable energy generation capability over the next 10 years to meet the State's renewable energy mandate. It is expected that at least 5,000 megawatts (MW) of new solar power will be required to meet this need and that this amount could grow to nearly 10,000 MW. The proposed Project will supply renewable energy to meet these important mid- and long-term needs. In an effort to meet this need, Chevron Energy Solutions (CES) and its development partners propose to design, construct, operate, and maintain a 45 MW photovoltaic generating station, interconnecting to Southern California Edison's (SCE) 33 kilovolts (kV) distribution system. CES selected this Bureau of Land Management (BLM) site for its excellent solar radiation, proximity to potential customers, access to existing electric transmission, and relatively low environmental impact. The Project Right-of-Way (ROW) encompasses the solar field, control and maintenance building, and substation, for a total Project footprint of approximately 516 acres.

1.2. PURPOSE OF THE BIOLOGICAL ASSESSMENT

The purpose of this Biological Assessment (BA) is to provide the necessary information to the U.S. Fish and Wildlife Service (USFWS) to issue a Biological Opinion (BO) to the BLM on the effects of CES's proposed 516-acre Project. Project activities are proposed to take place in a BLM ROW consisting of open space and previously disturbed access roads. Detailed Project descriptions are included in Section 2. A Draft Environmental Impact Statement that has been prepared to describe the Project features includes a detailed biological report. The objective of this BA is to provide USFWS information that will assist in determining the potential effect of the proposed action on the federally-threatened desert tortoise (*Gopherus agassizii*) and its critical habitat. No other federally-listed species or habitats are known to occur within the Project area. This BA was prepared in accordance with legal requirements set forth under Section 7 of the Endangered Species Act of 1973, as amended (16 USC 1536 [c]).

SECTION 2.0 – PROJECT DESCRIPTION

This section provides a detailed description of the proposed action, including the Project description, Project components, construction methods and processes, operations, and maintenance.

2.1. PROJECT LOCATION

The Chevron Solar Project site, comprising approximately 516 acres, is located on BLM lands just south of CA-247, approximately eight miles east of the junction of Barstow Road and Old Woman Springs Road, east of the community of Lucerne Valley in San Bernardino County, California (Figure 1). The site is located south of Foothill Road and is bordered by Donaldson Road on the west and a drainage that runs approximately 1,300 feet east of Santa Fe Fire Road on the east. The site is within the U.S. Geological Survey (USGS) Cougar Buttes, California 7.5-minute topographic quadrangle in Sections 19, 20, 29, and 30 of Township 4 North, Range 2 East and in Section 24 of Township 4 North, Range 1 East (Figure 2). The elevation range at the site is between approximately 3,000 and 3,120 feet above mean sea level (amsl).

2.2. DEFINITION OF ACTION AREA

The Project Action Area is defined as the same area as the Project footprint and Santa Fe Fire Road, which will be used for the mobilization and transportation of any construction or worker vehicles to gain access to the Project site. This also accounts for potential operations and maintenance activities related to the existing power lines to the north side of Foothill Road into which this Project ties.

2.3. DESCRIPTION OF THE PROPOSED ACTION

The proposed action is to build a phased construction, 45 MW, photovoltaic power plant on the Project site. The first phase will be 20 MW beginning construction in late 2010. The remaining phase of approximately 25 MW is dependent upon the availability of transmission capacity. The second phase may begin construction as early as late 2011. Construction will generally follow the sequence of staking/flagging the perimeter of the Project area (5 days), construction of desert tortoise and security fencing (5 days), access roads (5 days), site grading (25 days), assembly and installation of all Project facilities (190 days), cleanup, and site reclamation of any temporary work areas (10 days). CES expects the construction period to be approximately eight months for each phase.

The construction of Project facilities will involve preparing the site surface and building drainage and storm water diversion systems, access roads, and maintenance tracks. After site grading, underground electrical conduit is installed, then panel frames are assembled. The photovoltaic panels are then set onto and secured to the frames. DC wiring harnesses are then routed to collector boxes and on to the inverters. From the high side of the step up transformers, an underground/overhead 33 kV collector system will carry the power generated by the solar field to the onsite switchyard.

Figure 1 Project Vicinity Map

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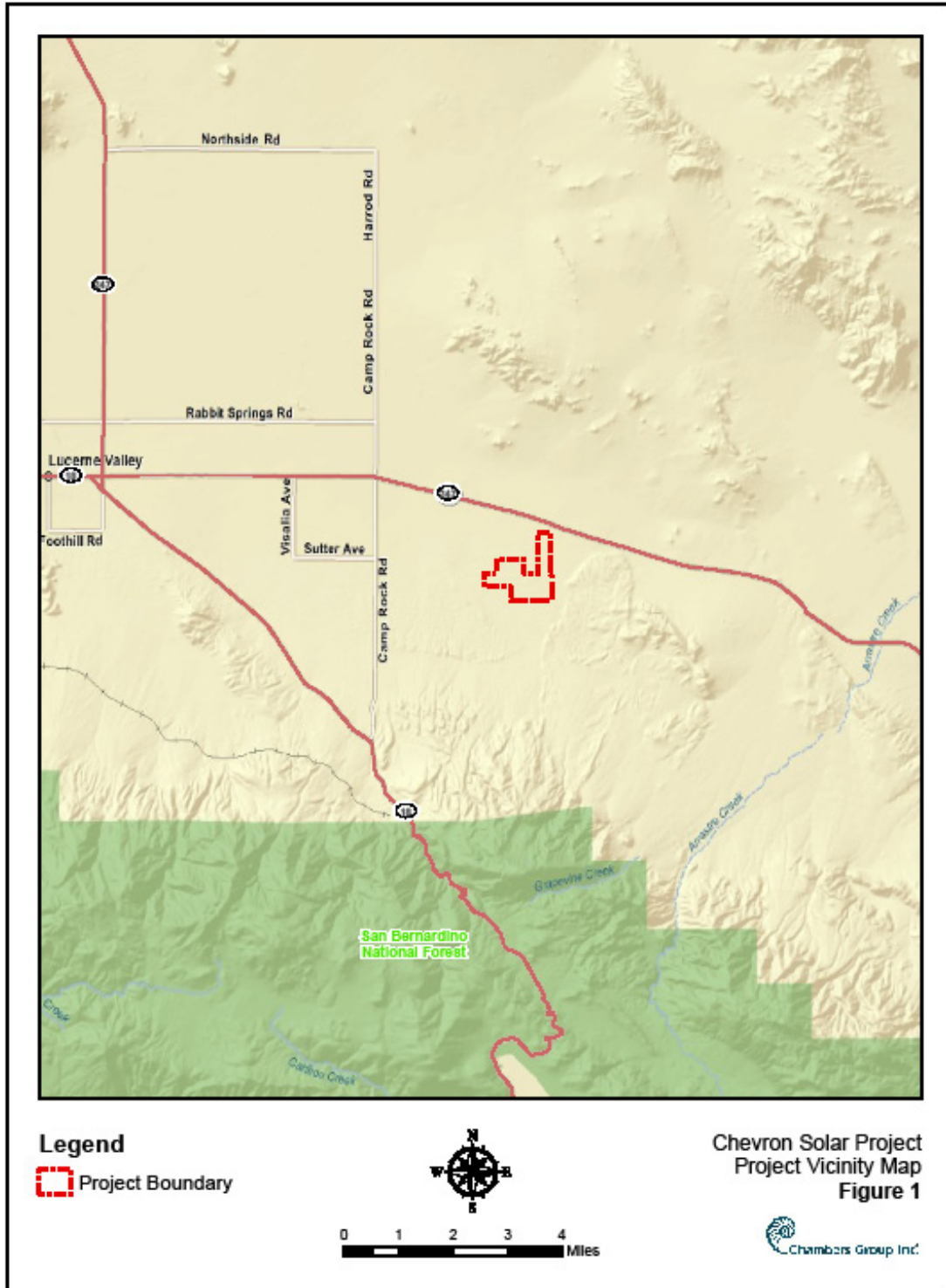
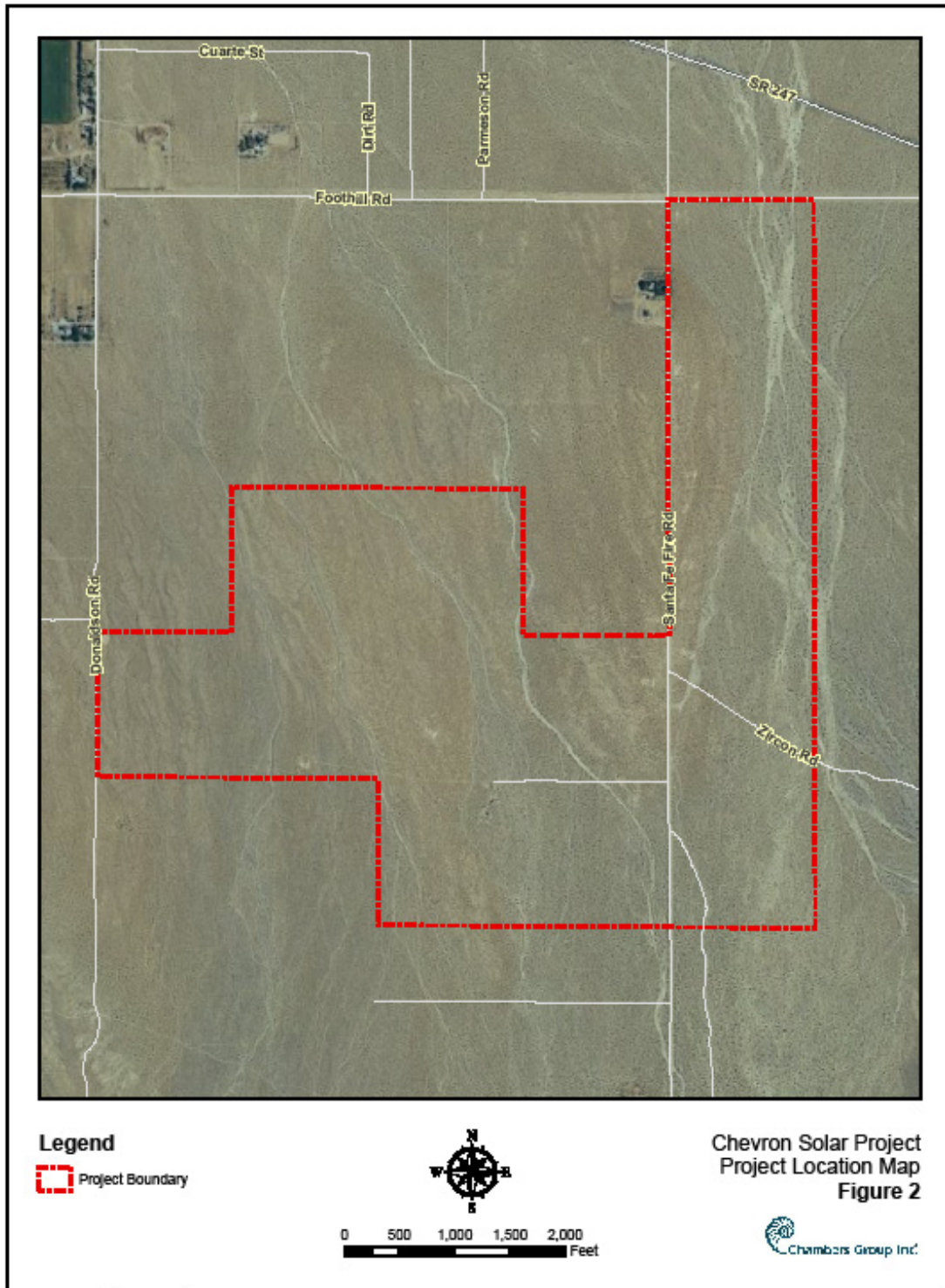


Figure 2 Project Location Map

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2.3.1 Vehicles and Equipment

Use of a variety of equipment is expected in order to accomplish installation of the solar Project site facility. All equipment shall be confined to the roadways and Project ROW.

Up to 59 vehicles are estimated to drive in and out of the Project site during construction activities in addition to approximately 20 personal vehicles. A total of five personal vehicles are estimated to drive in and out of the Project site daily during operation and maintenance (O&M) activities. Vehicles shall drive 20 miles per hour or less, in accordance with desert tortoise protection measures.

2.3.2 Security and Desert Tortoise Exclusionary Fence Installation

Site control will be limited to the area under construction. The security fencing will be initially limited to the area appropriate for phase one (approximately 200 acres). Once the second phase begins construction, security fencing will be expanded to fit the entire site. The perimeter of the Project site will be fenced with an eight-foot high security fence. Desert tortoise exclusionary fencing will be attached to security fencing and will meet standards developed by the USFWS.

Desert Tortoise Exclusionary Fence Materials

Desert tortoise fences shall be constructed with 16-gauge or heavier materials suitable to resist desert environments, alkaline and acidic soils, wind, and erosion. Fence material shall consist of 1-inch horizontal by 2-inch vertical, galvanized welded wire, 36 inches in height. Hog rings shall be used to attach the fence material to the security fence.

Desert Tortoise Fence Construction

Fence material shall be buried a minimum of 12 inches below the ground surface, leaving 22 to 24 inches above ground. A trench shall be dug or a cut made with a blade on heavy equipment to allow 12 inches of fence to be buried below the natural level of the ground. Desert tortoise-proof fencing shall be attached to the security fencing with hog rings placed at 12- to 18-inch intervals. Smooth (barb-less) livestock wire shall be used except where grazing occurs. The desert tortoise fence must be perpendicular to the ground surface or angled slightly away from the Project area towards the side encountered by tortoises. After the desert tortoise fence has been installed and secured, excavated soil will be replaced and compacted to minimize soil erosion.

In situations where burying the fence is not practical because of rocky substrate, the desert tortoise fence material shall be bent at a 90° angle to produce a lower section approximately 14 inches wide, which will be placed parallel to, and in direct contact with, the ground surface; the remaining 22-inch wide upper section shall be placed vertically against the existing fence, perpendicular to the ground and attached to the security fence with hog rings at 12- to 18-inch intervals. The lower section in contact with the ground shall be placed in the direction of potential tortoise encounters and level with the ground surface. Soil and cobble (approximately 2 to 4 inches in diameter or larger) shall be placed on top of the lower section of fence material on the ground, covering up to four inches of material. A minimum of 18 inches shall be maintained between the cobble surface and the top of the tortoise-proof fence. For sections of the fence with a gate, one of three options will be implemented. The first option

is fence material buried to a minimum 18-inch depth in line with and below the gate attached to a fence rail that is flush with the ground. The second option is burial of cobble to a minimum 18-inch depth in line with and below the gate. The third option is a shallow-slope concrete apron along the ground surface with the gate positioned on top.

2.4. OPERATIONS AND MAINTENANCE

CES expects an operational lifetime of the solar voltaic Project site to be 25 to 30 years. Operation and maintenance activities within the Project ROW shall be implemented over the life of the Project. No new access roads outside the Project ROW shall be constructed for O&M activities. CES employees shall inspect the desert tortoise exclusionary fencing on a monthly basis by walking the enclosed perimeter .

There would be little ground-disturbing activity associated with ongoing O&M procedures. The activities that could require soil-surface disturbance would be repairs of erosion control devices or exclusionary fencing in the event of storm damage or other emergencies. No new disturbance would occur to carry out O&M activities because this work would occur within the Project ROW. No adverse impacts to desert tortoise are anticipated to occur during O&M activities with the implementation of mitigation measures.

The BLM Barstow Field Office shall be contacted for emergency activities that would have to be carried out outside of the BLM ROW.

2.5. CONSERVATION AND PROTECTIVE MEASURES

Vehicles and construction equipment shall be monitored by Authorized Biologists and desert tortoise monitors until desert tortoise exclusionary fence installation is complete. No construction activities, including fence installation, shall begin until Authorized Biologists and desert tortoise monitors are approved. The names and qualifications of individuals that BLM proposes to allow CES to use as Authorized Biologists will be sent to USFWS for approval. Additional names shall be submitted to BLM as needed for approval, subject to the BO; names of biologists who would be used to monitor future operations and maintenance shall be submitted to BLM for its approval at least 30 days prior to the proposed onset of Project activities.

Authorized Biologists shall conduct clearance surveys, relocate desert tortoises (if necessary) offsite, and ensure that the effects of the Project on the desert tortoise and its habitat are minimized. An Authorized Biologist shall possess thorough and current knowledge of desert tortoise behavior, natural history, ecology, physiology, and shall demonstrate substantial field experience and training to safely and successfully:

- handle and temporarily hold desert tortoises,
- excavate burrows to locate desert tortoises or eggs,
- relocate/translocate desert tortoises,
- unearth and relocate desert tortoise eggs, and
- locate, identify, and record all forms of desert tortoise sign.

Desert tortoise monitors shall be individuals who would monitor Project activities within desert tortoise habitat, ensure proper implementation of protective measures, and record and report desert tortoise and sign observations in accordance with approved protocol; they would also report incidents of

noncompliance with the BO and BLM permit stipulations. Desert tortoise monitors shall assist Authorized Biologists during surveys, but would not be authorized to conduct clearance surveys unless directly supervised by an Authorized Biologist; “directly supervised” means the Authorized Biologist would be in direct voice and sight contact with the desert tortoise monitor.

2.5.1 Desert Tortoise Clearance Surveys and Relocation Efforts

Pre-construction surveys for desert tortoise shall be conducted within the Project site ROW and the required buffer areas. A desert tortoise exclusionary fence shall be installed prior to removal of vegetation and/or initiation of facilities construction. BLM and USFWS approved Authorized Biologists and desert tortoise monitors shall walk parallel 30-foot wide linear transects covering 100 percent of the site and within a 100-foot buffer. If tortoises are detected during the survey, an Authorized Biologist shall relocate the tortoise outside of the Project ROW fence within 1,000 feet of the point of capture. Tortoises shall only be relocated onto BLM managed lands. Based on the results of the Spring 2009 desert tortoise survey, only two tortoises may require relocation off the Project site.

2.5.2 Inspection of Desert Tortoise Barriers

The risk level for a desert tortoise to encounter a breach in the fence is greatest in the spring and fall, during and following precipitation events. The desert tortoise fence shall be inspected monthly to maintain an effective barrier to tortoise movement. Inspections shall be documented in writing and include any observations of entrapped animals; repairs needed; tortoises, tortoise burrows, and carcasses; and recommendations for supplies and equipment needed to complete repairs and maintenance. All repairs shall take place within one week of a breach discovery.

2.5.3 Repair and Maintenance of Desert Tortoise Barriers

Repairs of fence wash-outs shall involve either (1) realignment of the fence to an area outside of the wash or (2) re-construct tortoise-proof fencing. Gaps and breaks in the fence will require either (1) repairs to the existing fence in place, (b) replacement of the damaged section, (c) burying fence, or (d) filling in gaps or holes under the fence and replacing cobble on top. All fence damage shall be repaired in a timely manner so that tortoises do not travel through damaged sections. A desert tortoise barrier shall be present at all times. In addition to periodic inspections, debris that accumulates along the fence shall be removed.

2.5.4 General Conservation Measures During Construction activities (GCM)

GCM (CONST) #1: Stream Crossings. Only ephemeral stream crossings are present on the Project site. No perennial or intermittent streams are located within the Project ROW. CES plans to smooth out the ephemeral drainages (a smoother surface for construction and maintenance) and create swales that would allow the movement of water to slowly cross the site and allow sheet drainage at the far north end of the site. Laydown areas would be located at least 100 feet away from drainages. No refueling, equipment repair, or lubrication activities would be allowed within 100 feet of the drainages. Proper spill containment materials to isolate potential spills shall be utilized.

GCM (CONST) #2: Vegetation disturbance. Ground clearing or grading shall occur only within the Project ROW. Some vegetation within the ROW shall be permanently removed. Healthy Joshua trees and all cacti with the exception of cholla species shall be relocated in accordance with a

BLM/USFWS/CDFG approved transplantation protocol. No vegetation shall be removed outside the ROW.

GCM (CONST) #3: Stabilization/reclamation. Surface stabilization and reclamation within and along the boundaries of the Project ROW shall be accomplished by removing all construction debris from the Project area and returning the soil to its original grade around the perimeter of the Project ROW.

2.5.5 Desert Tortoise Protective Measures During Construction Activities (DTM)

To minimize take of the desert tortoise during construction activities, BLM shall require CES to implement the following desert tortoise-specific conservation measures:

DTM (CONST) #1: CES shall designate a **field contact representative** (FCR) who will be responsible for overseeing compliance with BLM permit stipulations and the terms and conditions of the BO, and for coordination with BLM and the CDFG. The FCR shall be onsite during all Project activities. The FCR shall have the authority to stop Project activities if a desert tortoise is at risk or if protective measures are not being adequately implemented. The FCR shall have a copy of the BLM stipulations and the BO at all times. The FCR may be a crew chief, or a field supervisor, a project manager, any employee of the Project proponent, or an Authorized Biologist.

DTM (CONST) #2: An Authorized Biologist shall conduct a **contractor desert tortoise education program**. The program shall be received, reviewed, and approved by BLM prior to the initiation of work. The program may consist of a class or video. The contractor desert tortoise education program shall be designed to inform construction personnel, subcontractors, and all other visitors to the construction site of the biological resources and constraints associated with this Project. Wallet-sized cards with important information for workers to carry are required. Only workers who have successfully completed the education program shall be allowed to enter the construction site. The operator shall be responsible for ensuring that the education program is developed and presented prior to conducting activities. New employees shall participate in the education program prior to working onsite.

The education program will focus on:

- General resource protection, such as the purpose for resource protection; the identification of sensitive resources likely to be found in the general Project footprint; construction practices to be employed to protect sensitive resources; protocol to resolve conflicts that may arise during the construction process; and ramification of non-compliance; and
- Specific desert tortoise education, which shall at a minimum include information on the biology and distribution of the desert tortoise, general behavior and ecology of the desert tortoise, its legal status and occurrence in the Project area, the definition of “take” and associated penalties for violations of State or Federal laws, the measures designed to minimize the effects of construction activities, and reporting procedures to be used in the event that a desert tortoise is encountered.

DTM (CONST) #3: Desert tortoises shall be handled only by Authorized Biologists (or by desert tortoise monitors under the direct supervision of an authorized biologist) and only when necessary. Authorized Biologists and desert tortoise monitors shall follow the “Guidelines for Handling Desert Tortoises During Construction Projects” (Desert Tortoise Council 1999) when handling desert tortoises and their eggs and during examination and excavation of desert tortoise burrows.

DTM (CONST) #4: If a Desert Tortoise Requires Relocation Offsite, only the Authorized Biologist shall handle each desert tortoise when necessary. New latex gloves shall be used when handling each desert tortoise to avoid transfers of infectious diseases between animals. Desert tortoises shall be moved the minimum distance possible within BLM and USFWS approved habitat that are offsite on public lands within its home range. A desert tortoise found above ground shall be moved in the direction in which it was moving and placed under the shade of a shrub.

DTM (CONST) #5: Until the exclusionary fence is complete, Authorized Biologists shall conduct **preconstruction clearance surveys** for desert tortoises within 48 hours of the start of any ground disturbing construction activity. At a minimum, the clearance surveys shall cover the entire Project ROW and a 100-foot Zone of Influence (ZOI) around the BLM ROW Project boundary. Work area boundaries shall be delimited with flagging or other marking to minimize surface disturbance associated with vehicle straying. Special habitat features, such as burrows and drinking sites, identified by the Authorized Biologist shall be avoided to the extent possible. Burrows that are found shall be checked for desert tortoises and eggs. When desert tortoises are found, the **burrows shall be flagged** so that equipment operators and drivers shall clearly see the flagging and avoid the burrows. Unoccupied burrows shall be flagged in a manner that contrasts with occupied burrows.

DTM (CONST) #6: A **construction monitoring team** of at least one Authorized Biologist and one desert tortoise monitor shall be assigned to each fence installation construction area. Fence installation may have more than one construction crew working simultaneously. The assigned desert tortoise monitor shall sweep in front of each construction crew's equipment during its operation. The Authorized Biologist shall have the authority to halt Project activity that might result in harm to a desert tortoise and/or be a violation of the Project stipulations. Project activity shall be allowed to continue only after the desert tortoise is no longer at risk.

DTM (CONST) #7: After fence installation, the Authorized Biologist shall conduct a **100 percent coverage protocol survey for desert tortoises** within the Project site. All desert tortoises found shall be marked and removed from the enclosure and placed outside the nearest fence. Once the survey has been completed, no further interior surveys will be necessary unless a breach in the fencing occurs. If the fence has been breached for more than two weeks without repair, the BLM shall be notified and additional surveys may be required at the discretion of the BLM.

DTM (CONST) #8: Project activities shall be confined to the Project ROW and approved access roads and storage areas. The only exception of construction activities outside the ROW is to connect the solar power generation station to the existing power lines along Foothill Road. This connection shall occur offsite across Foothill Road from the south side of the road to the north side of the road along Santa Fe Fire Road only.

DTM (CONST) #9: Areas to be used for **stockpiles, vehicle turn-arounds, service of vehicles, and storage of equipment and material** shall be restricted to the Project ROW within the desert tortoise exclusionary fencing. Leftover excavated material shall not be left in place, but shall be disposed of in designated areas and in a manner approved by BLM.

DTM (CONST) #10: Project vehicles shall be restricted to the Project ROW or on existing roads. Off-road or cross-country travel shall be prohibited except in emergency situations. No additional dirt or paved roads shall be created off the Project ROW.

DTM (CONST) #11: Until the exclusionary fence is complete, **vehicles parked in desert tortoise habitat shall be inspected** for desert tortoises underneath prior to moving the vehicle. If a desert tortoise is observed underneath the vehicle, an Authorized Biologist shall be contacted. If possible, the desert tortoise should be left to move on its own; otherwise, the desert tortoise shall be removed and relocated by the Authorized Biologist.

DTM (CONST) #12: Vehicle speeds shall not exceed 20 miles per hour during construction activities. The **speed limit** shall be maintained within the Project ROW and on unpaved access roads while driving in desert tortoise habitat.

DTM (CONST) #13: All **construction areas shall be inspected** for desert tortoises until fence installation has been completed and tortoises onsite have been relocated. Any hole or trench shall be inspected for desert tortoises prior to its being closed. Trenches left open overnight or over a weekend shall be covered with metal plates to prevent desert tortoises from entering.

DTM (CONST) #14: **Firearms and domestic dogs** shall be prohibited from work areas.

DTM (CONST) #15: **Trash and food items** shall be disposed of promptly in predator-proof containers with re-sealable lids. Trash containers shall be inspected at the end of each work day. These containers shall be regularly removed from the Project site to reduce the attractiveness of the area to common ravens and other desert tortoise predators.

DTM (CONST) #16: **Encounters** with desert tortoises shall be immediately reported to an Authorized Biologist. The Authorized Biologist shall maintain a record of all desert tortoises encountered during Project activities. Information recorded for each desert tortoise shall include: the location (narrative, vegetation type, and maps); date of observation; general condition of health, including apparent injuries and state of healing; whether the desert tortoise voided its bladder; if moved, location moved from and location moved to; digital photographs of each handled tortoise; and diagnostic markings (i.e., identification numbers or marked lateral scutes).

DTM (CONST) #17: Upon locating a **dead or injured** desert tortoise, CES shall notify the BLM and USFWS immediately. Written notification shall be made within 72 hours of the date and time of the finding or incident (if known), and shall include location of the carcass, a photograph, cause of death (if known), and other pertinent information. Desert tortoise remains shall be left in place (or just outside of the construction footprint or fenced area). Desert tortoises injured through CES activities shall be transported to a veterinarian for treatment at the expense of CES. If an injured animal recovers, the USFWS shall be contacted for final disposition of the animal.

DTM (CONST) #17: All **leaks, spills, or releases** of fuel or other hazardous materials shall be reported immediately to BLM. All material that leaks, spills, or is otherwise released into habitat of the desert tortoise shall be removed immediately. The Authorized Biologist shall ensure that all appropriate measures, including those proposed by CES and the BO terms and conditions, are implemented during the removal of the hazardous materials.

DTM (CONST) #18: No later than 90 days after completion of construction, the FCR and Authorized Biologist shall prepare a report for the BLM and USFWS. If the proposed Project will take place over the course of two or more years, these reports shall be submitted annually. The report shall document the effectiveness and practicality of the mitigation measures, the number of desert tortoises excavated from

burrows, the number of desert tortoises moved from the site, the number of desert tortoises killed or injured, and the specific information for each desert tortoise. The report shall make recommendations for modifying the stipulations to enhance desert tortoise protection or to make it more workable for the operator. The report shall provide an estimate of the actual acreage disturbed by various aspects of the operation and shall note any deviations from the approved disturbance footprint, if any.

DTM (CONST) #19: BLM shall require CES to offset the disturbance of desert tortoise habitat resulting from the Project. Since all 512.7 acres of new disturbance (5.3 acres of dirt roads are not considered tortoise habitat) is permanent and shall occur on BLM lands, CES shall make monetary compensation to acquire approximately 513 acres of habitat per the West Mojave Plan [BLM 2006] (513 acres at 1:1 non-DWMA habitat).

2.5.6 GENERAL PROTECTIVE MEASURES DURING OPERATION AND MAINTENANCE ACTIVITIES (GPM O&M)

GPM (O&M) #1: Vegetation disturbance. If unforeseen circumstances require disturbance beyond the Project ROW, CES shall notify BLM immediately.

GPM (O&M) #2: Stabilization/reclamation. Surface stabilization and reclamation within and along the boundaries of the Project ROW shall be accomplished by removing all construction debris from the Project area and returning the soil to its original grade around the perimeter of the Project ROW.

2.5.7 Desert Tortoise Protective Measures During Operation and Maintenance Activities (DTM O&M)

To minimize take of the desert tortoise during O&M activities, BLM shall require CES to implement the following desert tortoise-specific conservation measures:

DTM (O&M) #1: CES shall define a maintenance plan and a routine schedule of O&M activities and associated protocol for approval by BLM.

DTM (O&M) #2: For emergency maintenance involving surface disturbance in desert tortoise habitat, CES shall notify BLM immediately. BLM shall notify USFWS. For both emergency and non-emergency actions, a desert tortoise monitor shall evaluate the site and, if required, monitor the activities. If desert tortoises must be handled, an Authorized Biologist shall conduct these activities. If desert tortoises must be handled during an emergency activity and an Authorized Biologist cannot reach the site in time, CES personnel may handle the desert tortoise only after specific approval from BLM and USFWS.

DTM (O&M) #3: Desert tortoises shall be handled only by Authorized Biologists (or by desert tortoise monitors under their direct supervision) and only when necessary. In the event a desert tortoise wanders into the solar facility through a damaged area of the fence, Authorized Biologists shall follow the “Guidelines for Handling Desert Tortoises During Construction Projects” (Desert Tortoise Council 1999) when handling desert tortoises.

DTM (O&M) #4: If a desert tortoise requires relocation offsite, the Authorized Biologist shall handle each desert tortoise only when necessary. New latex gloves shall be used when handling each desert tortoise to avoid transfers of infectious diseases between animals. Desert tortoises shall be moved the minimum distance possible within BLM and USFWS approved habitat that is offsite on public lands

within its home range. A desert tortoise found above ground shall be moved in the direction in which it was moving and placed under the shade of a shrub.

DTM (O&M) #5: The desert tortoise **exclusionary fencing shall be inspected** during O&M activities. The desert tortoise fence shall be inspected on a regular basis sufficient to maintain an effective barrier to tortoise movement. Inspections shall be documented in writing and include any observations of entrapped animals; repairs needed; tortoises, tortoise burrows, and carcasses; and recommendations for supplies and equipment needed to complete repairs and maintenance. During the first two to three years, all fence inspections shall be conducted quarterly at a minimum, to identify and document breaches and problem areas such as wash-outs and vandalism. GPS coordinates shall be recorded for problem areas to identify locations that require more frequent inspections. Following this initial inspection period, subsequent inspections shall focus on known problem areas. In addition, areas prone to wash-outs shall be inspected following precipitation events. A database of problem areas shall be established.

DTM (O&M) #6: **All O&M activities shall be confined** to the Project ROW. Repairs of exclusionary fencing shall occur within the ROW. If fence repairs require the use of mechanized equipment or vehicles, all vehicles shall access the damaged fence area from within the ROW. Only foot traffic shall occur outside the ROW for fence repairs to minimize disturbance to desert tortoise habitat. If unforeseen circumstances require disturbance beyond the Project ROW, BLM shall notify USFWS immediately.

DTM (O&M) #7: Areas to be used for **stockpiles, vehicle turn-arounds, service of vehicles, and storage of equipment and material** shall be restricted to the Project ROW within the desert tortoise exclusionary fencing. Leftover excavated material shall not be left in place, but shall be disposed of in designated areas and in a manner approved by BLM.

DTM (O&M) #8: **Project vehicles shall be restricted** to the Project ROW, or on existing roads. Off-road or cross-country travel shall be prohibited except in emergency situations. No additional dirt or paved roads shall be created off the Project ROW during O&M activities.

DTM (O&M) #9: **All vehicles shall be parked** inside the Project ROW. If unforeseen instances occur that require parking along access roads to the Project site in desert tortoise habitat, the **vehicle shall be inspected** for desert tortoises underneath prior to moving the vehicle. If a desert tortoise is observed underneath the vehicle, an Authorized Biologist shall be contacted. If possible, the desert tortoise should be left to move on its own; otherwise, the desert tortoise shall be removed and relocated by the Authorized Biologist.

DTM (O&M) #10: Vehicle speeds shall not exceed 20 miles per hour while driving along Santa Fe Fire Road to access the Project site. The **speed limit** shall be maintained within the Project ROW and on unpaved access roads while driving in desert tortoise habitat.

DTM (O&M) #11: **Firearms and domestic dogs** shall be prohibited from the Project site.

DTM (O&M) #12: **Trash and food items** shall be disposed of promptly in predator-proof containers with re-sealable lids. Trash containers shall be inspected at the end of each work day.

DTM (O&M) #13: Spike strips shall be installed within the solar facility as determined appropriate by an Authorized Biologist after inspection of the solar facility for areas that may be prone to perching. The spike strips shall prevent ravens from perching along the Project site boundary to minimize predation against desert tortoises.

DTM (O&M) #14: Encounters with desert tortoises shall be immediately reported to an Authorized Biologist. The Authorized Biologist shall maintain a record of all desert tortoises encountered during O&M activities. Information recorded for each desert tortoise shall include: the location; date of observation; general condition of health and apparent injuries and state of healing; location of damaged area of fence; if moved, location moved from and location moved to and whether the desert tortoise voided its bladder; and diagnostic markings (i.e., identification numbers or marked lateral scutes).

DTM (O&M) #15: Upon locating a **dead or injured** desert tortoise, CES shall notify the BLM and USFWS immediately. Written notification shall be made within 72 hours of the date and time of the finding or incident (if known), and shall include location of the carcass, a photograph, cause of death (if known), and other pertinent information. Desert tortoises injured through CES activities shall be transported to a veterinarian for treatment at the expense of CES.

DTM (O&M) #16: All **leaks, spills, or releases** of fuel or other hazardous materials along access roads to the Project site within desert tortoise habitat shall be reported immediately to BLM. All material that leaks, spills, or is otherwise released into habitat of the desert tortoise shall be removed immediately. CES shall adhere to all appropriate measures of the BO terms and conditions during the removal of the hazardous materials.

2.6. NON-COMPLIANCE

If CES fails to comply with any of its proposed protective measures or the terms and conditions of the BO, BLM shall suspend the new ROW grant and temporary use permit. Non-compliance typically results in a conference with USFWS. Re-initiation of the BO potentially may occur. CES shall maintain communication with BLM regarding efforts and progress to comply with all protective measures.

SECTION 3.0 – DESERT TORTOISE (FEDERAL- AND STATE-LISTED THREATENED)

3.1. CONSULTATION WITH LOCAL FISH AND GAME

The project Applicant will have to consult with DFG on the desert tortoise to fulfill obligations under the California Endangered Species Act. As part of the consultation, additional avoidance and minimization measures as well as additional compensation for habitat loss may be required by the state. It is assumed by this BA that all such measures and mitigation shall be implemented and will be supplementary to the measures proposed above.

3.2. LITERATURE REVIEW

Prior to performing the field surveys, existing documentation relevant to the Project site was reviewed. The most recent records of the California Natural Diversity Database managed by the CDFG (2009) were reviewed for the quadrangles containing and surrounding the Project site (i.e., *Cougar Buttes, Fry Mountains, Grand View Mine, Lucerne Valley, Old Woman Springs, and White Horse Mountain, California USGS 7.5 minute quadrangles*). Site visits are detailed below.

3.2.1 Initial Site Visit

The initial field survey was conducted on the Project site to identify any potential for occurrence of sensitive species, vegetation communities, or habitats to support sensitive wildlife species. The survey was conducted on foot throughout the Project site between 0830 and 1612 hours on March 16, 2009. In addition, the biologists traveled by car along dirt roads, such as Santa Fe Fire Road, Zircon Road, Foothill Road, Donaldson Road, and other unnamed dirt roads within and adjacent to the Project site. Photographs of the Project site were recorded to document existing conditions. Weather conditions during the survey included temperatures ranging from approximately 42 to 77 degrees Fahrenheit with clear skies and dry conditions. Chambers Group biologists Heather Clayton and Paul Morrissey conducted the general reconnaissance survey.

3.2.2 Focused Desert Tortoise Survey

The protocol level focused surveys for desert tortoise were conducted on March 24 to 27, March 31 to April 3, and April 7 to 10, 2009, by biologists Paul Morrissey, Kris Alberts, Nichole Cervin, Laura Gorman, Rebecca Alvidrez, Lisa Wadley, and Saraiah Skidmore. The objective of the survey was to determine if desert tortoises are currently or have recently inhabited the site or the adjacent habitat surrounding the Project site. Weather conditions during all focused surveys ranged from temperatures of 41 to 82 degrees Fahrenheit, with average winds from 0.8 to 18 miles per hour, and cloud cover from 0 to 100 percent. One rainfall event occurred on April 10, 2009. No surface water was present on the Project site during this event.

3.2.3 Results of the Desert Tortoise Surveys

The survey was conducted on foot over the entire Project site utilizing 30-foot (approximately 10-meter) belt transects to provide 100 percent coverage on the site. A 500-foot buffer was examined due to burrowing owl surveys being conducted concurrently. In areas with a high density of tortoise sign or where tortoises were encountered, buffer transects were extended up to 1,200 feet from the edge of the Project site. This occurred in the southeast and southwest areas of the Project site. The ZOI survey

was conducted in the areas directly adjacent-to and surrounding the Project site where suitable desert tortoise habitat exists. The ZOI survey included single line transects at 600, 1,200, and 2,400 feet parallel to the edge of the Project boundaries in accordance with protocol. Habitat conditions for each transect were documented and included vegetation communities, soil types, landscape usage, topography, weather conditions, and the amount of existing human-caused disturbance. All sign of desert tortoises including live tortoises, shell, bones, scutes, limbs, scat, burrows, pellets, tracks, egg shell fragments, courtship rings, drinking sites, and mineral licks were recorded on standardized data sheets. If a burrow was observed, a mirror was used to reflect sunlight into the burrow to visually determine if desert tortoise were present. Locations of all sign were recorded using GPS units. Photographs were taken of transect habitat characteristics, desert tortoise encounters, and desert tortoise sign.

A total of seven desert tortoises were detected during the focused surveys. One live tortoise was observed within the Project boundaries in the southeast corner of the site. Five live tortoises were detected within the ZOI survey area southeast of the Project site; this area is an active tortoise area. One live tortoise was observed offsite in the southwest ZOI survey area. Information on live tortoises encountered is provided in Table 1. In addition, two tortoises were observed on June 26, 2009, during a focused burrowing owl survey. These two individuals were observed foraging in the southwestern area, one within the Project site in the southwestern corner, and one within the buffer survey area immediately offsite. These individuals were not photo-documented; therefore, it cannot be determined whether they were documented in the previous survey. These two tortoises appeared healthy and did not show signs of an upper respiratory track disease or damage from predatory attacks. Both the southeast and southwest areas of the Project site are determined to support foraging adult tortoises.

Four skeletal remains and one carcass were observed on or near the Project site. Carcass classification is broken down into five categories, according to USFWS desert tortoise survey methodology and sign documentation protocol (USFWS 1992): Class 1 shell remains are still fresh or putrid. Class 2 shell remains are normal in color and the scutes still adhere to the bone, while in Class 3 remains, scutes are peeling off. In Class 4 shell remains, the shell bone is falling apart, and the growth rings on the scutes are peeling. If the remains are disarticulated and scattered, the remains are Class 5. Information pertaining to the carcass and skeletal remains observed in this survey is provided in Table 2.

Other forms of desert tortoise sign were observed on and near the site. Sign included active and inactive burrows, fresh and old scat, and tracks. Tracks were generally found in sandy areas where fresh scat and active burrows were located.

Desert tortoises are solitary animals and travel long distances in order to mate during the breeding season. Tortoises and sign were found on the east and west sides of the Project site, which likely indicates that tortoises cross the site for mating during the breeding season. The two male tortoises and one female tortoise found on the southwestern area of the Project site most likely utilize the burrows identified along the southern border. The Project site allows for safe passage to the area of high density tortoise habitat located to the southeast of the Project site; and it also serves as foraging grounds for desert tortoises, especially where annual vegetation and beavertail cacti (*Opuntia basilaris* var. *basilaris*) showed signs of recent feedings in both the southeast and southwest corner of the Project site.

Table 1
Desert Tortoise Encounters During Focused Surveys

Tortoise (ID #)	Date	Original Coordinates*		Age Class	Sex	Habitat	Health
		Easting	Northing				
1	3/26/09	0518964	3807854	Adult	F	Creosote-White Bursage Series near 1200' ZOI in SE area	Shell had scratch marks and a couple chips, but tortoise appeared healthy. No URTD
2	3/26/09	0518703	3808220	Adult	F	Creosote-White Bursage Series in buffer in SE area	Had a bite mark, but tortoise appeared healthy. No URTD
3	3/27/09	0518702	3808069	Adult	UNK	Creosote-White Bursage Series on site in SE area	Old small gnaw mark above left hind leg, otherwise tortoise appeared healthy. No URTD
4	4/1/09	0518232	3807553	Adult	UNK	Creosote-White Bursage Series on 2400' ZOI in SE	Tortoise appeared healthy. No URTD
5	4/7/09	0518068	3807754	Adult	M	Creosote-White Bursage Series near 1200' ZOI in SW	Shell had small chips but tortoise appeared healthy. No URTD
6	4/10/09	0518312	3806948	Adult	M	Creosote-White Bursage Series near 1200' ZOI in SE area	Tortoise appeared healthy. No URTD
7	4/17/09	0516223	3807569	Adult	M	Creosote-White Bursage Series in buffer in SE area	Shell had a small chip but tortoise appeared healthy. No URTD

Table 2
Desert Tortoise Skeletal and Shell Remains Observed During Focused Surveys

Tortoise Remains (ID)	Class	Location*		MCL (mm)	Time Since Death	Cause of Death	Location Description
		Easting	Northing				
1	5	0518937	3807793	275	>4 YRS.	Unknown	In the open within the ZOI.
2	4	0519044	3807786	275	>4 YRS.	Possible gun shot and/or scavenged.	In the open within the ZOI, near a dead white bursage.
3	5	0518892	3807874	UNK	>4 YRS.	Unknown	In the open within the ZOI near a tortoise shelter site.
4	3	0518101	3808140	120	2-4 YRS.	Unknown, evidence of scavenging.	In the open and under a dead Joshua tree within the site boundaries.
5	3	0515774	3807597	120	2-4 YRS.	Possible gun shot and/or scavenged.	Scattered over 20 feet in front of a burrow within the ZOI.

Burrow classification is broken down into five categories according to USFWS desert tortoise survey methodology and sign documentation protocol (USFWS, 1992). An active burrow with recent desert tortoise sign, such as scat, is categorized as Class 1. A Class 2 burrow is considered to be a definite desert tortoise burrow in good condition but has no evidence of recent use. Class 3 and 4 burrows are fairly deteriorated, but a Class 3 is determined still to be a desert tortoise burrow, while a Class 4 burrow is questionable. A Class 5 burrow is in somewhat good condition and could possibly be a desert tortoise burrow. Desert tortoises utilize several different types of burrows, depending upon season and activity. Burrows can range from 2 to 10 meters deep and may be modified small mammal dens to shallow hollows that are used temporarily during dispersal activities (Ernst et al., 1994). As desert tortoise will often utilize small mammal dens, it is not uncommon to classify burrows as potential desert tortoise burrows when in fact they initially belong to other wildlife in the area, such as kit fox and/or black-tailed jackrabbit.

A total of 107 burrows were observed on or near the Project site. Table 3 shows the breakdown of the number of burrows into separate class categories. Within the Project site, 3 Class 1 through 3 burrows and 31 Class 4 to 5 tortoise burrows were observed. Within the 500-foot buffer, 8 Class 1 through 3 burrows and 17 Class 4 to 5 burrows were observed. Within the ZOI, 27 Class 1 through 3 burrows and 21 Class 4 to 5 burrows were observed.

A total of 38 tortoise scats were observed within the buffer or within the ZOI. No desert tortoise scat was identified within the Project site. Five tortoise scats were observed within the 500-foot buffer, and thirty-three scats were observed within the ZOI. Scat classification is also broken down into five categories according to USFWS desert tortoise survey methodology and sign documentation protocol (USFWS 1992). A Class 1 scat is wet, not from rain or dew, or is freshly dried, and has an obvious odor. A Class 2 scat is dried with a glaze, has some odor, and is dark brown. Class 3 and 4 scats are dried with no glaze or odor, but a Class 3 scat is light brown showing little signs of bleaching, while Class 4 is light brown to pale yellow with loose material. A Class 5 scat is bleached or consists only of plant fiber. Table 3 shows the breakdown the number of scats into separate class categories.

Table 3
Desert Tortoise Sign Observed During Focused Surveys

	Burrows within Project Site	Burrows within Buffer Area	Burrows Within ZOI Area	Total Burrows Identified	Scat
Class 1					2
Class 2	3	9	26	38	16
Class 3					12
Class 4	30	21	18	69	0
Class 5					8
Total	33	30	44	107	38

3.3. GENERAL DESCRIPTION AND HABITAT REQUIREMENTS

The desert tortoise (*Gopherus agassizii*) is a federal- and state-listed threatened species. The desert tortoise ranges from central Nevada and extreme southwestern Utah south through southeastern California and southwestern Arizona into northern Mexico (Berry et al., 2002). In California, the historic range of this species includes northeastern Los Angeles, eastern Kern, eastern San Diego, and southeastern Inyo counties, as well as most of San Bernardino, Riverside, and Imperial counties. The desert tortoise inhabits river washes, rocky hillsides, slopes, and flat deserts with sandy or gravelly soils. Soil conditions must be friable for burrow and nest construction. Creosote bush, white bursage, saltbush, Joshua tree, Mojave yucca, and cacti are often present in the habitat along with other shrubs, grasses, and wildflowers. The desert tortoise is entirely herbivorous and forages on a variety of plants, including cactus species and annual vegetation. The desert tortoise is a medium-sized tortoise with an adult carapace length of about 8 to 14 inches. Males, on average, are larger than females and are distinguished by a more concave plastron, longer gular horns, larger chin glands on each side of the lower jaw, and longer tails. Carapace color varies from light yellow-brown (horn color) to dark grey-brown. In addition to range, a composite of characteristics often is necessary to distinguish the desert tortoise from other species of gopher tortoise, but its most unique feature is its very large hind feet. Desert tortoise populations are declining due to habitat destruction/loss, predation, illegal collecting, grazing, and OHV use (Berry 1997).

Habitat for the desert tortoise occurs on the Project site. Soil conditions appropriate for burrow construction are present onsite. Recent historic records report that desert tortoises have occurred within the vicinity of the Project site. A total of seven desert tortoises were detected during the focused surveys. One live tortoise was observed during the focused surveys within the Project boundaries in the southeast corner of the site. Five live tortoises were detected within the ZOI survey area during the focused surveys, southeast of the Project site; this area is an active tortoise area. One live tortoise was observed offsite in the southwest ZOI survey area during the focused surveys. In addition, two tortoises were observed on June 26, 2009, during a focused burrowing owl survey, foraging in the southwestern area, one within the Project site in the southwestern corner, one within the buffer survey area immediately offsite. These individuals were not photo-documented; therefore, it cannot be determined whether these individuals migrated from the southeastern area and were previously documented during the desert tortoise focused surveys. However, with this supplemental data, both the southeast and southwest area of the Project site are determined to support foraging adult tortoises. Please see the Results of the Desert Tortoise Surveys below for more details regarding this species.

The density of desert tortoises identified in the Project area surveyed is relatively small compared to other known populations in the vicinity, and the proposed area for the solar site is not contained within designated critical habitat. Critical habitat for desert tortoise exists approximately 10 miles to the north of the Action Area. Although very few tortoise and tortoise sign were identified in the southeastern area of the Project site, suitable habitat, including burrow substrate and forage vegetation, is found primarily to the south, southwest, and southeast outside of the Action Area. Currently, roads such as Santa Fe Fire Road, Foothill Road, Zircon Road, Donaldson Road, and several unnamed dirt roads exist in or adjacent to the Action Area. These roads are traveled by local residents for recreation activities, such as OHV and firearms use. Many dump sites were identified along the dirt roads. Tortoise carcasses were identified near areas with hundreds of shotgun rounds, though death by shooting could not be positively determined since many of the tortoise carapaces were scattered throughout the area.

SECTION 4.0 – ENVIRONMENTAL BASELINE

The Project site is located on BLM land. The surrounding area of the Project site is comprised of open space dominated by creosote bush and white-bursage with desert washes and disturbed communities. A few scattered residential homes exist along the Project boundary or just outside the 500 ft buffer. One trailer home exists near the southern boundary of the site, and a second home exists approximately one-half mile southeast of the site. Several dirt roads cross the Project site, which are used as access to homes or for off-highway vehicle (OHV) recreational activities and/or camping. A few dump sites, historic and recent, were observed during surveys, along with fire pits, tire tracks, and shotgun shells. The common raven, a predator of the desert tortoise, was observed throughout the surveys on the Project site. Signs of dog activity were also present.

4.1. SOILS

The U.S. Department of Agriculture (USDA) Soil Conservation Service and USDA Natural Resources Conservation Service (NRCS) Web Soil Survey has not mapped soils within the Project site (USDA 2009). No Order III soil survey has been conducted on or in the vicinity of the proposed Project area. Data derived from the State's soil geographic database (STATSGO) has limitations. STATSGO (Order V) in particular was meant for regional planning purposes with large scale extrapolation from other sources. With very limited ground truthing available, this data has limited application. The 1970 General Soil Map for the SW Desert Area, San Bernardino County, has mapped and described the soils within the Project area as the Arizo-Daggett Association (excessively drained and somewhat excessively drained, very deep, gravelly soils). The following includes a description of soils identified during the reconnaissance level survey.

The Project site consists primarily of sandy loam soils on the flat terraces, loamy sandy soils, and loamy sand within the drainages and washes. The loamy sandy soils were more prevalent in the northern portion of the Project site and in the eastern area along the washes. Overall, these are well drained soils typical of sandy environments. A layer of caliche rock was exposed in some areas of the washes and dirt roads, and desert pavement type soils were observed in patches throughout the western area of the site. These substrates were unvegetated.

4.2. VEGETATION

4.2.1 Creosote Bush-White Bursage Series (319 acres)

The Creosote Bush-White Bursage Series is an extremely xeromorphic (i.e., plants adapted for survival in dry conditions) mixed evergreen-deciduous shrubland that typically consists of well-drained secondary soils with very low available water holding capacity. The community typically is found on slopes, fans, and in valleys at elevations up to 3,300 feet amsl (Sawyer and Keeler-Wolf 1995). This community type is dominated by creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*), with creosote bush occupying 55 percent and white bursage occupying 45 percent of the total vegetative cover in this portion of the Project site. The total vegetative cover by perennials was approximately 45 percent. The substrate onsite consists of sandy loam and loamy sand. Often, many species of ephemeral herbs in this community will flower in late March and April if winter rains are sufficient. Numerous annual species, still in the vegetative state prior to the onset of flowers, were observed in this community in March and bloomed in April and through the first part of May 2009.

Creosote Bush-White Bursage Series is present throughout the eastern portion of the Project site. In addition to creosote bush and white bursage, other common plant species found on the Project site typical of this vegetation community include: common fiddleneck (*Amsinckia menziesii*), blackbush (*Coleogyne ramosissima*), Nevada ephedra (*Ephedra nevadensis*), winter fat (*Krascheninnikovia lanata*), box-thorn (*Lycium* sp.), blazingstar species (*Mentzelia* spp.), golden cholla (*Opuntia echinocarpa*), big galleta grass (*Pleuraphis rigida*), and Joshua tree (*Yucca brevifolia*).

4.2.2 White Bursage Series (176 acres)

White Bursage Series, described by Sawyer and Keeler-Wolf (1995), is a mixed evergreen-deciduous shrubland dominated by white bursage with creosote bush also present in lower proportion. The shrub canopy, typically less than 10 feet in height, is two-tiered with few creosote bush shrubs in the upper tier over the lower tier consisting of white bursage. The ground layer is open with annual species seasonally present. The White Bursage Series typically occurs on alluvial fans or at the base of a mountain where several alluvial fans have merged (bajadas), stabilized sand fields, and upland slopes with well-drained soils at elevations up to 4,000 feet amsl. The substrate onsite is gravelly sand with small patches of desert pavement scattered throughout this community. The ground appeared more compacted and with larger soil particles in this series than was observed in the Creosote Bush-White Bursage Series onsite.

White Bursage Series is present on the northwestern portion of the Project site. In contrast to the Creosote Bush-White Bursage Series where creosote bush and white bursage exhibited similar cover values, the White Bursage Series is comprised of 75 percent white bursage and only 25 percent creosote bush of the total vegetative cover (approximately 35 percent) within this portion of the site. In addition to these species, other common plant species found onsite typical of the White Bursage Series include: Nevada ephedra, Pima rhatany (*Krameria erecta*), and box-thorn. Less common species found within this community include: common fiddleneck, wingnut cryptantha (*Cryptantha pterocarya*), flat-topped buckwheat (*Eriogonum deflexum*), California buckwheat (*Eriogonum fasciculatum*), wishbone bush (*Mirabilis* sp.), phacelia (*Phacelia* sp.), big galleta grass, and Joshua tree. Joshua tree is less abundant in this portion of the site than within the Creosote Bush-White Bursage Series.

4.2.3 Desert Wash (18 acres)

Desert Wash habitats are characterized as sandy or gravelly drainages and arroyos of the lower Mojave and Colorado deserts. This community closely resembles the Mojave Wash Scrub as described by Holland (1986). These washes typically have braided channels that rearrange with every surface flow event. The substrate of the Desert Wash area onsite consists of loose sandy soil with very little ground cover.

Desert Wash is present in the northeastern corner of the Project site and along the eastern edge of the site. The Desert Wash environments support a larger diversity of plant species than is found throughout other portions of the Project site. The Desert Wash community onsite is dominated by cheesebush (*Hymenoclea salsola*) and blunt tansymustard (*Descurainia pinnata* ssp. *glabra*), with white bursage, Nevada ephedra, creosote bush, desert alyssum (*Lepidium fremontii* var. *fremontii*), and sandpaper plant (*Petalonyx thurberi*) also common. Other less frequently occurring species in the Desert Wash include common fiddleneck, four-wing saltbush (*Atriplex canescens*), blackbush, wingnut cryptantha, bladderpod (*Isomeris arborea*), scalebroom (*Lepidospartum squamatum*), golden cholla, big galleta grass, London rocket (*Sisymbrium irio*), and occasional Joshua trees.

4.2.4 Disturbed/Sparsely Vegetated (3 acres)

Portions of the site that are classified as Disturbed are those areas that are either devoid of vegetation (cleared or graded) such as dirt roads or those heavily compacted areas that are dominated by a sparse cover of ruderal vegetation. Disturbed Areas are present within the Project site along the major, named dirt roads, in portions of the dry washes where scouring has taken place, in large areas of desert pavement, and on sediment berms throughout the site. Only sparse vegetation is found growing in these areas. Species growing in Disturbed areas include stunted white bursage shrubs, red-stemmed filaree (*Erodium cicutarium*), sapphire eriastrum (*Eriastrum sapphirinum*), and Mediterranean schismus (*Schismus barbatus*).

4.3. WILDLIFE

4.3.1 Birds

Thirteen bird species were observed/detected on the Project site during the one-day reconnaissance level survey. Species included black-throated sparrow (*Amphispiza bilineata*), sage sparrow (*Amphispiza belli*), California quail (*Callipepla californica*), horned lark (*Eremophila alpestris*), mourning dove (*Zenaida macroura*), rock pigeon (*Columba livia*), black-tailed gnatcatcher (*Polioptila melanura*), ladder-backed woodpecker (*Picoides scalaris*), common raven (*Corvus corax*), European starling (*Sturnus vulgaris*), northern harrier (*Circus cyaneus*), and house finch (*Carpodacus mexicanus*). These thirteen species are commonly found in the region. In addition, one potential ostrich (*Struthio camelus*) or possibly an emu carcass was found scattered on the western area of the Project site, most likely an escaped or released pet.

4.3.2 Mammals

Seven common mammal species were observed or detected on the Project site during the survey. Common species observed were the black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), domestic dog (*Canis familiaris*), and kit fox (*Vulpes macrotis*). A property within the Project site hosts approximately five domestic dogs within a chain linked fence, one dead dog was found buried nearby. In addition, sheep (*Ovis aries*) carcasses were observed in the western portion of the site. Two species of ground squirrels were observed on site, the Antelope ground squirrel (*Ammospermophilus leucurus*) and the round-tailed ground squirrel (*Spermophilus tereticaudus*).

SECTION 5.0 – EFFECTS OF THE PROPOSED ACTION

5.1. GENERAL ANALYSIS

The Mojavean desert habitat found within the Project site is regionally important to many wildlife species, including the desert tortoise. The proposed Project has been designed to meet CES's needs while minimizing impacts to the desert tortoise and its habitat.

Impacts associated with the construction of the solar facility shall be contained almost entirely within the ROW. The only exception of construction activities outside the ROW is to connect the solar power generation station to the existing power lines located along Foothill Road at the northern boundary of the Project site. Foothill Road is an established and maintained dirt road. This connection shall require crossing from the south side of Foothill Road to the north side of Foothill Road along Santa Fe Fire Road, the only area for construction activities located off the Project ROW. No removal of vegetation shall occur during this process. No disturbance of desert tortoise habitat shall occur because roads are not considered desert tortoise habitat.

Permanent removal of vegetation shall occur only within the ROW. Relocation of healthy Joshua trees between 2 feet and 10 feet in height and healthy cacti such as beaver tail cactus over 2 feet in height shall be conducted in accordance with the approved Restoration Plan. No new disturbance shall be created by the restoration process and no vegetation removal shall occur outside the Project ROW.

The installation of desert tortoise exclusionary fencing shall prevent impacts to tortoises within the Project ROW. Due to the small size of the solar facility (approximately 0.5 miles long), minimal impacts to wildlife corridors and wildlife passage within the area is expected. Impacts to desert tortoise wandering capabilities for foraging and breeding activities shall be minimal.

Relocation of desert tortoise off the Project ROW may be required. Based on the results of the baseline surveys, the desert tortoise population on the Project site is relatively small. Two tortoises were observed within the Project site; one in the southwest and one in the southeast corner. All other tortoises detected during the surveys outside the Project ROW (within the ZOI and buffer area) are not expected to be affected by construction activities. Monitoring of these tortoises and implementation of protective measures within the BO shall minimize impacts to the tortoises identified in the immediate area.

Relocation of any tortoise within the Project ROW shall be conducted in accordance with DTM (CONST) #4, and in accordance with all measures outlined in the BO. Relocation of any tortoise is not expected to negatively impact the small population of tortoises identified in the immediate area south of the Project site.

Once constructed and operational, the solar facility shall require very little maintenance. Operation and maintenance shall require regularly-scheduled inspections of the exclusionary fencing on foot and infrequent repairs at isolated locations after thunderstorms or heavy rain events. Repairs shall abide by the desert tortoise protective measures defined in the BO. Access to damaged areas along the fence shall occur from within the ROW.

5.2. DIRECT EFFECTS

The installation of the desert tortoise exclusionary fence, construction of the solar facility, and operation and maintenance of the solar facility, could pose threats to the desert tortoise.

Construction activities shall expose desert tortoises to a fairly high level of human activity for a relatively brief time period (approximately eight months per construction phase). Most of the hazards shall be from operation of equipment and vehicles adjacent to occupied desert tortoise habitat. The installation of desert tortoise exclusionary fencing around the perimeter of the Project site, implementation of protective measures in the BO, presence of Authorized Biologists and desert tortoise monitor teams, and regular inspections of the exclusionary fencing shall minimize impacts to desert tortoise.

Vehicular and equipment travel on roadways outside the Project ROW could cause collisions with desert tortoises that result in injury or death. Although access into the Project ROW shall be on existing roads, the increased level of traffic during construction activities, and to a lesser extent, the increased level of traffic during O&M activities could result in tortoise injury or death. Equipment and vehicles used during routine operation and maintenance could be a hazard to desert tortoises living offsite.

Desert tortoises may emerge during warm periods in winter to sun themselves and to search for food and water. In the more active months, desert tortoises may seek shelter from the sun and heat under vegetation or construction equipment and vehicles and may be crushed when the equipment and vehicles are moved. The exclusionary tortoise fencing and implementation of measures outlined within the BO should minimize impacts to tortoise injury or death within the Project ROW.

Desert tortoise burrows on or near the edge of the Project ROW may collapse from the vibration of heavy equipment and vehicles during construction. Burrows that are unoccupied at the time may be destroyed, which could affect tortoises in the future if shelter from the heat and sun in those burrows is no longer available, or if tortoises are exposed for extended time to predators. Unauthorized handling or other human contact could transmit diseases to the desert tortoise.

The presence of BLM- and USFWS-approved desert tortoise monitors, implementation of Best Management Practices (BMPs), and USFWS desert tortoise protection measures during the construction should ensure that most desert tortoises are avoided or moved from harm's way.

The clearance surveys within 48 hours prior to installation of exclusionary fencing shall reduce the likelihood of desert tortoises being trapped or crushed in their burrows. If the weather is amenable, desert tortoises may move into the work area between the time of the survey and the ground-disturbing work during installation of the tortoise exclusionary fencing. The flagging of desert tortoise burrows and the Authorized Biologist and desert tortoise monitor teams shall ensure that no burrows are inadvertently destroyed. Also, burrows that cannot be avoided (such as those within the Project ROW) shall be checked immediately before they are disturbed by construction activities to remove any desert tortoises.

Relocation of tortoises offsite on public lands within their home range is not expected to negatively impact the small population of tortoises to the south of the site if relocation were necessary. CES shall adhere to all protective measures defined in the BO.

Maintenance activities along the ROW, such as driving along existing access roads, walking the perimeter of the Project site during exclusionary fence inspections, and any isolated fence replacement activities, could result in injury or death of desert tortoise that manage to move onsite. Equipment access to damaged areas of the exclusionary fence shall stay within the ROW to minimize potential of desert tortoise encounters. For O&M activities requiring surface disturbance, CES shall implement the construction protective measures to minimize encounters with desert tortoises during O&M activities.

5.3. INDIRECT EFFECTS

CES would clear ground in the Project ROW to conduct the Project, resulting in loss of habitat. Some vegetation within the Project ROW would be permanently removed.

Installation of the protective exclusionary fencing shall be confined to the BLM ROW. Facility connection to the existing power lines off ROW from the south side of Foothill Road to the north side of Foothill Road (approximately 20 feet wide) along Santa Fe Fire Road shall not impact desert tortoise habitat. Access into the Project ROW shall occur within existing roadways. No loss of habitat shall occur. Therefore, no new disturbance to desert tortoise habitat shall occur offsite.

Even minimal disturbance along the existing access roads may be prone to colonization by non-native species. The displacement of native vegetation with non-native vegetation is expected to be negligible, but the spread of these species could be enhanced by Project activities. CES's application of its restoration and weed control plan should prevent outbreaks of non-native vegetation, such as Sahara mustard, into areas that do not yet have this species.

BLM has estimated that a maximum of 512.7 acres of desert tortoise habitat may be newly disturbed during the Project construction. The Project site contains 5.3 acres of non-desert tortoise habitat. BLM expects no more than 512.7 acres of new disturbance because Project activities would remain within the exclusionary fencing. No new access roads shall be constructed.

The impediment of tortoise movement during foraging and breeding migrations, as well as habitat fragmentation, from the proposed Project shall be minimal because of the relatively small size of the Project site.

5.4. CUMULATIVE EFFECTS OF THE ACTION

USFWS is obligated per 50 CFR 402.02 to consider in the BO the effects of future State, tribal, local, or private actions that are reasonably certain to occur concurrently in the Action Area. Future Federal actions that are unrelated to CES's proposed action shall not be considered in the BO, but shall instead require separate consultation pursuant to Section 7 of ESA. Cumulative effects occur when individual impacts from each project considered would have an incremental impact to the environment.

There currently is one reasonably foreseeable cumulative project action proposed in the immediate Project area. The Green Path North project is a renewable electricity transmission line proposed jointly by the Los Angeles Department of Water and Power, Imperial Irrigation District, and Southern California Public Power Authority. The project would connect to renewable energy resources from an area near Hesperia to around Palm Springs. The proposed route has not been identified yet; several alternatives are being considered and project lengths vary between alternatives. The project would involve the

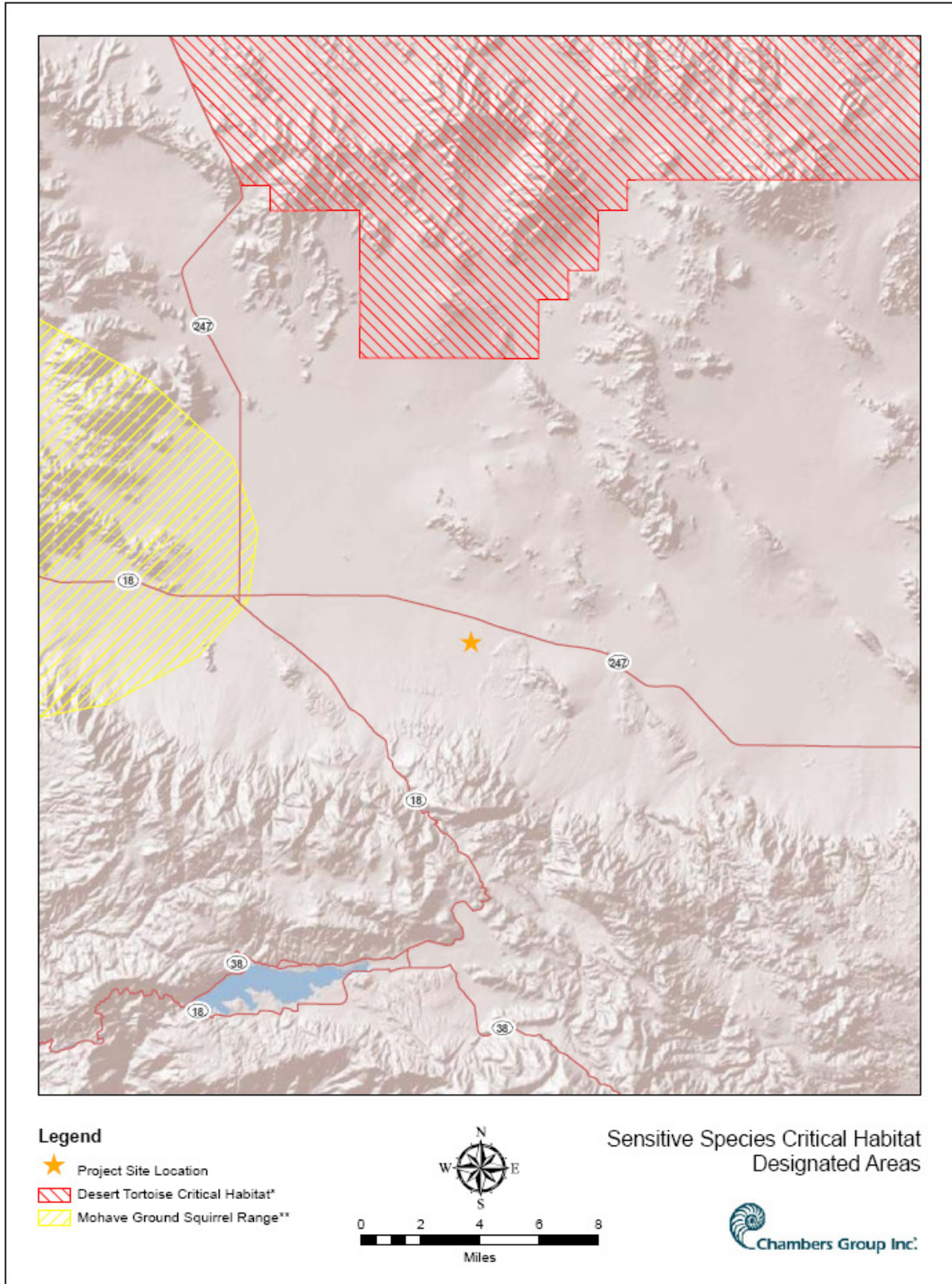
construction and operation of an up to 800 MW high-voltage transmission line with capability for future expansion. New access roads and microwave communication sites will be required.

One of the Green Path North alternative project routes runs north of and parallel to the California Desert Conservation Area Boundary. This route lies within 4 miles at the shortest distance south of the proposed Chevron Project. Because the Green Path North project currently is in the early stages of permitting and planning, there would be no cumulative impacts associated with the construction of the Phase I construction of this project. Based on the timing of Phase II, both projects may have construction activities with potential cumulative impacts to desert tortoise occurring between the projects. The Green Path North project may impact wildlife, including mortality and habitat loss, from grading, construction, or vehicle use. Although each project may locally affect wildlife corridors or passage, the proposed Project is expected to have minimal impacts and would not have a cumulative effect with the Green Path North project. No critical habitat is identified between the projects; therefore, no cumulative impacts to critical habitat would occur.

The operation and maintenance of the proposed Project is likely to occur during the construction of the Green Path North project. Because impacts to desert tortoise are minimized by the Project exclusionary fence, potential impacts to desert tortoise between the projects would be based on the Green Path North construction activities. With the Project protective measures and anticipated protective measures by the Green Path North project, encounters with desert tortoises within the projects vicinity are expected to be minimal.

Figure 3 Designated Critical Habitat

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SECTION 6.0 – DETERMINATION OF EFFECT

The Bureau of Land Management has determined that the Project may affect, and is likely to adversely affect, the desert tortoise and will initiate formal consultation with the U. S. Fish and Wildlife Service under Section 7 of the Endangered Species Act.

SECTION 7.0 – REFERENCES

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